00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Brooklyn, Village of

3) WATERCOURSE: Goose Creek

4) DOCUMENT TYPE: 10 yr Summary

00BREAK00

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

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

GOOSE CR. - BROOKLYN

SUMMARY PRINTOUT TABLE 150

SECNO	VLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOPT	LOB	ROB	
.150	.00	.00	.00	935.80	205.00	943.50	.00	943.53	2.15	1.44	172.65	132.34
.150	.00	.00	.00	932.30	330.00	944.00	.00	944.06	3.60	2.00	206.36	173.24
.150	.00	.00	.00	936.80	350.00	944.80	.00	944.85	2.53	1.38	270.00	237.01
.150	.00	.00	00	938.80	470.00	945.30	.00	945.35	2.71	2.04	310.40	285.61
.300	50.00	.00	.00	936.80	205.00	943.48	.00	943.56	8.33	2.29	89.71	71.04
.300	50.00	.00	00	932.20	330.00	943.95	.00	944.12	16.17	3.33	99.09	82.01
.300	50.00	.00	.00	938.80	380.00	944.74	.00	944.91	14.06	2.31	114.31	101.26
.300	50.00	.00	.00	932.80	470.00	945.21	.00	945.43	17.19	3.78	124.24	113.32
.360	5.00	948.70	945.50	936.60	205.00	943.50	.00	943.57	6.39	2.17	112.06	91.07
.360	5.00	948.70	945.50	936.60	330.00	944.01	.00	944.14	11.03	2.87	131.95	99.35
.360	5.00	948.70	945.50	936.60	380.00	944.81	.00	944.92	8.24	2.94	163.07	122.73
.360	5.00	948.70	945.50	936.60	470.00	945.31	.00	945.45	9.07	3.26	196.38	156.46
.410	47.00	948.70	945.50	936.60	205.00	943.53	.00	943.60	6.17	2.15	113.67	92.93
.410	47.00	948.70	945.50	936.60	330.00	944.06	.00	944.19	10.51	3.03	134.65	103.72
.410	47.00	948.70	945.50	936.60	380.00	944.85	00	944.96	7.93	2.91	171.48	134.31
.410	47.00	948.70	945.50	936.60	470.00	945.36	.00	945.50	8.72	3.22	199.46	154.12
.460	5.00	.00	00	935.50	205.00	943.53	00	943.61	6.76	2.26	94.63	75.86
.460	5.00	.00	.00	936.50	330.00	944.05	.00	944.21	12.21	3.23	106.70	84.15
.460	5.00	.00	.00	932.50	380.00	944.83	00	944.99	10.20	3.20	124.45	115.39
.460	5.00	.00	.00	933.50	470.00	945.33	.00	945.53	11.36	3.63	135.97	135.11
.490	30.00	.00	.00	929.50	205.00	942.59	.00	942.63	3.16	1.70	157.57	115.71
.490	30.00	.00	.00	935.50	330.00	944.15	.00	944.24	4.75	2.27	134.38	151.42
.490	30 00	.00	00	926.50	380.00	944.96	.00	945.01	3.23	2.09	256.27	210.71
.490	30.00	.00	.00	925.50	470.00	945.51	.00	945.56	3.71	2.22	239.34	296.25
1.340	850.00	.00	.00	938.30	205.00	943.79	.00	943.81	1.53	1.21	402.34	162.64
1.340	850.00	.00	.00	933.30	330.00	944.44	.00	944.45	1.52	1.30	657.54	264.42
1.340	850.00	.00	.00	928.30	380.00	945.13	.00	945.14	.63	1.04	941.56	416.70
1.340	850.00	.00	.00	928.30	470.00	945.67	00	945.68	.71	1.03	1166.40	537.75
2.020	690.00	.00	.00	933.00	205.00	942.85	.00	943.35	.27	32	232.51	237.41
2.030	690.00	.00	.00	929.00	330.00	944.50	.00	944.50	.36	.42	1024.15	775.05
2.030	690.00	.00	.00	929.00	380.00	945.17	.00	945.17	30	.40	1221.79	630.79
2.020	690.00	.00	00	929.00	470.00	945.71	.00	945.71	.21	.43	1576.41	.40.54

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10LYS	.CH	AREA	[illegible]
3.150	1120.00	.00	.00	940.10	205.00	943.87	.00	943.95	9.35	2.41	117.37	67.02
3.150	1120.00	.00	.00	940.10	330.00	944.53	.00	944.64	10.73	2.93	186.52	100.74
3.150	1120.00	.00	.00	940.10	380.00	945.20	.00	945.27	6.09	2.46	316.13	157.37
3.150	1120.00	.00	.00	940.10	470.00	945.75	.00	945.80	5.05	2.42	422.[illegible]	209.[illegible]
3.940	790.00	.00	.00	940.20	205.00	944.51	.00	944.57	6.67	2.22	137.7[illegible]	[illegible]
3.940	790.00	.00	.00	940.20	330.00	945.26	.00	945.34	7.34	2.64	207.64	121.73
3.940	790.00	.00	.00	940.20	380.00	945.69	.00	945.76	6.35	2.61	249.30	150.[illegible]
3.940	790.00	.00	.00	940.20	470.00	946.17	.00	946.26	6.29	2.77	2[illegible].[illegible]	1[illegible]7.4[illegible]

GOOSE CR. - BROOKLYN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
.150	205.00	943.50	.00	.00	.00	67.43	.00
.150	220.00	944.00	.50	.00	.00	72.15	.00
.150	780.00	944.80	.80	.00	.00	80.00	.00
.150	470.00	945.20	.50	.00	.00	80.00	.00
.300	205.00	943.48	.00	-.02	.00	20.00	50.00
.300	330.00	943.95	.47	-.05	00	20.00	50.00
.300	780.00	944.74	.73	-.06	.00	20.00	50.00
.300	470.00	945.21	.47	-.09	.00	20.00	50.00
.360	205.00	943 50	.00	.02	.00	35.90	5.00
.360	330.00	944.01	.50	.05	.00	41.78	5.00
.360	380.00	944.81	.80	.07	.00	50.97	5.00
.360	470.00	945.31	.51	.10	.00	56.79	5.00
.410	205.00	943.53	.00	.03	.00	36.40	47.00
.410	320.00	944.06	.53	.06	.00	42.52	47.00
.410	380.00	944 85	.79	.04	.00	51.51	47.00
.410	470.00	945.36	.51	.05	.00	57.41	47.00
.460	205.00	943.53	.00	-.00	.00	23 00	5.00
460	330.00	944.05	.52	-.01	.00	23.00	5.00
.460	380.00	944.33	.72	-.02	.00	23.00	5.00
460	470.00	945.33	.50	-.03	.00	23.00	5.00
.490	205.00	943.59	.00	.06	.00	59.90	30.00
.490	330.00	944.18	.59	.12	.00	63.32	30.00
.490	380.00	944.96	.73	13	.00	90.00	30.00
.490	470.00	945.51	.54	.17	.00	80.00	30.00
1.340	205.00	943.79	.00	.21	.00	379.60	850.00
1.340	330.00	944.44	.64	.26	.00	404.35	550.00
1.340	380.00	945.13	.69	.17	.00	412.66	550.00
1.340	470.00	945.67	.54	.16	.00	419 59	250.00
2.030	205.00	943.85	.00	.05	.00	281.54	690.00
2.030	330.00	944.50	.65	.06	.00	286.94	690.00
2.030	380.00	945.17	.67	.04	.00	300 35	690.00
2.030	470.00	945.71	.54	.04	.00	311.03	690.00
3.150	205.00	943.87	.00	.03	.00	75.01	1120.00
2.150	330.00	944.53	.66	.04	.00	188.18	1120.00
7.150	790.00	945.20	.67	.04	.00	194.71	1120.00
3.150	470.00	945.75	.54	.04	.00	199.34	1120.00
3.340	205.00	944.51	.00	.64	.00	30 56	730.00
3.340	720.00	945.26	75	.72	.00	96.14	730.00
3.340	780.00	945.69	.42	.42	.00	99.25	720.00
3.340	470.00	946.17	.49	43	.00	102.97	750.00

SUMMARY OF EFFORTS

FLOOD INSURANCE ZONE DATA FOR GOOSE CR. - BROOKLYN

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND%		
		10%	2%	0.2%
.150	0.	-1.30	-.60	.50
.300	50.	-1.25	-.73	.47
.360	55.	-1.30	-.80	.51
.410	102.	-1.31	-.79	.51
.460	107.	-1.30	-.78	.50
.490	137.	-1.37	-.79	.54
1.340	987.	-1.34	-.69	.54
2.030	1677.	-1.32	-.67	.54
3.150	2797.	-1.33	-.67	.54
3.940	3587.	-1.18	-.43	.49
WEIGHTED AVG FOR REACH		-1.32	-.67	.52

FHF FOR THE REACH = 015 WITH 100.0% OF THE REACH WITHIN 5 FEET
ZONE FOR THE REACH = A 3

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**********************************************
  HELP RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************
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#J6: #0165 + HECPAUL, U8537683.PROJECT: FTN06 + FRI, NOV 21, 1980, 2:56 PM
#J6: #0165 + HECPAUL, U8537683.PROJECT: FTN06 + FRI, NOV 21, 1980, 2:56 PM
#J6: #0165 + HECPAUL, U8537683.PROJECT: FTN06 + FRI, NOV 21, 1980, 2:56 PM

#J6: #0165 + HECPAUL, U8537683 PROJECT: FTN06 + FRI, NOV 21 1980, 2:56 PM
#J6: #0165 + HECPAUL, U8537683.PROJECT: FTN06 + FRI, NOV 21, 1980, 2:56 PM
#J6: #0165 + HECPAUL, U8537683 PROJECT: FTN06 + FRI, NOV 21 1980, 2:56 PM

#J6: #0165 + HECPAUL, U8537683 PROJECT: FTN06 + FRI, NOV 21, 1980, 2 56 PM
#J6: #0165 + HECPAUL, U8537683 PROJECT: FTN06 + FRI NOV 21, 1980, 2:56 PM
#J6: #0165 + HECPAUL, U8537683 PROJECT: FTN06 + FRI, NOV 21 1980, 2:56 PM

#J6; #0165 + HECPAUL, U8537623.PROJECT: FTN06 + FRI, NOV 21, 1980, 2:56 PM
#J6; #0165 + HECPAUL, U8537623.PROJECT, FTN06 + FRI, NOV 21, 1980, 2:56 PM
#J6, #0165 + HECPAUL, U8537623.PROJECT FTN06 + FRI, NOV 21, 1980, 2:56 PM



1) COUNTY: Jackson

2) STUDY NAME: Brooklyn, Village of

3) WATERCOURSE: Goose Creek

4) DOCUMENT TYPE: 100 yr run



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*********************************************
*  WATER SURFACE PROFILES                   *
*  VERSION OF NOVEMBER 1976                 *
*  UPDATED APRIL 1980                       *
*                                           *
*  RUN DATE TUE, DEC  9, 1980, 12:07 PM     *
*********************************************
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*********************************
*  U.S. ARMY CORPS OF ENGINEERS *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D   *
*  DAVIS, CALIFORNIA 95616      *
*  (916) 440-2105 (FTS) 448-2105 *
*********************************
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approved
1/19/81 Submittal

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X     X  XXXXXXX   XXXXX          XXXXX
X     X  X        X     X       X     X
X     X  X        X                   X
XXXXXXX  XXXX     X        XXXXX  XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX  XXXXX             XXXXXXX
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************
C
T1      HUD FLOOD INSURANCE  STUDIES    WILLIAMS & WORKS,INC
T2      VILLAGE OF BROOKLYN -100 YR FLOOD
T3      GOOSE CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	00	-1.0	0.	944.800	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	150.000	200.000	.000	.000	.000	.000	.000	.000	.000	.000

NC	.100	.100	.040	.100	.300	.000	.000	.000	.000	.000
QT	5.000	390.000	380.000	470.000	330.000	205.000	.000	.000	.000	.000
ET	.000	.000	1.500	.000	.000	.000	.000	.000	.000	.000
NH	5.000	.100	338.000	.060	387.000	.040	417.000	.060	431.000	.050
NH	820.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION AA DOWNSTREAM OF M-50 BRIDGE

X1	.150	19.000	387.000	417.000	.000	.000	.000	.000	.000	.000
X2	.000	.000	.000	362.000	.000	442.000	.000	.000	.000	.000
GR	955.000	.000	950.200	42.000	944.000	81.000	942.500	145.000	942.100	224.000
GR	942.400	286.000	942.900	339.000	942.700	385.000	940.200	387.000	939.200	390.000
GR	939.100	395.000	938.900	400.000	939.100	405.000	938.800	410.000	939.300	415.000
GR	940.200	417.000	943.900	431.000	948.000	560.000	950.000	820.000	.000	.000
NH	5.000	.100	338.000	.060	387.000	.040	417.000	.060	431.000	.050
NH	820.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION IMMEDIATELY DOWNSTREAM OF M-50 BRIDGE

X1	.300	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000
X2	.000	.000	.000	392.000	.000	412.000	.000	.000	.000	.000
NC	.080	.080	.040	.200	.500	.000	.000	.000	.000	.000

DOWNSTREAM FACE OF M-50 BRIDGE

X1	.760	26.000	1009.000	1028.500	5.000	5.000	5.000	.000	.000	.000
X2	.000	.000	.000	945.500	949.700	.000	.000	.000	.000	.000
GR	955.000	600.000	953.200	679.000	950.900	777.000	950.000	864.000	949.400	951.000
GR	946.000	1000.000	945.500	1005.000	939.600	1009.000	940.500	1009.000	936.600	1010.000
GR	939.500	1015.000	939.500	1020.000	939.400	1025.000	940.100	1029.500	941.600	1035.000
GR	943.100	1038.000	949.300	1105.000	950.200	1200.000	950.100	1292.000	951.000	1386.000
GR	950.600	1455.000	951.300	1539.000	952.000	1614.000	953.300	1688.000	953.000	1739.000
GR	955.000	1806.000	.000	.000	.000	.000	.000	.000	.000	.000
BT	27.000	600.000	955.000	955.000	679.000	953.200	953.200	777.000	950.900	950.900
BT	864.000	950.000	950.000	951.000	949.400	949.400	1000.000	948.700	946.000	1005.000
BT	948.700	945.500	1009.000	948.700	939.600	1009.000	948.700	945.500	1010.000	948.700
BT	945.500	1015.000	948.700	945.500	1020.000	948.700	945.500	1025.000	949.600	945.500
BT	1028.500	948.600	945.500	1028.500	948.600	940.100	1035.000	948.500	941.600	1038.000
BT	948.500	943.100	1105.000	949.300	949.300	1200.000	950.200	950.200	1292.000	950.100
BT	950.100	1386.000	951.000	951.000	1455.000	950.600	950.600	1539.000	951.300	951.300
BT	1614.000	952.000	952.000	1688.000	953.300	953.300	1739.000	952.000	952.000	1806.000
BT	955.000	955.000	.000	.000	.000	.000	.000	.000	.000	.000

UPSTREAM FACE OF M-50 BRIDGE

X1	.410	.000	.000	.000	47.000	47.000	47.000	.000	.000	.000
X2	.000	.000	.000	945.500	948.700	.000	1.000	.000	.000	.000
NH	5.000	.100	150.000	.060	302.000	.040	326.000	.080	326.000	.060
NH	1120.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

IMMEDIATELY UPSTREAM OF M-50 BRIDGE

X1	.460	32.000	302.000	326.000	5.000	5.000	5.000	.000	.000	.000
X3	.000	.000	.000	300.000	.000	323.000	.000	.000	.000	.000
GR	955.000	.000	950.800	24.000	948.300	71.000	948.200	112.000	949.200	119.000
GR	949.300	130.000	945.800	139.000	945.000	165.000	943.700	198.000	947.800	230.000
GR	944.300	261.000	944.200	290.000	940.400	302.000	939.600	304.000	938.900	309.000
GR	938.500	312.000	938.900	314.000	939.400	317.000	939.600	319.000	940.000	324.000
GR	940.400	326.000	943.500	351.000	946.700	381.000	946.600	401.000	947.500	424.000
GR	948.800	474.000	948.800	521.000	949.700	573.000	949.300	628.000	951.100	962.000
GR	952.000	1095.000	955.000	1120.000	.000	.000	.000	.000	.000	.000
NC	.090	.080	.040	.100	.300	.000	.000	.000	.000	.000
NH	5.000	.100	150.000	.060	302.000	.040	326.000	.080	326.000	.060
NH	1120.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION AB-UPSTREAM OF M-50 BRIDGE

X1	.490	.000	.000	.000	30.000	30.000	30.000	.000	.000	.000
X3	.000	.000	.000	274.000	.000	354.000	.000	.000	.000	.000
NH	4.000	.100	45.000	.080	61.000	.040	88.000	.080	597.000	.000
ET	.000	.000	7.100	.000	.000	.000	45.000	459.000	.000	.000

CROSS SECTION AC

X1	1.340	24.000	61.000	88.000	850.000	750.000	850.000	.000	.000	.000
GR	955.000	.000	948.700	23.000	944.800	45.000	940.800	61.000	939.500	64.000
GR	939.700	66.000	939.400	71.000	939.700	76.000	939.000	81.000	939.900	86.000
GR	940.800	98.000	943.400	94.000	942.800	133.000	943.900	177.000	947.100	220.000
GR	942.700	277.000	942.300	330.000	943.300	400.000	943.900	447.000	947.800	475.000
GR	949.100	503.000	949.400	544.000	952.400	567.000	955.000	587.000	.000	.000
NH	5.000	.100	160.000	.080	163.000	.040	186.000	.080	204.000	.100
NH	402.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	7.100	.000	.000	.000	75.000	370.000	.000	.000

CROSS SECTION AD

X1	2.070	15.000	163.000	186.000	550.000	650.000	690.000	.000	.000	.000
GR	955.000	.000	947.700	16.000	943.100	47.000	940.600	91.000	940.900	134.000
GR	939.000	178.000	939.200	182.000	941.100	186.000	942.400	204.000	940.500	247.000
GR	939.400	303.000	944.600	327.000	947.800	366.000	952.000	390.000	956.000	402.000
NH	5.000	.100	178.000	.060	188.000	.040	211.000	.060	231.000	.100
NH	305.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	7.100	.000	.000	.000	130.000	225.000	.000	.000

CROSS SECTION AE

X1	2.150	16.000	188.000	211.000	830.000	770.000	1120.000	.000	.000	.000
X2	.000	.000	.000	132.000	944.400	.000	.000	.000	.000	.000
GR	956.000	.000	949.300	19.000	944.000	38.000	943.500	81.000	944.400	122.000
GR	942.700	178.000	941.900	182.000	940.100	193.000	940.200	198.000	940.600	207.000
GR	941.100	208.000	941.900	211.000	945.500	231.000	949.400	252.000	952.700	282.000
GR	956.000	305.000	.000	.000	.000	.000	.000	.000	.000	.000
NH	5.000	.100	90.000	.060	85.000	.040	105.000	.060	123.000	.100
NH	156.000	.000	.000	.000	.000	.000	000	.000	.000	.000
ET	.000	.000	7.100	.000	.000	.000	30.000	130.000	.000	.000

CROSS SECTION AF

X1	3.940	12.000	85.000	105.000	780.000	910.000	790.000	.000	.000	.000
GR	956.000	.000	949.500	11.000	942.900	38.000	944.000	80.000	942.100	85.000
GR	941.000	89.000	940.700	94.000	940.200	99.000	940.600	104.000	942.100	105.000
GR	943.500	123.000	951.900	145.000	956.000	156.000	.000	.000	.000	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

*PROF 1

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO .150

3470 ENCROACHMENT STATIONS= 362.0 442.0 TYPE= 1 TARGET= 80.000
CROSS SECTION AA DOWNSTREAM OF M-50 BRIDGE

.15	6.00	944.80	.00	944.80	944.85	.05	.00	.00	940.20
380.	33.	315.	32.	54.	170.	46.	0.	0.	940.20
.00	.61	1.86	.69	.060	.040	.059	.000	938.80	362.00
.000253	0.	0.	0.	0	0	0	.00	80.00	442.00

1490 NH CARD USED
*SECNO .300

3470 ENCROACHMENT STATIONS= 392.0 412.0 TYPE= 1 TARGET= 20.000
CROSS SECTION IMMEDIATELY DOWNSTREAM OF M-50 BRIDGE

.30	5.94	944.74	.00	.00	944.91	.17	.02	.04	100000.00
380.	0.	380.	0.	0.	115.	0.	0.	0.	100000.00
.00	.00	3.31	.00	.060	.040	.059	.039	938.80	392.00
.001406	50.	50.	50.	2	0	0	.00	20.00	412.00

CCHV= .200 CEHV= .500
*SECNO .360

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 948.70 MAX ELLC= 945.50
DOWNSTREAM FACE OF M-50 BRIDGE

.36	8.21	944.81	.00	.00	944.92	.12	.01	.01	939.60
380.	6.	326.	48.	9.	111.	49.	0.	0.	940.10
.00	.63	2.94	.98	.080	.040	.080	.039	936.60	1005.47
.000824	5.	5.	5.	2	0	0	.00	50.97	1056.44

*SECNO .410

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

2370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 948.70 MAX ELLC= 945.50

UPSTREAM FACE OF M-50 BRIDGE

.41	8.25	944.85	.00	.00	944.96	.11	.04	.00	979.60
390.	6.	326.	49.	9.	112.	50.	0.	0.	940.10
.01	.62	2.91	.97	.020	.040	.090	.039	936.60	1005.44
.000798	47.	47.	47.	1	0	0	.00	51.51	1056.95

1490 NH CARD USED
+SECNO .460

2470 ENCROACHMENT STATIONS= 300.0 323.0 TYPE= 1 TARGET= 23.000
IMMEDIATELY UPSTREAM OF M-50 BRIDGE

.46	6.33	944.83	.00	.00	944.99	.16	.00	.02	940.40
380.	8.	372.	0.	8.	116.	0.	0.	0.	100000.00
.01	.99	3.20	.00	.060	.040	.080	.039	938.50	300.00
.001020	5.	5.	5.	2	0	0	.00	23.00	323.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
+SECNO .490

2470 ENCROACHMENT STATIONS= 274.0 354.0 TYPE= 1 TARGET= 80.000
CROSS SECTION AB-UPSTREAM OF M-50 BRIDGE

.49	6.46	944.96	.00	.00	945.01	.05	.02	.01	940.40
390.	31.	278.	71.	44.	133.	79.	1.	0.	940.40
.01	.70	2.08	.90	.060	.040	.060	.039	938.50	274.00
.000325	30.	30.	30.	2	0	0	.00	80.00	354.00

1490 NH CARD USED
+SECNO 1.340
CROSS SECTION AC

1.34	6.23	945.13	.00	.00	945.14	.01	.12	.00	940.80
380.	11.	159.	210.	38.	152.	752.	11.	5.	940.80
.39	.29	1.04	.29	.080	.040	.080	.041	939.90	43.15
.000093	850.	850.	750.	2	0	0	.00	412.66	455.82

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	QCH	QROB	ALOB	HACH	AROB	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 2.030
CROSS SECTION AD

2.03	6.17	945.17	.00	.00	945.17	.00	.03	.00	1006.00
390.	0.	248.	132.	0.	624.	598.	28.	10.	941.10
.95	.00	.40	.22	.080	.040	.099	.041	939.00	33.07
.000030	550.	690.	650.	2	0	0	.00	300.85	333.92

1490 NH CARD USED
*SECNO 3.150

7470 ENCROACHMENT STATIONS= 133.0 305.0 TYPE= 1 TARGET= -137.000
ELENCL= 944.40 ELENCR= 100000.00
CROSS SECTION AE

3.15	5.10	945.20	.00	.00	945.27	.07	.08	.02	941.90
390.	100.	255.	26.	182.	103.	30.	44.	15.	941.90
1.10	.55	2.46	.85	.085	.040	.060	.042	940.10	34.69
.000009	830.	1120.	770.	1	0	0	.00	194.71	229.40

1490 NH CARD USED
*SECNO 3.940
CROSS SECTION AF

3.94	5.49	945.69	.00	.00	945.76	.08	.49	.00	942.10
380.	57.	255.	68.	94.	98.	58.	50.	18.	942.10
1.20	.61	2.61	1.17	.089	.040	.061	.042	940.20	29.38
.000035	780.	790.	810.	2	0	0	.00	99.35	128.73

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1      HUD FLOOD INSURANCE  STUDIES    WILLIAMS & WORKS,INC
T2      VILLAGE OF BROOKLYN -100 YR FLOOD
T3      GOOSE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.   ,000000       ,00     -1.0        0.   944,800      ,000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15,000      ,000   -1,000      ,000      ,000      ,000      ,000      ,000      ,000      ,000
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	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
1490 NH CARD USED
*SECNO .150

3470 ENCROACHMENT STATIONS= 362.0 442.0 TYPE= 1 TARGET= 80.000
CROSS SECTION AA DOWNSTREAM OF M-50 BRIDGE

.15	6.00	944.80	.00	944.80	944.85	.05	.00	.00	940.20
380.	33.	315.	32.	54.	170.	46.	0.	0.	940.20
.00	.61	1.86	.69	.060	.040	.059	.000	938.80	362.00
.000253	0.	0.	0.	0	0	0	.00	80.00	442.00

1490 NH CARD USED
*SECNO .300

3470 ENCROACHMENT STATIONS= 392.0 412.0 TYPE= 1 TARGET= 20.000
CROSS SECTION IMMEDIATELY DOWNSTREAM OF M-50 BRIDGE

.30	5.94	944.74	.00	.00	944.91	.17	.02	.04	100000.00
380.	0.	380.	0.	0.	115.	0.	0.	0.	100000.00
.00	.00	3.31	.00	.060	.040	.059	.039	938.80	392.00
.001406	50.	50.	50.	2	0	0	.00	20.00	412.00

CCHV= .200 CEHV= .500
*SECNO .360

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 948.70 MAX ELLC= 945.50

DOWNSTREAM FACE OF M-50 BRIDGE

.36	8.21	944.81	.00	.00	944.92	.12	.01	.01	939.60
380.	6.	326.	48.	9.	111.	49.	0.	0.	940.10
.00	.63	2.94	.99	.080	.040	.080	.039	936.60	1005.47
.000824	5.	5.	5.	2	0	0	.00	50.97	1056.44

*SECNO .410

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 948.70 MAX ELLC= 945.50									
UPSTREAM FACE OF M-50 BRIDGE									
.41	8.25	944.85	.00	.00	944.96	.11	.04	.00	939.60
380.	6.	326.	49.	9.	112.	50.	0.	0.	940.10
.01	.62	2.91	.97	.080	.040	.080	.039	936.60	1005.44
.000798	47.	47.	47.	1	0	0	.00	51.51	1056.95
1490 NH CARD USED									
*SECNO .460									
3470 ENCROACHMENT STATIONS= 300.0 323.0 TYPE= 1 TARGET= 23.000									
IMMEDIATELY UPSTREAM OF M-50 BRIDGE									
.46	6.33	944.83	.00	.00	944.99	.16	.00	.02	940.40
390.	9.	372.	0.	8.	116.	0.	0.	0.	100000.00
.01	.99	3.20	.00	.060	.040	.080	.039	938.50	300.00
.001020	5.	5.	5.	2	0	0	.00	23.00	323.00
CEHV= .100 CEHV= .300									
1490 NH CARD USED									
*SECNO .490									
3470 ENCROACHMENT STATIONS= 274.0 354.0 TYPE= 1 TARGET= 80.000									
CROSS SECTION AB-UPSTREAM OF M-50 BRIDGE									
.49	6.46	944.96	.00	.00	945.01	.05	.02	.01	940.40
380.	31.	278.	71.	44.	133.	79.	1.	0.	940.40
.01	.70	2.08	.90	.060	.040	.060	.039	938.50	274.00
.000725	30.	30.	30.	2	0	0	.00	80.00	354.00
1490 NH CARD USED									
*SECNO 1.340									
CROSS SECTION AC									
1.34	6.23	945.13	.00	.00	945.14	.01	.12	.00	940.80
380.	11.	159.	210.	38.	152.	752.	11.	5.	940.80
.39	.29	1.04	.28	.080	.040	.080	.041	939.90	43.15
.000083	850.	850.	750.	2	0	0	.00	412.66	455.82

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	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 2.030
CROSS SECTION AD

2.03	6.17	945.17	.00	.00	945.17	.00	.03	.00	1006.00
390.	0.	248.	132.	0.	624.	598.	28.	10.	941.10
.95	.00	.40	.22	.080	.040	.098	.041	939.00	33.07
.000020	550.	690.	650.	2	0	0	.00	300.85	332.92

1490 NH CARD USED
*SECNO 3.150

3470 ENCROACHMENT STATIONS= 133.0 305.0 TYPE= 1 TARGET= -133.000
ELENCL= 944.40 ELENCR= 100000.00
CROSS SECTION AE

3.15	5.10	945.20	.00	.00	945.27	.07	.08	.02	941.90
380.	100.	255.	26.	182.	103.	30.	44.	15.	941.90
1.10	.55	2.46	.85	.085	.040	.060	.042	940.10	34.69
.000609	830.	1120.	770.	1	0	0	.00	194.71	229.40

1490 NH CARD USED
*SECNO 3.940
CROSS SECTION AF

3.94	5.49	945.69	.00	.00	945.76	.08	.49	.00	942.10
380.	57.	255.	68.	94.	98.	58.	50.	18.	942.10
1.20	.61	2.61	1.17	.089	.040	.061	.042	940.20	29.38
.000635	780.	790.	810.	2	0	0	.00	99.35	128.73

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HEC2 RELEASE DATED NOV 76 UPDATED APRIL 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

GOOSE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	APEH	.01*
.150	.00	.00	.00	938.80	380.00	944.90	.00	944.85	2.53	1.86	270.00	233.01
.150	.00	.00	.00	939.80	380.00	944.80	.00	944.85	2.53	1.96	270.00	339.01
.300	50.00	.00	.00	938.80	380.00	944.74	.00	944.91	14.06	3.31	114.91	101.36
.200	50.00	.00	.00	939.80	380.00	944.74	.00	944.91	14.06	3.31	114.91	.01.36
.360	5.00	948.70	945.50	936.60	380.00	944.81	.00	944.92	8.24	2.94	169.07	132.33
.360	5.00	949.70	945.50	936.60	380.00	944.81	.00	944.92	8.24	2.94	169.07	132.33
.410	47.00	948.70	945.50	936.60	290.00	944.85	.00	944.96	7.99	2.91	171.43	134.51
.410	47.00	949.70	945.50	936.60	390.00	944.95	.00	944.96	7.98	2.91	171.49	134 51
.460	5.00	.00	.00	938.50	380.00	944.87	.00	944.99	10.20	3.20	124.45	118.93
.460	5.00	.00	.00	938.50	380.00	944.83	.00	944.99	10.20	3.20	124.45	118.89
.490	30.00	.00	.00	939.50	380.00	944.96	.00	945.01	3.25	2.08	256.37	219.71
.490	30.00	.00	.00	939.50	390.00	944.96	.00	945.01	3.25	2.08	256.37	219.71
1.340	850.00	.00	.00	939.90	380.00	945.13	.00	945.14	.83	1.04	941.56	416.70
1.340	850.00	.00	.00	939.90	380.00	945.13	.00	945.14	.83	1.04	941.56	416.70
2.030	690.00	.00	.00	939.00	380.00	945.17	.00	945.17	.30	.40	1221.79	696.79
2.030	690.00	.00	.00	939 00	380.00	945.17	.00	945.17	.30	.40	1221.79	696.79
2.150	1120.00	.00	.00	940.10	380.00	945.20	.00	945.27	6.09	2.46	316.13	153.97
2.150	1120.00	.00	.00	940.10	380.00	945.20	.00	945.27	6.09	2.46	316.13	153.97
2.940	790.00	.00	00	940.20	380.00	945.69	.00	945.76	6.35	2.61	249.80	150.22
2.940	790.00	.00	.00	940.20	390.00	945.69	.00	945.76	6.35	2.61	249.90	150.22

GOOSE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.150	380.00	944.80	.00	.00	.00	80.00	.00
.150	380.00	944.90	.00	.00	.00	80.00	.00
.300	380.00	944.74	.00	-.06	.00	20.00	50.00
.300	380.00	944.74	.00	-.06	.00	20.00	50.00
.360	380.00	944.81	.00	.07	.00	50.97	5.00
.360	380.00	944.81	.00	.07	.00	50.97	5.00
.410	380.00	944.85	.00	.04	.00	51.51	47.00
.410	380.00	944.85	.00	.04	.00	51.51	47.00
.460	380.00	944.83	.00	-.02	.00	23.00	5.00
.460	380.00	944.83	.00	-.02	.00	23.00	5.00
.490	380.00	944.96	.00	.13	.00	80.00	30.00
.490	380.00	944.96	.00	.13	.00	80.00	30.00
1.340	380.00	945.13	.00	.17	.00	412.66	850.00
1.340	380.00	945.13	.00	.17	.00	412.66	850.00
2.030	380.00	945.17	.00	.04	.00	300.85	690.00
2.030	380.00	945.17	.00	.04	.00	300.85	690.00
3.150	380.00	945.20	.00	.04	.00	194.71	1120.00
3.150	380.00	945.20	.00	.04	.00	194.71	1120.00
3.940	380.00	945.69	.00	.48	.00	99.35	790.00
3.940	380.00	945.69	.00	.48	.00	99.35	790.00

SUMMARY OF ERRORS

FLOODWAY DATA, GOOSE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.150	80.	270.	1.4	944.8	944.8	.0
.200	20.	115.	3.3	944.7	944.7	.0
.360	51.	169.	2.2	944.8	944.8	.0
.410	52.	171.	2.2	944.8	944.8	.0
.460	23.	124.	3.1	944.8	944.8	.0
.490	80.	256.	1.5	945.0	945.0	.0
1.340	413.	942.	.4	945.1	945.1	.0
2.030	301.	1222.	.3	945.2	945.2	.0
3.150	195.	316.	1.2	945.2	945.2	.0
3.940	99.	250.	1.5	945.7	945.7	.0

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************
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:JOB HECPAUL,U8537683.PROJECT,J8537683
PRIORITY = DS; INPRI = 8; TIME = UNLIMITED SECONDS
JOB NUMBER = #J66
TUE, DEC  9, 1990, 12:01 PM
HP3000 / MPE III B.01.1D
:FILE FTN05=H2BKNGC7,OLD                                    00002000
:FILE FTN06;DEV=LP,1,1                                      00003000
:RUN HECII.PUB.ENGR                                         00004000
```

```
END OF PROGRAM
;EOJ                                                    00005000
CPU SEC. = 65.  ELAPSED MIN. = 6.  TUE, DEC  9, 1980, 12:07 PM
```

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Brooklyn, Village of

3) WATERCOURSE: River Raisin

4) DOCUMENT TYPE: 10 yr Summary

00BREAK00

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

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

RAISON RIVER BROOKLYN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	652.410	660.00	.00	.00	937.20	350.00	943.42	.00	943.44	1.12	1.20	649.66	331.05
	652.410	660.00	.00	.00	937.20	560.00	943.95	.00	943.97	1.55	1.61	873.20	451.78
	652.410	660.00	.00	.00	937.20	660.00	944.67	.00	944.69	1.04	1.47	1195.71	647.19
	652.410	660.00	.00	.00	937.20	350.00	945.17	.00	945.19	1.11	1.56	1407.96	205.32
	652.950	540.00	.00	.00	938.00	190.00	943.47	.00	943.50	1.03	1.42	125.58	127.24
	652.950	540.00	.00	.00	938.00	320.00	944.02	.00	944.08	1.79	2.01	304.83	279.70
	652.950	540.00	.00	.00	939.00	390.00	944.72	.00	944.76	1.26	1.87	607.74	347.14
	652.950	540.00	.00	.00	938.00	610.00	945.22	.00	945.28	1.81	2.71	851.11	452.00
	653.730	380.00	.00	.00	939.40	190.00	943.52	.00	947.57	2.35	1.86	134.55	123.95
	653.730	380.00	.00	.00	939.40	320.00	944.09	.00	944.19	3.97	2.65	165.97	150.41
	653.730	380.00	.00	.00	939.40	390.00	944.75	.00	944.95	3.43	3.79	208.89	210.54
	653.730	380.00	.00	.00	939.40	610.00	945.25	.00	945.43	5.84	3.75	245.27	252.36
	653.880	550.00	.00	.00	939.00	190.00	943.66	.00	943.72	3.34	2.08	101.19	102.97
	653.880	550.00	.00	.00	939.00	320.00	944.32	.00	944.45	5.21	2.91	125.80	149.19
	653.880	550.00	.00	.00	939.00	390.00	944.95	.00	945.09	4.74	3.04	150.95	178.10
	653.880	550.00	.00	.00	939.00	610.00	945.56	.00	945.91	7.56	4.16	177.52	221.04
*	654.310	430.00	.00	.00	942.30	190.00	944.23	944.23	944.81	113.62	6.24	37.00	17.23
*	654.310	430.00	.00	.00	942.30	320.00	944.74	944.74	945.48	98.99	7.23	60.83	32.14
	654.310	430.00	.00	.00	942.30	390.00	945.06	945.02	945.78	79.44	7.27	79.20	43.70
	654.310	430.00	.00	.00	942.30	610.00	945.94	.00	946.62	51.46	7.71	133.52	85.03
	654.750	50.00	.00	.00	942.30	190.00	944.91	.00	945.12	25.21	3.87	69.39	77.84
	654.750	50.00	.00	.00	942.30	320.00	945.51	.00	945.80	25.60	4.65	108.31	97.23
	654.750	50.00	.00	.00	942.30	390.00	945.74	.00	946.09	27.69	5.11	129.19	74.11
	654.750	50.00	.00	.00	942.30	610.00	946.39	.00	946.85	30.41	6.15	162.79	110.65
*	654.360	2.00	955.10	952.40	946.80	190.00	948.57	948.53	949.22	161.57	6.67	25.49	14.35
*	654.360	2.00	955.10	952.40	946.80	320.00	949.28	949.23	950.07	159.93	6.93	46.15	25.31
*	654.360	2.00	955.10	952.40	946.90	390.00	949.60	949.60	950.30	158.76	6.72	59.01	30.95
*	654.360	2.00	955.10	952.40	946.90	610.00	950.13	950.13	950.98	143.32	7.42	92.24	50.35
	654.390	27.00	955.10	952.40	946.80	190.00	949.29	.00	949.55	55.30	4.10	46.33	25.41
	654.390	27.00	955.10	952.40	946.80	320.00	950.06	.00	950.33	47.04	4.01	79.76	48.37
	654.390	27.00	955.10	952.40	946.90	390.00	950.31	.00	950.59	43.43	4.27	91.41	54.12
	654.390	27.00	955.10	952.40	946.90	610.00	950.90	.00	951.27	44.52	4.20	124.53	81.46

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*S	VCH	AREA	011
654.400	2.00	.00	.00	946.30	190.00	949.56	.00	949.60	1.95	1.47	127.65	[illegible]
654.400	2.00	.00	.00	946.30	220.00	950.31	.00	950.37	2.67	1.83	156.06	[illegible]
654.400	2.00	.00	.00	946.30	390.00	950.55	.00	950.63	3.21	2.26	109.41	217.73
654.400	2.00	.00	.00	946.30	610.00	951.18	.00	951.32	4.82	3.05	224.40	377.45
654.450	60.00	.00	.00	946.30	190.00	949.57	.00	949.61	1.92	1.46	132.23	12. 06
654.450	60.00	.00	.00	946.30	220.00	950.32	.00	950.39	2.67	1.97	176.30	190.17
654.450	60.00	.00	.00	946.30	390.00	950.57	.00	950.65	3.16	2.25	130.47	210.51
654.450	60.00	.00	.00	946.30	610.00	951.21	.00	951.35	4.72	3.03	226.11	380.02

RHISON RIVER BROOKLYN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	652.410	350.00	942.42	.00	.00	.00	413.08	660.00
	652.410	560.00	943.95	.57	.00	.00	421.27	660.00
	652.410	660.00	944.67	.72	.00	.00	425.15	660.00
	652.410	850.00	945.17	.50	.00	.00	427.85	660.00
	652.950	190.00	943.47	.00	.05	.00	101.51	540.00
	652.950	320.00	944.02	.55	.07	.00	226.66	540.00
	652.950	390.00	944.72	.70	.05	.00	468.26	540.00
	652.950	610.00	945.22	.50	.05	.00	490.01	540.00
	653.330	190.00	947.52	.00	.04	.00	51.57	380.00
	653.330	320.00	944.09	.57	.07	.00	58.91	380.00
	653.330	390.00	944.75	.66	.03	.00	69.77	380.00
	653.330	610.00	945.25	.49	.02	.00	80.00	380.00
	653.880	190.00	943.66	.00	.14	.00	35.67	550.00
	653.880	320.00	944.32	.66	.23	.00	38.72	550.00
	653.880	390.00	944.95	.67	.19	.00	41.61	550.00
	653.880	610.00	945.56	.62	.32	.00	44.45	550.00
+	654.310	190.00	944.23	.00	.57	.00	41.09	430.00
+	654.310	320.00	944.74	.51	.42	.00	52.73	430.00
	654.310	390.00	945.06	.32	.12	.00	59.10	430.00
	654.310	610.00	945.94	.88	.38	.00	64.53	430.00
	654.350	190.00	944.91	.00	.67	.00	56.59	50.00
	654.350	320.00	945.51	.61	.77	.00	61.97	50.00
	654.350	390.00	945.74	.23	.68	.00	63.24	50.00
	654.350	610.00	946.39	.65	.45	.00	67.28	50.00
+	654.360	190.00	948.52	.00	3.67	.00	20.60	2.00
+	654.360	320.00	949.28	.75	3.76	.00	31.41	2.00
+	654.360	390.00	949.60	.32	3.26	.00	42.81	2.00
+	654.360	610.00	950.13	.52	3.74	.00	49.63	2.00
	654.390	190.00	949.29	.00	.76	.00	31.63	27.00
	654.390	320.00	950.08	.79	.80	.00	48.97	27.00
	654.390	390.00	950.31	.23	.71	.00	51.97	27.00
	654.390	610.00	950.90	.60	.78	.00	59.69	27.00
	654.400	190.00	949.56	.00	.27	.00	50.12	2.00
	654.400	320.00	950.31	.74	.23	.00	53.26	2.00
	654.400	390.00	950.55	.25	.25	.00	54.30	2.00
	654.400	610.00	951.18	.63	.28	.00	56.96	2.00
	654.450	190.00	949.57	.00	.01	.00	50.17	60.00
	654.450	320.00	950.32	.75	.02	.00	53.33	60.00
	654.450	390.00	950.57	.25	.02	.00	54.39	60.00
	654.450	610.00	951.21	.64	.03	.00	57.09	60.00

SUMMARY OF ERRORS

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CAUTION  SECNO=  654.310  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.310  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.310  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  654.310  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.310  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.310  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  654.360  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.360  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.360  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  654.360  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.360  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.360  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  654.360  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.360  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.360  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  654.360  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  654.360  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  654.360  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FLOOD INSURANCE ZONE DATA FOR RAISON RIVER BROOKLYN

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND% 10%	2%	0.2%
652.410	0.	-1.25	-.72	.50
652.950	540.	-1.25	-.70	.50
653.320	920.	-1.24	-.66	.49
653.890	1470.	-1.29	-.67	.62
654.310	1900.	-.83	-.32	.98
654.350	1950.	-.97	-.23	.65
654.360	1952.	-1.07	-.32	52
654.390	1979.	-1.02	-.23	.60
654.400	1981.	-.99	-.25	.63
654.450	2041.	-1.00	-.25	.64
WEIGHTED AVG FOR REACH		-1.19	-.61	.58

FHF FOR THE REACH = 010 WITH 100.0% OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

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**********************************************
  HECC RELEASE DATED NOV 76 UPDATED JULY 1979
  EPROF CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************
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FILE T,DEV=TAPE
:FILE FTN05=H2BKNRR3,OLD                                    00002000
:FILE FTN06:DEV=LP                                          00003000
:RUN HECII.PUB.ENGR                                         00004000
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END OF PROGRAM
:EOJ 00005000
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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Brooklyn, Village of

3) WATERCOURSE: River Raisin

4) DOCUMENT TYPE: 100 yr run

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED APRIL 1980                               *
*                                                   *
*  RUN DATE TUE, DEC  9, 1980, 11:56 AM             *
*****************************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
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RECEIVED
JAN 19 1981
WATER MANAGEMENT

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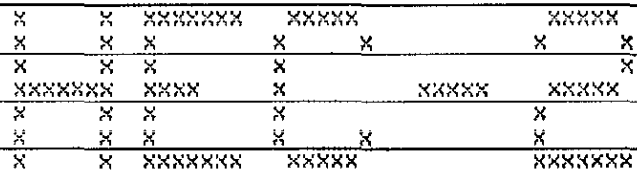

approved

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1990
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************

C
T1      HUD FLOOD INSURANCE STUDIES H-3970 WILLIAMS &WORKS
T2      VILLAGE OF BROOKLYN -100 YR. FLOOD
T3      RAISON RIVER BROOKLYN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       2.        0.        0.   .000000       .00     -1.0        0.   944.670     .000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    1.000       .000    -1.000       .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   200.000      .000      .000      .000      .000      .000      .000      .000      .000

NC      .080      .080      .035      .100      .300      .000      .000      .000      .000      .000
QT     5.000   660.000   660.000   850.000   560.000   350.000      .000      .000      .000      .000
NH     4.000      .100   125.000      .080   266.000      .035   303.000      .080  1098.000      .000
ET      .000      .000     7.100      .000      .000      .000   929.000   925.000      .000      .000

        CROSS SECTION A

X1   652.410    36.000   266.000   303.000   670.000   650.000   660.000      .000      .000      .000
X3      .000      .000      .000    10.000      .000   500.000      .000      .000      .000      .000
GR   955.000      .000   950.200    75.000   943.900    69.000   942.400   125.000   942.200   182.000
GR   941.300   229.000   941.100   261.000   939.900   266.000   932.300   267.000   937.200   279.000
GR   937.700   275.000   938.300   280.000   938.500   285.000   938.000   290.000   939.300   295.000
GR   939.400   300.000   939.900   302.000   941.100   305.000   942.700   347.000   942.600   389.000
GR   942.300   446.000   942.100   505.000   941.500   554.000   941.000   597.000   942.600   640.000
GR   941.900   678.000   941.400   722.000   941.900   781.000   942.200   841.000   942.400   929.000
GR   942.000   979.000   946.100  1007.000   946.400  1022.000   949.500  1044.000   951.200  1070.000
GR   955.000  1098.000      .000      .000      .000      .000      .000      .000      .000      .000
QT     5.000   390.000   390.000   610.000   320.000   190.000      .000      .000      .000      .000
NH     4.000      .070   882.000      .070   907.000      .070   922.000      .100  1364.000      .000
ET      .000      .000     7.100      .000      .000      .000   915.000   370.000      .000      .000

        CROSS SECTION B
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X1	652.950	27.000	882.000	907.000	920.000	400.000	540.000	.000	.000	.000
X2	.000	.000	.000	829.000	.000	922.000	943.600	.000	.000	.000
GR	949.000	559.000	947.300	578.000	949.600	626.000	948.000	684.000	947.300	724.000
GR	942.000	795.000	943.400	851.000	942.400	873.000	940.000	882.000	939.000	895.000
GR	939.000	897.000	938.200	892.000	938.000	897.000	939.800	902.000	940.000	907.000
GR	943.600	922.000	942.200	954.000	941.900	994.000	942.400	1035.000	944.200	1084.000
GR	943.800	1140.000	944.100	1201.000	944.200	1252.000	945.000	1307.000	947.000	1333.000
GR	959.600	1344.000	955.000	1364.000	.000	.000	.000	.000	.000	.000
NH	5.000	.100	227.000	.080	318.000	.030	342.000	.070	369.000	.060
NH	935.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION C

X1	653.330	24.000	319.000	342.000	500.000	350.000	380.000	.000	.000	.000
X2	.000	.000	.000	200.000	.000	835.000	.000	.000	.000	.000
GR	395.000	.000	945.200	56 000	945.100	139.000	945.400	227.000	949.100	290.000
GR	947.200	299.000	944.700	314.000	940.500	318.000	939.400	323.000	939.400	328.000
GR	939.500	333.000	939.500	338.000	940.500	342.000	943.800	369.000	946.000	402.000
GR	948 100	434.000	947.900	476.000	947.300	528.000	947.800	582.000	949.300	631.000
GR	949 300	790 000	949.800	903.000	951.700	819.000	955.000	835.000	.000	.000
NH	5.000	.080	79.000	.060	93.000	.030	118.000	.060	126.000	.070
NH	228.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION D

X1	653.220	13.000	93.000	119.000	550.000	550.000	550.000	.000	.000	.000
GR	955.000	.000	949.300	35.000	945.900	79.000	941.500	93.000	940.500	98.000
GR	939.700	109.000	939.000	117.000	941.000	119.000	946.600	126.000	947.600	171.000
GR	949.700	228.000	949.200	248.000	955.000	266.000	.000	.000	.000	.000
NH	5.000	.100	39.000	.080	68.000	.030	90.000	.080	113.000	.100
NH	272.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CROSS SECTION E DOWNSTREAM OF MILL ST. BRIDGE

X1	654 310	17.000	68.000	90.000	400.000	450.000	430.000	.000	.000	.000
GR	955.000	.000	953.000	22.000	945.000	78.000	943.400	69.000	942.700	72.000
GR	943.100	78.000	942.700	86.000	942.300	86.000	942.700	88.000	943 400	90.000
GR	948.900	113.000	950.700	126.000	951.700	158.000	952.900	208.000	952.800	248.000
GR	952.900	265.000	955.000	272.000	.000	.000	.000	.000	.000	.000
NC	.080	.080	.030	.200	.500	.000	.000	.000	.000	.000

X1	654.350	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000

CROSS SECTION IMMEDIATELY DOWNSTREAM OF MILL ST. BRIDGE

X1	654.360	26.000	970.000	1067.000	2.000	2.000	2.000	.000	.000	.000
X2	.000	.000	.000	952.400	955.100	.000	.000	.000	.000	.000
X4	3.000	947.000	1007.500	946.800	1017.500	947.000	1027.500	.000	.000	.000
GR	960.000	960.000	958.200	922.000	956.300	970.000	951.500	980.000	949.000	1000.000
GR	949.400	1003.500	947.200	1005.000	946.800	1010.000	949.400	1011.500	949.500	1013.500
GR	946.800	1015.000	946.900	1020.000	949.500	1021.500	949.600	1023.500	947.100	1025.000
GR	946.900	1030.000	949.600	1031.500	948.900	1034.500	951.000	1045.000	955.100	1063.000
GR	955.400	1109.000	958.400	1156.000	956.000	1211.000	956.800	1271.000	958.800	1322.000
GR	960.000	1352.000	.000	.000	.000	.000	.000	.000	.000	.000
BT	21.000	960.000	960.000	960.000	922.000	959.200	958.200	970.000	956.300	956.300
BT	990.000	956.100	951.500	1000.000	955.500	949.000	1000.000	957.600	949.000	1002.500
BT	957.600	949.400	1005.000	957.600	951.300	1007.500	957.600	952.200	1010.000	957.600
BT	951.300	1011.500	957.600	949.400	1013.500	957.500	949.500	1015.000	957.500	951.400
BT	1017.500	957.500	952.300	1020.000	957.500	951.400	1021.500	957.500	949.500	1023.500
BT	957.400	949.600	1025.000	957.400	951.500	1027.500	957.400	952.400	1030.000	957.400
BT	951.500	1031.500	957.400	949.600	1034.500	957.400	949.900	1034.500	955.100	948.900
BT	1045.000	955.500	951.000	1063.000	955.100	955.100	1109.000	955.400	955.400	1156.000
BT	958.800	955.400	1211.000	956.000	956.000	1271.000	956.800	956.800	1322.000	958.800
BT	958.800	1352.000	960.000	960.000	.000	.000	.000	.000	.000	.000

CROSS SECTION IMMEDIATELY UPSTREAM OF MILL ST. BRIDGE

X1	654.390	.000	.000	.000	27.000	27.000	27.000	.000	.000	.000
X2	.000	.000	.000	952.400	955.100	.000	1.000	.000	.000	.000

X1	654.400	20.000	244.000	285.000	2.000	2.000	2.000	.000	.000	.000
GR	962.000	.000	957.300	14.000	954.700	60.000	953.800	118.000	952.900	175.000
GR	952.400	232.000	947.400	244.000	946.400	246.000	946.300	249.000	946.300	254.000
GR	946.400	259.000	946.400	264.000	946.300	269.000	946.300	274.000	946.500	279.000
GR	947.000	284.000	947.400	285.000	952.900	295.000	955.000	323.000	955.900	477.000

CROSS SECTION F UPSTREAM OF MILL ST. BRIDGE

X1	654.450	.000	.000	.000	60.000	60.000	60.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

+PPOF 1

CCHV= .100 CEHV= .300
1490 NH CARD USED
+SECNO 652.410

3470 ENCROACHMENT STATIONS= 10.0 500.0 TYPE= 1 TARGET= 490.000
CROSS SECTION A

652.41	7.47	944.67	.00	944.67	944.69	.02	.00	00	939.90
960.	171.	331.	158.	496.	231.	469.	0.	0.	939.90
.00	.35	1.43	.34	.082	.035	.080	.000	937.20	64.84
.000104	670.	660.	650.	0	0	0	.00	435.15	500.00

1490 NH CARD USED
+SECNO 652.950

3470 ENCROACHMENT STATIONS= 820.0 922.0 TYPE= 1 TARGET= 102.000
CROSS SECTION B

652.95	6.72	944.72	.00	.00	944.76	.04	.06	.01	940.00
390.	44.	279.	66.	116.	153.	339.	12.	6.	940.00
.12	.38	1.83	.20	.070	.030	.090	.032	938.00	820.00
.000126	920.	540.	400.	1	0	0	.00	468.26	1288.26

1490 NH CARD USED
+SECNO 652.330

3470 ENCROACHMENT STATIONS= 300.0 835.0 TYPE= 1 TARGET= 535.000
CROSS SECTION C

652.33	5.35	944.75	.00	.00	944.85	.10	.07	.02	940.50
390.	4.	332.	54.	9.	123.	77.	16.	9.	940.50
.16	.45	2.70	.70	.080	.030	.070	.033	939.40	313.64
.000342	500.	380.	350.	1	0	0	.00	69.77	383.41

1490 NH CARD USED
+SECNO 653.880
CROSS SECTION D

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTH	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	COPAR	TOPWID	ENDST
653.99	5.95	944.95	.00	00	945.08	.14	.22	01	941.50
390.	14.	368.	9.	19.	121.	11.	18.	9.	941.00
.21	.75	3.04	.74	.060	.030	.060	.034	939.00	82.03
.000474	550.	550.	550.	2	0	0	.00	41.61	123.64

1490 HM CARD USED
*SECNO 654.310

3301 HV CHANGED MORE THAN HVINS

CROSS SECTION E DOWNSTREAM OF MILL ST. BRIDGE

654.31	2.76	945.06	945.02	.00	945.78	.72	.52	.17	943.40
390.	39.	343.	8.	26.	47.	6.	19.	9.	943.40
.23	1.50	7.23	1.44	.080	.030	.080	.034	942.30	37.87
.007944	400.	430.	450.	4	14	0	.00	59.10	96.97

CCHV= .200 CEHV= .500
*SECNO 654.350

654.35	3.44	945.74	.00	.00	946.08	.34	.22	.08	943.40
390.	60.	318.	12.	47.	62.	11.	20.	9.	943.40
.23	1.29	5.11	1.06	.080	.030	.080	.034	942.30	36.53
.002769	50.	50.	50.	3	0	0	.00	63.24	99.77

*SECNO 654.360

3270 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 955.10 MAY ELLC= 952.40

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3697 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

CROSS SECTION IMMEDIATELY DOWNSTREAM OF MILL ST. BRIDGE

654.36	2.80	949.60	949.60	.00	950.30	.70	.01	.18	956.30
390.	0.	390.	0.	0.	58.	0.	20.	9.	955.10
.23	.00	6.72	.00	.080	.030	.080	.034	946.80	995.19
.015876	2.	2.	2.	20	12	0	.00	42.81	1038.01

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	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 654.390

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 955.10 MAX ELLC= 952.40

CROSS SECTION IMMEDIATELY UPSTREAM OF MILL ST. BRIDGE

654.39	3.51	950.31	.00	00	950.59	.28	.20	.08	956.30
390.	0.	390.	0.	0.	91.	0.	20.	9.	955.10
.24	.00	4.27	.00	.090	.030	.090	.034	946.90	989.55
.004343	27.	27.	27.	3	0	0	.00	51.97	1041.53

+SECNO 654.400

654.40	4.25	950.55	.00	.00	950.63	.08	.00	.04	947.40
390.	5.	381.	4.	12.	168.	9.	20.	9.	947.40
.24	.43	2.26	.41	.080	.030	.080	.034	946.30	236.43
.000321	2.	2.	2.	2	0	0	.00	54.30	290.73

+SECNO 654.450

CROSS SECTION F UPSTREAM OF MILL ST. BRIDGE

654.45	4.27	950.57	.00	.00	950.65	.08	.02	.00	947.40
390.	5.	381.	4.	12.	169.	9.	20.	9.	947.40
.24	.43	2.25	.41	.090	.030	.090	.034	946.30	236.38
.000316	60.	60.	60.	2	0	0	.00	54.39	290.77

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  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1      HUD FLOOD INSURANCE STUDIES H-3970 WILLIAMS &WORKS
T2      VILLAGE OF BROOKLYN -100 YR. FLOOD (FLOODWAY)
T3      RAISON RIVER BROOKLYN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       3.        0.        0.   .000000       .00     -1.0        0.   944.670      .000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
   15.000       .000    -1.000      .000      .000      .000      .000      .000      .000      .000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	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
1490 NH CARD USED
+SECNO 652.410

3470 ENCROACHMENT STATIONS= 10.0 500.0 TYPE= 1 TARGET= 490.000
CROSS SECTION A

652.41	7.47	944.67	.00	944.67	944.69	.02	.00	.00	939.90
660.	171.	331.	158.	496	231.	469.	0.	0.	939.90
00	.35	1.43	.34	.082	.075	.080	.000	937.20	64.84
000104	670.	660.	650.	0	0	0	.00	435.15	500.00

1490 NH CARD USED
+SECNO 652.950

3470 ENCROACHMENT STATIONS= 820.0 922.0 TYPE= 1 TARGET= 102.000
CROSS SECTION B

652.95	6.72	944.72	.00	944.72	944.76	.04	.06	.01	940.00
390.	44.	279.	66.	116.	153.	339.	12.	6.	940.00
.12	.39	1.83	.20	.070	.030	.090	.032	938.00	920.00
.000126	920	540.	400.	1	0	0	.00	468 26	1288.26

1490 NH CARD USED
+SECNO 653.330

3470 ENCROACHMENT STATIONS= 300.0 835.0 TYPE= 1 TARGET= 535.000
CROSS SECTION C

653.33	5.35	944.75	.00	944.75	944.85	.10	.07	.02	940.50
390.	4.	332.	54.	9.	123.	77.	16.	8.	940.50
.16	.45	2.70	.70	.090	.030	.070	.033	939.40	313.64
.000342	500.	390.	350.	1	0	0	.00	69.77	383.41

1490 NH CARD USED
+SECNO 653.980
CROSS SECTION D

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTH	ELMIN	SSTA
SLOPE	XLOPL	XLCH	XLOPR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
652.89	5.95	944.95	.00	944.95	945.08	.14	.22	.01	941.50
390.	14.	369.	8.	19.	121.	11.	18.	9.	941.00
.21	.75	3.04	.74	.060	.030	.060	.034	939.00	82.03
.000474	550.	550.	550.	2	0	0	.00	41.61	123.64

1490 NH CARD USED
*SECNO 654.310

3301 HV CHANGED MORE THAN HVINS

CROSS SECTION E DOWNSTREAM OF MILL ST. BRIDGE

654.31	2.76	945.06	945.02	945.06	945.78	.72	.52	.17	943.40
390.	39.	343.	8.	26.	47.	6.	19.	9.	943.40
.23	1.50	7.23	1.44	.080	.030	.080	.034	942.30	37.87
.007944	400.	430.	450.	4	14	0	.00	59.10	96.97

CCHV= .200 CEHV= .500
*SECNO 654.350

654.35	3.44	945.74	.00	945.74	946.08	.34	.22	.08	943.40
390.	60.	318.	12.	47.	62.	11.	20.	9.	943.40
.27	1.29	5.11	1.06	.080	.030	.080	.034	942.30	36.53
.002769	50.	50.	50.	3	0	0	.00	67.24	99.77

*SECNO 654.360

3270 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 955.10 MAX ELLC= 952.40

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

CROSS SECTION IMMEDIATELY DOWNSTREAM OF MILL ST. BRIDGE

654.36	2.80	949.60	949.60	949.60	950.30	.70	.01	.18	956.30
390.	0.	390.	0.	0.	58.	0.	20.	9.	955.10
.23	.00	6.72	.00	.080	.030	.080	.034	946.80	995.19
.015976	2.	2.	2.	20	12	0	.00	42.81	1038.01

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	HACH	AROB	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 654,390

3770 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 955.10 MAX ELLC= 952.40

CROSS SECTION IMMEDIATELY UPSTREAM OF MILL ST. BRIDGE

654.39	3.51	950.31	.00	950.31	950.59	.28	.20	.08	956.30
390.	0.	390.	0.	0.	91.	0.	20.	9.	955.10
.24	.00	4.27	.00	.090	.030	.090	.034	946.80	989.55
.004747	27.	27.	27.	3	0	0	.00	51.97	1041.53

+SECNO 654,400

654.40	4.25	950.55	.00	950.55	950.63	.08	.00	.04	947.40
390.	5.	391.	4.	12.	168.	9.	20.	9.	947.40
.24	.47	2.26	.41	.090	.030	.080	.034	946.30	236.47
.000321	2.	2.	2.	2	0	0	.00	54.30	290.73

+SECNO 654,450

CROSS SECTION F UPSTREAM OF MILL ST. BRIDGE

654.45	4.27	950.57	.00	950.57	950.65	.08	.02	.00	947.40
390.	5.	381.	4.	12.	169.	9.	20.	9.	947.40
.24	.43	2.25	.41	.090	.030	.080	.034	946.30	236.38
.000316	60.	60.	60.	2	0	0	.00	54.39	290.77

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HEC2 RELEASE DATED NOV 76 UPDATED APRIL 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

RAISON RIVER BROOKLYN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	APEA	.01K
	652.410	660.00	.00	.00	937.20	660.00	944.67	.00	944.69	1.04	1.43	1185.71	647.10
	652.410	660.00	.00	.00	937.20	660.00	944.67	.00	944.69	1.04	1.43	1185.71	647.19
	652.950	540.00	.00	.00	938.00	390.00	944.72	.00	944.76	1.26	1.83	607.74	347.16
	652.950	540.00	.00	.00	938.00	390.00	944.72	.00	944.76	1.26	1.93	607.74	347.16
	653.330	380.00	.00	.00	939.40	390.00	944.75	.00	944.85	3.43	2.70	208.30	210.66
	653.330	380.00	.00	.00	939.40	390.00	944.75	.00	944.85	3.43	2.70	208.80	210.69
	653.680	550.00	.00	.00	939.00	390.00	944.95	.00	945.09	4.74	3.04	150.95	179.10
	653.680	550.00	.00	.00	939.00	390.00	944.95	.00	945.08	4.74	3.04	150.35	179.10
	654.310	430.00	.00	.00	942.30	390.00	945.06	945.02	945.78	79.44	7.27	79.20	42.76
	654.310	430.00	.00	.00	942.30	390.00	945.06	945.02	945.78	79.44	7.23	79.20	42.75
	654.350	50.00	.00	.00	942.30	390.00	945.74	.00	946.08	27.69	5.11	120.19	74.11
	654.350	50.00	.00	.00	942.30	390.00	945.74	.00	946.08	27.69	5.11	120.19	74.11
*	654.360	2.00	955.10	952.40	946.90	390.00	949.60	949.60	950.30	158.76	6.72	58.01	30.95
*	654.360	2.00	955.10	952.40	946.80	390.00	949.60	949.60	950.30	158.76	6.72	58.01	30.35
	654.390	27.00	955.10	952.40	946.90	390.00	950.31	.00	950.59	43.43	4.27	91.41	59.10
	654.390	27.00	955.10	952.40	946.90	390.00	950.31	.00	950.59	43.43	4.27	91.41	59.18
	654.400	2.00	.00	.00	946.30	390.00	950.55	.00	950.63	3.21	2.26	189.41	217.72
	654.400	2.00	.00	.00	946.30	390.00	950.55	.00	950.63	3.21	2.26	189.41	217.72
	654.450	60.00	.00	.00	946.30	390.00	950.57	.00	950.65	3.16	2.25	190.47	219.51
	654.450	60.00	.00	.00	946.30	390.00	950.57	.00	950.65	3.16	2.25	190.47	219.51

PAISON RIVER BROOKLYN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	652.410	660.00	944.67	.00	.00	.00	435.15	660.00
	652.410	660.00	944.67	.00	.00	.00	435.15	660.00
	652.950	390.00	944.72	.00	.05	.00	468.26	540.00
	652.950	390.00	944.72	.00	.05	.00	468.26	540.00
	653.330	390.00	944.75	.00	.03	.00	69.77	380.00
	653.330	390.00	944.75	.00	.03	.00	69.77	380.00
	653.880	390.00	944.95	.00	.19	.00	41.61	550.00
	653.880	390.00	944.95	.00	.19	.00	41.61	550.00
	654.310	390.00	945.06	.00	.12	.00	59.10	430.00
	654.310	390.00	945.06	.00	.12	.00	59.10	430.00
	654.350	390.00	945.74	.00	.68	.00	63.24	50.00
	654.350	390.00	945.74	.00	.68	.00	63.24	50.00
*	654.360	390.00	949.60	.00	3.86	.00	42.81	2.00
*	654.360	390.00	949.60	.00	3.86	.00	42.81	2.00
	654.390	390.00	950.31	.00	.71	.00	51.97	27.00
	654.390	390.00	950.31	.00	.71	.00	51.97	27.00
	654.400	390.00	950.55	.00	.25	.00	54.30	2.00
	654.400	390.00	950.55	.00	.25	.00	54.30	2.00
	654.450	390.00	950.57	.00	.02	.00	54.39	60.00
	654.450	390.00	950.57	.00	.02	.00	54.39	60.00

SUMMARY OF ERRORS

CAUTION	SECNO=	654.360	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	654.360	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	654.360	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	654.360	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	654.360	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	654.360	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, RAISON RIVER BROOKLYN
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
652.410	475.	1186.	.6	944.7	944.7	.0
652.950	468.	608.	.6	944.7	944.7	.0
653.330	70	209.	1.9	944.8	944.8	.0
653.880	42.	151.	2.6	944.9	944.9	.0
654.310	59.	79.	4.9	945.1	945.1	.0
654.350	63.	120.	3.2	945.7	945.7	.0
654.360	43.	58.	6.7	949.6	949.6	.0
654.390	52.	91.	4.7	950.3	950.3	.0
654.400	54.	189.	2.1	950.6	950.6	.0
654.450	54.	190.	2.0	950.6	950.6	.0

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRIL 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************
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```
:JOB HECPAUL,U8537683.PROJECT,J8537683
PRIORITY = DS; INPRI = 8; TIME = UNLIMITED SECONDS
JOB NUMBER = #J65
TUE, DEC  9, 1980, 11:55 AM
HP3000 / MPE III B.01.1D
:FILE FTN05=H2BKNRR3,OLD                                    00002000
:FILE FTN06;DEV=LP,1,1                                      00003000
:RUN HECII.PUB.ENGR                                         00004000
```

```
END OF PROGRAM
:EOJ                                                          00005000
CPU SEC. = 78.  ELAPSED MIN. = 7.  TUE, DEC  9, 1980, 12:01 PM
```



1) COUNTY: Jackson

2) STUDY NAME: ~~Brooklyn~~ Brooklyn, Village of

3) WATERCOURSE: River Raisin and Goose Creek

4) DOCUMENT TYPE: Report



PRS -1 7-80

HYDRAULIC ANALYSES FOR THE RIVER RAISIN AND GOOSE CREEK IN THE VILLAGE OF BROOKLYN, JACKSON COUNTY

A. Historical Flooding:

Only minor flooding problems have been reported to have occurred in the village. This is due in large part to the relatively small drainage areas of the River Raisin and Goose Creek here and the lack of any significant flood plain encroachment.

B. Hydraulic Computations:

Flood stages were determined by computer simulation using the Corps of Engineers HEC-2: Water Surface Profiles model (November 1976 version, updated July, 1979). The final computer runs were made at the Michigan State University Computer Laboratory.

The peak event flood discharges utilized in the analysis were as follows:

Goose Creek at confluence with River Raisin:

Recurrence Interval (Years)	Discharge (cfs)
500	470
100	380
50	330
10	200

River Raisin at Brooklyn Dam:

Recurrence Interval (Years)	Discharge (cfs)
500	510
100	390
50	320
10	190

River Raisin below Goose Creek confluence:

Recurrence Interval (Years)	Discharge (cfs)
500	850
100	660
50	560
10	350

Note: These flows were determined in a separate hydrologic analysis by computer simulation techniques using the SCS TR-20 Hydrology model. The computer output and resultant flows were submitted to and approved by letter by the Hydrologic Studies Unit - Water Management Division of the Michigan Dept. of Natural Resources on April 10 , 1980 (copy of letter attached).

Need to start at Wolf Lake as min and add 3 or 4 sections d/s of A1

Backwater computations were initiated at a point approximately 0.33 miles (1700 feet) downstream of the River Raisin - Goose Creek confluence and were continued upstream about 0.67 miles to the Brooklyn Dam on the River Raisin and to the west village limit, approximately 0.7 miles, on Goose Creek. Two bridges, one on each study reach, were incorporated into the computations. In total, 14 channel-flood plain cross sections were determined by field survey and photogrammetric techniques and incorporated into the analysis.

This is based upon an S0 below W.S. of dam is low!

New start in 1/14/81 submittal

Two cross sections (identified as A1 and A2) were located up to 1500 feet downstream of the designated detailed study reach for the purpose of determining starting flood elevations. Several runs were made to show that normal depth at section A1 as determined by the slope-area method was within a range of starting stages which caused flood stage profiles to converge at the initial section within the designated study reach (section A). Normal depth was then used as the starting water surface elevation for subsequent runs. Starting elevations used were as follows:

This is about 3 ft below 1968 Flood.

Recurrence Interval Flood (Years)	Starting Elevation (feet above N.G.V.D.)
500	941.4
100	941.2
100 (with floodway)	941.3
50	941.1
10	940.6

1968 A/W at A60

Mannings roughness coefficients ("n values") were horizontally varied using NH cards. Channel roughness was set at 0.035 for the first two

River Raisin sections and 0.030 for the remainder of the reach (sections A through F). The relatively low values reflect the relatively smooth and unobstructed nature of the channel. Overbank roughness values ranged from 0.060 to 0.100 representing flood plain cover conditions ranging from short grass to dense trees and brush. Generally, a higher value was used for the steep banks adjacent to the channel to represent their usually overgrown condition.

Very Low

Channel roughness for Goose Creek was held constant at 0.040 to indicate the relatively smooth but winding and occasionally obstructed conditions. Overbank values again ranged from 0.060 to 0.100 with high values generally used for steep banks.

Contraction and expansion coefficients were set at 0.1 and .03, respectively, for the normal sections, indicating relatively smooth transitions, and 0.2 and 0.5 at the bridge sections, indicating the more abrupt nature of these transitions.

Artificial encroachments were utilized in the HEC-2 model to limit the effective conveyance area, especially immediately upstream and downstream from the bridges. Flow lines were assumed to expand at a 1:3 (Δ top width: Δ reach length) slope and contract at a 1:1 slope for the purpose of computing effective top-widths.

The floodway was determined by using encroachment method No. 5 and using a target 100-year flood stage increase of 0.1 foot. Encroachments which were established to limit the effective areas for natural channel-flood plain conditions were not changed for the floodway analysis.

C. Results

No historic flood stage or discharge data were available for the River Raisin or Goose Creek in Brooklyn with which to verify or calibrate the

model due in part, to the fact that serious flooding rarely occurs. Also, no flood profiles have been determined for Columbia or Norvell townships which to compare to or match.

The final computer output (copy attached) was checked for accurracy of the representation of the channel - floodplain geometry and other characteristics and the resultant flood stages for reasonableness and found to be acceptable. Flood stages determined for the 100- and 500-year floods have been delineated on the attached work map as were the computed floodway limits. 100-year floodstages and floodway limits are also shown on the cross section plots.

VILLAGE OF BROOKLYN F.I.S.

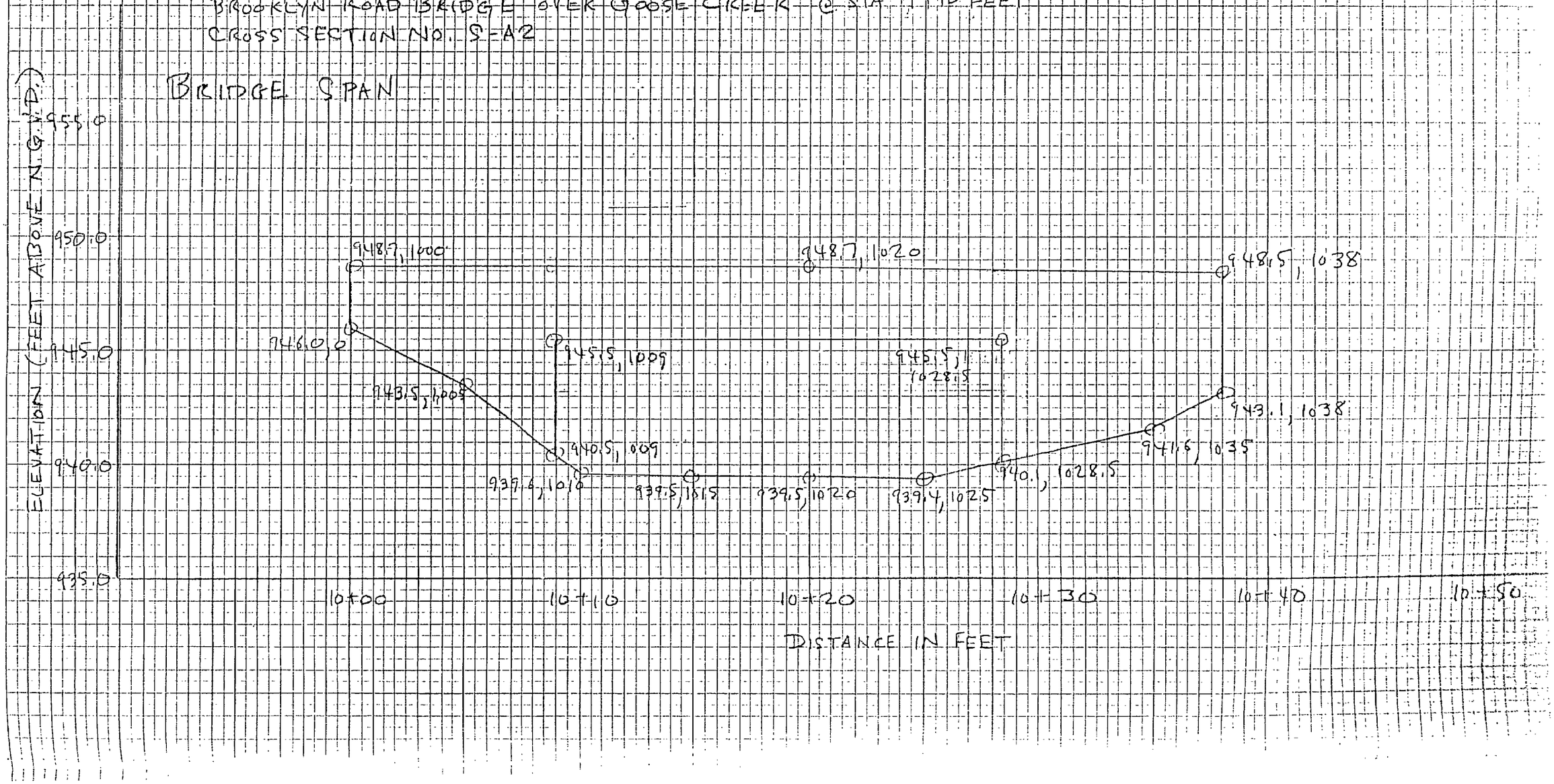
Cross Section Reference Table

River Raisin: Cross Section Identification	River Station (1000's ft above mouth)	Structure Name
A1	650.93	
A2	651.75	
A	652.41	
B	652.95	
C	653.33	
D	653.88	
E	654.31	
-	654.39	Mill Street Bridge
F	654.45	
Goose Creek :		
AA	0.15	
--	0.41	M-50 (Brooklyn Road)
AB	0.49	
AC	1.34	
AD	2.03	
AE	3.15	
AF	3.94	

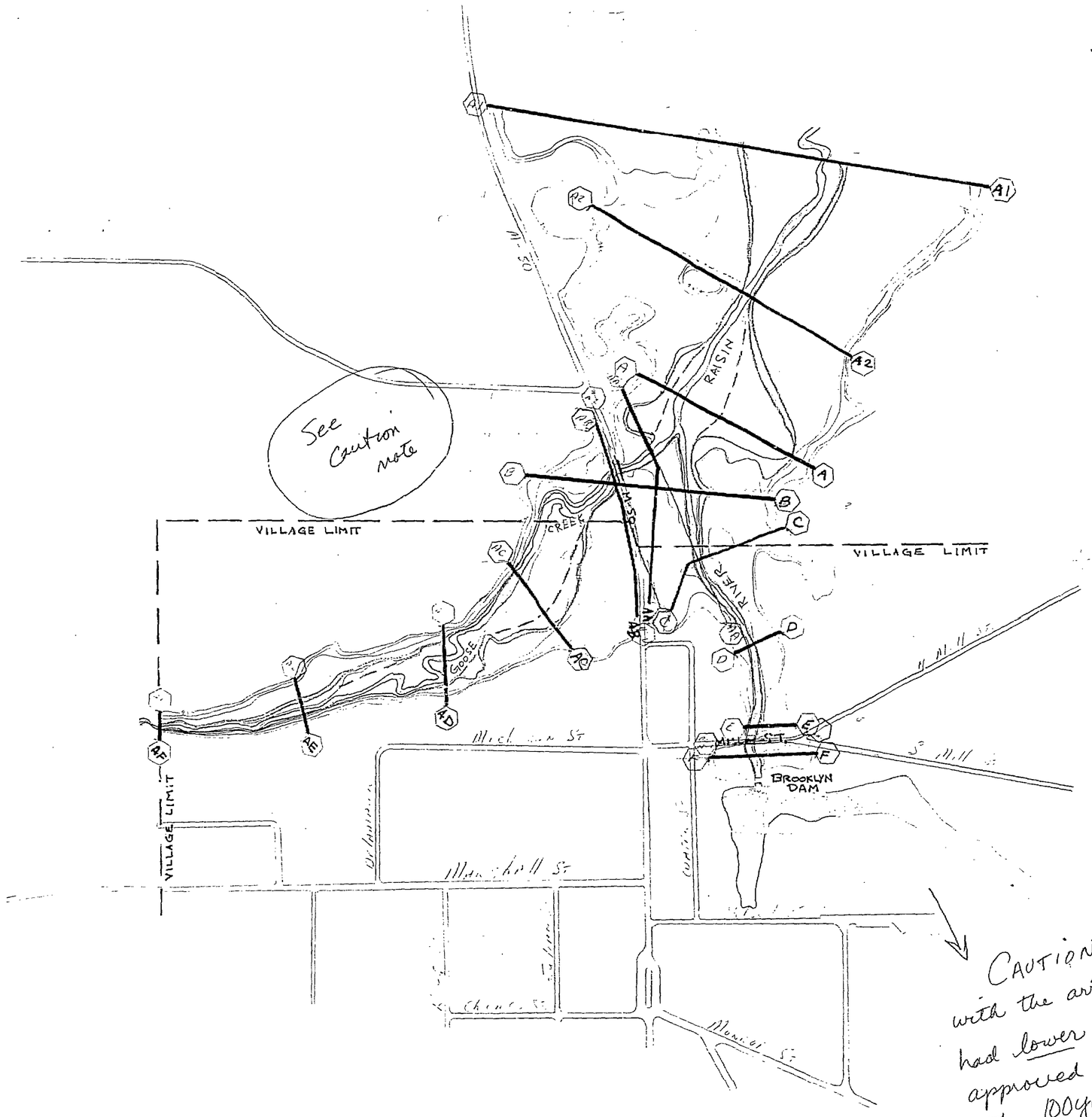
FINAL SURVEY			DATE
NOTE BOOK	SURVEYED		
NO	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

VILLAGE OF BROOKLYN F.I.S.
BROOKLYN ROAD BRIDGE OVER GOOSE CREEK @ STA 4+10 FEET
CROSS SECTION NO. S-A2

BRIDGE SPAN



VILLAGE OF BROOKLYN
FLOOD INSURANCE STUDY



CAUTION: THIS map came with the original study which had lower stages than the approved study. Therefore, delineation of the 100yr flood may be incorrect. Refer to Hec 2 runs or profiles

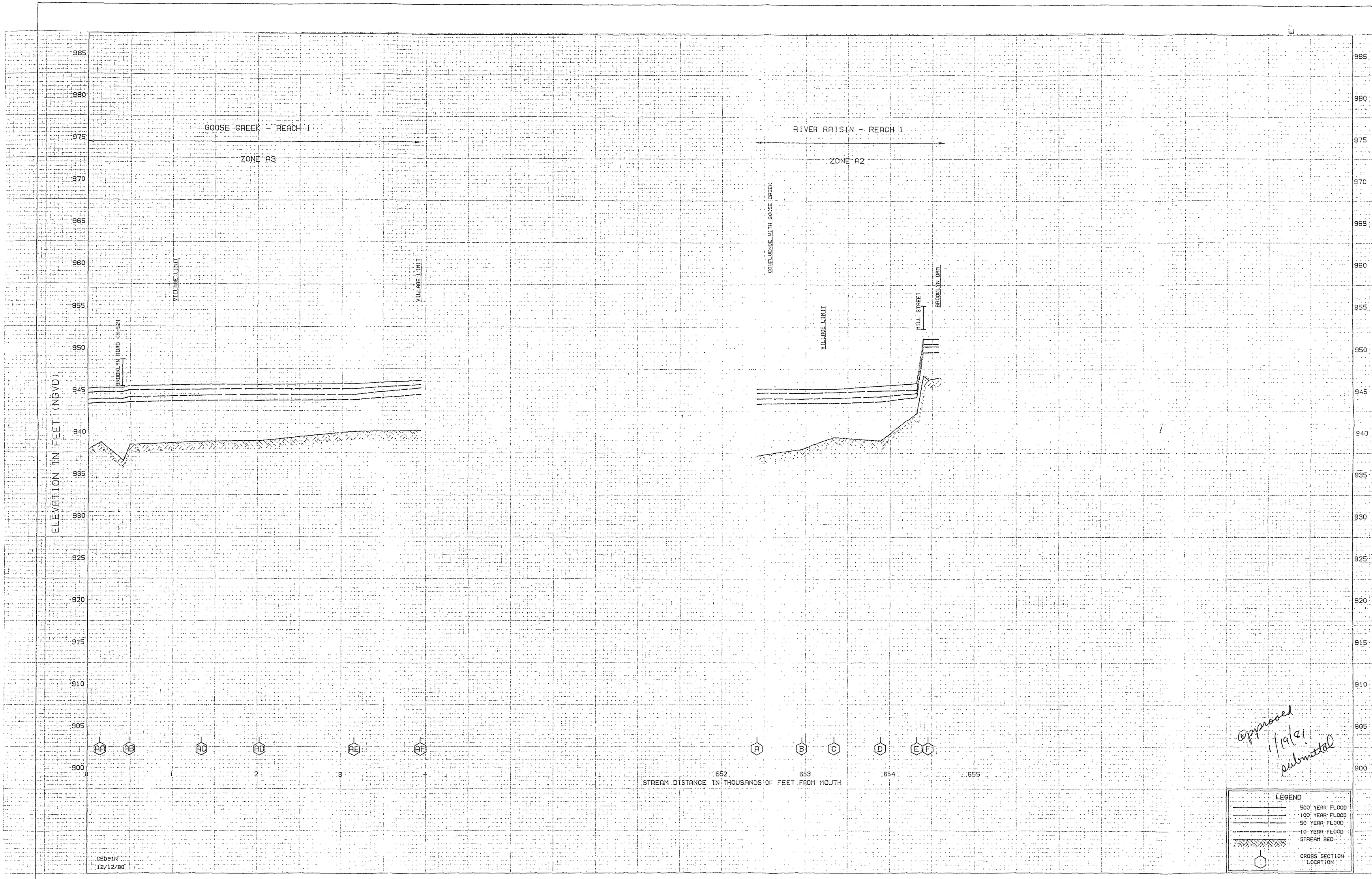
LEGEND

- 100-YEAR FLOODPLAIN LIMIT
- FLOODWAY LIMIT
- 500-YEAR FLOODPLAIN LIMIT

N

WILLIAMS & WORKS
ENGINEERS/SURVEYORS/PLANNERS/GEOLOGISTS
611 CASCADE WEST PARKWAY, S.E. GRAND RAPIDS, MICHIGAN 49506

BROOKLYN, MICH
W.O. 425
SCALE: 1"= 400'
DATE OF [illegible] NOV 13 1978



approved 1/19/81 submitted

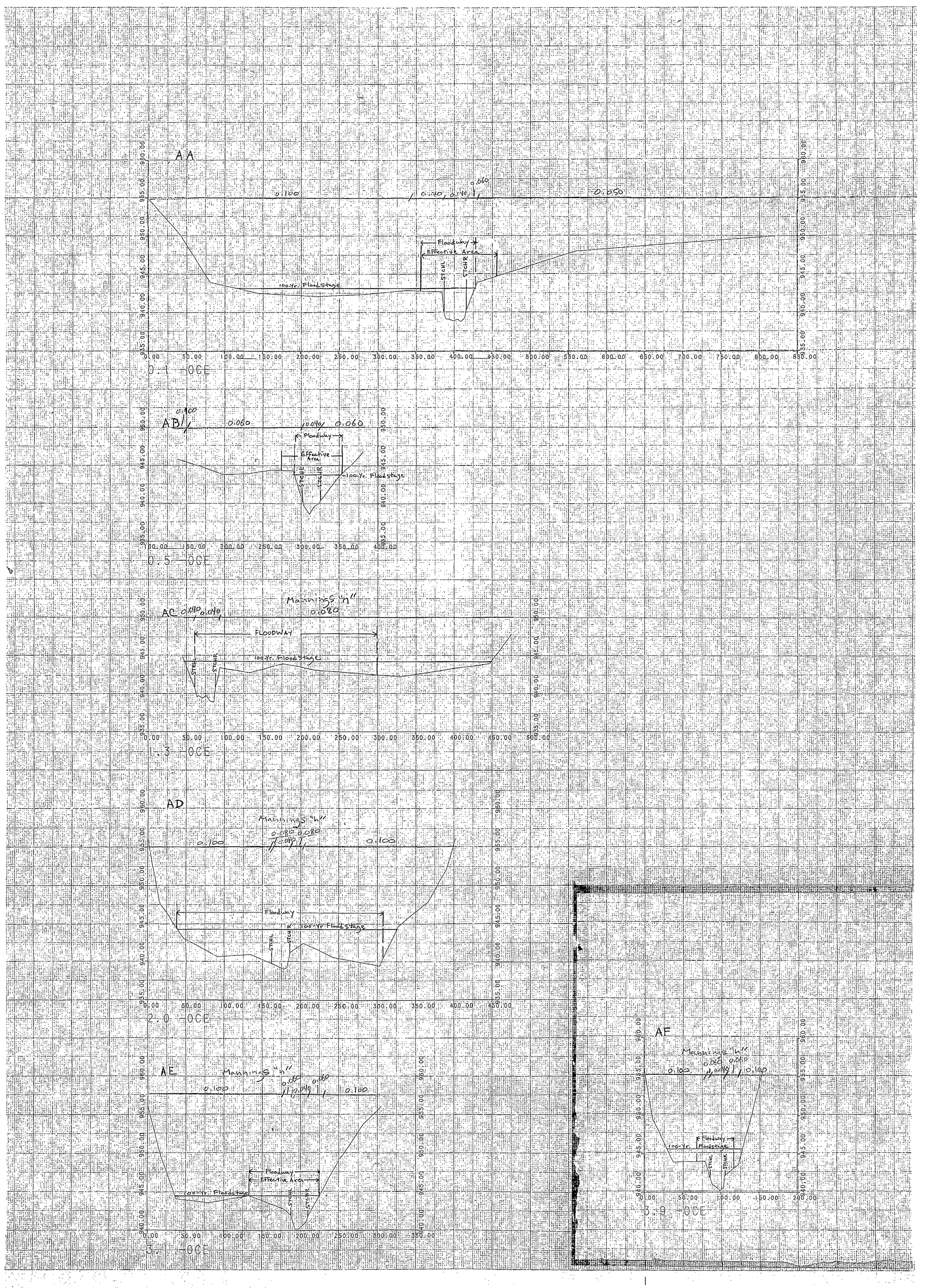
WILLIAMS & WORKS
ENGINEERS/SURVEYORS/PLANNERS/GEOLOGISTS
611 CASCADE WEST PARKWAY S.E.
GRAND RAPIDS, MICHIGAN 49506

FLOOD PROFILES
GOOSE CREEK, RIVER RAISIN

VILLAGE OF BROOKLYN
(JACKSON COUNTY MI)

NO. 1294 - CROSS SECTION 10 x 10
"CLEARPRINT PAPER CO."

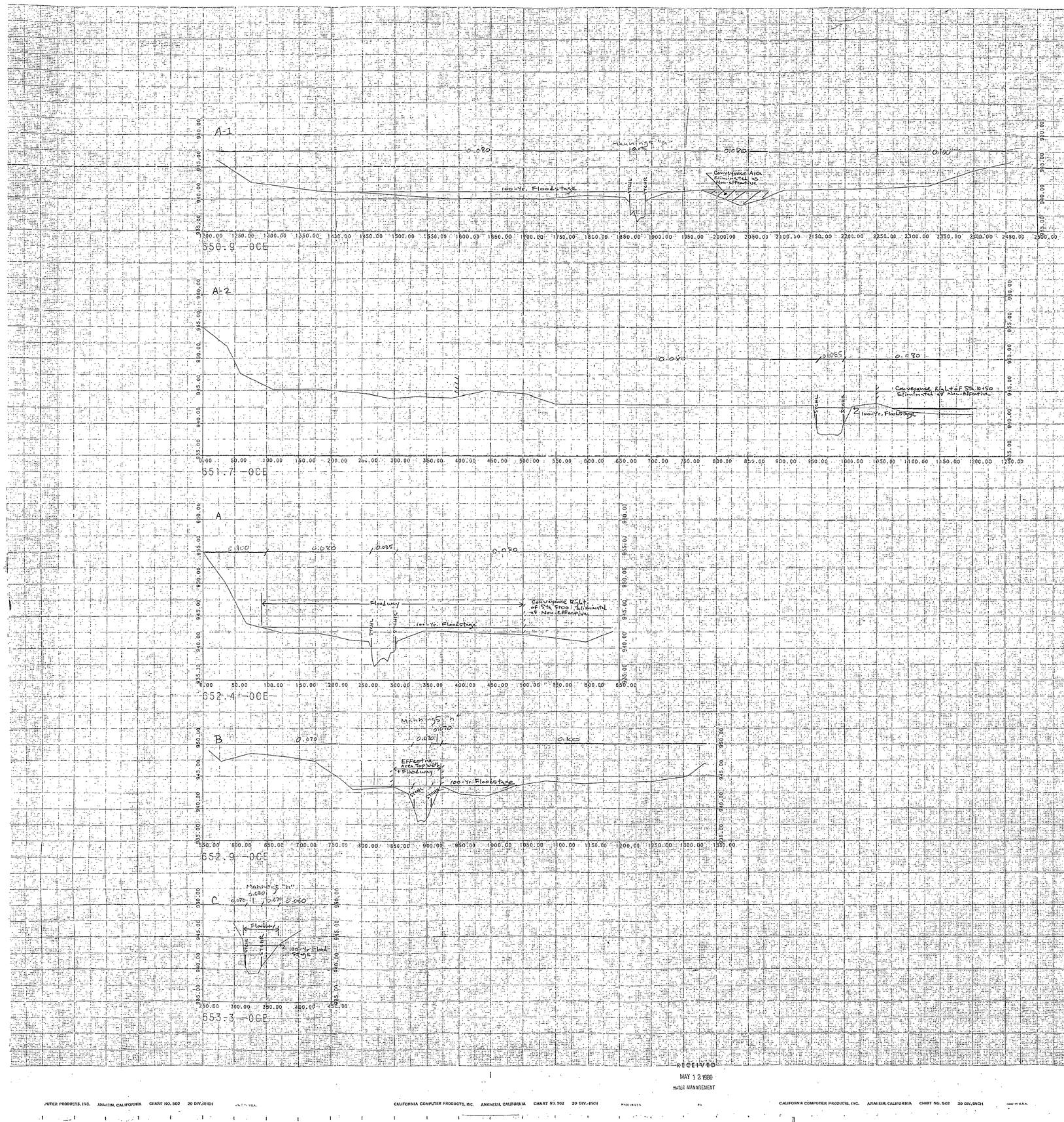
BROOKLYN F.I.S.
GOOSE CREEK CROSS SECTIONS



CALIFORNIA COMPUTER PRODUCTS, INC. ANAHEIM, CALIFORNIA CHART NO. 502 20 DIV./INCH MADE IN U.S.A.

CALIFORNIA COMPUTER PRODUCTS, INC. ANAHEIM, CALIFORNIA CHART NO. 502 20 DIV./INCH MADE IN U.S.A.

BROOKLYN F.I.S.
RIVER RAISIN CROSS SECTIONS



RECEIVED
MAY 12 1980
WATER MANAGEMENT

CALIFORNIA COMPUTER PRODUCTS, INC. ANAHEIM, CALIFORNIA CHART NO. 502 20 DIV./INCH MADE IN U.S.A.



1) COUNTY: Jackson

2) STUDY NAME: CONCORD, VILLAGE OF

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Convergence run



```
**********************************************************
*  HEC2 WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*  ERROR CORR - 01,02,03                                 *
*  MODIFICATION - 50,51,52,53                            *
*                                                        *
*  RUN DATE  80/02/22. TIME  06.21.42.                   *
**********************************************************
```

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

FIS VILLAGE OF CONCORD

N. Br. Kalamazoo River

(1) Profile Convergence Run for Starting WSEL

(2) Limited Detailed Study — 10 yr and 100yr Profiles

(3) Detailed Study — 100yr profile and Floodway

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1      FIS-VILLAGE OF CONCORD
T2      STARTING WATER SURFACE ELEVATION ANALYSIS - 10YEAR NORMAL DEPTH
T3      N.BR.KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        2.        0.        0.   .000680      0.00       0.0        0.   971.000     0.000

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

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000     1.000    53.000    21.000    22.000    54.000     4.000    39.000   110.000   150.000

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      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     4.000   490.000     0.000   925.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     0.000     7.000   500.000   530.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   980.000     0.000   975.000   150.000   970.000   500.000   969.000   500.000   969.000   530.000
GR   970.000   530.000   980.000   700.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      .100     9.000   580.000   610.000  1350.000  1350.000  1350.000     0.000     0.000     0.000
GR   980.000     0.000   975.000    50.000   975.000   400.000   970.500   580.000   969.500   580.000
GR   969.500   610.000   970.500   610.000   975.000   700.000   980.000   780.000     0.000     0.000

X1      .200     9.000   580.000   610.000  2000.000  2000.000  2000.000     0.000     0.000     0.000
GR   980.000     0.000   975.000    10.000   975.000   300.000   971.000   580.000   970.000   580.000
GR   970.000   610.000   971.000   610.000   975.000   750.000   980.000   950.000     0.000     0.000

X1     1.000    13.000  2000.000  2030.000  1400.000  1400.000  1400.000     0.000     0.000     0.000
GR   981.720  1942.000   978.810  1960.000   977.160  1993.000   973.100  2000.000   971.780  2006.000
GR   970.830  2012.000   971.280  2018.000   971.260  2024.000   973.110  2030.000   978.430  2060.000
GR   979.620  2136.000   979.840  2236.000   983.660  2336.000     0.000     0.000     0.000     0.000

X1    10.000     6.000  1979.000  2003.000   108.000   108.000   108.000     0.000     0.000     0.000
GR   981.100  1979.000   972.590  1979.000   971.620  1987.000   971.870  1995.000   972.270  2003.000
GR   981.130  2003.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
SB     0.000     1.851     0.000     0.000    24.000     0.000   144.000     0.000   971.530   971.620
NC     0.000     0.000      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

X1	20.000	6.000	2030.000	2054.000	97.000	97.000	97.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	977.540	981.090	0.000	0.000	0.000	0.000	0.000
BT	4.000	2030.000	981.110	0.000	2030.000	981.110	977.490	2054.000	981.090	977.540
BT	2054.000	981.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	981.110	2030.000	971.370	2030.000	971.780	2038.000	971.530	2046.000	971.880	2054.000
GR	981.090	2054.000	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

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

T1      FIS-VILLAGE OF CONCORD
T2      STARTING WATER SURFACE ELEVATION ANALYSIS - 100 YR NORMAL D-0.5'
T3      N.BR.KALAMAZOO RIVER
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	973.500	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

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1      FIS-VILLAGE OF CONCORD
T2      STARTING WATER SURFACE ELEVATION ANALYSIS-100 YR NORMAL DEPTH
T3      N.BR.KALAMAZOO RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.   .000680      0.00      0.0       0.   974.000     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
```

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1      FIS-VILLAGE OF CONCORD
T2      STARTING WATER SURFACE ELEVATION ANALYSIS-100 YR NORMAL D+0.5'
T3      N.BR.KALAMAZOO RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.    974.500     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
```

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
```

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

N.BR.KALAMAZOO RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
0.000	972.90	296.83	500.00	530.00	579.34	282.51	0.00
0.000	973.50	255.00	500.00	530.00	589.50	334.50	0.00
0.000	974.07	215.44	500.00	530.00	599.11	383.67	0.00
0.000	974.50	185.00	500.00	530.00	606.50	421.50	0.00
.100	973.76	449.80	580.00	610.00	675.10	225.29	1350.00
.100	974.81	407.49	580.00	610.00	696.25	288.76	1350.00
.100	974.96	401.41	580.00	610.00	699.30	297.89	1350.00
.100	975.16	48.44	580.00	610.00	702.50	654.06	1350.00
.200	974.57	330.57	580.00	610.00	734.71	404.14	2000.00
.200	975.72	8.56	580.00	610.00	778.81	770.25	2000.00
.200	975.79	8.43	580.00	610.00	781.46	773.03	2000.00
.200	975.87	8.26	580.00	610.00	784.75	776.48	2000.00
1.000	975.19	1996.39	2000.00	2030.00	2041.76	45.37	1400.00
1.000	976.16	1994.72	2000.00	2030.00	2047.21	52.49	1400.00
1.000	976.18	1994.69	2000.00	2030.00	2047.32	52.63	1400.00
1.000	976.21	1994.64	2000.00	2030.00	2047.48	52.85	1400.00
10.000	975.36	1979.00	1979.00	2003.00	2003.00	24.00	108.00
10.000	976.30	1979.00	1979.00	2003.00	2003.00	24.00	108.00
10.000	976.31	1979.00	1979.00	2003.00	2003.00	24.00	108.00
10.000	976.33	1979.00	1979.00	2003.00	2003.00	24.00	108.00
20.000	975.80	2030.00	2030.00	2054.00	2054.00	24.00	97.00
20.000	977.21	2030.00	2030.00	2054.00	2054.00	24.00	97.00
20.000	977.21	2030.00	2030.00	2054.00	2054.00	24.00	97.00
20.000	977.22	2030.00	2030.00	2054.00	2054.00	24.00	97.00

N.BR.KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
0.000	972.90	1.90	972.97	282.51	146.52	307.93	35.55	0.00	0.00	500.00	530.00	0.00
0.000	973.50	0.00	973.64	334.50	323.41	523.14	78.46	0.00	0.00	500.00	530.00	0.00
0.000	974.07	.07	974.15	383.67	360.72	476.77	87.51	0.00	0.00	500.00	530.00	0.00
0.000	974.50	0.00	974.56	421.50	385.60	445.86	93.54	0.00	0.00	500.00	530.00	0.00
.100	973.76	0.00	973.83	225.29	105.84	331.27	52.89	0.00	0.00	580.00	610.00	0.00
.100	974.81	0.00	974.92	288.76	254.17	543.82	127.01	0.00	0.00	580.00	610.00	0.00
.100	974.96	0.00	975.06	297.89	260.98	533.61	130.41	0.00	0.00	580.00	610.00	0.00
.100	975.16	0.00	975.24	654.06	276.29	513.40	135.31	0.00	0.00	580.00	610.00	0.00
.200	974.57	0.00	974.60	404.14	159.18	251.25	79.57	0.00	0.00	580.00	610.00	0.00
.200	975.72	0.00	975.75	770.25	391.71	356.15	177.14	0.00	0.00	580.00	610.00	0.00
.200	975.79	0.00	975.81	773.03	397.32	349.77	177.91	0.00	0.00	580.00	610.00	0.00
.200	975.87	0.00	975.90	776.48	404.04	342.16	178.80	0.00	0.00	580.00	610.00	0.00
1.000	975.19	0.00	975.50	45.37	2.43	479.01	8.56	0.00	0.00	2000.00	2030.00	0.00
1.000	976.16	0.00	976.80	52.49	8.29	887.42	29.29	0.00	0.00	2000.00	2030.00	0.00
1.000	976.18	0.00	976.81	52.63	8.36	887.08	29.56	0.00	0.00	2000.00	2030.00	0.00
1.000	976.21	0.00	976.84	52.85	8.48	886.54	29.98	0.00	0.00	2000.00	2030.00	0.00
10.000	975.36	0.00	975.93	24.00	0.00	490.00	0.00	0.00	0.00	1979.00	2003.00	0.00
10.000	976.30	0.00	977.53	24.00	0.00	925.00	0.00	0.00	0.00	1979.00	2003.00	0.00
10.000	976.31	0.00	977.54	24.00	0.00	925.00	0.00	0.00	0.00	1979.00	2003.00	0.00
10.000	976.33	0.00	977.55	24.00	0.00	925.00	0.00	0.00	0.00	1979.00	2003.00	0.00
20.000	975.80	0.00	976.17	24.00	0.00	490.00	0.00	0.00	0.00	2030.00	2054.00	0.00
20.000	977.21	0.00	977.95	24.00	0.00	925.00	0.00	0.00	0.00	2030.00	2054.00	0.00
20.000	977.21	0.00	977.96	24.00	0.00	925.00	0.00	0.00	0.00	2030.00	2054.00	0.00
20.000	977.22	0.00	977.96	24.00	0.00	925.00	0.00	0.00	0.00	2030.00	2054.00	0.00

~~977.52~~ Press.

978.07 low (ass reasonable

N.BR.KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.000	0.00	0.00	0.00	969.00	490.00	972.90	0.00	972.97	6.81	2.63	483.52	187.80
0.000	0.00	0.00	0.00	969.00	925.00	973.50	0.00	973.64	12.22	3.88	667.88	264.62
0.000	0.00	0.00	0.00	969.00	925.00	974.07	0.00	974.15	6.84	3.14	870.81	353.64
0.000	0.00	0.00	0.00	969.00	925.00	974.50	0.00	974.56	4.55	2.70	1045.88	433.80
.100	1350.00	0.00	0.00	969.50	490.00	973.76	0.00	973.83	5.91	2.60	445.48	201.64
.100	1350.00	0.00	0.00	969.50	925.00	974.81	0.00	974.92	7.59	3.41	717.35	335.70
.100	1350.00	0.00	0.00	969.50	925.00	974.96	0.00	975.06	6.65	3.25	761.96	358.60
.100	1350.00	0.00	0.00	969.50	925.00	975.16	0.00	975.24	5.49	3.03	874.30	394.72
.200	2000.00	0.00	0.00	970.00	490.00	974.57	0.00	974.60	2.69	1.84	803.49	298.74
.200	2000.00	0.00	0.00	970.00	925.00	975.72	0.00	975.75	2.55	2.08	1533.90	579.81
.200	2000.00	0.00	0.00	970.00	925.00	975.79	0.00	975.81	2.36	2.01	1585.03	601.83
.200	2000.00	0.00	0.00	970.00	925.00	975.87	0.00	975.90	2.16	1.94	1648.65	629.83
1.000	1400.00	0.00	0.00	970.83	490.00	975.19	0.00	975.50	21.32	4.51	122.35	106.12
1.000	1400.00	0.00	0.00	970.83	925.00	976.16	0.00	976.80	32.73	6.56	169.68	161.67
1.000	1400.00	0.00	0.00	970.83	925.00	976.18	0.00	976.81	32.26	6.53	170.66	162.86
1.000	1400.00	0.00	0.00	970.83	925.00	976.21	0.00	976.84	31.53	6.48	172.23	164.74
10.000	108.00	0.00	0.00	971.62	490.00	975.36	0.00	975.93	53.16	6.03	81.31	67.21
10.000	108.00	0.00	0.00	971.62	925.00	976.30	0.00	977.53	91.03	8.91	103.79	96.95
10.000	108.00	0.00	0.00	971.62	925.00	976.31	0.00	977.54	90.19	8.88	104.12	97.40
10.000	108.00	0.00	0.00	971.62	925.00	976.33	0.00	977.55	88.88	8.84	104.63	98.11
20.000	97.00	981.09	977.54	971.37	490.00	975.80	0.00	976.17	13.18	4.90	99.91	134.97
20.000	97.00	981.09	977.54	971.37	925.00	977.21	0.00	977.95	21.24	6.93	133.46	200.71
20.000	97.00	981.09	977.54	971.37	925.00	977.21	0.00	977.96	21.19	6.93	133.57	200.94
20.000	97.00	981.09	977.54	971.37	925.00	977.22	0.00	977.96	21.11	6.92	133.76	201.33

H.W. slope $\approx \frac{12.5}{15,000} = .00083$

N.BR.KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.000	490.00	972.90	0.00	0.00	1.90	282.51	0.00
0.000	925.00	973.50	.60	0.00	0.00	334.50	0.00
0.000	925.00	974.07	.57	0.00	.07	383.67	0.00
0.000	925.00	974.50	.43	0.00	0.00	421.50	0.00
.100	490.00	973.76	0.00	.85	0.00	225.29	1350.00
.100	925.00	974.81	1.06	1.31	0.00	288.76	1350.00
.100	925.00	974.96	.15	.90	0.00	297.89	1350.00
.100	925.00	975.16	.19	.66	0.00	654.06	1350.00
.200	490.00	974.57	0.00	.82	0.00	404.14	2000.00
.200	925.00	975.72	1.15	.91	0.00	770.25	2000.00
.200	925.00	975.79	.07	.82	0.00	773.03	2000.00
.200	925.00	975.87	.09	.72	0.00	776.48	2000.00
1.000	490.00	975.19	0.00	.62	0.00	45.37	1400.00
1.000	925.00	976.16	.96	.44	0.00	52.49	1400.00
1.000	925.00	976.18	.02	.39	0.00	52.63	1400.00
1.000	925.00	976.21	.03	.34	0.00	52.85	1400.00
10.000	490.00	975.36	0.00	.17	0.00	24.00	108.00
10.000	925.00	976.30	.94	.14	0.00	24.00	108.00
10.000	925.00	976.31	.01	.13	0.00	24.00	108.00
10.000	925.00	976.33	.02	.12	0.00	24.00	108.00
20.000	490.00	975.80	0.00	.44	0.00	24.00	97.00
20.000	925.00	977.21	1.41	.91	0.00	24.00	97.00
20.000	925.00	977.21	.00	.90	0.00	24.00	97.00
20.000	925.00	977.22	.01	.89	0.00	24.00	97.00

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Detailed study run

00BREAK00

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**************************************************
*  HEC2 WATER SURFACE PROFILES                   *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED JULY 1979                             *
*  ERROR CORR - 01.02.03                         *
*  MODIFICATION - 50.51.52.53                    *
*                                                *
*  RUN DATE  80/06/25. TIME  11.10.49.           *
**************************************************
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FIS Village of Concord, Jackson Co.

N. Br. Kalamazoo River

Floodway

(Revised 6-25-80)

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

JUN 30 1980

WATER MANAGEMENT

MOORE BUSINESS FORMS, INC. 27

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      FIS  VILLAGE OF CONCORD N. BR. KALAMAZOO RIVER AT MILL POND GATES
T2      100 YEAR FLOOD
T3      MILL POND
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
         0.        4.         0.         0.  0.000000       0.00       0.0         0.     979.420    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     15.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000     1.000     53.000     21.000     22.000     54.000      4.000     39.000    110.000    150.000
   200.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC      .100       .100       .030       .300       .500      0.000      0.000      0.000      0.000      0.000
QT     5.000    490.000    800.000    925.000   1180.000    925.000      0.000      0.000      0.000      0.000

        SURVEYED BRIDGE SECTION D/S OF MAIN ST  ( SECTION D )
X1    60.000     14.000    264.000    289.000      0.000      0.000      0.000      0.000      0.000      0.000
GR   985.400    175.000    980.600    197.000    977.300    264.000    974.300    265.000    973.900    270.000
GR   973.900    276.000    973.500    277.000    973.800    283.000    974.200    289.000    979.100    313.000
GR   983.800    383.000    983.000    405.000    985.700    437.000    987.200    527.000      0.000      0.000
SH     0.000      1.500      3.290      0.000      1.000      0.000       .100      0.000    977.580    977.370
FT     0.000      0.000      0.000      0.000      0.000      1.410      0.000      0.000      0.000      0.000
NH     4.000      1.000    264.000       .030    289.000      1.000    398.000       .100    912.000      0.000

        SURVEYED BRIDGE SECTION U/S OF MAIN ST+FLOOD GATES (SECTION E)
        A SMALL HOLE USED AS BRIDGE OPENING TO FORCE ALL FLOW OVER WEIR
        ELEVATION OF FLOOD GATE : 983.0
X1    70.000     12.000    264.000    289.000     71.500     71.500     71.500      0.000      0.000      0.000
X2     0.000      0.000      1.000    977.900    983.000      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    988.600    987.600      0.000
BT    16.000      0.000    992.200      0.000     96.000    990.200      0.000    194.000    988.900      0.000
BT   264.000    988.600      0.000    264.000    983.300      0.000    276.000    983.200    977.600    276.000
BT   987.300    977.700    277.000    987.300    977.900    277.000    983.600    977.800    289.000    983.000
PT     0.000    289.000    988.300      0.000    398.000    987.600      0.000    508.000    987.900      0.000
BT   708.000    988.000      0.000    810.000    990.400      0.000    912.000    992.800      0.000      0.000
GP   992.200      0.000    984.700     96.000    981.200    194.000    979.700    264.000    977.600    276.000
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MADE UP VALLEY SECTION (SECTION I)

CORPORATE BOUNDARY (SECTION D)

X1	160.000	6.000	150.000	650.000	1466.000	1466.000	1466.000	0.000	0.000	0.000
GR	990.000	0.000	985.000	150.000	979.200	160.000	979.200	640.000	985.000	650.000
GR	990.000	750.000	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

*PROF 1

CCHV= .300 CEHV= .500
*SECNO 60.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	RANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
60.00	5.92	979.42	0.00	979.42	979.91	.49	0.00	0.00	977.30
925.	29.	816.	80.	46.	136.	67.	0.	0.	974.20
0.00	.64	5.99	1.19	.100	.030	.100	0.000	973.50	220.96
.001714	0.	0.	0.	0	0	0	0.00	96.81	317.77

SURVEYED BRIDGE SECTION D/S OF MAIN ST (SECTION D)

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 979.42

STA=	221.	264.	289.	313.	318.
PER Q=	3.2	88.2	8.6	.0	
AREA=	45.6	136.2	66.5	.8	
VEL=	.6	6.0	1.2	.2	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.29	0.00	1.00	0.00	.10	0.00	977.58	977.37

1490 NH CARD USED
*SECNO 70.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

MOORE BUSINESS FORMS INC 27

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993894.79    983.99      0.00      925.        2.        0.        0.      977.90    983.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      988.60 ELREA=      987.60

        SURVEYED BRIDGE SECTION U/S OF MAIN ST+FLOOD GATES (SECTION E)

        A SMALL HOLE USED AS BRIDGE OPENING TO FORCE ALL FLOW OVER WEIR

        ELEVATION OF FLOOD GATE : 983.0

    70.00     10.22    987.82      0.00      0.00    988.04       .23      8.13      0.00    979.70
     925.        0.      885.       40.        0.      227.      511.        1.        0.    980.00
      .01      0.00      3.90       .08      .100      .030      .862      .030    977.60    264.00
  .000333       72.       72.       72.         2         0        12      0.00    233.88    497.88

FLOW DISTRIBUTION FOR SECNO=      70.00          CWSEL=     987.82

STA=      264.      269.      398.      498.
  PER Q=      95.7       3.7        .7
   AREA=     227.1     470.6      40.8
    VEL=       3.9        .1        .1

*SECNO 100.000

        SURVEYED VALLEY SECTION 50' U/S OF MAIN ST  ( SECTION F )

   100.00      9.92    988.11      0.00      0.00    988.11       .01       .01       .07    981.21
     925.      439.      206.      279.     1123.      166.      998.        3.        1.    981.70
      .03       .39      1.24       .28      .100      .030      .100      .030    978.19     20.10
  .000050       50.       50.       50.         2         0         0      0.00    692.13    712.23

FLOW DISTRIBUTION FOR SECNO=     100.00          CWSEL=     988.11

STA=       20.       88.      138.      188.      213.      238.      288.      302.      608.      712.
  PER Q=      13.9      19.6      13.9      22.3       6.0      16.6       3.4       3.6        .7
   AREA=     365.3     418.4     339.5     166.3     157.0     378.1      90.2     299.5      73.5
    VEL=        .4        .4        .4       1.2        .4        .4        .3        .1        .1

*SECNO 110.000

        MADE UP VALLEY SECTION

   110.00      9.93    988.12      0.00      0.00    988.12       .00       .00       .00    985.00
     925.        0.      922.        2.       19.     3607.      107.       10.        2.    985.00
      .15       .02       .26       .02      .100      .030      .100      .030    978.19      7.51
  .000001      110.      110.      110.         1         0         0      0.00    451.18    458.69

FLOW DISTRIBUTION FOR SECNO=     110.00          CWSEL=     988.12

STA=        8.       20.      390.      459.
  PER Q=        .0      99.7        .3
   AREA=      19.5    3606.9     107.2
```

MOORE BUSINESS FORMS INC 27

VEL= .0 .3 .0

CCHV= .100 CEHV= .300
*SECNO 120.000

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

MADE UP VALLEY SECTION (SECTION G)

120.00	9.42	988.12	0.00	0.00	988.12	.00	.00	.00	985.00
925.	0.	923.	1.	19.	4709.	78.	228.	28.	985.00
3.31	.02	.20	.02	.100	.030	.100	.030	978.70	7.53
.000001	2225.	2225.	2225.	2	0	0	0.00	572.37	579.90

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 988.12

STA=	8.	20.	530.	580.
PER Q=	.0	99.8	.2	
AREA=	19.5	4709.0	77.8	
VEL=	.0	.2	.0	

CCHV= .300 CEHV= .500
*SECNO 130.000

SURVEYED BRIDGE SECTION D/S OF RR BRIDGE

130.00	9.22	988.10	0.00	0.00	988.14	.04	.00	.02	993.97
925.	0.	925.	0.	0.	566.	0.	268.	33.	993.97
3.42	0.00	1.63	0.00	.100	.030	.100	.030	978.88	2000.00
.000090	640.	640.	640.	1	0	0	0.00	74.20	2074.20

FLOW DISTRIBUTION FOR SECNO= 130.00 CWSEL= 988.10

STA=	2000.	2074.
PER Q=	100.0	
AREA=	566.0	
VEL=	1.6	

SPECIAL BRIDGE

SP	XK	XKOR	COFG	RDLEN	BWC	BWP	HAREA	SS	ELCHU	ELCHD
	1.15	1.50	0.00	0.00	60.80	9.00	436.00	0.00	978.88	978.88

*SECNO 140.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	HAREA	TRAPEZOID AREA	ELLC	ELTRD
988.20	988.15	.01	0.	925.	436.	436.	987.30	993.97

MOORE BUSINESS FORMS INC 27

SURVEYED BRIDGE SECTION U/S OF RR BRIDGE (SECTION H)

RR BRIDGE WITH STEEL GIRDERS 3 SPANS 21.7' EACH; 2 PIERS 4.5' WIDE EACH

140.00	9.28	988.16	0.00	0.00	988.20	.04	.06	0.00	993.97
925.	0.	925.	0.	0.	570.	0.	268.	33.	993.97
3.42	0.00	1.62	0.00	.100	.030	.100	.030	978.88	2000.00
.000088	25.	25.	25.	2	0	0	0.00	74.20	2074.20

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 988.16

STA= 2000. 2074.
PER Q= 100.0
AREA= 570.0
VEL= 1.6

*SECNO 150.000

MADE UP VALLEY SECTION

150.00	9.22	988.22	0.00	0.00	988.22	.00	.00	.01	985.00
925.	2.	923.	0.	83.	3815.	10.	304.	38.	985.00
4.23	.02	.24	.02	.100	.030	.100	.030	979.00	28.38
.000001	700.	700.	700.	0	0	0	0.00	478.07	506.45

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 988.22

STA= 28. 80. 500. 506.
PER Q= .2 99.8 .0
AREA= 83.3 3814.9 10.4
VEL= .0 .2 .0

CCHV= .100 CEHV= .300
*SECNO 160.000

MADE UP VALLEY SECTION (SECTION I)

CORPORATE BOUNDARY (SECTION D)

160.00	9.02	988.22	0.00	0.00	988.22	.00	.00	.00	985.00
925.	3.	920.	2.	156.	4452.	104.	449.	57.	985.00
6.21	.02	.21	.02	.100	.030	.100	.030	979.20	53.38
.000001	1466.	1466.	1466.	2	0	0	0.00	661.03	714.41

FLOW DISTRIBUTION FOR SECNO= 160.00 CWSEL= 988.22

STA= 53. 150. 650. 714.
PER Q= .3 99.4 .2
AREA= 155.6 4452.3 103.7
VEL= .0 .2 .0

MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Encroached 100 yr run

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      FIS  VILLAGE OF CONCORD N. BR. KALAMAZOO RIVER AT MILL POND GATES
T2      100 YEAR FLOOD- ENCROACHED
T3      MILL POND
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	6.	0.	0.	0.000000	0.00	0.0	0.	979.420	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNTM	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

*PROF 2

CCHV= .300 CEHV= .500
*SECNO 60.000

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

993894.79 988.41 0.00 925. 2. 0. 0. 977.90 983.00

3470 ENCROACHMENT STATIONS= 264.0 0.0 TYPE= 4 TARGET= .021

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 988.60 ELREA= 987.60

SURVEYED BRIDGE SECTION U/S OF MAIN ST+FLOOD GATES (SECTION E)

A SMALL HOLE USED AS BRIDGE OPENING TO FORCE ALL FLOW OVER WEIR

ELEVATION OF FLOOD GATE : 983.0

70.00	10.22	987.82	0.00	987.82	988.04	.23	8.13	0.00	979.70
925.	0.	885.	40.	0.	227.	512.	1.	0.	980.00
.01	0.00	3.90	.08	.100	.030	.862	.030	977.60	264.00
.000333	72.	72.	72.	6	0	12	0.00	234.04	498.04

*SECNO 100.000

3470 ENCROACHMENT STATIONS= 40.0 380.0 TYPE= 1 TARGET= 340.000

SURVEYED VALLEY SECTION 50' U/S OF MAIN ST (SECTION F)

100.00	9.92	988.11	0.00	988.11	988.11	.01	.01	.07	981.21
925.	444.	215.	266.	1085.	166.	741.	2.	1.	981.70
.03	.41	1.29	.36	.100	.030	.100	.030	978.19	40.00
.000054	50.	50.	50.	2	0	0	0.00	340.00	380.00

*SECNO 110.000

2800 NAT Q1= 8117.79 WSEL= 988.12 ENC Q1= 8222.24 WSEL= 988.22 RATIO= -.0129

NAT Q1= 8250. RATIOS LOB,CH,ROB= .0005 .9967 .0028 WSEL= 988.22

3470 ENCROACHMENT STATIONS= 20.0 390.0 TYPE= 4 TARGET= .003

MADE UP VALLEY SECTION

110.00	9.93	988.12	0.00	988.12	988.12	.00	.00	.00	985.00
925.	0.	925.	0.	0.	3602.	0.	9.	1.	985.00
.15	0.00	.26	0.00	.100	.030	.100	.030	978.19	20.00
.000001	110.	110.	110.	0	0	0	0.00	370.00	390.00

CCHV= .100 CEHV= .300

*SECNO 120.000

2800 NAT Q1= 10248.67 WSEL= 988.12 ENC Q1= 10414.65 WSEL= 988.22 RATIO= -.0162

NAT Q1= 10436. RATIOS LOB,CH,ROB= .0004 .9980 .0016 WSEL= 988.22

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

MOORE BUSINESS FORMS, INC.

3470 ENCROACHMENT STATIONS= 20.0 530.0 TYPE= 4 TARGET= .002

MADE UP VALLEY SECTION (SECTION G)

120.00	9.42	988.12	0.00	988.12	988.12	.00	.00	.00	985.00
925.	0.	925.	0.	0.	4709.	0.	222.	24.	985.00
3.29	0.00	.20	0.00	.100	.030	.100	.030	978.70	20.00
.000001	2225.	2225.	2225.	0	0	0	0.00	510.00	530.00

CCHV= .300 CEHV= .500
*SECNO 130.000
2800 NAT Q1= 976.14 WSEL= 988.10 ENC Q1= 994.10 WSEL= 988.20 RATIO= -.0184
NAT Q1= 994. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 988.20

3470 ENCROACHMENT STATIONS= 2000.0 2074.2 TYPE= 4 TARGET= 0.000

SURVEYED BRIDGE SECTION D/S OF RR BRIDGE

130.00	9.22	988.10	0.00	988.10	988.14	.04	.00	.02	993.97
925.	0.	925.	0.	0.	565.	0.	260.	28.	993.97
3.40	0.00	1.64	0.00	.100	.030	.100	.030	978.88	2000.00
.000090	640.	640.	640.	2	0	0	0.00	74.20	2074.20

SPECIAL BRIDGE

SB	XK	XKOK	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.15	1.50	0.00	0.00	60.60	9.00	436.00	0.00	978.88	978.88

*SECNO 140.000
3700. BRIDGE STENCL= 2000.00 STENCR= 2074.20
CLASS A LOW FLOW

3420 BRIDGE W.S.= 988.08 BRIDGE VELOCITY= 1.94 CALCULATED CHANNEL AREA= 477.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
988.21	988.30	.01	0.	925.	436.	436.	987.30	993.97

3470 ENCROACHMENT STATIONS= 2000.0 2074.2 TYPE= 4 TARGET= 0.000
ELENCL= 0.00 ELENCR= 0.00

SURVEYED BRIDGE SECTION U/S OF RR BRIDGE (SECTION H)

RR BRIDGE WITH STEEL GIRDERS 3 SPANS 21.7' EACH: 2 PIERS 4.5' WIDE EACH

140.00	9.38	988.26	0.00	988.16	988.30	.04	.16	0.00	993.97
925.	0.	925.	0.	0.	577.	0.	261.	28.	993.97
3.41	0.00	1.60	0.00	.100	.030	.100	.030	978.88	2000.00
.000084	25.	25.	25.	0	0	0	0.00	74.20	2074.20

*SECNO 150.000
2800 NAT Q1= 8202.77 WSEL= 988.22 ENC Q1= 8323.40 WSEL= 988.32 RATIO= -.0147
NAT Q1= 8344. RATIOS LOB,CH,ROB= .0022 .9975 .0003 WSEL= 988.32

3470 ENCROACHMENT STATIONS= 80.0 500.0 TYPE= 4 TARGET= .002

MADE UP VALLEY SECTION

150.00	9.32	988.32	0.00	988.22	988.32	.00	.00	.01	985.00
925.	0.	925.	0.	0.	3853.	0.	296.	32.	985.00
4.22	0.00	.24	0.00	.100	.030	.100	.030	979.00	80.00
.000001	700.	700.	700.	2	0	0	0.00	420.00	500.00

CCHV= .100 CEHV= .300

*SECNO 160.000

2800 NAT Q1= 9488.74 WSEL= 988.22 ENC Q1= 9613.11 WSEL= 988.32 RATIO= -.0131

NAT Q1= 9671. RATIOS LOB,CH,ROB= .0036 .9941 .0024 WSEL= 988.32

3470 ENCROACHMENT STATIONS= 150.0 650.0 TYPE= 4 TARGET= .006

MADE UP VALLEY SECTION (SECTION I)

CORPORATE BOUNDARY (SECTION D)

160.00	9.12	988.32	0.00	988.22	988.32	.00	.00	.00	985.00
925.	0.	925.	0.	0.	4501.	0.	437.	48.	985.00
6.20	0.00	.21	0.00	.100	.030	.100	.030	979.20	150.00
.000001	1466.	1466.	1466.	0	0	0	0.00	500.00	650.00

MOORE BUSINESS FORMS, INC.

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MILL POND

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
60.000	979.42	220.96	264.00	289.00	317.77	96.81	0.00
60.000	979.42	220.96	264.00	289.00	317.77	96.81	0.00
70.000	987.82	264.00	264.00	289.00	497.88	233.88	71.50
70.000	987.82	264.00	264.00	289.00	498.04	234.04	71.50
100.000	988.11	20.10	187.50	212.50	712.23	692.13	50.00
100.000	988.11	40.00	187.50	212.50	380.00	340.00	50.00
110.000	988.12	7.51	20.00	390.00	458.69	451.18	110.00
110.000	988.12	20.00	20.00	390.00	390.00	370.00	110.00
120.000	988.12	7.53	20.00	530.00	579.90	572.37	2225.00
120.000	988.12	20.00	20.00	530.00	530.00	510.00	2225.00
130.000	988.10	2000.00	2000.00	2074.20	2074.20	74.20	640.00
130.000	988.10	2000.00	2000.00	2074.20	2074.20	74.20	640.00
140.000	988.16	2000.00	2000.00	2074.20	2074.20	74.20	25.00
140.000	988.26	2000.00	2000.00	2074.20	2074.20	74.20	25.00
150.000	988.22	28.38	80.00	500.00	506.45	478.07	700.00
150.000	988.32	80.00	80.00	500.00	500.00	420.00	700.00
160.000	988.22	53.38	150.00	650.00	714.41	661.03	1466.00
160.000	988.32	150.00	150.00	650.00	650.00	500.00	1466.00

MOORE BUSINESS FORMS, INC. 77

MILL POND

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PFRENC	STENCL	STCHL	STCHR	STENCR
60.000	979.42	0.00	979.91	96.81	29.16	816.11	79.73	0.00	0.00	264.00	289.00	0.00
60.000	979.42	0.00	979.91	96.81	29.16	816.11	79.73	0.00	0.00	264.00	289.00	0.00
70.000	987.82	0.00	988.04	233.88	0.00	885.09	39.91	0.00	0.00	264.00	289.00	0.00
70.000	987.82	.00	988.04	234.04	0.00	885.06	39.94	.02	264.00	264.00	289.00	0.00
100.000	988.11	0.00	988.11	692.13	439.19	206.41	279.40	0.00	0.00	187.50	212.50	0.00
100.000	988.11	-.00	988.11	340.00	444.40	214.56	266.04	340.00	40.00	187.50	212.50	380.00
110.000	988.12	0.00	988.12	451.18	.44	922.12	2.44	0.00	0.00	20.00	390.00	0.00
110.000	988.12	.00	988.12	370.00	0.00	925.00	0.00	.00	20.00	20.00	390.00	390.00
120.000	988.12	0.00	988.12	572.37	.34	923.25	1.40	0.00	0.00	20.00	530.00	0.00
120.000	988.12	.00	988.12	510.00	0.00	925.00	0.00	.00	20.00	20.00	530.00	530.00
130.000	988.10	0.00	988.14	74.20	0.00	925.00	0.00	0.00	0.00	2000.00	2074.20	0.00
130.000	988.10	.00	988.14	74.20	0.00	925.00	0.00	0.00	2000.00	2000.00	2074.20	2074.20
140.000	988.16	0.00	988.20	74.20	0.00	925.00	0.00	0.00	0.00	2000.00	2074.20	0.00
140.000	988.26	.10	988.30	74.20	0.00	925.00	0.00	0.00	2000.00	2000.00	2074.20	2074.20
150.000	988.22	0.00	988.22	478.07	1.92	922.86	.22	0.00	0.00	80.00	500.00	0.00
150.000	988.32	.10	988.32	420.00	0.00	925.00	0.00	.00	80.00	80.00	500.00	500.00
160.000	988.22	0.00	988.22	661.03	3.10	919.84	2.06	0.00	0.00	150.00	650.00	0.00
160.000	988.32	.10	988.32	500.00	0.00	925.00	0.00	.01	150.00	150.00	650.00	650.00

MOORE BUSINESS FORMS INC.

MILL POND

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSFL	CRIWS	EG	10K*S	VCH	ARFA	.01K
60.000	0.00	0.00	0.00	973.50	925.00	979.42	0.00	979.91	17.14	5.99	249.07	223.40
60.000	0.00	0.00	0.00	973.50	925.00	979.42	0.00	979.91	17.14	5.98	249.07	223.40
70.000	71.50	983.00	977.90	977.60	925.00	987.82	0.00	988.04	3.33	3.90	738.52	506.56
70.000	71.50	983.00	977.90	977.60	925.00	987.82	0.00	988.04	3.33	3.90	738.82	506.70
100.000	50.00	0.00	0.00	978.19	925.00	988.11	0.00	988.11	.50	1.24	2287.86	1305.87
100.000	50.00	0.00	0.00	978.19	925.00	988.11	0.00	988.11	.54	1.29	1992.14	1255.97
110.000	110.00	0.00	0.00	978.19	925.00	988.12	0.00	988.12	.01	.26	3733.63	8117.79
110.000	110.00	0.00	0.00	978.19	925.00	988.12	0.00	988.12	.01	.26	3602.27	7986.97
120.000	2225.00	0.00	0.00	978.70	925.00	988.12	0.00	988.12	.01	.20	4806.22	10248.67
120.000	2225.00	0.00	0.00	978.70	925.00	988.12	0.00	988.12	.01	.20	4708.93	10147.07
130.000	640.00	0.00	0.00	978.88	925.00	988.10	0.00	988.14	.90	1.63	566.01	976.14
130.000	640.00	0.00	0.00	978.88	925.00	988.10	0.00	988.14	.90	1.64	565.32	974.28
140.000	25.00	993.97	987.30	978.88	925.00	988.16	0.00	988.20	.88	1.62	570.04	986.92
140.000	25.00	993.97	987.30	978.88	925.00	988.26	0.00	988.30	.84	1.60	577.46	1006.88
150.000	700.00	0.00	0.00	979.00	925.00	988.22	0.00	988.22	.01	.24	3908.57	8202.77
150.000	700.00	0.00	0.00	979.00	925.00	988.32	0.00	988.32	.01	.24	3853.25	8235.50
160.000	1466.00	0.00	0.00	979.20	925.00	988.22	0.00	988.22	.01	.21	4711.54	9488.74
160.000	1466.00	0.00	0.00	979.20	925.00	988.32	0.00	988.32	.01	.21	4501.43	9526.56

MCGRAW-HILL FORMS INC. 27

MILL POND

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
60.000	925.00	979.42	0.00	0.00	0.00	96.81	0.00
60.000	925.00	979.42	0.00	0.00	0.00	96.81	0.00
70.000	925.00	987.82	0.00	8.40	0.00	233.88	71.50
70.000	925.00	987.82	.00	8.40	.00	234.04	71.50
100.000	925.00	988.11	0.00	.29	0.00	692.13	50.00
100.000	925.00	988.11	-.00	.29	-.00	340.00	50.00
110.000	925.00	988.12	0.00	.01	0.00	451.18	110.00
110.000	925.00	988.12	.00	.01	.00	370.00	110.00
120.000	925.00	988.12	0.00	.00	0.00	572.37	2225.00
120.000	925.00	988.12	.00	.00	.00	510.00	2225.00
130.000	925.00	988.10	0.00	-.02	0.00	74.20	640.00
130.000	925.00	988.10	.00	-.02	.00	74.20	640.00
140.000	925.00	988.16	0.00	.06	0.00	74.20	25.00
140.000	925.00	988.26	.10	.16	.10	74.20	25.00
150.000	925.00	988.22	0.00	.05	0.00	478.07	700.00
150.000	925.00	988.32	.10	.05	.10	420.00	700.00
160.000	925.00	988.22	0.00	.00	0.00	661.03	1466.00
160.000	925.00	988.32	.10	.00	.10	500.00	1466.00

SUMMARY OF ERRORS

MOORE BUSINESS FORMS, INC. 27

FLOODWAY DATA. MILL POND
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
60.000	97.	249.	3.7	979.4	979.4	0.0
70.000	234.	739.	1.3	987.8	987.8	0.0
100.000	340.	1992.	.5	988.1	988.1	0.0
110.000	370.	3602.	.3	988.1	988.1	0.0
120.000	510.	4709.	.2	988.1	988.1	0.0
130.000	74.	565.	1.6	988.1	988.1	0.0
140.000	74.	577.	1.6	988.3	988.2	.1
150.000	420.	3853.	.2	988.3	988.2	.1
160.000	500.	4501.	.2	988.3	988.2	.1

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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MC-RE BUSINESS FORMS INC

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Limited detail run

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      FIS  VILLAGE OF CONCORD, JACKSON COUNTY, MICHIGAN
T2      LIMITED DETAILED FIS FROM M-60 TO MAIN ST.
T3      N BR KALAMAZOO RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.        0.        0.  0.000000      0.00      0.0       0.    977.200     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
     38.000     1.000    53.000    21.000    22.000    54.000     4.000    39.000   150.000     0.000
QT    4.000   490.000   800.000   925.000  1180.000     0.000     0.000     0.000     0.000     0.000
NC     .100      .100      .035      .300      .500     0.000     0.000     0.000     0.000     0.000

        SURVEYED BRIDGE SECTION  M-60 U/S  ( SECTION A )

X1     20.000     6.000  2030.000  2054.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    981.110  2030.000   971.370  2030.000   971.780  2038.000   971.530  2046.000   971.880  2054.000
GR    981.090  2054.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     30.000     5.000  2000.000  2022.000   200.000    10.000   100.000     0.000     0.000     0.000
GR    980.890  2000.000   973.570  2000.000   972.490  2011.000   973.380  2022.000   980.970  2022.000
NC      0.000     0.000      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        SURVEYED BRIDGE SECTION D/S FACE

        CONCRETE BRIDGE 22' X 6.5', 16' LONG

X1     39.000     5.000  2000.000  2022.000     1.000     1.000     1.000     0.000     0.000     0.000
BT     4.000  2000.000   980.750     0.000  2000.000   980.750   979.370  2022.000   980.810   978.910
BT  2022.000   980.810     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    980.750  2000.000   973.060  2000.000   972.850  2011.000   973.010  2022.000   980.810  2022.000

        SURVEYED BRIDGE SECTION U/S

X1     40.000     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      0.000     0.000      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

SECTION B

X1	40.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

SURVEYED VALLEY SECTION 30' U/S OF SPRING ST (SECTION C)

X1	41.000	14.000	2000.000	2052.000	30.000	30.000	30.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1985.000	0.000	2067.000	0.000	0.000	0.000	0.000
GR	982.730	1725.000	980.130	1800.000	977.270	1900.000	974.330	2000.000	973.780	2002.000
GR	972.190	2010.000	972.270	2020.000	972.490	2032.000	972.580	2038.000	973.760	2046.000
GR	974.970	2052.000	978.870	2096.000	983.110	2124.000	983.880	2168.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

SURVEYED VALLEY SECTION 100' D/S OF MAIN ST

X1	50.000	12.000	265.000	313.000	750.000	600.000	600.000	0.000	0.000	0.000
GR	985.400	175.000	980.600	197.000	977.300	265.000	974.000	275.000	972.900	283.000
GR	972.500	293.000	973.900	303.000	979.100	313.000	983.800	383.000	983.000	405.000
GR	985.700	437.000	987.200	527.000	0.000	0.000	0.000	0.000	0.000	0.000

SURVEYED BRIDGE SECTION D/S OF MAIN ST (SECTION D)

X1	60.000	14.000	264.000	289.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	985.400	175.000	980.600	197.000	977.300	264.000	974.300	265.000	973.900	270.000
GR	973.900	276.000	973.500	277.000	973.800	283.000	974.200	289.000	979.100	313.000
GR	983.800	383.000	983.000	405.000	985.700	437.000	987.200	527.000	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

976.30

2067 974.77

1983

*PROF 1

CCHV= .300 CEHV= .500

*SECNO 20.000

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
	SURVEYED BRIDGE SECTION M-60 U/S (SECTION A)								
20.00	5.83	977.20	0.00	977.20	977.95	.75	0.00	0.00	981.11
925.	0.	925.	0.	0.	133.	0.	0.	0.	981.09
0.00	0.00	6.94	0.00	.100	.035	.100	0.000	971.37	2030.00
.004518	0.	0.	0.	0	0	0	0.00	24.00	2054.00
*SECNO 30.000									
3301 HV CHANGED MORE THAN HVINS									
30.00	5.06	977.55	0.00	0.00	978.86	1.32	.63	.28	980.89
925.	0.	925.	0.	0.	100.	0.	0.	0.	980.97
.00	0.00	9.21	0.00	.100	.035	.100	.035	972.49	2000.00
.009487	200.	100.	10.	2	0	0	0.00	22.00	2022.00
*SECNO 39.000									
3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 980.75 MAX ELLC= 979.37									
	SURVEYED BRIDGE SECTION D/S FACE								
	CONCRETE BRIDGE 22' X 6.5', 16' LONG								
39.00	4.82	977.67	0.00	0.00	978.90	1.23	.01	.03	980.75
925.	0.	925.	0.	0.	104.	0.	0.	0.	980.81
.00	0.00	8.88	0.00	.100	.020	.100	.034	972.85	2000.00
.004067	1.	1.	1.	2	0	0	0.00	22.00	2022.00
*SECNO 40.000									
3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 980.75 MAX ELLC= 979.37									
	SURVEYED BRIDGE SECTION U/S								
40.00	4.99	977.84	0.00	0.00	978.98	1.14	.06	.02	980.75
925.	0.	925.	0.	0.	108.	0.	0.	0.	980.81
.00	0.00	8.58	0.00	.100	.020	.100	.032	972.85	2000.00
.003705	16.	16.	16.	2	0	0	0.00	22.00	2022.00
*SECNO 40.100									

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
	SECTION B								
40.10	5.00	977.85	0.00	0.00	978.99	1.14	.01	.00	980.75
925.	0.	925.	0.	0.	108.	0.	0.	0.	980.81
.00	0.00	8.58	0.00	.100	.035	.100	.032	972.85	2000.00
.007949	1.	1.	1.	0	0	0	0.00	22.00	2022.00
*SECNO 41.000									
3301 HV CHANGED MORE THAN HVINS									
3470 ENCROACHMENT STATIONS=	1985.0	2067.0	TYPE=	1	TARGET=	82.000			
SURVEYED VALLEY SECTION 30' U/S OF SPRING ST (SECTION C)									
41.00	7.05	979.24	0.00	0.00	979.33	.09	.03	.31	974.33
925.	44.	852.	30.	70.	331.	54.	1.	0.	974.97
.01	.62	2.57	.55	.100	.035	.100	.032	972.19	1985.00
.000314	30.	30.	30.	2	0	0	0.00	82.00	2067.00
CCHV= .100 CEHV= .300									
*SECNO 50.000									
SURVEYED VALLEY SECTION 100' D/S OF MAIN ST									
50.00	6.96	979.46	0.00	0.00	979.66	.20	.30	.03	977.30
925.	22.	903.	0.	48.	246.	1.	6.	1.	979.10
.05	.47	3.67	.14	.100	.035	.100	.034	972.50	220.57
.000894	750.	600.	600.	2	0	0	0.00	97.74	318.31
*SECNO 60.000									
SURVEYED BRIDGE SECTION D/S OF MAIN ST (SECTION D)									
60.00	5.91	979.41	0.00	0.00	979.88	.47	.13	.08	977.30
925.	33.	801.	91.	45.	136.	67.	7.	2.	974.20
.06	.73	5.89	1.36	.100	.035	.100	.034	973.50	221.19
.002264	100.	100.	100.	2	0	0	0.00	96.40	317.59

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2      10-YEAR FLOOD
T3

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -10.       2.         0.         0.  0.000000       0.00       0.0         0.     975.800     0.000
J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      15.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
*PROF 2

CCHV=     .300 CEHV=     .500
*SECNO 20.000
    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

          SURVEYED BRIDGE SECTION  M-60 U/S  ( SECTION A )

      20.00       4.43    975.80      0.00    975.80    976.17       .37       0.00      0.00     981.11
        490.         0.       490.        0.        0.       100.        0.        0.        0.     981.09
       0.00       0.00      4.91      0.00      .100      .035      .100     0.000    971.37    2030.00
    .002988         0.        0.        0.         0         0         0      0.00     24.00    2054.00

*SECNO 30.000
      30.00       3.56    976.05      0.00      0.00    976.87       .82       .47       .22     980.89
        490.         0.       490.        0.        0.        68.        0.        0.        0.     980.97
        .00       0.00      7.25      0.00      .100      .035      .100      .035    972.49    2000.00
    .008686       200.       100.        10.         2         0         0      0.00     22.00    2022.00

*SECNO 39.000
3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  980.75 MAX ELLC=  979.37

          SURVEYED BRIDGE SECTION D/S FACE

          CONCRETE BRIDGE 22' X 6.5', 16' LONG

      39.00       3.30    976.15      0.00      0.00    976.90       .75       .01       .02     980.75
        490.         0.       490.        0.        0.        71.        0.        0.        0.     980.81
```

.00	0.00	6.95	0.00	.100	.020	.100	.034	972.85	2000.00
.003366	1.	1.	1.	2	0	0	0.00	22.00	2022.00

*SECNO 40.000

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 980.75 MAX ELLC= 979.37

SURVEYED BRIDGE SECTION U/S

40.00	3.41	976.26	0.00	0.00	976.96	.71	.05	.01	980.75
490.	0.	490.	0.	0.	73.	0.	0.	0.	980.81
.00	0.00	6.74	0.00	.100	.020	.100	.032	972.85	2000.00
.003087	16.	16.	16.	1	0	0	0.00	22.00	2022.00

*SECNO 40.100

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

SECTION B

40.10	3.42	976.27	0.00	0.00	976.97	.70	.00	.00	980.75
490.	0.	490.	0.	0.	73.	0.	0.	0.	980.81
.00	0.00	6.72	0.00	.100	.035	.100	.032	972.85	2000.00
.007131	1.	1.	1.	0	0	0	0.00	22.00	2022.00

*SECNO 41.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1985.0 2067.0 TYPE= 1 TARGET= 82.000

SURVEYED VALLEY SECTION 30' U/S OF SPRING ST (SECTION C)

41.00	4.93	977.12	0.00	0.00	977.19	.06	.03	.19	974.33
490.	19.	464.	8.	39.	221.	22.	0.	0.	974.97
.01	.48	2.10	.35	.100	.035	.100	.032	972.19	1985.00
.000359	30.	30.	30.	2	0	0	0.00	82.00	2067.00

CCHV= .100 CEHV= .300

*SECNO 50.000

SURVEYED VALLEY SECTION 100' D/S OF MAIN ST

50.00	4.92	977.42	0.00	0.00	977.58	.17	.36	.03	977.30
490.	0.	490.	0.	0.	150.	0.	3.	1.	979.10
.06	.07	3.26	0.00	.100	.035	.100	.034	972.50	262.76
.001228	750.	600.	600.	2	0	0	0.00	46.99	309.75

*SECNO 60.000

SURVEYED BRIDGE SECTION D/S OF MAIN ST (SECTION D)

60.00	3.93	977.43	0.00	0.00	977.85	.41	.19	.07	977.30
490.	0.	460.	30.	0.	87.	26.	4.	1.	974.20
.07	.14	5.32	1.17	.100	.035	.100	.034	973.50	261.30
.003364	100.	100.	100.	2	0	0	0.00	43.53	304.83

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
20.000	977.20	2030.00	2030.00	2054.00	2054.00	24.00	0.00
20.000	975.80	2030.00	2030.00	2054.00	2054.00	24.00	0.00
30.000	977.55	2000.00	2000.00	2022.00	2022.00	22.00	100.00
30.000	976.05	2000.00	2000.00	2022.00	2022.00	22.00	100.00
39.000	977.67	2000.00	2000.00	2022.00	2022.00	22.00	1.00
39.000	976.15	2000.00	2000.00	2022.00	2022.00	22.00	1.00
40.000	977.84	2000.00	2000.00	2022.00	2022.00	22.00	16.00
40.000	976.26	2000.00	2000.00	2022.00	2022.00	22.00	16.00
40.100	977.85	2000.00	2000.00	2022.00	2022.00	22.00	1.00
40.100	976.27	2000.00	2000.00	2022.00	2022.00	22.00	1.00
41.000	979.24	1985.00	2000.00	2052.00	2067.00	82.00	30.00
41.000	977.12	1985.00	2000.00	2052.00	2067.00	82.00	30.00
50.000	979.46	220.57	265.00	313.00	318.31	97.74	600.00
50.000	977.42	262.76	265.00	313.00	309.75	46.99	600.00
60.000	979.41	221.19	264.00	289.00	317.59	96.40	100.00
60.000	977.43	261.30	264.00	289.00	304.83	43.53	100.00

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
100 yr	20.000	0.00	0.00	0.00	971.37	925.00	977.20	0.00	977.95	45.18	6.94	133.32	137.61
10 yr	20.000	0.00	0.00	0.00	971.37	490.00	975.80	0.00	976.17	29.88	4.91	99.72	89.64
	30.000	100.00	0.00	0.00	972.49	925.00	977.55	0.00	978.86	94.87	9.21	100.46	94.97
	30.000	100.00	0.00	0.00	972.49	490.00	976.05	0.00	976.87	86.86	7.25	67.58	52.57
	39.000	1.00	980.75	979.37	972.85	925.00	977.67	0.00	978.90	40.67	8.88	104.12	145.04
	39.000	1.00	980.75	979.37	972.85	490.00	976.15	0.00	976.90	33.66	6.95	70.51	84.46
	40.000	16.00	980.75	979.37	972.85	925.00	977.84	0.00	978.98	37.05	8.58	107.77	151.96
	40.000	16.00	980.75	979.37	972.85	490.00	976.26	0.00	976.96	30.87	6.74	72.71	88.20
	40.100	1.00	0.00	0.00	972.85	925.00	977.85	0.00	978.99	79.49	8.58	107.85	103.75
	40.100	1.00	0.00	0.00	972.85	490.00	976.27	0.00	976.97	71.31	6.72	72.95	58.03
	41.000	30.00	0.00	0.00	972.19	925.00	979.24	0.00	979.33	3.14	2.57	455.69	521.72
	41.000	30.00	0.00	0.00	972.19	490.00	977.12	0.00	977.19	3.59	2.10	281.82	258.52
	50.000	600.00	0.00	0.00	972.50	925.00	979.46	0.00	979.66	8.94	3.67	294.64	309.33
	50.000	600.00	0.00	0.00	972.50	490.00	977.42	0.00	977.58	12.28	3.26	150.40	139.84
	60.000	100.00	0.00	0.00	973.50	925.00	979.41	0.00	979.88	22.64	5.89	247.94	194.40
	60.000	100.00	0.00	0.00	973.50	490.00	977.43	0.00	977.85	33.64	5.32	112.30	84.48

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
20.000	925.00	977.20	0.00	0.00	0.00	24.00	0.00
20.000	490.00	975.80	-1.40	0.00	0.00	24.00	0.00
30.000	925.00	977.55	0.00	.35	0.00	22.00	100.00
30.000	490.00	976.05	-1.49	.25	0.00	22.00	100.00
39.000	925.00	977.67	0.00	.12	0.00	22.00	1.00
39.000	490.00	976.15	-1.53	.09	0.00	22.00	1.00
40.000	925.00	977.84	0.00	.17	0.00	22.00	16.00
40.000	490.00	976.26	-1.59	.11	0.00	22.00	16.00
40.100	925.00	977.85	0.00	.01	0.00	22.00	1.00
40.100	490.00	976.27	-1.58	.01	0.00	22.00	1.00
41.000	925.00	979.24	0.00	1.39	0.00	82.00	30.00
41.000	490.00	977.12	-2.11	.86	0.00	82.00	30.00
50.000	925.00	979.46	0.00	.22	0.00	97.74	600.00
50.000	490.00	977.42	-2.04	.29	0.00	46.99	600.00
60.000	925.00	979.41	0.00	-.05	0.00	96.40	100.00
60.000	490.00	977.43	-1.98	.02	0.00	43.53	100.00

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of ~~Somerset~~

3) WATERCOURSE: ~~E~~ N. Br. Kalamazoo River

4) DOCUMENT TYPE: Multiple Profile Run ~~10-50-100-500~~

00BREAK00

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**********************************************************
*  HEC2 WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED JULY 1979                                     *
*  ERROR CORR - 01,02,03                                 *
*  MODIFICATION - 50,51,52,53                            *
*                                                        *
*  RUN DATE  80/02/26. TIME  07.15.23.                   *
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  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
X     X  XXXXXXX   XXXXX            XXXXXXX
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FIS VILLAGE OF CONCORD

N. Br. Kalamazoo River

Multiple Profile Run for Detailed Study

Section 60 – Section 160

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      FLOOD INSURANCE STUDY   VILLAGE OF CONCORD, JACKSON COUNTY, MICHIGAN.
T2       10-YEAR FLOOD PROFILE
T3      N BR KALAMAZOO RIVER
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       2.        0.        0.  0.000000      0.00      0.0       0.    977.430     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38.000     1.000    53.000    21.000    22.000    54.000     4.000    39.000   150.000   201.000
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      .030      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     5.000   490.000   800.000   925.000  1180.000   925.000     0.000     0.000     0.000     0.000

      SURVEYED BRIDGE SECTION D/S OF MAIN ST  ( SECTION D )

X1     60.000    14.000   264.000   289.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    985.400   175.000   980.600   197.000   977.300   264.000   974.300   265.000   973.900   270.000
GR    973.900   276.000   973.500   277.000   973.800   283.000   974.200   289.000   979.100   313.000
GR    983.800   383.000   983.000   405.000   985.700   437.000   987.200   527.000     0.000     0.000
SB      0.000     1.500     3.290     0.000     1.000     0.000      .100     0.000   977.580   977.370
ET      0.000     0.000     0.000     0.000     0.000     1.410     0.000     0.000     0.000     0.000
NH      4.000     1.000   264.000      .030   289.000     1.000   398.000      .100   912.000     0.000

      SURVEYED BRIDGE SECTION U/S OF MAIN ST+FLOOD GATES (SECTION E)
      A SMALL HOLE USED AS BRIDGE OPENING TO FORCE ALL FLOW OVER WEIR
      ELEVATION OF FLOOD GATE : 983.0

X1     70.000    12.000   264.000   289.000    71.500    71.500    71.500     0.000     0.000     0.000
X2      0.000     0.000     1.000   977.900   983.000     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   988.600   987.600     0.000
BT     16.000     0.000   992.200     0.000    96.000   990.200     0.000   194.000   988.900     0.000
BT    264.000   988.600     0.000   264.000   983.300     0.000   276.000   983.200   977.600   276.000
BT    987.300   977.700   277.000   987.300   977.900   277.000   983.600   977.800   289.000   983.000
BT      0.000   289.000   988.300     0.000   398.000   987.600     0.000   508.000   987.900     0.000
BT    708.000   988.000     0.000   810.000   990.400     0.000   912.000   992.800     0.000     0.000
GR    992.200     0.000   984.700    96.000   981.200   194.000   979.700   264.000   977.600   276.000
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GR	977.800	277.000	980.000	289.000	987.000	398.000	987.900	508.000	988.000	708.000
GR	990.400	810.000	992.800	912.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SURVEYED VALLEY SECTION 50' U/S OF MAIN ST (SECTION F)

X1	100.000	15.000	187.500	212.500	50.000	50.000	50.000	0.000	0.000	0.000
GR	991.990	0.000	984.650	38.000	978.190	88.000	981.290	138.000	981.210	187.500
GR	981.700	212.500	982.200	238.000	978.890	288.000	984.440	302.000	986.570	308.000
GR	986.980	408.000	987.850	508.000	986.740	608.000	988.010	708.000	990.370	810.000
NC	.100	.100	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MADE UP VALLEY SECTION

X1	110.000	6.000	20.000	390.000	110.000	110.000	110.000	0.000	0.000	0.000
GR	990.000	0.000	985.000	20.000	978.190	30.000	978.190	380.000	985.000	390.000
GR	990.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

MADE UP VALLEY SECTION (SECTION G)

X1	120.000	6.000	20.000	530.000	2225.000	2225.000	2225.000	0.000	0.000	0.000
GR	990.000	0.000	985.000	20.000	978.700	40.000	978.700	520.000	985.000	530.000
GR	990.000	610.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

SURVEYED BRIDGE SECTION D/S OF RR BRIDGE

X1	130.000	8.000	2000.000	2074.200	640.000	640.000	640.000	0.000	0.000	0.000
GR	993.970	2000.000	980.950	2000.000	978.880	2021.700	978.940	2026.200	980.220	2048.000
GR	981.650	2052.500	982.720	2074.200	993.970	2074.200	0.000	0.000	0.000	0.000
SB	1.150	1.500	0.000	0.000	60.800	9.000	436.000	0.000	978.880	978.880

SURVEYED BRIDGE SECTION U/S OF RR BRIDGE (SECTION H)

RR BRIDGE WITH STEEL GIRDERS 3 SPANS 21.7' EACH; 2 PIERS 4.5' WIDE EACH

X1	140.000	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	987.300	993.970	0.000	0.000	0.000	0.000	0.000
BT	12.000	2000.000	993.970	993.970	2000.000	993.970	987.300	2021.700	993.970	987.300
RT	2021.700	993.970	978.880	2026.200	993.970	978.940	2026.200	993.970	987.300	2048.000
BT	993.970	987.300	2048.000	993.970	980.220	2052.500	993.970	981.650	2052.500	993.970
BT	987.300	2074.200	993.970	987.300	2074.200	993.970	993.970	0.000	0.000	0.000

MADE UP VALLEY SECTION

X1	150.000	6.000	80.000	500.000	700.000	700.000	700.000	0.000	0.000	0.000
GR	990.000	0.000	985.000	80.000	979.000	90.000	979.000	490.000	985.000	500.000
GR	990.000	510.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

MADE UP VALLEY SECTION (SECTION I)

CORPORATE BOUNDARY (SECTION D)

X1	160.000	6.000	150.000	650.000	1466.000	1466.000	1466.000	0.000	0.000	0.000
GR	990.000	0.000	985.000	150.000	979.200	160.000	979.200	640.000	985.000	650.000
GR	990.000	750.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      FLOOD INSURANCE STUDY   VILLAGE OF CONCORD, JACKSON COUNTY, MICHIGAN.
T2       50-YEAR FLOOD PROFILE
T3      N BR KALAMAZOO RIVER

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -10.       3.         0.         0.   0.000000       0.00       0.0          0.   978.400      0.000
J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      2.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02.03
  MODIFICATION -  50,51,52,53
**********************************************************

T1      FLOOD INSURANCE STUDY   VILLAGE OF CONCORD, JACKSON COUNTY, MICHIGAN.
T2      100-YEAR FLOOD PROFILE
T3      N BR KALAMAZOO RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.  979.410    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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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Multiple Profile Summary

00BREAK00

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1      FLOOD INSURANCE STUDY   VILLAGE OF CONCORD, JACKSON COUNTY, MICHIGAN.
T2      500-YEAR FLOOD PROFILE
T3      N BR KALAMAZOO RIVER
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       5.         0.         0.  0.000000       0.00       0.0          0.    980.400    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
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
60.000	977.43	261.36	264.00	289.00	304.82	43.46	0.00
60.000	978.40	241.67	264.00	289.00	309.57	67.90	0.00
60.000	979.41	221.16	264.00	289.00	317.62	96.46	0.00
60.000	980.40	201.06	264.00	289.00	332.36	131.30	0.00
70.000	986.55	264.00	264.00	289.00	289.00	25.00	71.50
70.000	987.69	264.00	264.00	289.00	482.32	218.32	71.50
70.000	987.82	264.00	264.00	289.00	497.88	233.88	71.50
70.000	987.90	264.00	264.00	289.00	507.05	243.05	71.50
100.000	986.68	27.51	187.50	212.50	333.88	306.37	50.00
100.000	987.91	21.10	187.50	212.50	700.50	679.40	50.00
100.000	988.11	20.10	187.50	212.50	712.23	692.13	50.00
100.000	988.36	18.81	187.50	212.50	722.98	704.17	50.00
110.000	986.68	13.25	20.00	390.00	427.12	413.87	110.00
110.000	987.92	8.29	20.00	390.00	454.38	446.09	110.00
110.000	988.12	7.51	20.00	390.00	458.69	451.18	110.00
110.000	988.37	6.53	20.00	390.00	464.10	457.57	110.00
120.000	986.68	13.27	20.00	530.00	556.90	543.63	2225.00
120.000	987.92	8.31	20.00	530.00	576.78	568.47	2225.00
120.000	988.12	7.53	20.00	530.00	579.90	572.37	2225.00
120.000	988.37	6.51	20.00	530.00	583.95	577.44	2225.00
130.000	986.67	2000.00	2000.00	2074.20	2074.20	74.20	640.00
130.000	987.91	2000.00	2000.00	2074.20	2074.20	74.20	640.00
130.000	988.10	2000.00	2000.00	2074.20	2074.20	74.20	640.00
130.000	988.34	2000.00	2000.00	2074.20	2074.20	74.20	640.00
140.000	986.68	2000.00	2000.00	2074.20	2074.20	74.20	25.00
140.000	987.95	2000.00	2000.00	2074.20	2074.20	74.20	25.00
140.000	988.16	2000.00	2000.00	2074.20	2074.20	74.20	25.00
140.000	988.45	2000.00	2000.00	2074.20	2074.20	74.20	25.00
150.000	986.70	52.62	80.00	500.00	503.42	450.80	700.00
150.000	988.00	31.91	80.00	500.00	506.01	474.10	700.00
150.000	988.22	28.38	80.00	500.00	506.45	478.07	700.00
150.000	988.53	23.31	80.00	500.00	507.09	483.78	700.00

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
160.000	986.70	98.93	150.00	650.00	684.04	585.11	1466.00
160.000	988.00	60.00	150.00	650.00	710.00	649.99	1466.00
160.000	988.22	53.39	150.00	650.00	714.41	661.02	1466.00
160.000	988.54	43.87	150.00	650.00	720.75	676.88	1466.00

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
60.000	0.00	0.00	0.00	973.50	490.00	977.43	0.00	977.85	25.23	5.37	112.17	97.56
60.000	0.00	0.00	0.00	973.50	800.00	978.40	0.00	979.04	28.02	6.67	166.18	151.13
60.000	0.00	0.00	0.00	973.50	925.00	979.41	0.00	979.91	17.27	6.01	248.10	222.59
60.000	0.00	0.00	0.00	973.50	1180.00	980.40	0.00	980.88	14.27	6.11	360.84	312.32
70.000	71.50	983.00	977.90	977.60	490.00	986.55	0.00	986.65	1.69	2.51	195.46	377.39
70.000	71.50	983.00	977.90	977.60	800.00	987.69	0.00	987.87	2.63	3.43	709.73	493.17
70.000	71.50	983.00	977.90	977.60	925.00	987.82	0.00	988.04	3.33	3.90	738.52	506.56
70.000	71.50	983.00	977.90	977.60	1180.00	987.90	0.00	988.25	5.26	4.92	756.42	514.67
100.000	50.00	0.00	0.00	978.19	490.00	986.68	0.00	986.68	.33	.85	1524.98	857.06
100.000	50.00	0.00	0.00	978.19	800.00	987.91	0.00	987.92	.42	1.12	2155.29	1232.61
100.000	50.00	0.00	0.00	978.19	925.00	988.11	0.00	988.11	.50	1.24	2287.86	1305.87
100.000	50.00	0.00	0.00	978.19	1180.00	988.36	0.00	988.37	.70	1.51	2461.51	1406.30
110.000	110.00	0.00	0.00	978.19	490.00	986.68	0.00	986.68	.01	.16	3112.85	6210.76
110.000	110.00	0.00	0.00	978.19	800.00	987.92	0.00	987.92	.01	.23	3645.73	7844.50
110.000	110.00	0.00	0.00	978.19	925.00	988.12	0.00	988.12	.01	.26	3733.63	8117.79
110.000	110.00	0.00	0.00	978.19	1180.00	988.37	0.00	988.37	.02	.32	3845.22	8466.09
120.000	2225.00	0.00	0.00	978.70	490.00	986.68	0.00	986.68	.00	.12	4004.37	7719.79
120.000	2225.00	0.00	0.00	978.70	800.00	987.92	0.00	987.92	.01	.17	4694.97	9888.02
120.000	2225.00	0.00	0.00	978.70	925.00	988.12	0.00	988.12	.01	.20	4806.22	10248.66
120.000	2225.00	0.00	0.00	978.70	1180.00	988.37	0.00	988.37	.01	.24	4951.97	10725.53
130.000	640.00	0.00	0.00	978.88	490.00	986.67	0.00	986.69	.48	1.07	460.08	706.59
130.000	640.00	0.00	0.00	978.88	800.00	987.91	0.00	987.94	.73	1.45	551.69	938.08
130.000	640.00	0.00	0.00	978.88	925.00	988.10	0.00	988.14	.90	1.63	566.01	976.14
130.000	640.00	0.00	0.00	978.88	1180.00	988.34	0.00	988.41	1.33	2.02	583.36	1022.85
140.000	25.00	993.97	987.30	978.88	490.00	986.68	0.00	986.69	.48	1.07	459.74	705.77
140.000	25.00	993.97	987.30	978.88	800.00	987.95	0.00	987.99	.72	1.44	554.54	945.62
140.000	25.00	993.97	987.30	978.88	925.00	988.16	0.00	988.20	.88	1.62	570.04	986.92
140.000	25.00	993.97	987.30	978.88	1180.00	988.45	0.00	988.51	1.28	2.00	591.43	1044.82
150.000	700.00	0.00	0.00	979.00	490.00	986.70	0.00	986.70	.01	.15	3204.98	6041.29
150.000	700.00	0.00	0.00	979.00	800.00	988.00	0.00	988.00	.01	.21	3803.57	7871.00
150.000	700.00	0.00	0.00	979.00	925.00	988.22	0.00	988.22	.01	.24	3908.57	8202.77
150.000	700.00	0.00	0.00	979.00	1180.00	988.53	0.00	988.54	.02	.30	4061.21	8690.29
160.000	1466.00	0.00	0.00	979.20	490.00	986.70	0.00	986.70	.01	.13	3765.54	6919.43
160.000	1466.00	0.00	0.00	979.20	800.00	988.00	0.00	988.00	.01	.18	4566.90	9093.12
160.000	1466.00	0.00	0.00	979.20	925.00	988.22	0.00	988.22	.01	.21	4711.54	9488.74
160.000	1466.00	0.00	0.00	979.20	1180.00	988.54	0.00	988.54	.01	.25	4923.64	10070.39

N BR KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
60.000	490.00	977.43	0.00	0.00	0.00	43.46	0.00
60.000	800.00	978.40	.97	0.00	0.00	67.90	0.00
60.000	925.00	979.41	1.01	0.00	0.00	96.46	0.00
60.000	1180.00	980.40	.99	0.00	0.00	131.30	0.00
70.000	490.00	986.55	0.00	9.12	0.00	25.00	71.50
70.000	800.00	987.69	1.14	9.29	0.00	218.32	71.50
70.000	925.00	987.82	.13	8.41	0.00	233.88	71.50
70.000	1180.00	987.90	.08	7.50	0.00	243.05	71.50
100.000	490.00	986.68	0.00	.13	0.00	306.37	50.00
100.000	800.00	987.91	1.24	.22	0.00	679.40	50.00
100.000	925.00	988.11	.19	.29	0.00	692.13	50.00
100.000	1180.00	988.36	.25	.46	0.00	704.17	50.00
110.000	490.00	986.68	0.00	.00	0.00	413.87	110.00
110.000	800.00	987.92	1.24	.01	0.00	446.09	110.00
110.000	925.00	988.12	.19	.01	0.00	451.18	110.00
110.000	1180.00	988.37	.25	.01	0.00	457.57	110.00
120.000	490.00	986.68	0.00	.00	0.00	543.63	2225.00
120.000	800.00	987.92	1.24	.00	0.00	568.47	2225.00
120.000	925.00	988.12	.20	.00	0.00	572.37	2225.00
120.000	1180.00	988.37	.25	.00	0.00	577.44	2225.00
130.000	490.00	986.67	0.00	-.01	0.00	74.20	640.00
130.000	800.00	987.91	1.24	-.01	0.00	74.20	640.00
130.000	925.00	988.10	.19	-.02	0.00	74.20	640.00
130.000	1180.00	988.34	.24	-.03	0.00	74.20	640.00
140.000	490.00	986.68	0.00	.00	0.00	74.20	25.00
140.000	800.00	987.95	1.28	.05	0.00	74.20	25.00
140.000	925.00	988.16	.21	.06	0.00	74.20	25.00
140.000	1180.00	988.45	.29	.11	0.00	74.20	25.00
150.000	490.00	986.70	0.00	.02	0.00	450.80	700.00
150.000	800.00	988.00	1.30	.04	0.00	474.10	700.00
150.000	925.00	988.22	.22	.05	0.00	478.07	700.00
150.000	1180.00	988.53	.32	.08	0.00	483.78	700.00
160.000	490.00	986.70	0.00	.00	0.00	585.11	1466.00
160.000	800.00	988.00	1.30	.00	0.00	649.99	1466.00
160.000	925.00	988.22	.22	.00	0.00	661.02	1466.00
160.000	1180.00	988.54	.32	.00	0.00	676.88	1466.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR N BR KALAMAZOO RIVER

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
60.000	0.	-1.98	-1.01	.99
70.000	72.	-1.27	-.13	.08
100.000	122.	-1.43	-.19	.25
110.000	232.	-1.44	-.19	.25
120.000	2457.	-1.44	-.20	.25
130.000	3097.	-1.43	-.19	.24
140.000	3122.	-1.49	-.21	.29
150.000	3822.	-1.52	-.22	.32
160.000	5288.	-1.52	-.22	.32
WEIGHTED AVG FOR REACH		-1.47	-.21	.28

FHF FOR THE REACH = 015 WITH 100.0_ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 3

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Concord, Village of

3) WATERCOURSE: N. Br. Kalamazoo River

4) DOCUMENT TYPE: Report

00BREAK00

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209 E. Washington Avenue, Jackson, MI 49201

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CLIENT/OWNER		FILING CODE
FIS - Concord		JOB NO.
CALC. BY/DATE (SIGNATURE) V. Danushkodi 4/22/80	SUBJECT	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

N. Br. Kalamazoo River at Concord

Flow over Main St and Floodgates

Verification of HEC-2 Results

Rating curves were generated separately for the flow over floodgates and over Main St. A weir flow rate curve program was used for this purpose (I used this program since I was in J+A and DNR has a copy of this program). The rating curves were then combined for the total flow.

E.G. for 100 year flood @ floodgates : 988.07 (Graph)
HEC-2 : 988.04

E.G. for 10 year flood @ floodgates : 986.70 (Graph)
HEC2 : 986.65

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209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

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XSec 3.1 Main St

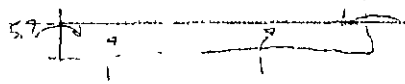
Section for Weir Flow

Station	Elev	
~~134~~	~~996.69~~	
0	992.15	
96	990.19	
194	988.87	
264	988.60	} Bridge — Flood Gate
289	988.26	} Bridge — Flood Gate
398	987.58	
508	987.85	M-60
* 508	992	Section encroached @ M-60 since there cannot be weir flow beyond that point

```
**********************************************************************************
  FIS  VILLAGE OF CONCORD  RATING TABLE FOR MILL POND FLOOD GATE STRUCTURE
**********************************************************************************

 NUMBER OF POINTS=   12
STATION   ELEVATION
      0.0    990.00
      0.0    987.22
     5.70    987.22
     5.70    983.25
    17.70    983.23
    17.70    987.28
    18.70    987.28
    18.70    983.64
    30.70    983.00
    30.70    987.16
    36.40    987.16
    36.40    990.00
 WIDTH OF ROADWAY=     0.25
 DELY=          0.20
 WSMAX=       989.00
 QMAX=       2000.00

 ROAD SURFACE:PAVED
```



****

FTS VILLAGE OF CONCORD RATING TABLE FOR MILL POND FLOOD GATE STRUCTURE.

****

ELEVATION FEET	FLOW CFS.	CAV	TOP WIDTH FEET.	AREA SET
983.00	0.0	0.0	0.	0.0
983.20	0.52	3.330	4.	0.43
983.40	5.08	3.330	25.	3.41
983.60	15.59	3.330	25.	7.69
983.80	30.78	3.330	25.	12.48
984.00	49.49	3.330	25.	17.28
984.20	71.10	3.330	25.	22.08
984.40	95.24	3.330	25.	26.88
984.60	121.66	3.330	25.	31.67
984.80	150.18	3.330	25.	36.47
985.00	180.66	3.330	25.	41.27
985.20	212.96	3.330	25.	46.07
985.40	247.00	3.330	25.	50.87
985.60	282.69	3.330	25.	55.67
985.80	319.96	3.330	25.	60.47
986.00	358.74	3.330	25.	65.27
986.20	398.97	3.330	25.	70.06
986.40	440.61	3.330	25.	74.86
986.60	483.61	3.330	25.	79.66
986.80	527.92	3.330	25.	84.46
987.00	573.51	3.330	25.	89.26
987.20	620.50	3.330	31.	94.29
987.40	673.99	3.330	36.	101.44
987.60	729.77	3.330	36.	108.64
987.80	788.64	3.330	36.	115.84
988.00	850.21	3.330	36.	123.04
988.20	914.22	3.330	36.	130.24
988.40	980.51	3.330	36.	137.43
988.60	1048.96	3.330	36.	144.63
988.80	1119.47	3.330	36.	151.83
989.00	1191.94	3.330	36.	159.03

CALCULATION SHEET REV.

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CALC BY/DATE (SIGNATURE) DNP 8-23-79	SUBJECT N. Br. Kalamazoo River @ Concord
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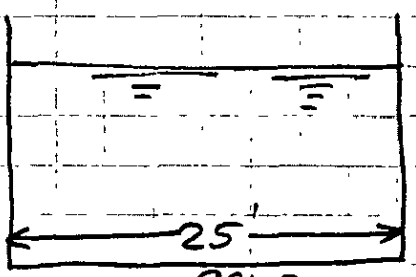
U/S of Flood gates



~~981.5~~
978.6

Average Bed Level U/S of Floodgate

979.73
978.67
977.37
977.58
977.83
978.42
979.31
979.97
978.6

Q_{gates} cfs	WSEL	Va ft/sec	ha ft	EG
95	984.4	0.66	0.01	984.41
213	985.2	1.29	0.03	985.23
320	985.8	1.78	0.05	985.85
399	986.2	2.10	0.07	986.27
528	986.8	2.58	0.10	986.90
621	987.2	2.89	0.13	987.33
730	987.6	3.24	0.16	987.76
850	988.0	3.62	0.20	988.20
981	988.4	4.00	0.25	988.65
1049	988.6	4.20	0.27	988.87
1120	988.8	4.39	0.30	989.10

$Q = AV$

```
**********************************************************************
  FTS  VILLAGE OF CONCORD  WEIR FLOW OVER MAIN STREET
**********************************************************************

  NUMBER OF POINTS=     8
STATION   ELEVATION
     0.0     992.15
    96.00    990.19
   194.00    988.87
   264.00    988.60
   289.00    988.26
   398.00    987.58
   508.00    987.85
   508.00    992.00
  WIDTH OF ROADWAY=    50.00
  DELY=         0.10
  WSMAX=      990.00
  QMAX=      2000.00

  ROAD SURFACE:PAVED
```

****
FIS VILLAGE OF CONCORD WEIR FLOW OVER MAIN STREET
****

ELEVATION FEET	FLOW CFS	CAV	TOP WIDTH FEET	AREA SFT
987.58	0.0	0.0	0.	0.0
987.68	2.09	2.895	57.	2.84
987.78	11.94	2.923	113.	11.33
987.88	33.06	2.947	158.	25.31
987.98	65.50	2.972	174.	41.89
988.08	107.83	2.987	190.	60.06
988.18	159.63	2.997	206.	79.83
988.28	220.54	3.004	220.	101.04
988.38	291.37	3.012	228.	123.72
988.48	369.46	3.017	235.	146.64
988.58	455.37	3.021	242.	170.22
988.68	550.24	3.017	264.	195.41
988.78	655.03	3.014	290.	223.18
988.88	772.40	3.010	315.	254.04
988.98	897.77	3.020	322.	285.40
989.08	1032.73	3.024	329.	317.42
989.18	1181.47	3.027	337.	351.42
989.28	1334.89	3.028	344.	384.85
989.38	1502.69	3.029	352.	420.47
989.48	1673.85	3.030	359.	455.32
989.58	1853.48	3.031	366.	490.82
989.68	2049.01	3.031	374.	528.81

$CLH^{3/2}$

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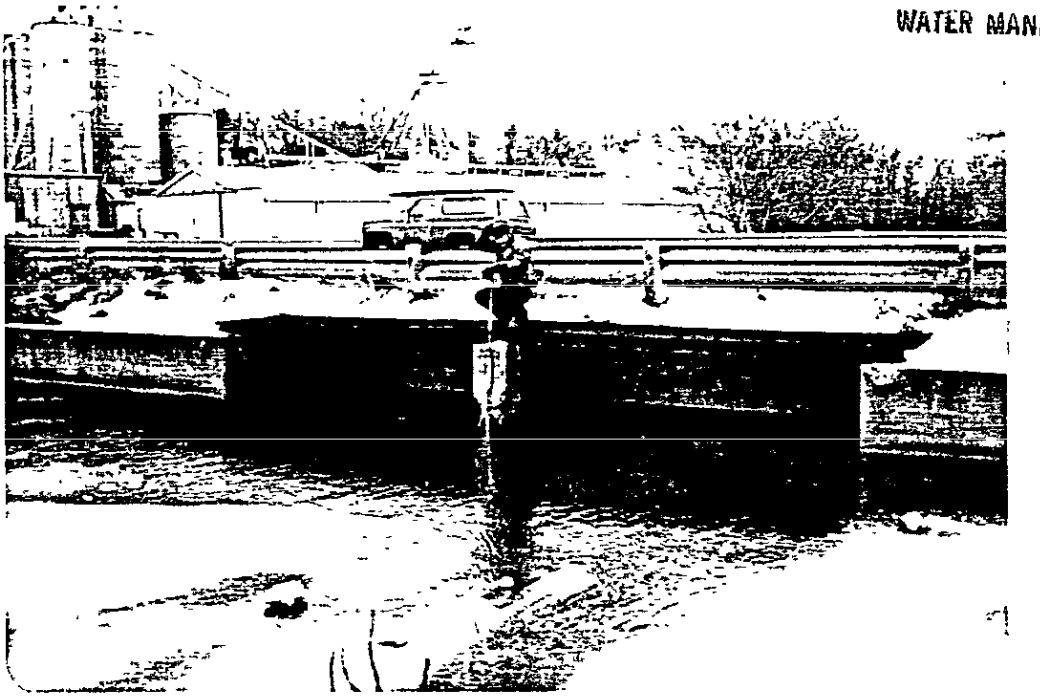
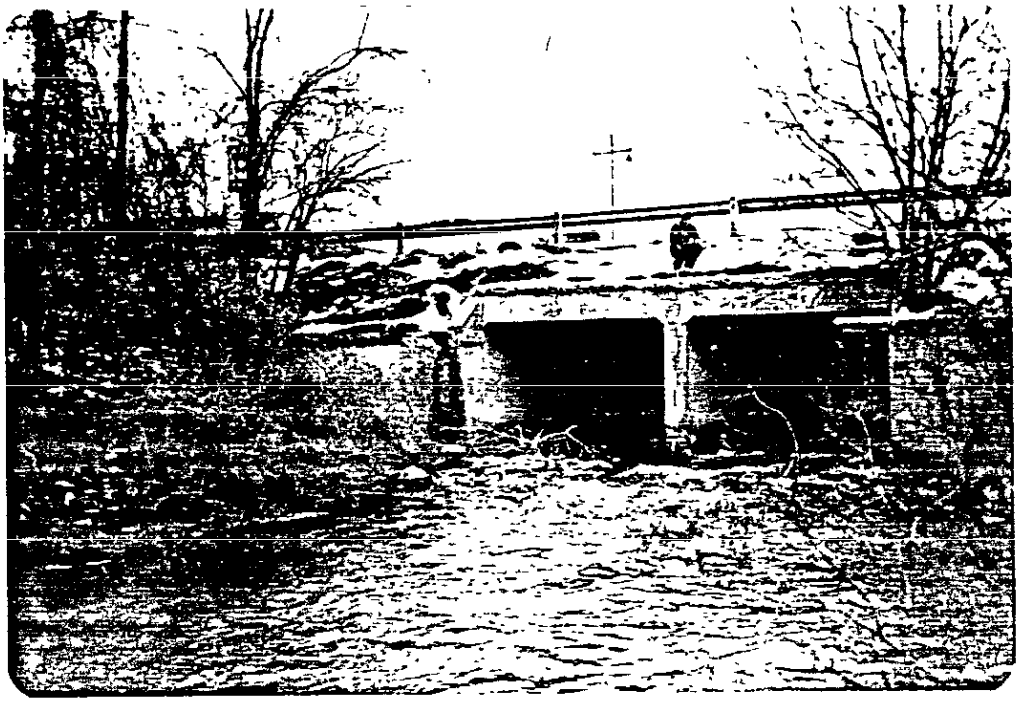


U/S

SEC 70



D/S

SEC 60

MAIN STREET BRIDGE AND FLOOD GATES

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WATER MANAGEMENT

Gilbert/Commonwealth engineers/consultants/architects

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

April 22, 1980

Ms. Suzanne Elms, Engineer
Flood Insurance Unit
Water Management Division
Michigan Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, Michigan 48909

Subject: FIS Village of Concord
Supplemental Bridge Data

Dear Ms. Elms:

Enclosed is the information which you requested pertaining to the North Main Street Bridge in the village of Concord.

Should you have any further questions concerning this matter, please call me at 517-788-3890 or Dr. Danushkodi at 517-788-5458.

Very truly yours,

R. F. Nilsen

R. F. Nilsen, P.E.
Project Manager

RFN/lft

Gilbert/Commonwealth engineers/consultants/architects

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

March 5, 1980

Mr. Daniel H. Morgan, P.E., Chief
Flood Insurance and Flood Plain
Delineation Unit
Water Management Division
Department of Natural Resources
Stevens T. Mason Building
P.O. Box 30028
Lansing, Michigan 48909

RECEIVED
MAR 06 1980
WATER MANAGEMENT

Dear Mr. Morgan:

Enclosed is a copy of the Hydraulic Analysis for the Kalamazoo River within the village limits of Concord, Michigan. Included with this report for your review are computer printouts (HEC-2), plotted cross sections, flood plain map, profiles, and FIS requirements for a limited detail study.

In accordance with our contract with FEMA/FIA, Commonwealth Associates Inc. will be submitting the draft FIS report for this community on April 4, 1980. If any questions or comments arise prior to this date, please contact either me or Ron Landis. If questions or comments arise after this date, please contact either Frank Finch or Wally Weaver of FEMA/FIA.

Very truly yours,

R.F. Nilsen

788-5459

R. F. Nilsen, P.E. 3890
Project Manager

RDL/lft

CC: W. Weaver w/o attach

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
1 NORTH DEARBORN STREET
CHICAGO, ILLINOIS 60602

REGION V
300 South Wacker Drive
Chicago, Illinois 60606

IN REPLY REFER TO:

COMMONWEALTH ASSOC. INC.
ENGINEERING SERVICES DEPT.
NOV 26 1979
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Region V FIA - Guidelines for Limited Detail Studies

General

In scope, limited detail studies can constitute all or part of a community participating in the National Flood Insurance Program. Limited detail studies can be used where there is flood hazard due to stream overflow, in a reach where there is minimum growth potential in the community, and where a 7-1/2 min quad or equivalent map is available.

A reconnaissance trip to the site is required; if possible, this should be done in conjunction with the Time and Cost Meeting.

Site Selection

A limited detail study is to be used in those instances where it is deemed necessary that a 100-year regulatory elevation be established but where existing development or growth potential does not warrant a detailed study. A point, or points, on the subject stream is/are selected at the T & C meeting. At these points, the 100-year flood elevation and the 10-year flood elevation are established. By this means numbered zones can be established.

Surveys

Field survey will be limited to two cross sections at the selected site plus sufficient thalweg points along the stream center line to establish slope. At points near channel crossings, bridge or culvert openings will be surveyed as well as a section along top of roadway.

Hydrology

Use existing data if available. Follow FIA guidelines and specifications for methods of computing peak discharges for detailed studies but do not use any method involving hydrograph routing techniques with complex basin models. The level of effort expended here should be the same as for detailed studies. The appropriate Federal, State, or local agencies should be informed of proposed discharges for their review, the same as for a detailed study.

Hydraulics

Where no bridges or culverts are present, the 100-year flood elevation at each x-section should be determined via the uniform flow method using the channel bed slope to compute normal depth. Where bridges or culverts are present, use appropriate standard techniques to establish the 100-year flood elevations at each bridge. Based on engineering judgment, the 100-year profile may be interpolated from known calculated points using the energy gradient slope.

Floodway

No floodway should be delineated for FIA purposes.

Study Report

The study location, scope, methodology, etc. for a limited detail study shall be described in the report the same as detailed study. A profile drawing will be presented. The 100-year elevations will be shown on the FIRM by the use of BFE symbol. Where only limited detail or approximate method are used in the FIS, a Floodway and Flood Boundary Map is not required.

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COMMONWEALTH ASSOC. INC.
ENGINEERING SERVICES DEPT.

HYDRAULIC ANALYSIS REPORT

NORTH BRANCH KALAMAZOO RIVER AT THE VILLAGE OF CONCORD JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

February, 1980

INTRODUCTION

Hydraulic calculations were performed for the North Branch Kalamazoo River within the entire corporate boundaries of the village of Concord in Jackson County as follows:

a. Approximate Study between the northwest corporate boundary and Spring Arbor Road (M-60)(Xsec 20/A)

b. Limited Detailed Study between M-60 and North Main Street. Xsec 60/D

c. Detailed Study between North Main Street and the east corporate boundary.

Field cross sections were surveyed by Commonwealth Associates Inc. in November, 1978. The flood flows for 10, 50, 100, and 500-year recurrence intervals were approved by the Michigan Department of Natural Resources. Preliminary USGS topographic maps with 10-foot contour intervals (Spring Arbor NW guadrangle) were used for the hydraulic study. This study was performed by Commonwealth Associates Inc., Jackson, Michigan and the Project Manager was R. F. Nielsen, P.E.

METHOD OF ANALYSIS

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

VARIABLES AND COEFFICIENTS

Manning's roughness coefficients were estimated based on photographs taken at the time of the survey. The following values were used in this study:

Manning's Roughness Coefficient

For channel	0.030 - 0.035
For overbanks	0.10

Coefficients for Floodway

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios for Bridges

Contraction	1:1
Expansion	1:4

A weir coefficient of 3.29 was estimated for flow over the floodgates and the North Main Street roadway (Section 70) by considering the rates of flow over the floodgates and roadway.

HIGH-WATER MARKS

No documented high-water marks were available.

1904 prof.?

STARTING CONDITIONS

Profile convergeance test runs were made by using made-up cross sections covering a reach of approximately 4,800 feet downstream of the Spring Arbor Street bridge.

SPECIAL PROBLEMS

a. The skew factor for the bridge at Spring Arbor Road was not considered because the sections were taken normal to the flow direction and there was no weir flow over the roadway.

b. The floodgates and North Main Street were assumed to be at the same cross-section (Section 70). In order to force all the flow over the floodgates and roadway, a special bridge routine was used with a very small artificial opening for the bridge. The results were checked for accuracy and found to be correct.

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209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

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Cross Section Reference

SECNO	ID IN PROFILE	DESCRIPTION	"n" VALUES LOB	ROB	CHANNEL
0.0	—	Made up Valley Section	0.10	0.10	0.035
0.1	—	"	"	"	"
0.2	—	"	"	"	"
1.0	—	Surveyed Valley Section	"	"	"
10.0	—	Surveyed Bridge D/S at Spring Arbor Rd Concrete Box 24' x 6'; XKOR=1.851			
20.0	A	Surveyed Bridge Section			
30.0	—	Surveyed Bridge Section D/S of Spring St 22' x 6.5 Concrete Box			.02
39.0	—	" D/S face			
40.0	—	U/S face			
40.1	B	" 1' U/S			
41	C	Surveyed Valley Section 30' U/S	0.10	0.10	.035
50	—	" " " 100' D/S of Main St	"	"	"
60	D	Main St Bridge D/S			
70	E	Main St Bridge + Flood gates Weir Coefficient: 3.29			
100	F	Surveyed Valley Section 50' U/S of Main St	.10	.10	0.03
110	—	Made up Valley Section	"	"	"
120	G	" " " "	"	"	"
130	—	Surveyed Bridge Section D/S of RR Bridge			
140	H	U/S of RR Bridge: 3 spans 21.7' each 2 Concrete Piers 4.5' wide each			
150	—	Made up Valley Section	"	"	"
160	I	" " " " - Corporate Boundary	"	"	"

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Bridge Notes And Sketches

(a) Spring Arbor Road (M-60) (Section 20)
(Sketch Attached)

XKOR Calculations

97' long Concrete Box 24' x 6'0"
Bottom of Bridge : Earth and Stone Covered
Use $n = 0.02$
Hydraulic Radius : $\frac{24 \times 6}{2(24+6)} = 2.4'$

K_f : 0.351
K_{exit} : 1.0
K_{ent} : 0.5
XKOR : 1.851

No Weir Flow
No Piers

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HEER

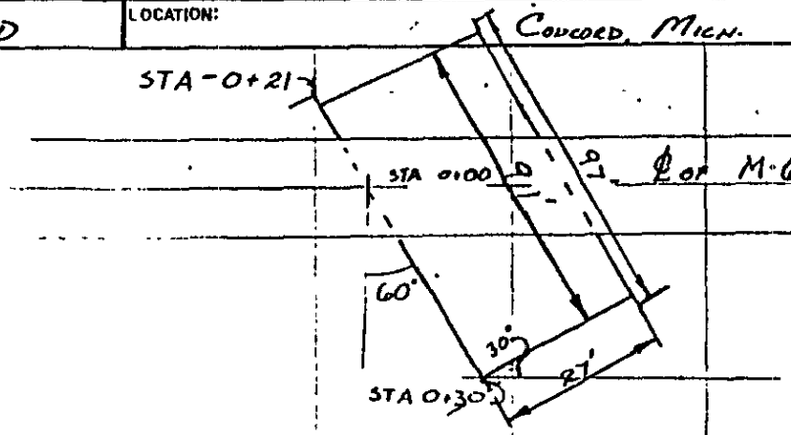
E: 12-11-78 | INSTRUMENTS: | TEMP (DRY BULB) 30 | WET BULB | RH % | BAR.

JECT: HUD | LOCATION: CONCORD, MICH. | CROSS SECTION #20 | CHECKED BY | DATE

ACTIVITY Cross Section #20 BOOK 21-22 PAGE 17

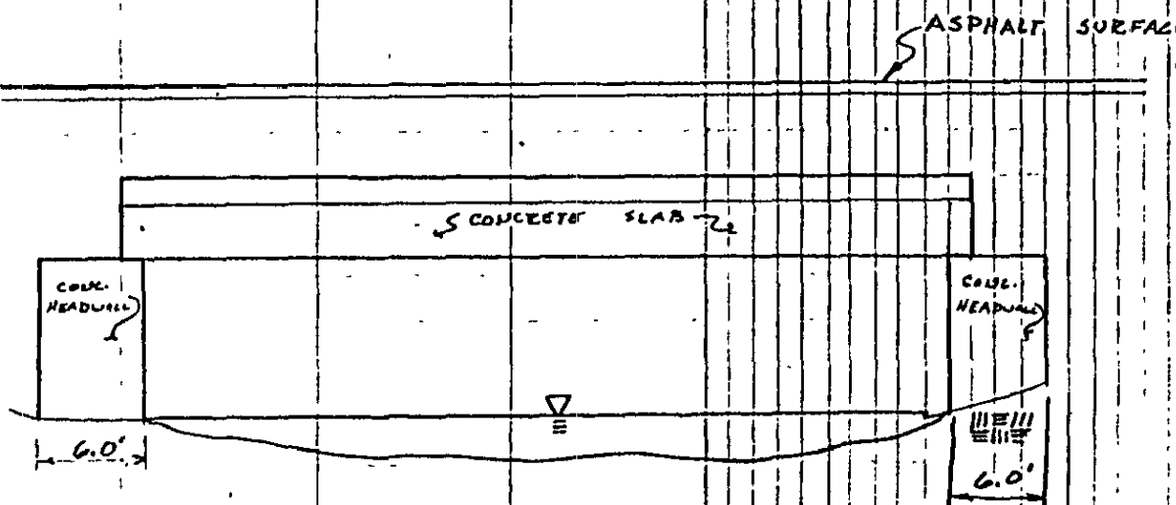
STA.

M-60 Bridge



PLAN VIEW

BRIDGE IS SKEW TO ROAD



SIDE VIEW

LOOKING DOWNSTREAM

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Spring Street Bridge (Section 40)
(Sketch Attached)

Concrete Box 22' X 6.5'
Length 16 ft

No Piers

Low Flow — Normal Bridge Routine Used.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

TE: 12-12-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

BAR.

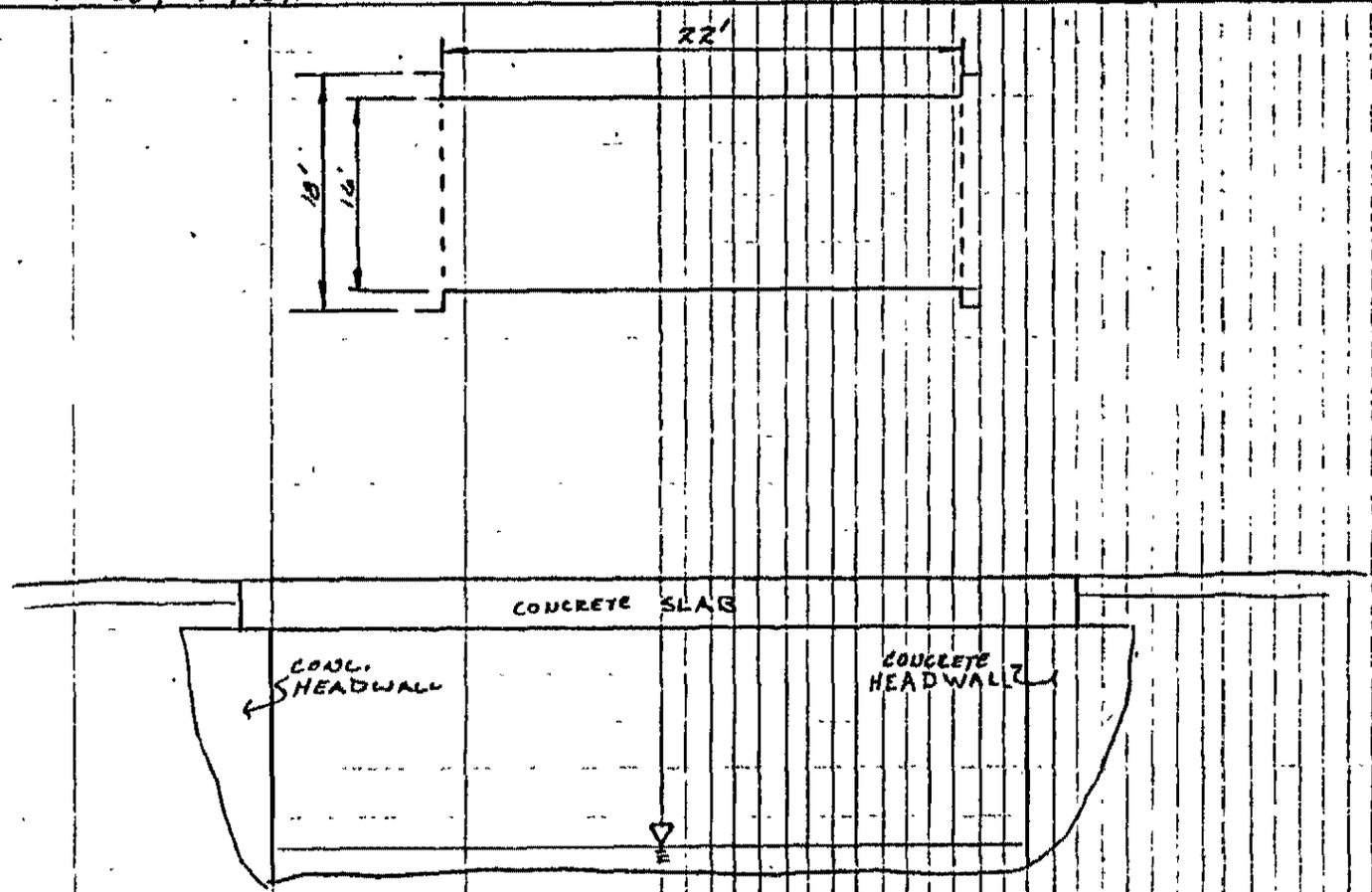
OJECT: HUD

LOCATION: CONCORD, MICH

CROSS SECTION ~~23~~ 40

CHECKED BY

DATE



Bridge at Spring Street

ACTIVITY CROSS SECTION ~~23~~ 40 BOOK 2.1-22 PAGE 29

PLAN

STA.

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

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North Main Street Bridge And Flood Gates

(Section 70) Sketch Attached

Concrete Bridge – Two Boxes 12' wide each
– one Pier with a width of 1'

The Flood Gates are located at about 10' U/S of Road – Two Gates 12' wide each
– one Pier 1' wide.

Section 70 represents the Roadway + the flood gates. The entire flow is through the weirs and Roadway (weir flow).

Special Bridge Routine used. 1900cfs max
270ft
2 x 12'

Weir Coefficient

100-year flow Conditions

Flow through flood gates ≈ 810 cfs
Flow through Roadway ≈ 115 cfs
Coefficient for Sharp crested gates 3.33
Coefficient for flow over Roadway
(Paved Surface: $\frac{h}{L} < 0.15$ $H \approx 0.5'$) 3.00

Average Coefficient = $\frac{3.33 \times 810 + 3 \times 115}{925} = \underline{3.29}$

COMMONWEALTH ASSOCIATES INC.

CREW: Foury, Bearinger, Herr

DATE: 12-12-78

INSTRUMENTS: NA 2

TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD

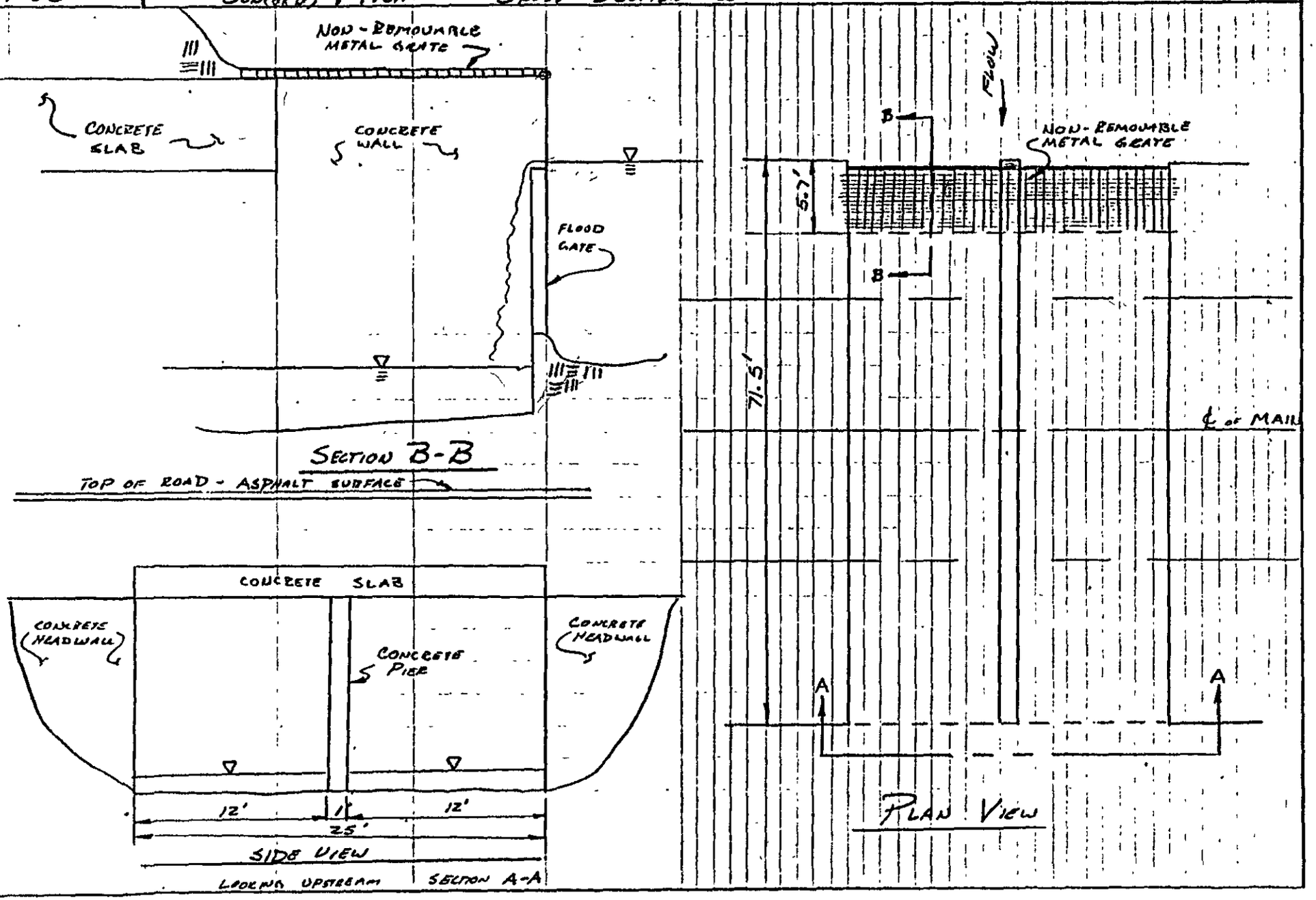
LOCATION: Concord, Mich. Cross Section I-70

CHECKED BY

DATE

ACTIVITY Cross Section I-70 BOOK 21-22 PAGE 39

STA.



Penn Central RR Bridge (Section 140)
Sketches Attached.

Concrete Bridge with Steel Girders

3 Spans 21.7' each ; 2 Piers 4.5' wide each.

Length of Bridge (along Channel) = 25'

Negligible friction loss

XKOR = 1.5

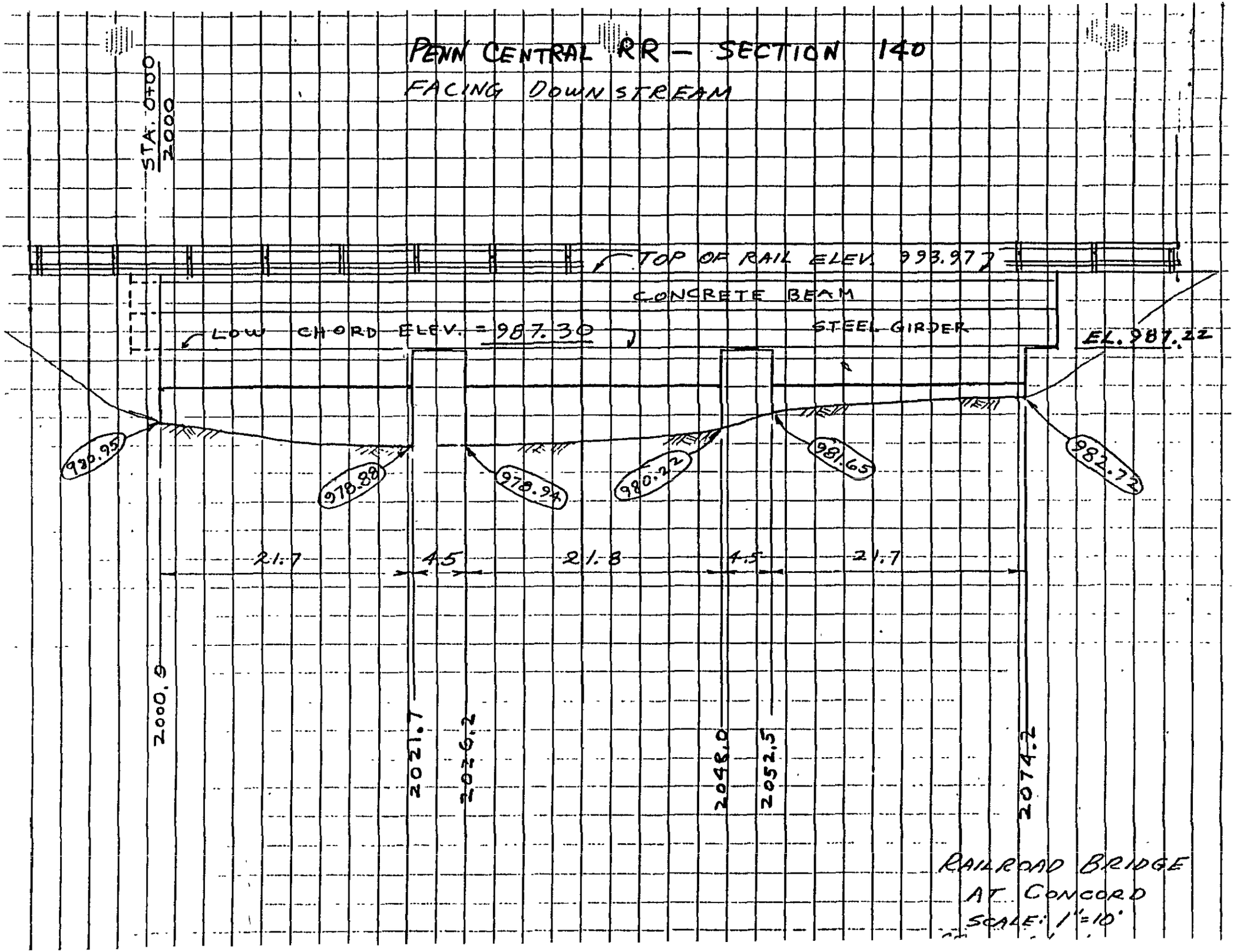
No Weir Flow expected

Pier loss Coefficient

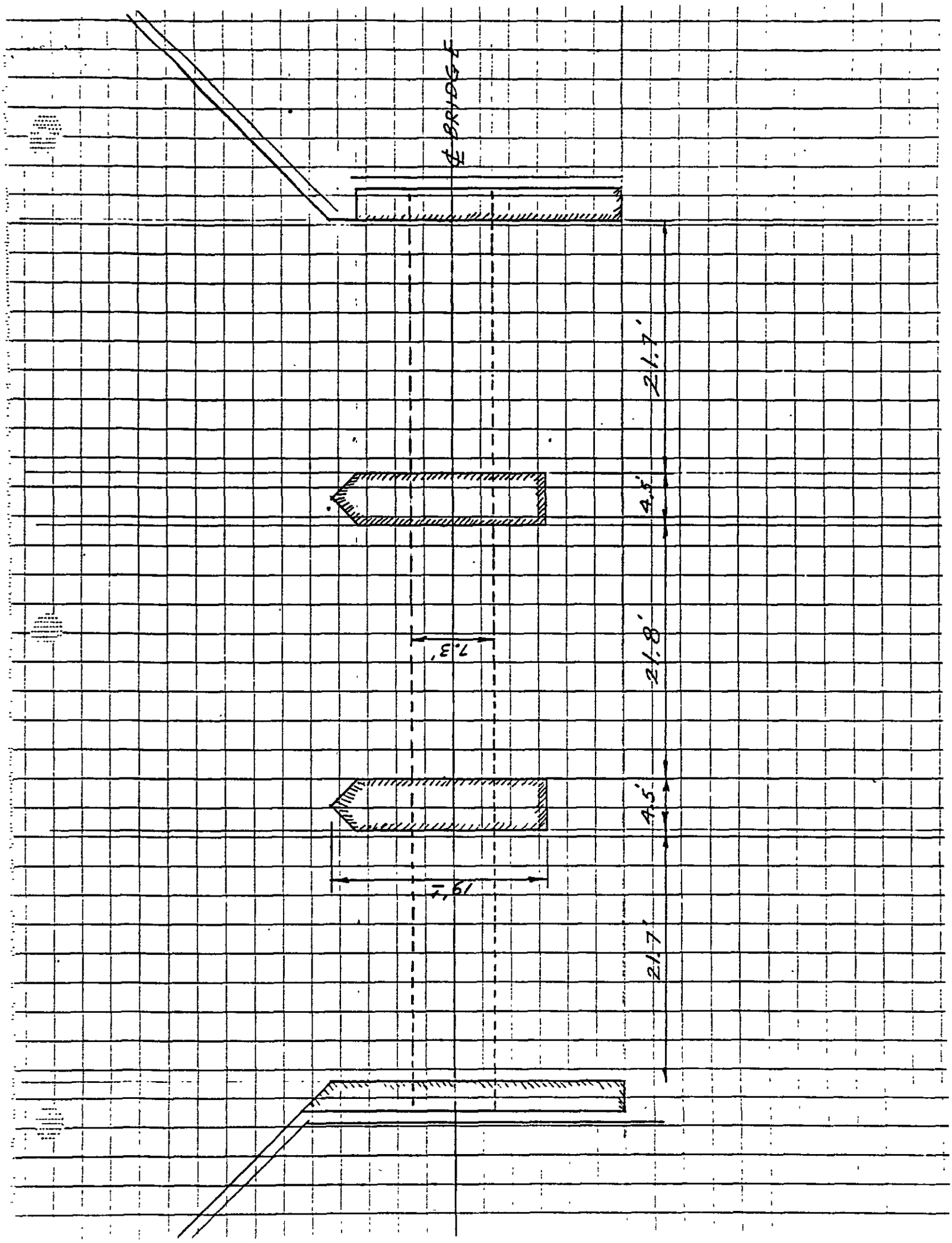
90° triangular nose and Square tail } $= \frac{1.05+1.25}{2} = \underline{\underline{1.15}}$

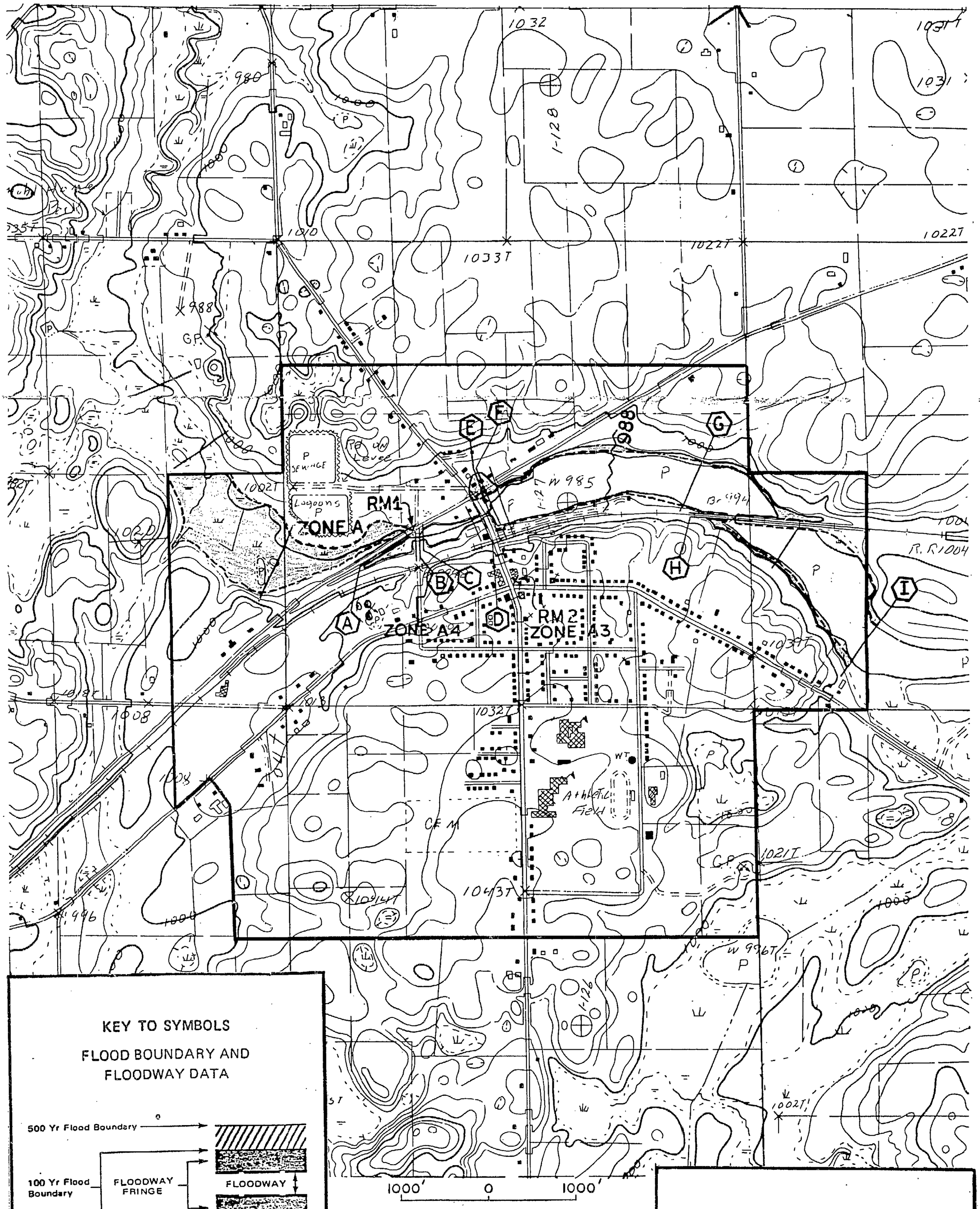
PENN CENTRAL RR – SECTION 140

FACING DOWNSTREAM



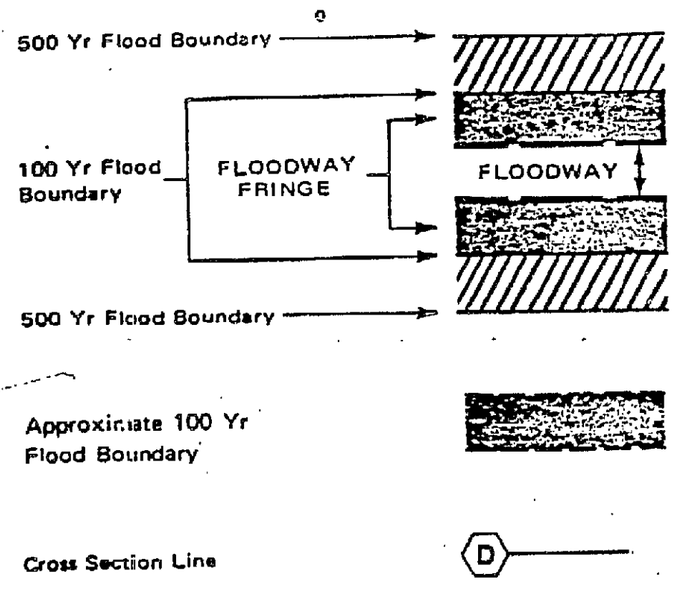
RAILROAD BRIDGE
AT CONCORD
SCALE: 1"=10'


℄ BRIDGE ℄
21.7'
4.5'
21.8'
7.3'
4.5'
19.61'
21.7'



KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

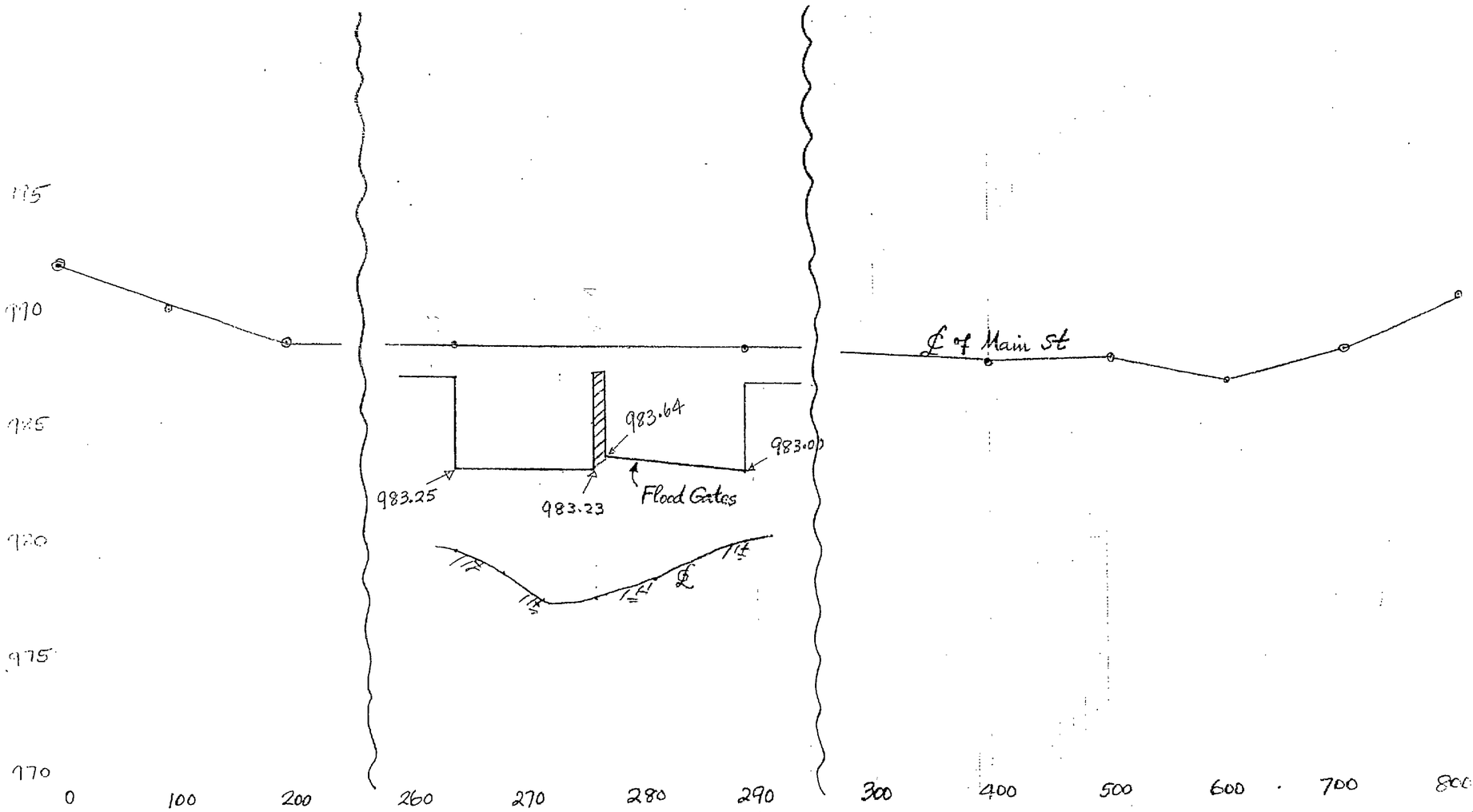


RECEIVED
JUN 30 1980
WATER MANAGEMENT

FLOOD BOUNDARY AND FLOODWAY MAP

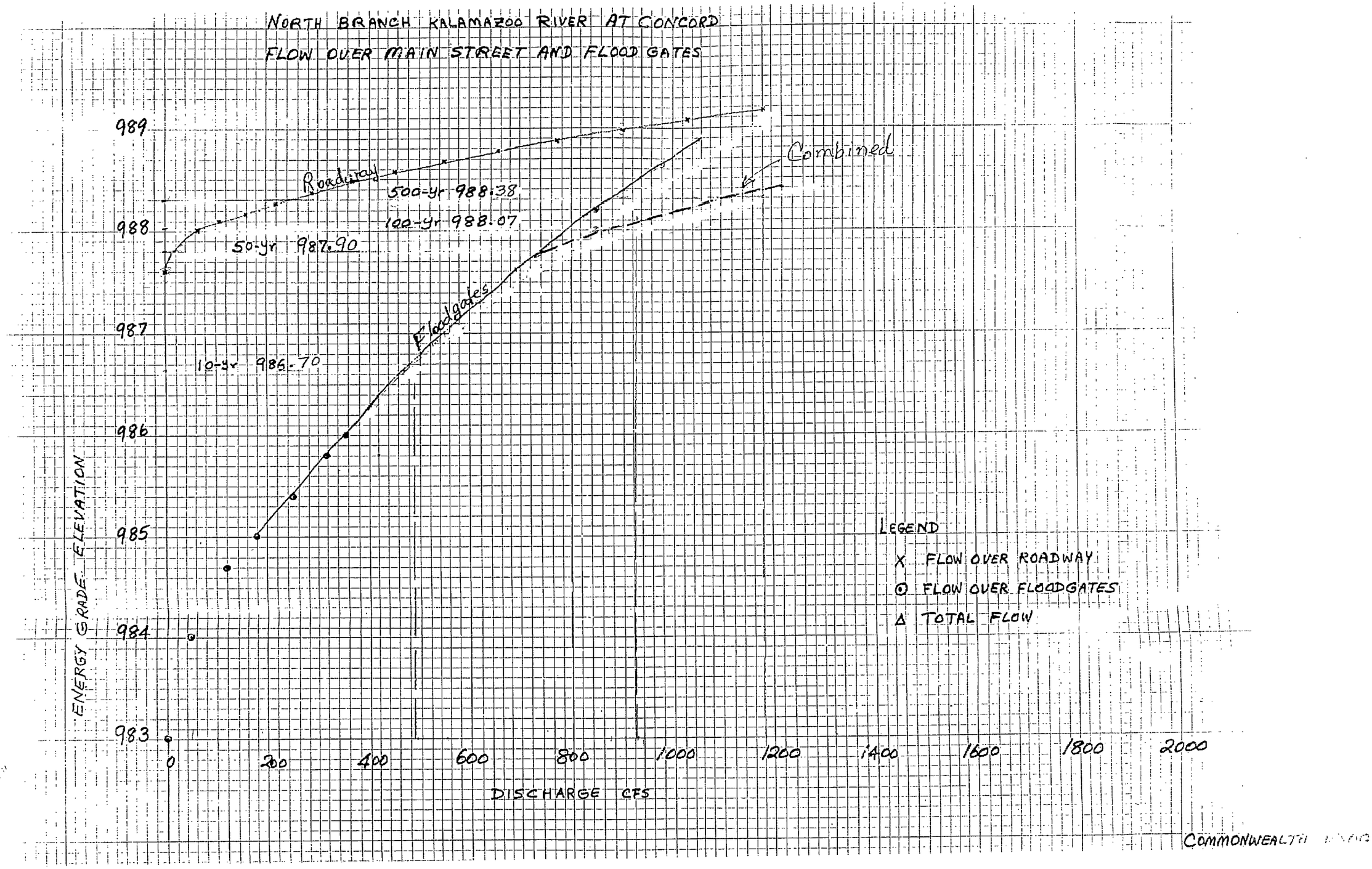
MAP INDEX

VILLAGE OF CONCORD
JACKSON, COUNTY

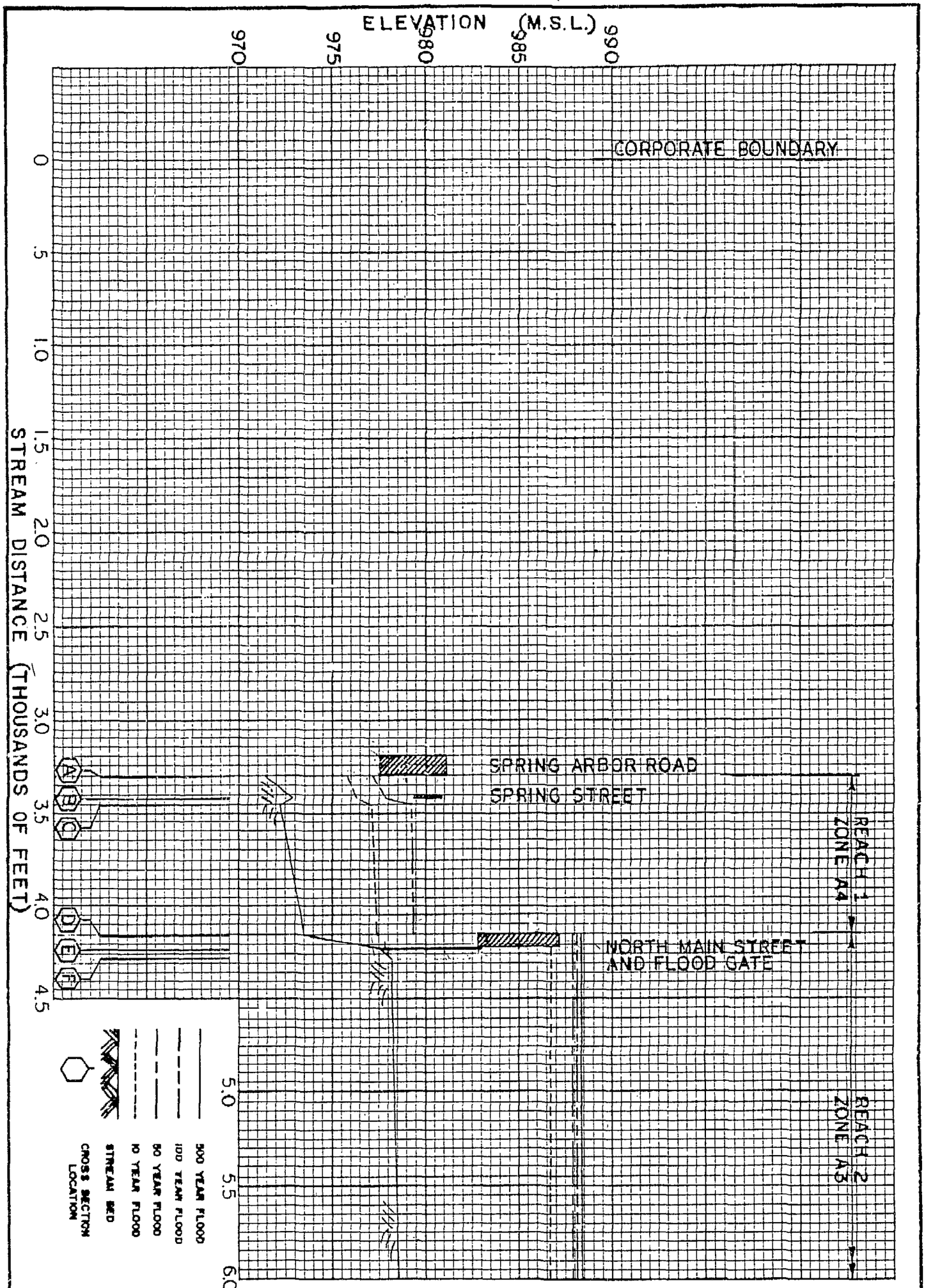


NORTH MAIN STREET AND FLOOD GATES

NORTH BRANCH KALAMAZOO RIVER AT CONCORD
FLOW OVER MAIN STREET AND FLOOD GATES



COMMONWEALTH



VILLAGE OF CONCORD

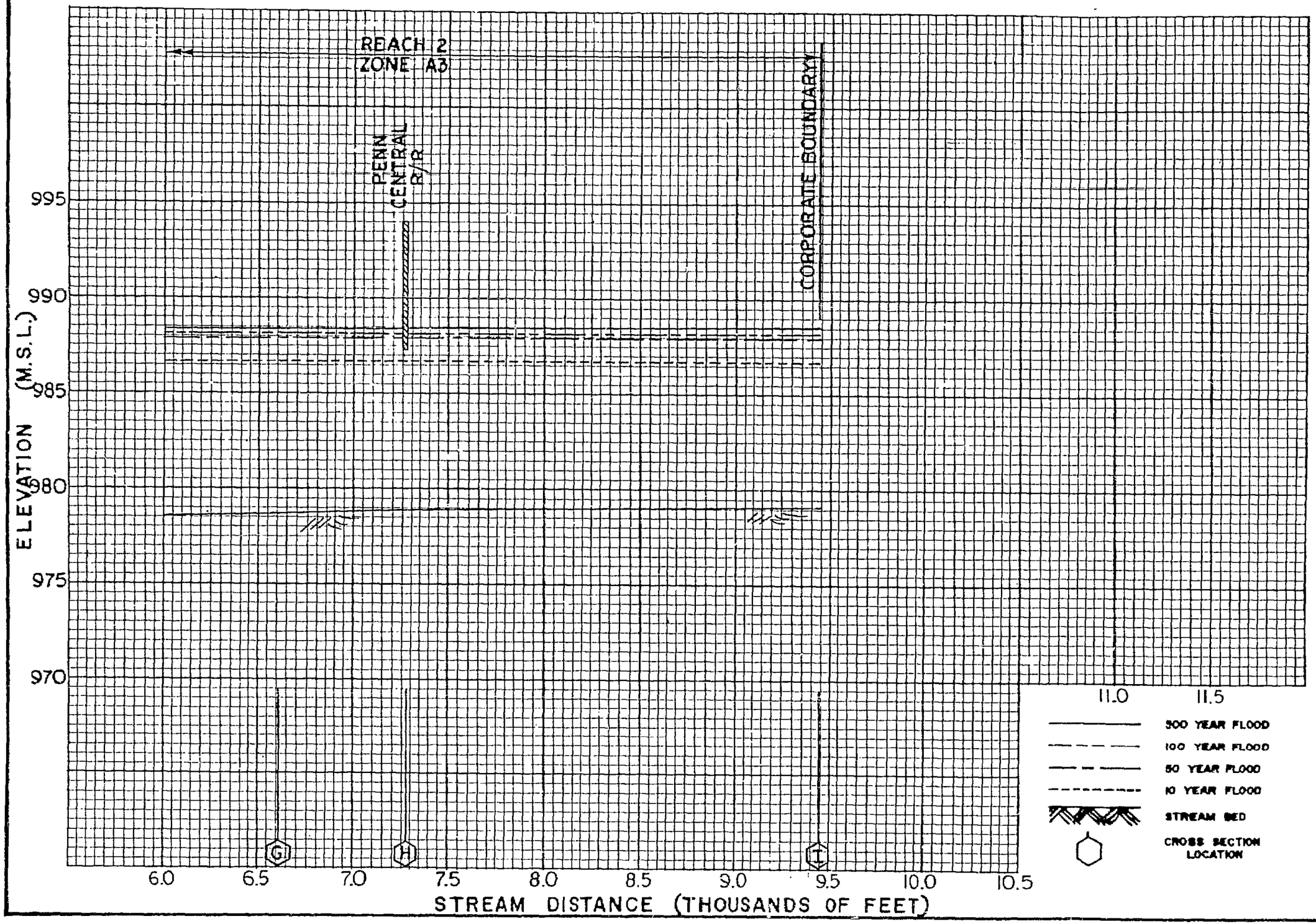
NORTH BRANCH KALAMAZOO RIVER

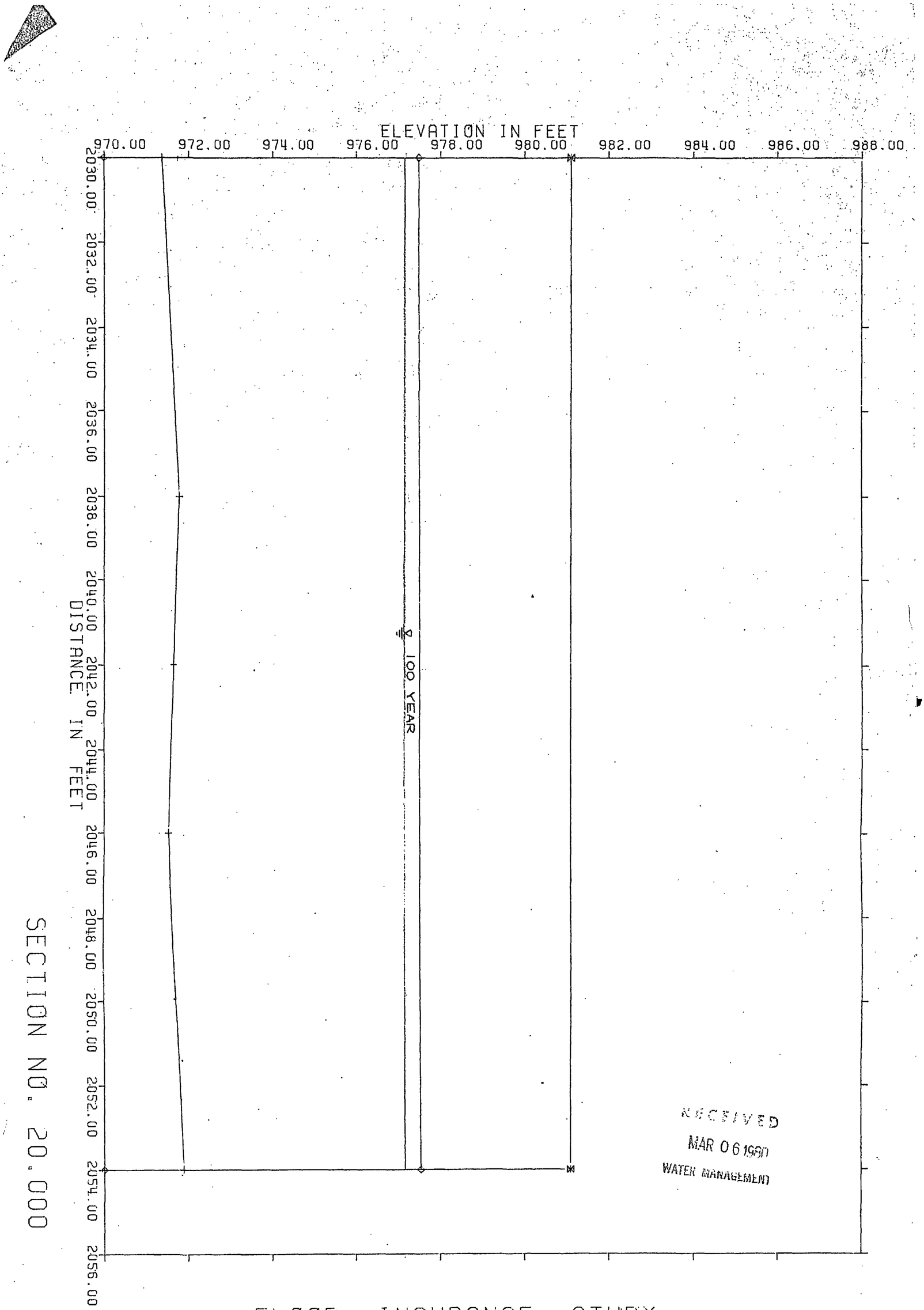
FLOOD PROFILE

FLOOD PROFILE

NORTH BRANCH KALAMAZOO RIVER

VILLAGE OF CONCORD



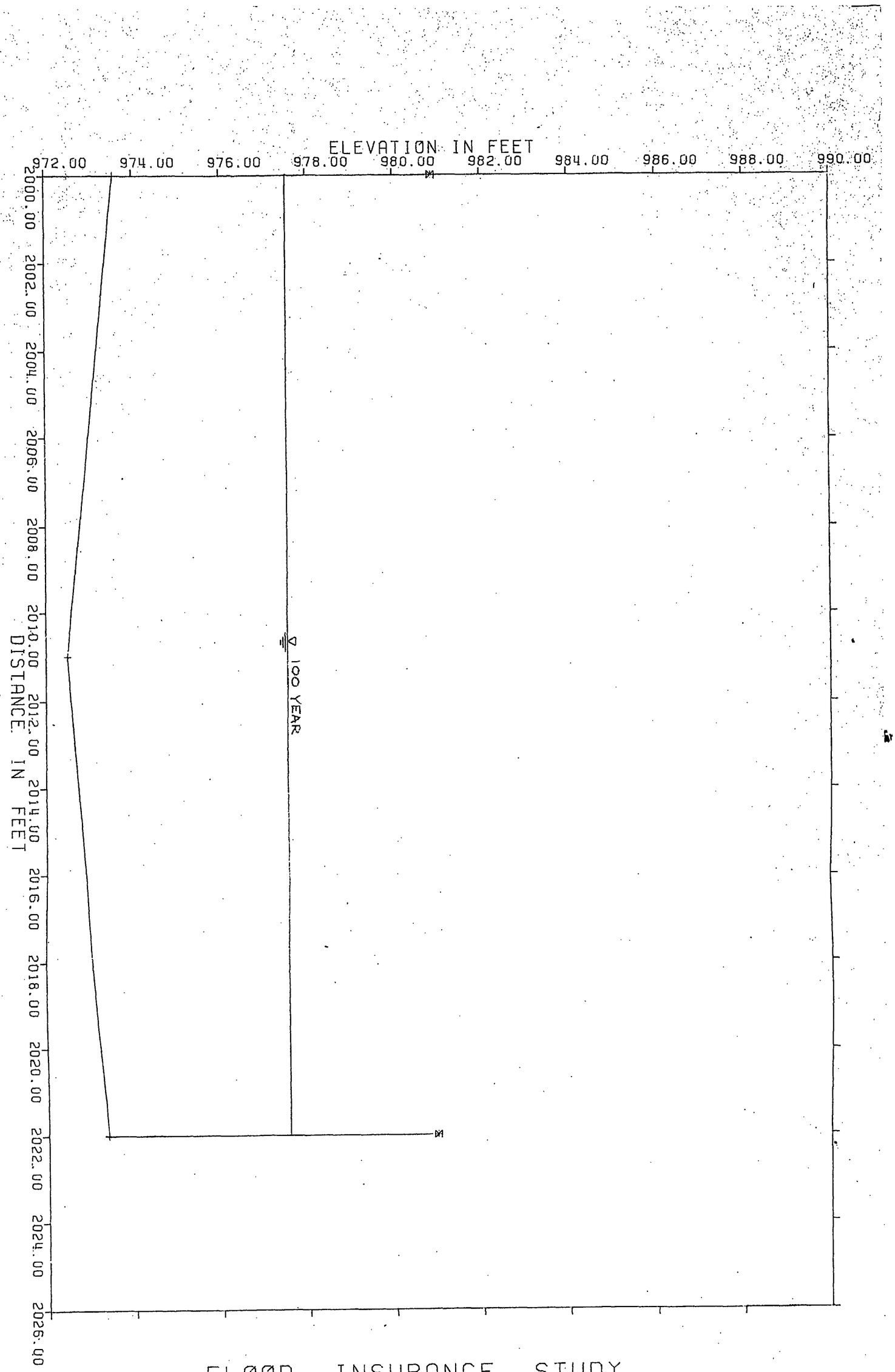


RECEIVED
MAR 06 1990
WATER MANAGEMENT

SECTION NO. 20.000

FLOOD INSURANCE STUDY

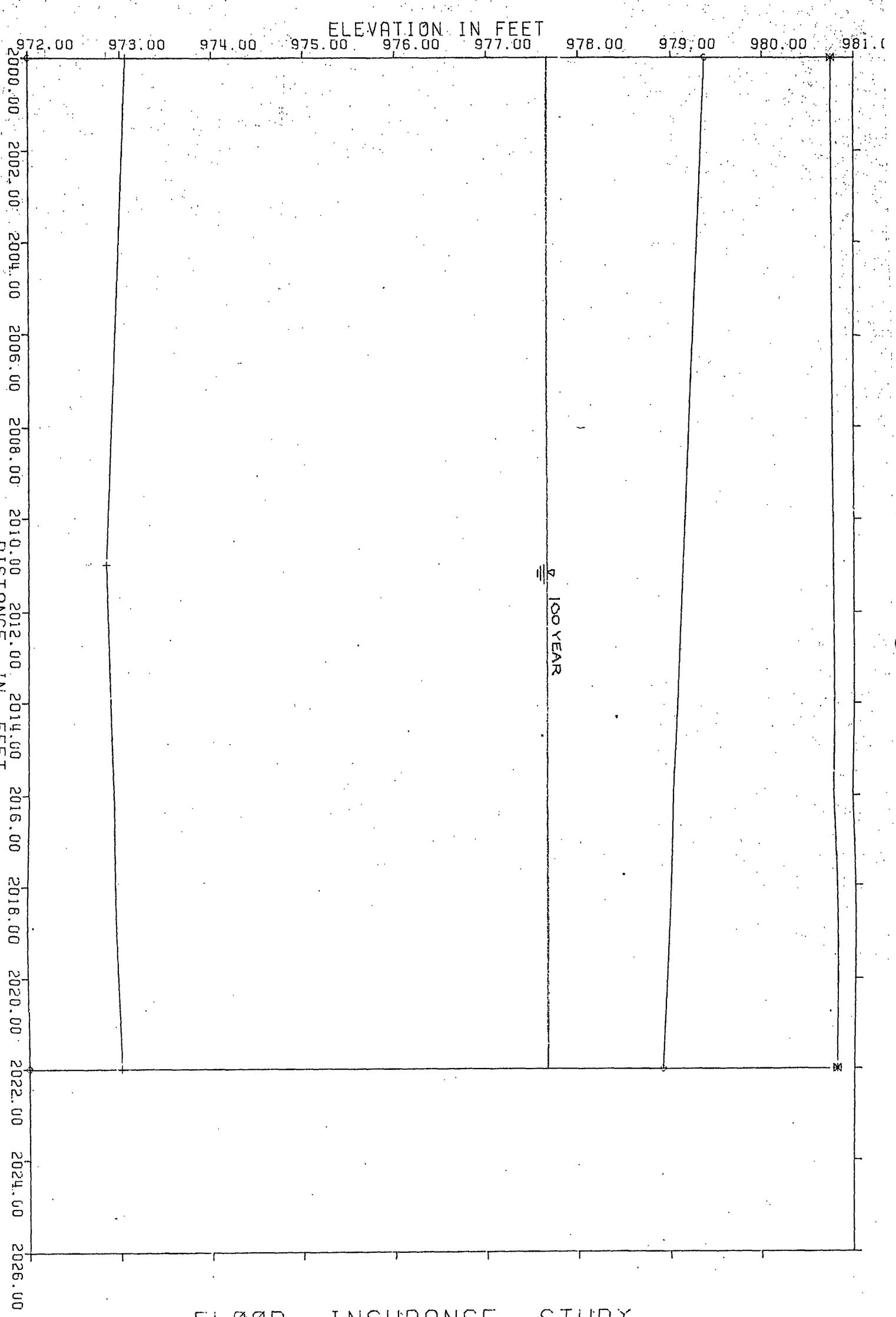
N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 30.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 39.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD

100 YEAR

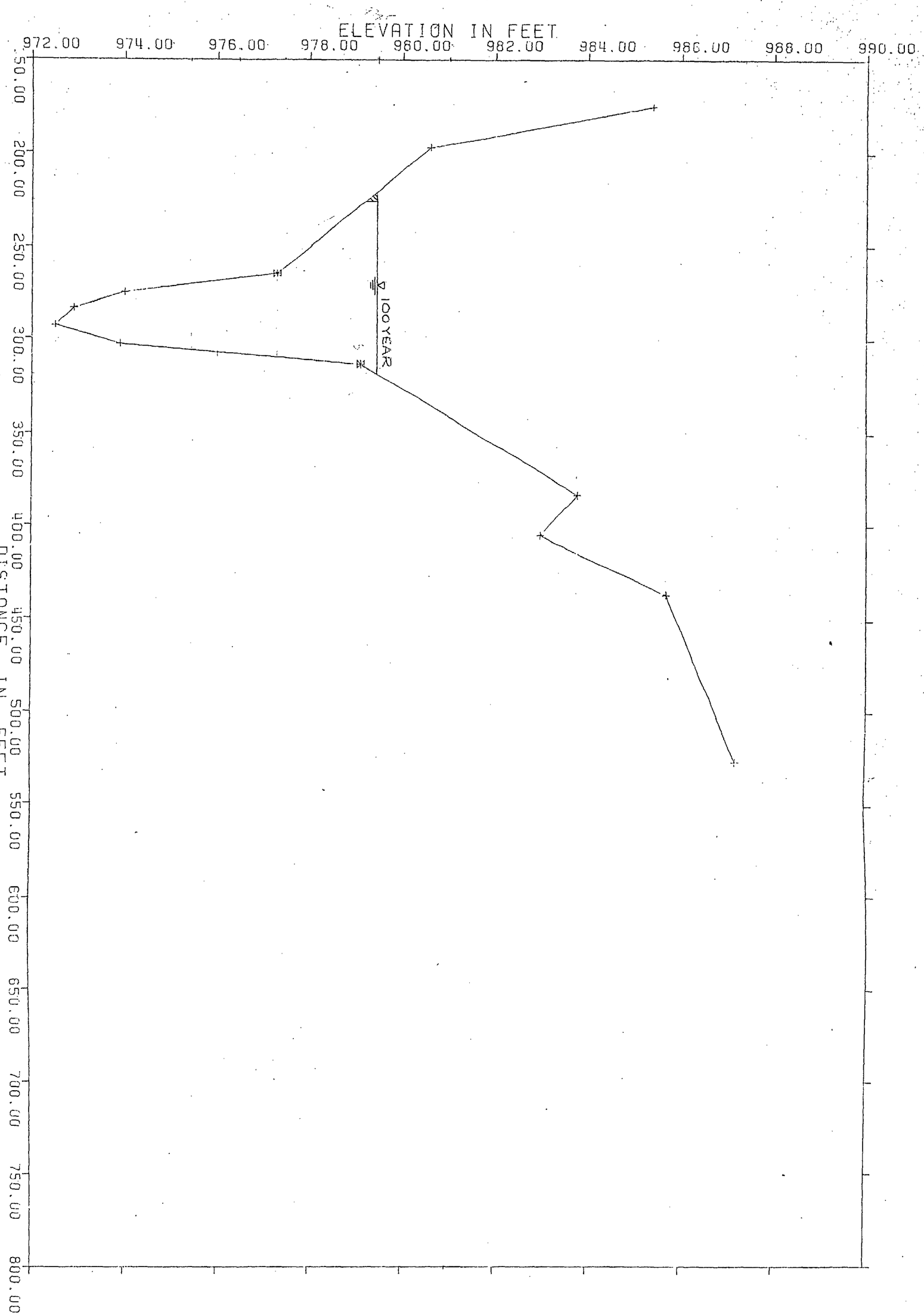
ELEVATION IN FEET

990.00
988.00
986.00
984.00
982.00
980.00
978.00
976.00
974.00
972.00

1700.00 1750.00 1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00

DISTANCE IN FEET

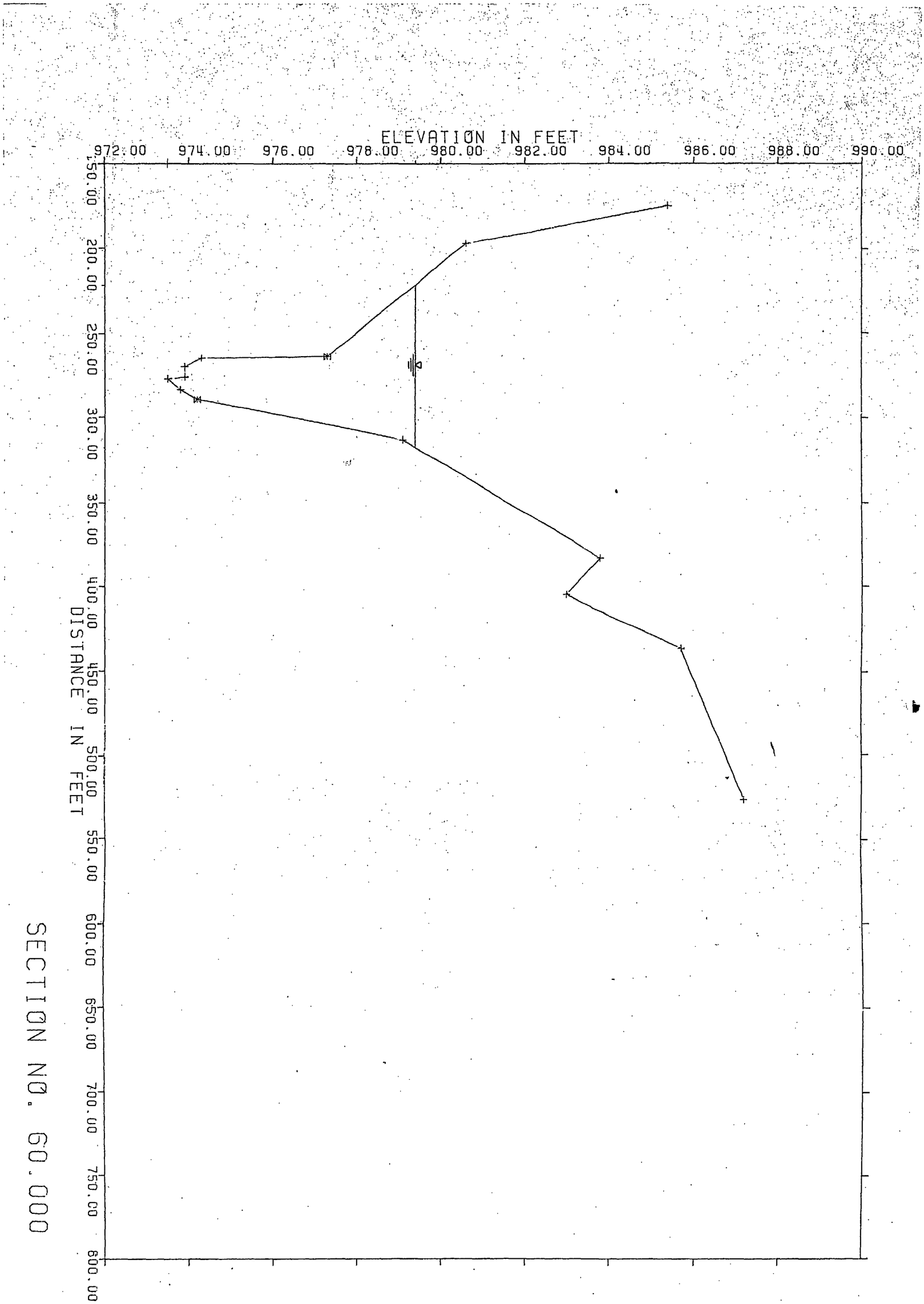
SECTION NO. 41.000



SECTION NO. 50.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 60.000

FLOOD INSURANCE STUDY

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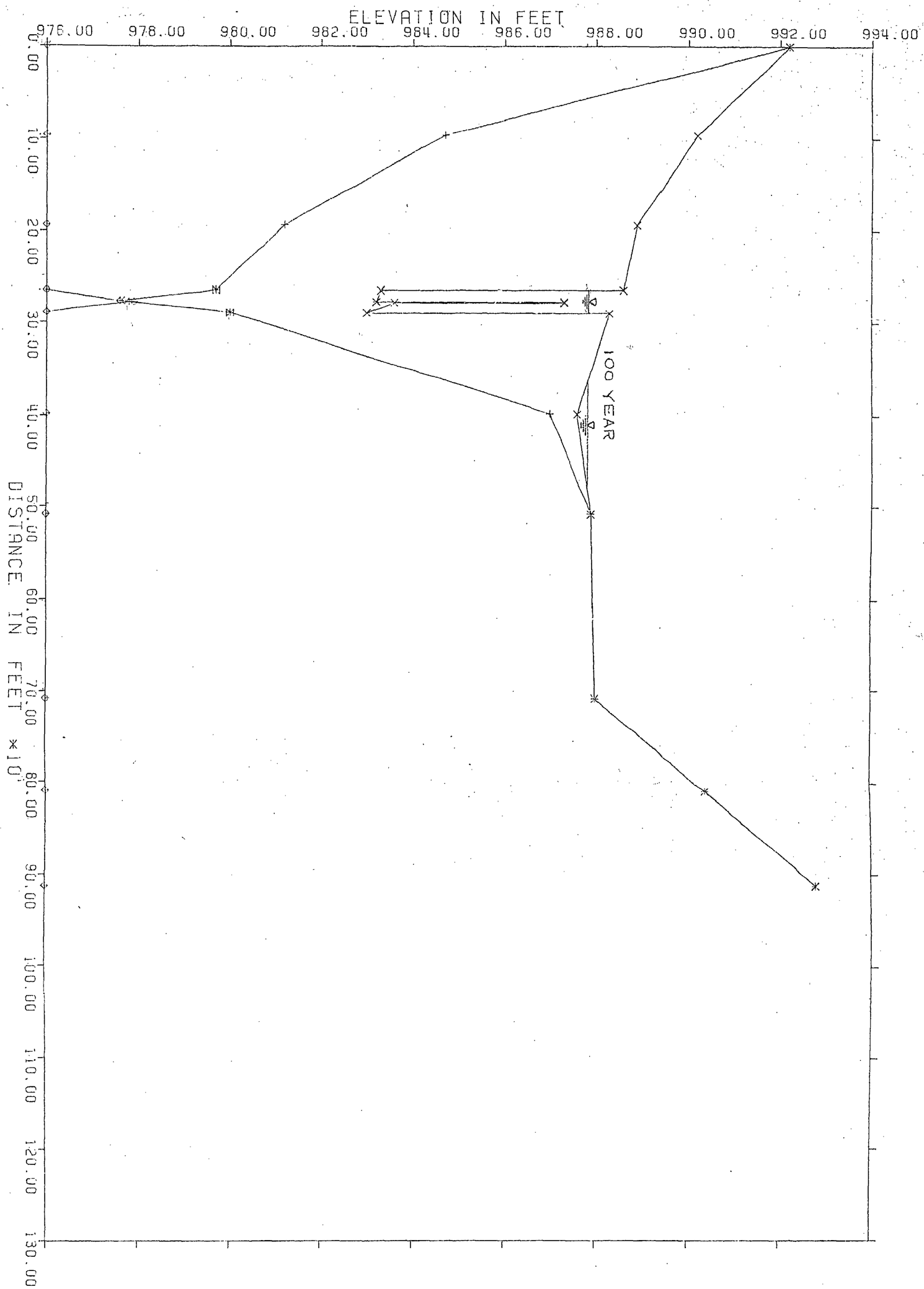

SECTION NO. 70.000

FLOOD INSURANCE STUDY

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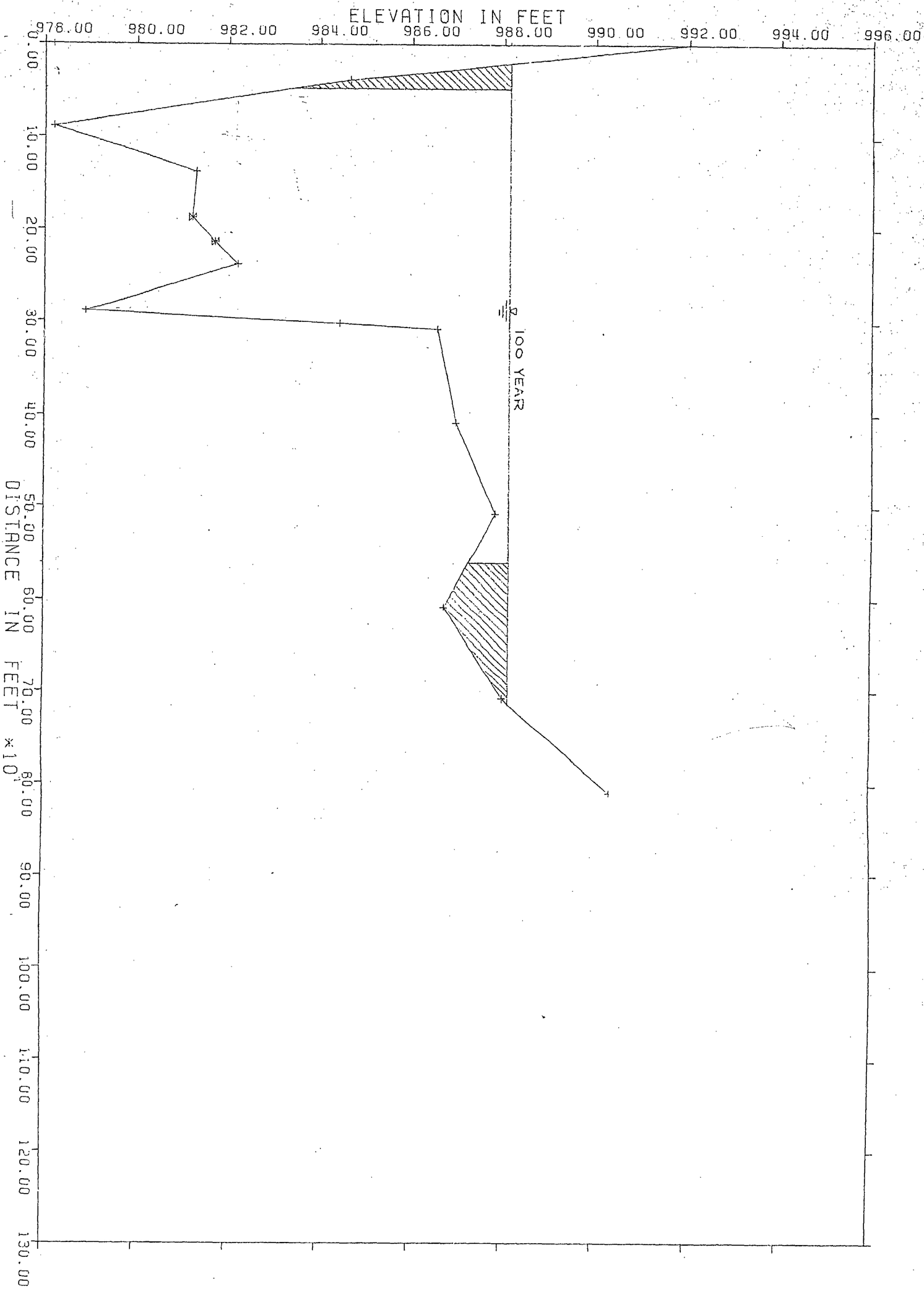

SECTION NO. 100.000

FLOOD INSURANCE STUDY

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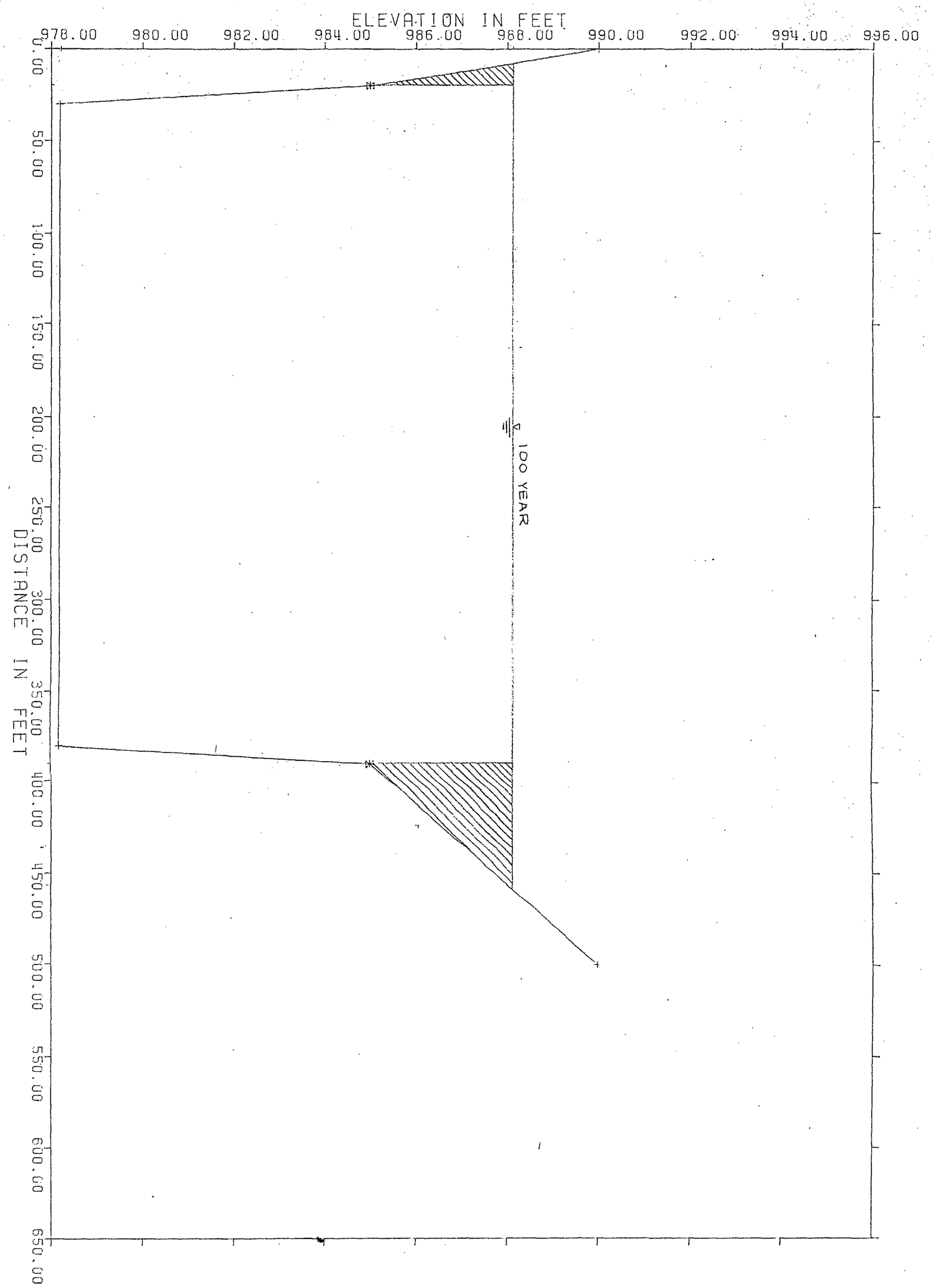

SECTION NO. 110.000

FLOOD INSURANCE STUDY

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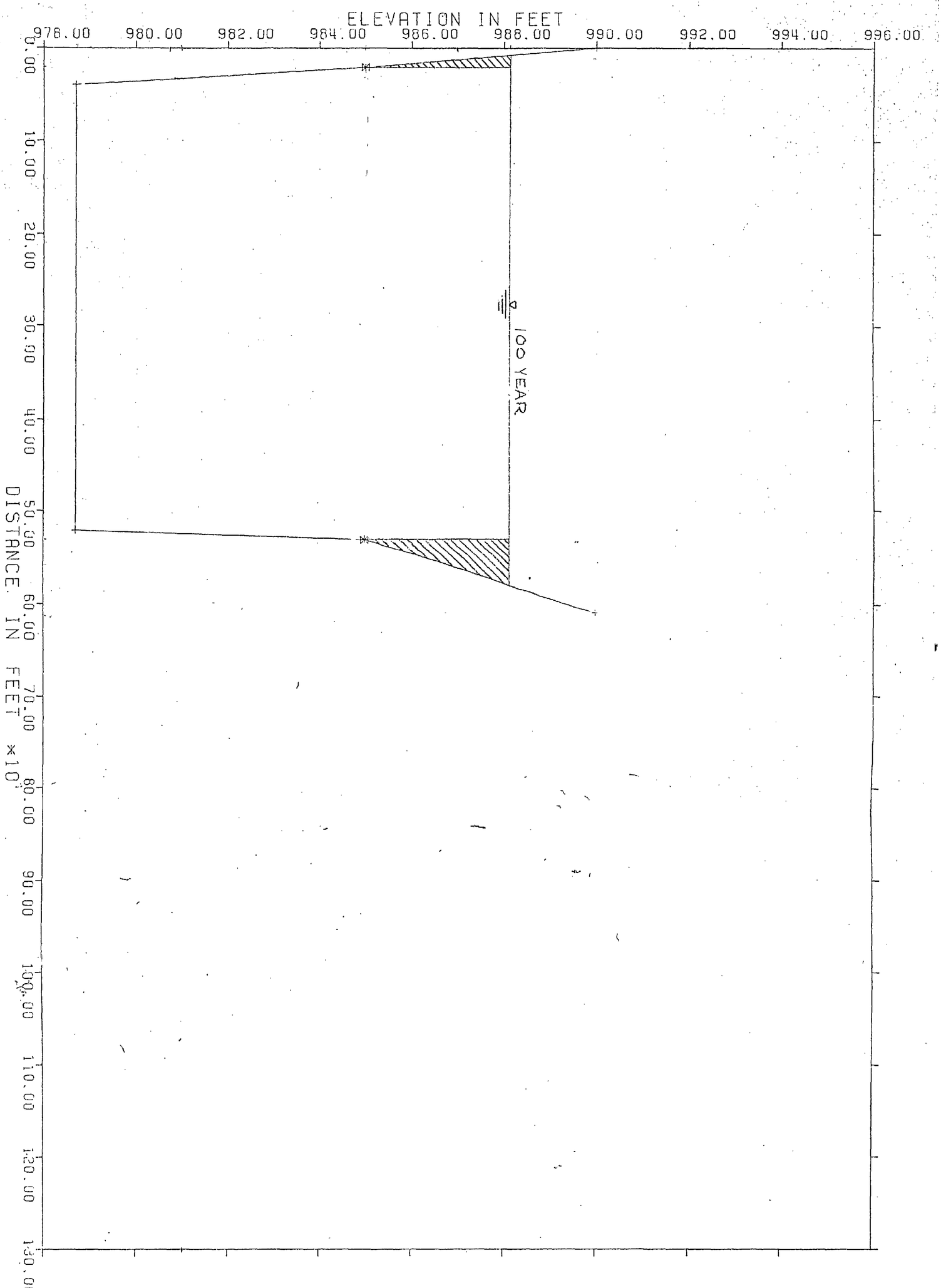
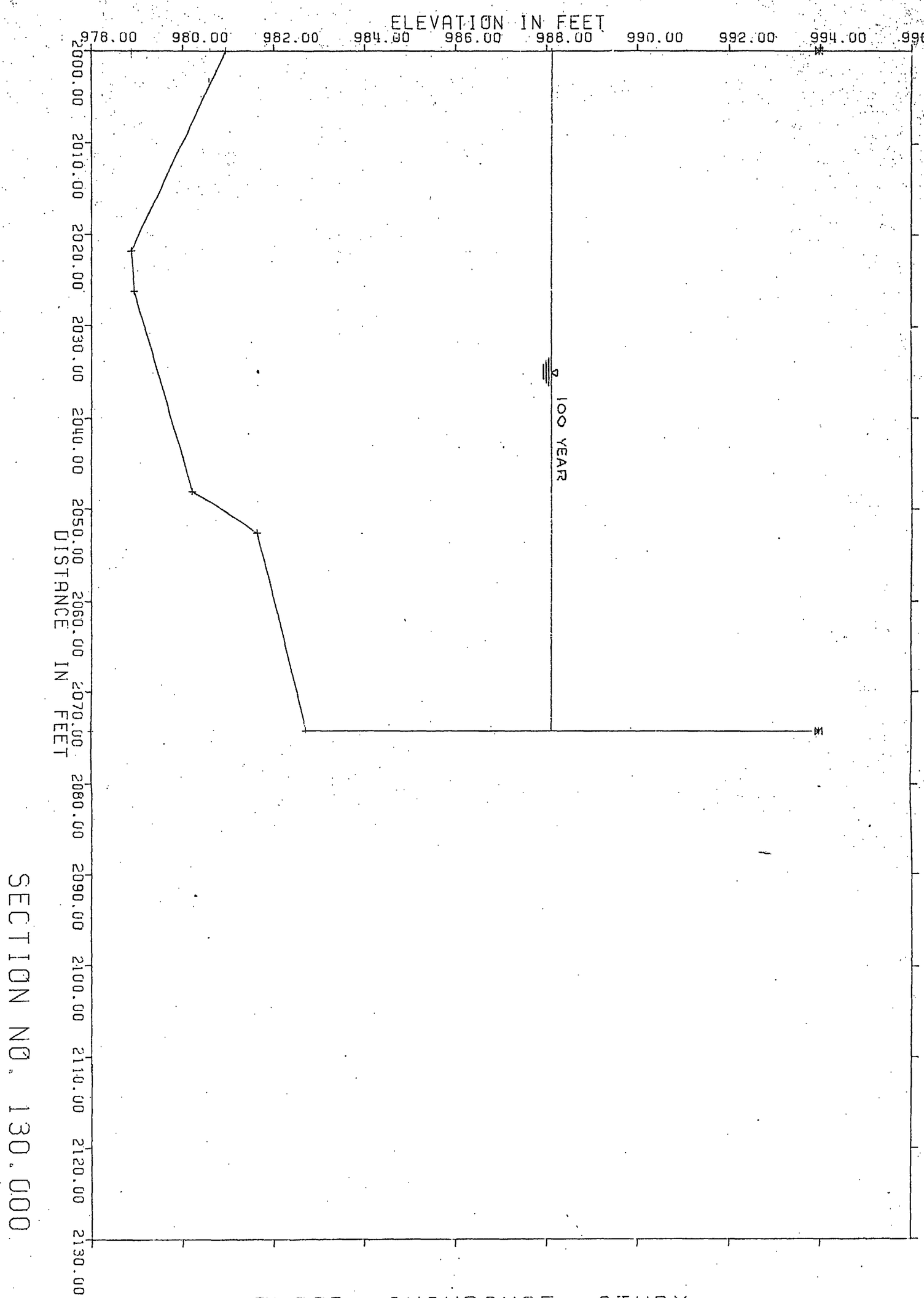


SECTION NO. 120.000

FLOOD INSURANCE STUDY

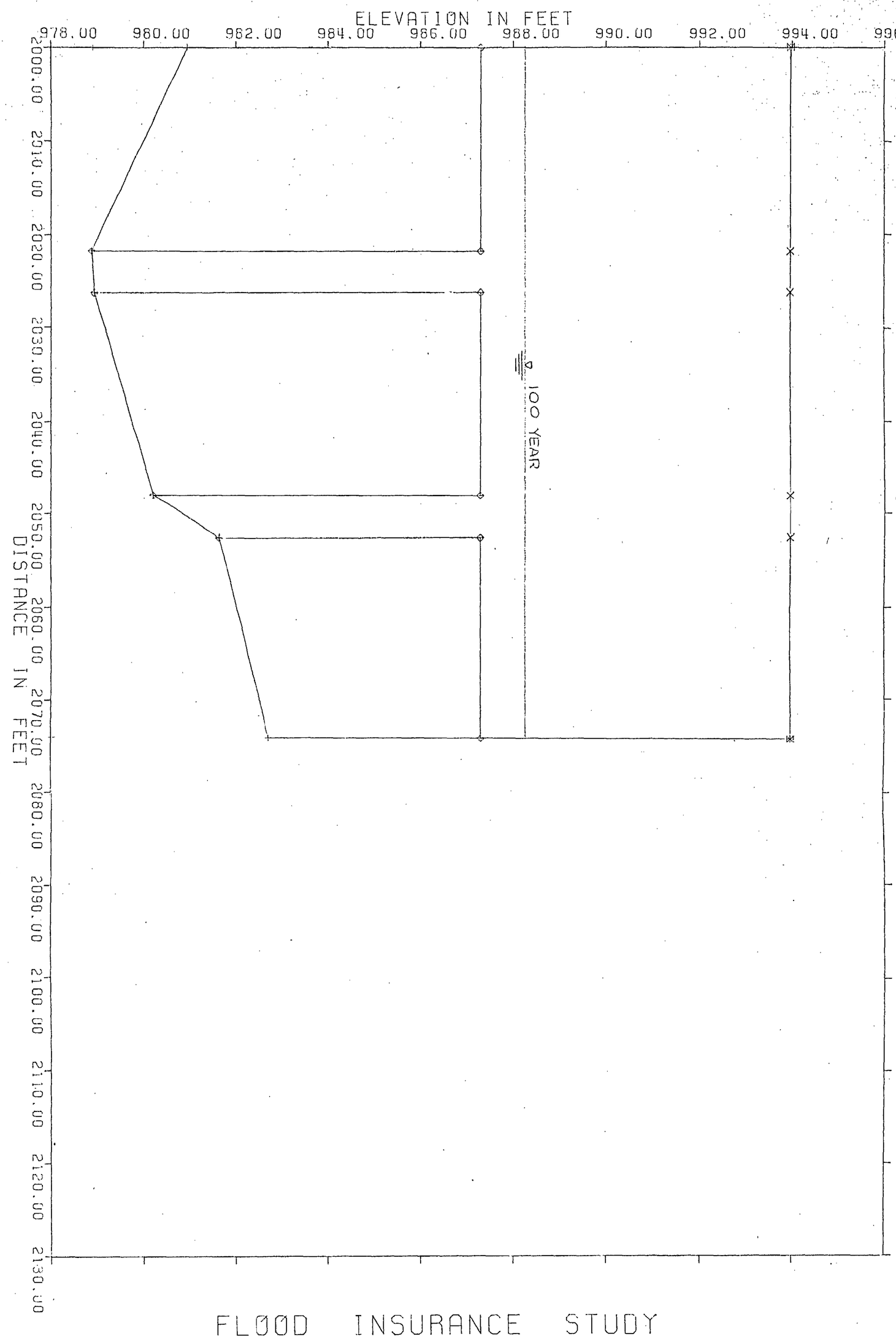
N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 130.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 140.000

FLOOD INSURANCE STUDY

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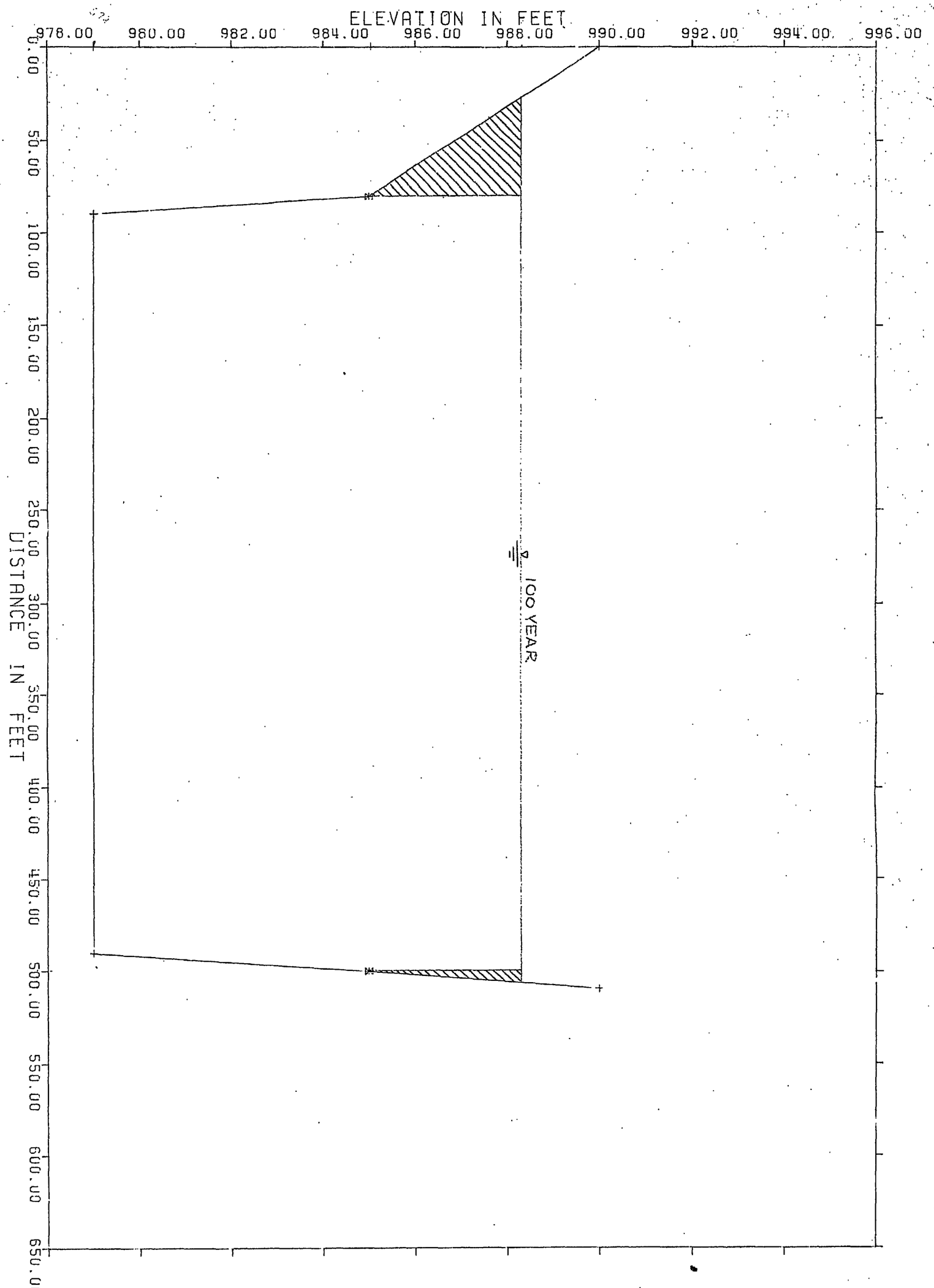
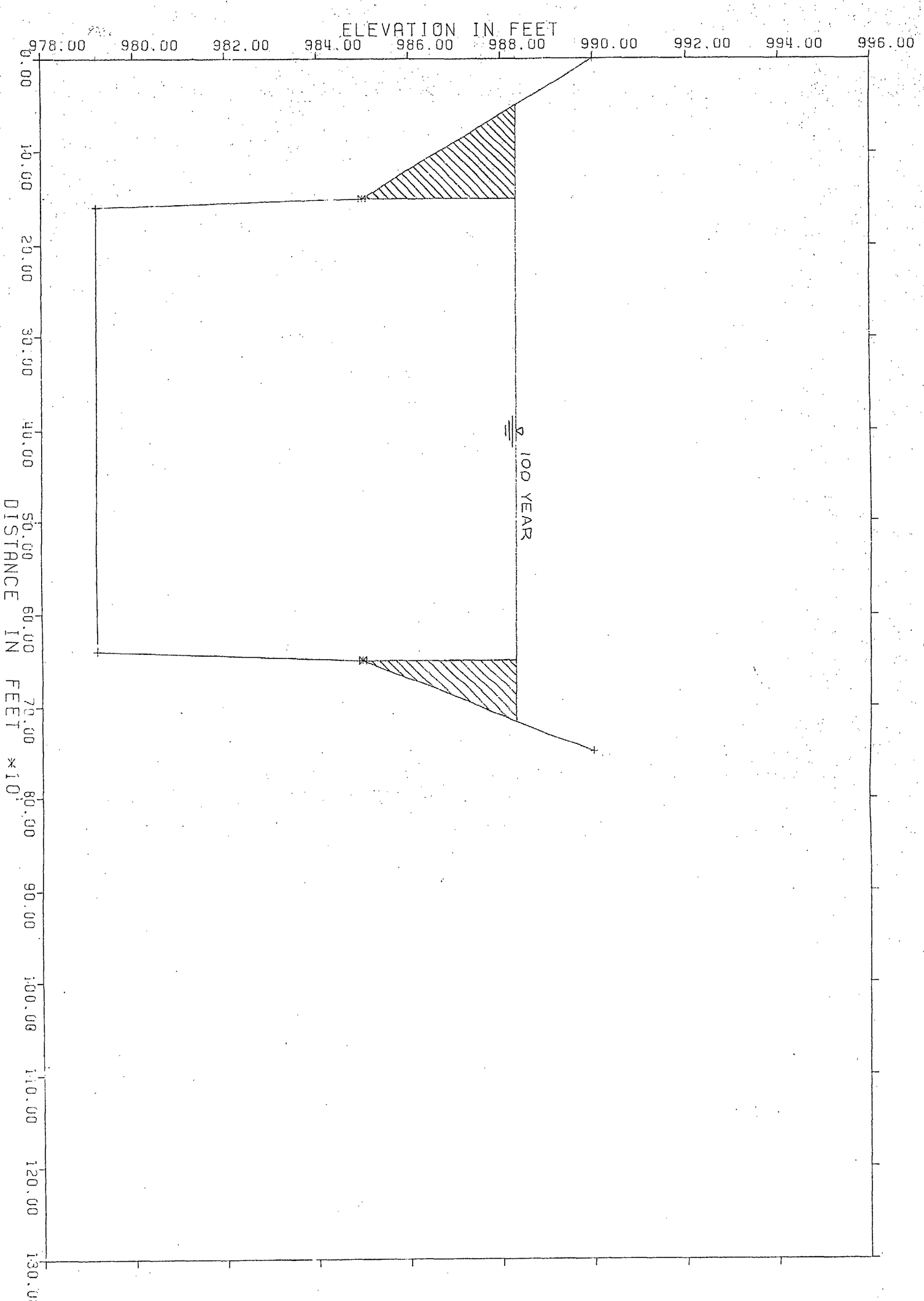


SECTION NO. 150.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD



SECTION NO. 160.000

FLOOD INSURANCE STUDY

N. BR. KALAMAZOO R AT CONCORD

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Input - above conduit to North Branch

00BREAK00

```
PAGE   1

// JOB

LOG DRIVE   CART SPEC   CART AVAIL  PHY DRIVE
  0000        0003        0003        0000

V2 M08   ACTUAL  8K  CONFIG  8K

// FOR
* LIST ALL
TITLE      UPPER GRAND FLOOD HAZARD ANALYSIS-JACKSON MICHIGAN          WSP 1
FINAL  0   56.1       16.9 44.3 50.6                                   WSP 2
CSM-ELEV   1220.      32.09      1340.      32.48      1640.      32.78
CSM-ELEV   500-YR                100-YR                500-YR
CSM-ELEV
CSM-ELEV
CSM-ELEV
XSECTN     38.1       360.       360.                             1.      WSP 1345
ELEV       940.       919.1      930.       1.                            WSP 1346
N VALUE    .09        .06        .09                                     WSP 1347
SEGMENT    2.                    3.                                      WSP 1348
DATA       -297.      940.       -297.      933.8      -287.      933.6   WSP 1349
DATA       -283.      933.1      -276.      932.9      -263.      933.4   WSP 1350
DATA       -250.      932.9      -243.      933.       -240.      933.4   WSP 1351
DATA       -145.      934.9      -45.       933.8      -37.       932.6   WSP 1352
DATA       -37.       932.6      -27.       925.7      -23.       924.    WSP 1353
DATA       -20.       923.       -16.       921.5      -11.       920.    WSP 1354
DATA       -7.        919.                  919.2      4.         919.1   WSP 1355
DATA       8.         919.6      13.        920.5      20.        924.4   WSP 1356
DATA       24.        924.9      29.        926.6      36.        931.8   WSP 1357
DATA       36.        931.8      39.        931.8      41.        931.3   WSP 1358
DATA       90.        931.8      140.       932.4      221.       933.4   WSP 1359
DATA       270.       935.9      288.       935.2      300.       935.4   WSP 1360
DATA       312.       935.5      336.       936.5      386.       937.3   WSP 1361
DATA   1   386.       940.                                               WSP 1362
XSECTN     38.4       1660.      1600.                            1.      WSP 1363
ELEV       940.       919.6      930.       1.                            WSP 1364
N VALUE    .09        .06        .09                                     WSP 1365
SEGMENT    2.                    3.                                      WSP 1366
DATA       -392.      940.       -392.      933.7      -344.      934.    WSP 1367
DATA       -244.      934.5      -144.      933.5      -94.       933.    WSP 1368
DATA       -44.       932.4      -32.       931.4      -32.       931.4   WSP 1369
DATA       -19.       923.7      -13.       921.       -7.        920.    WSP 1370
DATA       -4.        920.1                 919.9      4.         919.6   WSP 1371
DATA       7.         920.       10.        920.3      13.        921.    WSP 1372
DATA       19.        922.4      35.        930.4      35.        930.4   WSP 1373
DATA       135.       932.5      155.       933.5      225.       932.6   WSP 1374
DATA       231.       931.7      247.       932.2      265.       931.7   WSP 1375
DATA       266.       932.2      315.       932.8      415.       933.    WSP 1376
DATA       515.       932.7      535.       932.6      539.       933.2   WSP 1377
DATA       545.       933.       546.       933.8      582.       933.4   WSP 1378
DATA       594.       932.5      600.       933.7      612.       933.6   WSP 1379
DATA       621.       932.5      635.       932.1      685.       932.8   WSP 1380
DATA       785.       931.       789.       930.2      804.       930.6   WSP 1381
DATA       819.       930.4      849.       930.2      876.       931.7   WSP 1382
DATA       884.       933.3      934.       932.5      1004.      933.1   WSP 1383
DATA       1009.      933.8      1100.      935.1      1115.      935.4   WSP 1384
DATA   1   1195.      937.1      1195.      940.                          WSP 1385
```

From Mansion
Grand River above conduit
to confluence of
North Branch

```
XSECTN    38.8     200.     200.                          1.       WSP 1386
ELEV      941.     920.2    930.     1.                            WSP 1387
N VALUE   .09      .06      .09                                    WSP 1388
SEGMENT   2.                3.                                     WSP 1389
DATA      -430.    941.     -430.    939.     -428.    937.7      WSP 1390
DATA      -425.    937.5    -415.    937.4    -411.    936.9      WSP 1391
DATA      -399.    937.5    -385.    936.8    -381.    937.3      WSP 1392
DATA      -350.    936.8    -250.    935.6    -214.    933.8      WSP 1393
DATA      -121.    934.1    -121.    934.1    -91.     933.2      WSP 1394
DATA      -41.     931.2    -31.     930.4    -21.     925.6      WSP 1395
DATA      -16.     925.     -13.     923.9    -11.     921.2      WSP 1396
DATA      -8.      921.     -5.      920.6    -2.      920.4      WSP 1397
DATA      -1.25    920.3             920.3    1.       920.2      WSP 1398
DATA      3.       920.2    5.       920.4    7.       920.6      WSP 1399
DATA      9.       921.     10.      921.3    11.      921.9      WSP 1400
DATA      16.      924.1    21.      928.6    27.      932.5      WSP 1401
DATA      31.      932.9    47.      934.2    47.      934.2      WSP 1402
DATA      147.     934.3    165.     934.8    185.     934.9      WSP 1403
DATA      205.     935.3    220.     936.8    223.     937.7      WSP 1404
DATA    1 322.     937.9    347.     938.7    347.     941.       WSP 1405
BRIDGE    39       100.     100.                                   WSP 1406
COEF      .7       .6       .8       1.                            WSP 1407
DATA                932.2             924.8    8.       922.3      WSP 1408
DATA      16.      921.6    21.      921.7    26.      921.5      WSP 1409
DATA      31.      921.5    35.      922.3    42.      922.3      WSP 1410
DATA    1 45.      925.4    45.      932.2             932.2      WSP 1411
DATA      -931.    940.     -931.    938.5    -831.    937.8      WSP 1412
DATA      -780.    937.7    -680.    937.5    -580.    936.8      WSP 1413
DATA      -568.    936.8    -472.    937.6    -372.    938.2      WSP 1414
DATA      -336.    938.     -236.    936.7    -136.    935.4      WSP 1415
DATA      -36.     935.6    -24.     935.7             935.7      WSP 1416
DATA      24.      935.6    86.      934.6    186.     935.       WSP 1417
DATA      286.     936.     351.     936.5    451.     937.2      WSP 1418
DATA      551.     938.1    651.     938.6    751.     937.3      WSP 1419
DATA      851.     935.6    951.     934.4    1074.    935.1      WSP 1420
DATA    2 1158.    935.2    1158.    940.                          WSP 1421
XSECTN    39.1     740.     740.                          1.       WSP 1422
ELEV      941.     920.2    930.     1.                            WSP 1423
N VALUE   .09      .06      .09                                    WSP 1424
SEGMENT   2.                3.                                     WSP 1425
DATA      -430.    941.     -430.    939.     -428.    937.7      WSP 1426
DATA      -425.    937.5    -415.    937.4    -411.    936.9      WSP 1427
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DATA      -350.    936.8    -250.    935.6    -214.    933.8      WSP 1429
DATA      -121.    934.1    -121.    934.1    -91.     933.2      WSP 1430
DATA      -41.     931.2    -31.     930.4    -21.     925.6      WSP 1431
DATA      -16.     925.     -13.     923.9    -11.     921.2      WSP 1432
DATA      -8.      921.     -5.      920.6    -2.      920.4      WSP 1433
DATA      -1.25    920.3             920.3    1.       920.2      WSP 1434
DATA      3.       920.2    5.       920.4    7.       920.6      WSP 1435
DATA      9.       921.     10.      921.3    11.      921.9      WSP 1436
DATA      16.      924.1    21.      928.6    27.      932.5      WSP 1437
DATA      31.      932.9    47.      934.2    47.      934.2      WSP 1438
DATA      147.     934.3    165.     934.8    185.     934.9      WSP 1439
DATA      205.     935.3    220.     936.8    223.     937.7      WSP 1440
DATA    1 322.     937.9    347.     938.7    347.     941.       WSP 1441
XSECTN    39.8     150.     150.                          1.       WSP 1442
```

```
ELEV      941.     921.1    930.     1.                          WSP 1443
N VALUE   .09      .06      .09      .08                         WSP 1444
SEGMENT   2.                4.                                   WSP 1445
DATA      -371.    941.     -371.    934.6    -290.    934.1     WSP 1446
DATA      -190.    933.1    -90.     932.6    -50.     932.3     WSP 1447
DATA      -35.     932.6    -35.     932.6    -27.     932.5     WSP 1448
DATA      -22.     930.1    -18.     927.7    -12.     923.4     WSP 1449
DATA      -10.     922.4    -9.      922.1    -8.      922.1     WSP 1450
DATA      -6.      921.8    -4.      921.5    -2.      921.3     WSP 1451
DATA               921.1    2.       921.2    4.       921.3     WSP 1452
DATA      6.       921.4    8.       921.8    9.       921.7     WSP 1453
DATA      10.      922.     10.      922.4    13.      924.5     WSP 1454
DATA      17.      925.4    17.      925.4    25.      925.3     WSP 1455
DATA      33.      925.4    41.      924.9    61.      924.1     WSP 1456
DATA      69.      923.8    77.      924.3    92.      924.3     WSP 1457
DATA      103.     924.8    111.     924.     119.     924.8     WSP 1458
DATA      131.     926.3    139.     927.6    147.     928.4     WSP 1459
DATA      152.     929.7    155.     930.4    163.     933.5     WSP 1460
DATA      163.     933.5    171.     934.     182.     934.1     WSP 1461
DATA    1 185.     934.8    193.     934.7    193.     941.      WSP 1462
BRIDGE    40       70.      70.                                  WSP 1463
COEF      .7       .6       .7       1.                          WSP 1464
DATA               931.8             929.3    3.       928.9     WSP 1465
DATA      7.       928.     11.      926.5    15.      925.9     WSP 1466
DATA      17.      925.7    17.      931.8    17.7     931.8     WSP 1467
DATA      17.7     925.7    21.      925.3    27.      925.2     WSP 1468
DATA      27.      931.8    31.5     931.8    31.5     924.9     WSP 1469
DATA      34.5     924.6    34.5     922.6    41.5     921.8     WSP 1470
DATA      47.      921.7    54.      922.     54.      925.      WSP 1471
DATA      58.      925.     58.      931.8    62.5     931.8     WSP 1472
DATA      62.5     925.1    69.5     924.9    73.5     925.4     WSP 1473
DATA      75.5     925.6    75.5     931.8    76.2     931.8     WSP 1474
DATA      76.2     925.8    80.5     926.4    84.5     927.4     WSP 1475
DATA    1 91.5     928.4    91.5     931.8             931.8     WSP 1476
DATA      -956.    941.     -956.    937.1    -856.    936.9     WSP 1477
DATA      -796.    935.8    -696.    935.2    -596.    934.7     WSP 1478
DATA      -496.    934.5    -396.    934.5    -296.    934.6     WSP 1479
DATA      -196.    934.7    -96.     934.7    -46.     934.7     WSP 1480
DATA               934.7    46.      934.7    96.      934.8     WSP 1481
DATA      196.     934.7    296.     934.6    396.     934.6     WSP 1482
DATA      496.     934.6    596.     934.6    696.     934.4     WSP 1483
DATA    2 921.     935.1    921.     941.                        WSP 1484
XSECTN    40.1     450.     450.                      1.        WSP 1485
ELEV      941.     921.1    930.     1.                          WSP 1486
N VALUE   .08      .06      .09      .07                         WSP 1487
SEGMENT   2.                4.                                   WSP 1488
DATA      -371.    941.     -371.    934.6    -290.    934.1     WSP 1489
DATA      -190.    933.1    -90.     932.6    -50.     932.3     WSP 1490
DATA      -35.     932.6    -35.     932.6    -27.     932.5     WSP 1491
DATA      -22.     930.1    -18.     927.7    -12.     923.4     WSP 1492
DATA      -10.     922.4    -9.      922.1    -8.      922.1     WSP 1493
DATA      -6.      921.8    -4.      921.5    -2.      921.3     WSP 1494
DATA               921.1    2.       921.2    4.       921.3     WSP 1495
DATA      6.       921.4    8.       921.8    9.       921.7     WSP 1496
DATA      10.      922.     10.      922.4    13.      924.5     WSP 1497
DATA      17.      925.4    17.      925.4    25.      925.3     WSP 1498
DATA      33.      925.4    41.      924.9    61.      924.1     WSP 1499
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DATA      69.     923.8    77.     924.3    92.     924.3    WSP 1500
DATA     103.     924.8   111.     924.     119.    924.8    WSP 1500
DATA     131.     926.3   139.     927.6    147.    928.4    WSP 1501
DATA     152.     929.7   155.     930.4    163.    933.5    WSP 1502
DATA     163.     933.5   171.     934.     182.    934.1    WSP 1503
DATA   1 185.     934.8   193.     934.7    193.    941.     WSP 1504
XSECTN   40.9     160.    160.                      1.       WSP 1505
ELEV     940.     922.2   930.     1.                        WSP 1506
N VALUE  .08      .15     .05      .09                       WSP 1507
SEGMENT  3.               4.                                WSP 1508
DATA    -1027.    940.   -1027.   938.6    -915.   935.1    WSP 1509
DATA     -896.    936.    -630.   933.6    -600.   933.7    WSP 1510
DATA     -590.    932.9   -587.   933.6    -570.   933.4    WSP 1511
DATA     -570.    933.4   -570.   933.5    -570.   933.6    WSP 1511A
DATA     -570.    939.9   -566.   939.9    -436.   939.9    WSP 1512
DATA     -385.    939.9    -46.   939.9     -46.   932.5    WSP 1513
DATA      -46.    932.5    -46.   932.4     -46.   932.3    WSP 1513A
DATA      -39.    932.4    -35.   928.9     -31.   927.1    WSP 1514
DATA      -26.    925.3    -21.   923.7     -18.   923.     WSP 1516
DATA      -17.    922.7     -9.   922.3      -4.   922.2    WSP 1517
DATA              922.2      2.   922.4       9.   922.6    WSP 1518
DATA      13.     922.4     17.   922.7      18.   923.     WSP 1519
DATA      21.     924.9     25.   925.6      37.   925.8    WSP 1520
DATA      52.     936.7     52.   936.7      58.   935.5    WSP 1521
DATA     100.     935.4    240.   933.4     256.   935.6    WSP 1522
DATA     268.     933.3    298.   932.6     308.   932.8    WSP 1523
DATA     308.     939.9    380.   939.9     380.   937.6    WSP 1524
DATA   1 520.     935.8    532.   935.6     532.   940.     WSP 1525
BRIDGE   41       100.     100.                              WSP 1526
COEF     .8       .6       .8     1.                         WSP 1527
DATA              931.2             924.      6.    923.6    WSP 1528
DATA      13.     923.      19.   922.8      23.   922.7    WSP 1529
DATA      28.     922.6     34.   923.1      39.1  922.9    WSP 1530
DATA   1  45.1    923.8     45.1  931.2            931.2    WSP 1531
DATA     -558.    941.    -558.   934.4     -473.  935.8    WSP 1532
DATA     -373.    935.6   -273.   935.1     -173.  934.8    WSP 1533
DATA      -73.    934.8    -23.   934.4            934.4    WSP 1534
DATA       23.    934.4     73.   933.9      173.  933.1    WSP 1535
DATA      273.    935.5    373.   934.4      473.  934.5    WSP 1536
DATA      573.    933.8    673.   933.4      773.  932.9    WSP 1537
DATA      873.    932.9    973.   933.      1073.  933.2    WSP 1538
DATA   2 1173.    933.5   1173.   941.                      WSP 1539
XSECTN   41.1     1150.   1150.                     1.       WSP 1540
ELEV     942.     922.2    930.   1.                        WSP 1541
N VALUE  .C8      .03      .04    .09                       WSP 1542
SEGMENT  3.               4.                                WSP 1543
DATA    -1027.    942.   -1027.   938.6    -915.   935.1    WSP 1544
DATA     -896.    936.    -630.   933.6    -600.   933.7    WSP 1545
DATA     -590.    932.9   -587.   933.6    -570.   933.4    WSP 1546
DATA     -570.    933.4   -570.   933.5    -570.   933.6    WSP 1546A
DATA     -570.    939.9   -566.   939.9    -436.   939.9    WSP 1547
DATA     -385.    939.9    -46.   939.9     -46.   932.5    WSP 1548
DATA      -46.    932.5    -46.   932.4     -46.   932.3    WSP 1548A
DATA      -39.    932.4    -35.   928.9     -31.   927.1    WSP 1549
DATA      -26.    925.3    -21.   923.7     -18.   923.     WSP 1550
DATA      -17.    922.7     -9.   922.3      -4.   922.2    WSP 1551
DATA              922.2      2.   922.4       9.   922.6    WSP 1552
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DATA      13.     922.4     17.     922.7     18.     923.     WSP 1553
DATA      21.     924.9     25.     925.6     37.     925.8    WSP 1554
DATA      52.     936.7     52.     936.7     58.     935.5    WSP 1555
DATA     100.     935.4    240.     933.4    256.     935.6    WSP 1556
DATA     268.     933.3    298.     932.6    308.     932.8    WSP 1557
DATA     308.     939.9    380.     939.9    380.     937.6    WSP 1558
DATA   1 520.     935.8    532.     935.6    532.     942.     WSP 1559
XSECTN    41.9    110.     110.                       1.       WSP 1560
ELEV      942.    921.4    930.     1.                         WSP 1561
N VALUE   .08     .04      .06                                 WSP 1562
SEGMENT   2.               3.                                  WSP 1563
DATA     -458.    942.     -458.    933.8    -451.    933.2    WSP 1564
DATA     -415.    935.7    -400.    933.6    -369.    932.6    WSP 1565
DATA     -309.    933.8    -264.    934.1    -210.    934.     WSP 1566
DATA     -150.    932.6    -100.    932.7     -50.    932.5    WSP 1567
DATA      -42.    933.2     -42.    933.2     -38.    933.1    WSP 1568
DATA      -27.    926.5     -24.    926.      -19.    924.     WSP 1569
DATA      -17.    923.4     -15.    923.2     -11.    923.     WSP 1570
DATA       -9.    922.9      -4.    922.                921.9 WSP 1571
DATA        4.    921.5      7.    921.4      11.    922.3    WSP 1572
DATA       13.    922.6     16.    923.2      18.    923.7    WSP 1573
DATA       19.    923.9     22.    924.8      25.    925.1    WSP 1574
DATA       57.    924.8     74.    925.       88.    932.     WSP 1575
DATA       88.    932.     110.    931.7     151.    929.9    WSP 1576
DATA      197.    930.3    279.    933.3     309.    926.9    WSP 1577
DATA      410.    928.1    440.    929.      540.    926.6    WSP 1578
DATA      600.    926.6    625.    928.8     645.    928.7    WSP 1579
DATA      652.    930.1    661.    929.      711.    930.9    WSP 1580
DATA      796.    931.7    830.    931.8     860.    930.5    WSP 1581
DATA   1  860.    942.                                        WSP 1581A
BRIDGE    42      840.     800.                               WSP 1582
COEF      .6      .6       .8      1.                         WSP 1583
DATA              931.9              929.1     5.      928.3  WSP 1584
DATA      20.     924.1     24.     923.1     24.     929.1    WSP 1585
DATA      23.5    929.1     23.5    931.9     25.5    931.9    WSP 1586
DATA      25.5    929.1     25.     929.1     25.     923.1    WSP 1587
DATA      30.     922.7     39.     922.2     44.     922.     WSP 1588
DATA      55.     923.3     55.     929.1     54.5    929.1    WSP 1589
DATA      54.5    931.9     56.5    931.9     56.5    929.1    WSP 1590
DATA      56.     929.1     56.     923.3     62.     924.3    WSP 1591
DATA      69.     926.      76.     928.3     80.     929.1    WSP 1592
DATA   1  80.     931.9               931.9                    WSP 1593
DATA     -721.    941.     -721.    940.     -631.    936.4    WSP 1594
DATA     -568.    934.6    -490.    934.4    -390.    934.1    WSP 1595
DATA     -290.    934.3    -190.    934.7     -90.    934.9    WSP 1596
DATA      -40.    935.                934.7     40.    934.5    WSP 1597
DATA       90.    934.1     190.    934.      290.    933.3    WSP 1598
DATA      390.    932.8     490.    932.1     590.    931.7    WSP 1599
DATA      690.    931.9     790.    932.3     890.    932.2    WSP 1600
DATA      990.    931.3    1090.    930.9    1190.    930.9    WSP 1600
DATA     1290.    931.4    1390.    932.1    1490.    932.6    WSP 1601
DATA     1590.    933.3    1690.    933.7    1790.    934.3    WSP 1602
DATA     1890.    934.8    1990.    935.     2083.    935.     WSP 1603
DATA   2 2183.    935.6    2183.    941.                       WSP 1604
XSECTN    42.5    1310.    1270.                      1.       WSP 1605
ELEV      942.    922.     930.     1.                         WSP 1606
N VALUE   .1      .04      .08                                 WSP 1607
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SEGMENT   2.                3.                                    WSP 1608
DATA      -904.     942.      -904.     935.7     -897.     935.6    WSP 1609
DATA      -884.     931.4     -839.     932.3     -744.     929.3    WSP 1610
DATA      -694.     924.4     -629.     923.      -579.     925.9    WSP 1611
DATA      -529.     926.      -511.     932.8     -459.     931.3    WSP 1612
DATA      -431.     925.4     -391.     924.7     -91.      924.8    WSP 1613
DATA      -41.      925.7     -31.      926.8     -26.      926.8    WSP 1614
DATA      -26.      926.8     -20.      925.9     -15.      924.1    WSP 1615
DATA      -13.      923.7     -9.       922.8     -5.       922.2    WSP 1616
DATA      -2.       922.      7.        922.1     10.       922.6    WSP 1617
DATA      12.       923.2     15.       923.8     15.       924.1    WSP 1618
DATA      18.       925.7     21.       926.      29.       926.1    WSP 1619
DATA      29.       926.1     61.       925.9     129.      931.5    WSP 1620
DATA      198.      932.8     298.      932.9     355.      932.1    WSP 1621
DATA      385.      932.4     515.      932.      548.      931.7    WSP 1622
DATA      648.      932.2     748.      932.1     848.      933.2    WSP 1623
DATA      898.      932.6     958.      933.8     1027.     933.     WSP 1624
DATA      1127.     934.1     1227.     934.      1327.     933.4    WSP 1625
DATA      1427.     935.1     1527.     935.      1647.     935.1    WSP 1626
DATA    1 1677.     934.7     1677.     942.                         WSP 1627
XSECTN    42.9      140.      140.                          1.       WSP 1628
ELEV      943.      922.9     930.      1.                           WSP 1629
N VALUE   .1        .4        .08                                    WSP 1630
SEGMENT   2.                3.                                    WSP 1631
DATA      -1100.    943.      -1100.    933.1     -705.     930.6    WSP 1632
DATA      -695.     928.      -645.     925.9     -550.     925.5    WSP 1633
DATA      -450.     930.2     -405.     930.2     -355.     932.1    WSP 1634
DATA      -255.     930.5     -190.     929.8     -87.      926.7    WSP 1635
DATA      -57.      925.8     -43.      926.2     -33.      926.3    WSP 1636
DATA      -33.      926.3     -25.      925.8     -22.      924.9    WSP 1637
DATA      -21.      924.5     -19.      924.3     -18.      924.2    WSP 1638
DATA      -15.      923.5     -13.      923.8     -9.       923.4    WSP 1639
DATA      -6.       923.3     -2.       923.2                923.     WSP 1640
DATA      2.        923.      6.        922.9     9.        923.3    WSP 1641
DATA      11.       923.1     14.       923.      17.       923.4    WSP 1642
DATA      19.       923.8     19.       924.8     32.       925.5    WSP 1643
DATA      40.       926.5     60.       927.      60.       927.     WSP 1644
DATA      70.       926.1     102.      927.2     134.      931.5    WSP 1645
DATA      178.      933.1     214.      933.2     224.      933.5    WSP 1646
DATA      422.      935.2     450.      935.1     578.      935.5    WSP 1647
DATA      678.      935.8     878.      937.3     978.      937.6    WSP 1648
DATA    1 1078.     938.1     1078.     943.                         WSP 1649
BRIDGE    43        100.      100.                                   WSP 1650
COEF      .7        .6        .8        1.                           WSP 1651
DATA                932.3                925.3     5.        924.7    WSP 1652
DATA      10.       924.3     15.       924.1     20.       923.6    WSP 1653
DATA      25.       923.3     30.       923.7     35.       924.1    WSP 1654
DATA      39.       924.7     45.       925.4     45.       932.3    WSP 1655
DATA    1           932.3                                            WSP 1656
DATA      -1127.    942.      -1127.    939.      -1073.    937.9    WSP 1657
DATA      -973.     935.7     -873.     934.      -773.     933.1    WSP 1658
DATA      -673.     932.5     -573.     932.5     -473.     932.9    WSP 1659
DATA      -373.     933.3     -273.     933.6     -173.     934.2    WSP 1660
DATA      -73.      934.7     -23.      935.4                935.5    WSP 1661
DATA      23.       935.5     73.       934.8     173.      934.2    WSP 1662
DATA      273.      934.5     388.      935.2     488.      935.3    WSP 1663
DATA      588.      935.7     688.      936.5     788.      936.9    WSP 1664
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DATA  2  888.    937.3   988.    937.7   988.    942.    WSP 1665
XSECTN    43.1   1980.   1920.                1.       WSP 1666
ELEV      943.   922.6   930.    1.                       WSP 1667
N VALUE   .09    .06     .09                              WSP 1668
SEGMENT   2.             3.                               WSP 1669
DATA      -1308. 943.    -1308.  941.2   -1283.  940.6   WSP 1670
DATA      -1268. 940.6   -1253.  940.2   -972.   938.    WSP 1671
DATA      -958.  934.4   -916.   933.4   -866.   933.3   WSP 1672
DATA      -800.  932.8   -660.   928.4   -560.   928.5   WSP 1673
DATA      -500.  931.7   -450.   932.8   -400.   934.3   WSP 1674
DATA      -350.  935.    -242.   931.8   -190.   927.2   WSP 1675
DATA      -150.  926.    -118.   926.2   -115.   925.6   WSP 1676
DATA      -98.   925.2   -87.    926.3   -48.    928.6   WSP 1677
DATA      -48.   928.6   -33.    927.5   -22.    925.1   WSP 1678
DATA      -20.   924.5   -18.    924.1   -15.    923.6   WSP 1679
DATA      -9.    923.4   -5.     923.    -2.     922.6   WSP 1680
DATA             922.7   1.      922.8   10.     923.1   WSP 1681
DATA      16.    923.9   20.     924.5   26.     925.3   WSP 1682
DATA      35.    927.2   44.     928.2   44.     928.2   WSP 1683
DATA      60.    928.7   100.    931.    195.    933.4   WSP 1684
DATA      241.   934.5   400.    935.5   430.    935.4   WSP 1685
DATA      460.   935.4   500.    934.7   600.    935.7   WSP 1686
DATA  1   650.   936.8   700.    937.8   700.    943.    WSP 1687
XSECTN    43.4   2540.   2200.                1.       WSP 1688
ELEV      944.   923.6   930.    1.                       WSP 1689
N VALUE   .1     .06     .1                               WSP 1690
SEGMENT   2.             3.                               WSP 1691
DATA      -1003. 944.    -1003.  937.1   -999.   937.1   WSP 1692
DATA      -980.  930.6   -965.   932.3   -940.   932.3   WSP 1693
DATA      -840.  933.    -740.   932.5   -640.   931.6   WSP 1694
DATA      -605.  931.2   -505.   928.3   -405.   928.    WSP 1695
DATA      -390.  927.7   -283.   926.4   -233.   925.8   WSP 1696
DATA      -183.  926.9   -38.    927.    -28.    927.3   WSP 1697
DATA      -28.   927.3   -24.    926.7   -20.    925.3   WSP 1697
DATA      -19.   925.    -16.    924.2   -13.    923.8   WSP 1698
DATA      -11.   923.8   -7.     924.1   -1.     924.1   WSP 1699
DATA      3.     923.9   6.      923.7   7.      923.6   WSP 1700
DATA      9.     923.7   11.     924.1   13.     924.5   WSP 1701
DATA      16.    924.7   19.     925.    21.     925.3   WSP 1702
DATA      23.    926.3   28.     927.3   33.     928.8   WSP 1703
DATA      51.    930.3   54.     932.    54.     932.    WSP 1704
DATA      91.    934.1   107.    935.4   124.    936.1   WSP 1705
DATA      130.   936.9   155.    937.7   185.    938.3   WSP 1706
DATA      285.   937.2   385.    935.7   485.    936.1   WSP 1707
DATA      585.   936.5   685.    937.8   785.    940.6   WSP 1708
DATA  1   817.   942.2   832.    942.2   832.    944.    WSP 1709
XSECTN    43.7   1320.   1260.                1.       WSP 1710
ELEV      944.   924.1   930.    1.                       WSP 1711
N VALUE   .1     .06     .1                               WSP 1712
SEGMENT   2.             3.                               WSP 1713
DATA      -646.  944.    -646.   940.2   -639.   937.5   WSP 1714
DATA      -630.  939.    -595.   938.9   -580.   938.5   WSP 1715
DATA      -380.  936.3   -280.   933.9   -240.   933.9   WSP 1716
DATA      -200.  933.    -100.   935.2   -92.    935.4   WSP 1717
DATA      -38.   934.8   -38.    934.8   -34.    934.2   WSP 1718
DATA      -33.   932.8   -29.    930.5   -23.    928.    WSP 1719
DATA      -18.   926.8   -16.    926.    -13.    925.3   WSP 1720
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DATA      -10.    924.8    -7.     924.5    -4.     924.4     WSP 1721
DATA       -1.    924.2             924.2     2.     924.2     WSP 1722
DATA        5.    924.2     8.      924.1    11.     925.1     WSP 1723
DATA       14.    925.5    16.      926.     17.     926.4     WSP 1724
DATA       30.    927.4    43.      928.1    43.     928.1     WSP 1725
DATA      120.    928.3    320.     927.7    520.    927.6     WSP 1726
DATA      680.    929.5    716.     929.6    786.    929.1     WSP 1727
DATA      886.    930.4    986.     929.7    1086.   930.      WSP 1728
DATA     1136.    929.9    1236.    930.9    1325.   931.2     WSP 1729
DATA     1355.    933.6    1367.    934.2    1379.   933.6     WSP 1730
DATA     1393.    932.7    1404.    930.6    1417.   932.6     WSP 1731
DATA     1470.    933.     1520.    933.8    1620.   937.1     WSP 1732
DATA   1 1630.    937.2    1630.    944.                       WSP 1733
XSECTN     43.9   270.     270.                       1.      WSP 1734
ELEV      946.    925.3    930.     1.                         WSP 1735
N VALUE    .1     .06      .1                                  WSP 1736
SEGMENT    2.              3.                                  WSP 1737
DATA      -840.    946.     -840.    943.4    -715.   938.7     WSP 1738
DATA      -616.    937.1    -610.    935.7    -594.   939.8     WSP 1739
DATA      -562.    939.7    -552.    937.7    -540.   938.4     WSP 1740
DATA      -530.    940.     -480.    940.3    -425.   937.8     WSP 1741
DATA      -350.    938.8    -312.    939.4    -300.   938.8     WSP 1742
DATA      -296.    938.7    -292.    938.1    -277.   930.6     WSP 1743
DATA      -269.    929.1    -254.    928.6    -122.   928.5     WSP 1744
DATA      -33.     928.4    -33.     928.4    -29.    926.8     WSP 1745
DATA      -25.     925.8    -21.     925.9    -17.    926.1     WSP 1746
DATA      -13.     926.1    -9.      925.9    -5.     926.      WSP 1747
DATA       -1.     925.9     3.      925.9     7.     925.7     WSP 1748
DATA       19.     925.5     21.     925.3     25.    925.6     WSP 1749
DATA       27.     926.1     29.     926.8     35.    929.1     WSP 1750
DATA       42.     931.1     42.     931.1     74.    932.2     WSP 1751
DATA      170.     932.7     298.    936.5     364.   936.8     WSP 1752
DATA      446.     938.      494.    937.5     574.   936.2     WSP 1753
DATA      675.     935.9     700.    936.4     730.   934.7     WSP 1754
DATA      820.     936.6     850.    936.1     883.   934.1     WSP 1755
DATA   1  905.     935.9     955.    935.8     955.   946.      WSP 1756
BRIDGE     44      75.       75.                                 WSP 1757
COEF       .85     .6        .8      1.                         WSP 1758
DATA                936.3             934.3     23.5   926.7   WSP 1759
DATA       34.     925.5     34.     936.3     36.    936.3     WSP 1760
DATA       36.     926.1     41.     925.8     43.5   926.1     WSP 1761
DATA       52.     926.3     59.     926.1     72.    925.9     WSP 1762
DATA       79.     926.      79.     936.3     81.    936.3     WSP 1763
DATA       81.     926.1     89.     926.5     95.    927.1     WSP 1764
DATA      109.     932.8     115.    933.7     115.   936.3     WSP 1765
DATA   1           936.3                                       WSP 1766
DATA      -600.    942.     -600.    941.6    -500.   941.3     WSP 1767
DATA      -400.    940.7    -300.    940.1    -200.   939.8     WSP 1768
DATA      -100.    939.6    -57.     939.4             939.1   WSP 1769
DATA       57.     938.9     100.    938.6     200.   938.      WSP 1770
DATA       300.    937.5     400.    937.1     500.   936.8     WSP 1771
DATA       600.    936.8     700.    936.9     800.   936.8     WSP 1772
DATA   2   900.    936.4     900.    942.                       WSP 1773
XSECTN     44.1    35.       35.                        1.      WSP 1774
ELEV      950.     925.5     930.     1.                         WSP 1775
N VALUE    .09     .04       .09                                 WSP 1776
SEGMENT    2.              3.                                  WSP 1777
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DATA      -600.   950.    -600.   941.6   -500.   941.3   WSP 1778
DATA      -400.   940.7   -300.   940.1   -200.   939.8   WSP 1779
DATA      -100.   939.6   -70.    939.4   -70.    939.4   WSP 1780
DATA      -60.    939.8   -36.5   926.7   -25.    925.5   WSP 1781
DATA      -23.    926.1   -18.    925.8   -15.5   926.1   WSP 1782
DATA      -7.     926.3           926.1   13.     925.9   WSP 1783
DATA      20.     926.    22.     926.7   30.     926.5   WSP 1784
DATA      36.     927.1   50.     932.8   56.     933.7   WSP 1785
DATA      56.     933.7   100.    938.6   200.    938.    WSP 1786
DATA   1  900.    950.                                    A
XSECTN    44.15   40.     40.                     1.      WSP 1774 X
ELEV      950.    925.5   930.    1.                      WSP 1775 X
N VALUE   .09     .04     .09                             WSP 1776 X
SEGMENT   2.              3.                              WSP 1777 X
DATA      -600.   950.    -600.   941.6   -500.   941.3   WSP 1778 X
DATA      -400.   940.7   -300.   940.1   -200.   939.8   WSP 1779 X
DATA      -100.   939.6   -70.    939.4   -70.    939.4   WSP 1780 X
DATA      -60.    939.8   -36.5   926.7   -25.    925.5   WSP 1781 X
DATA      -23.    926.1   -18.    925.8   -15.5   926.1   WSP 1782 X
DATA      -7.     926.3           926.1   13.     925.9   WSP 1783 X
DATA      20.     926.    22.     926.7   30.     926.5   WSP 1784 X
DATA      36.     927.1   50.     932.8   56.     933.7   WSP 1785 X
DATA      56.     933.7   100.    938.6   200.    938.    WSP 1786 X
DATA   1  900.    950.                                    AX
BRIDGE    44.2    40.     40.                             WSP 1788
COEF      .85     .6      .8      1.                      WSP 1789
DATA              935.4           932.7   5.      933.    WSP 1790
DATA      13.     928.1   23.     927.7   28.     926.6   WSP 1791
DATA      33.5    925.9   33.5    935.4   35.5    935.4   WSP 1792
DATA      35.5    926.1   47.5    926.    59.5    926.    WSP 1793
DATA      70.5    925.4   78.5    925.1   78.5    935.4   WSP 1794
DATA      80.5    935.4   80.5    925.1   88.5    925.9   WSP 1795
DATA      96.5    927.2   102.5   929.7   110.5   932.    WSP 1796
DATA   1  114.    932.8   114.    935.4           935.4   WSP 1797
DATA      -1107.  947.    -1107.  946.6   -1007.  945.6   WSP 1798
DATA      -907.   944.8   -807.   944.4   -707.   943.8   WSP 1799
DATA      -607.   943.4   -507.   942.8   -407.   942.5   WSP 1800
DATA      -307.   942.2   -207.   942.    -107.   941.8   WSP 1801
DATA      -57.    941.8           941.6   57.     941.5   WSP 1802
DATA      107.    941.1   207.    940.7   307.    940.2   WSP 1803
DATA      407.    939.9   507.    939.9   607.    939.9   WSP 1804
DATA      707.    940.3   807.    940.8   907.    941.6   WSP 1805
DATA      1007.   942.6   1107.   943.8   1207.   945.    WSP 1806
DATA   2  1307.   946.6   1307.   947.                    WSP 1807
XSECTN    44.3    300.    300.                    1.      WSP 1808
ELEV      950.    925.5   930.    1.                      WSP 1809
N VALUE   .09     .04     .09                             WSP 1810
SEGMENT   2.              3.                              WSP 1811
DATA      -600.   950.    -600.   941.6   -500.   941.3   WSP 1812
DATA      -400.   940.7   -300.   940.1   -200.   939.8   WSP 1813
DATA      -100.   939.6   -70.    939.4   -70.    939.4   WSP 1814
DATA      -60.    939.8   -36.5   926.7   -25.    925.5   WSP 1818
DATA      -23.    926.1   -18.    925.8   -15.5   926.1   WSP 1819
DATA      -7.     926.3           926.1   13.     925.9   WSP 1820
DATA      20.     926.    22.     926.7   30.     926.5   WSP 1821
DATA      36.     927.1   50.     932.8   56.     933.7   WSP 1822
DATA      56.     933.7   100.    938.6   200.    938.    WSP 1823
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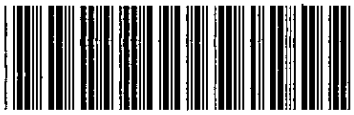

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Input - above North Branch



DATA	1	900.	950.					AX	
BRIDGE		44.2	40.	40.					WSP 1788
CCEF		.85	.6	.8	1.				WSP 1789
DATA			935.4		932.7	5.	933.		WSP 1790
DATA		13.	928.1	23.	927.7	28.	926.6		WSP 1791
DATA		33.5	925.9	33.5	935.4	35.5	935.4		WSP 1792
DATA		35.5	926.1	47.5	926.	59.5	926.		WSP 1793
DATA		70.5	925.4	78.5	925.1	78.5	935.4		WSP 1794
DATA		80.5	935.4	80.5	925.1	88.5	925.9		WSP 1795
DATA		96.5	927.2	102.5	929.7	110.5	932.		WSP 1796
DATA	1	114.	932.8	114.	935.4		935.4		WSP 1797
DATA		-1107.	947.	-1107.	946.6	-1007.	945.6		WSP 1798
DATA		-907.	944.8	-807.	944.4	-707.	943.8		WSP 1799
DATA		-607.	943.4	-507.	942.8	-407.	942.5		WSP 1800
DATA		-307.	942.2	-207.	942.	-107.	941.8		WSP 1801
DATA		-57.	941.8		941.6	57.	941.5		WSP 1802
DATA		107.	941.1	207.	940.7	307.	940.2		WSP 1803
DATA		407.	939.9	507.	939.9	607.	939.9		WSP 1804
DATA		707.	940.3	807.	940.8	907.	941.6		WSP 1805
DATA		1007.	942.6	1107.	943.8	1207.	945.		WSP 1806
DATA	2	1307.	946.6	1307.	947.				WSP 1807
XSECTN		44.3	300.	300.			65.		WSP 1808
ELEV		950.	925.5	930.	1.				WSP 1809
N VALUE		.09	.04	.09					WSP 1810
SEGMENT		2.		3.					WSP 1811
DATA		-600.	950.	-600.	941.6	-500.	941.3		WSP 1812
DATA		-400.	940.7	-300.	940.1	-200.	939.8		WSP 1813
DATA		-100.	939.6	-70.	939.4	-70.	939.4		WSP 1814
DATA		-60.	939.8	-36.5	926.7	-25.	925.5		WSP 1818
DATA		-23.	926.1	-18.	925.8	-15.5	926.1		WSP 1819
DATA		-7.	926.3		926.1	13.	925.9		WSP 1820
DATA		20.	926.	22.	926.7	30.	926.5		WSP 1821
DATA		36.	927.1	50.	932.8	56.	933.7		WSP 1822
DATA		56.	933.7	100.	938.6	200.	938.		WSP 1823
DATA		700.	937.5	800.	936.8	900.	936.4		WSP 1824
DATA	1	900.	950.						WSP 1824A
XSECTN		45.1	2280.	2240.			21.5		WSP 1825-
ELEV		945.	925.5	930.	1.				WSP 1826
N VALUE		.09	.04	.1					WSP 1827
SEGMENT		2.		3.					WSP 1828
DATA		-94.	945.	-94.	941.	-83.	940.4		WSP 1829
DATA		-72.	940.2	-60.	938.	-48.	934.8		WSP 1830
DATA		-38.	932.5	-30.	931.4	-30.	931.4		WSP 1831
DATA		-26.	929.3	-21.	927.3	-20.	927.3		WSP 1832
DATA		-18.	925.6	-15.	925.7	-11.	925.8		WSP 1833
DATA		-6.	925.9		925.9	5.	925.7		WSP 1834
DATA		10.	925.5	13.	925.6	16.	925.9		WSP 1835
DATA		18.	927.	20.	927.3	21.	927.7		WSP 1836
DATA		21.	927.7	71.	928.3	171.	928.7		WSP 1837
DATA		271.	928.4	371.	928.6	411.	928.8		WSP 1838
DATA		426.	934.2	441.	935.4	467.	935.4		WSP 1839
DATA		482.	935.3	499.	935.9	525.	937.3		WSP 1840
DATA	1	560.	938.2	580.	940.7	580.	945.		WSP 1841
XSECTN		45.5	3560.	2800.			21.5		WSP 1842
ELEV		954.	926.2	930.	1.				WSP 1843
N VALUE		.1	.04	.1					WSP 1844
SEGMENT		2.		3.					WSP 1845

Main Stem above North Branch

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     DATA       -1142.    954.      -1142.    952.6     -1042.    950.2     WSP 1846
     DATA        -942.    947.8      -842.    945.5      -742.    945.8     WSP 1847
     DATA        -642.    942.9      -542.    940.6      -526.    933.7     WSP 1848
     DATA        -510.    930.5      -410.    929.5      -320.    929.1     WSP 1849
     DATA        -230.    929.5      -133.    929.3       -43.    928.6     WSP 1850
     DATA         -43.    928.6       -38.    927.8      -14.5    927.8     WSP 1851
     DATA         -14.    927.7        -9.    927.7        -6.    927.5     WSP 1852
     DATA          -2.    927.4               927.2         1.    927.1     WSP 1853
     DATA           4.    926.8         6.    926.5         8.    926.4     WSP 1854
     DATA          10.    926.2        11.    926.2        12.    926.4     WSP 1855
     DATA          13.    926.6        14.    927.8        19.    928.8     WSP 1856
     DATA          19.    928.8       119.    928.4       219.    930.8     WSP 1857
     DATA         232.    934.5       292.    941.        347.    945.      WSP 1858
     DATA         422.    940.1       522.    935.7       622.    936.5     WSP 1859
     DATA   1     722.    949.8       722.    954.                          WSP 1859A
     XSECTN      45.8    1085.        900.                        21.5      WSP 1860
     ELEV         948.    928.3       930.    1.                            WSP 1861
     N VALUE     .035     .08         .1      .04       .035                WSP 1862
     SEGMENT      4.                  5.                                    WSP 1863
     DATA        -585.    948.       -585.    945.4     -570.     944.1     WSP 1864
     DATA        -520.    941.3      -470.    940.2     -420.     943.1     WSP 1865
     DATA        -420.    943.1      -370.    938.9     -320.     938.4     WSP 1866
     DATA        -270.    934.6      -250.    930.4     -250.     930.4     WSP 1867
     DATA        -150.    931.2       -50.    931.2      -21.     931.2     WSP 1868
     DATA         -21.    931.2       -18.    930.1      -12.     929.2     WSP 1869
     DATA          -9.    928.9        -3.    928.5                928.5     WSP 1870
     DATA           3.    928.3         9.    928.6        12.    928.9     WSP 1871
     DATA          13.    929.2        15.    929.4        19.    932.      WSP 1872
     DATA          29.    938.3        29.    938.3        41.    942.      WSP 1873
     DATA          50.    943.        100.    943.8       150.    943.2     WSP 1874
     DATA         200.    943.        250.    941.8       289.    940.6     WSP 1875
     DATA   1     289.    948.                                              WSP 1876
     XSECTN      45.9    100.         100.                        21.5      WSP 1877
     ELEV         948.    928.3       930.    1.                            WSP 1878
     N VALUE     .035     .08         .1      .04       .035                WSP 1879
     SEGMENT      4.                  5.                                    WSP 1880
     DATA        -585.    948.       -585.    945.4     -570.     944.1     WSP 1881
     DATA        -520.    941.3      -470.    940.2     -420.     943.1     WSP 1882
     DATA        -420.    943.1      -370.    938.9     -320.     938.4     WSP 1883
     DATA        -270.    934.6      -250.    930.4     -250.     930.4     WSP 1884
     DATA        -150.    931.2       -50.    931.2      -21.     931.2     WSP 1885
     DATA         -21.    931.2       -18.    930.1      -12.     929.2     WSP 1886
     DATA          -9.    928.9        -3.    928.5                928.5     WSP 1887
     DATA           3.    928.3         9.    928.6        12.    928.9     WSP 1888
     DATA          13.    929.2        15.    929.4        19.    932.      WSP 1889
     DATA          29.    938.3        29.    938.3        41.    942.      WSP 1890
     DATA          50.    943.        100.    943.8       150.    943.2     WSP 1891
     DATA         200.    943.        250.    941.8       289.    940.6     WSP 1892
     DATA   1     289.    948.                                              WSP 1893
     BRIDGE       46      160.         70.                                  WSP 1894
     COEF         .7      .6           .8      1.                            WSP 1895
     DATA                 938.                933.1     16.5      930.      WSP 1896
     DATA         21.5    929.5        29.5    928.6     39.5      929.7     WSP 1897
     DATA   1     39.5    930.                930.                          WSP 1898
     DATA        -425.    948.       -425.    936.6     -370.     935.8     WSP 1899
     DATA        -270.    935.4      -170.    935.8      -70.     937.4     WSP 1900
     DATA         -20.    937.9               938.      20.       938.      WSP 1901
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DATA       100.     938.1    200.     939.     300.     940.2    WSP 1902
DATA       400.     940.3    500.     938.6    600.     937.8    WSP 1903
DATA   2   700.     938.6    800.     939.2    800.     948.     WSP 1904
XSECTN     46.1     6015.    3900.                      21.5     WSP 1905
ELEV       948.     928.     933.     1.                          WSP 1906
N VALUE    .04      .08      .04      .09      .04                WSP 1907
SEGMENT    3.                5.                                  WSP 1908
DATA       -235.    948.     -235.    940.6    -225.    939.7    WSP 1909
DATA       -215.    938.8    -200.    936.9    -183.    936.2    WSP 1910
DATA       -162.    935.5    -162.    935.5    -141.    934.5    WSP 1911
DATA       -125.    933.8    -110.    933.     -90.     932.1    WSP 1912
DATA       -60.     931.9    -25.     931.7    -15.     931.1    WSP 1913
DATA       -15.     931.1    -12.     930.2    -12.     929.6    WSP 1914
DATA       -9.      928.3    -4.      928.               928.2    WSP 1915
DATA       3.       928.5    6.       928.5    8.       928.9    WSP 1916
DATA       10.      929.2    12.      929.8    12.      930.1    WSP 1917
DATA       15.      931.1    15.      931.1    40.      931.6    WSP 1918
DATA       45.      931.9    97.      931.5    122.     931.8    WSP 1919
DATA       172.     932.3    192.     934.9    192.     934.9    WSP 1920
DATA       210.     936.4    300.     937.     400.     937.5    WSP 1921
DATA   1   445.     939.9    463.     940.4    463.     948.     WSP 1922
XSECTN     46.9     530.     500.                       21.5     WSP 1923
ELEV       950.     929.7    933.     1.                          WSP 1924
N VALUE    .09      .04      .09                                 WSP 1925
SEGMENT    2.                3.                                  WSP 1926
DATA       -325.    950.     -325.    946.9    -300.    945.     WSP 1927
DATA       -250.    942.5    -200.    940.     -160.    938.6    WSP 1928
DATA       -110.    935.6    -90.     934.6    -37.     934.1    WSP 1929
DATA       -21.     934.4    -21.     934.4    -18.     933.5    WSP 1930
DATA       -14.     933.     -11.     932.1    -9.      931.5    WSP 1931
DATA       -7.      930.4    -1.      929.7    8.       929.7    WSP 1932
DATA       10.      931.     11.      932.3    12.      934.2    WSP 1933
DATA       12.      934.2    28.      934.4    54.      933.4    WSP 1934
DATA       75.      933.1    80.      933.4    130.     934.1    WSP 1935
DATA       230.     933.4    280.     933.6    310.     934.     WSP 1936
DATA       318.     933.1    340.     933.7    350.     940.7    WSP 1937
DATA       350.1    940.7    370.     944.3    400.     946.     WSP 1938
DATA   1   400.     950.                                         WSP 1939
BRIDGE     47       100.     100.                                WSP 1940
COEF       .7       .6       .8       1.                          WSP 1941
DATA                937.2             932.9    12.2     932.6    WSP 1942
DATA       18.8     932.2    25.4     931.4    32.      931.8    WSP 1943
DATA       39.5     932.2    45.1     932.1    49.8     932.7    WSP 1944
DATA   1   51.7     932.6    51.7     937.2              937.2    WSP 1945
DATA       -448.    950.     -448.    947.7    -378.    946.1    WSP 1946
DATA       -278.    944.6    -178.    943.3    -78.     942.6    WSP 1947
DATA       -28.     942.4             942.2    28.      942.2    WSP 1948
DATA       78.      942.1    178.     942.5    278.     943.1    WSP 1949
DATA       378.     944.2    478.     945.7    578.     947.5    WSP 1950
DATA   2   578.     950.                                         WSP 1951
XSECTN     47.1     1100.    960.                       21.5     WSP 1952
ELEV       950.     929.7    935.     1.                          WSP 1953
N VALUE    .08      .04      .1                                  WSP 1954
SEGMENT    2.                3.                                  WSP 1955
DATA       -325.    950.     -325.    946.9    -300.    945.     WSP 1956
DATA       -250.    942.5    -200.    940.     -160.    938.6    WSP 1957
DATA       -110.    935.6    -90.     934.6    -37.     934.1    WSP 1958
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DATA	-21.	934.4	-21.	934.4	-18.	933.5	WSP 1959
DATA	-14.	933.	-11.	932.1	-9.	931.5	WSP 1960
DATA	-7.	930.4	-1.	929.7	8.	929.7	WSP 1961
DATA	10.	931.	11.	932.3	12.	934.2	WSP 1962
DATA	12.	934.2	28.	934.4	54.	933.4	WSP 1963
DATA	75.	933.1	80.	933.4	130.	934.1	WSP 1964
DATA	230.	933.4	280.	933.6	310.	934.	WSP 1965
DATA	318.	933.1	340.	933.7	350.	940.7	WSP 1966
DATA	350.1	940.7	370.	944.3	400.	946.	WSP 1967
DATA 1	400.	950.					WSP 1967A
BRIDGE	48	720.	600.				WSP 1968
CDEF	.7	.6	.8	1.			WSP 1969
DATA		937.2		932.6	8.	932.3	WSP 1970
DATA	15.	932.	21.	931.7	25.	932.	WSP 1971
DATA	29.	932.8	32.	933.5	32.	937.2	WSP 1972
DATA 1		937.2					WSP 1973
DATA	-346.	950.	-346.	944.3	-266.	941.1	WSP 1974
DATA	-166.	939.4	-66.	939.7	-16.	939.8	WSP 1975
DATA		939.8	16.	939.8	50.	939.7	WSP 1976
DATA	150.	939.6	250.	940.	350.	940.5	WSP 1977
DATA	450.	940.7	550.	940.8	650.	941.	WSP 1978
DATA	750.	941.3	850.	941.7	950.	943.3	WSP 1979
DATA 2	950.	950.					WSP 1980
XSECTN	48.2	3020.	2200.			21.5	WSP 1981
ELEV	951.	931.	935.	1.			WSP 1982
N VALUE	.1	.04	.1				WSP 1983
SEGMENT	2.		3.				WSP 1984
DATA	-740.	951.	-740.	948.2	-735.	947.6	WSP 1985
DATA	-685.	945.7	-600.	943.2	-512.	944.5	WSP 1986
DATA	-482.	945.2	-425.	936.7	-400.	935.4	WSP 1987
DATA	-350.	934.7	-250.	934.3	-150.	934.3	WSP 1988
DATA	-50.	934.6	-46.	934.4	-40.	933.5	WSP 1989
DATA	-40.	933.5	-38.	932.9	-30.	931.5	WSP 1990
DATA	-11.	932.	-5.	931.8		931.8	WSP 1991
DATA	2.	931.7	8.	931.2	21.	931.3	WSP 1992
DATA	26.	931.	36.	932.7	40.	933.1	WSP 1993
DATA	40.	933.1	100.	934.3	200.	934.	WSP 1994
DATA	300.	934.1	400.	934.3	525.	934.5	WSP 1995
DATA	605.	936.7	695.	944.	715.	946.1	WSP 1996
DATA 1	740.	949.2	740.	951.			WSP 1997
XSECTN	48.9	100.	100.			21.5	WSP 1998
ELEV	953.	932.	935.	1.			WSP 1999
N VALUE	.1	.04	.1				WSP 2001
SEGMENT	2.		3.				WSP 2002
DATA	-1380.	953.	-1380.	949.5	-1290.	944.7	WSP 2003
DATA	-1190.	940.3	-1090.	937.1	-1000.	936.4	WSP 2004
DATA	-800.	934.7	-600.	933.6	-400.	933.6	WSP 2005
DATA	-200.	934.5	-36.	935.2	-36.	935.2	WSP 2006
DATA	-20.	933.8	-19.	932.9	-17.	932.2	WSP 2007
DATA	-14.	932.	-12.	932.2	-2.	932.2	WSP 2008
DATA	3.	932.	15.	932.2	18.	933.	WSP 2009
DATA	20.	933.4	22.	939.1	30.	935.	WSP 2010
DATA	30.	935.	48.	935.3	64.	935.4	WSP 2011
DATA	80.	936.9	170.	938.4	270.	939.	WSP 2012
DATA	360.	938.9	460.	938.2	550.	937.5	WSP 2013
DATA	650.	938.4	750.	939.8	840.	941.7	WSP 2014
DATA 1	930.	946.1	1010.	952.4	1010.	953.	WSP 2015

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BRIDGE    49        90.       90.                                    WSP 2016
COEF      .6        .6        .7        1.                           WSP 2017
DATA                938.                933.7     1.5       933.3    WSP 2018
DATA      10.5      932.7     18.5      932.      20.       932.1    WSP 2019
DATA      20.       938.      18.8      939.5     25.6      939.5    WSP 2020
DATA      24.4      938.      24.4      932.7     25.9      932.2    WSP 2021
DATA      27.8      932.9     37.8      933.5     42.8      934.2    WSP 2022
DATA      44.4      934.      44.4      938.      42.8      939.5    WSP 2023
DATA   1  1.5       939.5               938.                         WSP 2024
DATA      -575.     953.      -575.     945.6     -477.     945.4    WSP 2025
DATA      -377.     945.7     -277.     946.2     -177.     946.8    WSP 2026
DATA      -77.      947.3     -22.      947.6               947.9    WSP 2027
DATA      22.       947.8     77.       947.9     177.      948.2    WSP 2028
DATA   2  277.      948.5     377.      948.7     377.      953.     WSP 2029
XSECTN    48.9 used as 49.5   100.      100.                     21.5     WSP 2030
ELEV      953.      932.      935.      1.                           WSP 2031
N VALUE   .1        .04       .1                                     WSP 2032
SEGMENT   2.                  3.                                     WSP 2033
DATA      -1380.    953.      -1380.    949.5     -1290.    944.7    WSP 2034
DATA      -1190.    940.3     -1090.    937.1     -1000.    936.4    WSP 2035
DATA      -800.     934.7     -600.     933.6     -400.     933.6    WSP 2036
DATA      -200.     934.5     -36.      935.2     -36.      935.2    WSP 2037
DATA      -20.      933.8     -19.      932.9     -17.      932.2    WSP 2038
DATA      -14.      932.      -12.      932.2     -2.       932.2    WSP 2039
DATA      3.        932.      15.       932.2     18.       933.     WSP 2040
DATA      20.       933.4     22.       934.1     30.       935.     WSP 2041
DATA      30.       935.      48.       935.3     64.       935.4    WSP 2042
DATA      80.       936.9     170.      938.4     270.      939.     WSP 2043
DATA      360.      938.9     460.      938.2     550.      937.5    WSP 2044
DATA      650.      938.4     750.      939.8     840.      941.7    WSP 2045
DATA   1  930.      946.1     1010.     952.4     1010.     953.     WSP 2046
BRIDGE    50        1660.     1640.                                  WSP 2047
COEF      .7        .6        .8        1.                           WSP 2048
DATA                939.2               934.6     5.        933.6    WSP 2049
DATA      10.5      932.8     15.5      932.2     20.5      932.2    WSP 2050
DATA      25.5      932.3     30.5      932.4     38.5      933.6    WSP 2051
DATA   1  45.5      934.7     45.5      939.2               939.2    WSP 2052
DATA      -1375.    955.      -1375.    940.8     -1275.    939.9    WSP 2053
DATA      -1175.    939.9     -1075.    939.9     -975.     940.     WSP 2054
DATA      -875.     940.3     -775.     940.7     -675.     940.9    WSP 2055
DATA      -575.     941.2     -475.     941.4     -375.     941.6    WSP 2056
DATA      -275.     942.3     -175.     942.4     -75.      943.1    WSP 2057
DATA      -23.      943.                943.1     23.       943.     WSP 2058
DATA      73.       942.8     173.      942.8     273.      942.9    WSP 2059
DATA      373.      943.      473.      944.      573.      945.9    WSP 2060
DATA   2  633.      947.3     633.      955.                         WSP 2061
XSECTN    50.3      2960.     2900.                     21.5     WSP 2062
ELEV      989.      931.5     935.      1.                           WSP 2063
N VALUE   .1        .04       .1                                     WSP 2064
SEGMENT   2.                  3.                                     WSP 2065
DATA      -1600.    989.      -1600.    957.5     -1500.    956.9    WSP 2066
DATA      -1482.    955.9     -1430.    945.9     -1405.    940.6    WSP 2067
DATA      -1363.    935.8     -1263.    935.6     -1163.    934.8    WSP 2068
DATA      -1063.    934.7     -959.     934.8     -420.     934.8    WSP 2069
DATA      -390.     934.8     -300.     934.6     -200.     933.5    WSP 2070
DATA      -100.     934.9     -40.      935.2     -40.      935.2    WSP 2071
DATA      -31.      934.3     -26.      933.2               933.2    WSP 2072
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DATA	14.	932.	25.	931.5	27.	933.1	WSP 2073	
DATA	30.	935.2	30.	935.2	50.	935.2	WSP 2074	
DATA	150.	935.	250.	935.3	1950.	938.2	WSP 2075	
DATA	2005.	938.7	2050.	938.2	2150.	938.2	WSP 2076	
DATA	2260.	939.1	2370.	959.3	2390.	961.7	WSP 2077	
DATA	2450.	962.5	2530.	976.4	2580.	983.1	WSP 2078	
DATA 1	2630.	988.5	2630.	989.			WSP 2079	
XSECTN	50.6	3360.	2460.			21.5	WSP 2080	
ELEV	961.	932.4	836.	1.			WSP 2081	
N VALUE	.1	.4	.1				WSP 2082	
SEGMENT	2.		3.				WSP 2083	
DATA	-1015.	961.	-1015.	959.2	-950.	952.8	WSP 2084	
DATA	-878.	947.2	-773.	939.	-558.	935.5	WSP 2085	
DATA	-368.	934.8	-168.	935.1	-28.	935.6	WSP 2086	
DATA	-28.	935.6	-22.	934.8	-18.	933.9	WSP 2087	
DATA	-10.	932.6		932.7	7.	932.4	WSP 2088	
DATA	13.	932.5	17.	933.9	22.	935.4	WSP 2089	
DATA	22.	935.4	227.	934.2	422.	935.3	WSP 2090	
DATA	632.	935.3	832.	935.4	977.	935.3	WSP 2091	
DATA	1027.	938.7	1142.	953.5	1232.	960.7	WSP 2092	
DATA 1	1232.	961.					WSP 2093	
XSECTN	50.9	100.	100.			21.5	WSP 2094	
ELEV	955.	934.8	935.	1.			WSP 2095	
N VALUE	.1	.04	.1				WSP 2096	
SEGMENT	2.		3.				WSP 2097	
DATA	-480.	955.	-480.	937.3	-450.	937.3	WSP 2098	
DATA	-350.	937.1	-290.	937.6	-200.	937.8	WSP 2099	
DATA	-100.	937.6	-51.	937.4	-35.	937.4	WSP 2100	
DATA	-19.	937.7	-19.	937.7	-8.	935.	WSP 2101	
DATA	-6.	934.8	-3.	935.3		935.3	WSP 2102	
DATA	4.	935.6	8.	936.4	14.	936.6	WSP 2103	
DATA	19.	937.3	19.	937.3	40.	938.1	WSP 2104	
DATA	46.	940.9	55.	941.9	105.	941.9	WSP 2105	
DATA 1	130.	942.	160.	942.	160.	955.	WSP 2106	
BRIDGE	51	280.	280.				WSP 2107	
COEF	.6	.6	.8	1.			WSP 2108	
DATA		939.		935.9	4.	935.5	WSP 2109	
DATA	12.	936.4	20.	935.6	28.2	936.1	WSP 2110	
DATA 1	28.2	939.3		939.			WSP 2111	
DATA	-1883.	956.	-1883.	950.5	-1865.	950.1	WSP 2112	
DATA	-1765.	948.3	-1665.	947.5	-1565.	946.8	WSP 2113	
DATA	-1465.	946.1	-1365.	945.7	-1265.	945.1	WSP 2114	
DATA	-1165.	944.7	-1065.	944.3	-965.	944.	WSP 2115	
DATA	-865.	943.6	-765.	943.2	-665.	942.7	WSP 2116	
DATA	-565.	942.3	-465.	942.1	-365.	942.3	WSP 2117	
DATA	-265.	942.7	-165.	943.1	-65.	943.4	WSP 2118	
DATA	-15.	943.6		943.6	15.	943.6	WSP 2119	
DATA	65.	943.6	165.	944.4	265.	946.1	WSP 2120	
DATA 2	340.	947.4	358.	948.5	358.	956.	WSP 2121	
XSECTN	51.2	3460.	1820.			21.5	WSP 2122	
ELEV	955.	934.8	938.	1.			WSP 2123	
N VALUE	.1	.04	.1				WSP 2124	
SEGMENT	2.		3.				WSP 2125	
DATA	-2390.	955.	-2390.	946.6	-2360.	943.1	WSP 2126	
DATA	-2300.	940.	-2270.	939.	-2180.	937.9	WSP 2127	
DATA	-2080.	937.5	-2030.	937.4	-1940.	938.4	WSP 2128	
DATA	-1836.	939.	-1820.	938.8	-1785.	939.2	WSP 2129	

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DATA      -1780.    938.6     -1775.    938.4     -1715.    937.7     WSP 2130
DATA      -1660.    937.4     -1600.    937.5     -1560.    937.4     WSP 2131
DATA      -1515.    938.      -1450.    937.7     -1370.    938.3     WSP 2132
DATA      -1300.    939.5     -1240.    942.1     -1195.    942.      WSP 2133
DATA      -1180.    938.6     -1140.    938.      -1050.    937.6     WSP 2134
DATA      -970.     937.2     -910.     937.      -850.     937.      WSP 2135
DATA      -770.     937.      -710.     937.      -650.     936.9     WSP 2136
DATA      -570.     937.1     -510.     937.2     -450.     937.3     WSP 2137
DATA      -350.     937.1     -290.     937.6     -200.     937.8     WSP 2138
DATA      -100.     937.6     -51.      937.4     -35.      937.4     WSP 2139
DATA      -19.      937.7     -19.      937.7     -8.       935.      WSP 2140
DATA      -6.       934.8     -3.       935.3               935.3     WSP 2141
DATA      4.        935.6     8.        936.4     14.       936.6     WSP 2142
DATA      19.       937.3     19.       937.3     40.       938.1     WSP 2143
DATA      46.       940.9     55.       941.9     105.      941.9     WSP 2144
DATA  1   130.      942.      160.      942.      160.      955.      WSP 2145
XSECTN    51.7      1420.     1320.                         21.5      WSP 2146
ELEV      956.      934.8     940.      1.                            WSP 2147
N VALUE   1.2       .06       1.2                                     WSP 2148
SEGMENT   2.                  3.                                      WSP 2149
DATA      -500.     956.      -500.     955.9     -485.     954.7     WSP 2150
DATA      -472.     951.1     -459.     945.8     -448.     945.4     WSP 2151
DATA      -423.     944.1     -415.     943.7     -405.     944.4     WSP 2152
DATA      -395.     944.4     -355.     943.9     -255.     941.4     WSP 2153
DATA      -155.     941.      -105.     940.2     -99.      940.2     WSP 2154
DATA      -99.      940.2     -90.      938.6     -87.      937.8     WSP 2155
DATA      -85.      937.4     -80.      936.5     -75.      936.1     WSP 2156
DATA      -70.      935.5     -60.      935.2     -40.      935.      WSP 2157
DATA      -20.      934.9               934.8     20.       934.8     WSP 2158
DATA      40.       935.      50.       935.      60.       935.      WSP 2159
DATA      70.       935.7     75.       936.1     82.       937.      WSP 2160
DATA      88.       937.8     95.       938.9     115.      939.5     WSP 2161
DATA      135.      940.2     135.      940.2     165.      940.8     WSP 2162
DATA      375.      938.5     430.      938.5     475.      938.4     WSP 2163
DATA      580.      938.4     756.      937.4     796.      938.9     WSP 2164
DATA      865.      939.4     965.      940.1     1065.     940.8     WSP 2165
DATA      1165.     941.4     1265.     942.8     1365.     943.2     WSP 2166
DATA      1465.     942.5     1565.     942.2     1665.     941.4     WSP 2167
DATA      1765.     940.9     1865.     941.3     1926.     944.3     WSP 2168
DATA  1   1955.     944.4     1955.     956.                          WSP 2169
XSECTN    51.9      120.      120.                          21.5      WSP 2170
ELEV      958.      936.      940.      1.                            WSP 2171
N VALUE   .12       .06       .12                                     WSP 2172
SEGMENT   2.                  3.                                      WSP 2173
DATA      -292.     958.      -292.     957.4     -280.     954.7     WSP 2174
DATA      -260.     949.8     -240.     944.9     -220.     942.3     WSP 2176
DATA      -195.     941.8     -125.     940.5     -32.      939.7     WSP 2177
DATA      -21.      939.9     -21.      939.9     -17.      938.8     WSP 2178
DATA      -7.       936.7     -3.       936.3               936.      WSP 2179
DATA      5.        936.5     10.       937.8     17.       939.3     WSP 2180
DATA      17.       939.3     33.       939.5     69.       939.9     WSP 2181
DATA      114.      939.9     159.      937.1     200.      937.5     WSP 2182
DATA      245.      939.3     310.      939.3     385.      939.7     WSP 2182
DATA  1   460.      939.      520.      939.6     520.      958.      WSP 2183
BRIDGE    52        100.      100.                                    WSP 2184
COEF      .7        .6        .8        1.                            WSP 2185
DATA                941.2               938.      5.        937.7     WSP 2186
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ATA		10.	937.6	15.	937.7	20.	938.3	WSP 2187
ATA	1	22.	938.6	22.	941.2		941.2	WSP 2188
DATA		-324.	956.	-324.	948.2	-261.	944.6	WSP 2189
DATA		-161.	943.6	-61.	943.1	-11.	943.3	WSP 2190
DATA			943.4	11.	943.4	61.	942.9	WSP 2191
DATA		161.	942.6	261.	942.4	361.	942.3	WSP 2192
DATA		461.	944.2	561.	947.4	575.	948.2	WSP 2193
DATA	2	575.	956.					WSP 2194
XSECTN		52.1	4525.	3920.			21.5	WSP 2195
ELEV		956.	935.8	940.	1.			WSP 2196
N VALUE		.1	.04	.1				WSP 2197
SEGMENT		2.		3.				WSP 2198
DATA		-640.	956.	-640.	949.	-550.	946.	WSP 2199
DATA		-445.	942.3	-350.	941.	-268.	941.3	WSP 2200
DATA		-166.	940.8	-78.	944.1	-60.	943.7	WSP 2201
DATA		-42.	942.3	-31.	940.1	-17.	939.	WSP 2202
DATA		-17.	939.	-12.	938.1	-10.	937.8	WSP 2203
DATA		-7.	937.1	-3.	936.5		936.2	WSP 2204
DATA		4.	935.8	8.	936.3	10.	937.4	WSP 2205
DATA		12.	937.5	18.	939.8	18.	939.8	WSP 2206
DATA		42.	939.	74.	939.1	90.	939.1	WSP 2207
DATA	1	123.	941.9	133.	942.1	133.	956.	WSP 2208
XSECTN		52.9	100.	100.			21.5	WSP 2209
ELEV		960.	939.9	944.	1.			WSP 2210
N VALUE		.05	.04	.09				WSP 2211
SEGMENT		2.		3.				WSP 2212
DATA		-243.	960.	-243.	955.6	-215.	954.4	WSP 2213
DATA		-200.	953.5	-150.	948.7	-100.	943.9	WSP 2214
DATA		-70.	943.6	-23.	942.8	-23.	942.8	WSP 2215
DATA		-19.	941.7	-18.	941.2	-15.	940.8	WSP 2216
DATA		-13.	940.3	-10.	940.2	-6.	939.9	WSP 2217
DATA		-3.	939.9		939.9	3.	940.	WSP 2218
DATA		6.	940.6	9.	941.3	11.	940.9	WSP 2219
DATA		15.	941.3	25.	942.3	25.	942.3	WSP 2220
DATA		31.	944.5	41.	950.	59.	951.	WSP 2221
DATA	1	75.	950.6	81.	955.6	81.	960.	WSP 2222
BRIDGE		53	60.	60.				WSP 2223
COEF		.7	.6	.8	1.			WSP 2223
DATA			948.8		942.5	2.	942.2	WSP 2224
DATA		5.	941.7	8.	941.	12.	941.	WSP 2225
DATA		17.	941.4	20.	941.9	22.	942.4	WSP 2226
DATA	1	22.	948.8		948.8			WSP 2227
DATA		-370.	966.	-370.	962.7	-300.	960.	WSP 2228
DATA		-200.	953.7	-100.	951.	-50.	951.2	WSP 2229
DATA		-30.	951.4	-11.	951.8		952.1	WSP 2230
DATA		11.	952.4	50.	954.1	150.	962.	WSP 2230
DATA	2	202.	965.3	202.	966.			WSP 2231
XSECTN		53.1	7330.	5600.			21.5	WSP 2231A
ELEV		960.	939.9	944.	1.			WSP 2231B
N VALUE		.1	.04	.12				WSP 2231C
SEGMENT		2.		3.				WSP 2231D
DATA		-243.	960.	-243.	955.6	-215.	954.4	WSP 2231E
DATA		-200.	953.5	-150.	948.7	-100.	943.9	WSP 2231F
DATA		-70.	943.6	-23.	942.8	-23.	942.8	WSP 2231G
DATA		-19.	941.7	-18.	941.2	-15.	940.8	WSP 2231H
DATA		-13.	940.3	-10.	940.2	-6.	939.9	WSP 2231I
DATA		-3.	939.9		939.9	3.	940.	WSP 2231J

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DATA      6.      940.6      9.      941.3     11.      940.9     WSP 2231K
DATA     15.      941.3     25.      942.3     25.      942.3     WSP 2231L
DATA     31.      944.5     41.      950.      59.      951.      WSP 2231M
DATA  1  75.      950.6     81.      955.6     81.      960.      WSP 2231N
XSECTN   53.9     100.      100.                         21.5     WSP 2232
ELEV     959.     938.8     950.     1.                          WSP 2233
N VALUE  .12      .04       .12                                  WSP 2234
SEGMENT  2.                3.                                   WSP 2235
DATA    -250.     959.     -250.     954.4    -245.     953.6     WSP 2236
DATA    -230.     952.     -212.     952.3    -191.     952.1     WSP 2237
DATA    -170.     951.6    -157.     950.9    -130.     950.6     WSP 2238
DATA    -100.     949.8     -50.     947.7     -30.     946.7     WSP 2239
DATA     -30.     946.7     -23.     945.9     -22.     944.8     WSP 2240
DATA     -20.     943.3     -18.     941.7     -14.     940.9     WSP 2241
DATA     -11.     940.4      -8.     939.8      -5.     939.3     WSP 2242
DATA      -2.     939.1               938.9      2.     938.8     WSP 2243
DATA       5.     939.       8.      939.8     12.      940.3     WSP 2244
DATA      15.     941.9     18.      943.2     20.      944.2     WSP 2245
DATA      22.     944.8     24.      945.7     27.      947.2     WSP 2246
DATA      27.     947.2     52.      947.7     92.      948.5     WSP 2247
DATA     100.     950.7     108.     948.6     111.     949.1     WSP 2248
DATA     116.     950.      122.     949.4     222.     948.      WSP 2249
DATA     247.     949.6     258.     949.9     270.     949.7     WSP 2250
DATA  1  283.     948.6     290.     949.9     290.     959.      WSP 2251
BRIDGE   54       60.       60.                                  WSP 2252
COEF     .7       .6        .8       1.                          WSP 2253
DATA              945.4      6.      943.7     11.5     945.      WSP 2254
DATA     18.      945.4     24.5     944.2     31.      946.      WSP 2255
DATA     27.      949.6     24.5     950.6     21.      949.6     WSP 2256
DATA     18.      945.4     11.5     945.      9.       949.6     WSP 2257
DATA  1  6.       950.2      3.      949.6               945.4     WSP 2258
DATA    -665.     960.     -665.     951.6    -615.     951.7     WSP 2259
DATA    -515.     951.1    -415.     950.3    -315.     949.4     WSP 2260
DATA    -215.     949.7    -115.     950.7     -15.     951.7     WSP 2261
DATA              951.7      15.     951.9     100.     951.5     WSP 2262
DATA     200.     951.8     300.     953.1     400.     955.2     WSP 2263
DATA  2  460.     951.4     460.     960.                        WSP 2264
XSECTN   54.1     7855.     6800.                        21.5     WSP 2265
ELEV     959.     938.8     950.     1.                          WSP 2266
N VALUE  .12      .04       .12                                  WSP 2267
SEGMENT  2.                3.                                   WSP 2268
DATA    -250.     959.     -250.     954.4    -245.     953.6     WSP 2269
DATA    -230.     952.     -212.     952.3    -191.     952.1     WSP 2270
DATA    -170.     951.6    -157.     950.9    -130.     950.6     WSP 2271
DATA    -100.     949.8     -50.     947.7     -30.     946.7     WSP 2272
DATA     -30.     946.7     -23.     945.9     -22.     944.8     WSP 2273
DATA     -20.     943.3     -18.     941.7     -14.     940.9     WSP 2274
DATA     -11.     940.4      -8.     939.8      -5.     939.3     WSP 2275
DATA      -2.     939.1               938.9      2.     938.8     WSP 2276
DATA       5.     939.       8.      939.8     12.      940.3     WSP 2277
DATA      15.     941.9     18.      943.2     20.      944.2     WSP 2278
DATA      22.     944.8     24.      945.7     27.      947.2     WSP 2279
DATA      27.     947.2     52.      947.7     92.      948.5     WSP 2280
DATA     100.     950.7     108.     948.6     111.     949.1     WSP 2281
DATA     116.     950.      122.     949.4     222.     948.      WSP 2282
DATA     247.     949.6     258.     949.9     270.     949.7     WSP 2283
DATA  1  283.     948.6     290.     949.9     290.     959.      WSP 2284
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XSECTN    54.9     100.     100.                          21.5     WSP 2285
ELEV      964.     944.1    949.     1.                            WSP 2286
N VALUE   .1       .04      .1                                     WSP 2287
SEGMENT   2.                3.                                     WSP 2288
DATA      -546.    964.     -546.    948.3    -446.    946.8     WSP 2289
DATA      -346.    947.7    -246.    948.9    -146.    948.5     WSP 2290
DATA      -46.     949.7    -41.     951.8    -41.     951.8     WSP 2291
DATA      -35.     949.2    -22.     948.7    -12.     948.5     WSP 2292
DATA      -7.      946.4    -6.5     945.1    -4.      944.3     WSP 2293
DATA               944.1    3.       944.4    6.5      945.4     WSP 2294
DATA      10.      947.8    20.      948.4    20.      948.4     WSP 2295
DATA      30.      948.4    40.      948.5    90.      948.      WSP 2296
DATA      190.     947.3    204.     947.7    204.     948.9     WSP 2297
DATA      254.     950.3    329.     949.9    343.     948.9     WSP 2298
DATA      343.     947.2    376.     947.7    426.     947.9     WSP 2299
DATA   1  426.     964.                                           WSP 2300
BRIDGE    55       100.     100.                                  WSP 2301
COEF      .7       .6       .8       1.                            WSP 2302
DATA               949.8              944.4    2.       944.5     WSP 2303
DATA      4.       944.     7.       944.1    9.       944.2     WSP 2304
DATA      11.      944.5    13.      944.9    13.      949.8     WSP 2304
DATA   1           949.8                                          WSP 2304A
DATA      -518.    960.     -518.    954.8    -500.    953.6     WSP 2305
DATA      -400.    949.5    -300.    948.6    -200.    948.7     WSP 2306
DATA      -100.    949.5    -25.     950.8    -6.5     951.3     WSP 2307
DATA               951.4    6.5      951.4    25.      951.2     WSP 2308
DATA      100.     950.6    200.     949.9    300.     949.2     WSP 2309
DATA      400.     948.6    500.     948.7    600.     949.      WSP 2310
DATA   2  700.     949.4    800.     950.4    800.     960.      WSP 2311
XSECTN    55.1     1.       1.                          21.5      WSP 2312
ELEV      964.     944.1    949.     1.                            WSP 2313
N VALUE   .1       .04      .1                                     WSP 2314
SEGMENT   2.                3.                                     WSP 2315
DATA      -546.    964.     -546.    948.3    -446.    946.8     WSP 2316
DATA      -346.    947.7    -246.    948.9    -146.    948.5     WSP 2317
DATA      -46.     949.7    -41.     951.8    -41.     951.8     WSP 2318
DATA      -35.     949.2    -22.     948.7    -12.     948.5     WSP 2319
DATA      -7.      946.4    -6.5     945.1    -4.      944.3     WSP 2320
DATA               944.1    3.       944.4    6.5      945.4     WSP 2321
DATA      10.      947.8    20.      948.4    20.      948.4     WSP 2322
DATA      30.      948.4    40.      948.5    90.      948.      WSP 2324
DATA      190.     947.3    204.     947.7    204.     948.9     WSP 2325
DATA      254.     950.3    329.     949.9    343.     948.9     WSP 2326
DATA      343.     947.2    376.     947.7    426.     947.9     WSP 2327
DATA   1  426.     964.                                           WSP 2328
TITLE     UPPER GRAND FHA-PORTAGE RIVER  JACKSON MICH.            WSP 2328A
TRIBUTARY 16.9     960.     960.                                  WSP 2328B
XSECTN    60       780.     780.                          132.     WSP 2329
ELEV      930.     899.6    905.     1.                            WSP 2330
N VALUE   .09      .06      .09                                    WSP 2331
SEGMENT   2.                3.       3.                            WSP 2332
DATA      -200.    930.     -200.    911.8    -150.    909.1     WSP 2333
DATA      -114.    906.8    -104.    906.9    -95.     904.9     WSP 2334
DATA      -85.     904.8    -60.     910.2    -60.     910.2     WSP 2335
DATA      -45.     907.1    -38.     904.2    -37.     903.1     WSP 2336
DATA      -32.     902.3    -22.     900.7    -14.     899.8     WSP 2337
DATA               899.7    11.      899.6    19.      900.3     WSP 2338
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DATA	-12.	899.8		899.4	14.	899.4	WSP 2408
DATA	25.	900.5	27.	902.4	30.	903.2	WSP 2409
DATA	34.	905.3	40.	906.9	50.	908.	WSP 2410
DATA	55.	908.3	66.	913.2	66.	913.2	WSP 2411
DATA	72.	908.6	82.	908.6	95.	906.8	WSP 2412
DATA	120.	906.4	185.	905.8	257.	906.	WSP 2413
DATA	305.	903.8	348.	903.8	373.	906.7	WSP 2414
DATA	400.	907.3	423.	904.5	465.	904.1	WSP 2415
DATA	505.	904.8	535.	906.5	675.	906.	WSP 2416
DATA	925.	906.3	975.	907.5	1025.	907.2	WSP 2417
DATA	1125.	907.8	1415.	907.7	1515.	907.5	WSP 2418
DATA I	1569.	908.1	1584.	910.3	1584.	920.	WSP 2419
XSECTN	62.8	60.	60.			132.	WSP 2420
ELEV	921.	900.2	905.	1.			WSP 2421
N VALUE	.09	.06	.09				WSP 2422
SEGMENT	2.		3.	3.			WSP 2423
DATA	-1420.	921.	-1420.	914.2	-1340.	911.6	WSP 2424
DATA	-1100.	906.	-880.	905.1	-740.	905.8	WSP 2425
DATA	-700.	905.6	-500.	904.8	-390.	905.	WSP 2426
DATA	-300.	904.9	-167.	904.6	-92.	905.6	WSP 2427
DATA	-79.	907.5	-66.	908.6	-66.	908.6	WSP 2428
DATA	-63.	908.4	-56.	907.6	-50.	906.5	WSP 2429
DATA	-40.	905.7	-37.	904.4	-33.	902.5	WSP 2430
DATA	-30.	901.7	-27.	901.1	-22.	900.5	WSP 2431
DATA		900.2	10.	900.3	25.	900.8	WSP 2432
DATA	30.	901.8	33.	902.5	43.	905.4	WSP 2433
DATA	45.	906.8	57.	907.9	70.	911.3	WSP 2434
DATA	70.	911.3	76.	910.9	85.	908.	WSP 2435
DATA	100.	906.2	200.	906.4	250.	907.2	WSP 2436
DATA	345.	907.9	395.	909.8	445.	910.9	WSP 2437
DATA	550.	911.7	600.	912.3	700.	913.8	WSP 2438
DATA 1	700.	921.					WSP 2439
TRIBUTARY	44.3	600.	600.				WSP 2439B
XSECTN	70	2120.	1800.			21.5	WSP 2440
ELEV	946.	925.9	930.	1.			WSP 2441
N VALUE	.12	.04	.1				WSP 2442
SEGMENT	2.		3.				WSP 2442A
DATA	-377.	946.	-377.	938.7	-337.	937.9	WSP 2443
DATA	-297.	937.3	-252.	937.1	-212.	936.4	WSP 2444
DATA	-162.	935.8	-132.	935.7	-107.	935.	WSP 2445
DATA	-87.	929.4	-75.	928.6	-43.	927.9	WSP 2446
DATA	-43.	927.9	-27.	927.4	-23.	927.3	WSP 2447
DATA	-19.	927.	-16.	926.8	-13.	926.8	WSP 2448
DATA	-8.	926.4	-4.	926.2	1.	926.1	WSP 2449
DATA	11.	926.1	16.	925.9	21.	925.9	WSP 2450
DATA	23.	926.4	25.	926.8	27.	927.4	WSP 2451
DATA	29.	928.1	29.	928.1	34.	928.5	WSP 2452
DATA	36.	928.9	49.	932.8	62.	934.5	WSP 2453
DATA	75.	936.1	88.	937.2	110.	937.6	WSP 2454
DATA	123.	937.	128.	936.2	149.	929.7	WSP 2455
DATA	162.	928.7	188.	933.1	211.	938.1	WSP 2456
DATA	236.	939.	261.	939.2	276.	936.7	WSP 2457
DATA 1	291.	939.1	316.	939.9	316.	946.	WSP 2458
XSECTN	70.3	2680.	2100.			21.5	WSP 2459
ELEV	947.	927.	930.	1.			WSP 2460
N VALUE	.12	.04	.1				WSP 2461
SEGMENT	2.		3.				WSP 2462

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DATA      -728.    947.     -728.    944.3    -708.    943.6    WSP 2463
DATA      -683.    941.8    -633.    939.5    -533.    937.9    WSP 2464
DATA      -433.    936.7    -333.    936.5    -270.    935.9    WSP 2465
DATA      -220.    933.9    -180.    931.9    -130.    931.4    WSP 2466
DATA       -81.    931.5     -81.    931.5     -51.    929.3    WSP 2467
DATA       -45.    928.7     -41.    927.6     -40.    927.1    WSP 2468
DATA       -35.    927.      -30.    927.2     -25.    927.1    WSP 2469
DATA       -20.    927.      -15.    927.3     -10.    927.3    WSP 2470
DATA        -5.    927.1              927.       5.    927.4    WSP 2471
DATA        10.    927.3      15.     927.4     20.    927.3    WSP 2472
DATA        25.    927.1      30.     927.3     35.    927.3    WSP 2473
DATA        37.    927.2      41.     927.6     46.    927.7    WSP 2474
DATA        53.    929.       53.     929.     103.    928.2    WSP 2475
DATA       153.    929.1     203.     933.5    253.    932.5    WSP 2476
DATA       315.    934.8     415.     938.2    515.    940.5    WSP 2477
DATA       550.    940.1     650.     938.     750.    936.5    WSP 2478
DATA       850.    935.3     950.     937.7   1050.    937.1    WSP 2479
DATA      1150.    936.     1250.     935.9   1350.    935.9    WSP 2480
DATA      1419.    936.5    1426.     939.3   1438.    940.     WSP 2481
DATA   1  1438.    947.                                         WSP 2482
XSECTN    70.7     640.      600.                      21.5     WSP 2483
ELEV      947.     927.1     933.      1.                       WSP 2484
N VALUE   .09      .04       .09                                WSP 2485
SEGMENT   2.                3.                                 WSP 2486
DATA      -280.    947.     -280.    940.3    -270.    938.2    WSP 2487
DATA      -250.    935.3    -165.    933.2    -135.    935.     WSP 2488
DATA      -110.    935.4     -90.    933.2     -76.    931.5    WSP 2489
DATA       -67.    930.2     -56.    930.4     -46.    930.4    WSP 2490
DATA       -46.    930.4     -35.    929.6     -25.    928.4    WSP 2491
DATA       -21.    928.2     -20.    927.1     -17.    927.2    WSP 2492
DATA       -13.    927.2      -9.    927.5      -5.    927.5    WSP 2493
DATA        -1.    927.6              927.4      3.    927.2    WSP 2494
DATA         7.    927.3      12.     927.3     16.    927.1    WSP 2495
DATA        19.    927.9      21.     928.2     25.    929.2    WSP 2496
DATA        29.    930.4      35.     931.5     35.    931.5    WSP 2497
DATA       100.    932.      200.     933.4    260.    934.6    WSP 2498
DATA       360.    934.5     395.     935.2    495.    935.6    WSP 2499
DATA       545.    936.      551.     935.7    564.    935.8    WSP 2500
DATA       577.    935.7     583.     936.2    633.    937.2    WSP 2501
DATA   1   633.    947.                                         WSP 2502
XSECTN    70.9     190.      190.                      21.5     WSP 2503
ELEV      950.     927.5     933.      1.                       WSP 2504
N VALUE   .1       .09       .1                                 WSP 2505
SEGMENT   2.                3.                                 WSP 2506
DATA      -520.    950.     -520.    947.2    -515.    945.8    WSP 2507
DATA      -510.    944.4    -500.    944.2    -469.    942.1    WSP 2508
DATA      -438.    937.3    -402.    933.7    -367.    933.     WSP 2509
DATA      -322.    934.3    -172.    933.6    -130.    932.3    WSP 2510
DATA      -100.    930.      -60.    930.1     -45.    930.1    WSP 2511
DATA       -45.    930.1     -32.    929.6     -25.    928.6    WSP 2512
DATA       -21.5   928.6     -21.    927.8     -19.    928.1    WSP 2513
DATA       -16.    928.3     -12.    928.      -9.    927.8    WSP 2514
DATA        -5.    927.7      -2.    927.6              927.8    WSP 2515
DATA         2.    927.5       5.    927.6      8.    927.7    WSP 2516
DATA        12.    927.7      17.    927.9     20.    928.1    WSP 2517
DATA        21.5   928.6      27.    929.7     38.    934.9    WSP 2518
DATA        38.    934.9     158.    936.3    258.    936.2    WSP 2519
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DATA        305.    937.1    380.    936.2    455.    937.5   WSP 2520
DATA        555.    936.6    600.    936.4    700.    936.1   WSP 2521
DATA        800.    935.9    900.    935.3   1000.    936.    WSP 2522
DATA       1054.    937.1   1154.    936.8   1254.    937.3   WSP 2523
DATA       1314.    937.6   1322.    938.8   1331.    937.2   WSP 2524
DATA       1344.    937.4   1352.    940.9   1357.    942.5   WSP 2525
DATA   1   1380.    942.4   1380.    950.                     WSP 2526
BRIDGE     71       100.    100.                              WSP 2527
COEF       .65      .6      .8       1.                       WSP 2528
DATA                928.8   1.       927.5   10.8    927.5   WSP 2529
DATA       11.8     928.8   16.4     928.9   17.4    927.7   WSP 2530
DATA       27.2     927.7   28.2     928.9   32.8    930.    WSP 2531
DATA       33.8     928.5   43.6     928.5   44.6    930.    WSP 2532
DATA       43.1     933.2   41.1     934.5   938.7   935.    WSP 2533
DATA       36.8     934.6   34.8     933.2   32.8    930.    WSP 2534
DATA       28.2     928.9   26.3     932.5   24.3    934.    WSP 2535
DATA       22.3     934.7   20.3     934.    18.3    932.5   WSP 2536
DATA       16.4     928.9   11.8     928.8   9.9     932.6   WSP 2537
DATA       7.9      934.    5.9      934.7   3.9     934.    WSP 2538
DATA   1   1.9      932.6            928.8                    WSP 2539
DATA       -445.    950.    -445.    942.6   -350.   938.8   WSP 2540
DATA       -250.    937.2   -150.    937.1   -50.    937.4   WSP 2541
DATA                937.5   50.      937.8   150.    937.8   WSP 2542
DATA       250.     937.7   350.     937.5   450.    937.1   WSP 2543
DATA       550.     936.7   650.     936.4   750.    935.7   WSP 2544
DATA       850.     936.8   950.     939.1   1050.   942.1   WSP 2545
DATA   2   1110.    942.6   1110.    950.                     WSP 2546
XSECTN     71.1     3420.   3000.                    21.5    WSP 2547
ELEV       950.     927.5   937.     1.                       WSP 2548
N VALUE    .1       .04     .1                               WSP 2549
SEGMENT    2.               3.                               WSP 2550
DATA       -520.    950.    -520.    947.2   -515.   945.8   WSP 2551
DATA       -510.    944.4   -500.    944.2   -469.   942.1   WSP 2552
DATA       -438.    937.3   -402.    933.7   -367.   933.    WSP 2553
DATA       -322.    934.3   -172.    933.6   -130.   932.3   WSP 2554
DATA       -100.    930.    -60.     930.1   -45.    930.1   WSP 2555
DATA       -45.     930.1   -32.     929.6   -25.    928.6   WSP 2556
DATA       -21.5    928.6   -21.     927.8   -19.    928.1   WSP 2557
DATA       -16.     928.3   -12.     928.    -9.     927.8   WSP 2558
DATA       -5.      927.7   -2.      927.6            927.8   WSP 2559
DATA       2.       927.5   5.       927.6   8.      927.7   WSP 2560
DATA       12.      927.7   17.      927.9   20.     928.1   WSP 2561
DATA       21.5     928.6   27.      929.7   38.     934.9   WSP 2562
DATA       38.      934.9   158.     936.3   258.    936.2   WSP 2563
DATA       305.     937.1   380.     936.2   455.    937.5   WSP 2564
DATA       555.     936.6   600.     936.4   700.    936.1   WSP 2566
DATA       800.     935.9   900.     935.3   1000.   936.    WSP 2567
DATA       1054.    937.1   1154.    936.8   1254.   937.3   WSP 2568
DATA       1314.    937.6   1322.    938.8   1331.   937.2   WSP 2569
DATA       1344.    937.4   1352.    940.9   1357.   942.5   WSP 2570
DATA   1   1380.    942.4   1380.    950.                     WSP 2571
XSECTN     71.8     250.    250.                     21.5    WSP 2572
ELEV       947.     927.9   937.     1.                       WSP 2573
N VALUE    .1       .12     .04      .1                       WSP 2574
SEGMENT    3.               4.                               WSP 2575
DATA       -350.    947.    -350.    938.8   -295.   936.3   WSP 2576
DATA       -250.    934.8   -230.    932.    -218.   932.4   WSP 2577
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DATA      -158.    931.7    -118.    931.     -105.    930.6    WSP 2578
DATA       -79.    930.7     -34.    930.6     -34.    930.6    WSP 2579
DATA       -30.    929.8     -28.    929.      -27.    928.9    WSP 2580
DATA       -24.    928.2     -20.    928.4     -16.    928.4    WSP 2581
DATA       -13.    928.7     -10.    929.       -7.    929.4    WSP 2582
DATA        -7.    929.4      -3.    929.2                929.2  WSP 2583
DATA         2.    929.1       5.    929.       6.    929.8    WSP 2584
DATA         9.    928.8      11.    928.7     14.    928.3    WSP 2585
DATA        17.    928.2      20.    927.9     22.    928.1    WSP 2586
DATA        25.    928.4      28.    929.      29.    929.4    WSP 2587
DATA        31.    930.6      34.    931.      38.    931.8    WSP 2588
DATA        42.    932.2      44.    932.6     49.    933.7    WSP 2589
DATA        59.    934.5      59.    934.5     61.    934.     WSP 2590
DATA        70.    932.7      77.    934.      84.    938.9    WSP 2591
DATA        95.    939.2     223.    940.5    287.    940.3    WSP 2592
DATA       383.    941.2     447.    940.8    467.    941.9    WSP 2593
DATA       473.    941.8     485.    941.9    487.    941.1    WSP 2594
DATA   1   497.    942.      504.    942.8    504.    947.     WSP 2595
XSECTN     72      400.      400.                      21.5    WSP 2596
ELEV       949.    928.9     937.     1.                      WSP 2597
N VALUE    .1      .04       .1                               WSP 2598
SEGMENT    2.                3.                               WSP 2599
DATA      -271.    949.     -271.    940.6     -250.    939.6    WSP 2600
DATA      -200.    935.4    -150.    933.1     -135.    932.8    WSP 2601
DATA      -125.    931.9    -115.    931.3     -105.    931.4    WSP 2602
DATA       -95.    930.8     -83.    931.5      -82.    932.1    WSP 2603
DATA       -67.    931.5     -37.    933.1      -37.    933.1    WSP 2604
DATA       -24.    929.9     -23.    929.7      -21.    929.3    WSP 2605
DATA      -17.2    929.4    -17.2    930.8      -14.    930.8    WSP 2606
DATA       -10.    930.8      -6.    930.8       -2.    930.7    WSP 2607
DATA        -2.    928.9                928.9      2.    929.1    WSP 2608
DATA         2.    930.7       6.    930.7       8.    930.7    WSP 2609
DATA        10.    930.7      13.    930.7      15.    930.7    WSP 2610
DATA      16.2     930.7      17.    931.6      21.    933.2    WSP 2611
DATA        21.    933.2      36.    934.8      50.    936.2    WSP 2612
DATA        66.    937.8      73.    939.3     105.    939.8    WSP 2613
DATA   1   137.    940.2     149.    940.3     149.    949.     WSP 2614
XSECTN     72.1    2400.     1900.                     21.5    WSP 2615
ELEV       946.    925.4     932.     1.                      WSP 2616
N VALUE    .12     .04       .1                               WSP 2617
SEGMENT    2.                3.                               WSP 2618
DATA      -1578.   946.     -1578.    943.6    -1466.    942.5    WSP 2619
DATA      -1406.   941.7    -1400.    938.4    -1376.    938.1    WSP 2620
DATA      -1363.   936.4    -1323.    932.9    -1223.    931.9    WSP 2621
DATA      -1093.   931.9     -973.    932.      -873.    932.3    WSP 2622
DATA       -773.   930.9     -673.    930.4     -573.    930.5    WSP 2623
DATA       -473.   930.5     -423.    930.5     -373.    930.     WSP 2624
DATA       -360.   929.8     -360.    929.8     -355.    928.4    WSP 2625
DATA       -350.   927.4     -345.    927.4     -340.    927.     WSP 2626
DATA       -335.   926.6     -330.    925.8     -325.    925.6    WSP 2627
DATA       -320.   925.6     -315.    925.7     -310.    925.6    WSP 2628
DATA       -305.   925.6     -300.    925.4     -295.    925.6    WSP 2629
DATA       -290.   926.6     -285.    927.8     -281.    929.8    WSP 2630
DATA       -280.   931.8     -280.    931.8     -270.    931.5    WSP 2631
DATA       -260.   932.1     -250.    931.9     -200.    930.9    WSP 2632
DATA       -150.   931.      -125.    930.4     -100.    932.8    WSP 2633
DATA        -75.   934.4      -50.    935.       -10.    938.9    WSP 2634
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DATA    1          938.8     6.        939.9     6.        946.      WSP 2635
XSECTN     72.9      100.      100.                        21.5      WSP 2636
ELEV       950.      930.      935.      1.                          WSP 2637
N VALUE    .09       .04       .09                                   WSP 2638
SEGMENT    2.                  3.                                    WSP 2639
DATA       -315.     950.      -315.     937.      -280.     936.9     WSP 2640
DATA       -270.     937.      -250.     936.2     -200.     935.4     WSP 2641
DATA       -100.     934.9     -50.      935.      -22.      935.3     WSP 2642
DATA       -22.      935.3     -15.      930.7     -14.      930.5     WSP 2643
DATA       -13.      930.3     -11.      930.4     -10.      930.4     WSP 2644
DATA       -9.       930.6     -8.       930.6     -6.       930.5     WSP 2645
DATA       -3.       930.3               930.2     3.        930.3     WSP 2646
DATA       8.        930.3     12.       930.      14.       930.3     WSP 2647
DATA       14.       934.9     14.       934.9     79.       935.8     WSP 2648
DATA       92.       936.3     110.      936.8     150.      938.9     WSP 2649
DATA       250.      938.1     350.      938.4     389.      940.1     WSP 2650
DATA       489.      940.5     519.      940.9     545.      942.2     WSP 2651
DATA    1  550.      943.4     550.      950.                        WSP 2652
XSECTN     7295      30.       30.                         21.5      WSP 2653
ELEV       950.      932.7     935.      1.                          WSP 2654
N VALUE    .09       .022      .09                                   WSP 2655
SEGMENT    2.                  3.                                    WSP 2656
DATA       -315.     950.      -315.     937.      -280.     936.9     WSP 2657
DATA       -270.     937.      -250.     936.2     -200.     935.4     WSP 2658
DATA       -100.     934.9     -50.      935.      -22.      935.3     WSP 2659
DATA       -9.       935.5     -9.       935.5     -9.       932.7     WSP 2660
DATA       9.        932.7     9.        935.5     9.        935.5     WSP 2661
DATA       79.       935.8     92.       936.3     110.      936.8     WSP 2662
DATA       150.      938.9     250.      938.1     350.      938.4     WSP 2663
DATA       389.      940.1     489.      940.5     519.      940.9     WSP 2664
DATA    1  545.      942.2     550.      943.4     550.      950.      WSP 2665
XSECTN     73        60.       60.                         21.5      WSP 2666
ELEV       950.      933.4     740.      1.0                         WSP 2667X
N VALUE    .09       .02       .09                                   WSP 2668
SEGMENT    2.                  3.                                    WSP 2669
DATA       -108.7    950.0     -108.7    940.7     -8.7      940.7     WSP 2670
DATA       -8.7      940.7     -8.7      933.4     -3.6      933.4     WSP 2671X
DATA       -3.6      941.3     -2.2      941.3     -2.2      933.4     WSP 2672X
DATA       2.1       933.4     2.1       941.3     3.5       941.3     WSP 2673X
DATA       3.5       933.4     8.6       933.4     8.6       940.7     WSP 2674X
DATA       8.6       940.7     75.0      940.7     175.0     948.5     WSP 2675
DATA    1  275.0     948.1     275.0     950.0                       WSP 2676
XSECTN     73.1      65.       65.                         21.5      WSP 2681
ELEV       950.      936.      940.      1.        941.3             WSP 2682
N VALUE    .09       .035      .09                                   WSP 2683
SEGMENT    2.                  3.                                    WSP 2684
DATA       -800.     950.      -800.     936.2     -700.     936.2     WSP 2685
DATA       -625.     936.5     -525.     936.6     -425.     936.4     WSP 2686
DATA       -325.     936.4     -225.     936.9     -125.     938.6     WSP 2687
DATA       -91.      939.1     -40.      939.1     -40.      941.3     WSP 2688
DATA       -39.      941.3     -39.      941.3     -39.      936.      WSP 2689
DATA       25.       936.      25.       941.3     25.       941.3     WSP 2690
DATA       26.       941.3     26.       940.7     75.       940.3     WSP 2691
DATA       175.      948.5     275.      948.1     305.      940.1     WSP 2692
DATA    1  305.      950.                                            WSP 2693
BRIDGE     74        100.      100.                                  WSP 2694
COEF       .8        .6        .8        1.                          WSP 2695
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Michigan Center Dam
See Output for other X-Sec used.

DATA		934.7	1.	934.2	6.	934.		WSP 2670
DATA	12.	933.5	15.5	933.1	19.5	933.6		WSP 2671
DATA	23.5	933.9	30.5	934.7	29.5	937.9		WSP 2672
DATA	26.5	939.	24.5	940.2	22.5	940.4		WSP 2673
DATA	20.	940.	18.5	939.	17.	937.		WSP 2674
DATA	16.5	934.5	19.5	933.6	15.5	933.1		WSP 2675
DATA	12.	933.5	13.	934.1	12.5	936.9		WSP 2676
DATA	10.5	939.4	9.5	940.2	6.	940.5		WSP 2677
DATA	4.	940.	3.	939.4	2.	938.6		WSP 2678
DATA	1 1.	937.4		934.7				WSP 2679
DATA	-815.	946.	-815.	935.5	-800.	935.5		WSP 2680
DATA	-700.	935.9	-625.	936.5	-525.	936.6		WSP 2681
DATA	-425.	936.4	-325.	936.4	-225.	936.9		WSP 2682
DATA	-125.	938.6	-25.	942.		942.3		WSP 2683
DATA	25.	942.3	125.	941.8	225.	943.3		WSP 2684
DATA	325.	943.5	379.	944.3	425.	944.1		WSP 2685
DATA	2 425.	946.						WSP 2686
XSECTN	74.5	100.	100.			21.5		WSP 2687
ELEV	950.	936.3	940.	1.				WSP 2688
N VALUE	.09	.035	.09					WSP 2689
SEGMENT	2.		3.					WSP 2690
DATA	-264.	950.	-264.	944.8	-164.	944.4		WSP 2691
DATA	-163.	943.5	-86.	941.9	-74.	941.1		WSP 2692
DATA	-59.	941.	-43.	941.1	-28.	942.1		WSP 2693
DATA	-27.	942.6	-27.	943.3	-26.	943.3		WSP 2694
DATA	-26.	943.3	-26.	936.8	-16.	936.5		WSP 2695
DATA	-5.	936.3		936.4	5.	936.8		WSP 2696
DATA	10.	937.4	20.	937.9	27.	943.3		WSP 2697
DATA	27.	943.3	77.	939.7	130.	940.8		WSP 2698
DATA	1 195.	940.8	290.	940.7	290.	950.		WSP 2699
BRIDGE	75	10.	10.					WSP 2700
COEF	.8	.6	.8	1.				WSP 2701
DATA		941.7		937.9	6.2	937.4		WSP 2702
DATA	11.2	936.8	16.2	936.4	21.2	936.3		WSP 2703
DATA	26.2	936.5	31.2	936.8	31.2	940.2		WSP 2704
DATA	1 36.5	940.4	36.5	941.7		941.7		WSP 2705
DATA	-290.	949.	-290.	940.7	-195.	940.8		WSP 2706
DATA	-130.	940.8	-77.	939.7	-25.	942.8		WSP 2707
DATA	-25.	943.3	-20.	943.6		943.7		WSP 2708
DATA	20.	943.7	27.	943.3	27.	942.6		WSP 2709
DATA	28.	942.1	43.	941.1	59.	941.		WSP 2710
DATA	74.	941.1	86.	941.9	163.	943.5		WSP 2711
DATA	2 164.	944.4	264.	944.8	264.	949.		WSP 2712
XSECTN	75.5	1.	1.			21.5		WSP 2713
ELEV	950.	936.3	940.	1.				WSP 2714
N VALUE	.09	.035	.09					WSP 2715
SEGMENT	2.		3.					WSP 2716
DATA	-264.	950.	-264.	944.8	-164.	944.4		WSP 2717
DATA	-163.	943.5	-86.	941.9	-74.	941.1		WSP 2718
DATA	-59.	941.	-43.	941.1	-28.	942.1		WSP 2719
DATA	-27.	942.6	-27.	943.3	-26.	943.3		WSP 2720
DATA	-26.	943.3	-26.	936.8	-16.	936.5		WSP 2721
DATA	-5.	936.3		936.4	5.	936.8		WSP 2722
DATA	10.	937.4	20.	937.9	27.	943.3		WSP 2723
DATA	27.	943.3	77.	939.7	130.	940.8		WSP 2724
DATA	1 195.	940.8	290.	940.7	290.	950.		WSP 2725
TITLE	SHARP LAKE OUTLET-UPPER GRAND FHA-JACKSON MICHIGAN							WSP 2725A

TRIBUTARY	50.6	2800.	1880.				WSP 2725B	
XSECTN	79.9	160.	160.			21.5	WSP 2726	
ELEV	945.	934.1	936.				WSP 2727	Sharp Lake Outlet
N VALUE	.12	.04	.9				WSP 2728	
SEGMENT	2.		3.				WSP 2729	
DATA	-135.	945.	-135.	943.	-110.	938.6	WSP 2730	
DATA	-98.	937.4	-68.	936.1	-17.5	936.5	WSP 2731	
DATA	-17.5	936.5	-14.5	934.8		934.1	WSP 2732	
DATA	14.5	934.9	25.	935.8	25.	935.8	WSP 2733	
DATA	57.	937.1	63.	939.3	113.	940.6	WSP 2734	
DATA	213.	940.3	324.	941.2	428.	939.7	WSP 2735	
DATA	533.	939.6	541.	938.5	566.	938.1	WSP 2736	
DATA 1	566.	945.					WSP 2737	
BRIDGE	80	320.	320.				WSP 2738	
COEF	.7	.6	.8	1.			WSP 2739	
DATA		939.4		934.6	6.5	934.6	WSP 2740	
DATA	11.5	934.6	16.5	934.7	21.5	935.1	WSP 2741	
DATA 1	21.5	939.4		939.4			WSP 2742	
DATA	-550.	947.	-550.	944.3	-450.	943.9	WSP 2743	
DATA	-350.	943.6	-250.	943.5	-150.	942.7	WSP 2744	
DATA	-50.	941.4		941.6	50.	941.5	WSP 2745	
DATA	150.	942.6	250.	943.6	350.	943.4	WSP 2746	
DATA	450.	943.7	550.	944.1	645.	945.2	WSP 2747	
DATA 2	645.	947.					WSP 2748	
XSECTN	80.1	3970.	3670.			21.5	WSP 2749	
ELEV	952.	934.1	937.	1.			WSP 2750	
N VALUE	.9	.04	.1				WSP 2751	
SEGMENT	2.		3.				WSP 2752	
DATA	-231.	952.	-231.	941.5	-221.	940.4	WSP 2753	
DATA	-191.	938.	-161.	937.4	-111.	936.5	WSP 2754	
DATA	-31.	936.5	-31.	936.5	-23.	935.4	WSP 2755	
DATA		934.1	23.	935.4	28.	936.5	WSP 2756	
DATA	28.	936.5	50.	936.9	150.	937.	WSP 2757	
DATA	282.	936.	382.	936.4	482.	936.5	WSP 2758	
DATA	582.	936.6	682.	943.	691.	946.9	WSP 2759	
DATA 1	727.	950.3	727.	952.			WSP 2760	
XSECTN	55.9	100.	100.			21.5	WSP 2761	
ELEV	967.	940.8	950.	1.			WSP 2762	
N VALUE	.1	.04	.1				WSP 2763	
SEGMENT	2.		3.				WSP 2764	
DATA	-125.	967.	-125.	965.3	-115.	963.	WSP 2765	
DATA	-110.	962.4	-95.	962.4	-55.	962.	WSP 2766	
DATA	-40.	960.2	-38.	953.	-34.	950.2	WSP 2767	
DATA	-30.	946.8	-30.	946.8	-16.	945.4	WSP 2768	
DATA	-16.	943.2	-15.	942.8	-12.	942.4	WSP 2769	
DATA	-10.	942.2	-8.	941.8	-6.	941.5	WSP 2770	
DATA	-3.	941.4		940.9	2.	940.8	WSP 2771	
DATA	4.	940.8	6.	941.1	8.	941.5	WSP 2772	
DATA	10.	941.6	12.	941.8	14.	942.7	WSP 2773	
DATA	16.	943.5	17.	944.2	17.	944.2	WSP 2774	
DATA	26.	952.1	35.	953.7	45.	955.1	WSP 2775	
DATA 1	60.	957.8	64.	959.4	64.	967.	WSP 2776	
BRIDGE	56	100.	100.				WSP 2777	
COEF	.6	.6	.8	1.			WSP 2778	
DATA		958.6		943.9	4.4	943.7	WSP 2779	
DATA	9.4	943.5	13.4	943.5	19.4	943.8	WSP 2780	
DATA 1	24.4	944.3	24.4	958.6		958.6	WSP 2781	

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DATA      -220.    968.     -220.    966.1    -120.    962.3    WSP 2782
DATA      -75.     961.7    -15.     961.3              961.4    WSP 2783
DATA      15.      961.4    90.      961.7    165.     962.9    WSP 2784
DATA      265.     964.     335.     963.8    435.     962.9    WSP 2785
DATA  2   435.     968.                                        WSP 2786
XSECTN    56.1     100.     100.                       21.5     WSP 2787
ELEV      967.     940.8    950.     1.                         WSP 2788
N VALUE   .1       .04      .1                                  WSP 2789
SEGMENT   2.                3.                                 WSP 2790
DATA      -125.    967.     -125.    965.3    -115.    963.     WSP 2791
DATA      -110.    962.4    -95.     962.4    -55.     962.     WSP 2792
DATA      -40.     960.2    -38.     953.     -34.     950.2    WSP 2793
DATA      -30.     946.8    -30.     946.8    -16.     945.4    WSP 2794
DATA      -16.     943.2    -15.     942.8    -12.     942.4    WSP 2795
DATA      -10.     942.2    -8.      941.8    -6.      941.5    WSP 2796
DATA      -3.      941.4              940.9    2.       940.8    WSP 2797
DATA      4.       940.8    6.       941.1    8.       941.5    WSP 2798
DATA      10.      941.6    12.      941.8    14.      942.7    WSP 2799
DATA      16.      943.5    17.      944.2    17.      944.2    WSP 2800
DATA      26.      952.1    35.      953.7    45.      955.1    WSP 2801
DATA  1   60.      957.8    64.      959.4    64.      967.     WSP 2802
COMPILATION DISCONTINUED

M 14 SYSTEM PROGRAM DETECTED MONITOR CONTROL RECORD

// PAUSE
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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Input - ~~downstream~~ ~~also~~ between Eaton Rapids and Portage Creek

00BREAK00

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* LIST ALL
TITLE     UPPER GRAND FLOOD HAZARD ANALYSIS-JACKSON MICHIGAN                    WSP 1
FINAL  0  56.1      16.9 44.3 50.6                                              WSP 2
CSM-ELEV  3020.               3340.                4140.
CSM-ELEV
CSM-ELEV
CSM-ELEV
CSM-ELEV
SLOPE     .00016                                                              WSP 8
XSECTN    9.9       125.      125.                                 1.         WSP 9
ELEV      910.      888.4     894.      1.                                     WSP 10
N VALUE   .09       .06       .09                                              WSP 11
SEGMENT   2.                  3.        3.                                     WSP 12
DATA      -670.     910.      -670.     906.1     -590.     904.6            WSP 13
DATA      -470.     903.2     -390.     901.9     -340.     901.3            WSP 14
DATA      -280.     899.9     -250.     898.6     -187.     899.4            WSP 15
DATA      -172.     897.9     -157.     896.3     -142.     894.9            WSP 16
DATA      -123.     893.9     -107.     893.8     -92.      893.4            WSP 17
DATA      -77.      894.2     -52.      894.8     -52.      894.8            WSP 18
DATA      -40.      891.4     0.        888.4     48.       891.3            WSP 19
DATA      52.       894.9     52.       894.9     58.       895.2            WSP 20
DATA      68.       894.9     81.       894.1     96.       894.4            WSP 21
DATA      107.      895.1     137.      907.7     151.      909.4            WSP 22
DATA   1  151.      910.                                                      WSP 22A
BRIDGE    10        125.      125.                                           WSP 23
COEF      .7        .6        .8        1.                                   WSP 24
DATA                901.2               893.7     23.       888.3            WSP 25
DATA      46.       889.6     46.       901.2     50.       901.2            WSP 26
DATA      50.       889.9     73.       889.7     96.       893.8            WSP 27
DATA   1  96.       901.2               901.2                                WSP 28
DATA      -955.     910.      -955.     904.7     -855.     906.9            WSP 29
DATA      -745.     907.      -645.     906.2     -545.     905.2            WSP 30
DATA      -440.     903.8     -340.     902.8     -235.     902.7            WSP 31
DATA      -125.     903.8     -46.      905.2               905.3            WSP 32
DATA      46.       905.3     120.      906.1     175.      908.1            WSP 33
DATA   2  175.      910.                                                      WSP 34
XSECTN    10.1      16830.    10600.                               1.         WSP 35
ELEV      910.      888.4     895.      1.                                     WSP 36
N VALUE   .09       .06       .09                                              WSP 37
SEGMENT   2.                  3.        3.                                     WSP 38
DATA      -670.     910.      -670.     906.1     -590.     904.6            WSP 39
DATA      -470.     903.2     -390.     901.9     -340.     901.3            WSP 40
DATA      -280.     899.9     -250.     898.6     -187.     899.4            WSP 41
DATA      -172.     897.9     -157.     896.3     -142.     897.4            WSP 42
DATA      -123.     893.9     -107.     893.8     -92.      893.4            WSP 43
DATA      -77.      894.2     -52.      894.8     -52.      894.8            WSP 44
DATA      -40.      891.4               888.4     48.       891.3            WSP 45
DATA      52.       894.9     52.       894.9     58.       895.2            WSP 46
DATA      68.       894.9     81.       894.1     96.       894.4            WSP 47
DATA      107.      895.1     137.      907.7     151.      909.4            WSP 48
DATA   1  151.      910.                                                      WSP 48A
XSECTN    10.9      170.      170.                                 1.         WSP 49
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Downtown Main
Grand River

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ELEV      912.     891.1    900.     1.                          WSP 50
N VALUE   .09      .06      .09                                  WSP 51
SEGMENT   2.                3.       3.                          WSP 52
DATA      -790.    912.     -790.    911.3    -750.    906.3     WSP 53
DATA      -550.    905.8    -530.    905.5    -505.    902.3     WSP 54
DATA      -500.    898.6    -400.    896.7    -375.    897.1     WSP 55
DATA      -355.    899.1    -324.    897.5    -300.    900.1     WSP 56
DATA      -249.    899.5    -209.    899.4    -183.    899.3     WSP 57
DATA      -159.    899.4    -148.    897.9    -115.    897.4     WSP 58
DATA      -85.     898.4    -65.     897.6    -65.     897.6     WSP 59
DATA      -60.     893.6    -45.     894.3    -24.     893.      WSP 60
DATA               891.7    30.      891.1    54.      893.9     WSP 61
DATA      64.      898.6    64.      898.6    79.      898.9     WSP 62
DATA      95.      898.1    115.     897.3    135.     898.6     WSP 63
DATA      150.     900.2    165.     904.6    175.     905.5     WSP 64
DATA      188.     906.8    198.     908.1    210.     907.3     WSP 65
DATA    1 225.     910.4    225.     912.                        WSP 66
BRIDGE    11       170.     170.                                 WSP 67
COEF      0.5      .6       0.7      1.                          WSP 68
DATA               904.7             899.9    13.      897.      WSP 69
DATA      13.      904.7    14.      904.7    14.      897.      WSP 70
DATA      28.      894.6    28.      904.7    29.      904.7     WSP 71
DATA      29.      894.6    43.      895.1    43.      904.7     WSP 72
DATA      44.      904.7    44.      895.1    58.      894.2     WSP 73
DATA      58.      904.7    59.      904.7    59.      894.2     WSP 74
DATA      72.      895.2    72.      904.7    73.      904.7     WSP 75
DATA      73.      895.2    88.      895.5    88.      904.7     WSP 76
DATA      89.      904.7    89.      895.5    102.     894.8     WSP 77
DATA      102.     904.7    103.     904.7    103.     894.8     WSP 78
DATA      117.     895.8    117.     904.7    118.     904.7     WSP 79
DATA      118.     895.8    132.     897.1    132.     904.7     WSP 80
DATA      133.     904.7    133.     897.1    145.     897.7     WSP 81
DATA      145.     904.7    146.     904.7    146.     897.7     WSP 82
DATA      159.     899.2    159.     904.7    160.     904.7     WSP 83
DATA    1 160.     899.2    175.     904.7             904.7     WSP 84
DATA      -900.    910.3    -800.    910.3    -700.    910.1     WSP 85
DATA      -600.    909.4    -500.    909.     -395.    908.7     WSP 86
DATA      -290.    908.5    -190.    908.2    -86.     907.7     WSP 87
DATA               906.4    88.      906.2    190.     906.7     WSP 88
DATA      295.     906.7    400.     906.6    500.     906.9     WSP 89
DATA      600.     907.2    700.     907.8    800.     908.8     WSP 90
DATA    2 900.     909.7                                         WSP 91
XSECTN    11.1     1660.    1500.                     1.        WSP 92
ELEV      912.     891.1    898.     1.                          WSP 93
N VALUE   .09      .06      .09                                  WSP 94
SEGMENT   2.                3.       3.                          WSP 95
DATA      -790.    912.     -790.    911.3    -750.    906.3     WSP 96
DATA      -550.    905.8    -530.    905.5    -505.    902.3     WSP 97
DATA      -500.    898.6    -400.    896.7    -375.    897.1     WSP 98
DATA      -355.    899.1    -324.    897.5    -300.    900.1     WSP 99
DATA      -249.    899.5    -209.    899.4    -183.    899.3     WSP 100
DATA      -159.    899.4    -148.    897.9    -115.    897.4     WSP 101
DATA      -85.     898.4    -65.     897.6    -65.     897.6     WSP 102
DATA      -60.     893.6    -45.     894.3    -24.     893.      WSP 103
DATA               891.7    30.      891.1    54.      893.9     WSP 104
DATA      64.      898.6    64.      898.6    79.      898.9     WSP 105
DATA      95.      898.1    115.     897.3    135.     898.6     WSP 106
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DATA      150.    900.2    165.    904.6    175.    905.5    WSP 107
DATA      188.    906.8    198.    908.1    210.    907.3    WSP 108
DATA   1  225.    910.4    225.    912.                      WSP 109
XSECTN    11.9    140.     140.                      1.      WSP 110
ELEV      913.    892.6    900.    1.                        WSP 111
N VALUE   .09     .06      .09                               WSP 112
SEGMENT   2.              3.      3.                        WSP 113
DATA      -165.   913.     -165.   910.9    -101.   907.6    WSP 114
DATA      -82.    903.9    -56.    902.9    -56.    902.9    WSP 115
DATA      -49.    901.5    -43.    898.     -42.    896.2    WSP 116
DATA      -30.    892.6    -15.    893.1                     WSP 117
DATA      20.     893.4    42.     895.7    43.     898.1    WSP 118
DATA      43.     898.1    59.     897.6    72.     896.5    WSP 119
DATA      79.     897.8    84.     895.8    124.    898.6    WSP 120
DATA      141.    898.4    156.    897.7    170.    897.7    WSP 121
DATA      179.    898.1    195.    898.1    211.    898.1    WSP 122
DATA      225.    899.     250.    898.6    266.    898.8    WSP 123
DATA      279.    899.     280.    898.9    310.    899.5    WSP 124
DATA      340.    899.6    403.    898.4    448.    897.3    WSP 125
DATA      540.    898.4    555.    899.3    570.    906.     WSP 126
DATA   1  582.    909.     582.    913.                      WSP 127
BRIDGE    12      140.     140.                              WSP 128
COEF      0.7     .6       .8      1.                        WSP 129
DATA              902.9             896.5    20.5    894.1    WSP 130
DATA      41.     895.4    41.     902.9    45.     902.9    WSP 131
DATA      45.     894.6    65.5    892.7    85.8    895.7    WSP 132
DATA   1  85.8    902.9             902.9                     WSP 133
DATA      -270.   913.     -270.   910.7    -250.   910.1    WSP 134
DATA      -140.   907.4    -60.    906.6             906.5    WSP 135
DATA      40.     906.5    140.    905.3    245.    904.9    WSP 136
DATA      355.    904.7    445.    904.7    550.    904.7    WSP 137
DATA      650.    905.6    730.    906.8    870.    908.9    WSP 138
DATA   2  960.    910.7    960.    913.                      WSP 139
XSECTN    12.1    5700.    4000.                     1.      WSP 140
ELEV      913.    892.6    899.    1.                        WSP 141
N VALUE   .09     .06      .09                               WSP 142
SEGMENT   2.              3.      3.                        WSP 143
DATA      -165.   913.     -165.   910.9    -101.   907.6    WSP 144
DATA      -82.    903.9    -56.    902.9    -56.    902.9    WSP 145
DATA      -49.    901.5    -43.    898.     -42.    896.2    WSP 146
DATA      -30.    892.6    -15.    893.1                     WSP 147
DATA      20.     893.4    42.     895.7    43.     898.1    WSP 148
DATA      43.     898.1    59.     897.6    72.     896.5    WSP 149
DATA      79.     897.8    84.     895.8    124.    898.6    WSP 150
DATA      141.    898.4    156.    897.7    170.    897.7    WSP 151
DATA      179.    898.1    195.    898.1    211.    898.1    WSP 142
DATA      225.    899.     250.    898.6    266.    898.8    WSP 153
DATA      279.    899.     280.    898.9    310.    899.5    WSP 154
DATA      340.    899.6    403.    898.4    448.    897.3    WSP 155
DATA      540.    898.4    555.    899.3    570.    906.     WSP 156
DATA   1  582.    909.     582.    913.                      WSP 157
XSECTN    12.9    80.                               1.      WSP 158
ELEV      917.    890.1                                     WSP 159
N VALUE   .09     .06      .09                               WSP 160
SEGMENT   2.              3.                                WSP 160A
DATA      -630.   917.     -630.   916.6    -550.   914.2    WSP 161
DATA      -450.   912.6    -350.   911.1    -250.   905.8    WSP 162
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DATA      -147.    902.7    -67.     900.4    -47.     898.9    WSP 163
DATA      -47.     898.9    -37.     895.5    -18.     890.1    WSP 164
DATA               891.4    22.      893.     39.      895.4    WSP 165
DATA      41.      898.8    41.      898.8    62.      899.1    WSP 166
DATA      160.     898.7    260.     900.3    360.     900.2    WSP 167
DATA      470.     898.7    580.     899.3    660.     899.9    WSP 168
DATA      760.     900.9    850.     903.5    930.     905.3    WSP 169
DATA      1030.    906.9    1130.    906.6    1240.    905.6    WSP 170
DATA      1345.    904.6    1440.    905.4    1510.    905.4    WSP 171
DATA   1  1640.    907.     1695.    910.1    1695.    917.     WSP 172
BRIDGE    13       80.      80.                                 WSP 173
COEF      .8       .6       .8       1.                         WSP 174
DATA               905.9              899.2    21.8     892.6    WSP 175
DATA      43.4     890.9    43.4     905.9    46.      905.9    WSP 176
DATA      46.      889.5    67.7     892.9    89.4     898.6    WSP 177
DATA   1  89.4     905.9              905.9                      WSP 178
DATA      -520.    915.     -520.    914.2    -400.    912.5    WSP 179
DATA      -320.    911.3    -220.    910.4    -130.    909.8    WSP 180
DATA      -45.     909.4              909.2    45.      909.3    WSP 181
DATA      150.     909.9    260.     908.8    380.     909.1    WSP 182
DATA      500.     909.4    610.     910.1    740.     911.1    WSP 183
DATA   2  900.     912.6    990.     914.     990.     915.     WSP 184
XSECTN    13.05    25.      25.                         1.       WSP 185
ELEV      917.     890.1    900.     1.                         WSP 186
N VALUE   .05      .04      .05                                 WSP 187
SEGMENT   2.                3.       3.                         WSP 188
DATA      -630.    917.     -630.    916.6    -550.    914.2    WSP 189
DATA      -450.    912.6    -350.    911.1    -250.    905.8    WSP 190
DATA      -147.    902.7    -67.     900.4    -47.     898.9    WSP 191
DATA      -47.     898.9    -37.     895.5    -18.     890.1    WSP 192
DATA               891.4    22.      893.     39.      895.4    WSP 193
DATA      41.      898.8    41.      898.8    62.      899.1    WSP 194
DATA      160.     898.7    260.     900.3    360.     900.2    WSP 195
DATA      470.     898.7    580.     899.3    660.     899.9    WSP 196
DATA      760.     900.9    850.     903.5    930.     905.3    WSP 197
DATA      1030.    906.9    1130.    906.6    1240.    905.6    WSP 198
DATA      1345.    904.6    1440.    905.4    1510.    905.4    WSP 199
DATA   1  1640.    907.     1695.    910.1    1695.    917.     WSP 200
BRIDGE    13.1     25.      25.                                 WSP 201
COEF      .7       .6       .8       1.                         WSP 202
DATA               905.9              897.3    7.       895.6    WSP 203
DATA      16.      891.1    30.      889.9    47.      892.4    WSP 204
DATA      69.      898.     85.      901.9    85.      905.9    WSP 205
DATA   1           905.9                                         WSP 206
DATA      -420.    916.     -420.    911.5    -340.    909.5    WSP 208
DATA      -250.    907.8    -150.    906.5    -43.     907.5    WSP 209
DATA               907.2    43.      906.8    100.     905.2    WSP 210
DATA      200.     903.8    300.     903.3    390.     903.8    WSP 211
DATA      500.     903.8    590.     903.6    700.     903.3    WSP 212
DATA      800.     903.2    905.     904.     1000.    905.1    WSP 213
DATA      1090.    905.6    1210.    906.3    1300.    906.3    WSP 214
DATA      1400.    906.7    1500.    907.7    1600.    904.4    WSP 215
DATA   2  1680.    911.5    1680.    916.                        WSP 216
XSECTN    13.2     5700.    5000.                       1.       WSP 217
ELEV      917.     890.1    900.     1.                         WSP 218
N VALUE   .09      .06      .09                                 WSP 219
SEGMENT   2.                3.       3.                         WSP 220
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DATA      -630.    917.     -630.    916.6    -550.    914.2     WSP 221
DATA      -450.    912.6    -350.    911.1    -250.    905.8     WSP 222
DATA      -147.    902.7    -67.     900.4    -47.     898.9     WSP 223
DATA      -47.     898.9    -37.     895.5    -18.     890.1     WSP 224
DATA               891.4    22.      893.     39.      895.4     WSP 225
DATA      41.      898.8    41.      898.8    62.      899.1     WSP 226
DATA      160.     898.7    260.     900.3    360.     900.2     WSP 227
DATA      470.     898.7    580.     899.3    660.     899.9     WSP 228
DATA      760.     900.9    850.     903.5    930.     905.3     WSP 229
DATA      1030.    906.9    1130.    906.6    1240.    905.6     WSP 230
DATA      1345.    904.6    1440.    905.4    1510.    905.4     WSP 231
DATA  1   1640.    907.     1695.    910.1    1695.    917.      WSP 232
XSECTN    13.9     100.     100.                       1.        WSP 233
ELEV      918.     892.7    901.     1.                          WSP 234
N VALUE   .09      .06      .09                                  WSP 235
SEGMENT   2.                3.       3.                          WSP 236
DATA      -1020.   918.     -1020.   912.5    -900.    908.2     WSP 237
DATA      -750.    905.5    -660.    904.6    -550.    905.3     WSP 238
DATA      -450.    905.4    -350.    904.4    -250.    902.4     WSP 239
DATA      -150.    901.4    -47.     900.6    -47.     900.6     WSP 240
DATA      -42.     898.2    -38.     893.1    -20.     892.7     WSP 241
DATA               893.1    20.      893.3    36.      894.      WSP 242
DATA      41.      898.2    48.      900.7    48.      900.7     WSP 243
DATA      140.     902.3    250.     900.2    345.     898.      WSP 244
DATA      450.     899.6    550.     902.2    660.     901.8     WSP 245
DATA      750.     900.7    850.     899.9    950.     899.4     WSP 246
DATA      1050.    899.6    1150.    900.3    1240.    900.8     WSP 247
DATA      1350.    901.8    1445.    903.7    1550.    907.3     WSP 248
DATA      1650.    908.5    1750.    909.4    1850.    910.      WSP 249
DATA      1950.    911.9    2045.    912.9    2140.    914.5     WSP 250
DATA  1   2250.    916.7    2460.    917.4    2460.    918.      WSP 251
BRIDGE    14.      100.     100.                                 WSP 252
COEF      .7       .6       .8       1.                          WSP 253
DATA               905.6              899.6    24.2     894.3     WSP 254
DATA      48.5     893.9    48.5     905.6    51.5     905.6     WSP 255
DATA      51.5     893.2    75.5     893.9    99.5     895.6     WSP 256
DATA  1   99.5     905.6              905.6                       WSP 257
DATA      -980.    918.     -980.    914.2    -880.    912.1     WSP 258
DATA      -800.    910.2    -710.    908.7    -590.    907.3     WSP 259
DATA      -450.    907.2    -265.    908.7    -110.    909.2     WSP 260
DATA      -48.     909.4              909.4    48.      909.4     WSP 261
DATA      270.     908.4    555.     906.     860.     905.5     WSP 262
DATA      1160.    906.1    1520.    907.     1840.    909.      WSP 263
DATA  2   2160.    912.4    2280.    914.2    2280.    918.      WSP 264
XSECTN    14.1     8600.    7200.                      1.        WSP 265
ELEV      918.     892.7    901.     1.                          WSP 256
N VALUE   .09      .06      .09                                  WSP 257
SEGMENT   2.                3.       3.                          WSP 258
DATA      -1020.   918.     -1020.   912.5    -900.    908.2     WSP 259
DATA      -750.    905.5    -660.    904.6    -550.    905.3     WSP 260
DATA      -450.    905.4    -350.    904.4    -250.    902.4     WSP 261
DATA      -150.    901.4    -47.     900.6    -47.     900.6     WSP 262
DATA      -42.     898.2    -38.     893.1    -20.     892.7     WSP 263
DATA               893.1    20.      893.3    36.      894.      WSP 264
DATA      41.      898.2    48.      900.7    48.      900.7     WSP 265
DATA      140.     902.3    250.     900.2    345.     898.      WSP 266
DATA      450.     899.6    550.     902.2    660.     901.8     WSP 267
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DATA      750.    900.7    850.    899.9    950.    899.4    WSP 268
DATA     1050.    899.6   1150.    900.3   1240.    900.8    WSP 269
DATA     1350.    901.8   1445.    903.7   1550.    907.3    WSP 270
DATA     1650.    908.5   1750.    909.4   1850.    910.     WSP 271
DATA     1950.    911.9   2045.    912.9   2140.    914.5    WSP 272
DATA   1 2250.    916.7   2460.    917.4   2460.    918.     WSP 273
XSECTN   14.9     75.     75.                      1.       WSP 274
ELEV     917.     891.7   902.     1.                        WSP 278
N VALUE  .09      .06     .09                               WSP 279
SEGMENT  2.               3.       3.                       WSP 280
DATA     -255.    917.    -255.    916.9   -240.    912.7    WSP 281
DATA     -145.    909.3   -45.     907.    -45.     907.     WSP 282
DATA     -34.     903.5   -30.     896.7   -15.     893.9    WSP 283
DATA     -10.     891.9            891.7   10.      893.2    WSP 284
DATA     25.      893.8   30.      896.7   34.      903.2    WSP 285
DATA     34.      903.2   95.      901.7   195.     901.85   WSP 286
DATA     295.     901.3   395.     901.6   500.     901.3    WSP 287
DATA     600.     901.5   700.     902.9   800.     905.2    WSP 288
DATA     900.     907.5   1000.    909.2   1100.    909.5    WSP 289
DATA   1 1100.    917.                                      WSP 290
BRIDGE   15       75.     75.                               WSP 291
COEF     .8       .6      .8       1.                       WSP 292
DATA              905.9            902.7   8.       899.4    WSP 293
DATA     26.      894.8   46.      895.3   62.      898.5    WSP 294
DATA   1 72.      900.1   72.      905.9            905.9    WSP 295
DATA     -340.    918.    -340.    916.5   -240.    913.4    WSP 296
DATA     -140.    911.9   -36.     911.4            911.2    WSP 297
DATA     37.      910.8   140.     908.2   240.     906.8    WSP 298
DATA     340.     906.5   440.     905.9   550.     905.9    WSP 299
DATA     650.     906.8   750.     907.9   850.     908.     WSP 300
DATA   2 950.     908.4   1050.    900.    1050.    918.     WSP 301
XSECTN   15.1     4675.   4450.                     1.       WSP 301
ELEV     917.     891.7   902.     1.                        WSP 302
N VALUE  .09      .06     .09                               WSP 303
SEGMENT  2.               3.       3.                       WSP 304
DATA     -255.    917.    -255.    916.9   -240.    912.7    WSP 305
DATA     -145.    909.3   -45.     907.    -45.     907.     WSP 306
DATA     -34.     903.5   -30.     896.7   -15.     893.9    WSP 307
DATA     -10.     891.9            891.7   10.      893.2    WSP 308
DATA     25.      893.8   30.      896.7   34.      903.2    WSP 309
DATA     34.      903.2   95.      901.7   195.     901.85   WSP 310
DATA     295.     901.3   395.     901.6   500.     901.3    WSP 311
DATA     600.     901.5   700.     902.9   800.     905.2    WSP 312
DATA     900.     907.5   1000.    909.2   1100.    909.5    WSP 313
DATA   1 1100.    917.                                      WSP 314
XSECTN   15.3     7760.   7500.                     1.       WSP 315
ELEV     916.     895.3   902.     1.                        WSP 316
N VALUE  .09      .06     .09                               WSP 317
SEGMENT  2.               3.       3.                       WSP 318
DATA     -580.    916.    -580.    911.    -530.    910.5    WSP 319
DATA     -481.    909.6   -465.    909.4   -450.    909.2    WSP 320
DATA     -435.    909.8   -420.    907.5   -405.    903.6    WSP 321
DATA     -380.    901.5   -330.    900.6   -230.    900.5    WSP 322
DATA     -150.    901.4   -100.    902.3   -86.     905.6    WSP 323
DATA     -78.     906.9   -68.     906.7   -60.     905.8    WSP 324
DATA     -53.     904.2   -48.     903.9   -40.     904.5    WSP 325
DATA     -40.     904.5   -34.     900.9   -27.     897.4    WSP 326
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DATA      -10.     895.4              895.3     10.      897.2     WSP 327
DATA      20.      898.4     25.      899.4     30.      899.8     WSP 328
DATA      36.      900.5     48.      901.4     56.      903.1     WSP 329
DATA      60.      903.6     60.      903.6     78.      903.2     WSP 330
DATA      123.     902.8     163.     902.9     210.     904.1     WSP 331
DATA      310.     904.9     400.     906.1     500.     908.      WSP 332
DATA      545.     909.4     558.     910.      570.     909.6     WSP 333
DATA      575.     911.      585.     911.9     590.     911.1     WSP 334
DATA   1  700.     912.8     800.     913.5     800.     916.      WSP 335
XSECTN    15.7     1690.     1690.                      1.        WSP 336
ELEV      917.     895.8     902.     1.                           WSP 337
N VALUE   .09      .06       .09                                   WSP 338
SEGMENT   2.                3.       3.                           WSP 339
DATA      -735.    917.      -735.    909.2     -635.    907.7     WSP 340
DATA      -535.    905.8     -435.    905.3     -335.    905.6     WSP 341
DATA      -235.    905.5     -185.    906.4     -160.    903.4     WSP 342
DATA      -146.    901.      -130.    900.9     -115.    901.4     WSP 343
DATA      -100.    903.5     -84.     907.6     -77.     907.8     WSP 344
DATA      -70.     908.1     -70.     908.1     -58.     905.7     WSP 345
DATA      -52.     904.      -45.     904.7     -39.     902.8     WSP 346
DATA      -35.     901.6     -32.     899.9     -31.     899.3     WSP 347
DATA      -25.     897.5     -22.     896.6     -12.     896.1     WSP 348
DATA               895.8     10.      896.9     20.      899.3     WSP 349
DATA      29.      899.3     32.      899.9     37.      900.      WSP 350
DATA      43.      901.      49.      902.7     53.      904.4     WSP 351
DATA      57.      904.6     63.      903.9     70.      905.6     WSP 352
DATA      76.      907.4     82.      908.3     88.      909.4     WSP 353
DATA      88.      909.4     103.     909.7     116.     906.1     WSP 354
DATA      122.     903.9     155.     902.      171.     903.6     WSP 355
DATA      216.     901.9     246.     902.3     262.     904.6     WSP 356
DATA      312.     907.2     348.     910.7     400.     911.8     WSP 357
DATA   1  500.     914.8     550.     916.9     550.     917.      WSP 358
XSECTN    15.9     100.      100.                       1.        WSP 337
ELEV      917.     896.3     903.     1.                           WSP 338
N VALUE   .09      .06       .09                                   WSP 339
SEGMENT   2.                3.                                    WSP 340
DATA      -2278.   917.      -2278.   914.2     -2238.   911.6     WSP 341
DATA      -2038.   911.4     -1838.   911.7     -1638.   911.8     WSP 342
DATA      -1438.   909.7     -1238.   909.3     -1038.   907.      WSP 343
DATA      -838.    907.      -736.    906.      -636.    905.2     WSP 344
DATA      -586.    906.4     -573.    902.      -513.    899.6     WSP 345
DATA      -413.    902.9     -313.    905.3     -213.    904.9     WSP 346
DATA      -113.    905.      -78.     910.8     -78.     910.8     WSP 347
DATA      -54.     908.9     -42.     905.9     -38.     901.      WSP 348
DATA      -30.     896.9     -25.     896.3               897.2     WSP 349
DATA      20.      897.      30.      897.4     37.      901.      WSP 350
DATA      43.      905.1     67.      909.7     67.      909.7     WSP 351
DATA      105.     909.8     130.     904.7     180.     904.7     WSP 352
DATA      280.     905.2     390.     911.1     490.     913.8     WSP 353
DATA   1  590.     914.7     610.     915.1     610.     917.      WSP 354
BRIDGE    16       100.      100.                                  WSP 355
COEF      .6       .6        .8       1.                           WSP 356
DATA               908.2               898.5     10.      897.7     WSP 357
DATA      30.      896.4     50.      896.7     70.      897.      WSP 358
DATA      78.      897.2     80.      901.3     84.5     902.5     WSP 359
DATA   1           908.2                                           WSP 360
DATA      -2238.   918.      -2238.   914.      -2038.   912.7     WSP 361
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DATA      -1838.   912.1    -1638.   911.4    -1438.   910.5     WSP 362
DATA      -1238.   909.6    -1038.   909.6    -838.    909.3     WSP 363
DATA      -738.    909.2    -638.    909.1    -538.    908.9     WSP 364
DATA      -438.    908.7    -338.    908.7    -238.    909.2     WSP 365
DATA      -138.    909.7    -38.     910.5              910.6     WSP 366
DATA      37.      910.5    137.     910.2    237.     909.9     WSP 367
DATA      337.     910.7    437.     911.7    537.     912.8     WSP 368
DATA   2  637.     914.3    700.     915.1    700.     918.      WSP 369
XSECTN    16.1     2560.    2560.                      1.        WSP 370
ELEV      917.     896.3    903.     1.                          WSP 371
N VALUE   .09      .06      .09                                  WSP 372
SEGMENT   2.                3.       3.                          WSP 373
DATA      -2278.   917.     -2278.   914.2    -2238.   911.6     WSP 374
DATA      -2038.   911.4    -1838.   911.7    -1638.   911.8     WSP 375
DATA      -1438.   909.7    -1238.   909.3    -1038.   907.      WSP 376
DATA      -838.    907.     -736.    906.     -636.    905.2     WSP 377
DATA      -586.    906.4    -573.    902.     -513.    899.6     WSP 378
DATA      -413.    902.9    -313.    905.3    -213.    904.9     WSP 379
DATA      -113.    905.     -78.     910.8    -78.     910.8     WSP 380
DATA      -54.     908.9    -42.     905.9    -38.     901.      WSP 381
DATA      -30.     896.9    -25.     896.3              897.2     WSP 382
DATA      20.      897.     30.      897.4    37.      901.      WSP 383
DATA      43.      905.1    67.      909.7    67.      909.7     WSP 384
DATA      105.     909.8    130.     904.7    180.     904.7     WSP 385
DATA      280.     905.2    390.     911.1    490.     913.8     WSP 386
DATA   1  590.     914.7    610.     915.1    610.     917.      WSP 387
XSECTN    16.2     4920.    4920.                      1.        WSP 388
ELEV      917.     896.8    903.     1.                          WSP 389
N VALUE   .09      .06      .09                                  WSP 390
SEGMENT   2.                3.       3.                          WSP 391
DATA      -1430.   917.     -1430.   914.4    -1405.   914.      WSP 392
DATA      -1305.   913.3    -1205.   912.6    -1105.   912.      WSP 393
DATA      -1005.   911.3    -905.    909.8    -805.    910.3     WSP 394
DATA      -755.    909.7    -685.    904.2    -585.    904.7     WSP 395
DATA      -485.    904.4    -385.    903.9    -285.    904.9     WSP 396
DATA      -235.    905.6    -185.    904.9    -135.    905.      WSP 397
DATA      -85.     904.5    -60.     907.9    -60.     907.9     WSP 398
DATA      -57.     905.3    -44.     905.1    -41.     902.7     WSP 399
DATA      -36.     901.     -31.     898.6    -9.      897.3     WSP 400
DATA               896.8    10.      897.6    30.      899.1     WSP 401
DATA      36.      901.     53.      903.7    65.      906.1     WSP 402
DATA      73.      908.6    86.      910.8    86.      910.8     WSP 403
DATA      101.     908.8    114.     906.5    132.     905.      WSP 404
DATA      144.     903.7    164.     905.7    214.     905.8     WSP 405
DATA      264.     906.3    314.     907.2    364.     907.6     WSP 406
DATA      388.     908.4    488.     910.5    588.     912.7     WSP 407
DATA   1  688.     915.     748.     915.6    748.     917.      WSP 408
XSECTN    16.6     2620.    2500.                      1.        WSP 409
ELEV      920.     899.     906.     1.                          WSP 410
N VALUE   .09      .06      .09                                  WSP 411
SEGMENT   2.                3.       3.                          WSP 412
DATA      -920.    920.     -920.    919.2    -904.    918.7     WSP 413
DATA      -837.    917.2    -737.    914.1    -720.    911.      WSP 414
DATA      -706.    907.1    -676.    904.6    -607.    904.2     WSP 415
DATA      -587.    906.1    -387.    905.3    -267.    905.5     WSP 416
DATA      -237.    904.8    -182.    905.2    -155.    905.7     WSP 417
DATA      -128.    907.6    -112.    910.3    -96.     915.6     WSP 418
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DATA      -83.    916.6    -83.    916.6    -73.    913.4    WSP 419
DATA      -66.    909.2    -59.    907.4    -53.    907.1    WSP 420
DATA      -47.    905.9    -45.    903.7    -40.    901.     WSP 421
DATA      -35.    899.     -20.    899.1             899.9    WSP 422
DATA      10.     899.5    19.     899.4    30.     900.4    WSP 423
DATA      40.     901.     45.     903.     51.     906.5    WSP 424
DATA      58.     907.2    69.     908.5    75.     910.2    WSP 425
DATA      86.     910.7    97.     911.4    97.     911.4    WSP 426
DATA      121.    906.1    136.    904.8    151.    906.4    WSP 427
DATA      167.    906.8    180.    905.3    195.    905.6    WSP 428
DATA      230.    904.7    260.    902.8    272.    904.2    WSP 429
DATA      286.    907.8    322.    908.7    325.    908.6    WSP 430
DATA      425.    908.2    525.    906.9    715.    908.2    WSP 431
DATA   1  770.    910.2    770.    920.                      WSP 432
XSECTN    16.9    2390.    2300.                     1.       WSP 433
ELEV      923.    898.7    908.    1.                        WSP 434
N VALUE   .09     .06      .09                               WSP 435
SEGMENT   2.              3.      3.                        WSP 436
DATA      -775.   923.     -775.   916.2    -762.   915.2    WSP 437
DATA      -667.   913.7    -577.   913.1    -477.   914.     WSP 438
DATA      -377.   913.9    -277.   912.9    -177.   911.1    WSP 439
DATA      -167.   910.8    -157.   912.1    -143.   913.7    WSP 440
DATA      -127.   916.     -112.   917.4    -98.    918.7    WSP 441
DATA      -91.    921.2    -91.    921.2    -84.    918.9    WSP 442
DATA      -78.    913.6    -72.    911.2    -56.    910.6    WSP 443
DATA      -51.    907.9    -46.    905.3    -42.    902.7    WSP 444
DATA      -38.    901.5    -32.    900.7    -22.    899.8    WSP 445
DATA              898.7    10.     899.7    19.     900.2    WSP 446
DATA      29.     900.8    38.     901.5    43.     902.5    WSP 447
DATA      48.     905.3    57.     905.9    65.     910.     WSP 448
DATA      80.     915.     80.     915.     90.     914.2    WSP 449
DATA      103.    911.9    120.    906.6    220.    905.5    WSP 450
DATA      320.    906.3    420.    907.8    520.    906.6    WSP 451
DATA      620.    907.2    720.    909.6    745.    910.5    WSP 452
DATA      753.    912.5    853.    916.7    903.    918.5    WSP 453
DATA   1  903.    923.                                       WSP 454
XSECTN    17.2    2880.    2880.                     1.       WSP 455
ELEV      920.    900.1    910.    1.                        WSP 456
N VALUE   .09     .06      .09                               WSP 457
SEGMENT   2.              3.      3.                        WSP 458
DATA      -1345.  920.     -1345.  914.5    -1195.  916.1    WSP 459
DATA      -1045.  914.9    -645.   914.9    -640.   915.3    WSP 460
DATA      -390.   915.8    -370.   914.7    -315.   911.2    WSP 461
DATA      -299.   910.3    -265.   909.2    -235.   907.3    WSP 462
DATA      -190.   906.1    -80.    907.1    -50.    917.9    WSP 463
DATA      -50.    917.9    -27.    904.     -22.    902.1    WSP 464
DATA      -17.    900.5    -10.    900.1    -5.     900.1    WSP 465
DATA              900.1    4.      900.3    10.     900.6    WSP 466
DATA      17.     901.2    21.     902.1    31.     902.3    WSP 467
DATA      38.     905.7    46.     906.2    54.     907.4    WSP 468
DATA      67.     906.9    75.     907.2    88.     906.1    WSP 469
DATA      128.    906.3    148.    909.3    161.    909.5    WSP 470
DATA      161.    909.5    201.    908.8    261.    908.6    WSP 471
DATA      331.    908.2    361.    908.5    436.    907.1    WSP 472
DATA      496.    909.7    501.    910.7    506.    913.4    WSP 473
DATA      531.    913.5    606.    913.1    706.    914.3    WSP 474
DATA      806.    915.4    906.    915.8    1006.   915.3    WSP 475
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DATA       1106.    912.9    1216.    913.5    1226.    916.6    WSP 476
DATA   1   1231.    917.4    1231.    920.                       WSP 477
XSECTN     17.6     4110.    4110.                       1.       WSP 478
ELEV       926.     900.2    910.     1.                         WSP 479
N VALUE    .09      .06      .09                                 WSP 480
SEGMENT    2.               3.       3.                         WSP 481
DATA       -1197.   926.     -1197.   924.5    -969.    920.6    WSP 482
DATA       -849.    919.6    -799.    918.2    -774.    918.7    WSP 483
DATA       -654.    917.8    -604.    917.7    -481.    915.5    WSP 484
DATA       -451.    913.6    -444.    911.7    -344.    910.1    WSP 485
DATA       -183.    909.6    -163.    908.5    -148.    909.4    WSP 486
DATA       -76.     909.5    -76.     909.5    -67.     908.5    WSP 487
DATA       -59.     907.2    -56.     906.     -54.     907.1    WSP 488
DATA       -47.     908.4    -38.     907.9    -33.     906.7    WSP 489
DATA       -18.     904.8    -15.     903.     -10.     900.2    WSP 490
DATA       -5.      900.4             900.5    5.       900.4    WSP 491
DATA       10.      900.3    15.      903.     20.      907.8    WSP 492
DATA       30.      910.7    37.      912.6    45.      915.6    WSP 493
DATA       51.      917.8    58.      918.7    58.      918.7    WSP 494
DATA       67.      915.2    75.      912.6    85.      908.9    WSP 495
DATA       101.     908.2    136.     907.9    162.     908.3    WSP 496
DATA       192.     908.9    208.     909.2    220.     911.3    WSP 497
DATA       231.     914.7    241.     916.9    256.     917.2    WSP 498
DATA       286.     917.8    334.     915.3    411.     915.1    WSP 499
DATA   1   476.     916.4    476.     926.                       WSP 500
XSECTN     17.8     730.     730.                        1.       WSP 501
ELEV       923.     903.     911.     1.                         WSP 502
N VALUE    .08      .06      .09                                 WSP 503
SEGMENT    2.               3.                                  WSP 504
DATA       -644.    923.     -644.    920.1    -594.    919.     WSP 505
DATA       -558.    916.     -545.    912.     -541.    911.5    WSP 506
DATA       -528.    910.7    -522.    909.5    -477.    909.6    WSP 507
DATA       -427.    911.2    -377.    911.3    -327.    910.5    WSP 508
DATA       -277.    912.1    -222.    912.5    -172.    912.2    WSP 509
DATA       -165.    911.5    -160.    912.5    -138.    912.1    WSP 510
DATA       -88.     912.     -81.     913.7    -70.     914.9    WSP 511
DATA       -61.     916.9    -61.     916.9    -56.     914.2    WSP 512
DATA       -47.     912.9    -40.     912.4    -29.     907.     WSP 513
DATA       -20.     905.7    -16.     903.9    -10.     903.     WSP 514
DATA                903.1    5.       903.1    10.      903.2    WSP 515
DATA       15.      904.2    18.      904.7    20.      905.7    WSP 516
DATA       26.      911.3    37.      911.9    47.      914.2    WSP 517
DATA       56.      916.     66.      916.2    66.      916.2    WSP 518
DATA       97.      911.3    110.     911.8    135.     911.     WSP 519
DATA       163.     912.5    174.     912.4    180.     910.     WSP 520
DATA       185.     912.4    206.     913.     264.     913.2    WSP 521
DATA       272.     915.2    282.     915.3    292.     913.1    WSP 522
DATA       392.     911.9    715.     916.7    765.     916.8    WSP 523
DATA   1   815.     918.3    915.     919.6    915.     923.     WSP 524
XSECTN     17.9     90.      90.                         1.       WSP 525
ELEV       925.     904.7    912.     1.                         WSP 526
N VALUE    .09      .06      .09                                 WSP 527
SEGMENT    2.               3.                                  WSP 528
DATA       -700.    925.     -700.    922.     -628.    919.     WSP 529
DATA       -528.    916.5    -428.    913.3    -328.    911.     WSP 530
DATA       -228.    912.8    -128.    914.     -128.    914.     WSP 531
DATA       -65.     913.7    -45.     912.6    -25.     905.7    WSP 532
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DATA      -19.     904.7              904.8     17.      905.2     WSP 533
DATA      20.      905.7     26.      908.7     45.      911.      WSP 534
DATA      72.      913.8     72.      913.8     172.     914.9     WSP 535
DATA      272.     914.9     372.     914.5     472.     915.7     WSP 536
DATA      572.     917.1     672.     917.5     772.     918.3     WSP 537
DATA      872.     919.      972.     919.      1072.    919.9     WSP 538
DATA    1 1150.    922.      1150.    925.                         WSP 539
BRIDGE    18       90.       90.                                   WSP 540
COEF      .8       .6        .8       1.                           WSP 541
DATA                912.8              903.1     16.      903.9     WSP 542
DATA      26.      905.      36.      904.9     51.      905.2     WSP 543
DATA    1 56.      906.5     56.      912.8               912.8     WSP 544
DATA      -820.    925.      -820.    922.      -728.    920.5     WSP 547
DATA      -628.    919.2     -528.    918.4     -428.    917.7     WSP 548
DATA      -328.    917.1     -228.    916.7     -128.    916.5     WSP 549
DATA      -28.     917.1              917.1     28.      916.9     WSP 550
DATA      72.      917.1     172.     917.2     272.     917.1     WSP 551
DATA      372.     916.9     472.     917.2     572.     918.1     WSP 552
DATA      672.     919.1     772.     919.5     872.     920.2     WSP 553
DATA      972.     920.7     1072.    921.1     1150.    922.1     WSP 554
DATA    2 1150.    925.                                            WSP 555
XSECTN    18.1     2118.     2118.                        1.       WSP 556A
ELEV      925.     904.7     912.     1.                           WSP 557
N VALUE   .08      .06       .09                                   WSP 558
SEGMENT   2.                3.                                    WSP 559
DATA      -700.    925.      -700.    922.      -628.    919.      WSP 560
DATA      -528.    916.5     -428.    913.3     -328.    911.      WSP 561
DATA      -228.    912.8     -128.    914.      -128.    914.      WSP 562
DATA      -65.     913.7     -45.     912.6     -25.     905.7     WSP 563
DATA      -19.     904.7              904.8     17.      905.2     WSP 564
DATA      20.      905.7     26.      908.7     40.      911.      WSP 565
DATA      72.      913.8     72.      913.8     172.     914.9     WSP 566
DATA      272.     914.9     372.     914.5     472.     915.7     WSP 567
DATA      572.     917.1     672.     917.5     772.     918.3     WSP 568
DATA      872.     919.      972.     919.      1072.    919.9     WSP 569
DATA    1 1150.    922.      1150.    925.                         WSP 570
XSECTN    18.7     500.      500.                         1.       WSP 570A
ELEV      925.0    904.7     914.0    1.0                          WSP 570B
N VALUE   0.08     0.06      0.09                                  WSP 570C
SEGMENT   2.                3.                                    WSP 570D
DATA      -812.    925.0     -812.    922.9     -792.    922.6     WSP 570E
DATA      -692.    920.8     -592.    919.1     -492.    917.8     WSP 570F
DATA      -392.    915.8     -310.    913.1     -210.    912.9     WSP 570G
DATA      -110.    913.3     -78.     915.4     -66.     918.2     WSP 570H
DATA      -66.     918.2     -48.     917.5     -30.     913.8     WSP 570I
DATA      -25.     911.2     -23.     907.3     -8.      904.7     WSP 5870J
DATA      0.       905.0     19.      905.4     23.      907.1     WSP 570K
DATA      25.      910.6     55.      919.9     55.      919.9     WSP 570L
DATA      155.     919.3     255.     919.2     355.     919.9     WSP 570M
DATA    1 455.     921.4     520.     922.6     520.     925.0     WSP 570N
XSECTN    18.8     750.      750.                         1.       WSP 571
ELEV      925.     904.7     914.     1.                           WSP 572
N VALUE   .06      .04       .06                                   WSP 573
SEGMENT   2.                3.                                    WSP 574
DATA      -812.    925.      -812.    922.9     -792.    922.6     WSP 575
DATA      -692.    920.8     -592.    919.1     -492.    917.8     WSP 576
DATA      -392.    915.8     -310.    913.1     -210.    912.9     WSP 577
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DATA      -110.    913.3    -78.     915.4    -66.     918.2     WSP 578
DATA       -66.    918.2    -48.     917.5    -30.     913.8     WSP 579
DATA       -25.    911.2    -23.     907.3     -8.     904.7     WSP 580
DATA               905.      19.     905.4     23.     907.1     WSP 581
DATA        25.    910.6     55.     919.9     55.     919.9     WSP 582
DATA       155.    919.3    255.     919.2    355.     919.9     WSP 583
DATA   1   455.    921.4    520.     922.6    520.     925.      WSP 584
XSECTN     18.9    100.     100.                       1.        WSP 585
ELEV       925.    904.7    914.     1.                          WSP 586
N VALUE    .06     .04      .06                                 WSP 587
SEGMENT    2.               3.                                  WSP 588
DATA      -812.    925.     -812.    922.9    -792.    922.6     WSP 589
DATA      -692.    920.8    -592.    919.1    -492.    917.8     WSP 590
DATA      -392.    915.8    -310.    913.1    -210.    912.9     WSP 591
DATA      -110.    913.3    -78.     915.4    -66.     918.2     WSP 592
DATA       -66.    918.2    -48.     917.5    -30.     913.8     WSP 593
DATA       -25.    911.2    -23.     907.3     -8.     904.7     WSP 594
DATA               905.      19.     905.4     23.     907.1     WSP 595
DATA        25.    910.6     55.     919.9     55.     919.9     WSP 596
DATA       155.    919.3    255.     919.2    355.     919.9     WSP 597
DATA   1   455.    921.4    520.     922.6    520.     925.      WSP 598
BRIDGE     19      100.     100.                                WSP 599
COEF       .8      .6       .8       1.                         WSP 600
DATA               918.5               907.5    10.     906.9     WSP 601
DATA        20.    906.6     30.     906.8    40.     906.7     WSP 602
DATA   1   48.    906.5     48.     918.5              918.5     WSP 603
DATA      -434.    927.     -434.    919.7    -426.    919.8     WSP 605
DATA      -326.    919.5    -226.    919.7    -126.    920.6     WSP 606
DATA       -26.    921.6               921.8     26.    921.8     WSP 607
DATA       126.    921.3    226.     921.     326.     921.4     WSP 608
DATA       426.    922.4    526.     924.3    600.     926.4     WSP 609
DATA   2   600.    927.                                         WSP 610
XSECTN     19.1    380.     380.                       1.        WSP 611
ELEV       932.    906.     915.     1.                          WSP 612
N VALUE    .06     .04      .06                                 WSP 613
SEGMENT    2.               3.                                  WSP 614
DATA      -934.    932.     -934.    927.1    -834.    927.2     WSP 615
DATA      -826.    925.7    -786.    924.3    -780.    924.      WSP 616
DATA      -777.    924.6    -772.    924.5    -760.    924.2     WSP 617
DATA      -748.    923.8    -736.    925.3    -718.    925.3     WSP 618
DATA      -708.    923.3    -562.    920.6    -512.    920.3     WSP 619
DATA      -412.    918.7    -312.    916.9    -262.    916.      WSP 620
DATA      -212.    916.2    -146.    914.4    -96.     914.9     WSP 621
DATA       -81.    916.4    -69.     918.4    -58.     919.      WSP 622
DATA       -58.    919.     -31.5    914.     -23.5    912.4     WSP 623
DATA      -22.5    908.3    -19.5    908.     -16.5    907.1     WSP 624
DATA       -13.    906.1               906.     13.     906.9     WSP 625
DATA        21.    908.6     25.     911.6    80.      925.      WSP 626
DATA       104.    925.9    104.     925.9    117.     927.      WSP 627
DATA       340.    926.1    384.     927.3    391.     925.      WSP 628
DATA       521.    924.9    529.     927.4    539.     927.6     WSP 629
DATA       551.    925.3    565.     927.2    580.     928.4     WSP 630
DATA       587.    925.4    598.     924.8    611.     930.8     WSP 631
DATA   1   611.    932.                                         WSP 632
XSECTN     19.2    1390.    1120.                      1.        WSP 633
ELEV       932.    906.     916.     1.                          WSP 634
N VALUE    .1      .08      .1                                  WSP 635
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SEGMENT   2.                3.                                    WSP 636
DATA      -934.     932.    -934.     927.1     -834.     927.2   WSP 637
DATA      -826.     925.7   -786.     924.3     -780.     924.    WSP 638
DATA      -777.     924.6   -772.     924.5     -760.     924.2   WSP 639
DATA      -748.     923.8   -736.     925.3     -718.     925.3   WSP 640
DATA      -708.     923.3   -562.     920.6     -512.     920.3   WSP 641
DATA      -412.     918.7   -312.     916.9     -262.     916.    WSP 642
DATA      -212.     916.2   -146.     914.4     -96.      914.9   WSP 643
DATA      -81.      916.4   -69.      918.4     -58.      919.    WSP 644
DATA      -58.      919.    -31.5     914.      -23.5     912.4   WSP 645
DATA      -22.5     908.3   -19.5     908.      -16.5     907.1   WSP 646
DATA      -13.      906.1             906.      13.       906.9   WSP 647
DATA      21.       908.6   25.       911.6     80.       925.    WSP 648
DATA      104.      925.9   104.      925.9     117.      927.    WSP 649
DATA      340.      926.1   384.      927.3     391.      925.    WSP 650
DATA      521.      924.9   529.      927.4     539.      927.6   WSP 651
DATA      551.      925.3   565.      927.2     580.      928.4   WSP 652
DATA      587.      925.4   598.      924.8     611.      930.8   WSP 653
DATA    1 611.      932.                                          WSP 654
XSECTN    19.9      140.    140.                        1.        WSP 655
ELEV      930.      904.3   916.      1.                          WSP 656
N VALUE   .1        .08     .1                                    WSP 657
SEGMENT   2.                3.                                    WSP 658
DATA      -597.     930.    -597.     925.6     -585.     921.8   WSP 659
DATA      -576.     921.9   -568.     919.4     -560.     918.9   WSP 660
DATA      -545.     916.4   -535.     915.6     -435.     915.1   WSP 661
DATA      -335.     914.9   -235.     916.      -215.     921.8   WSP 662
DATA      -209.     922.5   -191.     922.6     -171.     922.2   WSP 663
DATA      -161.     922.2   -156.     921.4     -143.     920.5   WSP 664
DATA      -132.     914.4   -112.     914.6     -46.      915.8   WSP 665
DATA      -46.      915.8   -29.      911.6     -23.      910.6   WSP 666
DATA      -18.      909.1   -13.      910.4     -8.       904.9   WSP 667
DATA                904.3   10.       905.6     13.       907.    WSP 668
DATA      18.       909.1   22.       914.6     22.       914.6   WSP 669
DATA      34.       914.8   134.      914.6     234.      915.3   WSP 670
DATA      334.      917.2   373.      917.7     398.      919.3   WSP 671
DATA      406.      920.3   471.      921.1     486.      922.7   WSP 672
DATA      506.      923.    536.      925.6     569.      924.9   WSP 673
DATA      581.      924.9   588.      923.7     592.      926.2   WSP 674
DATA    1 600.      929.7   600.      930.                        WSP 675
BRIDGE    20        180.    180.                                  WSP 676
COEF      .6        .6      .7        1.                          WSP 677
DATA                915.2             907.4     12.       907.4   WSP 678
DATA      16.       907.4   20.       906.5     24.       905.7   WSP 679
DATA      28.       905.9   32.       906.7     36.       908.6   WSP 680
DATA      41.       909.2   53.       912.3     56.       912.5   WSP 681
DATA      61.       912.    65.       911.2     65.       915.2   WSP 682
DATA    1           915.2                                         WSP 683
DATA      -885.     928.    -885.     922.7     -785.     922.5   WSP 685
DATA      -685.     922.3   -585.     922.4     -485.     922.3   WSP 686
DATA      -385.     922.4   -285.     922.5     -185.     922.6   WSP 687
DATA      -85.      922.7   -35.      922.6                922.8   WSP 688
DATA      35.       922.7   85.       922.7     185.      922.4   WSP 689
DATA      285.      922.1   385.      922.      485.      921.9   WSP 690
DATA    2 585.      922.3   585.      928.                        WSP 691
XSECTN    20.1      1340.   1340.                       1.        WSP 692
ELEV      926.      905.7   916.      1.                          WSP 693
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N VALUE   .09      .06      .09                                          WSP 694
SEGMENT   2.                3.                                          WSP 695
DATA     -438.     926.     -438.     922.     -418.     919.1          WSP 696
DATA     -348.     916.3    -248.     915.     -148.     915.1          WSP 697
DATA     -148.     916.6    -82.      915.1    -66.      917.6          WSP 698
DATA     -66.      917.6    -50.      916.7    -30.      910.           WSP 699
DATA     -19.      910.7    -17.      909.     -11.      906.7          WSP 700
DATA     -5.       906.1              905.7    9.        906.6          WSP 701
DATA     17.       908.3    18.       909.     28.       913.5          WSP 702
DATA     44.       917.6    44.       917.6    94.       922.5          WSP 703
DATA     104.      922.6    108.      921.8    128.      914.7          WSP 704
DATA     137.      915.8    237.      914.9    337.      917.8          WSP 705
DATA     437.      921.     537.      923.3    577.      924.1          WSP 706
DATA   1 597.      925.4    597.      926.                              WSP 707
XSECTN    20.9     400.     400.                         1.             WSP 708
ELEV      935.     907.4    916.      1.                                WSP 709
N VALUE   .09      .06      .09                                         WSP 710
SEGMENT   2.                3.                                         WSP 711
DATA     -472.     935.     -472.     927.5    -442.     923.9          WSP 712
DATA     -356.     919.8    -257.     919.6    -167.     920.           WSP 713
DATA     -162.     920.9    -152.     921.7    -60.      923.2          WSP 714
DATA     -52.      923.8    -46.      922.4    -46.      922.4          WSP 715
DATA     -38.      918.1    -29.      913.8    -25.      913.5          WSP 716
DATA     -21.      910.6    -15.      909.     -10.      908.2          WSP 717
DATA     -6.       907.8              907.4    3.        907.9          WSP 718
DATA     9.        908.     12.       910.2    28.       910.6          WSP 719
DATA     29.       916.4    35.       917.1    48.       922.8          WSP 720
DATA     48.       922.8    93.       922.2    132.      916.8          WSP 721
DATA     208.      915.6    277.      916.5    325.      915.5          WSP 722
DATA     415.      917.     422.      916.5    478.      916.2          WSP 723
DATA     482.      920.3    484.      920.2    488.      920.6          WSP 724
DATA     497.      920.7    502.      919.5    512.      917.           WSP 725
DATA     520.      917.     540.      920.5    549.      921.1          WSP 726
DATA     555.      921.7    575.      921.9    578.      921.1          WSP 727
DATA     588.      920.9    593.      922.5    628.      921.6          WSP 728
DATA     638.      919.6    772.      922.     869.      922.4          WSP 729
DATA     1073.     921.4    1275.     919.6    1375.     920.6          WSP 730
DATA   1 1492.     924.1    1702.     930.6    1880.     935.           WSP 731
BRIDGE    21       400.     400.                                        WSP 732
COEF      .9       .6       .8        1.                                WSP 733
DATA                951.               949.     5.        949.         WSP 734
DATA      63.      920.4    71.       919.2    71.       949.4          WSP 735
DATA      75.1     949.2    75.1      918.5    94.1      916.4          WSP 736
DATA      108.1    911.8    133.1     907.2    145.1     909.3          WSP 737
DATA      158.     913.8    158.      948.7    162.1     948.6          WSP 738
DATA      162.1    915.6    170.      917.7    210.      916.7          WSP 739
DATA      232.5    916.8    232.5     948.5    242.5     948.5          WSP 740
DATA      242.5    916.7    321.5     916.7    321.5     947.1          WSP 741
DATA      325.6    947.1    325.6     916.7    336.3     916.8          WSP 742
DATA      381.8    916.2    404.8     917.     404.8     946.5          WSP 743
DATA      414.8    946.3    414.8     917.4    421.8     917.8          WSP 744
DATA      449.8    920.7    468.8     917.7    485.2     916.3          WSP 745
DATA      485.2    945.3    489.3     945.2    489.3     916.           WSP 746
DATA      519.3    920.2    532.3     920.3    541.3     919.5          WSP 747
DATA      568.8    919.8    568.8     943.7    572.9     943.6          WSP 748
DATA      572.9    920.     584.8     921.3    627.8     939.2          WSP 749
DATA      627.8    942.8    572.9     943.6    568.8     943.7          WSP 750
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DATA      489.3    945.2    485.2    945.3    414.8    946.3    WSP 751
DATA      404.8    946.5    325.6    947.1    321.5    947.1    WSP 752
DATA      242.5    948.5    232.5    948.5    162.1    948.6    WSP 753
DATA      158.     948.7    75.1     949.2    71.      919.2    WSP 754
DATA   1           951.                                        WSP 755
DATA      -314.    955.     -239.    954.     -156.    953.     WSP 757
DATA      -80.     952.5    7.       951.5    91.      950.5    WSP 758
DATA   2  171.     949.5    250.     948.     314.     947.     WSP 759
XSECTN    21.2     1740.    1740.                      1.       WSP 760
ELEV      935.     907.4    916.     1.                          WSP 761
N VALUE   .06      .06      .06                                 WSP 762
SEGMENT   2.                3.                                  WSP 763
DATA      -472.    935.     -472.    927.5    -442.    923.9    WSP 764
DATA      -356.    919.8    -257.    919.6    -167.    920.     WSP 765
DATA      -162.    920.9    -152.    921.7    -60.     923.2    WSP 766
DATA      -52.     923.8    -46.     922.4    -46.     922.4    WSP 767
DATA      -38.     918.1    -29.     913.8    -25.     913.5    WSP 768
DATA      -21.     910.6    -15.     909.     -10.     908.2    WSP 769
DATA      -6.      907.8             907.4    3.       907.9    WSP 770
DATA      9.       908.     12.      910.2    28.      910.6    WSP 771
DATA      29.      916.4    35.      917.1    48.      922.8    WSP 772
DATA      48.      922.8    93.      922.2    132.     916.8    WSP 773
DATA      208.     915.6    277.     916.5    325.     915.5    WSP 774
DATA      415.     917.     422.     916.5    478.     916.2    WSP 775
DATA      482.     920.3    484.     920.2    488.     920.6    WSP 776
DATA      497.     920.7    502.     919.5    512.     917.     WSP 777
DATA      520.     917.     540.     920.5    549.     921.1    WSP 778
DATA      555.     921.7    575.     921.9    578.     921.1    WSP 779
DATA      588.     920.9    593.     922.5    628.     921.6    WSP 780
DATA      638.     919.6    772.     922.     869.     922.4    WSP 781
DATA      1073.    921.4    1275.    919.6    1375.    920.6    WSP 782
DATA   1  1492.    924.1    1702.    930.6    1880.    935.     WSP 783
XSECTN    21.8     240.     240.                       1.       WSP 784
ELEV      931.     908.2    916.     1.                          WSP 785
N VALUE   .08      .06      .05                                 WSP 786
SEGMENT   2.                3.                                  WSP 787
DATA      -646.    931.     -646.    930.6    -625.    930.4    WSP 788
DATA      -525.    929.4    -510.    927.1    -480.    927.2    WSP 789
DATA      -420.    926.4    -369.    925.9    -357.    925.5    WSP 790
DATA      -349.    924.4    -341.    924.     -291.    925.7    WSP 791
DATA      -209.    925.8    -204.    926.8    -195.    926.2    WSP 792
DATA      -162.    927.5    -145.    924.8    -135.    924.9    WSP 793
DATA      -125.    918.1    -115.    918.4    -107.    918.7    WSP 794
DATA      -98.     919.8    -88.     919.4    -84.     921.4    WSP 795
DATA      -78.     924.5    -73.     925.9    -67.     925.6    WSP 796
DATA      -43.     919.2    -36.     918.5    -36.     918.5    WSP 797
DATA      -17.     909.1             908.7    8.       908.2    WSP 798
DATA      22.      911.1    32.      918.4    32.      918.4    WSP 799
DATA      46.      919.1    52.      920.7    138.     922.2    WSP 800
DATA      190.     921.9    240.     922.     290.     921.4    WSP 801
DATA      390.     921.8    450.     922.3    457.     921.6    WSP 802
DATA      466.     922.     467.     921.3    472.     921.8    WSP 803
DATA      480.     921.7    482.     921.4    488.     922.6    WSP 804
DATA      506.     922.5    518.     923.4    528.     921.7    WSP 805
DATA      557.     922.9    596.     924.6    650.     924.4    WSP 806
DATA   1  750.     925.7    865.     928.5    865.     931.     WSP 807
BRIDGE    22       70.      70.                                 WSP 808
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COEF      .8        .6        .8        1.                                WSP 809
DATA      -27.5     912.4     -22.5     909.4     -12.5     909.4       WSP 810
DATA      12.5      911.      22.5      910.8     27.5      912.        WSP 811
DATA      12.5      920.3     -2.5      922.3     -12.5     920.5       WSP 812
DATA   1  -22.5     916.2     -27.5     912.4                           WSP 813
DATA      -875.     940.      -875.     928.9     -815.     927.7       WSP 814
DATA      -715.     926.      -615.     924.6     -440.     921.9       WSP 815
DATA      -387.     922.      -287.     921.8     -187.     921.8       WSP 816
DATA      -87.      923.      -38.      923.6     38.       923.8       WSP 817
DATA      137.      923.3     237.      924.1     337.      925.1       WSP 818
DATA      537.      926.8     637.      927.3     777.      928.9       WSP 819
DATA   2  800.      940.                                                WSP 820
XSECTN    22.1      1570.     1570.                         1.          WSP 821
ELEV      936.      909.      922.      1.                              WSP 822
N VALUE   .08       .06       .1                                        WSP 823
SEGMENT   2.                  3.                                        WSP 824
DATA      -1127.    936.      -1127.    935.4     -1097.    933.1       WSP 225
DATA      -1090.    931.8     -1005.    930.5     -995.     928.2       WSP 826
DATA      -905.     927.3     -901.     928.      -851.     928.        WSP 827
DATA      -824.     929.4     -789.     930.1     -689.     929.2       WSP 828
DATA      -562.     928.2     -556.     927.1     -438.     927.9       WSP 829
DATA      -333.     927.7     -305.     926.7     -290.     924.9       WSP 830
DATA      -204.     923.5     -129.     922.9     -78.5     921.5       WSP 831
DATA      -78.5     921.5     -46.5     920.5     -30.5     918.8       WSP 832
DATA      -19.5     911.1     -15.      909.7     -11.      909.1       WSP 833
DATA      -7.       909.                909.2     4.        909.3       WSP 834
DATA      12.       909.3     15.5      909.7     19.5      911.1       WSP 835
DATA      26.       915.      34.       918.2     52.       921.4       WSP 836
DATA      59.       923.2     59.       923.2     189.      922.5       WSP 837
DATA      289.      924.1     420.      922.1     426.      921.3       WSP 839
DATA      459.      920.8     462.      921.3     487.      921.        WSP 840
DATA      507.      921.5     509.      922.5     529.      922.6       WSP 841
DATA      537.      921.5     543.      924.9     556.      924.1       WSP 842
DATA      656.      926.3     711.      927.      736.      927.8       WSP 843
DATA      836.      929.4     878.      931.3     902.      931.7       WSP 844
DATA   1  908.      930.8     916.      930.9     916.      936.        WSP 845
XSECTN    22.7      580.      580.                         1.          WSP 846
ELEV      935.      909.8     922.      1.                              WSP 847
N VALUE   .08       .06       .08                                       WSP 848
SEGMENT   2.                  3.                                        WSP 849
DATA      -981.     935.      -981.     934.7     -849.     931.9       WSP 850
DATA      -649.     929.9     -423.     928.7     -396.     929.6       WSP 851
DATA      -342.     929.2     -280.     925.3     -144.     925.        WSP 852
DATA      -138.     924.      -129.     924.8     -120.     924.1       WSP 853
DATA      -40.      925.      -35.      925.5     -35.      925.5       WSP 854
DATA      -15.      912.4     -13.      911.4     -10.      911.2       WSP 855
DATA      -5.       910.                909.8     5.        911.        WSP 856
DATA      15.       912.4     19.       913.6     24.       914.4       WSP 857
DATA      40.       914.4     53.       919.5     67.       921.9       WSP 859
DATA      76.       926.5     76.       926.5     87.       929.        WSP 860
DATA      108.      921.8     113.      922.4     114.      918.4       WSP 861
DATA      181.      918.4     203.      921.5     212.      923.1       WSP 862
DATA      241.      923.2     247.      922.3     254.      923.3       WSP 863
DATA      261.      922.2     318.      922.5     321.      921.9       WSP 864
DATA      330.      921.8     335.      922.2     358.      922.4       WSP 865
DATA      373.      923.3     385.      922.4     405.      923.2       WSP 866
DATA      486.      924.4     488.      925.3     512.      929.3       WSP 867
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DATA   1  522.     931.5     531.     933.1     531.     935.      WSP 869
XSECTN    22.9     60.       60.                         1.        WSP 870
ELEV      935.     910.6     922.     .1.                          WSP 871
N VALUE   .08      .06       .07                                   WSP 872
SEGMENT   2.                3.                                    WSP 873
DATA      -1034.   935.      -1034.   933.8     -934.    932.1     WSP 874
DATA      -864.    930.3     -638.    928.3     -538.    926.3     WSP 875
DATA      -454.    926.7     -434.    925.8     -409.    926.2     WSP 876
DATA      -319.    926.7     -239.    925.6     -139.    926.1     WSP 877
DATA      -34.     926.3     -34.     926.3     -18.     916.5     WSP 878
DATA      -12.     913.2     -10.     911.6     -4.      910.6     WSP 879
DATA               910.7     2.       910.8     5.       911.6     WSP 880
DATA      9.       913.2     14.      916.6     33.      925.4     WSP 881
DATA      33.      925.4     72.      925.6     79.      923.9     WSP 882
DATA      94.      924.2     103.     923.8     113.     925.1     WSP 883
DATA   1  158.     926.6     183.     927.1     183.     935.      WSP 884
BRIDGE    23       60.       60.                                   WSP 885
COEF      .6       .6        .8       1.                           WSP 886
DATA               922.8               916.7     8.       914.1     WSP 887
DATA      15.      912.4     20.      912.3     25.      912.6     WSP 888
DATA      30.      913.6     33.      914.1     45.      918.      WSP 889
DATA   1  45.      922.8               922.8                        WSP 890
DATA      -658.    932.      -658.    930.4     -638.    930.2     WSP 891
DATA      -538.    929.1     -438.    927.9     -338.    927.      WSP 892
DATA      -238.    926.4     -138.    925.9     -38.     926.2     WSP 893
DATA               926.4     38.      926.1     72.      925.9     WSP 894
DATA      176.     926.6     197.     926.6     245.     928.3     WSP 895
DATA   2  297.     930.4     297.     932.                         WSP 896
XSECTN    23.1     160.      160.                         1.        WSP 897
ELEV      935.     910.6     926.     1.                           WSP 898
N VALUE   .2       .05       .06                                   WSP 899
SEGMENT   2.                3.                                    WSP 900
DATA      -1034.   935.      -1034.   933.8     -934.    932.1     WSP 901
DATA      -864.    930.3     -638.    928.3     -538.    926.3     WSP 902
DATA      -454.    926.7     -434.    925.8     -409.    926.2     WSP 903
DATA      -319.    926.7     -239.    925.6     -139.    926.1     WSP 904
DATA      -34.     926.3     -34.     926.3     -18.     916.5     WSP 905
DATA      -12.     913.2     -10.     911.6     -4.      910.6     WSP 906
DATA               910.7     2.       910.8     5.       911.6     WSP 907
DATA      9.       913.2     14.      916.6     33.      925.4     WSP 908
DATA      33.      925.4     72.      925.6     79.      923.9     WSP 909
DATA      94.      924.2     103.     923.8     113.     925.1     WSP 910
DATA   1  158.     926.6     183.     927.1     183.     935.      WSP 911
BRIDGE    24       132.      132.                                  WSP 912
COEF      .7       .6        .7       1.                           WSP 913
DATA               919.4               913.6     1.9      913.7     WSP 914
DATA      5.       913.2     8.1      913.      11.2     912.9     WSP 915
DATA      14.4     912.8     17.5     912.4     20.6     912.8     WSP 916
DATA   1  22.5     912.9     22.5     919.4               919.4     WSP 917
DATA      -273.5   932.      -273.5   928.      -263.    926.      WSP 918
DATA      -138.    925.7     -106.    924.6     -79.     923.8     WSP 919
DATA      -69.     923.2     -62.     923.5     -52.     924.2     WSP 920
DATA      -44.     924.2     -30.     924.5     -18.     924.7     WSP 921
DATA               924.8     18.      924.7     30.      924.4     WSP 922
DATA      34.      924.3     89.      925.4     102.     925.9     WSP 923
DATA      177.     925.3     201.     925.8     204.     925.4     WSP 924
DATA   2  230.     927.      233.     928.      233.     932.      WSP 925
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XSECTN    24.1      390.      390.                          1.        WSP 926
ELEV      932.      911.5     926.      1.                            WSP 927
N VALUE   .1        .04       .05                                     WSP 928
SEGMENT   2.                  3.                                      WSP 929
DATA      -273.5    932.      -273.5    928.      -263.     926.      WSP 930
DATA      -138.     925.7     -106.     924.6     -79.      923.8     WSP 931
DATA      -69.      923.2     -62.      923.5     -52.      924.2     WSP 932
DATA      -44.      924.2     -44.      924.2     -35.      923.      WSP 933
DATA      -22.      917.9     -16.      916.7     -11.      914.3     WSP 934
DATA      -7.       912.8     -3.       912.                911.5     WSP 935
DATA      5.        912.      7.        913.3     10.       914.3     WSP 936
DATA      21.       920.2     23.       920.9     30.       924.4     WSP 937
DATA      30.       924.4     34.       924.3     89.       925.4     WSP 938
DATA      102.      925.9     177.      925.3     201.      925.8     WSP 939
DATA      204.      925.4     230.      927.      233.      928.      WSP 940
DATA   1  233.      932.                                              WSP 941
XSECTN    24.5      810.      810.                          1.        WSP 942
ELEV      943.      911.9     926.      1.                            WSP 943
N VALUE   .1        .04       .05                                     WSP 944
SEGMENT   2.                  3.                                      WSP 945
DATA      -953.     943.      -953.     933.4     -935.     933.8     WSP 946
DATA      -875.     931.6     -867.     929.7     -862.     931.5     WSP 947
DATA      -844.     931.3     -744.     931.7     -544.     929.5     WSP 948
DATA      -444.     928.3     -439.     926.4     -434.     926.9     WSP 949
DATA      -430.     927.9     -370.     929.9     -363.     927.3     WSP 950
DATA      -188.     926.6     -170.     925.      -100.     924.      WSP 951
DATA      -72.      923.8     -47.      923.2     -47.      923.2     WSP 952
DATA      -22.      920.2     -14.      918.3     -9.       913.9     WSP 953
DATA      -7.       913.2     -5.       912.      -3.       911.9     WSP 954
DATA      -1.       912.1     1.        912.      4.        911.9     WSP 955
DATA      8.        914.      10.       915.      13.       918.5     WSP 956
DATA      19.       918.5     24.       920.1     30.       924.5     WSP 957
DATA      55.       925.2     85.       926.2     94.       927.1     WSP 958
DATA      100.      929.2     109.      931.8     111.      931.9     WSP 959
DATA      111.      942.7     111.      942.6     111.0     942.5     WSP  959A
DATA      111.      942.5     114.      942.5     114.      940.4     WSP 960
DATA      215.      940.1     315.      940.5     480.      940.6     WSP 961
DATA   1  480.      943.                                              WSP 962
XSECTN    24.9      50.       50.                           1.        WSP 963
ELEV      938.      913.4     926.      1.                            WSP 964
N VALUE   .1        .04       .1                                      WSP 965
SEGMENT   2.                  3.                                      WSP 966
DATA      -990.     938.      -990.     932.5     -890.     930.6     WSP 967
DATA      -790.     929.6     -690.     929.      -600.     929.9     WSP 968
DATA      -500.     929.9     -428.     929.5     -410.     929.      WSP 969
DATA      -330.     928.8     -270.     928.7     -198.     928.4     WSP 970
DATA      -198.     928.4     -198.     926.3     -160.     921.8     WSP 971
DATA      -115.     927.1     -33.      924.8     -24.      924.3     WSP 972
DATA      -15.      920.3     -11.      916.7     -7.       915.2     WSP 973
DATA      -6.       914.1     -4.       913.5                913.4     WSP 974
DATA      2.        913.7     4.        914.      7.        915.2     WSP 975
DATA      9.        915.8     25.       924.7     25.       924.7     WSP 976
DATA      35.       925.3     43.       925.3     45.       924.6     WSP 977
DATA      48.       925.3     60.       924.9     63.       925.9     WSP 978
DATA   1  84.       926.2     264.      929.5     264.      938.      WSP 979
BRIDGE    25        80.       80.                                     WSP 980
COEF      .6        .6        .8        1.                            WSP 981
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DATA                 923.9              915.9     3.        915.5     WSP 982
DATA      6.         915.3     11.      915.1     16.       914.8     WSP 983
DATA      21.        914.7     26.      914.8     31.       914.8     WSP 984
DATA   1  36.        915.7     36.      923.9               923.9     WSP 985
DATA      -633.      932.      -633.    931.3     -615.     930.9     WSP 986
DATA      -515.      929.5     -415.    928.3     -285.     927.3     WSP 987
DATA      -185.      926.6     -160.    926.5     -135.     926.3     WSP 988
DATA      -35.       926.3     -18.     926.2               926.1     WSP 989
DATA      18.        925.9     35.      926.      75.       925.9     WSP 990
DATA      175.       927.5     275.     930.8     320.      931.3     WSP 991
DATA   2  320.       932.                                            WSP 992
XSECTN    25.1       740.      740.                          1.        WSP 993
ELEV      938.       914.3     926.     1.                            WSP 994
N VALUE   .08        .05       .05                                     WSP 995
SEGMENT   2.                   3.                                      WSP 996
DATA      -940.      938.      -940.    937.2     -894.     936.1     WSP 997
DATA      -870.      935.9     -815.    934.6     -780.     934.      WSP 998
DATA      -751.      932.1     -736.    933.3     -712.     933.1     WSP 999
DATA      -662.      932.4     -590.    930.7     -500.     929.4     WSP 1000
DATA      -444.      928.4     -420.    927.6     -390.     928.2     WSP 1001
DATA      -360.      927.      -271.    928.2     -221.     927.9     WSP 1002
DATA      -218.      927.7     -214.    926.2     -154.     926.      WSP 1003
DATA      -109.      929.      -109.    927.      -56.      926.2     WSP 1004
DATA      -40.       926.3     -40.     925.6     -34.      925.1     WSP 1005
DATA      -34.       925.1     -28.     924.      -19.      920.4     WSP 1006
DATA      -15.       916.6     -12.     915.8     -10.      915.5     WSP 1007
DATA      -5.        914.6              914.3     5.        914.4     WSP 1008
DATA      9.         914.5     12.      915.1     19.       919.1     WSP 1009
DATA      21.        919.1     24.      921.5     28.       923.      WSP 1010
DATA      43.        923.9     60.      925.      60.       925.      WSP 1011
DATA      84.        925.      138.     926.2     338.      931.4     WSP 1012
DATA      371.       931.4     389.     931.8     407.      931.4     WSP 1013
DATA      416.       932.1     466.     933.9     516.      934.3     WSP 1014
DATA   1  549.       934.8     555.     935.9     555.      938.      WSP 1015
XSECTN    25.9       120.      120.                          1.        WSP 1016
ELEV      936.       915.7     927.     1.                            WSP 1017
N VALUE   .08        .05       .05                                     WSP 1018
SEGMENT   2.                   3.                                      WSP 1019
DATA      -804.      936.      -804.    932.6     -754.     932.1     WSP 1020
DATA      -654.      929.7     -554.    930.      -454.     930.6     WSP 1021
DATA      -354.      930.3     -327.    929.6     -287.     929.9     WSP 1022
DATA      -237.      930.      -132.    928.5     -32.      926.5     WSP 1023
DATA      -25.       926.      -25.     926.      -15.      920.7     WSP 1024
DATA      -12.       918.8     -10.     916.8     -6.       916.1     WSP 1025
DATA      -2.        915.7              915.8     2.        915.9     WSP 1026
DATA      5.         915.9     9.       916.2     12.       917.8     WSP 1027
DATA      26.        926.1     26.      926.1     76.       926.6     WSP 1028
DATA      148.       925.      168.     925.2     228.      924.9     WSP 1029
DATA      306.       926.2     520.     927.4     542.      927.      WSP 1030
DATA      562.       927.1     582.     927.1     600.      927.6     WSP 1031
DATA      743.       927.7     840.     928.      907.      926.6     WSP 1032
DATA   1  947.       926.6     1000.    927.9     1000.     936.      WSP 1033
BRIDGE    26         100.      100.                                    WSP 1034
COEF      .8         .6        .8       1.                            WSP 1035
DATA                 924.8              917.      5.        914.6     WSP 1036
DATA      10.        914.      15.      913.1     20.       913.6     WSP 1037
DATA      25.        914.9     30.      917.1     34.       917.3     WSP 1038
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DATA    1  37.      917.4    37.      924.8              924.8     WSP 1039
DATA       -429.    934.     -429.    932.6    -329.     931.2     WSP 1040
DATA       -229.    930.5    -129.    929.6    -29.      928.5     WSP 1041
DATA       -19.     928.5             928.2    19.       927.8     WSP 1042
DATA       29.      927.8    129.     925.8    165.      925.1     WSP 1043
DATA       177.     925.1    277.     925.3    377.      925.9     WSP 1044
DATA       477.     926.5    537.     926.6    637.      926.1     WSP 1045
DATA       737.     926.     837.     926.3    937.      926.9     WSP 1046
DATA       1037.    927.8    1137.    929.     1237.     929.3     WSP 1047
DATA    2  1237.    934.                                           WSP 1048
XSECTN     26.1     180.     180.                       1.        WSP 1049
ELEV       936.     915.7    927.     1.                            WSP 1050
N VALUE    .08      .05      .05                                    WSP 1051
SEGMENT    2.                3.                                     WSP 1052
DATA       -804.    936.     -804.    932.6    -754.     932.1     WSP 1053
DATA       -654.    929.7    -554.    930.     -454.     930.6     WSP 1054
DATA       -354.    930.3    -327.    929.6    -287.     929.9     WSP 1055
DATA       -237.    930.     -132.    928.5    -32.      926.5     WSP 1056
DATA       -25.     926.     -25.     926.     -15.      920.7     WSP 1057
DATA       -12.     918.8    -10.     916.8    -6.       916.1     WSP 1058
DATA       -2.      915.7             915.8    2.        915.9     WSP 1059
DATA       5.       915.9    9.       916.2    12.       917.8     WSP 1060
DATA       26.      926.1    26.      926.1    76.       926.6     WSP 1061
DATA       148.     925.     168.     925.2    228.      924.9     WSP 1062
DATA       306.     926.2    520.     927.4    542.      927.      WSP 1063
DATA       562.     927.1    582.     927.1    600.      927.6     WSP 1064
DATA       743.     927.7    840.     928.     907.      926.6     WSP 1065
DATA    1  947.     926.6    1000.    927.9    1000.     936.      WSP 1066
BRIDGE     27       440.     440.                                   WSP 1067
COEF       0.4      0.6      0.7      1.                            WSP 1068
DATA                922.1             921.3    8.5       920.9     WSP 1069
DATA       13.5     919.4    17.5     919.1    17.5      922.1     WSP 1070
DATA       20.5     922.1    20.5     917.6    28.5      915.8     WSP 1071
DATA       31.5     915.6    36.5     915.1    41.5      915.5     WSP 1072
DATA       46.5     915.3    46.5     922.1    49.5      922.1     WSP 1073
DATA       49.5     916.7    56.5     917.6    66.5      918.3     WSP 1074
DATA    1  66.5     922.1             922.1                        WSP 1075
DATA       -232.    937.     -232.    925.1    -132.     925.1     WSP 1076
DATA       -32.     925.1             925.1    32.       925.1     WSP 1077
DATA       132.     924.7    217.     925.1    317.      923.9     WSP 1078
DATA    2  417.     924.     517.     924.     517.      937.      WSP 1079
XSECTN     27.9     1.       1.                         1.        WSP 1080
ELEV       938.     917.1    927.     1.                            WSP 1081
N VALUE    .08      .05      .08                                    WSP 1082
SEGMENT    2.                3.                                     WSP 1083
DATA       -202.    938.     -202.    928.8    -187.     926.3     WSP 1084
DATA       -145.    925.8    -94.     926.     -74.      926.1     WSP 1085
DATA       -71.     926.4    -49.     925.1    -46.      924.3     WSP 1086
DATA       -41.     925.7    -35.     925.1    -35.      925.1     WSP 1087
DATA       -23.     921.7    -15.     920.5    -11.      918.3     WSP 1089
DATA       -6.      917.9    -3.      917.6              917.1     WSP 1090
DATA       3.       917.1    6.       917.2    10.       917.8     WSP 1091
DATA       11.      918.1    14.      919.8    14.       923.6     WSP 1092
DATA       18.      924.9    18.      924.9    24.       925.2     WSP 1093
DATA       96.      927.2    171.     926.8    200.      926.8     WSP 1094
DATA       230.     926.8    330.     927.6    430.      928.      WSP 1095
DATA       508.     928.1    608.     928.2    708.      928.8     WSP 1096
```

To Lower End
Cond T

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Output - ~~[illegible]~~

between Eaton Rapids and Portage Creek

00BREAK00

OUTPUT LISTING FOR SECTION 9.9

* DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1.	1.	125.	125.	1.00

Main Stem above Eaton Rapids — and below Portage Creek

ELEVATION	TOTAL KQ	END AREA
910.00	868143.3	8875.20
909.00	755469.0	8054.86
908.00	652727.1	7241.27
907.00	555590.7	6434.48
906.00	466259.3	5630.60
905.00	393385.8	4860.84
904.00	331103.1	4152.62
903.00	278301.3	3529.42
902.00	230367.7	2977.87
901.00	189996.3	2497.25
900.00	152814.1	2071.67
899.00	121808.3	1690.42
898.00	96747.2	1389.18
897.00	72051.2	1108.21
896.00	51069.7	839.06
895.00	34169.7	583.81
894.00	22652.7	391.06
893.00	14209.0	281.33
892.00	7535.9	188.11
891.00	2975.7	101.01
890.00	815.3	38.25
889.00	59.6	5.38

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.98	902.17	3340.00	0.99	902.70	4140.00	1.00	903.92

INFORMATION LISTING FOR BRIDGE SECTION 10

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	901.20	995.90	18654.91
	900.20	903.90	16143.36
	899.20	811.90	13757.33
	898.20	719.90	11503.91
	897.20	627.90	9391.58
	896.20	535.90	7430.70
	895.20	443.90	5634.49
	894.20	351.90	4020.55
	893.20	261.44	2672.75
	892.20	179.87	1617.18
	891.20	108.17	809.75
	890.20	46.33	259.82
	889.20	8.89	33.82

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	910.00	55273.66
	909.00	44314.45
	908.00	34110.78
	907.00	24319.55
	906.00	11817.29
	905.00	4207.41
	904.00	1254.64
	903.00	63.18

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 10.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
125.	125.	16830.	10600.	1.00

ELEVATION	TOTAL KD	END AREA
910.00	862911.8	8832.70
909.00	750630.1	8012.36
908.00	648295.8	7198.77
907.00	551585.1	6391.98
906.00	462680.5	5588.10
905.00	390064.7	4818.34
904.00	327966.2	4110.12
903.00	275279.9	3486.92
902.00	227527.9	2935.37
901.00	187248.5	2454.75
900.00	150298.6	2029.17
899.00	119365.8	1647.92
898.00	94225.9	1346.68
897.00	70367.1	1067.24
896.00	50619.4	814.15
895.00	34091.4	575.64
894.00	22653.6	390.99
893.00	14209.0	281.33
892.00	7535.9	188.11
891.00	2975.7	101.01
890.00	815.3	38.25
889.00	59.6	5.38

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.92	902.57	3340.00	0.93	903.11	4140.00	0.97	904.20

OUTPUT LISTING FOR SECTION 10.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
16830.	10600.	170.	170.	1.00

ELEVATION	TOTAL KD	END AREA
912.00	1149991.5	11675.24
911.00	1003161.5	10660.60
910.00	867949.3	9652.39
909.00	742449.2	8656.15
908.00	626581.2	7672.85
907.00	524376.0	6715.01
906.00	451975.6	5796.08
905.00	395287.8	5077.19
904.00	321894.4	4389.73
903.00	255021.0	3714.10
902.00	195364.6	3049.41
901.00	143202.1	2391.06
900.00	100048.8	1738.06
899.00	69967.1	1175.54
898.00	47887.7	756.07
897.00	33110.4	526.33
896.00	21560.2	397.99
895.00	12132.2	278.21
894.00	5480.6	163.50
893.00	2115.3	79.07
892.00	354.8	22.30

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.72	903.65	3340.00	0.74	904.17	4140.00	0.78	905.28

INFORMATION LISTING FOR BRIDGE SECTION 11

OPENING COEF. 0.500 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	904.70	1336.04	22239.17
	903.70	1173.41	18472.14
	902.70	1013.50	14980.58
	901.70	856.32	11777.46
	900.70	701.86	8880.46
	899.70	550.22	6320.32
	898.70	405.10	4162.09
	897.70	272.39	2424.06
	896.70	157.82	1140.11
	895.70	61.19	305.51
	894.70	3.73	10.33

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	910.30	30625.26
	909.30	16943.41
	908.30	6427.41
	907.30	1692.81
	906.30	4.41

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 11.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
170.	170.	1660.	1500.	1.00

ELEVATION	TOTAL KD	END AREA
912.00	1149991.5	11675.24
911.00	1003161.5	10660.60
910.00	867949.3	9652.39
909.00	742449.2	8656.15
908.00	626581.2	7672.85
907.00	524376.0	6715.01
906.00	451975.6	5796.08
905.00	395287.8	5077.19
904.00	321894.4	4389.73
903.00	255021.0	3714.10
902.00	195364.6	3049.41
901.00	143202.1	2391.06
900.00	100048.8	1738.06
899.00	69967.1	1175.54
898.00	47887.7	756.07
897.00	33110.4	526.33
896.00	21560.2	397.99
895.00	12132.2	278.21
894.00	5480.6	163.50
893.00	2115.3	79.07
892.00	354.8	22.30

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.68	904.04	3340.00	0.69	904.59	4140.00	0.74	905.69

OUTPUT LISTING FOR SECTION 11.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1660.	1500.	140.	140.	1.00

ELEVATION	TOTAL KD	END AREA
913.00	1076311.2	10129.93
912.00	956718.5	9382.93
911.00	843182.1	8635.93
910.00	737587.0	7896.79
909.00	638736.7	7176.94
908.00	548169.8	6478.48
907.00	463606.0	5800.85
906.00	384956.5	5133.50
905.00	312273.9	4474.41
904.00	246354.6	3822.68
903.00	187594.1	3186.78
902.00	138311.6	2570.51
901.00	96036.6	1961.18
900.00	61176.2	1356.20
899.00	36954.4	788.03
898.00	23275.6	419.26
897.00	14786.8	278.28
896.00	8210.4	191.69
895.00	3683.8	112.34
894.00	930.0	45.49
893.00	22.5	2.66

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.75	904.23	3340.00	0.77	904.77	4140.00	0.81	905.87

INFORMATION LISTING FOR BRIDGE SECTION 12

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	902.90	689.10	11367.71
	901.90	607.30	9410.33
	900.90	525.50	7581.15
	899.90	443.70	5889.95
	898.90	361.90	4349.25
	897.90	280.10	2975.81
	896.90	198.30	1793.98
	895.90	118.04	865.49
	894.90	49.77	287.81
	893.90	12.63	55.53
	892.90	0.35	0.62

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	913.00	72941.92
	912.00	60165.14
	911.00	48236.09
	910.00	35432.53
	909.00	23887.03
	908.00	14487.48
	907.00	7295.61
	906.00	2187.31
	905.00	148.61

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 12.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
140.	140.	5700.	4000.	1.00

ELEVATION	TOTAL KD	END AREA
913.00	1076311.2	10129.93
912.00	956718.5	9382.93
911.00	843182.1	8635.93
910.00	737587.0	7896.79
909.00	638736.7	7176.94
908.00	548169.8	6478.48
907.00	463606.0	5800.85
906.00	384956.5	5133.50
905.00	312273.9	4474.41
904.00	246354.6	3822.68
903.00	187594.1	3186.78
902.00	138311.6	2570.51
901.00	96036.6	1961.18
900.00	61176.2	1356.20
899.00	36954.4	788.03
898.00	23275.6	419.26
897.00	14786.8	278.28
896.00	8210.4	191.69
895.00	3683.8	112.34
894.00	930.0	45.49
893.00	22.5	2.66

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.67	904.98	3340.00	0.71	905.33	4140.00	0.79	906.14

OUTPUT LISTING FOR SECTION 12.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
5700.	4000.	80.	80.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	2970945.5	30122.25
916.00	2629124.0	27803.25
915.00	2310259.5	25514.92
914.00	2011657.5	23260.50
913.00	1738637.7	21059.25
912.00	1486871.5	18921.25
911.00	1255869.2	16849.35
910.00	1034968.2	14815.75
909.00	837582.2	12811.59
908.00	659699.3	10844.03
907.00	502036.7	8913.09
906.00	403412.4	7170.60
905.00	333878.8	5750.50
904.00	263244.1	4631.34
903.00	193099.9	3606.53
902.00	134671.8	2651.17
901.00	89797.8	1765.13
900.00	58622.4	1002.52
899.00	41037.4	546.16
898.00	31032.2	432.68
897.00	22481.7	349.56
896.00	15135.7	269.97
895.00	9315.6	194.50
894.00	5193.5	128.40
893.00	2299.5	72.89
892.00	745.3	31.32
891.00	101.6	7.03

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.49	905.28	3340.00	0.49	905.65	4140.00	0.51	906.48

INFORMATION LISTING FOR BRIDGE SECTION 13

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	905.90	1062.88	21349.08
	904.90	976.08	18829.33
	903.90	889.28	16421.34
	902.90	802.48	14130.84
	901.90	715.68	11964.53
	900.90	628.88	9930.54
	899.90	542.08	8038.96
	898.90	455.42	6320.33
	897.90	372.20	4858.34
	896.90	295.91	3605.18
	895.90	226.74	2539.99
	894.90	164.67	1657.28
	893.90	109.72	952.69
	892.90	61.87	424.22
	891.90	24.73	139.68
	890.90	6.25	29.67
	889.90	0.51	1.29

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	915.00	57812.71
	914.00	43990.99
	913.00	29053.46
	912.00	17074.11
	911.00	8203.65
	910.00	2459.28
	909.00	22.19

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 13.0

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
80.	80.	25.	25.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	5221378.0	30122.25
916.00	4614784.0	27803.25
915.00	4049263.5	25514.92
914.00	3519964.0	23260.50
913.00	3036455.5	21059.25
912.00	2590941.0	18921.25
911.00	2182536.0	16849.35
910.00	1792043.2	14815.75
909.00	1443601.2	12811.59
908.00	1129983.5	10844.03
907.00	852474.5	8913.09
906.00	680940.1	7170.60
905.00	561467.1	5750.50
904.00	439701.8	4631.34
903.00	318500.3	3606.53
902.00	218058.1	2651.17
901.00	139871.7	1765.13
900.00	89586.9	1002.52
899.00	61593.0	546.16
898.00	46548.4	432.68
897.00	33722.6	349.56
896.00	22703.5	269.97
895.00	13973.4	194.50
894.00	7790.3	128.40
893.00	3449.3	72.89
892.00	1118.0	31.32
891.00	152.4	7.03

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.46	905.50	3340.00	0.47	905.89	4140.00	0.45	907.14

INFORMATION LISTING FOR BRIDGE SECTION 13.1

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	905.90	976.04	19369.47
	904.90	891.04	17004.32
	903.90	806.04	14756.65
	902.90	721.04	12634.37
	901.90	636.04	10647.96
	900.90	553.09	8846.77
	899.90	474.25	7207.03
	898.90	399.50	5727.87
	897.90	328.86	4413.28
	896.90	262.55	3311.05
	895.90	203.54	2383.55
	894.90	152.06	1623.90
	893.90	106.60	1011.91
	892.90	67.08	537.30
	891.90	33.83	210.97
	890.90	9.23	37.03
	889.90	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	916.00	238499.59
	915.00	211103.71
	914.00	184845.50
	913.00	159776.46
	912.00	135955.90
	911.00	112068.21
	910.00	88968.45
	909.00	68083.39
	908.00	49583.51
	907.00	29551.03
	906.00	13404.61
	905.00	5402.54
	904.00	1276.52

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 13.2

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
25.	25.	5700.	5000.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	2970945.5	30122.25
916.00	2629124.0	27803.25
915.00	2310259.5	25514.92
914.00	2011657.5	23260.50
913.00	1738637.7	21059.25
912.00	1486871.5	18921.25
911.00	1255869.2	16849.35
910.00	1034968.2	14815.75
909.00	837582.2	12811.59
908.00	659699.3	10844.03
907.00	502036.7	8913.09
906.00	403412.4	7170.60
905.00	333878.8	5750.50
904.00	263244.1	4631.34
903.00	193099.9	3606.53
902.00	134671.8	2651.17
901.00	88797.8	1765.13
900.00	58622.4	1002.52
899.00	41037.4	546.16
898.00	31032.2	432.68
897.00	22481.7	349.56
896.00	15135.7	269.97
895.00	9315.6	194.50
894.00	5193.5	128.40
893.00	2299.5	72.89
892.00	745.3	31.32
891.00	101.6	7.03

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.46	905.55	3340.00	0.47	905.94	4140.00	0.44	907.19

OUTPUT LISTING FOR SECTION 13.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
5700.	5000.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
918.00	4311634.0	45281.07
917.00	3874129.0	41825.06
916.00	3477498.0	38553.80
915.00	3052476.5	35343.81
914.00	2655514.5	32184.98
913.00	2286907.5	29084.35
912.00	1964160.2	26061.01
911.00	1656326.2	23139.76
910.00	1371995.2	20299.25
909.00	1145397.5	17591.85
908.00	930955.2	15030.56
907.00	735846.2	12600.34
906.00	556617.6	10268.12
905.00	410374.1	8076.23
904.00	291724.5	6223.31
903.00	191444.4	4484.25
902.00	117309.1	2859.44
901.00	73217.4	1631.42
900.00	47638.5	864.73
899.00	34407.4	517.27
898.00	25067.8	378.34
897.00	17094.1	296.72
896.00	10389.0	217.08
895.00	5085.6	139.41
894.00	1413.5	63.72
893.00	29.8	4.27

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.31	905.72	3340.00	0.31	906.11	4140.00	0.30	907.32

INFORMATION LISTING FOR BRIDGE SECTION 14.

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING ELEVATION	END AREA	Q CONTROL
905.60	1038.38	19427.22
904.60	941.88	16803.04
903.60	845.38	14311.32
902.60	748.88	11959.72
901.60	652.38	9757.45
900.60	555.88	7715.93
899.60	459.38	5849.95
898.60	365.16	4240.20
897.60	275.51	2848.26
896.60	190.43	1686.02
895.60	109.91	777.15
894.60	41.01	207.28
893.60	2.74	6.95

ROADWAY ELEVATION	FLOW OVER ROAD (CFS)
918.00	357300.56
917.00	315293.81
916.00	275076.00
915.00	236730.43
914.00	198949.18
913.00	159072.87
912.00	123218.17
911.00	91549.03
910.00	64443.31
909.00	36687.30
908.00	16204.71
907.00	4937.64
906.00	486.63

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 14.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	8600.	7200.	1.00

ELEVATION	TOTAL KD	END AREA
918.00	4311634.0	45281.07
917.00	3874129.0	41825.06
916.00	3477498.0	38553.80
915.00	3052476.5	35343.81
914.00	2655514.5	32184.98
913.00	2286907.5	29084.35
912.00	1964160.2	26061.01
911.00	1656326.2	23139.76
910.00	1371995.2	20299.25
909.00	1145397.5	17591.85
908.00	930955.2	15030.56
907.00	735846.2	12600.34
906.00	556617.6	10268.12
905.00	410374.1	8076.23
904.00	291724.5	6223.31
903.00	191444.4	4484.25
902.00	117309.1	2859.44
901.00	73217.4	1631.42
900.00	47638.5	864.73
899.00	34407.4	517.27
898.00	25067.8	378.34
897.00	17094.1	296.72
896.00	10389.0	217.08
895.00	5085.6	139.41
894.00	1413.5	63.72
893.00	29.8	4.27

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.29	905.97	3340.00	0.30	906.26	4140.00	0.30	907.39

OUTPUT LISTING FOR SECTION 14.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
8600.	7200.	75.	75.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	1690128.2	17328.15
916.00	1489059.7	15974.60
915.00	1299021.5	14624.60
914.00	1120290.5	13278.17
913.00	953278.8	11935.31
912.00	799737.3	10602.00
911.00	659269.3	9295.52
910.00	531568.3	8016.99
909.00	441887.0	6803.27
908.00	355260.0	5734.23
907.00	278184.5	4765.57
906.00	212255.0	3865.62
905.00	156046.7	3012.29
904.00	109796.2	2205.58
903.00	73760.9	1446.00
902.00	49943.7	770.19
901.00	38793.0	455.88
900.00	30746.4	391.30
899.00	23433.7	327.93
898.00	16903.6	265.77
897.00	11221.0	204.80
896.00	6860.2	146.48
895.00	3662.5	94.98
894.00	1429.6	50.56
893.00	435.8	19.14
892.00	18.8	2.31

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.64	906.87	3340.00	0.67	907.18	4140.00	0.68	908.25

INFORMATION LISTING FOR BRIDGE SECTION 15

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	905.90	624.19	10616.49
	904.90	552.19	8879.14
	903.90	480.19	7255.89
	902.90	408.19	5756.64
	901.90	336.97	4408.03
	900.90	268.12	3215.66
	899.90	201.82	2191.54
	898.90	142.38	1382.03
	897.90	92.70	787.88
	896.90	52.02	368.06
	895.90	20.26	101.65
	894.90	0.21	0.27

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	918.00	263253.87
	917.00	241623.46
	916.00	218060.59
	915.00	193292.81
	914.00	170090.81
	913.00	146854.18
	912.00	123366.90
	911.00	93327.96
	910.00	76958.67
	909.00	63055.80
	908.00	44385.31
	907.00	24150.73
	906.00	7626.14
	905.00	1650.44
	904.00	944.77
	903.00	460.23
	902.00	167.01
	901.00	29.52
	900.00	0.00

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 15.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
75.	75.	4675.	4450.	1.00

ELEVATION	TOTAL KO	END AREA
917.00	1690128.2	17328.15
916.00	1489059.7	15974.60
915.00	1299021.5	14624.60
914.00	1120290.5	13278.17
913.00	953278.8	11935.31
912.00	799737.3	10602.00
911.00	659269.3	9295.52
910.00	531568.3	8016.99
909.00	441887.0	6803.27
908.00	355260.0	5734.23
907.00	278184.5	4765.57
906.00	212255.0	3865.62
905.00	156046.7	3012.29
904.00	109796.2	2205.58
903.00	73760.9	1446.00
902.00	49943.7	770.19
901.00	38793.0	455.88
900.00	30746.4	391.30
899.00	23433.7	327.93
898.00	16903.6	265.77
897.00	11221.0	204.80
896.00	6860.2	146.48
895.00	3662.5	94.98
894.00	1429.6	50.56
893.00	435.8	19.14
892.00	18.8	2.31

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.63	906.95	3340.00	0.66	907.27	4140.00	0.68	908.32

OUTPUT LISTING FOR SECTION 15.3

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
4675.	4450.	7760.	7500.	1.00

ELEVATION	TOTAL KD	END AREA
916.00	1235964.5	14259.05
915.00	1055912.5	12879.05
914.00	888043.1	11499.05
913.00	748711.5	10136.91
912.00	626826.6	8874.75
911.00	516330.6	7685.54
910.00	426174.0	6576.63
909.00	353788.5	5564.35
908.00	273844.5	4621.75
907.00	205328.5	3727.73
906.00	150457.3	2903.31
905.00	104452.6	2163.49
904.00	69302.9	1533.31
903.00	43239.6	1010.94
902.00	25059.8	622.20
901.00	14071.2	311.98
900.00	8922.9	181.63
899.00	5320.9	123.66
898.00	2553.3	74.23
897.00	904.6	34.98
896.00	144.1	9.32

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.70	907.61	3340.00	0.72	907.94	4140.00	0.75	908.94

OUTPUT LISTING FOR SECTION 15.7

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
7760.	7500.	1690.	1690.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	1235334.0	13714.01
916.00	1066882.2	12438.65
915.00	910405.5	11186.98
914.00	767437.5	9962.17
913.00	636659.3	8770.50
912.00	517652.8	7612.17
911.00	413168.8	6491.63
910.00	316732.6	5409.02
909.00	235537.2	4349.26
908.00	170807.8	3359.99
907.00	119964.2	2469.12
906.00	80359.9	1671.69
905.00	58863.5	1144.82
904.00	43712.1	817.54
903.00	29678.5	545.99
902.00	19731.8	354.24
901.00	12568.8	241.22
900.00	7387.4	167.21
899.00	4531.2	108.39
898.00	2076.8	63.38
897.00	535.7	25.88
896.00	5.2	0.98

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.70	908.90	3340.00	0.72	909.23	4140.00	0.74	910.13

OUTPUT LISTING FOR SECTION 15.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1690.	1690.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	1932131.0	25625.13
916.00	1595714.2	22737.13
915.00	1287259.0	19849.38
914.00	1025265.5	17006.66
913.00	789163.1	14259.05
912.00	579377.0	11565.35
911.00	488083.4	9311.65
910.00	360742.0	7424.61
909.00	280173.2	5781.66
908.00	198389.4	4361.77
907.00	142023.7	3067.67
906.00	98370.3	2110.42
905.00	70783.3	1354.15
904.00	55676.4	1006.64
903.00	39270.1	736.50
902.00	26092.9	508.67
901.00	16461.7	327.45
900.00	9780.7	204.62
899.00	5018.1	131.04
898.00	1663.1	65.78
897.00	109.8	8.81

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.50	909.09	3340.00	0.51	909.43	4140.00	0.51	910.32

INFORMATION LISTING FOR BRIDGE SECTION 16

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	908.20	678.22	19584.81
	907.20	670.81	16391.75
	906.20	648.57	13555.61
	905.20	611.51	11055.74
	904.20	559.62	8868.84
	903.20	492.91	6966.92
	902.20	412.21	5310.00
	901.20	330.70	3843.46
	900.20	250.99	2556.44
	899.20	171.77	1464.76
	898.20	93.60	616.05
	897.20	25.72	102.03

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	918.00	206647.87
	917.00	174230.25
	916.00	143711.46
	915.00	114908.78
	914.00	86392.89
	913.00	58258.45
	912.00	33803.97
	911.00	16576.05
	910.00	4677.01
	909.00	126.37

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 16.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	2560.	2560.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	1932131.0	25625.13
916.00	1595714.2	22737.13
915.00	1287259.0	19849.38
914.00	1025265.5	17006.66
913.00	789163.1	14259.05
912.00	579377.0	11565.35
911.00	488083.4	9311.65
910.00	360742.0	7424.61
909.00	280173.2	5781.66
908.00	198389.4	4361.77
907.00	142023.7	3067.67
906.00	98370.3	2110.42
905.00	70783.3	1354.15
904.00	55676.4	1006.64
903.00	39270.1	736.50
902.00	26092.9	508.67
901.00	16461.7	327.45
900.00	9780.7	204.62
899.00	5018.1	131.04
898.00	1663.1	65.78
897.00	109.8	8.81

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.47	909.31	3340.00	0.49	909.57	4140.00	0.50	910.40

OUTPUT LISTING FOR SECTION 16.2

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2560.	2560.	4920.	4920.	1.00

ELEVATION	TOTAL KD	END AREA
917.00	1465335.2	18997.30
916.00	1211822.0	16819.30
915.00	992112.8	14659.30
914.00	796454.8	12568.04
913.00	646749.8	10611.68
912.00	520889.2	8846.42
911.00	409220.5	7275.96
910.00	321266.0	5853.60
909.00	246142.0	4669.67
908.00	172874.5	3565.53
907.00	114458.5	2535.55
906.00	70147.1	1608.59
905.00	45317.1	843.67
904.00	31878.7	463.80
903.00	23026.2	367.75
902.00	15851.0	281.97
901.00	10137.0	205.35
900.00	5379.1	135.97
899.00	1992.2	71.88
898.00	383.5	21.76
897.00	3.2	0.61

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.56	909.59	3340.00	0.58	909.86	4140.00	0.60	910.69

OUTPUT LISTING FOR SECTION 16.6

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
4920.	4920.	2620.	2500.	1.00

ELEVATION	TOTAL KD	END AREA
920.00	1985329.5	20959.07
919.00	1735199.0	19269.71
918.00	1518078.5	17605.21
917.00	1316177.2	15984.56
916.00	1129083.5	14403.05
915.00	957353.2	12866.83
914.00	796905.0	11369.67
913.00	641339.1	9894.87
912.00	499773.6	8430.50
911.00	376636.1	6977.93
910.00	275399.1	5553.02
909.00	187358.6	4171.01
908.00	122781.2	2893.53
907.00	81145.4	1892.77
906.00	50733.2	1087.15
905.00	33352.3	567.57
904.00	22596.0	382.99
903.00	14337.1	275.49
902.00	7921.1	188.47
901.00	3169.7	106.30
900.00	595.7	35.43
899.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.52	910.13	3340.00	0.54	910.41	4140.00	0.56	911.21

OUTPUT LISTING FOR SECTION 16.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2620.	2500.	2390.	2300.	1.00

ELEVATION	TOTAL KD	END AREA
923.00	2068489.2	21009.21
922.00	1815874.0	19331.21
921.00	1578392.2	17653.33
920.00	1359877.7	15979.42
919.00	1156127.7	14311.35
918.00	973039.3	12653.78
917.00	812036.8	11032.06
916.00	666104.7	9449.26
915.00	537088.8	7910.27
914.00	432451.7	6458.01
913.00	348494.6	5323.48
912.00	273379.0	4418.35
911.00	208694.5	3594.13
910.00	157936.9	2834.47
909.00	112177.1	2112.46
908.00	76017.7	1438.01
907.00	51585.5	862.76
906.00	36555.5	541.67
905.00	27691.9	416.75
904.00	18852.7	325.41
903.00	11474.4	237.39
902.00	5847.9	153.54
901.00	2207.9	79.04
900.00	471.0	25.53
899.00	9.4	1.35

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
3020.00	0.89	910.72	3340.00	0.92	911.03	4140.00	0.96	911.82

W. S. P. PROGRAM, APRIL, 1968

UPPER GRAND FLOOD HAZARD ANALYSIS-JACKSON MICHIGAN

OUTPUT LISTING FOR SECTION 16.9

*DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1.	1.	2390.	2300.	1.00

ELEVATION	TOTAL KD	END AREA
923.00	2068489.2	21009.21
922.00	1815874.0	19331.21
921.00	1578392.2	17653.33
920.00	1359877.7	15979.42
919.00	1156127.7	14311.35
918.00	973039.3	12653.78
917.00	812036.8	11032.06
916.00	666104.7	9449.26
915.00	537088.8	7910.27
914.00	432451.7	6458.01
913.00	348494.6	5323.48
912.00	273379.0	4418.35
911.00	208694.5	3594.13
910.00	157936.9	2834.47
909.00	112177.1	2112.46
908.00	76017.7	1438.01
907.00	51585.5	862.76
906.00	36555.5	541.67
905.00	27691.9	416.75
904.00	18852.7	325.41
903.00	11474.4	237.39
902.00	5847.9	153.54
901.00	2207.9	79.04
900.00	471.0	25.53
899.00	9.4	1.35

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.36	910.72	1340.00	0.37	911.03	1640.00	0.38	911.82

New Discharges for Profiles Upstream of Portage River (Main Stem)

OUTPUT LISTING FOR SECTION 17.2

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2390.	2300.	2880.	2880.	1.00

ELEVATION	TOTAL KD	END AREA
920.00	1403089.7	19271.29
919.00	1131589.2	16695.29
918.00	886326.1	14119.29
917.00	671311.6	11545.58
916.00	487687.2	8981.97
915.00	386425.0	6824.38
914.00	338885.5	5515.61
913.00	278699.0	4465.62
912.00	210311.4	3648.67
911.00	148779.9	2854.88
910.00	97950.6	2085.85
909.00	62248.2	1370.58
908.00	36913.6	834.37
907.00	21615.4	480.15
906.00	18978.2	302.78
905.00	13462.6	235.08
904.00	8331.1	171.72
903.00	4361.4	112.57
902.00	1868.7	60.03
901.00	404.3	21.72

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.44	910.88	1340.00	0.44	911.18	1640.00	0.45	911.96

OUTPUT LISTING FOR SECTION 17.6

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2880.	2880.	4110.	4110.	1.00

ELEVATION	TOTAL KD	END AREA
926.00	1693951.0	18621.51
925.00	1463425.7	16948.51
924.00	1257771.2	15282.81
923.00	1077054.0	13668.28
922.00	910580.3	12112.20
921.00	758220.0	10614.58
920.00	628117.3	9186.51
919.00	508564.6	7858.33
918.00	421750.5	6618.35
917.00	355515.6	5569.82
916.00	288192.5	4648.66
915.00	242364.4	3862.94
914.00	185854.3	3194.41
913.00	135883.1	2548.52
912.00	93439.7	1916.38
911.00	60681.7	1312.02
910.00	37192.1	780.24
909.00	23595.7	458.35
908.00	16938.6	290.87
907.00	13152.8	224.73
906.00	9930.7	172.67
905.00	7277.9	131.54
904.00	4786.6	97.35
903.00	2681.2	66.00
902.00	1164.9	37.82
901.00	227.1	13.27

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.73	911.56	1340.00	0.73	911.84	1640.00	0.72	912.53

OUTPUT LISTING FOR SECTION 17.8

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
4110.	4110.	730.	730.	1.00

ELEVATION	TOTAL KD	ENC AREA
923.00	1254347.5	14927.76
922.00	1051772.7	13368.76
921.00	863988.0	11809.76
920.00	693252.1	10250.99
919.00	560381.3	8733.11
918.00	436204.1	7312.76
917.00	323515.7	5948.42
916.00	238113.6	4676.43
915.00	163838.4	3514.41
914.00	105115.2	2456.23
913.00	63046.8	1507.15
912.00	41296.6	823.38
911.00	30412.0	485.31
910.00	22200.5	331.40
909.00	16144.0	249.85
908.00	11134.7	194.80
907.00	6955.5	142.85
906.00	4070.7	96.46
905.00	1871.6	57.13
904.00	478.6	23.16
903.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.79	913.03	1340.00	0.77	913.23	1640.00	0.73	913.75

OUTPUT LISTING FOR SECTION 17.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
730.	730.	90.	90.	1.00

ELEVATION	TOTAL KD	END AREA
925.00	1430523.5	17248.46
924.00	1199907.0	15398.46
923.00	986673.1	13548.46
922.00	791673.5	11698.46
921.00	627843.0	9879.03
920.00	482928.4	8120.74
919.00	367931.8	6453.55
918.00	273590.8	5044.17
917.00	197319.4	3818.90
916.00	133120.9	2760.66
915.00	83286.5	1809.11
914.00	48785.6	1157.99
913.00	41592.0	753.22
912.00	30806.3	498.71
911.00	22683.5	357.56
910.00	16347.8	277.78
909.00	11354.8	209.15
908.00	7067.1	150.15
907.00	3598.4	96.34
906.00	1186.2	47.42
905.00	49.7	5.87

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.25	913.54	1340.00	1.24	913.79	1640.00	1.21	914.29

INFORMATION LISTING FOR BRIDGE SECTION 18

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	912.80	461.79	7545.38
	911.80	405.79	6221.05
	910.80	349.79	4985.68
	909.80	293.79	3846.30
	908.80	237.79	2812.00
	907.80	181.79	1895.16
	906.80	125.79	1114.34
	905.80	70.74	507.39
	904.80	24.48	148.52
	903.80	4.89	16.44

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	925.00	121072.54
	924.00	100348.12
	923.00	80963.14
	922.00	62768.08
	921.00	42747.36
	920.00	24893.60
	919.00	12400.96
	918.00	4700.74
	917.00	331.22

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

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PAGE  1
// JOB
LOG DRIVE   CART SPEC   CART AVAIL   PHY DRIVE
  0000        0003        0003         0000
V2 M08  ACTUAL  8K  CONFIG  8K
// XEQ WSPIN
```

OUTPUT LISTING FOR SECTION 18.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
90.	90.	2118.	2118.	1.00

ELEVATION	TOTAL KD	END AREA
925.00	1483491.0	17235.71
924.00	1244184.5	15385.71
923.00	1022869.3	13535.71
922.00	820424.8	11685.71
921.00	650641.7	9866.28
920.00	500413.0	8108.00
919.00	380737.5	6440.80
918.00	282675.5	5031.42
917.00	203306.5	3806.15
916.00	136562.4	2747.91
915.00	84720.2	1796.36
914.00	48809.2	1145.24
913.00	40893.7	741.04
912.00	30405.4	488.85
911.00	22955.9	351.81
910.00	16578.4	275.94
909.00	11422.4	209.05
908.00	7067.1	150.15
907.00	3598.4	96.34
906.00	1186.2	47.42
905.00	49.7	5.87

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.12	913.84	1340.00	1.07	914.16	1640.00	0.96	914.84

OUTPUT LISTING FOR SECTION 18.7

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2118.	2118.	500.	500.	1.00

ELEVATION	TOTAL KD	END AREA
925.00	777512.1	9952.58
924.00	628145.0	8620.58
923.00	493335.7	7288.58
922.00	388589.5	5991.33
921.00	300855.1	4801.01
920.00	228661.9	3731.72
919.00	173579.2	2902.23
918.00	132814.8	2306.49
917.00	103442.5	1800.08
916.00	76325.6	1359.20
915.00	54780.4	975.28
914.00	39186.9	643.49
913.00	29107.6	377.36
912.00	23190.8	314.97
911.00	18065.4	261.47
910.00	13204.8	211.67
909.00	8812.2	163.17
908.00	5127.3	115.75
907.00	2324.3	69.67
906.00	645.1	29.70
905.00	10.1	1.45

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.27	914.93	1340.00	1.26	915.22	1640.00	1.24	915.88

OUTPUT LISTING FOR SECTION 18.8

• DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
500.	500.	750.	750.	1.00

ELEVATION	TOTAL KD	END AREA
925.00	1090847.7	9952.58
924.00	881598.2	8620.58
923.00	692877.2	7288.58
922.00	545721.5	5991.33
921.00	422671.6	4801.01
920.00	321608.5	3731.72
919.00	244970.4	2902.23
918.00	188319.2	2306.49
917.00	147993.0	1800.08
916.00	110251.6	1359.20
915.00	80156.0	975.28
914.00	58201.0	643.49
913.00	43659.8	377.36
912.00	34786.2	314.97
911.00	27098.1	261.47
910.00	19807.3	211.67
909.00	13218.4	163.17
908.00	7690.9	115.75
907.00	3486.5	69.67
906.00	967.7	29.70
905.00	15.2	1.45

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.22	915.05	1340.00	1.20	915.34	1640.00	1.20	916.00

OUTPUT LISTING FOR SECTION 18.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
750.	750.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
925.00	1090847.7	9952.58
924.00	881598.2	8620.58
923.00	692877.2	7288.58
922.00	545721.5	5991.33
921.00	422671.6	4801.01
920.00	321608.5	3731.72
919.00	244970.4	2902.23
918.00	188319.2	2306.49
917.00	147993.0	1800.08
916.00	110251.6	1359.20
915.00	80156.0	975.28
914.00	58201.0	643.49
913.00	43659.8	377.36
912.00	34786.2	314.97
911.00	27098.1	261.47
910.00	19807.3	211.67
909.00	13218.4	163.17
908.00	7690.9	115.75
907.00	3486.5	69.67
906.00	967.7	29.70
905.00	15.2	1.45

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.15	915.21	1340.00	1.14	915.49	1640.00	1.14	916.15

INFORMATION LISTING FOR BRIDGE SECTION 19

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	918.50	561.20	10885.85
	917.50	513.20	9519.76
	916.50	465.20	8216.17
	915.50	417.20	6978.22
	914.50	369.20	5809.62
	913.50	321.20	4714.73
	912.50	273.20	3698.93
	911.50	225.20	2768.93
	910.50	177.20	1933.55
	909.50	129.20	1205.09
	908.50	81.20	602.55
	907.50	33.20	162.35
	906.50	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	927.00	52670.04
	926.00	41916.23
	925.00	31498.20
	924.00	22353.25
	923.00	14478.22
	922.00	8038.60
	921.00	1585.51
	920.00	211.60

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 19.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	380.	380.	1.00

ELEVATION	TOTAL KD	END AREA
932.00	2157933.0	15840.11
931.00	1853848.2	14295.11
930.00	1571354.2	12750.81
929.00	1311408.5	11208.62
928.00	1075741.5	9669.79
927.00	912845.8	8168.27
926.00	742129.5	6939.67
925.00	632607.1	5885.16
924.00	525298.1	5045.02
923.00	420153.5	4263.63
922.00	333154.2	3529.15
921.00	257952.0	2852.84
920.00	198980.9	2250.29
919.00	148082.0	1730.87
918.00	110852.5	1287.17
917.00	81815.2	916.96
916.00	61579.5	623.77
915.00	47505.6	446.98
914.00	37799.7	351.77
913.00	30067.1	289.97
912.00	23442.9	236.89
911.00	16794.7	188.53
910.00	10854.4	141.96
909.00	5976.0	96.96
908.00	2578.3	54.59
907.00	615.0	20.94
906.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.47	915.25	1340.00	2.48	915.52	1640.00	2.32	916.28

OUTPUT LISTING FOR SECTION 19.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	380.	380.	1.00

ELEVATION	TOTAL KD	END AREA
932.00	2157933.0	15840.11
931.00	1853848.2	14295.11
930.00	1571354.2	12750.81
929.00	1311408.5	11208.62
928.00	1075741.5	9669.79
927.00	912845.8	8168.27
926.00	742129.5	6939.67
925.00	632607.1	5885.16
924.00	525298.1	5045.02
923.00	420153.5	4263.63
922.00	333154.2	3529.15
921.00	257952.0	2852.84
920.00	198980.9	2250.29
919.00	148082.0	1730.87
918.00	110852.5	1287.17
917.00	81815.2	916.96
916.00	61579.5	623.77
915.00	47505.6	446.98
914.00	37799.7	351.77
913.00	30067.1	289.97
912.00	23442.9	236.89
911.00	16794.7	188.53
910.00	10854.4	141.96
909.00	5976.0	96.96
908.00	2578.3	54.59
907.00	615.0	20.94
906.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.47	915.25	1340.00	2.48	915.52	1640.00	2.32	916.28

OUTPUT LISTING FOR SECTION 19.2

* DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
380.	380.	1390.	1120.	1.00

ELEVATION	TOTAL KD	END AREA
932.00	1231965.5	15840.11
931.00	1055716.5	14295.11
930.00	892161.0	12750.81
929.00	741868.1	11208.62
928.00	605869.2	9669.79
927.00	513253.5	8168.27
926.00	415657.3	6939.67
925.00	351456.8	5885.16
924.00	290565.3	5045.02
923.00	230740.8	4263.63
922.00	181574.0	3529.15
921.00	139258.5	2852.84
920.00	106456.5	2250.29
919.00	78274.2	1730.87
918.00	57740.8	1287.17
917.00	41886.0	916.96
916.00	31089.4	623.77
915.00	23781.4	446.98
914.00	18899.8	351.77
913.00	15033.5	289.97
912.00	11721.4	236.89
911.00	8397.3	188.53
910.00	5427.2	141.96
909.00	2988.0	96.96
908.00	1289.1	54.59
907.00	307.5	20.94
906.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.01	915.90	1340.00	1.98	916.17	1640.00	1.83	916.91

OUTPUT LISTING FOR SECTION 19.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1390.	1120.	140.	140.	1.00

ELEVATION	TOTAL KD	END AREA
930.00	1302833.0	15470.54
929.00	1144723.2	14274.11
928.00	995291.8	13079.85
927.00	854546.0	11887.88
926.00	722742.0	10698.18
925.00	610804.3	9521.43
924.00	509424.0	8397.24
923.00	411438.6	7294.77
922.00	336833.9	6241.95
921.00	264009.0	5251.41
920.00	204302.5	4329.24
919.00	147231.7	3444.42
918.00	99580.0	2588.25
917.00	62895.6	1773.79
916.00	36466.1	1029.03
915.00	23020.3	455.42
914.00	17787.8	330.09
913.00	13645.0	272.20
912.00	10104.8	219.08
911.00	7271.2	171.09
910.00	5137.4	129.57
909.00	3712.9	96.20
908.00	2292.0	68.36
907.00	1206.7	43.80
906.00	441.5	22.42
905.00	49.1	5.09

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.83	916.57	1340.00	0.81	916.81	1640.00	0.76	917.44

INFORMATION LISTING FOR BRIDGE SECTION 20

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	915.20	420.05	6330.35
	914.20	355.05	5007.44
	913.20	290.05	3814.34
	912.20	226.12	2783.82
	911.20	172.84	1957.80
	910.20	126.03	1272.86
	909.20	83.10	722.32
	908.20	45.76	321.11
	907.20	14.95	87.53
	906.20	2.45	8.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	928.00	48059.75
	927.00	36740.42
	926.00	26483.04
	925.00	17411.64
	924.00	9708.13
	923.00	3680.64
	922.00	8.59

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 20.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
180.	180.	1340.	1340.	1.00

ELEVATION	TOTAL KD	END AREA
926.00	724658.7	9020.44
925.00	604135.8	7986.67
924.00	495839.0	6965.69
923.00	402476.5	5980.39
922.00	320972.1	5047.85
921.00	250273.3	4179.56
920.00	187842.8	3368.60
919.00	134841.1	2608.90
918.00	92214.9	1911.13
917.00	62918.6	1286.89
916.00	43341.8	758.16
915.00	31703.0	428.28
914.00	24377.4	351.72
913.00	18008.9	283.06
912.00	12502.5	219.82
911.00	7978.5	161.78
910.00	5610.8	113.10
909.00	3129.8	76.40
908.00	1369.8	43.56
907.00	353.9	17.24
906.00	7.0	1.01

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.97	916.92	1340.00	0.92	917.25	1640.00	0.82	918.09

OUTPUT LISTING FOR SECTION 20.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1340.	1340.	400.	400.	1.00

ELEVATION	TOTAL KO	END AREA
935.00	3070747.0	31586.62
934.00	2739844.5	29254.85
933.00	2426327.0	26963.53
932.00	2130277.5	24712.67
931.00	1851812.5	22502.26
930.00	1588736.2	20330.84
929.00	1342134.5	18192.38
928.00	1113961.2	16086.22
927.00	905513.3	14013.42
926.00	717259.0	11980.21
925.00	548972.1	9987.65
924.00	401508.8	8035.73
923.00	278084.7	6136.84
922.00	196583.6	4406.33
921.00	144485.1	3127.87
920.00	109821.2	2168.58
919.00	84021.6	1616.51
918.00	57821.6	1156.48
917.00	38449.9	718.67
916.00	28444.4	397.73
915.00	21663.1	311.62
914.00	15788.6	252.49
913.00	11274.7	197.72
912.00	7010.1	145.77
911.00	3578.0	95.37
910.00	1881.5	53.35
909.00	623.4	25.43
908.00	36.8	3.95

OUTPUT LISTING FOR SECTION 20.9 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.20	917.67	1340.00	1.16	917.97	1640.00	1.10	918.70

INFORMATION LISTING FOR BRIDGE SECTION 21

OPENING COEF. 0.900 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	951.00	14882.61	651814.87
	950.00	14881.50	612777.62
	949.00	14876.07	575991.62
	948.00	14759.31	542399.25
	947.00	14553.30	510968.62
	946.00	14258.89	481568.00
	945.00	13896.60	453783.00
	944.00	13480.67	427361.75
	943.00	13012.04	402103.50
	942.00	12499.50	377689.93
	941.00	11985.25	353897.81
	940.00	11470.66	330731.68
	939.00	10955.77	308236.75
	938.00	10442.17	286540.37
	937.00	9930.64	265506.00
	936.00	9421.17	245138.96
	935.00	8913.75	225444.62
	934.00	8408.40	206429.81
	933.00	7905.11	188101.90
	932.00	7403.88	170469.56
	931.00	6904.71	153542.68
	930.00	6407.60	137332.75
	929.00	5912.55	121853.32
	928.00	5419.57	107120.20
	927.00	4928.64	93152.20
	926.00	4439.78	79972.23
	925.00	3952.97	67608.29
	924.00	3468.23	56095.53
	923.00	2985.55	45479.82
	922.00	2504.92	35824.16
	921.00	2026.67	27228.47
	920.00	1563.75	19953.00
	919.00	1163.63	14129.18
	918.00	800.18	9490.92
	917.00	480.92	6269.55
	916.00	340.05	4726.88
	915.00	278.59	3603.54
	914.00	220.47	2616.64
	913.00	166.31	1794.23
	912.00	118.01	1123.83
	911.00	76.38	638.88
	910.00	43.00	302.93
	909.00	18.06	97.19
	908.00	3.56	12.80

INFORMATION LISTING FOR BRIDGE SECTION 21 (CONTINUED)

ROADWAY ELEVATION	FLOW OVER ROAD (CFS)
955.00	35240.81
954.00	25399.40
953.00	17130.73
952.00	9718.39
951.00	5257.59
950.00	2358.22
949.00	818.35
948.00	158.72
947.00	0.00

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 21.2

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
400.	400.	1740.	1740.	1.00

ELEVATION	TOTAL KD	END AREA
935.00	4418907.0	31586.62
934.00	3936543.5	29254.85
933.00	3479819.5	26963.53
932.00	3048852.5	24712.67
931.00	2643808.5	22502.26
930.00	2261386.5	20330.84
929.00	1903206.7	18192.38
928.00	1572189.2	16086.22
927.00	1270270.2	14013.42
926.00	998139.7	11980.21
925.00	755446.2	9987.65
924.00	543460.2	8035.73
923.00	366988.8	6136.84
922.00	251985.5	4406.33
921.00	180021.1	3127.87
920.00	133682.7	2168.58
919.00	100129.6	1616.51
918.00	65475.2	1156.48
917.00	40452.6	718.67
916.00	28519.7	397.73
915.00	21663.1	311.62
914.00	15788.6	252.49
913.00	11274.7	197.72
912.00	7010.1	145.77
911.00	3578.0	95.37
910.00	1881.5	53.35
909.00	623.4	25.43
908.00	36.8	3.95

OUTPUT LISTING FOR SECTION 21.2 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.06	917.96	1340.00	1.05	918.24	1640.00	1.03	918.93

OUTPUT LISTING FOR SECTION 21.8

OISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1740.	1740.	240.	240.	1.00

ELEVATION	TOTAL KD	END AREA
931.00	1157662.7	10886.48
930.00	942365.7	9393.97
929.00	750959.0	7986.49
928.00	580476.6	6607.49
927.00	441878.8	5280.88
926.00	329555.9	4109.95
925.00	246452.4	3151.55
924.00	185625.1	2375.30
923.00	130142.3	1693.94
922.00	93391.6	1078.52
921.00	75979.0	811.70
920.00	61528.7	667.43
919.00	49205.5	545.21
918.00	39657.6	460.66
917.00	32007.3	395.91
916.00	25172.7	334.56
915.00	19138.7	276.60
914.00	13893.8	222.02
913.00	9432.3	170.84
912.00	5758.3	123.05
911.00	2909.9	78.67
910.00	1052.7	39.74
909.00	90.6	7.85

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.24	918.98	1340.00	2.30	919.29	1640.00	2.42	920.06

INFORMATION LISTING FOR BRIDGE SECTION 22

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	922.30	461.25	15410.32
	921.30	454.72	13138.10
	920.30	435.20	11092.88
	919.30	407.67	9278.53
	918.30	376.00	7619.57
	917.30	340.21	6113.88
	916.30	300.28	4758.95
	915.30	256.62	3559.30
	914.30	209.84	2508.15
	913.30	159.93	1610.47
	912.30	106.92	877.87
	911.30	54.02	344.60
	910.30	16.00	75.07

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	940.00	322534.00
	939.00	295953.68
	938.00	270187.56
	937.00	245256.00
	936.00	221180.75
	935.00	197986.59
	934.00	175700.90
	933.00	154354.81
	932.00	133983.53
	931.00	114627.92
	930.00	96335.54
	929.00	79162.79
	928.00	58511.83
	927.00	39725.50
	926.00	24717.42
	925.00	13779.08
	924.00	6479.36
	923.00	1383.36
	922.00	61.29

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OUTPUT LISTING FOR SECTION 22.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
70.	70.	1570.	1570.	1.00

ELEVATION	TOTAL KD	END AREA
936.00	1841340.0	20955.50
935.00	1574589.0	18913.54
934.00	1328985.0	16882.28
933.00	1102288.2	14864.03
932.00	894109.5	12854.26
931.00	722355.3	10883.70
930.00	570573.6	9010.23
929.00	448045.1	7269.11
928.00	350550.8	5733.79
927.00	283485.5	4569.49
926.00	215903.4	3591.84
925.00	157503.8	2677.20
924.00	112717.9	1845.48
923.00	81494.8	1189.48
922.00	61806.4	854.45
921.00	50373.9	650.97
920.00	45718.8	553.26
919.00	40036.2	474.86
918.00	33748.5	408.88
917.00	26996.2	347.99
916.00	21044.0	291.02
915.00	15863.7	237.99
914.00	11273.1	188.46
913.00	7402.9	142.03
912.00	4264.4	98.70
911.00	1901.3	58.48
910.00	456.5	23.12
909.00	0.0	0.00

OUTPUT LISTING FOR SECTION 22.1 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.55	919.03	1340.00	2.66	919.35	1640.00	2.87	920.18

OUTPUT LISTING FOR SECTION 22.7

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1570.	1570.	580.	580.	1.00

ELEVATION	TOTAL KD	END AREA
935.00	1240282.0	13343.58
934.00	1054450.2	11843.13
933.00	887354.1	10387.73
932.00	738080.1	8982.81
931.00	609362.3	7651.93
930.00	496369.1	6425.47
929.00	410536.5	5366.70
928.00	333339.8	4522.46
927.00	260558.6	3717.26
926.00	198534.4	2940.97
925.00	149297.7	2212.70
924.00	112716.0	1676.91
923.00	86802.0	1258.23
922.00	70432.2	973.09
921.00	55806.9	788.11
920.00	43001.7	619.48
919.00	32276.7	465.15
918.00	23876.7	348.86
917.00	17061.4	278.17
916.00	11298.0	211.56
915.00	6604.6	149.02
914.00	4336.9	97.25
913.00	2280.5	61.67
912.00	869.3	31.53
911.00	213.1	10.58
910.00	3.1	0.58

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.86	920.19	1340.00	1.88	920.54	1640.00	1.91	921.37

OUTPUT LISTING FOR SECTION 22.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
580.	580.	60.	60.	1.00

ELEVATION	TOTAL KD	END AREA
935.00	791705.7	9587.56
934.00	645663.8	8370.56
933.00	523412.6	7172.38
932.00	416473.6	6031.75
931.00	319671.1	4938.08
930.00	238059.9	3886.63
929.00	174379.3	2930.03
928.00	123128.5	2083.58
927.00	83671.8	1302.83
926.00	61939.4	725.04
925.00	51071.9	564.13
924.00	42806.8	471.61
923.00	35886.4	412.41
922.00	29705.1	357.87
921.00	24226.5	307.13
920.00	19416.8	260.18
919.00	15241.4	217.02
918.00	11664.7	177.65
917.00	8650.2	142.07
916.00	6115.7	110.19
915.00	4030.7	81.62
914.00	2390.3	56.35
913.00	1175.0	34.37
912.00	381.9	16.00
911.00	25.1	2.45

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	3.77	921.31	1340.00	3.91	921.68	1640.00	4.21	922.56

INFORMATION LISTING FOR BRIDGE SECTION 23

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	922.80	386.39	6493.75
	921.80	341.39	5409.79
	920.80	296.39	4396.45
	919.80	251.39	3459.34
	918.80	206.39	2605.77
	917.80	161.46	1850.91
	916.80	118.61	1226.25
	915.80	80.09	735.97
	914.80	47.70	371.22
	913.80	21.65	129.97
	912.80	4.42	15.44

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	932.00	35682.85
	931.00	27278.62
	930.00	18672.88
	929.00	10721.16
	928.00	5154.06
	927.00	1563.24
	926.00	6.69

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OUTPUT LISTING FOR SECTION 23.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
60.	60.	160.	160.	1.00

ELEVATION	TOTAL KD	END AREA
935.00	568976.1	9587.56
934.00	480072.9	8370.56
933.00	402373.4	7172.38
932.00	332567.1	6031.75
931.00	268677.8	4938.08
930.00	212839.5	3886.63
929.00	166286.4	2930.03
928.00	126998.9	2083.58
927.00	95097.7	1302.83
926.00	74142.1	725.04
925.00	61266.9	564.13
924.00	51368.0	471.61
923.00	43063.7	412.41
922.00	35646.1	357.87
921.00	29071.8	307.13
920.00	23300.1	260.18
919.00	18289.7	217.02
918.00	13997.7	177.65
917.00	10380.3	142.07
916.00	7338.8	110.19
915.00	4836.9	81.62
914.00	2866.4	56.35
913.00	1410.0	34.37
912.00	458.3	16.00
911.00	30.2	2.45

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	3.66	921.49	1340.00	3.80	921.88	1640.00	4.09	922.77

INFORMATION LISTING FOR BRIDGE SECTION 24

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	919.40	144.45	2078.41
	918.40	121.95	1612.94
	917.40	99.45	1188.73
	916.40	76.95	810.31
	915.40	54.45	484.15
	914.40	31.95	220.79
	913.40	10.21	45.38
	912.40	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	932.00	28692.34
	931.00	23943.33
	930.00	19489.76
	929.00	15352.74
	928.00	11558.64
	927.00	8009.22
	926.00	4847.29
	925.00	978.12
	924.00	47.97

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 24.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
132.	132.	390.	390.	1.00

ELEVATION	TOTAL KD	END AREA
932.00	436354.0	3919.77
931.00	359903.0	3413.27
930.00	290246.5	2906.77
929.00	227872.8	2400.27
928.00	173421.5	1893.77
927.00	128199.6	1391.40
926.00	93470.6	903.90
925.00	72628.9	619.78
924.00	57097.7	474.87
923.00	48128.4	395.91
922.00	38545.8	335.98
921.00	30189.6	280.61
920.00	23209.9	230.11
919.00	17132.7	184.33
918.00	12071.7	142.97
917.00	8415.8	107.02
916.00	5448.3	77.20
915.00	3089.1	51.46
914.00	1432.9	29.75
913.00	460.8	13.22
912.00	29.3	2.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.56	924.00	1340.00	2.68	924.17	1640.00	2.91	924.59

OUTPUT LISTING FOR SECTION 24.5

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
390.	390.	810.	810.	1.00

ELEVATION	TOTAL KD	END AREA
943.00	1996080.7	17000.50
942.00	1776139.7	15568.99
941.00	1574586.0	14138.99
940.00	1395583.7	12854.99
939.00	1229638.0	11790.99
938.00	1072395.2	10726.99
937.00	924186.5	9662.99
936.00	785387.8	8598.99
935.00	656434.8	7534.99
934.00	537840.6	6470.99
933.00	435812.5	5426.51
932.00	343133.1	4415.97
931.00	279860.5	3511.16
930.00	220186.2	2766.16
929.00	171026.1	2133.08
928.00	129144.3	1616.55
927.00	93509.2	1158.60
926.00	71255.9	862.78
925.00	58792.5	623.27
924.00	49653.4	453.97
923.00	37193.1	363.20
922.00	28752.5	294.76
921.00	22046.6	236.02
920.00	16775.7	186.90
919.00	12375.9	145.72
918.00	10296.2	114.45
917.00	7256.4	89.22
916.00	4717.4	65.98
915.00	2676.9	44.73
914.00	1232.4	26.05
913.00	367.0	11.13
912.00	1.5	0.30

OUTPUT LISTING FOR SECTION 24.5 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.47	924.22	1340.00	2.54	924.42	1640.00	2.67	924.93

OUTPUT LISTING FOR SECTION 24.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
810.	810.	50.	50.	1.00

ELEVATION	TOTAL KD	END AREA
938.00	1275866.5	12393.30
937.00	1094220.0	11139.30
936.00	924606.1	9885.30
935.00	767558.6	8631.30
934.00	623715.6	7377.30
933.00	493869.5	6123.30
932.00	380435.0	4875.88
931.00	284077.0	3674.51
930.00	204893.7	2534.30
929.00	146800.4	1694.50
928.00	102171.0	1231.63
927.00	66528.3	878.94
926.00	46918.7	607.75
925.00	36083.8	429.81
924.00	29041.7	329.37
923.00	22832.7	255.54
922.00	19967.4	202.69
921.00	16097.5	165.40
920.00	11999.9	132.45
919.00	8436.1	102.69
918.00	5516.8	75.84
917.00	3212.3	51.89
916.00	1582.0	31.24
915.00	609.6	15.41
914.00	75.6	3.81

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.73	925.08	1340.00	2.73	925.33	1640.00	2.73	925.94

INFORMATION LISTING FOR BRIDGE SECTION 25

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	923.90	318.59	5378.39
	922.90	282.59	4493.58
	921.90	246.59	3663.51
	920.90	210.59	2892.08
	919.90	174.59	2184.15
	918.90	138.59	1546.06
	917.90	102.59	986.55
	916.90	66.59	518.94
	915.90	30.59	167.93
	914.90	2.11	4.33

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	932.00	35608.14
	931.00	26064.94
	930.00	16501.86
	929.00	9391.67
	928.00	4273.17
	927.00	1104.27
	926.00	5.67

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OUTPUT LISTING FOR SECTION 25.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
80.	80.	740.	740.	1.00

ELEVATION	TOTAL KD	END AREA
938.00	1303360.0	12663.82
937.00	1078499.2	11169.66
936.00	884831.6	9704.32
935.00	712556.7	8298.06
934.00	577417.0	6964.84
933.00	453483.1	5742.81
932.00	350264.0	4632.90
931.00	269299.8	3637.57
930.00	198814.0	2759.24
929.00	142696.3	1986.32
928.00	100720.1	1321.99
927.00	72362.5	881.72
926.00	51884.6	596.75
925.00	37206.7	452.38
924.00	31162.0	369.38
923.00	27616.9	306.30
922.00	21810.6	255.38
921.00	16737.0	209.45
920.00	12170.3	167.34
919.00	8455.4	127.99
918.00	5290.8	93.04
917.00	2797.3	60.89
916.00	1073.3	32.03
915.00	171.8	9.27

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	2.17	925.76	1340.00	2.22	926.02	1640.00	2.26	926.44

OUTPUT LISTING FOR SECTION 25.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
740.	740.	120.	120.	1.00

ELEVATION	TOTAL KD	END AREA
936.00	1617771.5	14609.60
935.00	1324109.7	12805.61
934.00	1055872.5	11001.61
933.00	814540.3	9197.61
932.00	605468.5	7411.32
931.00	426158.1	5682.32
930.00	282708.9	4071.71
929.00	174937.5	2837.24
928.00	92750.0	1702.74
927.00	54705.8	864.53
926.00	35818.9	468.67
925.00	26402.8	287.11
924.00	20884.1	240.34
923.00	16104.4	193.44
922.00	12020.7	160.12
921.00	8594.4	125.37
920.00	5756.6	94.12
919.00	3482.8	66.14
918.00	1731.3	41.25
917.00	532.5	19.12
916.00	13.1	1.61

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.98	926.36	1340.00	1.86	926.62	1640.00	1.76	927.07

INFORMATION LISTING FOR BRIDGE SECTION 26

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	924.80	360.49	6433.27
	923.80	323.49	5479.18
	922.80	286.49	4578.94
	921.80	249.49	3736.10
	920.80	212.49	2955.10
	919.80	175.49	2241.68
	918.80	138.49	1603.85
	917.80	101.49	1054.49
	916.80	67.89	628.15
	915.80	41.16	321.39
	914.80	18.80	111.41
	913.80	3.68	13.26

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	934.00	109701.53
	933.00	91742.06
	932.00	72959.92
	931.00	54642.19
	930.00	37940.67
	929.00	23139.80
	928.00	12788.71
	927.00	5710.06
	926.00	581.65

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 26.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	180.	180.	1.00

ELEVATION	TOTAL KD	END AREA
936.00	1617771.5	14609.60
935.00	1324109.7	12805.61
934.00	1055872.5	11001.61
933.00	814540.3	9197.61
932.00	605468.5	7411.32
931.00	426158.1	5682.32
930.00	282708.9	4071.71
929.00	174937.5	2837.24
928.00	92750.0	1702.74
927.00	54705.8	864.53
926.00	35818.9	468.67
925.00	26402.8	287.11
924.00	20884.1	240.34
923.00	16104.4	198.44
922.00	12020.7	160.12
921.00	8594.4	125.37
920.00	5756.6	94.12
919.00	3482.8	66.14
918.00	1731.3	41.25
917.00	532.5	19.12
916.00	13.1	1.61

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.79	926.52	1340.00	1.72	926.77	1640.00	1.55	927.22

INFORMATION LISTING FOR BRIDGE SECTION 27

OPENING COEF. 0.400 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	922.10	269.45	3488.50
	921.10	209.37	2518.44
	920.10	158.01	1722.90
	919.10	110.80	1071.36
	918.10	68.08	568.31
	917.10	34.82	243.95
	916.10	12.65	60.06
	915.10	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	937.00	77064.21
	936.00	68410.75
	935.00	60107.85
	934.00	52171.03
	933.00	44618.01
	932.00	37469.38
	931.00	30749.46
	930.00	24487.60
	929.00	18720.13
	928.00	13493.74
	927.00	8871.65
	926.00	4946.52
	925.00	1077.73
	924.00	7.44

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 27.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
440.	440.	1.	1.	1.00

ELEVATION	TOTAL KD	END AREA
938.00	1070256.2	11016.19
937.00	919278.6	10011.19
936.00	777743.1	9006.19
935.00	646043.3	8001.19
934.00	524636.2	6996.19
933.00	414063.3	5991.19
932.00	314984.8	4986.19
931.00	228238.1	3981.19
930.00	154953.3	2976.19
929.00	98574.1	1983.85
928.00	62672.1	1141.49
927.00	40802.9	624.26
926.00	28397.6	353.81
925.00	20596.7	259.36
924.00	15597.5	207.83
923.00	11363.9	164.23
922.00	7679.4	124.41
921.00	4941.1	88.88
920.00	2815.7	59.27
919.00	1146.6	32.66
918.00	203.1	10.08

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.68	927.18	1340.00	1.59	927.41	1640.00	1.51	927.88

// PAUSE

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Output - above conduit to North Branch

00BREAK00

OUTPUT LISTING FOR SECTION 38.1

Main Stem
Above Conduit

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1.	1.	360.	360.	1.00

ELEVATION	TOTAL KD	END AREA
940.00	384843.1	4902.54
939.00	314913.0	4219.54
938.00	252015.2	3536.54
937.00	198270.0	2856.36
936.00	154957.7	2218.54
935.00	121441.1	1633.38
934.00	95234.1	1156.27
933.00	76082.4	838.46
932.00	62370.4	652.48
931.00	52274.8	556.28
930.00	43365.7	488.08
929.00	35252.6	422.67
928.00	27929.5	360.05
927.00	21393.9	300.23
926.00	15835.4	243.49
925.00	11313.9	191.24
924.00	8015.4	145.79
923.00	5117.3	105.90
922.00	2851.5	70.65
921.00	1231.7	39.94
920.00	284.7	14.74

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.82	932.09	1340.00	1.80	932.48	1640.00	2.05	932.78

OUTPUT LISTING FOR SECTION 38.4

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
360.	360.	1660.	1600.	1.00

ELEVATION	TOTAL KD	END AREA
940.00	805241.8	11685.34
939.00	644511.7	10098.34
938.00	499612.5	8511.34
937.00	372148.9	6924.58
936.00	267478.5	5365.82
935.00	181637.7	3854.44
934.00	118514.1	2441.94
933.00	78205.6	1332.72
932.00	60428.0	801.23
931.00	47248.9	561.77
930.00	38156.1	443.01
929.00	30960.8	381.02
928.00	24558.7	322.72
927.00	18924.8	268.10
926.00	14035.4	217.17
925.00	9869.4	169.93
924.00	6410.1	126.38
923.00	3679.7	86.65
922.00	1703.1	51.30
921.00	486.5	22.05
920.00	13.8	1.70

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.30	932.24	1340.00	1.17	932.63	1640.00	1.23	932.98

OUTPUT LISTING FOR SECTION 38.8

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1660.	1600.	200.	200.	1.00

ELEVATION	TOTAL KD	END AREA
941.00	384181.3	5052.00
940.00	304809.0	4275.00
939.00	234246.2	3498.00
938.00	174508.3	2729.43
937.00	132342.8	2074.30
936.00	95681.1	1532.15
935.00	66361.1	1073.88
934.00	45634.6	714.48
933.00	38699.2	568.32
932.00	33772.2	466.75
931.00	30947.8	392.54
930.00	26526.9	335.53
929.00	21096.3	284.02
928.00	16292.0	236.06
927.00	12090.8	191.32
926.00	8506.5	149.78
925.00	5996.4	112.56
924.00	3828.8	81.48
923.00	2116.8	54.13
922.00	863.6	29.81
921.00	135.0	8.61

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.88	933.53	1340.00	1.87	933.98	1640.00	1.89	934.41

INFORMATION LISTING FOR BRIDGE SECTION 39

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	932.20	446.00	7984.22
	931.20	401.00	6810.92
	930.20	356.00	5702.01
	929.20	311.00	4661.53
	928.20	266.00	3694.37
	927.20	221.00	2806.75
	926.20	176.00	2006.79
	925.20	131.01	1307.20
	924.20	87.27	738.07
	923.20	47.43	312.35
	922.20	12.53	51.85

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	940.00	68656.65
	939.00	51113.99
	938.00	30340.07
	937.00	11806.09
	936.00	4009.12
	935.00	323.08

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 39.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	740.	740.	1.00

ELEVATION	TOTAL KD	END AREA
941.00	384181.3	5052.00
940.00	304809.0	4275.00
939.00	234246.2	3498.00
938.00	174508.3	2729.43
937.00	132342.8	2074.30
936.00	95681.1	1532.15
935.00	66361.1	1073.88
934.00	45634.6	714.48
933.00	38699.2	568.32
932.00	33772.2	466.75
931.00	30947.8	392.54
930.00	26526.9	335.53
929.00	21096.3	284.02
928.00	16292.0	236.06
927.00	12090.8	191.32
926.00	8506.5	149.78
925.00	5996.4	112.56
924.00	3828.8	81.48
923.00	2116.8	54.13
922.00	863.6	29.81
921.00	135.0	8.61

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.75	933.86	1340.00	1.56	934.39	1640.00	1.60	934.84

OUTPUT LISTING FOR SECTION 39.8

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
740.	740.	150.	150.	1.00

ELEVATION	TOTAL KD	END AREA
941.00	517844.9	5810.27
940.00	445177.8	5246.27
939.00	377506.8	4682.27
938.00	315107.1	4118.27
937.00	258319.7	3554.27
936.00	207591.5	2990.27
935.00	163564.0	2426.27
934.00	128755.5	1899.01
933.00	101778.8	1504.83
932.00	84522.5	1267.82
931.00	66929.6	1085.06
930.00	51305.5	907.11
929.00	37590.4	734.86
928.00	26009.0	568.63
927.00	16546.8	412.20
926.00	9071.2	263.73
925.00	4319.9	131.43
924.00	2093.4	54.08
923.00	866.0	29.56
922.00	152.1	9.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.64	933.97	1340.00	0.62	934.48	1640.00	0.68	934.95

INFORMATION LISTING FOR BRIDGE SECTION 40

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	931.80	532.87	8067.07
	930.80	451.77	6396.34
	929.80	370.67	4882.88
	928.80	290.49	3556.12
	927.80	216.28	2454.13
	926.80	151.21	1579.23
	925.80	94.61	930.90
	924.80	55.82	534.16
	923.80	36.12	280.03
	922.80	16.62	88.77
	921.80	0.39	0.49

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	941.00	69063.54
	940.00	53978.02
	939.00	40185.92
	938.00	27822.42
	937.00	16622.24
	936.00	7589.28
	935.00	1558.42

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 40.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
70.	70.	450.	450.	1.00

ELEVATION	TOTAL KQ	END AREA
941.00	539808.8	5810.27
940.00	462571.9	5246.27
939.00	390752.6	4682.27
938.00	324655.9	4118.27
937.00	264660.8	3554.27
936.00	211264.8	2990.27
935.00	165184.1	2426.27
934.00	129248.7	1899.01
933.00	101825.6	1504.83
932.00	84522.5	1267.82
931.00	66929.6	1085.06
930.00	51305.5	907.11
929.00	37590.4	734.86
928.00	26009.0	568.63
927.00	16546.8	412.20
926.00	9071.2	263.73
925.00	4319.9	131.43
924.00	2093.4	54.08
923.00	866.0	29.56
922.00	152.1	9.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.60	934.19	1340.00	0.61	934.53	1640.00	0.67	935.02

OUTPUT LISTING FOR SECTION 40.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
450.	450.	160.	160.	1.00

ELEVATION	TOTAL KQ	END AREA
940.00	426044.6	5597.04
939.00	341919.1	4574.39
938.00	262976.3	3617.15
937.00	199625.1	2703.34
936.00	151372.2	1894.66
935.00	118809.3	1277.17
934.00	94937.5	891.18
933.00	77067.8	707.28
932.00	65600.9	611.09
931.00	52743.0	520.28
930.00	41105.4	447.98
929.00	30717.0	370.20
928.00	21832.3	295.38
927.00	14320.0	224.15
926.00	8262.9	156.86
925.00	5097.8	102.72
924.00	2186.8	58.83
923.00	399.1	19.95

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.23	934.24	1340.00	1.19	934.58	1640.00	1.23	935.08

INFORMATION LISTING FOR BRIDGE SECTION 41

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	931.20	365.06	5895.85
	930.20	319.96	4838.85
	929.20	274.86	3854.05
	928.20	229.76	2947.20
	927.20	184.66	2125.73
	926.20	139.56	1399.74
	925.20	94.46	784.20
	924.20	49.36	305.37
	923.20	10.00	34.72

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	941.00	98965.43
	940.00	81216.51
	939.00	64677.50
	938.00	49444.26
	937.00	35640.15
	936.00	23432.09
	935.00	10437.08
	934.00	2220.80
	933.00	17.28

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 41.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	1150.	1150.	1.00

ELEVATION	TOTAL KD	END AREA
942.00	808312.1	8715.05
941.00	625804.0	7156.04
940.00	483472.2	5597.04
939.00	392310.0	4574.39
938.00	307099.5	3617.15
937.00	237818.0	2703.34
936.00	184250.2	1894.66
935.00	146814.8	1277.17
934.00	118399.9	891.18
933.00	96324.6	707.28
932.00	82001.2	611.09
931.00	65928.8	528.28
930.00	51381.8	447.98
929.00	38396.2	370.20
928.00	27290.3	295.38
927.00	17900.1	224.15
926.00	10328.6	156.86
925.00	6372.3	102.72
924.00	2733.5	58.83
923.00	498.9	19.95

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.22	934.28	1340.00	1.18	934.61	1640.00	1.21	935.11

OUTPUT LISTING FOR SECTION 41.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1150.	1150.	110.	110.	1.00

ELEVATION	TOTAL KQ	END AREA
942.00	2061865.0	15385.85
941.00	1796447.5	14067.85
940.00	1546346.7	12749.85
939.00	1312149.7	11431.85
938.00	1094539.2	10113.85
937.00	894326.6	8795.85
936.00	712515.6	7477.85
935.00	551065.7	6165.13
934.00	411667.8	4876.43
933.00	300229.2	3749.03
932.00	210272.4	2828.80
931.00	153186.8	2075.29
930.00	106203.4	1483.86
929.00	67436.5	998.73
928.00	40407.0	600.06
927.00	22752.1	331.35
926.00	11620.4	199.20
925.00	4293.5	102.03
924.00	2721.0	56.81
923.00	782.1	23.00
922.00	61.2	3.85

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.23	934.31	1340.00	0.23	934.64	1640.00	0.25	935.15

INFORMATION LISTING FOR BRIDGE SECTION 42

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	931.90	551.79	8811.76
	930.90	475.79	7102.55
	929.90	399.79	5543.48
	928.90	323.62	4163.64
	927.90	253.12	3011.15
	926.90	190.07	2063.32
	925.90	133.65	1290.70
	924.90	84.48	698.71
	923.90	43.15	281.11
	922.90	11.72	49.18

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	941.00	231172.34
	940.00	197704.43
	939.00	164599.25
	938.00	133906.34
	937.00	105703.50
	936.00	79979.21
	935.00	52955.78
	934.00	20982.08
	933.00	9035.75
	932.00	1898.72
	931.00	11.39

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 42.5

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
840.	800.	1310.	1270.	1.00

ELEVATION	TOTAL KD	END AREA
942.00	2659973.5	29282.95
941.00	2296091.0	26701.95
940.00	1955598.7	24120.96
939.00	1639462.7	21539.96
938.00	1348828.2	18958.96
937.00	1085096.5	16377.96
936.00	850058.1	13796.96
935.00	661064.6	11232.74
934.00	501361.8	8949.51
933.00	377544.5	6993.04
932.00	297148.6	5508.71
931.00	242419.0	4584.57
930.00	181101.8	3747.60
929.00	127683.7	2960.86
928.00	81395.9	2209.12
927.00	44344.3	1487.12
926.00	19294.2	805.10
925.00	6170.9	272.51
924.00	2180.3	72.96
923.00	467.2	15.55
922.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.12	934.32	1340.00	0.12	934.66	1640.00	0.14	935.17

OUTPUT LISTING FOR SECTION 42.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1310.	1270.	140.	140.	1.00

ELEVATION	TOTAL KQ	END AREA
943.00	1799421.7	23847.71
942.00	1534020.2	21669.71
941.00	1287060.0	19491.71
940.00	1059390.2	17313.71
939.00	852045.2	15135.71
938.00	667892.1	12958.71
937.00	522932.3	10915.71
936.00	393924.8	9044.36
935.00	294692.1	7373.62
934.00	208702.4	5933.14
933.00	141617.4	4604.41
932.00	94990.5	3438.15
931.00	65509.3	2507.73
930.00	45648.7	1819.02
929.00	26888.9	1282.80
928.00	12868.1	813.56
927.00	4357.8	420.53
926.00	873.5	153.27
925.00	307.6	65.69
924.00	77.6	26.13
923.00	0.1	0.23

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.18	934.36	1340.00	0.19	934.69	1640.00	0.21	935.19

INFORMATION LISTING FOR BRIDGE SECTION 43

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	932.30	363.59	5873.30
	931.30	318.59	4820.12
	930.30	273.59	3839.15
	929.30	228.59	2936.22
	928.30	183.59	2118.85
	927.30	138.59	1397.37
	926.30	93.59	787.35
	925.30	48.64	318.18
	924.30	13.13	59.38
	923.30	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	942.00	153584.28
	941.00	129983.96
	940.00	107734.14
	939.00	86922.32
	938.00	66085.67
	937.00	43681.14
	936.00	26179.20
	935.00	11535.22
	934.00	3037.39
	933.00	270.37

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 43.1

* DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	1980.	1920.	1.00

ELEVATION	TOTAL KQ	END AREA
943.00	1589393.0	19589.62
942.00	1339725.0	17581.63
941.00	1110879.5	15574.46
940.00	921661.8	13605.68
939.00	769604.5	11742.09
938.00	638914.6	10006.23
937.00	496254.3	8352.17
936.00	372037.2	6749.54
935.00	273173.8	5259.66
934.00	206462.7	4092.47
933.00	155684.8	3120.26
932.00	115011.4	2366.67
931.00	79896.9	1751.73
930.00	51166.6	1228.80
929.00	29410.9	785.13
928.00	17751.9	469.46
927.00	9941.0	271.24
926.00	4899.7	131.07
925.00	2118.5	66.60
924.00	560.9	26.71
923.00	16.8	2.15

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.26	934.39	1340.00	0.27	934.72	1640.00	0.29	935.22

OUTPUT LISTING FOR SECTION 43.4

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1980.	1920.	2540.	2200.	1.00

ELEVATION	TOTAL KD	END AREA
944.00	1759786.5	20854.97
943.00	1533464.2	19019.97
942.00	1324476.0	17188.37
941.00	1130610.5	15382.37
940.00	952728.0	13599.20
939.00	791039.8	11850.48
938.00	646815.5	10143.82
937.00	523530.5	8587.77
936.00	415751.6	7231.79
935.00	322180.2	6112.82
934.00	238069.9	5025.52
933.00	165225.5	3956.62
932.00	131782.0	3070.04
931.00	94456.8	2372.14
930.00	60274.6	1739.45
929.00	34391.0	1151.67
928.00	16547.2	621.04
927.00	6001.5	222.16
926.00	2609.7	77.41
925.00	744.3	33.10
924.00	21.8	2.79

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.22	934.43	1340.00	0.22	934.76	1640.00	0.25	935.27

OUTPUT LISTING FOR SECTION 43.7

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2540.	2200.	1320.	1260.	1.00

ELEVATION	TOTAL KD	END AREA
944.00	2428106.0	28533.92
943.00	2127711.0	26257.93
942.00	1844204.5	23981.93
941.00	1578211.5	21705.94
940.00	1330500.0	19429.99
939.00	1102071.2	17155.81
938.00	900682.3	14942.32
937.00	721944.5	12823.81
936.00	566464.0	10821.58
935.00	429512.8	8913.91
934.00	314938.0	7162.52
933.00	222607.2	5605.32
932.00	145729.2	4198.77
931.00	82609.3	2834.40
930.00	40357.6	1625.12
929.00	19151.3	811.75
928.00	5721.7	222.24
927.00	2772.9	77.27
926.00	1180.8	40.85
925.00	240.3	13.48

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.15	934.46	1340.00	0.15	934.79	1640.00	0.17	935.29

OUTPUT LISTING FOR SECTION 43.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1320.	1260.	270.	270.	1.00

ELEVATION	TOTAL KD	END AREA
946.00	1495225.5	19155.72
945.00	1280574.0	17360.72
944.00	1079853.5	15565.72
943.00	896485.5	13772.85
942.00	732220.5	12001.78
941.00	583135.7	10257.32
940.00	458580.8	8547.93
939.00	360353.1	6960.51
938.00	295727.9	5524.33
937.00	247249.5	4315.38
936.00	195576.5	3332.32
935.00	154895.0	2679.23
934.00	117781.4	2149.24
933.00	85540.7	1669.49
932.00	59502.1	1260.95
931.00	38302.8	928.38
930.00	22082.9	612.28
929.00	10602.2	304.87
928.00	4976.5	127.88
927.00	1766.2	66.30
926.00	107.3	11.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	0.49	934.56	1340.00	0.51	934.90	1640.00	0.55	935.41

UPPER GRAND FLOOD HAZARD ANALYSIS-JACKSON MICHIGAN

INFORMATION LISTING FOR BRIDGE SECTION 44

OPENING COEF. 0.850 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	936.30	928.12	15683.70
	935.30	817.12	13071.12
	934.30	706.12	10643.27
	933.30	597.20	8494.77
	932.30	496.31	6595.87
	931.30	401.49	4927.98
	930.30	312.23	3474.77
	929.30	228.51	2240.38
	928.30	150.34	1234.09
	927.30	77.72	477.23
	926.30	13.72	42.68

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	942.00	49298.72
	941.00	33032.29
	940.00	19763.98
	939.00	9061.74
	938.00	3513.73
	937.00	538.02

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 44.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
75.	75.	35.	35.	1.00

ELEVATION	TOTAL KQ	END AREA
950.00	1447628.2	13649.83
949.00	1264005.5	12179.00
948.00	1094474.0	10766.50
947.00	938903.1	9412.33
946.00	797196.0	8116.50
945.00	669303.6	6879.00
944.00	555252.0	5699.83
943.00	455194.2	4579.00
942.00	369526.1	3516.50
941.00	301362.9	2564.82
940.00	247532.6	1853.15
939.00	219290.5	1450.54
938.00	187491.8	1195.32
937.00	158184.7	1049.33
936.00	131317.7	914.10
935.00	106837.5	789.65
934.00	84684.5	675.98
933.00	67072.5	572.51
932.00	51214.1	476.26
931.00	37035.5	384.34
930.00	24912.5	296.67
929.00	14910.5	213.25
928.00	7155.1	134.08
927.00	1922.7	59.20
926.00	23.9	2.79

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.64	934.55	1340.00	1.72	934.88	1640.00	1.95	935.39

OUTPUT LISTING FOR SECTION 44.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
35.	35.	40.	40.	1.00

ELEVATION	TOTAL KQ	END AREA
950.00	1447628.2	13649.83
949.00	1264005.5	12179.00
948.00	1094474.0	10766.50
947.00	938903.1	9412.33
946.00	797196.0	8116.50
945.00	669303.6	6879.00
944.00	555252.0	5699.83
943.00	455194.2	4579.00
942.00	369526.1	3516.50
941.00	301362.9	2564.82
940.00	247532.6	1853.15
939.00	219290.5	1450.54
938.00	187491.8	1195.32
937.00	158184.7	1049.33
936.00	131317.7	914.10
935.00	106837.5	789.65
934.00	84684.5	675.98
933.00	67072.5	572.51
932.00	51214.1	476.26
931.00	37035.5	384.34
930.00	24912.5	296.67
929.00	14910.5	213.25
928.00	7155.1	134.08
927.00	1922.7	59.20
926.00	23.9	2.79

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.64	934.56	1340.00	1.72	934.90	1640.00	1.95	935.39

INFORMATION LISTING FOR BRIDGE SECTION 44.2

OPENING COEF. 0.850 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	935.40	869.61	14335.94
	934.40	759.61	11829.88
	933.40	649.61	9517.02
	932.40	542.51	7444.86
	931.40	443.08	5620.49
	930.40	348.84	4022.69
	929.40	259.65	2654.72
	928.40	174.77	1532.81
	927.40	98.72	699.01
	926.40	34.84	167.50
	925.40	1.64	3.62

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	947.00	113262.01
	946.00	86554.37
	945.00	61098.60
	944.00	38378.90
	943.00	21397.30
	942.00	8709.98
	941.00	2003.11
	940.00	20.29

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 44.3

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
40.	40.	300.	300.	1.00

ELEVATION	TOTAL KD	END AREA
950.00	2008666.7	18199.84
949.00	1770342.7	16699.84
948.00	1545079.2	15199.84
947.00	1333352.5	13699.84
946.00	1135711.2	12199.84
945.00	952800.1	10699.84
944.00	785400.0	9199.84
943.00	634496.5	7699.84
942.00	501424.2	6199.84
941.00	390389.5	4752.33
940.00	299549.0	3486.49
939.00	241911.9	2471.39
938.00	190217.7	1545.34
937.00	158112.3	1092.19
936.00	131317.7	914.10
935.00	106837.5	789.65
934.00	84684.5	675.98
933.00	67072.5	572.51
932.00	51214.1	476.26
931.00	37035.5	384.34
930.00	24912.5	296.67
929.00	14910.5	213.25
928.00	7155.1	134.08
927.00	1922.7	59.20
926.00	23.9	2.79

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1220.00	1.64	934.58	1340.00	1.72	934.89	1640.00	1.91	935.55

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Output - above North Branch

00BREAK00

OUTPUT LISTING FOR SECTION 44.3

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1.	1.	300.	300.	1.00

Main Stem
Above North Branch

ELEVATION	TOTAL KQ	END AREA
950.00	2008666.7	18199.84
949.00	1770342.7	16699.84
948.00	1545079.2	15199.84
947.00	1333352.5	13699.84
946.00	1135711.2	12199.84
945.00	952800.1	10699.84
944.00	785400.0	9199.84
943.00	634496.5	7699.84
942.00	501424.2	6199.84
941.00	390389.5	4752.33
940.00	299549.0	3486.49
939.00	241911.9	2471.39
938.00	190217.7	1545.34
937.00	158112.3	1092.19
936.00	131317.7	914.10
935.00	106837.5	789.65
934.00	84684.5	675.98
933.00	67072.5	572.51
932.00	51214.1	476.26
931.00	37035.5	384.34
930.00	24912.5	296.67
929.00	14910.5	213.25
928.00	7155.1	134.08
927.00	1922.7	59.20
926.00	23.9	2.79

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.82	934.58	670.00	0.86	934.89	820.00	0.95	935.55

OUTPUT LISTING FOR SECTION 45.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
300.	300.	2280.	2240.	1.00

ELEVATION	TOTAL KD	END AREA
945.00	955946.2	9372.43
944.00	850770.7	8698.43
943.00	750580.6	8024.43
942.00	655556.6	7350.43
941.00	565904.7	6676.43
940.00	486646.3	6015.50
939.00	412398.8	5376.92
938.00	345526.3	4752.41
937.00	289909.6	4160.59
936.00	235791.6	3596.07
935.00	197372.9	3073.20
934.00	153700.5	2596.57
933.00	113649.2	2130.17
932.00	78849.7	1671.25
931.00	49892.8	1221.60
930.00	27294.3	777.59
929.00	11597.8	338.29
928.00	4962.3	89.96
927.00	1839.0	44.75
926.00	125.8	8.60

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.21	934.59	670.00	0.22	934.90	820.00	0.24	935.56

OUTPUT LISTING FOR SECTION 45.5

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2280.	2240.	3560.	2800.	1.00

ELEVATION	TOTAL KD	END AREA
954.00	3249270.0	30447.68
953.00	2941619.0	28503.69
952.00	2665498.0	26727.19
951.00	2414874.0	24909.02
950.00	2177051.0	23132.52
949.00	1955735.5	21400.09
948.00	1747929.5	19716.69
947.00	1553424.7	18083.07
946.00	1371539.5	16500.40
945.00	1267843.0	15039.32
944.00	1125417.2	13674.52
943.00	994080.0	12380.78
942.00	878218.7	11161.74
941.00	773980.5	10022.71
940.00	666415.3	8954.11
939.00	560858.3	7927.58
938.00	464334.5	6942.85
937.00	376762.7	5999.92
936.00	307C04.5	5113.47
935.00	244103.4	4335.41
934.00	180813.0	3574.84
933.00	125409.2	2821.48
932.00	78778.7	2076.51
931.00	41691.7	1340.05
930.00	16711.3	636.18
929.00	4641.4	147.42
928.00	758.9	30.35
927.00	122.9	5.46

OUTPUT LISTING FOR SECTION 45.5 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.15	934.61	670.00	0.15	934.91	820.00	0.17	935.58

OUTPUT LISTING FOR SECTION 45.8

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3560.	2800.	1085.	900.	1.00

ELEVATION	TOTAL KD	END AREA
948.00	1056122.5	8853.59
947.00	889122.5	7979.59
946.00	737499.3	7105.59
945.00	603431.5	6232.51
944.00	488934.3	5368.93
943.00	400858.0	4570.78
942.00	331537.7	3933.17
941.00	273932.6	3388.66
940.00	225324.6	2940.81
939.00	181841.8	2530.77
938.00	146782.7	2164.54
937.00	114661.9	1828.65
936.00	86374.6	1507.51
935.00	61935.8	1201.11
934.00	41204.6	907.94
933.00	24243.6	621.80
932.00	11553.8	342.01
931.00	4344.9	96.88
930.00	1516.2	37.76
929.00	189.4	9.21

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.52	934.90	670.00	0.53	935.19	820.00	0.55	935.85

OUTPUT LISTING FOR SECTION 45.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1085.	900.	100.	100.	1.00

ELEVATION	TOTAL KQ	END AREA
948.00	1056122.5	8853.59
947.00	889122.5	7979.59
946.00	737499.3	7105.59
945.00	603431.5	6232.51
944.00	488934.3	5368.93
943.00	400858.0	4570.78
942.00	331537.7	3933.17
941.00	273932.6	3388.66
940.00	225324.6	2940.81
939.00	181841.8	2530.77
938.00	146782.7	2164.54
937.00	114661.9	1828.65
936.00	86374.6	1507.51
935.00	61935.8	1201.11
934.00	41204.6	907.94
933.00	24243.6	621.80
932.00	11553.8	342.01
931.00	4344.9	96.88
930.00	1516.2	37.76
929.00	189.4	9.21

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.50	934.98	670.00	0.51	935.28	820.00	0.54	935.94

INFORMATION LISTING FOR BRIDGE SECTION 46

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	938.00	307.77	4913.56
	937.00	268.27	4009.15
	936.00	228.77	3170.06
	935.00	189.27	2402.08
	934.00	149.77	1713.00
	933.00	110.30	1117.29
	932.00	73.99	658.93
	931.00	43.01	316.60
	930.00	17.35	90.01
	929.00	1.43	3.64

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	948.00	135877.62
	947.00	120027.21
	946.00	104846.03
	945.00	90365.07
	944.00	76620.03
	943.00	63652.56
	942.00	51512.52
	941.00	40260.64
	940.00	26687.28
	939.00	15503.90
	938.00	4939.04
	937.00	1656.50
	936.00	260.84

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 46.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
160.	70.	6015.	3900.	1.00

ELEVATION	TOTAL KD	END AREA
948.00	1332952.2	9288.33
947.00	1168071.0	8590.33
946.00	1012082.2	7892.32
945.00	865361.2	7194.32
944.00	728337.8	6496.33
943.00	601512.7	5798.33
942.00	485483.2	5100.33
941.00	380986.6	4402.33
940.00	292130.8	3709.20
939.00	218050.7	3048.84
938.00	156523.8	2417.39
937.00	110135.7	1835.31
936.00	77048.2	1409.17
935.00	51078.8	1046.85
934.00	31384.0	717.13
933.00	16587.6	416.44
932.00	7314.0	148.81
931.00	3582.8	61.23
930.00	1621.3	34.95
929.00	345.1	12.49
928.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.52	935.30	670.00	0.54	935.51	820.00	0.56	936.09

OUTPUT LISTING FOR SECTION 46.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
6015.	3900.	530.	500.	1.00

ELEVATION	TOTAL KD	END AREA
950.00	989479.6	9696.80
949.00	875521.0	8971.80
948.00	767211.6	8246.80
947.00	664758.7	7521.80
946.00	572041.5	6802.13
945.00	495650.0	6104.37
944.00	425371.0	5440.30
943.00	356864.7	4804.72
942.00	294296.5	4194.67
941.00	237615.3	3610.15
940.00	186095.5	3050.22
939.00	141084.7	2516.22
938.00	101614.3	2010.08
937.00	67800.0	1522.98
936.00	40274.0	1053.98
935.00	19605.4	603.67
934.00	7474.9	201.71
933.00	3977.0	62.03
932.00	2042.5	38.60
931.00	715.8	19.02
930.00	47.7	3.15

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.55	936.09	670.00	0.56	936.27	820.00	0.57	936.77

INFORMATION LISTING FOR BRIDGE SECTION 47

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	937.20	257.05	3259.07
	936.20	205.35	2330.26
	935.20	153.65	1512.70
	934.20	101.95	824.61
	933.20	50.25	299.03
	932.20	8.41	31.08

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	950.00	56499.04
	949.00	46118.41
	948.00	36465.25
	947.00	26028.21
	946.00	16541.39
	945.00	9014.34
	944.00	3843.00
	943.00	839.57

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 47.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	1100.	960.	1.00

ELEVATION	TOTAL KD	END AREA
950.00	965649.0	9696.80
949.00	852974.7	8971.80
948.00	745979.2	8246.80
947.00	644875.3	7521.80
946.00	554003.6	6802.13
945.00	478558.6	6104.37
944.00	409639.2	5440.30
943.00	342949.1	4804.72
942.00	282209.6	4194.67
941.00	227347.2	3610.15
940.00	177680.7	3050.22
939.00	134600.4	2516.22
938.00	96892.3	2010.08
937.00	64626.9	1522.98
936.00	38432.9	1053.98
935.00	18825.5	603.67
934.00	7376.7	201.71
933.00	3977.0	62.03
932.00	2042.5	38.60
931.00	715.8	19.02
930.00	47.7	3.15

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.49	936.38	670.00	0.50	936.59	820.00	0.51	937.15

INFORMATION LISTING FOR BRIDGE SECTION 48

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	937.20	158.19	1999.56
	936.20	126.19	1426.46
	935.20	94.19	922.46
	934.20	62.19	499.02
	933.20	30.39	178.26
	932.20	4.06	12.75

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	950.00	110922.84
	949.00	95602.56
	948.00	81060.85
	947.00	67341.81
	946.00	54498.14
	945.00	42594.10
	944.00	31527.28
	943.00	21086.60
	942.00	12032.74
	941.00	4568.45
	940.00	520.29

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 48.2

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
720.	600.	3020.	2200.	1.00

ELEVATION	TOTAL KD	END AREA
951.00	2029403.0	20595.20
950.00	1803559.7	19115.20
949.00	1590410.2	17635.37
948.00	1392769.2	16161.18
947.00	1212787.0	14703.96
946.00	1046820.3	13279.68
945.00	897055.3	11893.53
944.00	775358.8	10587.37
943.00	669111.6	9395.39
942.00	549895.6	8254.99
941.00	440796.0	7133.62
940.00	342127.5	6031.29
939.00	254295.7	4947.99
938.00	177839.5	3883.73
937.00	113512.0	2838.50
936.00	63330.1	1821.26
935.00	28226.0	862.15
934.00	11418.7	199.13
933.00	4288.6	98.51
932.00	587.0	27.80
931.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.21	937.05	670.00	0.21	937.32	820.00	0.20	938.02

OUTPUT LISTING FOR SECTION 48.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3020.	2200.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
953.00	3556666.0	36540.75
952.00	3189974.5	34151.76
951.00	2844274.5	31773.19
950.00	2515128.0	29407.32
949.00	2209287.0	27056.49
948.00	1926778.0	24734.76
947.00	1661364.2	22444.48
946.00	1413553.0	20185.69
945.00	1185230.2	17962.97
944.00	976007.5	15780.41
943.00	785654.6	13640.87
942.00	614261.1	11544.50
941.00	463830.0	9497.91
940.00	334698.4	7520.59
939.00	228447.3	5627.50
938.00	149648.9	4059.01
937.00	88821.8	2814.71
936.00	45309.4	1730.97
935.00	16500.3	792.42
934.00	4286.1	181.77
933.00	957.2	29.90
932.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.20	937.13	670.00	0.20	937.39	820.00	0.19	938.08

INFORMATION LISTING FOR BRIDGE SECTION 49

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.700

OPENING	ELEVATION	END AREA	Q CONTROL
	939.50	255.42	3780.34
	938.50	219.08	2929.65
	937.50	179.54	2169.69
	936.50	139.54	1492.08
	935.50	99.54	907.01
	934.50	59.54	433.54
	933.50	22.33	117.46
	932.50	2.36	7.18

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	953.00	43283.75
	952.00	35028.51
	951.00	27377.24
	950.00	20382.00
	949.00	14111.32
	948.00	6235.37
	947.00	1923.83
	946.00	260.27

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 48.9 (used as 49.5)

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
90.	90.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
953.00	3583536.0	36565.75
952.00	3215144.0	34176.76
951.00	2867783.5	31798.19
950.00	2537016.0	29432.32
949.00	2229595.0	27081.49
948.00	1945547.0	24759.76
947.00	1678635.2	22469.48
946.00	1429367.5	20210.69
945.00	1199629.7	17987.97
944.00	989034.0	15805.41
943.00	797350.1	13665.87
942.00	624667.2	11569.50
941.00	472988.1	9522.91
940.00	342649.0	7545.59
939.00	235107.1	5652.49
938.00	154085.3	4082.62
937.00	91349.0	2834.63
936.00	46303.8	1744.91
935.00	16388.3	798.07
934.00	4261.4	182.22
933.00	957.2	29.90
932.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.16	937.71	670.00	0.16	938.02	820.00	0.15	938.79

INFORMATION LISTING FOR BRIDGE SECTION 50

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	939.20	280.95	3981.48
	938.20	235.45	3061.63
	937.20	189.95	2227.79
	936.20	144.45	1490.34
	935.20	98.95	865.10
	934.20	54.64	388.87
	933.20	20.18	102.50
	932.20	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	955.00	292202.87
	954.00	263662.31
	953.00	236116.46
	952.00	209603.18
	951.00	184164.00
	950.00	159846.50
	949.00	136704.71
	948.00	114802.14
	947.00	93609.92
	946.00	72945.82
	945.00	54289.69
	944.00	38049.10
	943.00	22142.30
	942.00	7978.98
	941.00	2098.53
	940.00	24.43

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 50.3

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1660.	1640.	2960.	2900.	1.00

ELEVATION	TOTAL KD	END AREA
989.00	43095432.0	209751.93
988.00	41700864.0	205523.09
987.00	40350368.1	201302.34
986.00	39018328.1	197090.84
985.00	37704824.0	192888.62
984.00	36409952.1	188695.68
983.00	35132880.0	184511.96
982.00	33866288.1	180336.43
981.00	32618720.0	176168.40
980.00	31390296.0	172007.81
979.00	30181148.0	167854.65
978.00	28991412.0	163709.00
977.00	27821212.0	159570.78
976.00	26667940.0	155439.90
975.00	25530432.0	151315.09
974.00	24413C0C.0	147196.03
973.00	23315824.0	143082.71
972.00	22239072.0	138975.15
971.00	21182940.0	134873.34
970.00	20147608.0	130777.29
969.00	19133276.0	126687.01
968.00	18140156.0	122602.48
967.00	17168460.0	118523.70
966.00	16218414.0	114450.68
965.00	15290260.0	110383.43
964.00	14384238.0	106321.92
963.00	13500620.0	102266.17
962.00	12709748.0	98224.82
961.00	11920456.0	94233.48
960.00	11114260.0	90253.48
959.00	10329622.0	86281.70
958.00	9565C04.0	82316.06
957.00	8951910.0	78376.68
956.00	8291344.0	74528.39
955.00	7613756.0	70699.09

OUTPUT LISTING FOR SECTION 50.3 CONTINUED.

ELEVATION	TOTAL KD	END AREA
954.00	6958169.0	66880.51
953.00	6326869.0	63072.57
952.00	5720275.0	59275.28
951.00	5138840.0	55488.65
950.00	4583056.0	51712.64
949.00	4053475.0	47947.29
948.00	3550698.0	44192.58
947.00	3075400.0	40448.52
946.00	2628340.0	36715.10
945.00	2210163.0	32992.14
944.00	1822076.0	29279.33
943.00	1465271.2	25576.69
942.00	1141148.2	21884.22
941.00	851424.1	18201.91
940.00	598706.3	14530.48
939.00	386180.7	10873.51
938.00	227858.0	7374.48
937.00	117273.5	4456.92
936.00	45221.3	2134.31
935.00	10280.4	503.19
934.00	3077.5	90.87
933.00	691.7	20.98
932.00	42.3	2.90

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.08	937.96	670.00	0.07	938.29	820.00	0.07	939.09

OUTPUT LISTING FOR SECTION 50.6

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2960.	2900.	3360.	2460.	1.00

ELEVATION	TOTAL KD	END AREA
961.00	5971339.0	51196.14
960.00	5557599.0	48952.21
959.00	5165225.0	46720.41
958.00	4796176.0	44508.02
957.00	4439444.0	42318.28
956.00	4095072.5	40151.21
955.00	3763113.0	38006.78
954.00	3443625.0	35885.02
953.00	3134029.5	33785.32
952.00	2836456.0	31705.00
951.00	2552205.5	29645.25
950.00	2280919.0	27606.14
949.00	2022748.5	25587.65
948.00	1777869.7	23589.78
947.00	1546478.7	21612.55
946.00	1328796.5	19655.90
945.00	1125118.5	17719.83
944.00	935769.2	15804.33
943.00	761135.8	13909.42
942.00	601685.7	12035.07
941.00	457994.8	10181.31
940.00	330791.3	8348.11
939.00	221029.7	6535.49
938.00	133547.3	4769.46
937.00	65599.0	3079.25
936.00	19060.8	1465.17
935.00	1414.0	212.10
934.00	173.7	42.19
933.00	21.7	10.80

OUTPUT LISTING FOR SECTION 50.6 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.12	938.02	670.00	0.12	938.33	820.00	0.12	939.13

OUTPUT LISTING FOR SECTION 50.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3360.	2460.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
955.00	1134625.2	10745.03
954.00	1027823.3	10105.03
953.00	925125.7	9465.03
952.00	826652.5	8825.03
951.00	732535.0	8185.03
950.00	642916.5	7545.03
949.00	557956.0	6905.03
948.00	477830.9	6265.03
947.00	402741.8	5625.03
946.00	332919.0	4985.03
945.00	268633.0	4345.03
944.00	210210.4	3705.03
943.00	158066.3	3065.03
942.00	113042.4	2425.03
941.00	77758.9	1887.42
940.00	46785.5	1362.24
939.00	22608.5	839.24
938.00	6550.9	318.50
937.00	1475.7	37.07
936.00	326.6	11.78
935.00	2.5	0.32

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.64	939.20	670.00	0.63	939.39	820.00	0.61	939.93

INFORMATION LISTING FOR BRIDGE SECTION 51

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	939.30	91.66	1012.56
	938.30	67.68	595.23
	937.30	39.48	265.56
	936.30	11.38	43.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	956.00	288015.56
	955.00	257500.78
	954.00	228146.68
	953.00	200001.78
	952.00	173120.03
	951.00	147563.65
	950.00	122108.64
	949.00	97176.37
	948.00	73830.53
	947.00	51392.17
	946.00	32454.72
	945.00	17640.39
	944.00	7014.82
	943.00	1132.92

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 51.2

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
280.	280.	3460.	1820.	1.00

ELEVATION	TOTAL KD	END AREA
955.00	4270929.0	42826.60
954.00	3859128.5	40276.60
953.00	3464030.0	37726.61
952.00	3086032.0	35176.61
951.00	2725572.0	32626.62
950.00	2383129.0	30076.62
949.00	2059236.0	27526.62
948.00	1754488.2	24976.62
947.00	1469560.0	22426.63
946.00	1206810.0	19878.17
945.00	966438.8	17337.61
944.00	748332.2	14805.61
943.00	553861.7	12282.23
942.00	391100.3	9776.22
941.00	255510.7	7450.63
940.00	143510.8	5184.32
939.00	60749.7	2978.67
938.00	14215.8	1043.52
937.00	1485.8	42.07
936.00	326.6	11.78
935.00	2.5	0.32

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.07	941.11	670.00	0.07	941.70	820.00	0.07	942.63

OUTPUT LISTING FOR SECTION 51.7

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3460.	1820.	1420.	1320.	1.00

ELEVATION	TOTAL KD	END AREA
956.00	1079036.0	37776.03
955.00	983585.1	35326.09
954.00	891547.5	32886.42
953.00	803106.2	30450.75
952.00	718473.0	28018.70
951.00	637734.7	25590.25
950.00	560966.6	23164.73
949.00	488309.6	20741.65
948.00	419890.4	18321.03
947.00	355853.7	15902.86
946.00	296367.8	13487.14
945.00	241732.5	11081.23
944.00	192517.0	8718.14
943.00	148743.5	6475.52
942.00	111311.4	4524.60
941.00	79149.6	2917.61
940.00	53351.9	1813.82
939.00	37080.3	1008.36
938.00	22388.7	507.50
937.00	11060.2	299.85
936.00	3445.8	142.61
935.00	61.9	10.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.18	941.21	670.00	0.16	941.78	820.00	0.13	942.69

OUTPUT LISTING FOR SECTION 51.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1420.	1320.	120.	120.	1.00

ELEVATION	TOTAL KD	END AREA
958.00	1263896.5	14363.23
957.00	1151333.0	13551.58
956.00	1044472.2	12743.58
955.00	941898.1	11940.03
954.00	843553.6	11140.83
953.00	749602.8	10345.73
952.00	660201.2	9554.71
951.00	575457.3	8767.77
950.00	495493.6	7984.91
949.00	420449.1	7206.14
948.00	350483.3	6431.44
947.00	285781.2	5660.83
946.00	226562.4	4894.30
945.00	173092.7	4131.85
944.00	125944.9	3374.94
943.00	85266.7	2625.71
942.00	51804.6	1886.08
941.00	26478.7	1187.30
940.00	9364.2	550.10
939.00	3759.7	184.32
938.00	1112.2	67.00
937.00	154.9	8.99
936.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.39	941.52	670.00	0.35	942.00	820.00	0.32	942.83

INFORMATION LISTING FOR BRIDGE SECTION 52

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	941.20	73.74	767.37
	940.20	51.74	451.94
	939.20	29.74	198.59
	938.20	8.29	31.96

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	956.00	113056.42
	955.00	100906.75
	954.00	89226.46
	953.00	78035.29
	952.00	67355.54
	951.00	57213.07
	950.00	47637.96
	949.00	38666.09
	948.00	30104.93
	947.00	21517.64
	946.00	14169.31
	945.00	8296.35
	944.00	3581.40
	943.00	503.86

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 52.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	4525.	3920.	1.00

ELEVATION	TOTAL KD	END AREA
956.00	999474.8	10669.17
955.00	886790.7	9896.17
954.00	779489.3	9123.17
953.00	677750.0	8350.17
952.00	581773.0	7577.17
951.00	491783.5	6804.17
950.00	408038.6	6031.17
949.00	330837.6	5258.17
948.00	266176.8	4500.17
947.00	208197.4	3772.17
946.00	156960.9	3074.17
945.00	112448.7	2405.36
944.00	75358.6	1765.29
943.00	47474.0	1188.36
942.00	26834.9	682.68
941.00	14569.3	308.46
940.00	7488.2	164.39
939.00	3259.5	59.88
938.00	1325.7	31.06
937.00	321.2	11.02
936.00	2.3	0.36

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.64	942.51	670.00	0.64	942.71	820.00	0.67	943.06

OUTPUT LISTING FOR SECTION 52.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
4525.	3920.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
960.00	688494.0	4141.46
959.00	608015.5	3817.46
958.00	531531.1	3493.46
957.00	459213.0	3169.46
956.00	391255.8	2845.46
955.00	335913.2	2525.88
954.00	289955.0	2228.33
953.00	245096.6	1949.07
952.00	202979.0	1682.20
951.00	165134.1	1426.96
950.00	133567.6	1204.91
949.00	104408.0	1006.48
948.00	78868.7	820.29
947.00	56901.2	646.34
946.00	38487.9	484.62
945.00	23672.4	335.13
944.00	12654.4	198.00
943.00	6112.0	102.74
942.00	2387.7	54.51
941.00	592.4	19.36
940.00	5.5	0.81

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	1.81	945.00	670.00	1.84	945.18	820.00	1.95	945.56

INFORMATION LISTING FOR BRIDGE SECTION 53

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	948.80	159.74	2445.27
	947.80	137.74	1958.93
	946.80	115.74	1510.13
	945.80	93.74	1102.35
	944.80	71.74	740.27
	943.80	49.74	430.76
	942.80	27.74	185.58
	941.80	8.05	35.80

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	966.00	82410.79
	965.00	73694.64
	964.00	64109.75
	963.00	55232.10
	962.00	45406.35
	961.00	36331.53
	960.00	28436.78
	959.00	22230.47
	958.00	16884.92
	957.00	12359.29
	956.00	8610.94
	955.00	5595.43
	954.00	3253.43
	953.00	1394.77
	952.00	330.76
	951.00	0.00

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 53.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
60.	60.	7330.	5600.	1.00

ELEVATION	TOTAL KD	END AREA
960.00	475532.2	4141.46
959.00	423410.1	3817.46
958.00	373740.3	3493.46
957.00	326622.8	3169.46
956.00	282170.5	2845.46
955.00	244546.8	2525.88
954.00	212157.1	2228.33
953.00	180865.5	1949.07
952.00	151512.6	1682.20
951.00	124890.4	1426.96
950.00	102535.2	1204.91
949.00	81575.7	1006.48
948.00	62954.0	820.29
947.00	46664.7	646.34
946.00	32722.2	484.62
945.00	21178.3	335.13
944.00	12174.5	198.00
943.00	6106.9	102.74
942.00	2387.7	54.51
941.00	592.4	19.36
940.00	5.5	0.81

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.94	946.98	670.00	0.94	947.35	820.00	0.94	948.23

OUTPUT LISTING FOR SECTION 53.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
7330.	5600.	100.	100.	1.00

ELEVATION	TOTAL KD	END AREA
959.00	477897.0	5540.72
958.00	414370.4	5000.72
957.00	354742.6	4460.72
956.00	299198.6	3920.72
955.00	247956.2	3380.72
954.00	201447.3	2841.22
953.00	160140.3	2307.41
952.00	125427.5	1789.83
951.00	95773.2	1329.81
950.00	71989.2	911.54
949.00	54026.0	575.77
948.00	40526.8	374.82
947.00	29863.2	285.69
946.00	23346.8	231.33
945.00	17104.6	185.11
944.00	11849.4	142.51
943.00	7435.8	103.65
942.00	3996.4	68.27
941.00	1657.2	37.18
940.00	397.6	13.41
939.00	5.4	0.65

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	1.38	948.32	670.00	1.31	948.67	820.00	1.10	949.48

INFORMATION LISTING FOR BRIDGE SECTION 54

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	950.60	98.87	3318.83
	949.60	94.07	2389.60
	948.60	80.53	1631.12
	947.60	63.90	996.39
	946.60	44.20	492.78
	945.60	21.78	142.40
	944.60	3.86	13.79

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	960.00	96287.18
	959.00	82988.35
	958.00	70365.34
	957.00	58456.43
	956.00	47307.42
	955.00	36557.35
	954.00	25664.98
	953.00	16645.16
	952.00	9252.51
	951.00	2095.73
	950.00	226.74

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 54.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
60.	60.	7855.	6800.	1.00

ELEVATION	TOTAL KQ	END AREA
959.00	477897.0	5540.72
958.00	414370.4	5000.72
957.00	354742.6	4460.72
956.00	299198.6	3920.72
955.00	247956.2	3380.72
954.00	201447.3	2841.22
953.00	160140.3	2307.41
952.00	125427.5	1789.83
951.00	95773.2	1329.81
950.00	71989.2	911.54
949.00	54026.0	575.77
948.00	40526.8	374.82
947.00	29863.2	285.69
946.00	23346.8	231.33
945.00	17104.6	185.11
944.00	11849.4	142.51
943.00	7435.8	103.65
942.00	3996.4	68.27
941.00	1657.2	37.18
940.00	397.6	13.41
939.00	5.4	0.65

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.78	949.59	670.00	0.79	949.80	820.00	0.86	950.09

OUTPUT LISTING FOR SECTION 54.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
7855.	6800.	100.	100.	1.00

ELEVATION	TOTAL KQ	END AREA
964.00	1524712.0	15260.32
963.00	1368506.2	14288.32
962.00	1218920.7	13316.32
961.00	1076145.0	12344.32
960.00	940386.2	11372.32
959.00	811874.0	10400.32
958.00	690862.5	9428.32
957.00	577638.6	8456.32
956.00	472529.0	7484.32
955.00	375911.3	6512.32
954.00	288232.0	5540.32
953.00	210032.3	4568.33
952.00	141993.3	3596.33
951.00	85620.4	2625.83
950.00	43370.9	1669.96
949.00	16284.7	837.35
948.00	5217.9	251.88
947.00	2005.4	39.02
946.00	885.6	19.96
945.00	179.9	6.84

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.30	950.34	670.00	0.30	950.52	820.00	0.33	950.83

INFORMATION LISTING FOR BRIDGE SECTION 55

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	949.80	71.44	950.67
	948.80	58.44	703.60
	947.80	45.44	482.72
	946.80	32.44	291.62
	945.80	19.44	136.01
	944.80	6.47	27.88

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	960.00	125812.84
	959.00	109627.14
	958.00	94201.98
	957.00	79576.95
	956.00	65798.56
	955.00	52922.33
	954.00	40643.20
	953.00	29421.23
	952.00	19605.64
	951.00	10779.20
	950.00	3760.47
	949.00	281.49

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 55.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	1.	1.	1.00

ELEVATION	TOTAL KD	END AREA
964.00	1524712.0	15260.32
963.00	1368506.2	14288.32
962.00	1218920.7	13316.32
961.00	1076145.0	12344.32
960.00	940386.2	11372.32
959.00	811874.0	10400.32
958.00	690862.5	9428.32
957.00	577638.6	8456.32
956.00	472529.0	7484.32
955.00	375911.3	6512.32
954.00	288232.0	5540.32
953.00	210032.3	4568.33
952.00	141993.3	3596.33
951.00	85620.4	2625.83
950.00	43370.9	1669.96
949.00	16284.7	837.35
948.00	5217.9	251.88
947.00	2005.4	39.02
946.00	885.6	19.96
945.00	179.9	6.84

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
610.00	0.30	950.36	670.00	0.30	950.55	820.00	0.32	950.85

OUTPUT LISTING FOR SECTION 70

North Branch

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
600.	600.	2120.	1800.	21.50

ELEVATION	TOTAL KD	END AREA
946.00	781540.6	7890.93
945.00	687279.6	7197.93
944.00	598230.2	6504.93
943.00	514605.1	5811.93
942.00	436649.0	5118.93
941.00	364649.3	4425.93
940.00	298952.5	3732.93
939.00	245398.2	3055.08
938.00	200345.1	2446.05
937.00	166843.7	1936.97
936.00	137190.0	1563.48
935.00	114643.7	1292.15
934.00	90006.8	1063.93
933.00	68344.7	854.82
932.00	49518.3	664.16
931.00	33538.6	489.64
930.00	20486.7	331.15
929.00	10560.2	192.02
928.00	3868.7	90.09
927.00	950.4	32.01
926.00	4.5	0.64

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.50	934.59	669.94	0.52	934.91	819.79	0.56	935.58

OUTPUT LISTING FOR SECTION 70.3

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2120.	1800.	2680.	2100.	21.50

ELEVATION	TOTAL KD	END AREA
947.00	2175670.0	24482.98
946.00	1893651.5	22316.98
945.00	1628269.2	20150.98
944.00	1382159.7	17986.26
943.00	1156594.7	15840.48
942.00	948071.6	13709.76
941.00	759612.5	11595.44
940.00	598882.1	9518.87
939.00	464906.6	7567.92
938.00	350870.1	5771.29
937.00	264426.1	4189.80
936.00	205547.0	3012.85
935.00	170427.7	2370.63
934.00	124971.7	1828.67
933.00	88395.5	1344.35
932.00	59713.5	951.10
931.00	36686.8	646.97
930.00	20163.0	410.70
929.00	8500.7	199.48
928.00	2031.0	66.83
927.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.28	934.63	669.94	0.28	934.95	819.79	0.29	935.62

OUTPUT LISTING FOR SECTION 70.7

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2680.	2100.	640.	600.	21.50

ELEVATION	TOTAL KD	END AREA
947.00	1320283.5	12038.92
946.00	1167924.7	11125.92
945.00	1023133.6	10212.93
944.00	886166.2	9299.93
943.00	757310.5	8386.93
942.00	636892.7	7473.93
941.00	525288.6	6560.93
940.00	423199.1	5648.14
939.00	331477.6	4738.95
938.00	250150.0	3834.57
937.00	180704.0	2937.40
936.00	124990.3	2080.36
935.00	87687.7	1364.27
934.00	61547.3	885.91
933.00	41475.8	571.58
932.00	25909.5	351.63
931.00	14988.3	224.90
930.00	7772.6	134.37
929.00	3334.0	73.78
928.00	728.6	26.35

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.48	934.75	669.94	0.47	935.07	819.79	0.43	935.73

OUTPUT LISTING FOR SECTION 70.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
640.	600.	190.	190.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	2555482.5	27021.06
949.00	2273881.0	25121.07
948.00	2005661.5	23221.07
947.00	1751578.0	21321.15
946.00	1513150.0	19423.65
945.00	1289403.0	17529.72
944.00	1086167.5	15642.37
943.00	898686.6	13772.71
942.00	732005.5	11928.50
941.00	575524.5	10109.50
940.00	436524.6	8299.75
939.00	316350.5	6498.74
938.00	217199.0	4710.41
937.00	144444.8	3005.11
936.00	98415.4	1845.00
935.00	66589.5	1258.04
934.00	44085.9	821.66
933.00	31582.5	562.79
932.00	19942.4	392.53
931.00	10660.5	242.16
930.00	4419.3	110.57
929.00	1540.0	51.88
928.00	103.5	8.47

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.51	934.81	669.94	0.50	935.13	819.79	0.47	935.78

INFORMATION LISTING FOR BRIDGE SECTION 71

OPENING COEF. 0.650 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	935.00	223.26	6950.65
	934.00	171.71	4429.60
	933.00	153.57	3221.38
	932.00	128.76	2197.68
	931.00	100.44	1343.47
	930.00	68.98	668.31
	929.00	35.58	223.31
	928.00	8.10	29.49

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	950.00	208539.18
	949.00	187051.50
	948.00	166357.28
	947.00	146488.03
	946.00	127479.46
	945.00	109372.87
	944.00	92215.17
	943.00	76062.45
	942.00	57909.52
	941.00	42919.04
	940.00	30074.66
	939.00	19337.21
	938.00	10399.83
	937.00	1410.55
	936.00	28.59

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 71.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	3420.	3000.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	2652722.0	27021.06
949.00	2363535.0	25121.07
948.00	2087978.5	23221.07
947.00	1826810.5	21321.15
946.00	1581555.2	19423.65
945.00	1351243.5	17529.72
944.00	1141711.0	15642.37
943.00	948206.3	13772.71
942.00	775781.3	11928.50
941.00	613843.2	10109.50
940.00	469680.8	8299.75
939.00	344647.3	6498.74
938.00	240949.5	4710.41
937.00	163973.1	3005.11
936.00	114058.6	1845.00
935.00	78700.3	1258.04
934.00	53217.5	821.66
933.00	38113.0	562.79
932.00	24244.8	392.53
931.00	13131.8	242.16
930.00	5524.2	110.57
929.00	1925.0	51.88
928.00	129.4	8.47

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.46	935.10	669.94	0.42	935.52	819.79	0.41	936.11

OUTPUT LISTING FOR SECTION 71.8

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3420.	3000.	250.	250.	21.50

ELEVATION	TOTAL KD	ENC AREA
947.00	829216.0	8986.43
946.00	720159.8	8132.43
945.00	618304.1	7278.44
944.00	524033.0	6424.44
943.00	437831.5	5570.44
942.00	360628.8	4719.24
941.00	294743.9	3906.73
940.00	240974.3	3277.93
939.00	194868.6	2802.15
938.00	154405.8	2375.58
937.00	118818.5	1972.18
936.00	87942.3	1592.57
935.00	62153.9	1242.42
934.00	41123.8	918.46
933.00	24801.6	619.45
932.00	13159.1	351.21
931.00	6182.0	166.75
930.00	2292.9	74.90
929.00	395.9	20.71
928.00	0.5	0.10

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.44	935.35	669.94	0.44	935.74	819.79	0.47	936.35

OUTPUT LISTING FOR SECTION 72

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
250.	250.	400.	400.	21.50

ELEVATION	TOTAL KD	END AREA
949.00	647366.6	5859.07
948.00	578269.6	5439.07
947.00	512269.0	5019.07
946.00	449481.5	4599.07
945.00	390037.8	4179.07
944.00	334085.3	3759.07
943.00	281793.8	3339.07
942.00	233363.0	2919.07
941.00	189036.2	2499.07
940.00	152697.9	2087.45
939.00	123701.6	1749.12
938.00	95633.8	1442.94
937.00	71211.1	1155.05
936.00	50319.5	888.95
935.00	33114.9	645.55
934.00	19672.0	431.91
933.00	9747.1	249.52
932.00	3818.9	111.64
931.00	736.5	29.34
930.00	201.0	7.89
929.00	1.7	0.25

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.81	935.40	669.94	0.79	935.79	819.79	0.82	936.39

OUTPUT LISTING FOR SECTION 72.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
400.	400.	2400.	1900.	21.50

ELEVATION	TOTAL KD	END AREA
946.00	1748378.7	20734.62
945.00	1544511.5	19150.63
944.00	1350979.7	17566.63
943.00	1192871.0	16000.95
942.00	1058512.0	14525.60
941.00	910714.1	13110.67
940.00	764987.2	11700.85
939.00	630988.8	10295.06
938.00	516250.0	8913.32
937.00	407598.0	7566.26
936.00	310620.3	6237.41
935.00	225934.2	4929.57
934.00	155511.9	3657.03
933.00	97838.0	2416.24
932.00	57661.2	1255.23
931.00	35929.7	577.96
930.00	22414.4	270.61
929.00	13316.1	192.08
928.00	6495.8	120.44
927.00	2376.1	58.83
926.00	282.6	14.52

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.11	935.42	669.94	0.11	935.81	819.79	0.12	936.41

OUTPUT LISTING FOR SECTION 72.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2400.	1900.	100.	100.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	1072550.0	11018.84
949.00	942552.5	10153.84
948.00	819383.8	9288.84
947.00	703294.7	8423.84
946.00	594568.2	7558.85
945.00	493529.2	6693.85
944.00	400557.6	5828.85
943.00	316305.1	4964.18
942.00	241692.9	4103.25
941.00	177759.4	3257.25
940.00	129619.5	2474.26
939.00	87105.3	1784.02
938.00	58974.7	1197.59
937.00	35869.7	759.26
936.00	21508.5	400.94
935.00	13077.5	153.53
934.00	8798.6	114.88
933.00	5234.2	81.62
932.00	2432.6	49.88
931.00	547.1	19.67
930.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	1.13	936.37	669.94	1.03	936.67	819.79	0.97	937.18

OUTPUT LISTING FOR SECTION 7295

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	30.	30.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	1047520.8	10882.69
949.00	917836.1	10017.69
948.00	795057.7	9152.69
947.00	679440.6	8287.69
946.00	571272.8	7422.69
945.00	470884.6	6557.69
944.00	378662.5	5692.69
943.00	295265.9	4828.03
942.00	221624.7	3967.09
941.00	158787.5	3121.09
940.00	111824.9	2338.10
939.00	70711.1	1647.87
938.00	43860.4	1061.44
937.00	22490.1	623.10
936.00	10166.1	264.79
935.00	4194.6	44.90
934.00	1720.8	23.40
933.00	159.9	5.40

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	1.36	936.50	669.94	1.22	936.78	819.79	1.10	937.26

OUTPUT LISTING FOR SECTION 73

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
30.	30.	60.	60.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	178662.8	2522.59
949.00	142795.6	2138.89
948.00	124440.6	1786.79
947.00	100140.1	1515.91
946.00	78503.0	1257.85
945.00	59535.8	1012.61
944.00	43269.4	780.19
943.00	29778.5	560.60
942.00	19227.7	353.82
941.00	12719.4	160.70
940.00	10400.6	95.70
939.00	8553.9	81.20
938.00	6735.3	66.70
937.00	4959.6	52.20
936.00	3254.9	37.70
935.00	1680.7	23.20
934.00	396.7	8.70

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	11.09	937.19*	669.94	11.45	937.43*	819.79	12.21	938.02*

* INDICATES CRITICAL FLOW.

OUTPUT LISTING FOR SECTION 73.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
60.	60.	65.	65.	21.50

ELEVATION	TOTAL KD	END AREA
950.00	1164976.7	12239.69
949.00	1010572.5	11134.69
948.00	878325.3	10061.24
947.00	748214.6	9070.68
946.00	627204.1	8096.07
945.00	515472.6	7137.41
944.00	413241.3	6194.69
943.00	320789.6	5267.91
942.00	238485.7	4357.08
941.00	36063.4	320.00
940.00	25320.9	256.00
939.00	15973.5	192.00
938.00	8285.2	128.00
937.00	2662.0	64.00
936.00	0.0	0.00

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	3.13	939.03	669.94	3.07	939.39	819.79	3.00	940.25

INFORMATION LISTING FOR BRIDGE SECTION 74

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING ELEVATION	END AREA	Q CONTROL
940.50	135.89	4515.03
939.50	126.96	3449.33
938.50	110.61	2536.60
937.50	89.20	1755.47
936.50	64.98	1093.17
935.50	39.50	553.52
934.50	13.20	165.76
933.50	0.00	6.79

ROADWAY ELEVATION	FLOW OVER ROAD (CFS)
946.00	104630.10
945.00	90044.71
944.00	72136.68
943.00	51957.16
942.00	34660.16
941.00	24330.16
940.00	17309.82
939.00	11395.81
938.00	6418.14
937.00	2714.89
936.00	111.80

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 74.5

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	100.	100.	21.50

ELEVATION	TOTAL KO	END AREA
950.00	407058.5	4718.63
949.00	337677.3	4164.63
948.00	273779.1	3610.63
947.00	215690.2	3056.63
946.00	163817.8	2502.63
945.00	118701.2	1948.63
944.00	84738.8	1454.71
943.00	55789.9	1008.57
942.00	35008.2	617.26
941.00	20527.1	286.83
940.00	12690.7	152.00
939.00	6861.4	101.13
938.00	2527.4	54.35
937.00	399.2	15.51

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	4.68	939.56	669.94	4.62	939.85	819.79	3.42	940.64

INFORMATION LISTING FOR BRIDGE SECTION 75

OPENING COEF. 0.800 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	941.70	159.53	1961.75
	940.70	123.03	1365.46
	939.70	89.71	871.91
	938.70	58.51	465.89
	937.70	27.55	164.16
	936.70	4.14	12.36

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	949.00	38966.26
	948.00	32853.52
	947.00	27098.76
	946.00	21725.84
	945.00	16764.12
	944.00	10029.78
	943.00	5604.06
	942.00	2706.83
	941.00	863.18
	940.00	7.94

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 75.5

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
10.	10.	1.	1.	21.50

ELEVATION	TOTAL KQ	END AREA
950.00	407058.5	4718.63
949.00	337677.3	4164.63
948.00	273779.1	3610.63
947.00	215690.2	3056.63
946.00	163817.8	2502.63
945.00	118701.2	1948.63
944.00	84738.8	1454.71
943.00	55789.9	1008.57
942.00	35008.2	617.26
941.00	20527.1	286.83
940.00	12690.7	152.00
939.00	6861.4	101.13
938.00	2527.4	54.35
937.00	399.2	15.51

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	4.02	939.98	669.94	3.89	940.15	819.79	3.20	940.77

OUTPUT LISTING FOR SECTION 79.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2800.	1880.	160.	160.	21.50

ELEVATION	TOTAL KD	END AREA
945.00	129521.3	4054.18
944.00	105045.5	3353.18
943.00	82780.1	2652.18
942.00	63544.6	1954.02
941.00	46903.0	1265.39
940.00	33311.2	759.82
939.00	22171.6	500.84
938.00	13119.3	312.96
937.00	6369.0	157.02
936.00	2250.2	52.81
935.00	358.7	15.32

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	1.10	939.18	669.94	1.08	939.45	819.79	0.98	940.13

INFORMATION LISTING FOR BRIDGE SECTION 80

OPENING COEF. 0.700 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	939.40	101.44	1250.29
	938.40	79.94	874.83
	937.40	58.44	547.04
	936.40	36.94	275.27
	935.40	15.44	75.11

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	947.00	39274.66
	946.00	29239.47
	945.00	19951.18
	944.00	10397.98
	943.00	1894.93
	942.00	220.90

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 80.1

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
320.	320.	3970.	3670.	21.50

ELEVATION	TOTAL KD	END AREA
952.00	1142589.0	13891.62
951.00	1017525.8	12933.62
950.00	900176.5	11976.10
949.00	793173.0	11026.57
948.00	692035.2	10087.63
947.00	596847.1	9159.28
946.00	504568.8	8238.16
945.00	418348.9	7319.39
944.00	338787.3	6402.93
943.00	266169.0	5488.77
942.00	203253.0	4583.58
941.00	147705.4	3695.16
940.00	99880.6	2830.58
939.00	60225.4	1993.52
938.00	29493.9	1184.58
937.00	9198.5	422.96
936.00	2388.2	59.63
935.00	312.3	14.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	0.19	940.34	669.94	0.16	941.34	819.79	0.18	941.84

OUTPUT LISTING FOR SECTION 55.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
3970.	3670.	100.	100.	21.50

ELEVATION	TOTAL KD	END AREA
967.00	401168.3	2294.56
966.00	366718.3	2105.56
965.00	334000.8	1916.75
964.00	303252.4	1731.23
963.00	274319.8	1550.05
962.00	249794.7	1388.55
961.00	225958.1	1273.72
960.00	203577.1	1167.06
959.00	181802.5	1063.45
958.00	161330.0	962.17
957.00	142283.5	864.65
956.00	124510.8	772.90
955.00	107944.0	686.99
954.00	92665.3	607.86
953.00	78542.5	535.78
952.00	65607.5	470.22
951.00	53580.0	409.04
950.00	42615.1	350.43
949.00	32733.1	294.22
948.00	23969.7	240.32
947.00	16371.1	188.74
946.00	11672.4	142.29
945.00	8098.7	106.01
944.00	4453.2	72.68
943.00	1834.6	40.86
942.00	424.0	14.74
941.00	8.8	0.86

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	3.48	946.70	669.94	3.43	947.11	819.79	3.71	947.61

INFORMATION LISTING FOR BRIDGE SECTION 56

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	958.60	362.97	7941.28
	957.60	338.57	7154.20
	956.60	314.17	6394.99
	955.60	289.77	5664.73
	954.60	265.37	4964.61
	953.60	240.97	4295.98
	952.60	216.57	3660.41
	951.60	192.17	3059.71
	950.60	167.77	2496.05
	949.60	143.37	1972.03
	948.60	118.97	1490.94
	947.60	94.57	1057.00
	946.60	70.17	676.07
	945.60	45.77	356.94
	944.60	21.37	115.47
	943.60	0.62	1.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	968.00	28171.62
	967.00	22106.15
	966.00	16485.48
	965.00	11050.41
	964.00	6598.97
	963.00	1779.17
	962.00	299.62

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 56.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
100.	100.	100.	100.	21.50

ELEVATION	TOTAL KD	END AREA
967.00	401168.3	2294.56
966.00	366718.3	2105.56
965.00	334000.8	1916.75
964.00	303252.4	1731.23
963.00	274319.8	1550.05
962.00	249794.7	1388.55
961.00	225958.1	1273.72
960.00	203577.1	1167.06
959.00	181802.5	1063.45
958.00	161330.0	962.17
957.00	142283.5	864.65
956.00	124510.8	772.90
955.00	107944.0	686.99
954.00	92665.3	607.86
953.00	78542.5	535.78
952.00	65607.5	470.22
951.00	53580.0	409.04
950.00	42615.1	350.43
949.00	32733.1	294.22
948.00	23969.7	240.32
947.00	16371.1	188.74
946.00	11672.4	142.29
945.00	8098.7	106.01
944.00	4453.2	72.68
943.00	1834.6	40.86
942.00	424.0	14.74
941.00	8.8	0.86

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
609.95	1.92	949.39	669.94	2.02	949.65	819.79	2.14	950.53

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Portage River

4) DOCUMENT TYPE: Input - upstream of confluence with Grand River

00BREAK00

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// FOR
* LIST ALL
TITLE     UPPER GRAND FLOOD HAZARD ANALYSIS-JACKSON MICHIGAN                    HSP 1
FINAL  0  56.1      16.9 44.3 50.6                                              HSP 2
CSM-ELEV  1800.     910.72    2000.     911.03    2500.     911.82
CSM-ELEV
CSM-ELEV
CSM-ELEV
CSM-ELEV
XSECTN    16.9      960.      960.                          1.                HSP 433
ELEV      923.      898.7     908.      1.                                      HSP 434
N VALUE   .09       .06       .09                                               HSP 435
SEGMENT   2.                  3.        3.                                      HSP 436
DATA      -775.     923.      -775.     916.2     -762.     915.2             HSP 437
DATA      -667.     913.7     -577.     913.1     -477.     914.              HSP 438
DATA      -377.     913.9     -277.     912.9     -177.     911.1             HSP 439
DATA      -167.     910.8     -157.     912.1     -143.     913.7             HSP 440
DATA      -127.     916.      -112.     917.4     -98.      918.7             HSP 441
DATA      -91.      921.2     -91.      921.2     -84.      918.9             HSP 442
DATA      -78.      913.6     -72.      911.2     -56.      910.6             HSP 443
DATA      -51.      907.9     -46.      905.3     -42.      902.7             HSP 444
DATA      -38.      901.5     -32.      900.7     -22.      899.8             HSP 445
DATA                898.7     10.       899.7     19.       900.2             HSP 446
DATA      29.       900.8     38.       901.5     43.       902.5             HSP 447
DATA      48.       905.3     57.       905.9     65.       910.              HSP 448
DATA      80.       915.      80.       915.      90.       914.2             HSP 449
DATA      103.      911.9     120.      906.6     220.      905.5             HSP 450
DATA      320.      906.3     420.      907.8     520.      906.6             HSP 451
DATA      620.      907.2     720.      909.6     745.      910.5             HSP 452
DATA      753.      912.5     853.      916.7     903.      918.5             HSP 453
DATA   1  903.      923.                                                        HSP 454
XSECTN    60        780.      780.                          1.                HSP 2329
ELEV      930.      899.6     905.      1.                                      HSP 2330
N VALUE   .09       .06       .09                                               HSP 2331
SEGMENT   2.                  3.        3.                                      HSP 2332
DATA      -200.     930.      -200.     911.8     -150.     909.1             HSP 2333
DATA      -114.     906.8     -104.     906.9     -95.      904.9             HSP 2334
DATA      -85.      904.8     -60.      910.2     -60.      910.2             HSP 2335
DATA      -45.      907.1     -38.      904.2     -37.      903.1             HSP 2336
DATA      -32.      902.3     -22.      900.7     -14.      899.8             HSP 2337
DATA                899.7     11.       899.6     19.       900.3             HSP 2338
DATA      23.       900.6     27.       901.7     32.       903.5             HSP 2339
DATA      41.       909.6     47.       910.5     59.       910.7             HSP 2340
DATA      70.       913.5     70.       913.5     80.       911.2             HSP 2341
DATA      86.       910.3     92.       908.6     108.      908.1             HSP 2342
DATA      150.      909.7     200.      911.4     250.      911.4             HSP 2343
DATA      290.      910.2     390.      906.9     490.      907.7             HSP 2344
DATA      590.      906.9     640.      908.      670.      909.6             HSP 2345
DATA      680.      911.4     730.      913.5     739.      914.1             HSP 2346
DATA      806.      924.7     814.      926.8     844.      926.3             HSP 2347
DATA   1  934.      928.1     934.      930.                                  HSP 2348
XSECTN    60.4      1290.     1290.                         1.                HSP 2349
ELEV      930.      898.5     910.      1.                                      HSP 2350
N VALUE   .09       .06       .09                                               HSP 2351
SEGMENT   2.                  3.        3.                                      HSP 2352
DATA      -960.     930.      -960.     916.5     -860.     915.              HSP 2353
DATA      -760.     914.      -660.     914.9     -560.     914.9             HSP 2354
DATA      -460.     912.2     -360.     911.7     -280.     908.5             HSP 2355
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Portage River from confluence with Grand River to Blk. Township line.

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DATA      -200.    908.3    -100.    908.2    -71.     909.6    WSP 2356
DATA      -71.     909.6    -56.     909.2    -50.     908.6    WSP 2357
DATA      -37.     904.4    -24.     901.1    -11.     899.1    WSP 2358
DATA               898.5    11.      898.7    20.      900.3    WSP 2359
DATA      25.      901.9    30.      905.2    42.      910.7    WSP 2360
DATA      52.      911.3    61.      915.1    61.      915.1    WSP 2361
DATA      100.     913.6    200.     915.6    221.     916.4    WSP 2362
DATA   1  260.     919.6    395.     927.     395.     930.     WSP 2363
XSECTN    60.9     180.     180.                       1.       WSP 2364
ELEV      921.     899.1    910.     1.                          WSP 2365
N VALUE   .09      .06      .09                                  WSP 2366
SEGMENT   2.                3.       3.                          WSP 2367
DATA      -901.    921.     -901.    917.5    -801.    914.9    WSP 2368
DATA      -701.    912.9    -601.    910.5    -505.    910.     WSP 2369
DATA      -405.    909.9    -392.    911.1    -385.    913.9    WSP 2370
DATA      -374.    913.9    -369.    916.3    -252.    915.8    WSP 2371
DATA      -219.    909.4    -135.    906.6    -85.     907.3    WSP 2372
DATA      -70.     909.     -59.     911.1    -59.     911.1    WSP 2373
DATA      -33.     906.8    -29.     904.1    -25.     901.1    WSP 2374
DATA      -16.     900.1              899.1    12.      900.1    WSP 2375
DATA      20.      900.9    24.      901.9    29.      903.1    WSP 2376
DATA      36.      905.4    43.      906.3    82.      908.2    WSP 2377
DATA      82.      908.2    130.     906.9    166.     906.9    WSP 2378
DATA      266.     912.7    315.     917.4    365.     919.8    WSP 2379
DATA   1  365.     921.                                         WSP 2380
BRIDGE    61       70.      70.                                 WSP 2381
COEF      .6       .6       .8       1.                         WSP 2382
DATA               912.8              911.7    1.1      911.7    WSP 2383
DATA      2.7      903.1    6.7      902.     20.7     898.8    WSP 2384
DATA      30.7     899.1    40.7     900.6    50.7     901.9    WSP 2385
DATA      64.5     906.6    65.6     911.7    66.7     911.7    WSP 2386
DATA   1  66.7     912.8              912.8                      WSP 2387
DATA      -897.    922.     -897.    919.8    -883.    919.5    WSP 2388
DATA      -783.    917.5    -683.    916.1    -583.    915.4    WSP 2389
DATA      -483.    915.1    -383.    915.3    -283.    915.4    WSP 2390
DATA      -183.    915.3    -83.5    915.     -33.5    915.2    WSP 2391
DATA               915.2    33.5     915.3    83.5     915.1    WSP 2392
DATA      183.5    915.3    283.     915.6    383.     916.6    WSP 2393
DATA   2  483.     918.4    483.     922.                       WSP 2394
XSECTN    61.2     1010.    1010.                       1.       WSP 2395
ELEV      930.     898.2    905.     1.                          WSP 2396
N VALUE   .09      .06      .09                                  WSP 2397
SEGMENT   2.                3.       3.                          WSP 2398
DATA      -1125.   930.     -1125.   919.3    -1120.   918.9    WSP 2399
DATA      -1100.   917.4    -1050.   916.3    -1005.   915.7    WSP 2400
DATA      -955.    914.     -855.    912.2    -755.    910.8    WSP 2401
DATA      -655.    909.8    -610.    911.3    -507.    914.8    WSP 2402
DATA      -462.    917.1    -438.    916.2    -422.    913.     WSP 2403
DATA      -392.    912.2    -338.    908.6    -325.    906.4    WSP 2404
DATA      -303.    906.3    -238.    905.7    -193.    904.7    WSP 2405
DATA      -133.    904.2    -103.    905.8    -83.     907.6    WSP 2406
DATA      -63.     906.7    -53.     907.9    -53.     907.9    WSP 2407
DATA      -42.     906.6    -35.     904.4    -30.     903.1    WSP 2408
DATA      -24.5    902.4    -20.     901.4    -10.     899.4    WSP 2409
DATA               898.2    8.       898.3    15.      899.6    WSP 2410
DATA      20.      900.9    24.5     902.4    32.      906.9    WSP 2411
DATA      42.      910.     54.      911.2    64.      913.8    WSP 2412
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DATA      64.    913.8    90.    905.5   162.    907.2   WSP 2413
DATA     177.    908.8   186.    911.4   225.    913.3   WSP 2414
DATA     255.    914.6   355.    918.7   460.    924.1   WSP 2415
DATA   1 520.    927.6   520.    930.                    WSP 2416
XSECTN   61.4    1600.   1600.                    1.     WSP 2417
ELEV     920.    898.7   905.    1.                      WSP 2418
N VALUE  .09     .06     .09                             WSP 2419
SEGMENT  2.              3.      3.                      WSP 2420
DATA    -1065.   920.    -1065.  915.6   -1014.  914.9   WSP 2421
DATA     -984.   912.9    -884.  910.4    -684.  910.    WSP 2422
DATA     -584.   909.5    -494.  911.4    -479.  911.2   WSP 2423
DATA     -424.   912.2    -386.  911.2    -372.  910.3   WSP 2424
DATA     -359.   909.5    -346.  908.9    -332.  908.8   WSP 2425
DATA     -318.   908.5    -304.  908.6    -288.  908.3   WSP 2426
DATA     -268.   908.3    -246.  907.1    -216.  906.8   WSP 2427
DATA     -178.   906.7    -133.  906.6    -108.  907.5   WSP 2428
DATA     -78.    907.5    -68.   909.8    -54.   911.9   WSP 2429
DATA     -54.    911.9    -45.   910.2    -38.   908.3   WSP 2430
DATA     -31.    907.2    -28.   903.9    -26.   902.4   WSP 2431
DATA     -23.    901.4    -21.   901.1    -14.   899.3   WSP 2432
DATA     -7.     899.2           898.8    5.     898.7   WSP 2433
DATA     14.     899.     22.    900.     26.    902.4   WSP 2432
DATA     28.     903.     29.    903.9    42.    907.    WSP 2433
DATA     59.     909.2    69.    912.4    69.    912.4   WSP 2434
DATA     86.     908.9    107.   909.8    120.   911.8   WSP 2435
DATA     124.    913.2    145.   914.1    175.   915.9   WSP 2436
DATA   1 175.    920.                                    WSP 2437
XSECTN   61.9    200.     200.                    1.     WSP 2438
ELEV     920.    899.6    905.    1.                      WSP 2439
N VALUE  .09     .06      .09                            WSP 2440
SEGMENT  2.              3.      3.                      WSP 2441
DATA     -443.   920.    -443.   917.    -426.  916.5   WSP 2442
DATA     -421.   917.5    -396.  915.5    -324.  910.8   WSP 2443
DATA     -288.   908.8    -278.  907.     -221.  906.6   WSP 2444
DATA     -121.   905.3    -113.  904.8    -98.   907.7   WSP 2445
DATA     -89.    904.     -81.   905.9    -75.   906.5   WSP 2446
DATA     -64.    908.1    -56.   908.5    -56.   908.5   WSP 2447
DATA     -45.    906.6    -34.   905.7    -28.   901.9   WSP 2448
DATA     -20.    900.2           899.6    18.    900.    WSP 2449
DATA     23.     901.     28.    902.     44.    907.1   WSP 2450
DATA     56.     908.5    66.    911.7    66.    911.7   WSP 2451
DATA     78.     908.     94.    907.5    106.   906.7   WSP 2452
DATA     120.    908.9    138.   911.3    154.   912.3   WSP 2453
DATA     204.    913.7    254.   915.     270.   917.5   WSP 2454
DATA   1 270.    920.                                    WSP 2455
BRIDGE   62      200.     200.                           WSP 2456
COEF     .45     .6       .8     1.                      WSP 2457
DATA             908.1           906.4    2.     905.    WSP 2458
DATA     8.      902.     10.    901.2    10.    908.7   WSP 2459
DATA     11.     908.8    11.    900.9    16.    900.    WSP 2460
DATA     22.     900.1    22.    908.8    23.    908.8   WSP 2461
DATA     23.     900.1    31.    899.6    37.5   899.1   WSP 2462
DATA     37.5    908.8    38.5   908.8    38.5   898.9   WSP 2463
DATA     45.     898.8    50.5   898.7    50.5   908.8   WSP 2464
DATA     51.5    908.8    59.    900.4    65.    901.7   WSP 2465
DATA     65.     908.8    66.    908.6    66.    901.9   WSP 2466
DATA     69.5    902.8    74.    904.8    74.    908.1   WSP 2467
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DATA      76.    908.1    76.    908.6    66.    908.6    WSP 2468
DATA      65.    908.8    11.    908.8    10.    908.7    WSP 2469
DATA   1         908.1                                    WSP 2470
DATA     -400.   920.    -400.   914.8   -387.   913.9    WSP 2471
DATA     -287.   910.8   -187.   908.6    -87.   908.2    WSP 2472
DATA      -37.   908.8    -27.   909.7           909.8    WSP 2473
DATA       28.   909.7     39.   909.9     89.   910.9    WSP 2474
DATA   2  189.   913.1    239.   914.4    250.   914.7    WSP 2475
XSECTN    62.1   2120.   2120.                    1.      WSP 2476
ELEV      922.   899.7    905.   1.                       WSP 2477
N VALUE   .09    .05      .09                             WSP 2478
SEGMENT   2.             3.     3.                        WSP 2479
DATA     -392.   922.    -392.   916.9   -372.   916.4    WSP 2480
DATA     -352.   914.9   -336.   914.5   -326.   913.4    WSP 2481
DATA     -318.   911.7   -308.   910.1   -298.   909.4    WSP 2482
DATA     -288.   908.5   -278.   907.7   -274.   906.8    WSP 2483
DATA     -261.   906.8   -241.   906.2   -221.   906.1    WSP 2484
DATA     -201.   906.5   -191.   906.2   -173.   904.2    WSP 2485
DATA     -162.   903.4   -145.   904.8   -135.   906.8    WSP 2486
DATA     -106.   906.7    -86.   906.7    -71.   907.7    WSP 2487
DATA      -62.   909.6    -62.   909.6    -52.   907.5    WSP 2488
DATA      -40.   907.     -38.5  905.     -28.5  902.     WSP 2489
DATA      -24.   901.     -18.   899.7           900.3    WSP 2490
DATA       18.   900.3     24.   900.9     28.5  902.     WSP 2491
DATA       39.   903.9     45.   906.2     58.   907.6    WSP 2492
DATA       66.   910.6     66.   910.6     84.   907.2    WSP 2493
DATA      184.   910.1    224.   912.9    274.   914.4    WSP 2494
DATA   1  374.   919.8    400.   920.5    400.   922.     WSP 2495
XSECTN    62.6   1230.   1230.                    1.      WSP 2496
ELEV      920.   899.4    905.   1.                       WSP 2497
N VALUE   .09    .06      .09                             WSP 2498
SEGMENT   2.             3.     3.                        WSP 2499
DATA    -2510.   920.   -2510.   916.    -2380.   913.    WSP 2500
DATA    -2280.   913.   -2120.   909.5   -1920.   908.3   WSP 2501
DATA    -1720.   908.1  -1500.   908.5   -1320.   907.4   WSP 2502
DATA    -1100.   908.6   -900.   907.9    -700.   905.7   WSP 2503
DATA     -500.   905.    -300.   905.     -100.   905.8   WSP 2504
DATA      -85.   907.8    -72.   911.4     -72.   911.4   WSP 2505
DATA      -63.   911.1    -50.   908.      -37.   905.9   WSP 2506
DATA      -27.   902.4    -24.   901.2     -20.   900.5   WSP 2507
DATA      -12.   899.8           899.4     14.   899.4   WSP 2408
DATA       25.   900.5     27.   902.4     30.   903.2   WSP 2409
DATA       34.   905.3     40.   906.9     50.   908.    WSP 2410
DATA       55.   908.3     66.   913.2     66.   913.2   WSP 2411
DATA       72.   908.6     82.   908.6     95.   906.8   WSP 2412
DATA      120.   906.4    185.   905.8    257.   906.    WSP 2413
DATA      305.   903.8    348.   903.8    373.   906.7   WSP 2414
DATA      400.   907.3    423.   904.5    465.   904.1   WSP 2415
DATA      505.   904.8    535.   906.5    675.   906.    WSP 2416
DATA      925.   906.3    975.   907.5   1025.   907.2   WSP 2417
DATA     1125.   907.8   1415.   907.7   1515.   907.5   WSP 2418
DATA   1 1569.   908.1   1584.   910.3   1584.   920.    WSP 2419
XSECTN    62.8   60.     60.                      1.      WSP 2420
ELEV      921.   900.2    905.   1.                       WSP 2421
N VALUE   .09    .06      .09                             WSP 2422
SEGMENT   2.             3.     3.                        WSP 2423
DATA     -1420.  921.    -1420.  914.2   -1340.   911.6   WSP 2424
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DATA    1  1569.     908.1     158[illegible]     [illegible]     [illegible]     [illegible]     [illegible]
ASECTN     62.8      60.       60.                                1.        WSP 2420
[illegible]EV      921.      900.2     905.      1.                          WSP 2421
[illegible]VALUE   .09       .06       .09                                   WSP 2422
[illegible]EGMENT  2.                  3.        3.                          WSP 2423
DATA       -1420.    921.      -1420.    914.2     -1340.    911.6     WSP 2424
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DATA       -1100.    906.      -880.     905.1     -740.     905.8     WSP 2425
DATA       -700.     905.6     -500.     904.8     -390.     905.      WSP 2426
DATA       -300.     904.9     -167.     904.6     -92.      905.6     WSP 2427
DATA       -79.      907.5     -66.      908.6     -66.      908.6     WSP 2428
DATA       -63.      908.4     -56.      907.6     -50.      906.5     WSP 2429
DATA       -40.      905.7     -37.      904.4     -33.      902.5     WSP 2430
DATA       -30.      901.7     -27.      901.1     -22.      900.5     WSP 2431
DATA                 900.2     10.       900.3     25.       900.8     WSP 2432
DATA       30.       901.8     33.       902.5     43.       905.4     WSP 2433
DATA       45.       906.8     57.       907.9     70.       911.3     WSP 2434
DATA       70.       911.3     76.       910.9     85.       908.      WSP 2435
DATA       100.      906.2     200.      906.4     250.      907.2     WSP 2436
DATA       345.      907.9     395.      909.8     445.      910.9     WSP 2437
DATA       550.      911.7     600.      912.3     700.      913.8     WSP 2438
DATA    1  700.      921.                                              WSP 2439
COMPILATION DISCONTINUED

M 14 SYSTEM PROGRAM DETECTED MONITOR CONTROL RECORD

// PAUSE

// PAUSE
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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Jackson, City of

3) WATERCOURSE: Portage River

4) DOCUMENT TYPE: Output - upstream of ~~confl~~ confluence ~~of~~ with Grand River

00BREAK00

OUTPUT LISTING FOR SECTION 16.9 Main Stem Starting For Portage

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1.	1.	960.	960.	1.00

ELEVATION	TOTAL KD	END AREA
923.00	2068489.2	21009.21
922.00	1815874.0	19331.21
921.00	1578392.2	17653.33
920.00	1359877.7	15979.42
919.00	1156127.7	14311.35
918.00	973039.3	12653.78
917.00	812036.8	11032.06
916.00	666104.7	9449.26
915.00	537088.8	7910.27
914.00	432451.7	6458.01
913.00	348494.6	5323.48
912.00	273379.0	4418.35
911.00	208694.5	3594.13
910.00	157936.9	2834.47
909.00	112177.1	2112.46
908.00	76017.7	1438.01
907.00	51585.5	862.76
906.00	36555.5	541.67
905.00	27691.9	416.75
904.00	18852.7	325.41
903.00	11474.4	237.39
902.00	5847.9	153.54
901.00	2207.9	79.04
900.00	471.0	25.53
899.00	9.4	1.35

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.53	910.72	2000.00	0.55	911.03	2500.00	0.58	911.82

OUTPUT LISTING FOR SECTION 60

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
960.	960.	780.	780.	1.00

ELEVATION	TOTAL KD	END AREA
930.00	2721030.0	21424.00
929.00	2495258.5	20290.00
928.00	2282552.0	19156.25
927.00	2126213.5	18052.25
926.00	2002535.2	17013.71
925.00	1818164.7	16004.66
924.00	1642745.2	15000.04
923.00	1475408.0	14001.63
922.00	1315573.5	13009.54
921.00	1163390.5	12023.76
920.00	1019026.1	11044.31
919.00	882669.0	10071.18
918.00	754534.2	9104.37
917.00	634868.5	8143.88
916.00	523959.8	7189.71
915.00	422149.6	6241.86
914.00	329989.1	5300.37
913.00	251049.2	4372.51
912.00	184240.2	3474.60
911.00	133784.4	2638.29
910.00	98949.6	1927.34
909.00	70217.1	1323.35
908.00	49216.9	830.28
907.00	36278.6	508.75
906.00	27085.4	400.28
905.00	19255.6	308.25
904.00	12770.2	234.40
903.00	7422.9	165.23
902.00	3711.2	102.75
901.00	1243.7	49.52
900.00	87.1	8.44

OUTPUT LISTING FOR SECTION 60 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.70	910.90	2000.00	0.70	911.21	2500.00	0.71	912.00

OUTPUT LISTING FOR SECTION 60.4

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
780.	780.	1290.	1290.	1.00

ELEVATION	TOTAL KD	END AREA
930.00	2732141.5	22743.49
929.00	2483285.5	21388.49
928.00	2244391.0	20033.49
927.00	2015733.0	18678.50
926.00	1804246.2	17332.62
925.00	1603483.2	16004.98
924.00	1413549.5	14695.59
923.00	1234571.2	13404.44
922.00	1066700.7	12131.54
921.00	910121.6	10876.87
920.00	765057.3	9640.46
919.00	631339.6	8421.19
918.00	509496.1	7214.59
917.00	400401.6	6020.19
916.00	308616.4	4847.43
915.00	234633.5	3761.13
914.00	202460.5	2973.14
913.00	157185.6	2401.69
912.00	120249.9	1879.00
911.00	93534.8	1464.29
910.00	69543.6	1092.07
909.00	55659.4	757.62
908.00	44676.8	537.41
907.00	35499.0	455.80
906.00	27433.9	379.46
905.00	20419.3	308.39
904.00	14394.9	242.20
903.00	9463.4	181.32
902.00	5523.9	125.90
901.00	2667.1	76.59
900.00	901.6	35.98
899.00	79.9	6.94

OUTPUT LISTING FOR SECTION 60.4 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	1.17	911.15	2000.00	1.20	911.47	2500.00	1.23	912.27

OUTPUT LISTING FOR SECTION 60.9

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1290.	1290.	180.	180.	1.00

ELEVATION	TOTAL KD	END AREA
921.00	1098663.2	12535.82
920.00	933844.0	11269.82
919.00	786528.1	10010.48
918.00	652838.6	8771.56
917.00	533739.5	7557.45
916.00	438526.7	6399.92
915.00	356493.3	5396.28
914.00	279413.4	4458.02
913.00	214066.0	3597.43
912.00	157394.5	2804.32
911.00	110719.3	2077.61
910.00	77563.5	1447.93
909.00	54817.1	1032.57
908.00	36599.8	679.26
907.00	27991.0	429.94
906.00	22818.3	337.62
905.00	16849.9	269.39
904.00	11392.0	206.54
903.00	6920.9	148.12
902.00	3537.0	94.76
901.00	1198.3	46.86
900.00	164.6	11.34

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.75	911.41	2000.00	0.76	911.73	2500.00	0.77	912.52

INFORMATION LISTING FOR BRIDGE SECTION 61

OPENING COEF. 0.600 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	912.80	731.16	14134.25
	911.80	664.46	12329.47
	910.80	599.90	10633.27
	909.80	535.96	9031.77
	908.80	472.43	7528.50
	907.80	409.29	6129.25
	906.80	346.56	4841.51
	905.80	285.10	3701.40
	904.80	226.71	2701.86
	903.80	171.44	1841.10
	902.80	119.45	1129.28
	901.80	73.22	588.45
	900.80	36.90	245.14
	899.80	12.32	58.70
	898.80	0.00	0.00

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	922.00	63383.64
	921.00	50298.74
	920.00	38263.55
	919.00	26605.40
	918.00	16350.09
	917.00	8084.28
	916.00	2459.46
	915.00	0.00

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 61.2

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
70.	70.	1010.	1010.	1.00

ELEVATION	TOTAL KD	END AREA
930.00	3581681.0	29565.19
929.00	3268912.0	27920.19
928.00	2967805.5	26275.19
927.00	2684981.0	24633.27
926.00	2418585.5	23007.14
925.00	2164528.0	21398.13
924.00	1923054.5	19806.29
923.00	1695235.0	18232.96
922.00	1480277.2	16679.07
921.00	1278366.2	15144.62
920.00	1089722.5	13629.62
919.00	915845.7	12134.63
918.00	759682.3	10670.07
917.00	621968.2	9245.80
916.00	513514.5	7914.00
915.00	413399.9	6694.68
914.00	324196.0	5558.70
913.00	253257.9	4524.73
912.00	198170.5	3624.86
911.00	153692.5	2869.24
910.00	123378.5	2256.76
909.00	90607.8	1760.31
908.00	61052.7	1291.55
907.00	40917.9	858.49
906.00	27359.6	519.91
905.00	18487.8	322.99
904.00	12532.3	218.69
903.00	8065.8	160.84
902.00	4869.3	110.72
901.00	2477.8	68.51
900.00	943.9	34.55
899.00	163.6	9.98

OUTPUT LISTING FOR SECTION 61.2 CONTINUED.

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.52	911.75	2000.00	0.53	912.11	2500.00	0.54	913.05

OUTPUT LISTING FOR SECTION 61.4

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1010.	1010.	1600.	1600.	1.00

ELEVATION	TOTAL KD	END AREA
920.00	1097472.2	12736.40
919.00	933966.6	11496.40
918.00	781476.5	10256.40
917.00	640487.5	9016.40
916.00	511575.0	7776.40
915.00	404783.1	6556.26
914.00	307717.1	5396.34
913.00	222997.5	4271.93
912.00	154234.6	3184.55
911.00	107632.1	2222.43
910.00	77213.4	1453.09
909.00	57081.9	1014.26
908.00	42703.9	692.17
907.00	33410.8	456.29
906.00	25902.0	356.55
905.00	19557.6	291.39
904.00	14141.3	231.32
903.00	9263.2	175.29
902.00	5457.4	122.82
901.00	2634.7	75.30
900.00	762.5	33.80
899.00	22.2	2.95

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.58	911.90	2000.00	0.57	912.25	2500.00	0.56	913.16

OUTPUT LISTING FOR SECTION 61.9

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1600.	1600.	200.	200.	1.00

ELEVATION	TOTAL KD	END AREA
920.00	754058.0	7817.87
919.00	652237.0	7104.87
918.00	556684.2	6391.87
917.00	471466.3	5681.86
916.00	402203.8	5004.88
915.00	333293.7	4352.04
914.00	274329.1	3736.58
913.00	222019.3	3174.24
912.00	175762.5	2662.16
911.00	135507.3	2187.42
910.00	101061.4	1744.51
909.00	71932.5	1333.42
908.00	49473.5	953.59
907.00	34196.8	625.92
906.00	24932.5	405.54
905.00	18088.0	292.65
904.00	12137.0	220.95
903.00	7300.3	157.72
902.00	3573.0	99.20
901.00	1189.8	47.60
900.00	53.0	6.26

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.66	912.06	2000.00	0.69	912.42	2500.00	0.74	913.33

INFORMATION LISTING FOR BRIDGE SECTION 62

OPENING COEF. 0.450 ORIFICE COEF. 0.600 ROADWAY COEF. 0.800

OPENING	ELEVATION	END AREA	Q CONTROL
	908.80	518.09	8436.25
	907.80	454.14	6892.18
	906.80	386.48	5496.16
	905.80	319.97	4233.30
	904.80	255.68	3116.87
	903.80	195.22	2170.44
	902.80	139.91	1385.21
	901.80	90.54	768.85
	900.80	47.69	327.94
	899.80	15.19	79.40
	898.80	0.27	0.34

ROADWAY	ELEVATION	FLOW OVER ROAD (CFS)
	920.00	65341.66
	919.00	57214.10
	918.00	49454.63
	917.00	42081.60
	916.00	35116.44
	915.00	28584.62
	914.00	21202.91
	913.00	14146.88
	912.00	8537.32
	911.00	4496.91
	910.00	1764.71
	909.00	302.42

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTION. A RATING CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

OUTPUT LISTING FOR SECTION 62.1

DISTANCES DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
200.	200.	2120.	2120.	1.00

ELEVATION	TOTAL KD	END AREA
922.00	1092126.7	9721.09
921.00	963652.8	8929.09
920.00	847712.1	8141.73
919.00	740418.3	7380.91
918.00	639058.1	6638.98
917.00	544753.0	5915.58
916.00	467171.0	5224.75
915.00	392265.6	4570.38
914.00	327810.6	3955.98
913.00	266992.1	3384.71
912.00	210585.3	2844.57
911.00	160578.5	2323.88
910.00	118235.2	1825.24
909.00	85382.4	1372.71
908.00	59582.2	983.22
907.00	43516.3	661.35
906.00	32199.9	455.46
905.00	21561.3	330.21
904.00	13528.9	225.99
903.00	7756.6	151.05
902.00	3584.3	89.62
901.00	913.6	36.92
900.00	13.0	1.55

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.61	912.13	2000.00	0.64	912.50	2500.00	0.69	913.40

OUTPUT LISTING FOR SECTION 62.6

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
2120.	2120.	1230.	1230.	1.00

ELEVATION	TOTAL KD	END AREA
920.00	4678478.0	51357.27
919.00	4079020.0	47263.28
918.00	3512889.5	43169.28
917.00	2981158.0	39075.28
916.00	2485043.5	34981.28
915.00	2039890.0	30908.95
914.00	1631862.5	26879.96
913.00	1280674.5	22894.36
912.00	955987.2	19055.70
911.00	675864.5	15268.87
910.00	437409.0	11543.81
909.00	248129.8	7896.09
908.00	133739.5	4629.56
907.00	76906.5	2613.71
906.00	36790.2	1148.14
905.00	20265.6	416.50
904.00	12800.1	233.93
903.00	8007.5	164.04
902.00	4348.5	109.13
901.00	1632.1	58.39
900.00	219.4	15.23

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.09	912.14	2000.00	0.09	912.51	2500.00	0.10	913.42

OUTPUT LISTING FOR SECTION 62.8

DISTANCES

DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY	DRAINAGE AREA SQUARE MILES
1230.	1230.	60.	60.	1.00

ELEVATION	TOTAL KD	END AREA
921.00	2938453.5	29414.28
920.00	2601428.0	27294.28
919.00	2281096.0	25174.28
918.00	1977967.5	23054.28
917.00	1692608.7	20934.29
916.00	1425667.5	18814.29
915.00	1177887.5	16694.29
914.00	952168.7	14574.90
913.00	761598.8	12497.77
912.00	593485.7	10517.49
911.00	452104.8	8661.99
910.00	329057.0	6952.12
909.00	223245.8	5331.86
908.00	138777.2	3792.40
907.00	77778.7	2395.70
906.00	36451.1	1182.31
905.00	18162.0	361.26
904.00	11508.1	224.35
903.00	6407.6	152.79
902.00	2699.0	87.10
901.00	504.7	29.69

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1800.00	0.16	912.15	2000.00	0.17	912.53	2500.00	0.18	913.44



1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 100 yr Encroached run



THIS RUN EXECUTED 03/22/82

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

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C
T1       FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN
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.	0.0	0.0	0.0	0.	939.880	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	38.000	1.000	42.000	41.000	40.000	53.000	27.000	21.000	22.000	2.000
	54.000	4.000	39.000	0.0	150.000	200.000	0.0	0.0	0.0	0.0
NC	0.080	0.080	0.045	0.100	0.300	0.0	0.0	0.0	0.0	0.0
QT	5.009	170.000	230.000	255.000	300.000	255.000	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	7.100	1999.000	2070.000	0.0	0.0
X1	0.800	64.000	2000.000	2047.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	960.300	1719.000	955.500	1743.000	951.500	1759.000	948.400	1775.000	944.500	1793.000
GR	940.100	1809.000	940.900	1811.000	941.100	1830.000	940.700	1841.000	940.600	1857.000
GR	940.000	1859.000	939.900	1881.000	939.800	1909.000	939.700	1959.000	939.300	2000.000
GR	939.200	2003.000	938.700	2005.000	938.700	2007.000	937.100	2009.000	935.800	2014.000
GR	935.500	2017.000	935.700	2023.000	936.700	2028.000	937.400	2035.000	937.700	2042.000
GR	938.500	2046.000	939.300	2047.000	939.700	2059.000	939.900	2089.000	939.100	2095.000
GR	937.500	2099.000	937.200	2109.000	937.600	2116.000	939.100	2122.000	939.200	2130.000
GR	940.900	2134.000	941.600	2159.000	942.100	2173.000	942.100	2189.000	942.400	2200.000
GR	942.200	2250.000	942.200	2300.000	942.400	2350.000	942.900	2400.000	943.600	2450.000
GR	944.900	2500.000	946.800	2550.000	949.100	2600.000	951.900	2650.000	953.100	2700.000
GR	952.100	2750.000	950.100	2800.000	948.000	2850.000	946.100	2900.000	945.200	2950.000
GR	945.100	3000.000	944.700	3050.000	944.500	3100.000	944.000	3150.000	943.500	3200.000
GR	943.100	3250.000	942.900	3300.000	942.900	3350.000	943.900	3400.000	0.0	0.0
NC	0.080	0.080	0.045	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	0.900	51.000	2000.000	2021.500	85.000	85.000	85.000	0.0	0.0	0.0
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1879.000	943.100	1900.000
GR	942.800	1950.000	942.800	1998.000	942.800	2000.000	937.100	2000.000	936.900	2003.000
GR	936.800	2006.000	937.200	2009.000	937.000	2012.000	937.000	2015.000	937.200	2018.000
GR	937.300	2021.500	943.000	2021.500	943.100	2022.000	942.800	2050.000	942.600	2100.000
GR	942.500	2150.000	942.400	2200.000	942.200	2250.000	942.200	2300.000	942.400	2350.000
GR	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000	949.100	2600.000
GR	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000	948.000	2850.000
GR	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000	944.500	3100.000
GR	944.0	315								

	944.000	3150.000	943.200	2950.000	944.100	3000.000	944.700	3050.000	944.500	3100.000
	943.900	3400.000	943.500	3200.000	943.100	3250.000	942.900	3300.000	942.900	3350.000
GR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC			0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1.000	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
BT	31.000	1500.000	958.100	0.0	1550.000	955.700	0.0	1600.000	952.700	0.0
BT	1650.000	949.500	0.0	1700.000	946.200	0.0	1750.000	944.000	0.0	1800.000
BT	943.200	0.0	1850.000	943.400	0.0	1879.000	943.200	0.0	1900.000	943.100
BT	0.0	1950.000	942.800	0.0	1998.000	942.800	0.0	2000.000	942.800	937.100
BT	2000.000	942.800	940.800	2021.500	943.000	940.800	2021.500	943.000	937.300	2022.000
BT	943.100	0.0	2050.000	942.800	0.0	2100.000	942.600	0.0	2150.000	942.500
BT	0.0	2200.000	942.400	0.0	2250.000	942.200	0.0	2300.000	942.200	0.0
BT	2350.000	942.400	0.0	2400.000	942.900	0.0	2450.000	943.600	0.0	2500.000
BT	944.900	0.0	2550.000	946.800	0.0	2600.000	949.100	0.0	2650.000	951.900
BT	0.0	2700.000	953.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

X1	1.100	0.0	0.0	0.0	25.000	25.000	25.000	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
NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T	1.200	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
T	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
X1	1.300	57.000	2000.000	2037.000	30.000	30.000	30.000	0.0	0.0	0.0
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1885.000	942.900	1903.000
GR	942.200	1931.000	941.500	1953.000	941.400	1971.000	941.100	1987.000	940.700	2000.000
GR	937.700	2003.000	937.200	2006.000	937.100	2009.000	937.200	2012.000	937.100	2015.000
GR	937.000	2018.000	937.300	2021.000	937.500	2024.000	937.700	2026.000	941.200	2037.000
GR	941.100	2053.000	941.500	2080.000	942.000	2093.000	941.900	2103.000	942.400	2111.000
GR	942.500	2130.000	942.500	2153.000	942.400	2263.000	942.200	2250.000	942.200	2300.000
GR	942.400	2350.000	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000
GR	949.100	2600.000	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000
GR	948.000	2850.000	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000
GR	944.500	3100.000	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000
GR	942.900	3350.000	943.900	3400.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.060	0.080	0.045	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	7.100	1990.000	2030.000	0.0	0.0
X1	1.800	40.000	1999.000	2025.000	3600.000	3800.000	4500.000	0.0	0.0	0.0
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	7.100	2000.000	2026.100	0.0	0.0
X1	1.900	37.000	2000.000	2026.000	100.000	100.000	100.000	0.0	0.0	0.0
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	946.700	1900.000	946.400	1950.000	946.300	2000.000
GR	940.000	2000.000	940.000	2004.000	940.000	2008.000	939.900	2012.000	940.200	2016.000
GR	940.300	2016.000	940.300	2020.000	940.500	2024.000	940.700	2026.000	946.300	2026.000
GR	946.300	2050.000	946.500	2100.000	946.700	2150.000	946.900	2200.000	947.200	2250.000

	0.0	1.700	5.000	0.0	22.700	0.0	75.000	0.0	939.900	939.900	

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

X1	2.100	0.0	0.0	0.0	23.000	23.000	23.000	0.0	0.0	0.0	
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
BT	26.000	1597.000	956.400	0.0	1600.000	956.300	0.0	1650.000	954.000	0.0	
BT	1700.000	951.900	0.0	1750.000	950.100	0.0	1800.000	948.500	0.0	1850.000	
BT	947.300	0.0	1900.000	946.700	0.0	1950.000	946.400	0.0	2000.000	946.300	
BT	940.000	2000.000	946.300	943.100	2026.000	946.300	943.200	2026.000	946.300	940.700	
BT	2050.000	946.300	0.0	2100.000	946.500	0.0	2150.000	946.700	0.0	2200.000	
BT	946.900	0.0	2250.000	947.200	0.0	2300.000	948.000	0.0	2350.000	949.600	
BT	0.0	2400.000	951.200	0.0	2450.000	952.700	0.0	2500.000	954.500	0.0	
BT	2550.000	956.200	0.0	2600.000	957.700	0.0	2650.000	959.300	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	
NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

X1	2.300	40.000	1999.000	2025.000	100.000	100.000	100.000	0.0	0.0	0.0	
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000	
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000	
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000	
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000	
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000	
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000	
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000	
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000	
NC	0.0	0.0	0.0	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	1919.000	2066.000	1980.000	2045.000	

X1	2.800	46.000	2000.000	2042.000	700.000	600.000	625.000	0.0	0.0	0.0	
GR	961.300	1675.000	960.300	1700.000	959.600	1716.000	958.300	1731.000	959.400	1744.000	
GR	959.000	1750.000	956.900	1771.000	954.900	1800.000	953.200	1827.000	951.200	1850.000	
GR	948.000	1874.000	947.300	1889.000	947.000	1900.000	946.500	1910.000	944.600	1926.000	
GR	943.400	1950.000	942.800	1999.000	942.300	2000.000	941.800	2000.000	941.200	2003.000	
GR	940.800	2006.000	940.200	2009.000	940.500	2011.000	940.700	2014.000	940.300	2017.000	
GR	940.000	2021.000	940.000	2026.000	940.300	2030.000	940.600	2035.000	940.700	2038.000	
GR	941.800	2042.000	943.900	2050.000	945.400	2053.000	949.800	2060.000	950.500	2066.000	
GR	951.000	2082.000	951.000	2098.000	950.100	2100.000	958.800	2114.000	959.000	2125.000	
GR	956.500	2135.000	957.800	2148.000	957.900	2150.000	959.700	2168.000	961.300	2173.000	
GR	961.700	2178.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0	

X1	2.900	27.000	2000.000	2021.000	75.000	75.000	75.000	0.0	0.0	0.0	
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	950.000	950.000	0.0	
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000	
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000	
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000	
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000	
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000	
GR	961.500	2150.000	965.200	2186.000	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.0	0.0	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

X1	3.000	46.000	2000.000	2021.000	1.000	1.000	1.000	0.0	0.0	0.0	
BT	40.000	700.000	964.200	0.0	750.000	962.100	0.0	800.000	960.100	0.0	
BT	850.000	958.800	0.0	900.000	958.000	0.0	950.000	957.600	0.0	1000.000	
BT	956.900	0.0	1050.000	956.000	0.0	1100.000	955.400	0.0	1150.000	955.200	
BT	0.0	1200.000	955.300	0.0	1250.000	955.800	0.0	1300.000	956.700	0.0	
BT	1350.000	957.800	0.0	1400.000	959.400	0.0	1450.000	960.800	0.0	1500.000	
BT	961.800	0.0	1550.000	962.300	0.0	1563.000	962.300	0.0	1600.000	962.100	
BT	0.0	1650.000	960.100	0.0	1700.000	959.000	0.0	1750.000	956.400	0.0	
BT	1800.000	953.500	0.0	1850.000	951.600	0.0	1900.000	950.900	0.0	1916.000	
BT	950.800	0.0	1950.000	951.000	0.0	1975.000	951.000	0.0	2000.000	951.800	

BT	1800.000	953.500	0.0	1850.000	951.600	0.0	1900.000	950.900	0.0	1916.000
BT	950.800	0.0	1950.000	951.000	0.0	1975.000	951.400	0.0	2000.000	951.800
BT	942.000	2000.000	951.800	949.400	2021.000	952.100	949.300	2021.000	952.100	942.800
BT	2022.000	952.100	0.0	2028.000	952.100	0.0	2050.000	953.200	0.0	2100.000
BT	957.300	0.0	2150.000	962.300	0.0	2200.000	965.700	0.0	2243.000	967.300
BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	964.200	700.000	962.100	750.000	960.100	800.000	958.800	850.000	958.000	900.000
GR	957.600	950.000	956.900	1000.000	956.000	1050.000	955.400	1100.000	955.200	1150.000
GR	955.300	1200.000	955.800	1250.000	956.700	1300.000	957.800	1350.000	959.500	1400.000
GR	960.800	1450.000	961.800	1500.000	962.300	1550.000	962.600	1563.000	962.100	1600.000
GR	960.100	1650.000	959.000	1700.000	956.400	1750.000	953.500	1800.000	951.600	1850.000
GR	950.900	1900.000	950.800	1916.000	951.000	1950.000	951.400	1975.000	951.800	2000.000
GR	942.000	2000.000	941.900	2003.000	941.200	2006.000	941.200	2009.000	941.200	2012.000
GR	941.100	2015.000	941.500	2018.000	942.800	2021.000	952.100	2021.000	952.100	2022.000
GR	952.100	2028.000	953.200	2050.000	957.300	2100.000	962.300	2150.000	965.700	2200.000
GR	967.300	2243.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION C UPSTREAM FACE RADGLEY RD

X1	3.100	0.0	0.0	0.0	34.000	34.000	34.000	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
NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3.200	27.000	2000.000	2021.000	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	950.000	950.000	0.0
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
X1	3.300	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	7.100	1985.000	2050.000	0.0	0.0

VALLEY SECTION D

X1	4.000	14.000	2000.000	2050.000	2600.000	3500.000	4100.000	0.0	0.0	0.0
GR	962.000	1800.000	956.000	1880.000	950.000	1950.000	947.500	1960.000	944.800	2000.000
GR	941.700	2010.000	941.500	2020.000	941.800	2030.000	941.800	2040.000	946.700	2050.000
GR	948.300	2100.000	952.000	2130.000	956.000	2170.000	960.000	2180.000	0.0	0.0
QT	5.000	90.000	180.000	215.000	265.000	215.000	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	4.500	13.000	2000.000	2050.000	2200.000	1200.000	2200.000	0.0	0.0	0.0
GR	955.000	1460.000	950.000	1520.000	947.200	1550.000	945.800	1580.000	945.800	2000.000
GR	942.700	2010.000	942.500	2020.000	942.500	2030.000	942.800	2040.000	946.700	2050.000
GR	946.700	2800.000	950.000	2960.000	955.000	3000.000	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	7.100	1970.000	2070.000	0.0	0.0
X1	4.800	15.000	2000.000	2051.000	1200.000	2000.000	1375.000	0.0	0.0	0.0
GR	955.000	1250.000	950.000	1710.000	945.800	1750.000	945.800	1995.000	946.800	2000.000
GR	943.000	2010.000	943.000	2020.000	943.500	2025.000	943.200	2030.000	943.800	2040.000
GR	945.000	2050.000	946.200	2051.000	946.200	2190.000	950.000	2200.000	953.000	2250.000
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	4.900	42.000	2000.000	2031.000	150.000	50.000	114.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	950.600	950.600	0.0

GR	943.400	2000.000	943.700	2000.000	944.200	2020.000	944.500	2028.000	944.900	2030.000
GR	944.400	2020.000	944.300	2022.000	944.200	2028.000	944.500	2028.000	944.900	2030.000
GR	945.500	2031.000	950.400	2049.000	950.400	2058.000	950.300	2146.000	950.800	2249.000
GR	950.800	2475.000	951.300	2529.000	951.400	2657.000	951.700	2752.000	952.100	2847.000
GR	952.700	2944.000	952.700	3000.000	952.700	3100.000	952.700	3200.000	952.700	3300.000
GR	952.700	3400.000	952.700	3500.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.024	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.000	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	950.600	950.600	0.0
BT	42.000	871.000	965.500	0.0	1031.000	963.000	0.0	1135.000	961.400	0.0
BT	1242.000	960.100	0.0	1348.000	958.600	0.0	1452.000	957.500	0.0	1556.000
BT	955.700	0.0	1659.000	953.500	0.0	1760.000	951.800	0.0	1860.000	951.200
BT	0.0	1960.000	951.700	950.000	1979.000	951.800	950.400	2000.000	952.000	943.600
BT	2002.000	952.000	946.000	2003.000	951.900	947.600	2006.000	951.900	949.600	2009.000
BT	951.900	949.600	2012.000	951.900	947.300	2013.000	951.900	944.300	2019.000	951.800
BT	944.600	2020.000	951.800	946.100	2022.000	951.700	947.100	2025.000	951.700	949.600
BT	2028.000	951.700	947.600	2030.000	951.700	946.300	2031.000	951.600	945.500	2049.000
BT	951.500	950.400	2058.000	951.500	950.300	2146.000	950.300	0.0	2249.000	950.800
BT	0.0	2475.000	950.800	0.0	2529.000	951.300	0.0	2657.000	951.400	0.0
BT	2752.000	951.700	0.0	2847.000	952.100	0.0	2944.000	952.700	0.0	3000.000
BT	952.700	0.0	3100.000	952.700	0.0	3200.000	952.700	0.0	3300.000	952.700
BT	0.0	3400.000	952.700	0.0	3500.000	952.700	0.0	0.0	0.0	0.0

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

X1	5.100	0.0	0.0	0.0	40.000	40.000	40.000	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
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	950.600	950.600	0.0
NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.200	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	950.600	950.600	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
X1	5.300	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	9.100	0.0	0.0	1100.000	2370.000
X1	5.900	33.000	2000.000	2021.000	3700.000	3300.000	4000.000	0.0	0.0	0.0
GR	955.000	550.000	950.000	600.000	945.300	1000.000	945.100	1200.000	946.100	1350.000
GR	945.540	1425.000	945.460	1440.000	945.580	1513.000	945.740	1590.000	947.380	1660.000
GR	947.660	1731.000	947.840	1786.000	947.640	1839.000	947.210	1891.000	946.590	1941.000
GR	946.710	1977.000	945.500	1994.000	944.860	2000.000	944.700	2002.000	944.490	2004.000
GR	944.350	2006.000	944.170	2008.000	944.130	2010.000	944.150	2012.000	944.150	2014.000
GR	944.420	2016.000	944.510	2018.000	944.960	2021.000	946.010	2060.000	947.250	2367.000
GR	947.200	2665.000	950.000	3490.000	955.000	3500.000	0.0	0.0	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	9.100	9.100	0.0	1780.000	2261.000

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

X1	6.000	0.0	0.0	0.0	500.000	500.000	500.000	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  .800
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS      BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     1999.0     2070.0  TYPE=     1  TARGET=      71.000
      0.80       4.38     939.88        0.0        0.0     939.94       0.06       0.0        0.0     939.30
       255.         0.        253.         2.         1.        128.         6.         0.         0.     939.30
       0.0        0.30       1.97       0.27      0.080      0.045      0.080        0.0     935.50    1999.00
 0.000973          0.         0.         0.          0          0          0        0.0      71.00    2070.00

CCHV=   0.300 CEHV=   0.500
*SECNO  .900
      0.90       3.14     939.94        0.0        0.0     940.20       0.26       0.16       0.10     942.80
       255.         0.        255.         0.         0.        62.         0.         0.         0.     943.00
      0.01        0.0       4.10        0.0      0.080      0.045      0.080      0.044     936.80    2000.00
 0.005083         85.        85.        85.          2          0          0        0.0      21.50    2021.50

*SECNO 1.000
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  942.20 MAX ELLC=  940.80

      1.00       3.14     939.94        0.0        0.0     940.20       0.26       0.00       0.00     942.80
       255.         0.        255.         0.         0.        62.         0.         0.         0.     943.00
      0.01        0.0       4.10        0.0      0.080      0.020      0.080      0.044     936.80    2000.00
 0.001001          1.         1.         1.          0          0          0        0.0      21.50    2021.50

*SECNO 1.100
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  942.20 MAX ELLC=  940.80

                    BRIDGE SECTION A UPSTREAM FACE PROBERT RD

      1.10       3.17     939.97        0.0        0.0     940.23       0.26       0.02       0.00     942.80
       255.         0.        255.         0.         0.        63.         0.         0.         0.     943.00
      0.01        0.0       4.05        0.0      0.080      0.020      0.080      0.038     936.80    2000.00
 0.000969         25.        25.        25.          2          0          0        0.0      21.50    2021.50

*SECNO 1.200
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS      BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

      1.20       3.18     939.98        0.0        0.0     940.23       0.26       0.00       0.00     942.80
       255.         0.        255.         0.         0.        63.         0.         0.         0.     943.00
      0.01        0.0       4.05        0.0      0.080      0.045      0.080      0.038     936.80    2000.00
 0.004099          1.         1.         1.          0          0          0        0.0      21.50    2021.50
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0.000170	2600.	4100.	3500.	4	0	0	0.0	86.91	2055.95

*SECNO 4.500

4.50	4.60	947.10	0.0	0.0	947.10	0.00	0.19	0.00	945.80
215.	88.	105.	22.	565.	188.	305.	63.	36.	946.70
3.67	0.16	0.56	0.07	0.080	0.045	0.080	0.045	942.50	1552.11
0.000051	2200.	2200.	1200.	3	0	0	0.0	1267.37	2819.08

*SECNO 4.800

3470 ENCROACHMENT STATIONS= 1970.0 2070.0 TYPE= 1 TARGET= 100.000

4.80	4.22	947.22	0.0	0.0	947.24	0.02	0.13	0.00	946.80
215.	14.	196.	6.	40.	172.	19.	84.	62.	946.20
4.03	0.34	1.14	0.28	0.080	0.045	0.080	0.045	943.00	1970.00
0.000245	1200.	1375.	2000.	2	0	0	0.0	100.00	2070.00

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	AROB	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= 950.60 ELREA= 950.60

4.90	3.84	947.24	0.0	0.0	947.32	0.08	0.05	0.03	943.60
215.	0.	215.	0.	0.	97.	0.	85.	63.	945.50
4.04	0.0	2.22	0.0	0.080	0.045	0.080	0.045	943.40	2000.00
0.001105	150.	114.	50.	0	0	0	0.0	31.00	2031.00

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.00	3.81	947.21	0.0	0.0	947.35	0.14	0.00	0.03	943.60
215.	0.	215.	0.	0.	71.	0.	85.	63.	945.50
4.04	0.0	3.04	0.0	0.080	0.024	0.080	0.045	943.40	2000.00
0.001153	1.	1.	1.	2	0	0	-30.67	31.00	2031.00

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	3.86	947.26	0.0	0.0	947.40	0.14	0.05	0.00	943.60
215.	0.	215.	0.	0.	71.	0.	85.	63.	945.50
4.05	0.0	3.01	0.0	0.080	0.024	0.080	0.045	943.40	2000.00
0.001115	40.	40.	40.	0	0	0	-31.61	31.00	2031.00

*SECNO 5.200

	5.20	3.95	947.35	0.0	0.0	947.42	0.07	0.00	0.02	943.60
	215.	0.	215.	0.	0.	100.	0.	85.	63.	945.50
	4.05	0.0	2.14	0.0	0.080	0.045	0.080	0.045	943.40	2000.00
	0.000983	1.	1.	1.	2	0	0	0.0	31.00	2031.00

*SECNO 5.300

5.30	4.06	947.46	0.0	0.0	947.51	0.05	0.08	0.01	943.60
215.	16.	195.	3.	23.	104.	7.	85.	63.	945.50
4.06	0.72	1.89	0.46	0.080	0.045	0.080	0.045	943.40	1988.09
0.000663	100.	100.	100.	0	0	0	0.0	50.09	2038.18

CCHV= 0.100 CEHV= 0.300

*SECNO 5.900

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
5.90	3.52	947.65	0.0	0.0	947.65	0.00	0.14	0.01	944.86
215.	165.	17.	34.	1722.	68.	554.	188.	142.	944.96
14.50	0.10	0.24	0.06	0.080	0.045	0.080	0.046	944.13	800.06
0.000011	3700.	4000.	3300.	4	0	0	0.0	1889.19	2797.41

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 1780.0 2261.0 TYPE= 1 TARGET= 481.000

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	3.53	947.66	0.0	0.0	947.67	0.01	0.01	0.00	944.86
215.	35.	69.	111.	128.	68.	335.	205.	155.	944.96
14.76	0.27	1.01	0.33	0.080	0.045	0.080	0.046	944.13	1833.89
0.000194	500.	500.	500.	2	0	0	0.0	427.10	2261.00

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                                                                                    THIS RUN EXECUTED    03/22/82
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       6.        0.        0.   0.0            0.0       0.0       0.     939.880    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 .800
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1999.0     2070.0  TYPE=      1  TARGET=      71.000
     0.80      4.38    939.88      0.0    939.88    939.94      0.06      0.0       0.0     939.30
     255.        0.      253.        2.        1.      128.        6.        0.        0.     939.30
     0.0       0.30      1.97      0.27    0.080     0.045     0.080      0.0     935.50   1999.00
 0.000973        0.        0.        0.        0         0         0      0.0      71.00   2070.00

CCHV=    0.300 CEHV=    0.500
*SECNO .900
     0.90      3.14    939.94      0.0    939.94    940.20      0.26      0.16      0.10    942.80
     255.        0.      255.        0.        0.       62.        0.        0.        0.     943.00
     0.01       0.0      4.10      0.0     0.080     0.045     0.080     0.044    936.80   2000.00
 0.005083       85.       85.       85.         2         0         0      0.0      21.50   2021.50

*SECNO 1.000

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  942.20 MAX ELLC=  940.80

     1.00      3.14    939.94      0.0    939.94    940.20      0.26      0.00      0.00    942.80
     255.        0.      255.        0.        0.       62.        0.        0.        0.     943.00
     0.01       0.0      4.10      0.0     0.080     0.020     0.080     0.044    936.80   2000.00
 0.001001        1.        1.        1.         0         0         0      0.0      21.50   2021.50

*SECNO 1.100

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  942.20 MAX ELLC=  940.80
```

1.10	3.17	939.97	0.0	939.97	940.23	0.26	0.02	0.00	942.80	
255.	0.	255.	0.	0.	63.	0.	0.	0.	943.00	
0.01	0.0	4.05	0.0	0.080	0.020	0.080	0.038	936.80	2000.00	
0.000969	25.	25.	25.	2	0	0	0.0	21.50	2021.50	

*SECNO 1.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	WCH	ROB	ALOB	ACH	AROB	VOL	TRA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWTD	ENDST
1.20	3.18	939.98	0.0	939.98	940.23	0.26	0.00	0.00	942.80
255.	0.	255.	0.	0.	63.	0.	0.	0.	943.00
0.01	0.0	4.05	0.0	0.080	0.045	0.080	0.038	936.80	2000.00
0.004899	1.	1.	1.	0	0	0	0.0	21.50	2021.50

*SECNO 1.300
2900 NAT Q1= 47.38 WSEL= 940.22 ENC Q1= 50.19 WSEL= 940.32 RATIO= -0.0593
NAT Q1= 50. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 940.32

3470 ENCROACHMENT STATIONS= 2000.0 2037.0 TYPE= 4 TARGET= 0.0

1.30	3.22	940.22	0.0	940.22	940.37	0.15	0.11	0.03	940.70	
255.	0.	255.	0.	0.	82.	0.	0.	0.	941.20	
0.01	0.0	3.13	0.0	0.080	0.045	0.080	0.039	937.00	2000.48	
0.002899	30.	30.	30.	2	0	0	0.0	33.44	2033.92	

CCHV= 0.100 CEHV= 0.300
*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1990.0 2030.0 TYPE= 1 TARGET= 40.000

1.80	5.00	944.90	0.0	944.91	944.96	0.06	4.58	0.01	941.30	
255.	14.	239.	2.	21.	119.	5.	12.	4.	941.90	
0.66	0.68	2.00	0.44	0.080	0.045	0.080	0.045	939.90	1990.00	
0.000519	3600.	4500.	3800.	6	0	0	0.0	40.00	2030.00	

CCHV= 0.300 CEHV= 0.500
*SECNO 1.900

3470 ENCROACHMENT STATIONS= 2000.0 2026.1 TYPE= 1 TARGET= 26.100

1.90	5.06	944.96	0.0	944.96	945.03	0.06	0.06	0.00	946.30	
255.	0.	255.	0.	0.	125.	0.	12.	4.	946.30	
0.67	0.0	2.04	0.0	0.080	0.045	0.080	0.045	939.90	2000.00	
0.000708	100.	100.	100.	2	0	0	0.0	26.00	2026.00	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.70	3.00	0.0	22.70	0.0	75.00	0.0	939.90	939.90

*SECNO 2.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
945.27	945.03	0.0	0.	255.	75.	75.	943.20	946.30

BRIDGE SECTION 5 UPSTREAM FACE ST

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

2.10	5.31	945.21	0.0	945.21	945.27	0.06	0.24	0.0	946.30	
255.	0.	255.	0.	0.	131.	0.	12.	4.	946.30	
0.68	0.0	1.94	0.0	0.080	0.020	0.080	0.045	939.90	2000.00	
0.000121	23.	23.	23.	2	0	0	0.0	26.00	2026.00	

*SECNO 2.300
2800 NAT Q1= 127.92 WSEL= 945.24 ENC Q1= 127.92 WSEL= 945.34 RATIO= 0.0000
NAT Q1= 133. RATIOS LOB,CH,ROB= 0.0656 0.9183 0.0161 WSEL= 945.34

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 1993.2 2025.0 TYPE= 4 TARGET= 0.035

2.30	5.34	945.24	0.0	945.24	945.29	0.05	0.02	0.00	941.30
255.	13.	242.	0.	18.	128.	0.	12.	4.	941.90
0.69	0.70	1.90	0.0	0.080	0.045	0.080	0.045	939.90	1993.19
0.000498	100.	100.	100.	0	0	0	0.0	31.81	2025.00

CCHV= 0.100 CEHV= 0.300
*SECNO 2.800

3470 ENCROACHMENT STATIONS= 1980.0 2045.0 TYPE= 1 TARGET= 65.000

2.80	5.43	945.43	0.0	945.40	945.45	0.02	0.16	0.00	942.30
255.	20.	232.	3.	51.	205.	10.	15.	5.	941.80
0.86	0.39	1.13	0.31	0.080	0.045	0.080	0.045	940.00	1980.00
0.000147	700.	625.	600.	0	0	0	0.0	65.00	2045.00

CCHV= 0.300 CEHV= 0.500
*SECNO 2.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.00 ELREA= 950.00

2.90	4.70	945.40	0.0	945.36	945.53	0.12	0.02	0.05	941.80
255.	0.	255.	0.	0.	90.	0.	16.	5.	941.90
0.86	0.0	2.82	0.0	0.080	0.045	0.080	0.045	940.70	2000.00
0.001229	75.	75.	75.	2	0	0	0.0	21.00	2021.00

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

3.00	4.29	945.39	0.0	945.35	945.54	0.15	0.00	0.01	951.80
255.	0.	255.	0.	0.	82.	0.	16.	5.	952.10
0.86	0.0	3.12	0.0	0.080	0.020	0.080	0.045	941.10	2000.00
0.000409	1.	1.	1.	1	0	0	0.0	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	4.30	945.40	0.0	945.37	945.55	0.15	0.01	0.00	951.80

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*SECNO 3.200
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS      BANK ELEV
      0        QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
     TIME      VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      950.00 ELREA=      950.00

      3.20       4.74     945.44        0.0     945.40     945.56       0.12       0.00       0.01     941.80
       255.         0.        255.         0.         0.         91.         0.        16.         5.     941.90
      0.87        0.0       2.80        0.0      0.080      0.045      0.080      0.045     940.70    2000.00
  0.001194         1.         1.         1.          2          0          0        0.0      21.00    2021.00

*SECNO 3.300
 2800 NAT Q1=      83.91  WSEL=     945.45  ENC Q1=      83.91  WSEL=     945.55  RATIO=   0.0
 NAT Q1=     87.  RATIOS LOB,CH,ROB=  0.0358  0.9503  0.0139  WSEL=     945.55

3470 ENCROACHMENT STATIONS=    1998.9     2021.0  TYPE=       4  TARGET=        0.039
      3.30       4.77     945.47        0.0     945.45     945.59       0.12       0.02       0.00     941.80
       255.         2.        253.         0.         4.         92.         0.        16.         5.     941.90
      0.87        0.58       2.76        0.0      0.080      0.045      0.080      0.045     940.70    1998.91
  0.001230         20.        20.        20.          0          0          0        0.0      22.09    2021.00

CCHV=   0.100 CEHV=   0.300
*SECNO 4.000

3470 ENCROACHMENT STATIONS=    1985.0     2050.0  TYPE=       1  TARGET=       65.000

                VALLEY SECTION D

      4.00       5.48     946.98        0.0     946.89     947.00       0.02       1.40       0.01     944.80
       255.         8.        247.         0.        25.        224.         0.        32.         9.  100000.00
      1.92        0.31       1.10        0.0      0.080      0.045      0.080      0.045     941.50    1985.00
  0.000159        2600.      4100.      3500.          4          0          0        0.0      65.00    2050.00

*SECNO 4.500
 2800 NAT Q1=     301.50  WSEL=     947.10  ENC Q1=     301.50  WSEL=     947.20  RATIO=   0.0
 NAT Q1=     338.  RATIOS LOB,CH,ROB=  0.4137  0.4551  0.1312  WSEL=     947.20

3470 ENCROACHMENT STATIONS=    1625.1     2498.8  TYPE=       4  TARGET=        0.107
      4.50       4.69     947.19        0.0     947.10     947.19       0.00       0.19       0.00     945.80
       215.        86.        111.        18.        518.        192.        216.        59.        27.     946.70
      3.53        0.17       0.58       0.08      0.080      0.045      0.080      0.045     942.50    1625.13
  0.000053        2200.      2200.      1200.          1          0          0        0.0     873.66    2498.79

*SECNO 4.800

3470 ENCROACHMENT STATIONS=    1970.0     2070.0  TYPE=       1  TARGET=      100.000
      4.80       4.31     947.31        0.0     947.22     947.33       0.02       0.13       0.00     946.80
       215.        15.        194.         6.        43.        176.        21.        78.        45.     946.20
      3.90        0.34       1.10       0.29      0.080      0.045      0.080      0.045     943.00    1970.00
  0.000221        1200.      1375.      2000.          2          0          0        0.0     100.00    2070.00

CCHV=   0.300 CEHV=   0.500
*SECNO 4.900
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS      BANK ELEV
      0        QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
     TIME      VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

4.90	3.93	947.33	0.0	947.24	947.40	0.07	0.05	0.03	943.60	
215.	0.	215.	0.	0	100.	0	78.	45.	945.50	
3.91	0.0	2.16	0.0	0.080	0.045	0.080	0.045	943.40	2000.00	
0.001008	150.	114.	50.	0	0	0	0.0	31.00	2031.00	

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.00	3.90	947.30	0.0	947.21	947.44	0.14	0.00	0.03	943.60
215.	0.	215.	0.	0	72.	0	78.	45.	945.50
3.91	0.0	2.98	0.0	0.080	0.024	0.080	0.045	943.40	2000.00
0.001080	1.	1.	1.	2	0	0	-32.53	31.00	2031.00

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	3.95	947.35	0.0	947.26	947.48	0.14	0.04	0.00	943.60
215.	0.	215.	0.	0	73.	0	78.	45.	945.50
3.92	0.0	2.96	0.0	0.080	0.024	0.080	0.045	943.40	2000.00
0.001156	40.	40.	40.	0	0	0	-33.50	31.00	2031.00

*SECNO 5.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.20	4.04	947.44	0.0	947.35	947.50	0.07	0.00	0.02	943.60
215.	0.	215.	0.	0	103.	0	78.	45.	945.50
3.92	0.0	2.09	0.0	0.080	0.045	0.080	0.045	943.40	2000.00
0.000905	1.	1.	1.	2	0	0	0.0	31.00	2031.00

*SECNO 5.300

2800 NAT Q1= 83.50 WSEL= 947.46 ENC Q1= 83.50 WSEL= 947.56 RATIO= 0.0000

NAT Q1= 88. RATIOS LOB,CH,ROB= 0.0778 0.9059 0.0163 WSEL= 947.56

3470 ENCROACHMENT STATIONS= 1996.5 2031.0 TYPE= 4 TARGET= 0.051

5.30	4.13	947.53	0.0	947.46	947.59	0.06	0.08	0.00	943.60
215.	9.	206.	0.	12.	106.	0.	78.	45.	945.50
3.93	0.76	1.95	0.0	0.080	0.045	0.080	0.045	943.40	1996.50
0.000747	100.	100.	100.	2	0	0	0.0	34.50	2031.00

CCHV= 0.100 CEHV= 0.300

*SECNO 5.900

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=		1100.0	2370.0	TYPE=	1	TARGET=		1270.000	
5.90	3.64	947.77	0.0	947.65	947.77	0.00	0.18	0.01	944.86
215.	155.	20.	39.	1349.	71.	442.	161.	98.	944.96
12.30	0.12	0.29	0.09	0.080	0.045	0.080	0.045	944.13	1100.00
0.000015	3700.	4000.	3300.	4	0	0	0.0	1231.85	2370.00

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 1780.0 2261.0 TYPE= 1 TARGET= 481.000

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	3.66	947.79	0.0	947.66	947.79	0.00	0.02	0.00	944.86
215.	38.	64.	113.	151.	71.	365.	175.	107.	944.96
12.60	0.25	0.91	0.31	0.080	0.045	0.080	0.045	944.13	1799.96
0.000150	500.	500.	500.	2	0	0	0.0	461.04	2261.00

THIS RUN EXECUTED 03722782

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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	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
0.800	939.88	935.50	0.0	0.0	1999.00	1999.00	2000.00	2047.00	0.0	2070.00	71.00	0.0
0.800	939.88	935.50	0.0	0.0	1999.00	1999.00	2000.00	2047.00	0.0	2070.00	71.00	0.0
0.900	939.94	936.80	0.0	0.0	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	85.00
0.900	939.94	936.80	0.0	0.0	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	85.00
1.000	939.94	936.80	940.80	942.20	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	1.00
1.000	939.94	936.80	940.80	942.20	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	1.00
1.100	939.97	936.80	940.80	942.20	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	25.00
1.100	939.97	936.80	940.80	942.20	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	25.00
1.200	939.98	936.80	0.0	0.0	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	1.00
1.200	939.98	936.80	0.0	0.0	2000.00	0.0	2000.00	2021.50	0.0	2021.50	21.50	1.00
1.300	940.22	937.00	0.0	0.0	2000.48	0.0	2000.00	2037.00	0.0	2033.92	33.45	30.00
1.300	940.22	937.00	0.0	0.0	2000.48	2000.00	2000.00	2037.00	0.0	2033.92	33.44	30.00
1.800	944.91	939.90	0.0	0.0	1986.05	0.0	1999.00	2025.00	0.0	2034.58	48.53	4500.00
1.800	944.90	939.90	0.0	0.0	1990.00	1990.00	1999.00	2025.00	0.0	2030.00	40.00	4500.00
1.900	944.96	939.90	0.0	0.0	2000.00	2000.00	2000.00	2026.00	0.0	2026.00	26.00	100.00
1.900	944.96	939.90	0.0	0.0	2000.00	2000.00	2000.00	2026.00	0.0	2026.00	26.00	100.00
2.100	945.21	939.90	943.20	946.30	2000.00	0.0	2000.00	2026.00	0.0	2026.00	26.00	23.00
2.100	945.21	939.90	943.20	946.30	2000.00	0.0	2000.00	2026.00	0.0	2026.00	26.00	23.00
2.300	945.24	939.90	0.0	0.0	1982.15	0.0	1999.00	2025.00	0.0	2051.93	69.78	100.00
2.300	945.24	939.90	0.0	0.0	1993.19	1993.19	1999.00	2025.00	0.0	2025.00	31.81	100.00
2.800	945.40	940.00	0.0	0.0	1919.20	1919.00	2000.00	2042.00	0.0	2053.01	133.81	625.00
2.800	945.43	940.00	0.0	0.0	1980.00	1980.00	2000.00	2042.00	0.0	2045.00	65.00	625.00
2.900	945.36	940.70	0.0	0.0	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	75.00
2.900	945.40	940.70	0.0	0.0	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	75.00
3.000	945.35	941.10	949.40	950.80	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	1.00
3.000	945.39	941.10	949.40	950.80	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	1.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
3.100	945.37	941.10	949.40	950.80	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	34.00
3.100	945.40	941.10	949.40	950.80	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	34.00
3.200	945.40	940.70	0.0	0.0	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	1.00
3.200	945.44	940.70	0.0	0.0	2000.00	0.0	2000.00	2021.00	0.0	2021.00	21.00	1.00
3.300	945.45	940.70	0.0	0.0	1993.67	0.0	2000.00	2021.00	0.0	2024.09	30.41	20.00
3.300	945.47	940.70	0.0	0.0	1998.91	1998.91	2000.00	2021.00	0.0	2021.00	22.09	20.00
4.000	946.89	941.50	0.0	0.0	1969.03	0.0	2000.00	2050.00	0.0	2055.95	86.91	4100.00
4.000	946.98	941.50	0.0	0.0	1985.00	1985.00	2000.00	2050.00	0.0	2050.00	65.00	4100.00
4.500	947.10	942.50	0.0	0.0	1552.11	0.0	2000.00	2050.00	0.0	2819.48	1267.37	2200.00
4.500	947.19	942.50	0.0	0.0	1625.13	1625.13	2000.00	2050.00	0.0	2498.79	873.66	2200.00
4.800	947.22	943.00	0.0	0.0	1970.00	1970.00	2000.00	2051.00	0.0	2070.00	100.00	1375.00
4.800	947.31	943.00	0.0	0.0	1970.00	1970.00	2000.00	2051.00	0.0	2070.00	100.00	1375.00
4.900	947.24	943.40	0.0	0.0	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	114.00
4.900	947.33	943.40	0.0	0.0	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	114.00
5.000	947.21	943.40	950.40	950.30	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	1.00
5.000	947.30	943.40	950.40	950.30	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	1.00
5.100	947.26	943.40	950.40	950.30	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	40.00
5.100	947.35	943.40	950.40	950.30	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	40.00
5.200	947.35	943.40	0.0	0.0	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	1.00
5.200	947.44	943.40	0.0	0.0	2000.00	0.0	2000.00	2031.00	0.0	2031.00	31.00	1.00
5.300	947.46	943.40	0.0	0.0	1988.09	0.0	2000.00	2031.00	0.0	2038.18	50.09	100.00
5.300	947.53	943.40	0.0	0.0	1996.50	1996.50	2000.00	2031.00	0.0	2031.00	34.50	100.00
5.900	947.65	944.13	0.0	0.0	800.06	0.0	2000.00	2021.00	0.0	2797.41	1889.19	4000.00
5.900	947.77	944.13	0.0	0.0	1100.00	1100.00	2000.00	2021.00	0.0	2370.00	1231.85	4000.00
6.000	947.66	944.13	0.0	0.0	1833.89	1780.00	2000.00	2021.00	0.0	2261.00	427.10	500.00
6.000	947.79	944.13	0.0	0.0	1799.96	1780.00	2000.00	2021.00	0.0	2261.00	461.04	500.00

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.800	0.0	0.0	0.0	935.50	255.00	939.08	0.0	939.94	9.73	1.97	134.92	81.73
0.800	0.0	0.0	0.0	935.50	255.00	939.88	0.0	939.94	9.73	1.97	134.92	81.73
0.900	85.00	0.0	0.0	936.80	255.00	939.94	0.0	940.20	50.83	4.10	62.16	35.77
0.900	85.00	0.0	0.0	936.80	255.00	939.94	0.0	940.20	50.83	4.10	62.16	35.77
1.000	1.00	942.20	940.80	936.80	255.00	939.94	0.0	940.20	10.01	4.10	62.23	80.60
1.000	1.00	942.20	940.80	936.80	255.00	939.94	0.0	940.20	10.01	4.10	62.23	80.60
1.100	25.00	942.20	940.80	936.80	255.00	939.97	0.0	940.23	9.69	4.05	62.90	81.93
1.100	25.00	942.20	940.80	936.80	255.00	939.97	0.0	940.23	9.69	4.05	62.90	81.93
1.200	1.00	0.0	0.0	936.80	255.00	939.98	0.0	940.23	48.99	4.05	62.92	36.43
1.200	1.00	0.0	0.0	936.80	255.00	939.98	0.0	940.23	48.99	4.05	62.92	36.43
1.300	30.00	0.0	0.0	937.00	255.00	940.22	0.0	940.37	28.96	3.13	81.57	47.38
1.300	30.00	0.0	0.0	937.00	255.00	940.22	0.0	940.37	28.99	3.13	81.54	47.36
1.800	4500.00	0.0	0.0	939.90	255.00	944.91	0.0	944.96	5.19	2.00	147.68	111.93
1.800	4500.00	0.0	0.0	939.90	255.00	944.96	0.0	944.96	5.19	2.00	145.32	111.96
1.900	100.00	0.0	0.0	939.90	255.00	944.96	0.0	945.03	7.08	2.04	125.03	95.84
1.900	100.00	0.0	0.0	939.90	255.00	944.96	0.0	945.03	7.08	2.04	125.00	95.81
2.100	23.00	946.30	943.20	939.90	255.00	945.21	0.0	945.27	1.21	1.94	131.43	232.22
2.100	23.00	946.30	943.20	939.90	255.00	945.21	0.0	945.27	1.21	1.94	131.41	232.15
2.300	100.00	0.0	0.0	939.90	255.00	945.24	0.0	945.29	3.97	1.84	167.74	127.92
2.300	100.00	0.0	0.0	939.90	255.00	945.24	0.0	945.29	4.98	1.90	145.94	114.23
2.800	625.00	0.0	0.0	940.00	255.00	945.40	0.0	945.41	1.10	0.98	378.93	243.23
2.800	625.00	0.0	0.0	940.00	255.00	945.43	0.0	945.45	1.47	1.13	265.30	210.59
2.900	75.00	0.0	0.0	940.70	255.00	945.36	0.0	945.49	12.62	2.85	89.50	71.78
2.900	75.00	0.0	0.0	940.70	255.00	945.40	0.0	945.53	12.29	2.82	90.27	72.75
3.000	1.00	950.80	949.40	941.10	255.00	945.35	0.0	945.50	4.21	3.15	81.02	124.33
3.000	1.00	950.80	949.40	941.10	255.00	945.39	0.0	945.54	4.09	3.12	81.80	126.10
3.100	34.00	950.80	949.40	941.10	255.00	945.37	0.0	945.52	4.16	3.13	81.34	125.07
3.100	34.00	950.80	949.40	941.10	255.00	945.40	0.0	945.55	4.04	3.11	82.11	126.81
3.200	1.00	0.0	0.0	940.70	255.00	945.40	0.0	945.53	12.25	2.82	90.34	72.84
3.200	1.00	0.0	0.0	940.70	255.00	945.44	0.0	945.56	11.94	2.80	91.10	73.79
3.300	20.00	0.0	0.0	940.70	255.00	945.45	0.0	945.56	9.23	2.66	108.33	83.91
3.300	20.00	0.0	0.0	940.70	255.00	945.47	0.0	945.59	12.30	2.76	95.17	72.72
4.000	4100.00	0.0	0.0	941.50	255.00	946.89	0.0	946.91	1.70	1.13	251.94	195.77
4.000	4100.00	0.0	0.0	941.50	255.00	946.98	0.0	947.00	1.59	1.10	248.85	201.92
4.500	2200.00	0.0	0.0	942.50	215.00	947.10	0.0	947.10	0.51	0.56	1057.61	301.50
4.500	2200.00	0.0	0.0	942.50	215.00	947.19	0.0	947.19	0.53	0.58	925.78	296.21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.800	1375.00	0.0	0.0	943.00	215.00	947.22	0.0	947.24	2.45	1.14	231.12	137.38
4.800	1375.00	0.0	0.0	943.00	215.00	947.31	0.0	947.33	2.21	1.10	240.25	144.61
4.900	114.00	0.0	0.0	943.40	215.00	947.24	0.0	947.32	11.05	2.22	96.71	64.68
4.900	114.00	0.0	0.0	943.40	215.00	947.33	0.0	947.40	10.08	2.16	99.50	67.72
5.000	1.00	950.30	950.40	943.40	215.00	947.21	0.0	947.35	11.53	3.04	70.62	63.32
5.000	1.00	950.30	950.40	943.40	215.00	947.30	0.0	947.44	10.80	2.98	72.09	65.43
5.100	40.00	950.30	950.40	943.40	215.00	947.26	0.0	947.40	11.15	3.01	71.36	64.39
5.100	40.00	950.30	950.40	943.40	215.00	947.35	0.0	947.48	11.56	2.96	72.69	63.24
5.200	1.00	0.0	0.0	943.40	215.00	947.35	0.0	947.42	9.83	2.14	100.29	68.58
5.200	1.00	0.0	0.0	943.40	215.00	947.44	0.0	947.50	9.05	2.09	102.91	71.48
5.300	100.00	0.0	0.0	943.40	215.00	947.46	0.0	947.51	6.63	1.89	133.50	83.50
5.300	100.00	0.0	0.0	943.40	215.00	947.53	0.0	947.59	7.47	1.95	117.67	78.65
5.900	4000.00	0.0	0.0	944.13	215.00	947.65	0.0	947.65	0.11	0.24	2343.37	636.46
5.900	4000.00	0.0	0.0	944.13	215.00	947.77	0.0	947.77	0.15	0.29	1861.67	550.19
6.000	500.00	0.0	0.0	944.13	215.00	947.66	0.0	947.67	1.94	1.01	530.65	154.28
6.000	500.00	0.0	0.0	944.13	215.00	947.79	0.0	947.79	1.50	0.91	587.57	175.31

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKKS	TOPWID	XLCH
0.800	255.00	939.88	0.0	0.0	0.0	71.00	0.0
0.800	255.00	939.88	0.0	0.0	0.0	71.00	0.0
0.900	255.00	939.94	0.0	0.06	0.0	21.50	85.00
0.900	255.00	939.94	0.0	0.06	0.0	21.50	85.00
1.000	255.00	939.94	0.0	0.00	0.0	21.50	1.00
1.000	255.00	939.94	0.0	0.00	0.0	21.50	1.00
1.100	255.00	939.97	0.0	0.03	0.0	21.50	25.00
1.100	255.00	939.97	0.0	0.03	0.0	21.50	25.00
1.200	255.00	939.98	0.0	0.00	0.0	21.50	1.00
1.200	255.00	939.98	0.0	0.00	0.0	21.50	1.00
1.300	255.00	940.22	0.0	0.25	0.0	33.45	30.00
1.300	255.00	940.22	0.0	0.25	0.0	33.44	30.00
1.800	255.00	944.91	0.0	4.69	0.0	48.53	4500.00
1.800	255.00	944.90	-0.00	4.68	-0.00	40.00	4500.00
1.900	255.00	944.96	0.0	0.06	0.0	26.00	100.00
1.900	255.00	944.96	-0.00	0.06	-0.00	26.00	100.00
2.100	255.00	945.21	0.0	0.25	0.0	26.00	23.00
2.100	255.00	945.21	-0.00	0.25	-0.00	26.00	23.00
2.300	255.00	945.24	0.0	0.03	0.0	69.78	100.00
2.300	255.00	945.24	-0.01	0.03	-0.01	31.81	100.00
2.800	255.00	945.40	0.0	0.16	0.0	133.81	625.00
2.800	255.00	945.43	0.03	0.19	0.03	65.00	625.00
2.900	255.00	945.36	0.0	-0.04	0.0	21.00	75.00
2.900	255.00	945.40	0.04	-0.03	0.04	21.00	75.00
3.000	255.00	945.35	0.0	-0.01	0.0	21.00	1.00
3.000	255.00	945.39	0.04	-0.01	0.04	21.00	1.00
3.100	255.00	945.37	0.0	0.02	0.0	21.00	34.00
3.100	255.00	945.40	0.04	0.02	0.04	21.00	34.00
3.200	255.00	945.40	0.0	0.04	0.0	21.00	1.00
3.200	255.00	945.44	0.04	0.04	0.04	21.00	1.00
3.300	255.00	945.45	0.0	0.05	0.0	30.41	20.00
3.300	255.00	945.47	0.02	0.03	0.02	22.09	20.00
4.000	255.00	946.89	0.0	1.44	0.0	86.91	4100.00
4.000	255.00	946.98	0.09	1.51	0.09	65.00	4100.00
4.500	215.00	947.10	0.0	0.21	0.0	1267.37	2200.00
4.500	215.00	947.19	0.09	0.21	0.07	873.66	2200.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.800	215.00	947.22	0.0	0.12	0.0	100.00	1375.00
4.800	215.00	947.31	0.09	0.12	0.09	100.00	1375.00
4.900	215.00	947.24	0.0	0.02	0.0	31.00	114.00
4.900	215.00	947.33	0.09	0.02	0.09	31.00	114.00
5.000	215.00	947.21	0.0	-0.03	0.0	31.00	1.00
5.000	215.00	947.30	0.09	-0.03	0.09	31.00	1.00
5.100	215.00	947.26	0.0	0.05	0.0	31.00	40.00
5.100	215.00	947.35	0.09	0.05	0.09	31.00	40.00
5.200	215.00	947.35	0.0	0.09	0.0	31.00	1.00
5.200	215.00	947.44	0.08	0.09	0.08	31.00	1.00
5.300	215.00	947.46	0.0	0.11	0.0	50.09	100.00
5.300	215.00	947.53	0.07	0.10	0.07	34.50	100.00
5.900	215.00	947.65	0.0	0.19	0.0	1889.19	4000.00
5.900	215.00	947.77	0.12	0.24	0.12	1231.85	4000.00
6.000	215.00	947.66	0.0	0.01	0.0	427.10	500.00
6.000	215.00	947.79	0.13	0.01	0.13	461.04	500.00

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
0.800	71.	135.	1.9	939.9	939.9	0.0
0.900	22.	62.	4.1	939.9	939.9	0.0
1.000	22.	62.	4.1	939.9	939.9	0.0
1.100	22.	63.	4.1	940.0	940.0	0.0
1.200	22.	63.	4.1	940.0	940.0	0.0
1.300	33.	82.	3.1	940.2	940.2	0.0
1.800	40.	145.	1.8	944.9	944.9	0.0
1.900	26.	125.	2.0	945.0	945.0	0.0
2.100	26.	131.	1.9	945.2	945.2	0.0
2.300	32.	146.	1.7	945.2	945.2	0.0
2.800	65.	265.	1.0	945.4	945.4	0.0
2.900	21.	90.	2.8	945.4	945.4	0.0
3.000	21.	82.	3.1	945.4	945.4	0.0
3.100	21.	82.	3.1	945.4	945.4	0.0
3.200	21.	91.	2.8	945.4	945.4	0.0
3.300	22.	95.	2.7	945.5	945.5	0.0
4.000	65.	249.	1.0	947.0	946.9	0.1
4.500	874.	926.	0.2	947.2	947.1	0.1
4.800	100.	240.	0.9	947.3	947.2	0.1
4.900	31.	100.	2.2	947.3	947.2	0.1
5.000	31.	72.	3.0	947.3	947.2	0.1
5.100	31.	73.	3.0	947.4	947.3	0.1
5.200	31.	103.	2.1	947.5	947.4	0.1
5.300	34.	118.	1.8	947.6	947.5	0.1
5.900	1270.	1862.	0.1	947.7	947.6	0.1
6.000	461.	588.	0.4	947.8	947.7	0.1

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: ~~1980~~ 1981 revised 100 yr run

00BREAK00

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*****************************************************          ****************************************
*  WATER SURFACE PROFILES                           *          *  U.S. ARMY CORPS OF ENGINEERS        *
*  VERSION OF NOVEMBER 1976                         *          *  THE HYDROLOGIC ENGINEERING CENTER   *
*  UPDATED APRIL 1980                               *          *  609 SECOND STREET, SUITE D          *
*                                                   *          *  DAVIS, CALIFORNIA 95616             *
*  RUN DATE  81/01/12. TIME  07.30.41.              *          *  (916) 440-2105 (FTS) 448-2105       *
*****************************************************          ****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

*GENERAL MESSAGE

*HEC-2 MESSAGE

** HEC-2 MESSAGE **

MAY 13 -- THE STANDARD VERSION OF HEC-2 HAS BEEN UPDATE TO INCLUDE MODIFICATION 54 AND ERROR CORRECTION 04. DOCUMENTATION DESCRIBING THESE CHANGE WILL BE FURNISHED TO PROGRAM USERS IN JUNE. PLEASE CALL AL MONTALVO OR RICHARD HAYES AT (FTS) 448-2105 IF YOU HAVE QUESTIONS REGARDING THESE CHANGES.

**** SUMMARY OF MODIFICATION 54 ****

1. HEC-2 OUTPUT HAS BEEN MADE MORE READABLE BY THE ADDITION OF A PAGING ROUTINE TO CONTROL PRINTING AND PAGING. THE ROUTINE ALSO PROVIDES A PAGE NUMBER AND DATE AT THE TOP OF EACH PAGE OF OUTPUT. THIS ENHANCEMENT WAS REQUESTED BY THE FORT WORTH DISTRICT.

2. THE PROGRAM WILL NOW AUTOMATICALLY CALCULATE FLOOD HAZARD FACTORS FOR STREAMS WHICH REQUIRE MULTIPLE FIA ZONES.

MOORE BUSINESS FORMS, INC 27

3. THE CHANNEL IMPROVEMENT (CHIMP) ROUTINE HAS BEEN ENHANCED TO PROVIDE THE CAPABILITY TO MODEL PILOT CHANNELS, TO FILL THE OLD CHANNEL AREA PRIOR TO EXCAVATION, AND TO CHANGE THE CHANNEL REACH LENGTH.

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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      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN
T2      100 YEAR FLOW
T3      GRAND RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      4.        0.        0.  0.000000      0.00      0.0       0.   939.880     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE
    1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   38.000     1.000    42.000    41.000    40.000    53.000    27.000    21.000    22.000     2.000
   54.000     4.000    39.000     0.000   150.000   200.000     0.000     0.000     0.000     0.000

NC      .080      .080      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000   170.000   230.000   255.000   300.000   255.000     0.000     0.000     0.000     0.000
ET     0.000     7.100     7.100     7.100     7.100     7.100  1999.000  2070.000     0.000     0.000

X1      .800    64.000  2000.000  2047.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   960.300  1719.000   955.500  1743.000   951.500  1759.000   948.400  1775.000   944.500  1793.000
GP   940.100  1809.000   940.900  1811.000   941.100  1830.000   940.700  1841.000   940.600  1857.000
GR   940.000  1859.000   939.900  1881.000   939.800  1909.000   939.700  1959.000   939.300  2000.000
GR   939.200  2003.000   938.700  2005.000   938.700  2007.000   937.100  2009.000   935.800  2014.000
GR   935.500  2017.000   935.700  2023.000   936.700  2028.000   937.400  2035.000   937.700  2042.000
GR   938.500  2046.000   939.300  2047.000   939.700  2059.000   939.900  2089.000   939.100  2095.000
GR   937.500  2099.000   937.200  2109.000   937.600  2116.000   939.100  2122.000   939.200  2130.000
GR   940.900  2134.000   941.600  2159.000   942.100  2173.000   942.100  2189.000   942.400  2200.000
GR   942.200  2250.000   942.200  2300.000   942.400  2350.000   942.900  2400.000   943.600  2450.000
GR   944.900  2500.000   946.800  2550.000   949.100  2600.000   951.900  2650.000   953.100  2700.000
GR   952.100  2750.000   950.100  2800.000   948.000  2850.000   946.100  2900.000   945.200  2950.000
GR   945.100  3000.000   944.700  3050.000   944.500  3100.000   944.000  3150.000   943.500  3200.000
GR   943.100  3250.000   942.900  3300.000   942.900  3350.000   943.900  3400.000     0.000     0.000
NC      .080      .080      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
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MOORE BUSINESS FORMS, INC. 27

X1	.900	51.000	2000.000	2021.500	85.000	85.000	85.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1879.000	943.100	1900.000
GR	942.800	1950.000	942.800	1998.000	942.800	2000.000	937.100	2000.000	936.900	2003.000
GR	936.800	2006.000	937.200	2009.000	937.000	2012.000	937.000	2015.000	937.200	2018.000
GR	937.300	2021.500	943.000	2021.500	943.100	2022.000	942.800	2050.000	942.600	2100.000
GR	942.500	2150.000	942.400	2200.000	942.200	2250.000	942.200	2300.000	942.400	2350.000
GR	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000	949.100	2600.000
GR	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000	948.000	2850.000
GR	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000	944.500	3100.000
GR	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000	942.900	3350.000
GR	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	31.000	1500.000	958.100	0.000	1550.000	955.700	0.000	1600.000	952.700	0.000
BT	1650.000	949.500	0.000	1700.000	946.200	0.000	1750.000	944.000	0.000	1800.000
BT	943.200	0.000	1850.000	943.400	0.000	1879.000	943.200	0.000	1900.000	943.100
BT	0.000	1950.000	942.800	0.000	1998.000	942.800	0.000	2000.000	942.800	937.100
BT	2000.000	942.800	940.800	2021.500	943.000	940.800	2021.500	943.000	937.300	2022.000
BT	943.100	0.000	2050.000	942.800	0.000	2100.000	942.600	0.000	2150.000	942.500
BT	0.000	2200.000	942.400	0.000	2250.000	942.200	0.000	2300.000	942.200	0.000
BT	2350.000	942.400	0.000	2400.000	942.900	0.000	2450.000	943.600	0.000	2500.000
BT	944.900	0.000	2550.000	946.800	0.000	2600.000	949.100	0.000	2650.000	951.900
BT	0.000	2700.000	953.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

X1	1.100	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	1.300	57.000	2000.000	2037.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1885.000	942.900	1903.000
GR	942.200	1931.000	941.500	1953.000	941.400	1971.000	941.100	1987.000	940.700	2000.000
GR	937.700	2003.000	937.200	2006.000	937.100	2009.000	937.200	2012.000	937.100	2015.000
GR	937.000	2018.000	937.300	2021.000	937.500	2024.000	937.700	2026.000	941.200	2037.000
GR	941.100	2053.000	941.500	2080.000	942.000	2093.000	941.900	2103.000	942.400	2111.000
GR	942.500	2130.000	942.500	2153.000	942.400	2203.000	942.200	2250.000	942.200	2300.000
GR	942.400	2350.000	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000
GR	949.100	2600.000	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000
GR	948.000	2850.000	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000
GR	944.500	3100.000	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000
GR	942.900	3350.000	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

MOOSE BUSINESS FORMS INC 27

ET	0.000	0.000	0.000	0.000	0.000	7.100	1990.000	2030.000	0.000	0.000
X1	1.800	40.000	1999.000	2025.000	3600.000	3800.000	4500.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2026.100	0.000	0.000
X1	1.900	37.000	2000.000	2026.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	946.700	1900.000	946.400	1950.000	946.300	2000.000
GR	940.000	2000.000	940.000	2004.000	940.000	2008.000	939.900	2012.000	940.200	2016.000
GR	940.300	2016.000	940.300	2020.000	940.500	2024.000	940.700	2026.000	946.300	2026.000
GR	946.300	2050.000	946.500	2100.000	946.700	2150.000	946.900	2200.000	947.200	2250.000
GR	948.000	2300.000	949.600	2350.000	951.200	2400.000	952.700	2450.000	954.500	2500.000
GR	956.200	2550.000	957.700	2600.000	959.300	2650.000	961.100	2700.000	963.300	2750.000
GR	955.600	2800.000	967.300	2840.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.700	3.000	0.000	22.700	0.000	75.000	0.000	939.900	939.900

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

X1	2.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	1597.000	956.400	0.000	1600.000	956.300	0.000	1650.000	954.000	0.000
BT	1700.000	951.900	0.000	1750.000	950.100	0.000	1800.000	948.500	0.000	1850.000
BT	947.300	0.000	1900.000	946.700	0.000	1950.000	946.400	0.000	2000.000	946.300
BT	940.000	2000.000	946.300	943.100	2026.000	946.300	943.200	2026.000	946.300	940.700
BT	2050.000	946.300	0.000	2100.000	946.500	0.000	2150.000	946.700	0.000	2200.000
BT	946.900	0.000	2250.000	947.200	0.000	2300.000	948.000	0.000	2350.000	949.600
BT	0.000	2400.000	951.200	0.000	2450.000	952.700	0.000	2500.000	954.500	0.000
BT	2550.000	956.200	0.000	2600.000	957.700	0.000	2650.000	959.300	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.300	40.000	1999.000	2025.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000

NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1919.000	2066.000	1980.000	2045.000
X1	2.800	46.000	2000.000	2042.000	700.000	600.000	625.000	0.000	0.000	0.000
GR	961.300	1675.000	960.300	1700.000	959.600	1716.000	958.300	1731.000	959.400	1744.000
GR	959.000	1750.000	956.900	1771.000	954.900	1800.000	953.200	1827.000	951.200	1850.000
GR	948.000	1874.000	947.300	1889.000	947.000	1900.000	946.500	1910.000	944.600	1926.000
GR	943.400	1950.000	942.800	1999.000	942.300	2000.000	941.800	2000.000	941.200	2003.000
GR	940.800	2006.000	940.200	2009.000	940.500	2011.000	940.700	2014.000	940.300	2017.000
GR	940.000	2021.000	940.000	2026.000	940.300	2030.000	940.600	2035.000	940.700	2038.000
GR	941.800	2042.000	943.900	2050.000	945.400	2053.000	949.800	2060.000	950.500	2066.000
GR	951.000	2082.000	951.000	2098.000	950.100	2100.000	958.800	2114.000	959.000	2125.000
GR	958.500	2135.000	957.800	2148.000	957.900	2150.000	959.700	2168.000	961.300	2173.000
GR	961.700	2178.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.900	27.000	2000.000	2021.000	75.000	75.000	75.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.000	950.000	0.000
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	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
X1	3.000	46.000	2000.000	2021.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	40.000	700.000	964.200	0.000	750.000	962.100	0.000	800.000	960.100	0.000
BT	850.000	958.800	0.000	900.000	958.000	0.000	950.000	957.600	0.000	1000.000
BT	956.900	0.000	1050.000	956.000	0.000	1100.000	955.400	0.000	1150.000	955.200
BT	0.000	1200.000	955.300	0.000	1250.000	955.800	0.000	1300.000	956.700	0.000
BT	1350.000	957.800	0.000	1400.000	959.400	0.000	1450.000	960.800	0.000	1500.000
BT	961.800	0.000	1550.000	962.300	0.000	1563.000	962.300	0.000	1600.000	962.100
BT	0.000	1650.000	960.100	0.000	1700.000	959.000	0.000	1750.000	956.400	0.000
BT	1800.000	953.500	0.000	1850.000	951.600	0.000	1900.000	950.900	0.000	1916.000
BT	950.800	0.000	1950.000	951.000	0.000	1975.000	951.400	0.000	2000.000	951.800
BT	942.000	2000.000	951.800	949.400	2021.000	952.100	949.300	2021.000	952.100	942.800
BT	2022.000	952.100	0.000	2028.000	952.100	0.000	2050.000	953.200	0.000	2100.000
BT	957.300	0.000	2150.000	962.300	0.000	2200.000	965.700	0.000	2243.000	967.300
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	964.200	700.000	962.100	750.000	960.100	800.000	958.800	850.000	958.000	900.000
GR	957.600	950.000	956.900	1000.000	956.000	1050.000	955.400	1100.000	955.200	1150.000
GR	955.300	1200.000	955.800	1250.000	956.700	1300.000	957.800	1350.000	959.500	1400.000
GR	960.800	1450.000	961.800	1500.000	962.300	1550.000	962.800	1563.000	962.100	1600.000
GR	960.100	1650.000	959.000	1700.000	956.400	1750.000	953.500	1800.000	951.600	1850.000
GR	950.900	1900.000	950.800	1916.000	951.000	1950.000	951.400	1975.000	951.800	2000.000
GR	942.000	2000.000	941.900	2003.000	941.200	2006.000	941.200	2009.000	941.200	2012.000
GR	941.100	2015.000	941.500	2018.000	942.800	2021.000	952.100	2021.000	952.100	2022.000
GR	952.100	2028.000	953.200	2050.000	957.300	2100.000	962.300	2150.000	965.700	2200.000
GR	967.300	2243.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC 27

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

X1	3.100	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.200	27.000	2000.000	2021.000	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	950.000	950.000	0.000
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	3.300	0.000	0.000	0.000	20.000	20.000	20.000	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	7.100	1985.000	2050.000	0.000	0.000

VALLEY SECTION D

X1	4.000	14.000	2000.000	2050.000	2600.000	3500.000	4100.000	0.000	0.000	0.000
GR	962.000	1800.000	956.000	1880.000	950.000	1950.000	947.500	1960.000	944.800	2000.000
GR	941.700	2010.000	941.500	2020.000	941.800	2030.000	941.800	2040.000	946.700	2050.000
GR	948.300	2100.000	952.000	2130.000	956.000	2170.000	960.000	2180.000	0.000	0.000
CT	5.000	90.000	180.000	215.000	265.000	215.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	4.500	13.000	2000.000	2050.000	2200.000	1200.000	2200.000	0.000	0.000	0.000
GR	955.000	1460.000	950.000	1520.000	947.200	1550.000	945.800	1580.000	945.800	2000.000
GR	942.700	2010.000	942.500	2020.000	942.500	2030.000	942.800	2040.000	946.700	2050.000
GR	946.700	2800.000	950.000	2960.000	955.000	3000.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1970.000	2070.000	0.000	0.000
X1	4.800	15.000	2000.000	2051.000	1200.000	2000.000	1375.000	0.000	0.000	0.000
GR	955.000	1250.000	950.000	1710.000	945.800	1750.000	945.800	1995.000	946.800	2000.000
GR	943.000	2010.000	943.000	2020.000	943.500	2025.000	943.200	2030.000	943.800	2040.000
GR	945.000	2050.000	946.200	2051.000	946.200	2190.000	950.000	2200.000	953.000	2250.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	4.900	42.000	2000.000	2031.000	150.000	50.000	114.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.600	950.600	0.000
GR	965.500	871.000	963.000	1031.000	961.400	1135.000	960.100	1242.000	958.600	1348.000
GR	957.500	1452.000	955.700	1556.000	953.500	1659.000	951.800	1760.000	951.200	1860.000
GR	950.000	1960.000	950.400	1979.000	943.600	2000.000	943.500	2002.000	943.400	2003.000

ATCORE BUSINESS FORMS INC 27

GR	943.400	2006.000	943.700	2009.000	944.100	2012.000	944.300	2013.000	944.600	2019.000
GR	944.400	2020.000	944.300	2022.000	944.200	2025.000	944.500	2028.000	944.900	2030.000
GR	945.500	2031.000	950.400	2049.000	950.400	2058.000	950.300	2146.000	950.800	2249.000
GR	950.800	2475.000	951.300	2529.000	951.400	2657.000	951.700	2752.000	952.100	2847.000
GR	952.700	2944.000	952.700	3000.000	952.700	3100.000	952.700	3200.000	952.700	3300.000
GR	952.700	3400.000	952.700	3500.000	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	5.000	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	950.600	950.600	0.000
BT	42.000	871.000	965.500	0.000	1031.000	963.000	0.000	1135.000	961.400	0.000
BT	1242.000	960.100	0.000	1348.000	958.600	0.000	1452.000	957.500	0.000	1556.000
BT	955.700	0.000	1659.000	953.500	0.000	1760.000	951.800	0.000	1860.000	951.200
BT	0.000	1960.000	951.700	950.000	1979.000	951.800	950.400	2000.000	952.000	943.600
BT	2002.000	952.000	946.000	2003.000	951.900	947.600	2006.000	951.900	949.600	2009.000
BT	951.900	949.600	2012.000	951.900	947.300	2013.000	951.900	944.300	2019.000	951.800
BT	944.600	2020.000	951.800	946.100	2022.000	951.700	947.100	2025.000	951.700	949.600
BT	2028.000	951.700	947.600	2030.000	951.700	946.300	2031.000	951.600	945.500	2049.000
BT	951.500	950.400	2058.000	951.500	950.300	2146.000	950.300	0.000	2249.000	950.800
BT	0.000	2475.000	950.800	0.000	2529.000	951.300	0.000	2657.000	951.400	0.000
BT	2752.000	951.700	0.000	2847.000	952.100	0.000	2944.000	952.700	0.000	3000.000
BT	952.700	0.000	3100.000	952.700	0.000	3200.000	952.700	0.000	3300.000	952.700
BT	0.000	3400.000	952.700	0.000	3500.000	952.700	0.000	0.000	0.000	0.000

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

X1	5.100	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.600	950.600	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.200	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	950.600	950.600	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	5.300	0.000	0.000	0.000	100.000	100.000	100.000	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

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

X1	6.000	33.000	2000.000	2021.000	4200.000	3800.000	4500.000	0.000	0.000	0.000
GR	955.000	550.000	950.000	600.000	945.300	1000.000	945.100	1200.000	946.100	1350.000
GR	945.540	1425.000	945.460	1440.000	945.580	1513.000	945.740	1590.000	947.380	1660.000
GR	947.660	1731.000	947.840	1786.000	947.640	1839.000	947.210	1891.000	946.590	1941.000
GR	946.710	1977.000	945.500	1994.000	944.860	2000.000	944.700	2002.000	944.490	2004.000
GR	944.350	2006.000	944.170	2008.000	944.130	2010.000	944.150	2012.000	944.150	2014.000
GR	944.420	2016.000	944.510	2018.000	944.960	2021.000	946.010	2060.000	947.250	2367.000
GR	947.200	2665.000	950.000	3490.000	955.000	3500.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 .800

3470 ENCROACHMENT STATIONS= 1999.0 2070.0 TYPE= 1 TARGET= 71.000

.80	4.38	939.88	0.00	0.00	939.94	.06	0.00	0.00	939.30
255.	0.	253.	2.	1.	128.	6.	0.	0.	939.30
0.00	.30	1.97	.27	.080	.045	.080	0.000	935.50	1999.00
.000973	0.	0.	0.	0	0	0	0.00	71.00	2070.00

CCHV= .300 CEHV= .500
*SECNO .900

.90	3.14	939.94	0.00	0.00	940.20	.26	.16	.10	942.80
255.	0.	255.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.10	0.00	.080	.045	.080	.044	936.80	2000.00
.005079	85.	85.	85.	2	0	0	0.00	21.50	2021.50

*SECNO 1.000

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

1.00	3.14	939.94	0.00	0.00	940.20	.26	.00	.00	942.80
255.	0.	255.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.10	0.00	.080	.020	.080	.044	936.80	2000.00
.001279	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.100

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

1.10	3.18	939.98	0.00	0.00	940.24	.25	.03	.00	942.80
255.	0.	255.	0.	0.	63.	0.	0.	0.	943.00
.01	0.00	4.04	0.00	.080	.020	.080	.038	936.80	2000.00
.001229	25.	25.	25.	2	0	0	0.00	21.50	2021.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	COPAR	TOPWID	ENDST
*SECNO 1.200									
1.20	3.19	939.99	0.00	0.00	940.24	.25	.00	.00	942.80
255.	0.	255.	0.	0.	63.	0.	0.	0.	943.00
.01	0.00	4.04	0.00	.080	.045	.080	.038	936.80	2000.00
.004846	1.	1.	1.	0	0	0	0.00	21.50	2021.50
*SECNO 1.300									
1.30	3.23	940.23	0.00	0.00	940.38	.15	.11	.03	940.70
255.	0.	255.	0.	0.	82.	0.	0.	0.	941.20
.01	0.00	3.12	0.00	.080	.045	.080	.039	937.00	2000.47
.002868	30.	30.	30.	2	0	0	0.00	33.48	2033.95
CCHV= .100 CEHV= .300									
*SECNO 1.800									
1.80	5.00	944.90	0.00	0.00	944.96	.06	4.57	.01	941.30
255.	14.	239.	2.	23.	119.	5.	12.	4.	941.90
.66	.61	2.00	.43	.080	.045	.080	.045	939.90	1986.06
.000520	3600.	4500.	3800.	6	0	0	0.00	48.44	2034.50
CCHV= .300 CEHV= .500									
*SECNO 1.900									
3470 ENCROACHMENT STATIONS=		2000.0	2026.1	TYPE=	1	TARGET=		26.100	
1.90	5.06	944.96	0.00	0.00	945.03	.06	.06	.00	946.30
255.	0.	255.	0.	0.	125.	0.	12.	4.	946.30
.67	0.00	2.04	0.00	.080	.045	.080	.045	939.90	2000.00
.000708	100.	100.	100.	2	0	0	0.00	26.00	2026.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	3.00	0.00	22.70	0.00	75.00	0.00	939.90	939.90

*SECNO 2.100
PRESSURE FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	
945.27	945.03	0.00	0.	255.	75.	75.	943.20	946.30	

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

2.10	5.31	945.21	0.00	0.00	945.27	.06	.24	0.00	946.30
255.	0.	255.	0.	0.	131.	0.	12.	4.	946.30
.68	0.00	1.94	0.00	.080	.020	.080	.045	939.90	2000.00
.000121	23.	23.	23.	2	0	0	0.00	26.00	2026.00

*SECNO 2.300

2.30	5.34	945.24	0.00	0.00	945.29	.05	.02	.00	941.30
255.	16.	235.	3.	28.	128.	11.	13.	4.	941.90
.69	.57	1.84	.30	.080	.045	.080	.045	939.90	1982.20
.000398	100.	100.	100.	0	0	0	0.00	69.70	2051.90

CCHV= .100 CEHV= .300
*SECNO 2.800

3470 ENCROACHMENT STATIONS= 1919.0 2066.0 TYPE= 1 TARGET= 147.000

2.60	5.40	945.40	0.00	0.00	945.41	.01	.12	.00	942.30
255.	48.	199.	8.	152.	204.	23.	17.	6.	941.80
.90	.32	.98	.34	.080	.045	.080	.045	940.00	1919.20
.000110	700.	625.	600.	0	0	0	0.00	133.81	2053.01

CCHV= .300 CEHV= .500
*SECNO 2.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.00 ELREA= 950.00

2.90	4.66	945.36	0.00	0.00	945.49	.13	.02	.06	941.80
255.	0.	255.	0.	0.	89.	0.	17.	6.	941.90
.91	0.00	2.85	0.00	.080	.045	.080	.045	940.70	2000.00
.001091	75.	75.	75.	2	0	0	0.00	21.00	2021.00

MOORE BUSINESS FORMS INC. 27

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

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

3.00	4.25	945.35	0.00	0.00	945.50	.15	.00	.01	951.80
255.	0.	255.	0.	0.	81.	0.	17.	6.	952.10
.91	0.00	3.15	0.00	.080	.020	.080	.045	941.10	2000.00
.000547	1.	1.	1.	1	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	4.27	945.37	0.00	0.00	945.52	.15	.02	.00	951.80
255.	0.	255.	0.	0.	81.	0.	17.	6.	952.10
.92	0.00	3.13	0.00	.080	.020	.080	.045	941.10	2000.00
.000539	34.	34.	34.	0	0	0	0.00	21.00	2021.00

*SECNO 3.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.00 ELREA= 950.00

3.20	4.71	945.41	0.00	0.00	945.53	.12	.00	.01	941.80
255.	0.	255.	0.	0.	90.	0.	17.	6.	941.90
.92	0.00	2.82	0.00	.080	.045	.080	.045	940.70	2000.00
.001053	1.	1.	1.	2	0	0	0.00	21.00	2021.00

*SECNO 3.300

3.30	4.75	945.45	0.00	0.00	945.56	.10	.02	.01	941.80
255.	9.	243.	3.	12.	91.	5.	17.	6.	941.90
.92	.77	2.66	.62	.080	.045	.080	.045	940.70	1993.67
.000922	20.	20.	20.	2	0	0	0.00	30.42	2024.09

CCHV= .100 CEHV= .300

*SECNO 4.000

VALLEY SECTION D

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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	5.39	946.89	0.00	0.00	946.91	.02	1.34	.01	944.80
255.	8.	247.	0.	32.	219.	1.	33.	11.	946.70
1.94	.25	1.13	.05	.080	.045	.080	.045	941.50	1969.02
.000170	2600.	4100.	3500.	4	0	0	0.00	86.94	2055.97

*SECNO 4.500

4.50	4.60	947.10	0.00	0.00	947.10	.00	.19	.00	945.80
215.	88.	105.	22.	565.	188.	306.	63.	36.	946.70
3.67	.16	.56	.07	.080	.045	.080	.045	942.50	1552.09
.000051	2200.	2200.	1200.	3	0	0	0.00	1267.43	2819.52

*SECNO 4.800

3470 ENCROACHMENT STATIONS= 1970.0 2070.0 TYPE= 1 TARGET= 100.000

4.80	4.22	947.22	0.00	0.00	947.24	.02	.13	.00	946.80
215.	14.	196.	6.	40.	172.	19.	84.	62.	946.20
4.03	.34	1.14	.28	.080	.045	.080	.045	943.00	1970.00
.000245	1200.	1375.	2000.	2	0	0	0.00	100.00	2070.00

CCHV= .300 CEHV= .500

*SECNO 4.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

4.90	3.84	947.24	0.00	0.00	947.32	.08	.05	.03	943.60
215.	0.	215.	0.	0.	97.	0.	85.	63.	945.50
4.05	0.00	2.22	0.00	.080	.045	.080	.045	943.40	2000.00
.001007	150.	114.	50.	0	0	0	0.00	31.00	2031.00

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.00	3.80	947.20	0.00	0.00	947.36	.16	.00	.04	943.60
215.	0.	215.	0.	0.	68.	0.	85.	63.	945.50
4.05	0.00	3.18	0.00	.080	.024	.080	.045	943.40	2000.00
.001318	1.	1.	1.	2	0	0	-33.50	31.00	2031.00

MOORE BUSINESS FORMS INC 27

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	TOPWID	ENDST

*SECNO 5.100

3370 NORMAL BRIDGE,NRC= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	3.86	947.26	0.00	0.00	947.41	.15	.05	.00	943.60
215.	0.	215.	0.	0.	68.	0.	85.	63.	945.50
4.05	0.00	3.15	0.00	.080	.024	.080	.045	943.40	2000.00
.001283	40.	40.	40.	0	0	0	-34.51	31.00	2031.00

*SECNO 5.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.20	3.97	947.37	0.00	0.00	947.44	.07	.00	.03	943.60
215.	0.	215.	0.	0.	101.	0.	85.	63.	945.50
4.05	0.00	2.13	0.00	.080	.045	.080	.045	943.40	2000.00
.000877	1.	1.	1.	2	0	0	0.00	31.00	2031.00

*SECNO 5.300

5.30	4.07	947.47	0.00	0.00	947.52	.05	.07	.01	943.60
215.	17.	195.	3.	23.	104.	7.	85.	63.	945.50
4.07	.71	1.87	.46	.080	.045	.080	.045	943.40	1988.03
.000648	100.	100.	100.	0	0	0	0.00	50.24	2038.26

CCHV= .100 CEHV= .300

*SECNO 6.000

3265 DIVIDED FLOW

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	3.54	947.67	0.00	0.00	947.67	.00	.15	.00	944.86
215.	164.	16.	35.	1748.	68.	572.	205.	154.	944.96
16.10	.09	.24	.06	.060	.045	.080	.046	944.13	798.03
.000011	4200.	4500.	3800.	4	0	0	0.00	1911.23	2804.42

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	0.000000	0.00	0.0	0.	939.880	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 .800

3470 ENCROACHMENT STATIONS= 1999.0 2070.0 TYPE= 1 TARGET= 71.000

.80	4.38	939.88	0.00	939.88	939.94	.06	0.00	0.00	939.30
255.	0.	253.	2.	1.	128.	6.	0.	0.	939.30
0.00	.30	1.97	.27	.080	.045	.080	0.000	935.50	1999.00
.000973	0.	0.	0.	0	0	0	0.00	71.00	2070.00

CCHV= .300 CEHV= .500
*SECNO .900

.90	3.14	939.94	0.00	939.94	940.20	.26	.16	.10	942.80
255.	0.	255.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.10	0.00	.080	.045	.080	.044	936.80	2000.00
.005079	85.	85.	85.	2	0	0	0.00	21.50	2021.50

*SECNO 1.000

3370 NORMAL BRIDGE.NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

1.00	3.14	939.94	0.00	939.94	940.20	.26	.00	.00	942.80
255.	0.	255.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.10	0.00	.080	.020	.080	.044	936.80	2000.00
.001279	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.100

3370 NORMAL BRIDGE.NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

1.10	3.18	939.98	0.00	939.98	940.24	.25	.03	.00	942.80
255.	0.	255.	0.	0.	63.	0.	0.	0.	943.00
.01	0.00	4.04	0.00	.080	.020	.080	.038	936.80	2000.00
.001229	25.	25.	25.	2	0	0	0.00	21.50	2021.50

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

*SECNO 1.200
       1.20       3.19     939.99       0.00     939.99     940.24       .25        .00        .00    942.80
        255.         0.        255.         0.         0.        63.         0.         0.         0.    943.00
         .01       0.00       4.04       0.00       .080       .045       .080       .038     936.80   2000.00
    .004846         1.         1.         1.          0          0          0       0.00      21.50   2021.50

*SECNO 1.300
 2800 NAT Q1=      47.61  WSEL=     940.23  ENC Q1=      50.45  WSEL=     940.33  RATIO=   -.0595
 NAT Q1=      50.  RATIOS LOB,CH,ROB=   0.0000   1.0000   0.0000  WSEL=     940.33

3470 ENCROACHMENT STATIONS=     2000.0     2037.0  TYPE=       4  TARGET=         0.000
       1.30       3.23     940.23       0.00     940.23     940.38       .15        .11        .03    940.70
        255.         0.        255.         0.         0.        82.         0.         0.         0.    941.20
         .01       0.00       3.12       0.00       .080       .045       .080       .039     937.00   2000.47
    .002869        30.        30.        30.          2          0          0       0.00      33.48   2033.95

CCHV=      .100 CEHV=      .300
*SECNO 1.800

3470 ENCROACHMENT STATIONS=     1990.0     2030.0  TYPE=       1  TARGET=        40.000
       1.80       5.00     944.90       0.00     944.90     944.96       .06       4.57        .01    941.30
        255.        14.        239.         2.        21.       119.         5.        12.         4.    941.90
         .66        .68       2.00        .44       .080       .045       .080       .045     939.90   1990.00
    .000519       3600.      4500.      3800.          6          0          0       0.00      40.00   2030.00

CCHV=      .300 CEHV=      .500
*SECNO 1.900

3470 ENCROACHMENT STATIONS=     2000.0     2026.1  TYPE=       1  TARGET=        26.100
       1.90       5.06     944.96       0.00     944.96     945.02       .06        .06        .00    946.30
        255.         0.        255.         0.         0.        125.        0.        12.         4.    946.30
         .67       0.00       2.04       0.00       .080       .045       .080       .045     939.90   2000.00
    .000709        100.       100.       100.          2          0          0       0.00      26.00   2026.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOE	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOE	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOEL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	3.00	0.00	22.70	0.00	75.00	0.00	939.90	939.90

*SECNO 2.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
945.27	945.02	0.00	0.	255.	75.	75.	943.20	946.30

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

2.10	5.31	945.21	0.00	945.21	945.27	.06	.24	0.00	946.30
255.	0.	255.	0.	0.	131.	0.	12.	4.	946.30
.68	0.00	1.94	0.00	.080	.020	.080	.045	939.90	2000.00
.000121	23.	23.	23.	2	0	0	0.00	26.00	2026.00

*SECNO 2.300
2800 NAT Q1= 127.88 WSEL= 945.24 ENC Q1= 127.88 WSEL= 945.34 RATIO= 0.0000
NAT Q1= 133. RATIOS LOB,CH,ROB= .0655 .9184 .0161 WSEL= 945.34

3470 ENCROACHMENT STATIONS= 1993.2 2025.0 TYPE= 4 TARGET= .035

2.30	5.33	945.23	0.00	945.24	945.29	.05	.02	.00	941.30
255.	13.	242.	0.	18.	128.	0.	12.	4.	941.90
.69	.69	1.90	0.00	.080	.045	.080	.045	939.90	1993.20
.000497	100.	100.	100.	0	0	0	0.00	31.80	2025.00

CCHV= .100 CEHV= .300
*SECNO 2.800

3470 ENCROACHMENT STATIONS= 1980.0 2045.0 TYPE= 1 TARGET= 65.000

2.80	5.43	945.43	0.00	945.40	945.45	.02	.16	.00	942.30
255.	20.	232.	3.	51.	205.	10.	15.	5.	941.80
.86	.39	1.13	.31	.080	.045	.080	.045	940.00	1980.00
.000147	700.	625.	600.	0	0	0	0.00	65.00	2045.00

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

CCHV= .300 CEHV= .500
*SECNO 2.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 950.00 ELREA= 950.00

2.90	4.70	945.40	0.00	945.36	945.52	.12	.02	.05	941.80
255.	0.	255.	0.	0.	90.	0.	16.	5.	941.90
.86	0.00	2.83	0.00	.080	.045	.080	.045	940.70	2000.00
.001060	75.	75.	75.	2	0	0	0.00	21.00	2021.00

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

3.00	4.29	945.39	0.00	945.35	945.54	.15	.00	.01	951.80
255.	0.	255.	0.	0.	82.	0.	16.	5.	952.10
.86	0.00	3.12	0.00	.080	.020	.080	.045	941.10	2000.00
.000533	1.	1.	1.	1	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	4.31	945.41	0.00	945.37	945.56	.15	.02	.00	951.80
255.	0.	255.	0.	0.	82.	0.	16.	5.	952.10
.87	0.00	3.10	0.00	.080	.020	.080	.045	941.10	2000.00
.000526	34.	34.	34.	0	0	0	0.00	21.00	2021.00

*SECNO 3.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 950.00 ELREA= 950.00

3.20	4.74	945.44	0.00	945.41	945.56	.12	.00	.01	941.80
255.	0.	255.	0.	0.	91.	0.	16.	5.	941.90
.87	0.00	2.80	0.00	.080	.045	.080	.045	940.70	2000.00
.001025	1.	1.	1.	2	0	0	0.00	21.00	2021.00

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

*SECNO 3.300
 2800 NAT Q1=      83.99  WSEL=     945.45  ENC Q1=      83.99  WSEL=     945.55  RATIO=   0.0000
 NAT Q1=     87.  RATIOS LOB,CH,ROB=    .0359    .9502    .0139  WSEL=     945.55

3470 ENCROACHMENT STATIONS=     1998.9     2021.0  TYPE=      4  TARGET=          .039
      3.30       4.77     945.47       0.00     945.45     945.59        .12        .02        .00    941.80
      255.         2.        253.         0.         4.        92.         0.        16.         5.     941.90
       .87        .58       2.76       0.00       .080       .045       .080       .045    940.70   1998.91
   .001222        20.        20.        20.          0          0          0       0.00     22.08   2021.00


CCHV=     .100 CEHV=     .300
*SECNO 4.000

3470 ENCROACHMENT STATIONS=     1985.0     2050.0  TYPE=      1  TARGET=        65.000
                VALLEY SECTION D

      4.00       5.48     946.98       0.00     946.89     947.00        .02       1.40        .01    944.80
      255.         8.        247.         0.        25.       224.         0.        32.         9.  100000.00
      1.91        .31       1.10       0.00       .080       .045       .080       .045    941.50   1985.00
   .000160       2600.      4100.      3500.          4          0          0       0.00     65.00   2050.00


*SECNO 4.500
 2800 NAT Q1=     301.84  WSEL=     947.10  ENC Q1=     301.84  WSEL=     947.20  RATIO=    .0000
 NAT Q1=     338.  RATIOS LOB,CH,ROB=    .4138    .4548    .1314  WSEL=     947.20

3470 ENCROACHMENT STATIONS=     1625.1     2499.3  TYPE=      4  TARGET=          .107
      4.50       4.69     947.19       0.00     947.10     947.19        .00        .19        .00    945.80
      215.        86.        111.        18.        518.       192.       216.        59.        27.     946.70
      3.53        .17        .58        .08        .080       .045       .080       .045    942.50   1625.12
   .000053       2200.      2200.      1200.          1          0          0       0.00    874.15   2499.27


*SECNO 4.800

3470 ENCROACHMENT STATIONS=     1970.0     2070.0  TYPE=      1  TARGET=        100.000
      4.80       4.31     947.31       0.00     947.22     947.33        .02        .13        .00    946.80
      215.        15.        194.         6.         43.       176.        21.        78.        45.     946.20
      3.90        .34       1.10        .29        .080       .045       .080       .045    943.00   1970.00
   .000221       1200.      1375.      2000.          2          0          0       0.00    100.00   2070.00
```

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

CCHV= .300 CEHV= .500
*SECNO 4.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

4.90	3.93	947.33	0.00	947.24	947.40	.07	.05	.03	943.60
215.	0.	215.	0.	0.	100.	0.	78.	45.	945.50
3.91	0.00	2.16	0.00	.080	.045	.080	.045	943.40	2000.00
.000917	150.	114.	50.	0	0	0	0.00	31.00	2031.00

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

5.00	3.89	947.29	0.00	947.20	947.44	.15	.00	.04	943.60
215.	0.	215.	0.	0.	69.	0.	78.	45.	945.50
3.91	0.00	3.12	0.00	.080	.024	.080	.045	943.40	2000.00
.001253	1.	1.	1.	2	0	0	-35.43	31.00	2031.00

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	3.94	947.34	0.00	947.26	947.49	.15	.05	.00	943.60
215.	0.	215.	0.	0.	70.	0.	78.	45.	945.50
3.92	0.00	3.09	0.00	.080	.024	.080	.045	943.40	2000.00
.001224	40.	40.	40.	0	0	0	-36.39	31.00	2031.00

*SECNO 5.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 950.60 ELREA= 950.60

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
	5.20	4.05	947.45	0.00	947.37	947.52	.07	.00	.02	943.60
	215.	0.	215.	0.	0.	103.	0.	78.	45.	945.50
	3.92	0.00	2.08	0.00	.080	.045	.080	.045	943.40	2000.00
	.000807	1.	1.	1.	2	0	0	0.00	31.00	2031.00

*SECNO 5.300
2800 NAT Q1= 84.44 WSEL= 947.47 ENC Q1= 84.44 WSEL= 947.57 RATIO= 0.0000
NAT Q1= 89. RATIOS LOB,CH,ROB= .0780 .9056 .0165 WSEL= 947.57

3470 ENCROACHMENT STATIONS= 1996.0 2031.0 TYPE= 4 TARGET= .047

	5.30	4.14	947.54	0.00	947.47	947.60	.06	.08	.00	943.60
	215.	10.	205.	0.	13.	106.	0.	78.	45.	945.50
	3.93	.77	1.93	0.00	.080	.045	.080	.045	943.40	1996.03
	.000728	100.	100.	100.	2	0	0	0.00	34.97	2031.00

CCHV= .100 CEHV= .300
*SECNO 6.000
2800 NAT Q1= 651.71 WSEL= 947.67 ENC Q1= 651.71 WSEL= 947.77 RATIO= -.0000
NAT Q1= 718. RATIOS LOB,CH,ROB= .7545 .0726 .1729 WSEL= 947.77

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 967.3 2261.3 TYPE= 4 TARGET= .092
VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

	6.00	3.63	947.76	0.00	947.67	947.76	.00	.15	.01	944.86
	215.	168.	17.	30.	1664.	70.	359.	184.	106.	944.96
	14.86	.10	.25	.08	.080	.045	.080	.045	944.13	967.31
	.000011	4200.	4500.	3800.	3	0	0	0.00	1248.68	2261.35

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

GRAND RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
.800	939.88	935.50	0.00	0.00	1999.00	1999.00	2000.00	2047.00	0.00	2070.00	71.00	0.00
.800	939.88	935.50	0.00	0.00	1999.00	1999.00	2000.00	2047.00	0.00	2070.00	71.00	0.00
.900	939.94	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	85.00
.900	939.94	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	85.00
1.000	939.94	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
1.000	939.94	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
1.100	939.98	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
1.100	939.98	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
1.200	939.99	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
1.200	939.99	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
1.300	940.23	937.00	0.00	0.00	2000.47	0.00	2000.00	2037.00	0.00	2033.95	33.48	30.00
1.300	940.23	937.00	0.00	0.00	2000.47	2000.00	2000.00	2037.00	0.00	2033.95	33.48	30.00
1.800	944.90	939.90	0.00	0.00	1986.06	0.00	1999.00	2025.00	0.00	2034.50	48.44	4500.00
1.800	944.90	939.90	0.00	0.00	1990.00	1990.00	1999.00	2025.00	0.00	2030.00	40.00	4500.00
1.900	944.96	939.90	0.00	0.00	2000.00	2000.00	2000.00	2026.00	0.00	2026.00	26.00	100.00
1.900	944.96	939.90	0.00	0.00	2000.00	2000.00	2000.00	2026.00	0.00	2026.00	26.00	100.00
2.100	945.21	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.100	945.21	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.300	945.24	939.90	0.00	0.00	1982.20	0.00	1999.00	2025.00	0.00	2051.90	69.70	100.00
2.300	945.23	939.90	0.00	0.00	1993.20	1993.20	1999.00	2025.00	0.00	2025.00	31.80	100.00
2.800	945.40	940.00	0.00	0.00	1919.20	1919.00	2000.00	2042.00	0.00	2053.01	133.81	625.00
2.800	945.43	940.00	0.00	0.00	1980.00	1980.00	2000.00	2042.00	0.00	2045.00	65.00	625.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
2.900	945.36	940.70	0.00	0.00	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	75.00
2.900	945.40	940.70	0.00	0.00	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	75.00
3.000	945.35	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	945.39	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.100	945.37	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	945.41	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.200	945.41	940.70	0.00	0.00	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.200	945.44	940.70	0.00	0.00	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.300	945.45	940.70	0.00	0.00	1993.67	0.00	2000.00	2021.00	0.00	2024.09	30.42	20.00
3.300	945.47	940.70	0.00	0.00	1998.91	1998.91	2000.00	2021.00	0.00	2021.00	22.08	20.00
4.000	946.89	941.50	0.00	0.00	1969.02	0.00	2000.00	2050.00	0.00	2055.97	86.94	4100.00
4.000	946.98	941.50	0.00	0.00	1985.00	1985.00	2000.00	2050.00	0.00	2050.00	65.00	4100.00
4.500	947.10	942.50	0.00	0.00	1552.09	0.00	2000.00	2050.00	0.00	2819.52	1267.43	2200.00
4.500	947.19	942.50	0.00	0.00	1625.12	1625.12	2000.00	2050.00	0.00	2499.27	874.15	2200.00
4.800	947.22	943.00	0.00	0.00	1970.00	1970.00	2000.00	2051.00	0.00	2070.00	100.00	1375.00
4.800	947.31	943.00	0.00	0.00	1970.00	1970.00	2000.00	2051.00	0.00	2070.00	100.00	1375.00
4.900	947.24	943.40	0.00	0.00	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	114.00
4.900	947.33	943.40	0.00	0.00	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	114.00
5.000	947.20	943.40	950.40	950.30	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	1.00
5.000	947.29	943.40	950.40	950.30	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	1.00
5.100	947.26	943.40	950.40	950.30	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	40.00
5.100	947.34	943.40	950.40	950.30	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	40.00
5.200	947.37	943.40	0.00	0.00	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	1.00
5.200	947.45	943.40	0.00	0.00	2000.00	0.00	2000.00	2031.00	0.00	2031.00	31.00	1.00
5.300	947.47	943.40	0.00	0.00	1988.03	0.00	2000.00	2031.00	0.00	2038.26	50.24	100.00
5.300	947.54	943.40	0.00	0.00	1996.03	1996.03	2000.00	2031.00	0.00	2031.00	34.97	100.00
6.000	947.67	944.13	0.00	0.00	798.03	0.00	2000.00	2021.00	0.00	2804.42	1911.23	4500.00
6.000	947.76	944.13	0.00	0.00	967.31	967.31	2000.00	2021.00	0.00	2261.35	1248.68	4500.00

MOORE BUSINESS FORMS INC 77

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.800	0.00	0.00	0.00	935.50	255.00	939.88	0.00	939.94	9.73	1.97	134.92	81.74
.800	0.00	0.00	0.00	935.50	255.00	939.88	0.00	939.94	9.73	1.97	134.92	81.74
.900	85.00	0.00	0.00	936.80	255.00	939.94	0.00	940.20	50.79	4.10	62.18	35.78
.900	85.00	0.00	0.00	936.80	255.00	939.94	0.00	940.20	50.79	4.10	62.18	35.78
1.000	1.00	942.20	940.80	936.80	255.00	939.94	0.00	940.20	12.79	4.10	62.24	71.29
1.000	1.00	942.20	940.80	936.80	255.00	939.94	0.00	940.20	12.79	4.10	62.24	71.29
1.100	25.00	942.20	940.80	936.80	255.00	939.98	0.00	940.24	12.29	4.04	63.12	72.73
1.100	25.00	942.20	940.80	936.80	255.00	939.98	0.00	940.24	12.29	4.04	63.12	72.73
1.200	1.00	0.00	0.00	936.80	255.00	939.99	0.00	940.24	48.46	4.04	63.14	36.63
1.200	1.00	0.00	0.00	936.80	255.00	939.99	0.00	940.24	48.46	4.04	63.14	36.63
1.300	30.00	0.00	0.00	937.00	255.00	940.23	0.00	940.38	28.68	3.12	81.84	47.61
1.300	30.00	0.00	0.00	937.00	255.00	940.23	0.00	940.38	28.69	3.12	81.83	47.61
1.800	4500.00	0.00	0.00	939.90	255.00	944.90	0.00	944.96	5.20	2.00	147.60	111.86
1.800	4500.00	0.00	0.00	939.90	255.00	944.90	0.00	944.96	5.19	2.00	145.25	111.89
1.900	100.00	0.00	0.00	939.90	255.00	944.96	0.00	945.03	7.08	2.04	124.99	95.80
1.900	100.00	0.00	0.00	939.90	255.00	944.96	0.00	945.02	7.09	2.04	124.96	95.76
2.100	23.00	946.30	943.20	939.90	255.00	945.21	0.00	945.27	1.21	1.94	131.41	232.15
2.100	23.00	946.30	943.20	939.90	255.00	945.21	0.00	945.27	1.21	1.94	131.37	232.06
2.300	100.00	0.00	0.00	939.90	255.00	945.24	0.00	945.29	3.98	1.84	167.68	127.88
2.300	100.00	0.00	0.00	939.90	255.00	945.23	0.00	945.29	4.97	1.90	145.87	114.40
2.800	625.00	0.00	0.00	940.00	255.00	945.40	0.00	945.41	1.10	.98	378.84	243.16
2.800	625.00	0.00	0.00	940.00	255.00	945.43	0.00	945.45	1.47	1.13	265.19	210.46
2.900	75.00	0.00	0.00	940.70	255.00	945.36	0.00	945.49	10.91	2.85	89.47	77.22
2.900	75.00	0.00	0.00	940.70	255.00	945.40	0.00	945.52	10.60	2.83	90.23	78.32
3.000	1.00	950.80	949.40	941.10	255.00	945.35	0.00	945.50	5.47	3.15	80.99	109.04
3.000	1.00	950.80	949.40	941.10	255.00	945.39	0.00	945.54	5.33	3.12	81.76	110.44
3.100	34.00	950.80	949.40	941.10	255.00	945.37	0.00	945.52	5.39	3.13	81.43	109.84
3.100	34.00	950.80	949.40	941.10	255.00	945.41	0.00	945.56	5.26	3.10	82.18	111.22
3.200	1.00	0.00	0.00	940.70	255.00	945.41	0.00	945.53	10.53	2.82	90.43	78.60
3.200	1.00	0.00	0.00	940.70	255.00	945.44	0.00	945.56	10.25	2.80	91.16	79.67
3.300	20.00	0.00	0.00	940.70	255.00	945.45	0.00	945.56	9.22	2.66	108.40	83.99
3.300	20.00	0.00	0.00	940.70	255.00	945.47	0.00	945.59	12.22	2.76	95.19	72.94

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.000	4100.00	0.00	0.00	941.50	255.00	946.89	0.00	946.91	1.70	1.13	252.00	195.83
4.000	4100.00	0.00	0.00	941.50	255.00	946.98	0.00	947.00	1.60	1.10	248.79	201.85
4.500	2200.00	0.00	0.00	942.50	215.00	947.10	0.00	947.10	.51	.56	1058.78	301.84
4.500	2200.00	0.00	0.00	942.50	215.00	947.19	0.00	947.19	.53	.58	925.94	296.21
4.800	1375.00	0.00	0.00	943.00	215.00	947.22	0.00	947.24	2.45	1.14	231.21	137.46
4.800	1375.00	0.00	0.00	943.00	215.00	947.31	0.00	947.33	2.21	1.10	240.26	144.62
4.900	114.00	0.00	0.00	943.40	215.00	947.24	0.00	947.32	10.07	2.22	96.73	67.75
4.900	114.00	0.00	0.00	943.40	215.00	947.33	0.00	947.40	9.17	2.16	99.51	71.01
5.000	1.00	950.30	950.40	943.40	215.00	947.20	0.00	947.36	13.18	3.18	67.52	59.21
5.000	1.00	950.30	950.40	943.40	215.00	947.29	0.00	947.44	12.53	3.12	68.89	60.74
5.100	40.00	950.30	950.40	943.40	215.00	947.26	0.00	947.41	12.83	3.15	68.25	60.02
5.100	40.00	950.30	950.40	943.40	215.00	947.34	0.00	947.49	12.24	3.09	69.56	61.45
5.200	1.00	0.00	0.00	943.40	215.00	947.37	0.00	947.44	8.77	2.13	100.84	72.61
5.200	1.00	0.00	0.00	943.40	215.00	947.45	0.00	947.52	8.07	2.08	103.39	75.69
5.300	100.00	0.00	0.00	943.40	215.00	947.47	0.00	947.52	6.48	1.87	134.58	84.44
5.300	100.00	0.00	0.00	943.40	215.00	947.54	0.00	947.60	7.28	1.93	119.34	79.68
6.000	4500.00	0.00	0.00	944.13	215.00	947.67	0.00	947.67	.11	.24	2388.66	651.71
6.000	4500.00	0.00	0.00	944.13	215.00	947.76	0.00	947.76	.11	.25	2093.33	645.38

S FORMS INC 77

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.800	255.00	939.88	0.00	0.00	0.00	71.00	0.00
.800	255.00	939.88	0.00	0.00	0.00	71.00	0.00
.900	255.00	939.94	0.00	.06	0.00	21.50	85.00
.900	255.00	939.94	0.00	.06	0.00	21.50	85.00
1.000	255.00	939.94	0.00	.00	0.00	21.50	1.00
1.000	255.00	939.94	0.00	.00	0.00	21.50	1.00
1.100	255.00	939.98	0.00	.04	0.00	21.50	25.00
1.100	255.00	939.98	0.00	.04	0.00	21.50	25.00
1.200	255.00	939.99	0.00	.00	0.00	21.50	1.00
1.200	255.00	939.99	0.00	.00	0.00	21.50	1.00
1.300	255.00	940.23	0.00	.24	0.00	33.48	30.00
1.300	255.00	940.23	-.00	.24	-.00	33.48	30.00
1.800	255.00	944.90	0.00	4.68	0.00	48.44	4500.00
1.800	255.00	944.90	-.00	4.67	-.00	40.00	4500.00
1.900	255.00	944.96	0.00	.06	0.00	26.00	100.00
1.900	255.00	944.96	-.00	.06	-.00	26.00	100.00
2.100	255.00	945.21	0.00	.25	0.00	26.00	23.00
2.100	255.00	945.21	-.00	.25	-.00	26.00	23.00
2.300	255.00	945.24	0.00	.03	0.00	69.70	100.00
2.300	255.00	945.23	-.01	.03	-.01	31.80	100.00
2.800	255.00	945.40	0.00	.16	0.00	133.81	625.00
2.800	255.00	945.43	.03	.19	.03	65.00	625.00
2.900	255.00	945.36	0.00	-.04	0.00	21.00	75.00
2.900	255.00	945.40	.04	-.03	.04	21.00	75.00
3.000	255.00	945.35	0.00	-.01	0.00	21.00	1.00
3.000	255.00	945.39	.04	-.01	.04	21.00	1.00
3.100	255.00	945.37	0.00	.02	0.00	21.00	34.00
3.100	255.00	945.41	.04	.02	.04	21.00	34.00
3.200	255.00	945.41	0.00	.04	0.00	21.00	1.00
3.200	255.00	945.44	.04	.04	.04	21.00	1.00
3.300	255.00	945.45	0.00	.04	0.00	30.42	20.00
3.300	255.00	945.47	.02	.03	.02	22.08	20.00

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.000	255.00	946.89	0.00	1.44	0.00	86.94	4100.00
4.000	255.00	946.98	.09	1.51	.09	65.00	4100.00
4.500	215.00	947.10	0.00	.21	0.00	1267.43	2200.00
4.500	215.00	947.19	.09	.21	.09	874.15	2200.00
4.800	215.00	947.22	0.00	.12	0.00	100.00	1375.00
4.800	215.00	947.31	.09	.12	.09	100.00	1375.00
4.900	215.00	947.24	0.00	.02	0.00	31.00	114.00
4.900	215.00	947.33	.09	.02	.09	31.00	114.00
5.000	215.00	947.20	0.00	-.04	0.00	31.00	1.00
5.000	215.00	947.29	.09	-.04	.09	31.00	1.00
5.100	215.00	947.26	0.00	.06	0.00	31.00	40.00
5.100	215.00	947.34	.09	.05	.09	31.00	40.00
5.200	215.00	947.37	0.00	.11	0.00	31.00	1.00
5.200	215.00	947.45	.08	.11	.08	31.00	1.00
5.300	215.00	947.47	0.00	.10	0.00	50.24	100.00
5.300	215.00	947.54	.07	.09	.07	34.97	100.00
6.000	215.00	947.67	0.00	.20	0.00	1911.23	4500.00
6.000	215.00	947.76	.08	.21	.08	1248.68	4500.00

FORMS INC 27

SUMMARY OF ERRORS

MOORE BUSINESS FORMS INC. 47

FLOODWAY DATA. GRAND RIVER
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.800	71.	135.	1.9	939.9	939.9	0.0
.900	22.	62.	4.1	939.9	939.9	0.0
1.000	22.	62.	4.1	939.9	939.9	0.0
1.100	22.	63.	4.0	940.0	940.0	0.0
1.200	22.	63.	4.0	940.0	940.0	0.0
1.300	33.	82.	3.1	940.2	940.2	0.0
1.800	40.	145.	1.8	944.9	944.9	0.0
1.900	26.	125.	2.0	945.0	945.0	0.0
2.100	26.	131.	1.9	945.2	945.2	0.0
2.300	32.	146.	1.7	945.2	945.2	0.0
2.800	65.	265.	1.0	945.4	945.4	0.0
2.900	21.	90.	2.8	945.4	945.4	0.0
3.000	21.	82.	3.1	945.3	945.3	0.0
3.100	21.	82.	3.1	945.4	945.4	0.0
3.200	21.	91.	2.8	945.4	945.4	0.0
3.300	22.	95.	2.7	945.5	945.5	0.0
4.000	65.	249.	1.0	947.0	946.9	.1
4.500	874.	926.	.2	947.2	947.1	.1
4.800	100.	240.	.9	947.3	947.2	.1
4.900	31.	100.	2.2	947.3	947.2	.1
5.000	21.	69.	3.1	947.3	947.2	.1
5.100	21.	70.	3.1	947.4	947.3	.1
5.200	21.	103.	2.1	947.5	947.4	.1
5.300	35.	119.	1.8	947.6	947.5	.1
6.000	1254.	2093.	.1	947.8	947.7	.1

MCORF 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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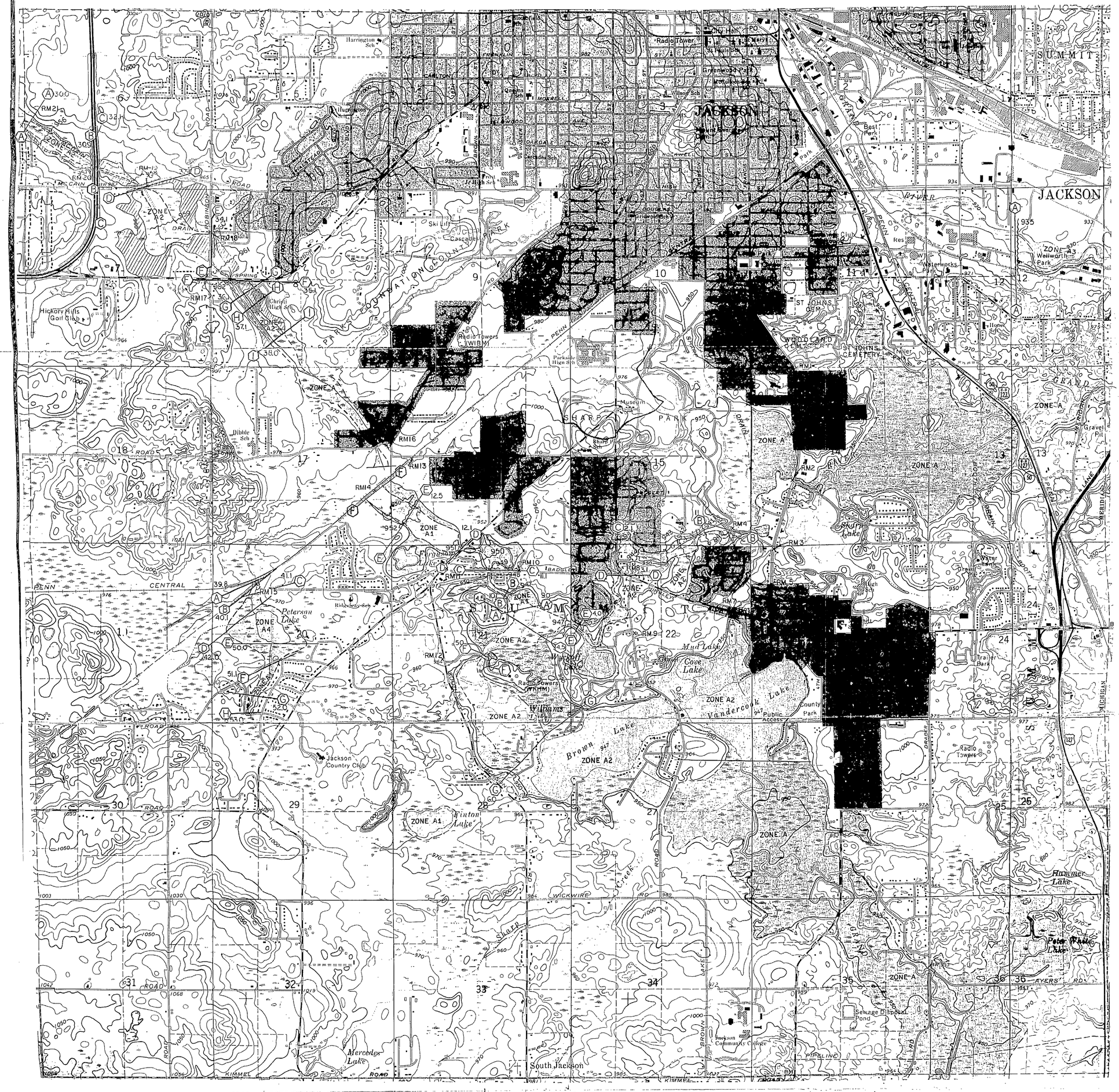
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MOORE BUSINESS FORMS INC 27

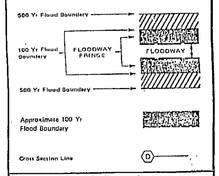
SUMMIT 1 WP.

2



KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA



FLOOD BOUNDARY AND FLOODWAY MAP

MAP INDEX

SUMMIT TOWNSHIP
JACKSON COUNTY

RECEIVED
JAN 30 1981
WATER MANAGEMENT

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Notes

00BREAK00

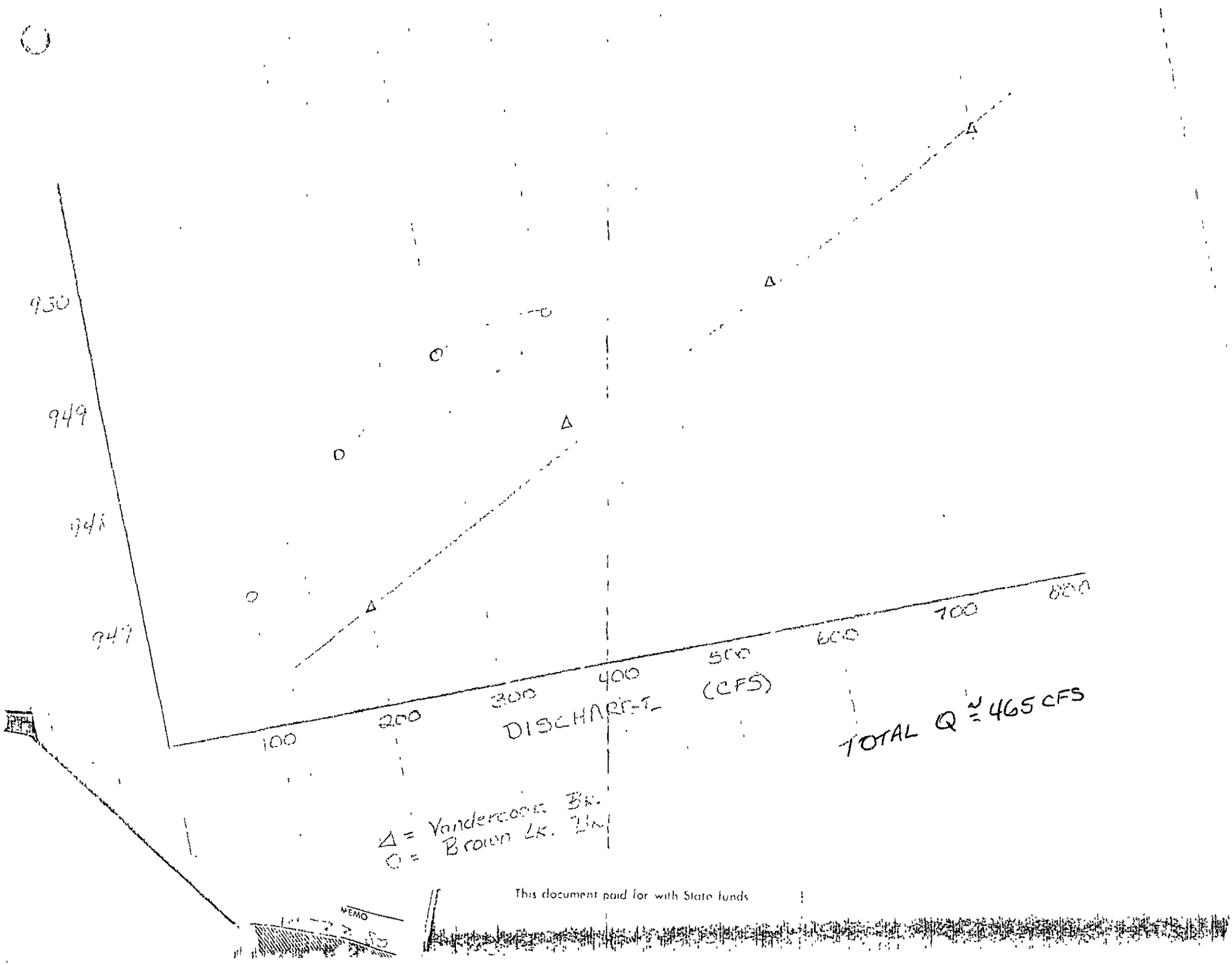
[illegible]

Discharge (cfs)	Stage [illegible]
100	949.2
200	948.3
300	949.0
400	949.[illegible]

Vanderpool Branch

Q	Stage
200	946.9
400	[illegible]
600	[illegible]
800	[illegible]

This document is paid for with State funds.



This document paid for with State funds

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 1980 revised 100 yr run

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED APRIL 1980                               *
*                                                   *
*  RUN DATE  81/01/12. TIME  11.49.43.              *
*****************************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

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

*GENERAL MESSAGE

*HEC-2 MESSAGE

** HEC-2 MESSAGE **

MAY 13 -- THE STANDARD VERSION OF HEC-2 HAS BEEN UPDATE TO INCLUDE MODIFICATION 54 AND ERROR CORRECTION 04. DOCUMENTATION DESCRIBING THESE CHANGE WILL BE FURNISHED TO PROGRAM USERS IN JUNE. PLEASE CALL AL MONTALVO OR RICHARD HAYES AT (FTS) 448-2105 IF YOU HAVE QUESTIONS REGARDING THESE CHANGES.

**** SUMMARY OF MODIFICATION 54 ****

1. HEC-2 OUTPUT HAS BEEN MADE MORE READABLE BY THE ADDITION OF A PAGING ROUTINE TO CONTROL PRINTING AND PAGING. THE ROUTINE ALSO PROVIDES A PAGE NUMBER AND DATE AT THE TOP OF EACH PAGE OF OUTPUT. THIS ENHANCEMENT WAS REQUESTED BY THE FORT WORTH DISTRICT.

2. THE PROGRAM WILL NOW AUTOMATICALLY CALCULATE FLOOD HAZARD FACTORS FOR STREAMS WHICH REQUIRE MULTIPLE FIA ZONES.

MOORE BUSINESS FORMS INC 27

3. THE CHANNEL IMPROVEMENT (CHIMP) ROUTINE HAS BEEN ENHANCED TO PROVIDE THE CAPABILITY TO MODEL PILOT CHANNELS, TO FILL THE OLD CHANNEL AREA PRIOR TO EXCAVATION, AND TO CHANGE THE CHANNEL REACH LENGTH.

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
**********************************************

C
T1      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN
T2      10 YR 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.   939.160     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      .080      .080      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000   170.000   230.000   255.000   300.000   255.000     0.000     0.000     0.000     0.000
ET     0.000     7.100     7.100     7.100     7.100     7.100  1999.000  2070.000     0.000     0.000

X1      .800    64.000  2000.000  2047.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  960.300  1719.000   955.500  1743.000   951.500  1759.000   948.400  1775.000   944.500  1793.000
GR  940.100  1809.000   940.900  1811.000   941.100  1830.000   940.700  1841.000   940.600  1857.000
GR  940.000  1859.000   939.900  1881.000   939.800  1909.000   939.700  1959.000   939.300  2000.000
GR  939.200  2003.000   938.700  2005.000   938.700  2007.000   937.100  2009.000   935.800  2014.000
GR  935.500  2017.000   935.700  2023.000   936.700  2028.000   937.400  2035.000   937.700  2042.000
GR  938.500  2046.000   939.300  2047.000   939.700  2059.000   939.900  2089.000   939.100  2095.000
GR  937.500  2099.000   937.200  2109.000   937.600  2116.000   939.100  2122.000   939.200  2130.000
GR  940.900  2134.000   941.600  2159.000   942.100  2173.000   942.100  2189.000   942.400  2200.000
GR  942.200  2250.000   942.200  2300.000   942.400  2350.000   942.900  2400.000   943.600  2450.000
GR  944.900  2500.000   946.800  2550.000   949.100  2600.000   951.900  2650.000   953.100  2700.000
GR  952.100  2750.000   950.100  2800.000   948.000  2850.000   946.100  2900.000   945.200  2950.000
GR  945.100  3000.000   944.700  3050.000   944.500  3100.000   944.000  3150.000   943.500  3200.000
GR  943.100  3250.000   942.900  3300.000   942.900  3350.000   943.900  3400.000     0.000     0.000
NC      .080      .080      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
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MOORE BUSINESS FORMS INC 27

X1	.900	51.000	2000.000	2021.500	85.000	85.000	85.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1879.000	943.100	1900.000
GR	942.800	1950.000	942.800	1998.000	942.800	2000.000	937.100	2000.000	936.900	2003.000
GR	936.800	2006.000	937.200	2009.000	937.000	2012.000	937.000	2015.000	937.200	2018.000
GR	937.300	2021.500	943.000	2021.500	943.100	2022.000	942.800	2050.000	942.600	2100.000
GR	942.500	2150.000	942.400	2200.000	942.200	2250.000	942.200	2300.000	942.400	2350.000
GR	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000	949.100	2600.000
GR	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000	948.000	2850.000
GR	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000	944.500	3100.000
GR	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000	942.900	3350.000
GR	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	31.000	1500.000	958.100	0.000	1550.000	955.700	0.000	1600.000	952.700	0.000
BT	1650.000	949.500	0.000	1700.000	946.200	0.000	1750.000	944.000	0.000	1800.000
BT	943.200	0.000	1850.000	943.400	0.000	1879.000	943.200	0.000	1900.000	943.100
BT	0.000	1950.000	942.800	0.000	1998.000	942.800	0.000	2000.000	942.800	937.100
BT	2000.000	942.800	940.800	2021.500	943.000	940.800	2021.500	943.000	937.300	2022.000
BT	943.100	0.000	2050.000	942.800	0.000	2100.000	942.600	0.000	2150.000	942.500
BT	0.000	2200.000	942.400	0.000	2250.000	942.200	0.000	2300.000	942.200	0.000
BT	2350.000	942.400	0.000	2400.000	942.900	0.000	2450.000	943.600	0.000	2500.000
BT	944.900	0.000	2550.000	946.800	0.000	2600.000	949.100	0.000	2650.000	951.900
BT	0.000	2700.000	953.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

X1	1.100	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	1.300	57.000	2000.000	2037.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1885.000	942.900	1903.000
GR	942.200	1931.000	941.500	1953.000	941.400	1971.000	941.100	1987.000	940.700	2000.000
GR	937.700	2003.000	937.200	2006.000	937.100	2009.000	937.200	2012.000	937.100	2015.000
GR	937.000	2018.000	937.300	2021.000	937.500	2024.000	937.700	2026.000	941.200	2037.000
GR	941.100	2053.000	941.500	2080.000	942.000	2093.000	941.900	2103.000	942.400	2111.000
GR	942.500	2130.000	942.500	2153.000	942.400	2203.000	942.200	2250.000	942.200	2300.000
GR	942.400	2350.000	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000
GR	949.100	2600.000	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000
GR	948.000	2850.000	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000
GR	944.500	3100.000	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000
GR	942.900	3350.000	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

ET	0.000	0.000	0.000	0.000	0.000	7.100	1990.000	2030.000	0.000	0.000
X1	1.800	40.000	1999.000	2025.000	3600.000	3800.000	4500.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2026.100	0.000	0.000
X1	1.900	37.000	2000.000	2026.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	946.700	1900.000	946.400	1950.000	946.300	2000.000
GR	940.000	2000.000	940.000	2004.000	940.000	2008.000	939.900	2012.000	940.200	2016.000
GR	940.300	2016.000	940.300	2020.000	940.500	2024.000	940.700	2026.000	946.300	2026.000
GR	946.300	2050.000	946.500	2100.000	946.700	2150.000	946.900	2200.000	947.200	2250.000
GR	948.000	2300.000	949.600	2350.000	951.200	2400.000	952.700	2450.000	954.500	2500.000
GR	956.200	2550.000	957.700	2600.000	959.300	2650.000	961.100	2700.000	963.300	2750.000
GR	955.600	2800.000	967.300	2840.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.700	3.000	0.000	22.700	0.000	75.000	0.000	939.900	939.900

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

X1	2.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	1597.000	956.400	0.000	1600.000	956.300	0.000	1650.000	954.000	0.000
BT	1700.000	951.900	0.000	1750.000	950.100	0.000	1800.000	948.500	0.000	1850.000
BT	947.300	0.000	1900.000	946.700	0.000	1950.000	946.400	0.000	2000.000	946.300
BT	940.000	2000.000	946.300	943.100	2026.000	946.300	943.200	2026.000	946.300	940.700
BT	2050.000	946.300	0.000	2100.000	946.500	0.000	2150.000	946.700	0.000	2200.000
BT	946.900	0.000	2250.000	947.200	0.000	2300.000	948.000	0.000	2350.000	949.600
BT	0.000	2400.000	951.200	0.000	2450.000	952.700	0.000	2500.000	954.500	0.000
BT	2550.000	956.200	0.000	2600.000	957.700	0.000	2650.000	959.300	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.300	40.000	1999.000	2025.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	945.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000

MOORE BUSINESS FORMS INC 27

NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1919.000	2066.000	1980.000	2045.000
X1	2.800	46.000	2000.000	2042.000	700.000	600.000	625.000	0.000	0.000	0.000
GR	961.300	1675.000	960.300	1700.000	959.600	1716.000	958.300	1731.000	959.400	1744.000
GR	959.000	1750.000	956.900	1771.000	954.900	1800.000	953.200	1827.000	951.200	1850.000
GR	948.000	1874.000	947.300	1889.000	947.000	1900.000	946.500	1910.000	944.600	1926.000
GR	943.400	1950.000	942.800	1999.000	942.300	2000.000	941.800	2000.000	941.200	2003.000
GR	940.800	2006.000	940.200	2009.000	940.500	2011.000	940.700	2014.000	940.300	2017.000
GR	940.000	2021.000	940.000	2026.000	940.300	2030.000	940.600	2035.000	940.700	2038.000
GR	941.800	2042.000	943.900	2050.000	945.400	2053.000	949.800	2060.000	950.500	2066.000
GR	951.000	2082.000	951.000	2098.000	950.100	2100.000	958.800	2114.000	959.000	2125.000
GR	958.500	2135.000	957.800	2148.000	957.900	2150.000	959.700	2168.000	961.300	2173.000
GR	961.700	2178.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.900	27.000	2000.000	2021.000	75.000	75.000	75.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.000	950.000	0.000
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	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
X1	3.000	46.000	2000.000	2021.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	40.000	700.000	964.200	0.000	750.000	962.100	0.000	800.000	960.100	0.000
BT	850.000	958.800	0.000	900.000	958.000	0.000	950.000	957.600	0.000	1000.000
BT	956.900	0.000	1050.000	956.000	0.000	1100.000	955.400	0.000	1150.000	955.200
BT	0.000	1200.000	955.300	0.000	1250.000	955.800	0.000	1300.000	956.700	0.000
BT	1350.000	957.800	0.000	1400.000	959.400	0.000	1450.000	960.800	0.000	1500.000
BT	961.800	0.000	1550.000	962.300	0.000	1563.000	962.300	0.000	1600.000	962.100
BT	0.000	1650.000	960.100	0.000	1700.000	959.000	0.000	1750.000	956.400	0.000
BT	1800.000	953.500	0.000	1850.000	951.600	0.000	1900.000	950.900	0.000	1916.000
BT	950.800	0.000	1950.000	951.000	0.000	1975.000	951.400	0.000	2000.000	951.800
BT	942.000	2000.000	951.800	949.400	2021.000	952.100	949.300	2021.000	952.100	942.800
BT	2022.000	952.100	0.000	2028.000	952.100	0.000	2050.000	953.200	0.000	2100.000
BT	957.300	0.000	2150.000	962.300	0.000	2200.000	965.700	0.000	2243.000	967.300
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	964.200	700.000	962.100	750.000	960.100	800.000	958.800	850.000	958.000	900.000
GR	957.600	950.000	956.900	1000.000	956.000	1050.000	955.400	1100.000	955.200	1150.000
GR	955.300	1200.000	955.800	1250.000	956.700	1300.000	957.800	1350.000	959.500	1400.000
GR	960.800	1450.000	961.800	1500.000	962.300	1550.000	962.800	1563.000	962.100	1600.000
GR	960.100	1650.000	959.000	1700.000	956.400	1750.000	953.500	1800.000	951.600	1850.000
GR	950.900	1900.000	950.800	1916.000	951.000	1950.000	951.400	1975.000	951.800	2000.000
GR	942.000	2000.000	941.900	2003.000	941.200	2006.000	941.200	2009.000	941.200	2012.000
GR	941.100	2015.000	941.500	2018.000	942.800	2021.000	952.100	2021.000	952.100	2022.000
GR	952.100	2028.000	953.200	2050.000	957.300	2100.000	962.300	2150.000	965.700	2200.000
GR	967.300	2243.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ACME BUSINESS FORMS INC 77

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

X1	3.100	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.200	27.000	2000.000	2021.000	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	950.000	950.000	0.000
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	3.300	0.000	0.000	0.000	20.000	20.000	20.000	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	7.100	1985.000	2050.000	0.000	0.000

VALLEY SECTION D

X1	4.000	14.000	2000.000	2050.000	2600.000	3500.000	4100.000	0.000	0.000	0.000
GR	962.000	1800.000	956.000	1880.000	950.000	1950.000	947.500	1960.000	944.800	2000.000
GR	941.700	2010.000	941.500	2020.000	941.800	2030.000	941.800	2040.000	946.700	2050.000
GR	948.300	2100.000	952.000	2130.000	956.000	2170.000	960.000	2180.000	0.000	0.000
QT	5.000	90.000	180.000	215.000	265.000	215.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	4.500	13.000	2000.000	2050.000	2200.000	1200.000	2200.000	0.000	0.000	0.000
GR	955.000	1460.000	950.000	1520.000	947.200	1550.000	945.800	1580.000	945.800	2000.000
GR	942.700	2010.000	942.500	2020.000	942.500	2030.000	942.800	2040.000	946.700	2050.000
GR	946.700	2800.000	950.000	2960.000	955.000	3000.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1970.000	2070.000	0.000	0.000
X1	4.800	15.000	2000.000	2051.000	1200.000	2000.000	1375.000	0.000	0.000	0.000
GR	955.000	1250.000	950.000	1710.000	945.800	1750.000	945.800	1995.000	946.800	2000.000
GR	943.000	2010.000	943.000	2020.000	943.500	2025.000	943.200	2030.000	943.800	2040.000
GR	945.000	2050.000	946.200	2051.000	946.200	2190.000	950.000	2200.000	953.000	2250.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	4.900	42.000	2000.000	2031.000	150.000	50.000	114.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.600	950.600	0.000
GR	965.500	871.000	963.000	1031.000	961.400	1135.000	960.100	1242.000	958.600	1348.000
GR	957.500	1452.000	955.700	1556.000	953.500	1659.000	951.800	1760.000	951.200	1860.000
GR	950.000	1960.000	950.400	1979.000	943.600	2000.000	943.500	2002.000	943.400	2003.000

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GR	943.400	2006.000	943.700	2009.000	944.100	2012.000	944.300	2013.000	944.600	2019.000
GR	944.400	2020.000	944.300	2022.000	944.200	2025.000	944.500	2028.000	944.900	2030.000
GR	945.500	2031.000	950.400	2049.000	950.400	2058.000	950.300	2146.000	950.800	2249.000
GR	950.800	2475.000	951.300	2529.000	951.400	2657.000	951.700	2752.000	952.100	2847.000
GR	952.700	2944.000	952.700	3000.000	952.700	3100.000	952.700	3200.000	952.700	3300.000
GR	952.700	3400.000	952.700	3500.000	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	5.000	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	950.600	950.600	0.000
BT	42.000	871.000	965.500	0.000	1031.000	963.000	0.000	1135.000	961.400	0.000
BT	1242.000	960.100	0.000	1348.000	958.600	0.000	1452.000	957.500	0.000	1556.000
BT	955.700	0.000	1659.000	953.500	0.000	1760.000	951.800	0.000	1860.000	951.200
BT	0.000	1960.000	951.700	950.000	1979.000	951.800	950.400	2000.000	952.000	943.600
BT	2002.000	952.000	946.000	2003.000	951.900	947.600	2006.000	951.900	949.600	2009.000
BT	951.900	949.600	2012.000	951.900	947.300	2013.000	951.900	944.300	2019.000	951.800
BT	944.600	2020.000	951.800	946.100	2022.000	951.700	947.100	2025.000	951.700	949.600
BT	2028.000	951.700	947.600	2030.000	951.700	946.300	2031.000	951.600	945.500	2049.000
BT	951.500	950.400	2058.000	951.500	950.300	2146.000	950.300	0.000	2249.000	950.800
BT	0.000	2475.000	950.800	0.000	2529.000	951.300	0.000	2657.000	951.400	0.000
BT	2752.000	951.700	0.000	2847.000	952.100	0.000	2944.000	952.700	0.000	3000.000
BT	952.700	0.000	3100.000	952.700	0.000	3200.000	952.700	0.000	3300.000	952.700
BT	0.000	3400.000	952.700	0.000	3500.000	952.700	0.000	0.000	0.000	0.000

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

X1	5.100	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	950.600	950.600	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.200	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	950.600	950.600	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	5.300	0.000	0.000	0.000	100.000	100.000	100.000	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

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

X1	6.000	33.000	2000.000	2021.000	4200.000	3800.000	4500.000	0.000	0.000	0.000
GR	955.000	550.000	950.000	600.000	945.300	1000.000	945.100	1200.000	946.100	1350.000
GR	945.540	1425.000	945.460	1440.000	945.580	1513.000	945.740	1590.000	947.380	1660.000
GR	947.660	1731.000	947.840	1786.000	947.640	1839.000	947.210	1891.000	946.590	1941.000
GR	946.710	1977.000	945.500	1994.000	944.860	2000.000	944.700	2002.000	944.490	2004.000
GR	944.350	2006.000	944.170	2008.000	944.130	2010.000	944.150	2012.000	944.150	2014.000
GR	944.420	2016.000	944.510	2018.000	944.960	2021.000	946.010	2060.000	947.250	2367.000
GR	947.200	2665.000	950.000	3490.000	955.000	3500.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	939.730	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

S FORMS INC. 77

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	939.880	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

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
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	EQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	940.470	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

#MORE BUSINESS FORMS INC 27

HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01,02,03,04
MODIFICATION - 50,51,52,53,54

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

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.800	0.00	0.00	0.00	935.50	170.00	939.16	0.00	939.21	10.95	1.80	94.66	51.38
.800	0.00	0.00	0.00	935.50	230.00	939.73	0.00	939.79	9.64	1.89	124.41	74.09
.800	0.00	0.00	0.00	935.50	255.00	939.88	0.00	939.94	9.73	1.97	134.92	81.74
.800	0.00	0.00	0.00	935.50	300.00	940.47	0.00	940.52	6.70	1.87	176.81	115.91
.900	85.00	0.00	0.00	936.80	170.00	939.26	0.00	939.46	51.97	3.59	47.42	23.58
.900	85.00	0.00	0.00	936.80	230.00	939.80	0.00	940.03	47.82	3.88	59.27	33.26
.900	85.00	0.00	0.00	936.80	255.00	939.94	0.00	940.20	50.79	4.10	62.18	35.78
.900	85.00	0.00	0.00	936.80	300.00	940.48	0.00	940.74	41.68	4.06	73.89	46.47
1.000	1.00	942.20	940.80	936.80	170.00	939.26	0.00	939.46	12.34	3.57	47.64	48.38
1.000	1.00	942.20	940.80	936.80	230.00	939.80	0.00	940.03	12.03	3.89	59.17	66.30
1.000	1.00	942.20	940.80	936.80	255.00	939.94	0.00	940.20	12.79	4.10	62.24	71.29
1.000	1.00	942.20	940.80	936.80	300.00	940.49	0.00	940.74	10.87	4.06	73.94	90.98
1.100	25.00	942.20	940.80	936.80	170.00	939.30	0.00	939.49	11.70	3.50	48.51	49.70
1.100	25.00	942.20	940.80	936.80	230.00	939.84	0.00	940.06	11.59	3.84	59.95	67.56
1.100	25.00	942.20	940.80	936.80	255.00	939.98	0.00	940.24	12.29	4.04	63.12	72.73
1.100	25.00	942.20	940.80	936.80	300.00	940.52	0.00	940.77	10.58	4.02	74.65	92.21
1.200	1.00	0.00	0.00	936.80	170.00	939.31	0.00	939.50	48.34	3.50	48.54	24.45
1.200	1.00	0.00	0.00	936.80	230.00	939.84	0.00	940.07	46.12	3.83	59.98	33.87
1.200	1.00	0.00	0.00	936.80	255.00	939.99	0.00	940.24	48.46	4.04	63.14	36.63
1.200	1.00	0.00	0.00	936.80	300.00	940.52	0.00	940.77	40.38	4.02	74.68	47.21
1.300	30.00	0.00	0.00	937.00	170.00	939.50	0.00	939.64	33.72	2.90	58.67	29.28
1.300	30.00	0.00	0.00	937.00	230.00	940.06	0.00	940.20	28.70	3.02	76.21	42.93
1.300	30.00	0.00	0.00	937.00	255.00	940.23	0.00	940.38	28.68	3.12	81.84	47.61
1.300	30.00	0.00	0.00	937.00	300.00	940.75	0.00	940.89	22.24	3.00	100.04	63.61
1.800	4500.00	0.00	0.00	939.90	170.00	944.07	0.00	944.12	4.71	1.67	113.53	78.36
1.800	4500.00	0.00	0.00	939.90	230.00	944.67	0.00	944.72	5.10	1.91	137.42	101.88
1.800	4500.00	0.00	0.00	939.90	255.00	944.90	0.00	944.96	5.20	2.00	147.60	111.86
1.800	4500.00	0.00	0.00	939.90	300.00	945.24	0.00	945.31	5.54	2.17	167.05	127.42

MOORE BUSINESS FORMS INC 21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.900	100.00	0.00	0.00	939.90	170.00	944.12	0.00	944.17	5.59	1.65	103.22	71.93
1.900	100.00	0.00	0.00	939.90	230.00	944.73	0.00	944.78	6.69	1.93	118.88	88.91
1.900	100.00	0.00	0.00	939.90	255.00	944.96	0.00	945.03	7.08	2.04	124.99	95.80
1.900	100.00	0.00	0.00	939.90	300.00	945.30	0.00	945.38	8.01	2.24	133.83	106.00
2.100	23.00	946.30	943.20	939.90	170.00	944.22	0.00	944.26	1.03	1.61	105.72	167.79
2.100	23.00	946.30	943.20	939.90	230.00	944.92	0.00	944.97	1.17	1.86	123.94	212.86
2.100	23.00	946.30	943.20	939.90	255.00	945.21	0.00	945.27	1.21	1.94	131.41	232.15
2.100	23.00	946.30	943.20	939.90	300.00	945.66	0.00	945.72	1.30	2.10	143.04	263.04
2.300	100.00	0.00	0.00	939.90	170.00	944.24	0.00	944.28	4.00	1.58	120.31	84.96
2.300	100.00	0.00	0.00	939.90	230.00	944.95	0.00	945.00	4.06	1.78	150.11	114.08
2.300	100.00	0.00	0.00	939.90	255.00	945.24	0.00	945.29	3.98	1.84	167.68	127.88
2.300	100.00	0.00	0.00	939.90	300.00	945.70	0.00	945.75	3.83	1.91	213.13	153.30
2.800	625.00	0.00	0.00	940.00	170.00	944.40	0.00	944.42	1.32	.92	250.00	148.01
2.800	625.00	0.00	0.00	940.00	230.00	945.11	0.00	945.12	1.17	.97	340.55	213.03
2.800	625.00	0.00	0.00	940.00	255.00	945.40	0.00	945.41	1.10	.98	378.84	243.16
2.800	625.00	0.00	0.00	940.00	300.00	945.86	0.00	945.87	1.03	1.01	440.14	294.98
2.900	75.00	0.00	0.00	940.70	170.00	944.39	0.00	944.48	11.56	2.47	68.94	50.00
2.900	75.00	0.00	0.00	940.70	230.00	945.08	0.00	945.20	11.16	2.75	83.53	68.86
2.900	75.00	0.00	0.00	940.70	255.00	945.36	0.00	945.49	10.91	2.85	89.47	77.22
2.900	75.00	0.00	0.00	940.70	300.00	945.81	0.00	945.95	10.84	3.04	98.81	91.12
3.000	1.00	950.80	949.40	941.10	170.00	944.37	0.00	944.49	5.45	2.81	60.46	72.81
3.000	1.00	950.80	949.40	941.10	230.00	945.07	0.00	945.21	5.48	3.06	75.05	98.28
3.000	1.00	950.80	949.40	941.10	255.00	945.35	0.00	945.50	5.47	3.15	80.99	109.04
3.000	1.00	950.80	949.40	941.10	300.00	945.79	0.00	945.97	5.64	3.32	90.33	126.32
3.100	34.00	950.80	949.40	941.10	170.00	944.39	0.00	944.51	5.34	2.79	60.91	73.59
3.100	34.00	950.80	949.40	941.10	230.00	945.09	0.00	945.23	5.39	3.05	75.49	99.07
3.100	34.00	950.80	949.40	941.10	255.00	945.37	0.00	945.52	5.39	3.13	81.43	109.84
3.100	34.00	950.80	949.40	941.10	300.00	945.82	0.00	945.99	5.57	3.31	90.77	127.14
3.200	1.00	0.00	0.00	940.70	170.00	944.43	0.00	944.52	11.04	2.43	69.90	51.17
3.200	1.00	0.00	0.00	940.70	230.00	945.13	0.00	945.24	10.74	2.72	84.49	70.19
3.200	1.00	0.00	0.00	940.70	255.00	945.41	0.00	945.53	10.53	2.82	90.43	78.60
3.200	1.00	0.00	0.00	940.70	300.00	945.85	0.00	945.99	10.49	3.01	99.79	92.63
3.300	20.00	0.00	0.00	940.70	170.00	944.46	0.00	944.55	10.09	2.34	79.37	53.52
3.300	20.00	0.00	0.00	940.70	230.00	945.17	0.00	945.27	9.50	2.58	99.82	74.64
3.300	20.00	0.00	0.00	940.70	255.00	945.45	0.00	945.56	9.22	2.66	108.40	83.99
3.300	20.00	0.00	0.00	940.70	300.00	945.91	0.00	946.02	9.03	2.81	122.44	99.82
4.000	4100.00	0.00	0.00	941.50	170.00	945.93	0.00	945.95	1.70	.98	181.11	130.43
4.000	4100.00	0.00	0.00	941.50	230.00	946.62	0.00	946.64	1.71	1.09	230.93	175.98
4.000	4100.00	0.00	0.00	941.50	255.00	946.89	0.00	946.91	1.70	1.13	252.00	195.83
4.000	4100.00	0.00	0.00	941.50	300.00	947.32	0.00	947.34	1.66	1.19	294.47	233.04

MOORE BUSINESS FORMS INC

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.500	2200.00	0.00	0.00	942.50	90.00	946.20	0.00	946.20	.65	.54	310.72	111.75
4.500	2200.00	0.00	0.00	942.50	180.00	946.86	0.00	946.87	.63	.60	760.01	227.21
4.500	2200.00	0.00	0.00	942.50	215.00	947.10	0.00	947.10	.51	.56	1058.78	301.84
4.500	2200.00	0.00	0.00	942.50	265.00	947.48	0.00	947.48	.33	.48	1544.96	458.12
4.800	1375.00	0.00	0.00	943.00	90.00	946.32	0.00	946.32	1.35	.70	141.63	77.53
4.800	1375.00	0.00	0.00	943.00	180.00	947.00	0.00	947.02	2.23	1.04	209.10	120.67
4.800	1375.00	0.00	0.00	943.00	215.00	947.22	0.00	947.24	2.45	1.14	231.21	137.46
4.800	1375.00	0.00	0.00	943.00	265.00	947.57	0.00	947.59	2.55	1.24	265.99	165.89
4.900	114.00	0.00	0.00	943.40	90.00	946.33	0.00	946.36	5.57	1.31	68.53	38.14
4.900	114.00	0.00	0.00	943.40	180.00	947.02	0.00	947.08	9.02	2.00	89.86	59.92
4.900	114.00	0.00	0.00	943.40	215.00	947.24	0.00	947.32	10.07	2.22	96.73	67.75
4.900	114.00	0.00	0.00	943.40	265.00	947.59	0.00	947.68	10.76	2.47	107.50	80.78
5.000	1.00	950.30	950.40	943.40	90.00	946.33	0.00	946.37	4.49	1.72	52.20	42.47
5.000	1.00	950.30	950.40	943.40	180.00	946.99	0.00	947.12	10.52	2.81	64.12	55.50
5.000	1.00	950.30	950.40	943.40	215.00	947.20	0.00	947.36	13.18	3.18	67.52	59.21
5.000	1.00	950.30	950.40	943.40	265.00	947.53	0.00	947.74	16.89	3.66	72.45	64.49
5.100	40.00	950.30	950.40	943.40	90.00	946.34	0.00	946.39	4.44	1.72	52.41	42.70
5.100	40.00	950.30	950.40	943.40	180.00	947.04	0.00	947.16	10.26	2.78	64.77	56.19
5.100	40.00	950.30	950.40	943.40	215.00	947.26	0.00	947.41	12.83	3.15	68.25	60.02
5.100	40.00	950.30	950.40	943.40	265.00	947.60	0.00	947.81	16.40	3.61	73.35	65.43
5.200	1.00	0.00	0.00	943.40	90.00	946.37	0.00	946.40	5.22	1.29	69.87	39.39
5.200	1.00	0.00	0.00	943.40	180.00	947.12	0.00	947.18	8.02	1.93	93.10	63.56
5.200	1.00	0.00	0.00	943.40	215.00	947.37	0.00	947.44	8.77	2.13	100.84	72.61
5.200	1.00	0.00	0.00	943.40	265.00	947.76	0.00	947.84	9.15	2.35	112.86	87.60
5.300	100.00	0.00	0.00	943.40	90.00	946.42	0.00	946.44	4.23	1.18	85.18	43.75
5.300	100.00	0.00	0.00	943.40	180.00	947.21	0.00	947.25	6.07	1.72	121.43	73.05
5.300	100.00	0.00	0.00	943.40	215.00	947.47	0.00	947.52	6.48	1.87	134.58	84.44
5.300	100.00	0.00	0.00	943.40	265.00	947.87	0.00	947.93	6.62	2.04	155.18	102.98
6.000	4500.00	0.00	0.00	944.13	90.00	946.67	0.00	946.67	.19	.25	967.11	207.08
6.000	4500.00	0.00	0.00	944.13	180.00	947.42	0.00	947.42	.13	.24	1937.65	504.59
6.000	4500.00	0.00	0.00	944.13	215.00	947.67	0.00	947.67	.11	.24	2388.66	651.71
6.000	4500.00	0.00	0.00	944.13	265.00	948.05	0.00	948.05	.08	.22	3158.74	924.42

MOOPE BUSINESS FORMS INC 27

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.800	170.00	939.16	0.00	0.00	0.00	43.66	0.00
.800	230.00	939.73	.57	0.00	.57	64.50	0.00
.800	255.00	939.88	.15	0.00	.72	71.00	0.00
.800	300.00	940.47	.59	0.00	1.31	71.00	0.00
.900	170.00	939.26	0.00	.10	0.00	21.50	85.00
.900	230.00	939.80	.54	.07	.54	21.50	85.00
.900	255.00	939.94	.14	.06	.68	21.50	85.00
.900	300.00	940.48	.54	.01	1.22	21.50	85.00
1.000	170.00	939.26	0.00	.00	0.00	21.50	1.00
1.000	230.00	939.80	.53	.00	.53	21.50	1.00
1.000	255.00	939.94	.14	.00	.68	21.50	1.00
1.000	300.00	940.49	.54	.00	1.22	21.50	1.00
1.100	170.00	939.30	0.00	.04	0.00	21.50	25.00
1.100	230.00	939.84	.53	.04	.53	21.50	25.00
1.100	255.00	939.98	.15	.04	.68	21.50	25.00
1.100	300.00	940.52	.54	.03	1.22	21.50	25.00
1.200	170.00	939.31	0.00	.00	0.00	21.50	1.00
1.200	230.00	939.84	.53	.00	.53	21.50	1.00
1.200	255.00	939.99	.15	.00	.68	21.50	1.00
1.200	300.00	940.52	.54	.00	1.22	21.50	1.00
1.300	170.00	939.50	0.00	.20	0.00	30.48	30.00
1.300	230.00	940.06	.55	.22	.55	32.78	30.00
1.300	255.00	940.23	.17	.24	.72	33.48	30.00
1.300	300.00	940.75	.53	.23	1.25	37.38	30.00
1.800	170.00	944.07	0.00	4.57	0.00	37.92	4500.00
1.800	230.00	944.67	.60	4.61	.60	41.74	4500.00
1.800	255.00	944.90	.23	4.68	.83	48.44	4500.00
1.800	300.00	945.24	.34	4.49	1.17	68.84	4500.00
1.900	170.00	944.12	0.00	.05	0.00	26.00	100.00
1.900	230.00	944.73	.60	.06	.60	26.00	100.00
1.900	255.00	944.96	.24	.06	.84	26.00	100.00
1.900	300.00	945.30	.34	.06	1.18	26.00	100.00
2.100	170.00	944.22	0.00	.10	0.00	26.00	23.00
2.100	230.00	944.92	.70	.19	.70	26.00	23.00
2.100	255.00	945.21	.29	.25	.99	26.00	23.00
2.100	300.00	945.66	.45	.35	1.44	26.00	23.00

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.300	170.00	944.24	0.00	.02	0.00	39.00	100.00
2.300	230.00	944.95	.71	.03	.71	51.26	100.00
2.300	255.00	945.24	.29	.03	1.00	69.70	100.00
2.300	300.00	945.70	.46	.04	1.46	169.36	100.00
2.800	170.00	944.40	0.00	.16	0.00	121.07	625.00
2.800	230.00	945.11	.71	.16	.71	130.79	625.00
2.800	255.00	945.40	.29	.16	1.00	133.81	625.00
2.800	300.00	945.86	.45	.16	1.45	134.74	625.00
2.900	170.00	944.39	0.00	-.02	0.00	21.00	75.00
2.900	230.00	945.08	.69	-.03	.69	21.00	75.00
2.900	255.00	945.36	.28	-.04	.98	21.00	75.00
2.900	300.00	945.81	.44	-.05	1.42	21.00	75.00
3.000	170.00	944.37	0.00	-.01	0.00	21.00	1.00
3.000	230.00	945.07	.69	-.01	.69	21.00	1.00
3.000	255.00	945.35	.28	-.01	.98	21.00	1.00
3.000	300.00	945.79	.44	-.01	1.42	21.00	1.00
3.100	170.00	944.39	0.00	.02	0.00	21.00	34.00
3.100	230.00	945.09	.69	.02	.69	21.00	34.00
3.100	255.00	945.37	.28	.02	.98	21.00	34.00
3.100	300.00	945.82	.45	.02	1.42	21.00	34.00
3.200	170.00	944.43	0.00	.04	0.00	21.00	1.00
3.200	230.00	945.13	.69	.04	.69	21.00	1.00
3.200	255.00	945.41	.28	.04	.98	21.00	1.00
3.200	300.00	945.85	.45	.04	1.42	21.00	1.00
3.300	170.00	944.46	0.00	.03	0.00	27.83	20.00
3.300	230.00	945.17	.70	.04	.70	29.68	20.00
3.300	255.00	945.45	.29	.04	.99	30.42	20.00
3.300	300.00	945.91	.45	.05	1.44	31.60	20.00
4.000	170.00	945.93	0.00	1.47	0.00	65.18	4100.00
4.000	230.00	946.62	.69	1.45	.69	76.99	4100.00
4.000	255.00	946.89	.27	1.44	.96	86.94	4100.00
4.000	300.00	947.32	.43	1.41	1.39	107.11	4100.00
4.500	90.00	946.20	0.00	.27	0.00	477.20	2200.00
4.500	180.00	946.86	.67	.24	.67	1250.84	2200.00
4.500	215.00	947.10	.24	.21	.90	1267.43	2200.00
4.500	265.00	947.48	.38	.16	1.29	1290.97	2200.00
4.800	90.00	946.32	0.00	.12	0.00	96.31	1375.00
4.800	180.00	947.00	.68	.14	.68	100.00	1375.00
4.800	215.00	947.22	.22	.12	.90	100.00	1375.00
4.800	265.00	947.57	.35	.09	1.25	100.00	1375.00

MOORE BUSINESS FORMS INC 27

SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.900	90.00	946.33	0.00	.02	0.00	31.00	114.00
4.900	180.00	947.02	.69	.02	.69	31.00	114.00
4.900	215.00	947.24	.22	.02	.91	31.00	114.00
4.900	265.00	947.59	.34	.02	1.25	31.00	114.00
5.000	90.00	946.33	0.00	-.01	0.00	31.00	1.00
5.000	180.00	946.99	.67	-.03	.67	31.00	1.00
5.000	215.00	947.20	.21	-.04	.88	31.00	1.00
5.000	265.00	947.53	.33	-.06	1.20	31.00	1.00
5.100	90.00	946.34	0.00	.02	0.00	31.00	40.00
5.100	180.00	947.04	.69	.04	.69	31.00	40.00
5.100	215.00	947.26	.22	.06	.92	31.00	40.00
5.100	265.00	947.60	.34	.07	1.26	31.00	40.00
5.200	90.00	946.37	0.00	.03	0.00	31.00	1.00
5.200	180.00	947.12	.75	.08	.75	31.00	1.00
5.200	215.00	947.37	.25	.11	1.00	31.00	1.00
5.200	265.00	947.76	.39	.15	1.39	31.00	1.00
5.300	90.00	946.42	0.00	.05	0.00	43.08	100.00
5.300	180.00	947.21	.78	.09	.78	48.43	100.00
5.300	215.00	947.47	.26	.10	1.05	50.24	100.00
5.300	265.00	947.87	.40	.11	1.44	52.94	100.00
6.000	90.00	946.67	0.00	.25	0.00	1025.58	4500.00
6.000	180.00	947.42	.75	.21	.75	1718.05	4500.00
6.000	215.00	947.67	.25	.20	1.00	1911.23	4500.00
6.000	265.00	948.05	.37	.18	1.38	2148.61	4500.00

MOORE BUSINESS FORMS, INC. 27

SUMMARY OF ERRORS

MOORE BUSINESS FORMS INC 77

/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
.800	0.	-.72	-.15	.59
.900	85.	-.68	-.14	.54
1.000	86.	-.68	-.14	.54
1.100	111.	-.68	-.15	.54
1.200	112.	-.68	-.15	.54
1.300	142.	-.72	-.17	.53
1.800	4642.	-.83	-.23	.34
1.900	4742.	-.84	-.24	.34
2.100	4765.	-.99	-.29	.45
2.300	4865.	-1.00	-.29	.46
2.800	5490.	-1.00	-.29	.45
2.900	5565.	-.98	-.28	.44
3.000	5566.	-.98	-.28	.44
3.100	5600.	-.98	-.28	.45
3.200	5601.	-.98	-.28	.45
3.300	5621.	-.99	-.29	.45
4.000	9721.	-.96	-.27	.43
4.500	11921.	-.90	-.24	.38
4.800	13296.	-.90	-.22	.35
4.900	13410.	-.91	-.22	.34
5.000	13411.	-.88	-.21	.33
5.100	13451.	-.92	-.22	.34
5.200	13452.	-1.00	-.25	.39
5.300	13552.	-1.05	-.26	.40
6.000	18052.	-1.00	-.25	.37
WEIGHTED AVG FOR REACH		-.92	-.25	.41

FHF FOR THE REACH = 010 WITH 100.0 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2



1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Report



38

HYDRAULIC ANALYSIS REPORT

GRAND RIVER AT THE TOWNSHIP OF SUMMIT

JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

AUGUST, 1980

Introduction

This hydraulic analysis report covers calculations performed for the Grand River within the township of Summit. The Grand River divides into two branches at Vandercook Lake. The main branch flows through Browns Lake and a diversion channel flows through Sharp Lake. This report covers the detail portion of the main branch. The reach studied in detail began at the boundary line between the township of Summit and the city of Jackson, and extended about 18,050 feet upstream to Browns Lake. Cross section data used in the hydraulic computations was surveyed by Commonwealth Associates in November, 1978 and May, 1980. In addition, topographic maps with 5-foot and 10-foot contour intervals were used.

The flows for the 10-, 50-, 100-, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated .

Analysis of the hydraulic characteristics of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

Method of Analysis

Water surface elevations of floods of the selected recurrence intervals were computed utilizing the Corps of Engineers' HEC-2 step backwater computer program.

Variables and Coefficients

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Thus, without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the cross section calculations for loss coefficients and coefficients of discharge are contained in Appendix A.

Manning's Roughness Coefficients

For channel	.02-.045
For overbanks	.08

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

High-Water Marks

For the reach studied there were no high-water marks recorded.

Starting Conditions

A report published in December, 1976 by the U.S. Department of Agriculture Soil Conservation Service, entitled "Flood Hazard Analyses for the Upper Grand River, Jackson County, Michigan," documents historical flooding in the area of our study. The above report, Reference 1, studied the entire Grand River to the downstream limit of our study. Unfortunately, their analysis in the upper reach was not detailed enough. The Grand River divides about 500 feet downstream of Francis Street bridge and the analysis S.C.S. made did not include flow distributions for each branch. As described in our hydrology report, flow diversions were computed based on stage-discharge relationships for both branches. From the stage-discharge data in Reference 1, a rating curve was plotted at Section 50.6. Starting water elevations were interpolated from the graph, Figure 1, for over flows and a preliminary run was made to establish the starting water elevations at the downstream limit of our study. A copy of this computer printout is contained in Appendix E.

Special Problems

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
	.8	Valley Section, start of study
	.9	Bridge Section
	1.0	Downstream face
A	1.1	Upstream face, Probert Road
	1.2	One foot upstream
	1.3	Valley Section
	1.8	Valley Section
	1.9	Downstream face
B	2.1	Upstream face, Stonewall Road
	2.3	Valley Section
	2.8	Valley Section
	2.9	Bridge Section
	3.0	Downstream face
C	3.1	Upstream face, Badgley Road
	3.2	One foot upstream
	3.3	Valley Section
D	4.0	Valley Section
	4.5	Valley Section
	4.8	Valley Section
	4.9	Bridge Section
	5.0	Downstream face
E	5.1	Upstream face, Glenshire Drive
	5.2	Upstream face, Glenshire Drive
	5.3	Valley Section
F	6.0	Valley Section near Browns Lake outlet

Bridge Notes and Sketches

Bridge notes and sketches are contained in Appendix B.

Cross Section Plots

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

Profiles

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

Map

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

Computer Backwater Runs/Printouts

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

References

1. U.S. Department of Agriculture Soil Conservation Service, "Flood Hazard Analyses Upper Grand River," Jackson County, Michigan. December, 1976.

APPENDIX A

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

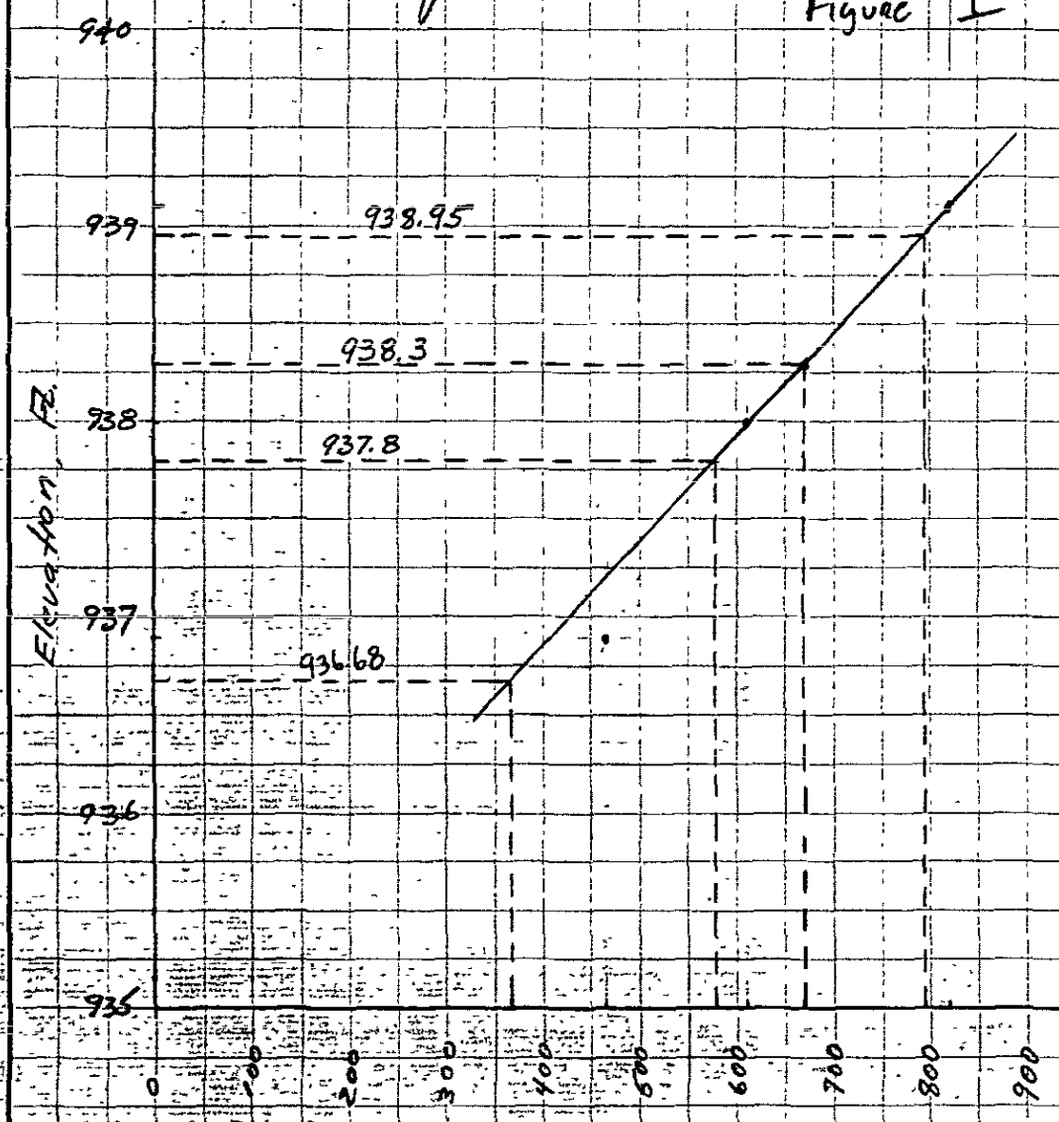
CALCULATION SHEET

REV.

CLIENT/OWNER F. I. S. Summit Township Grand River	FILING CODE
	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Rating Curve
CHECKED BY/DATE (SIGNATURE)	SHEET OF
	BOOK NO.

N Elev of Vandenaarde Lake 946±

Figure 1



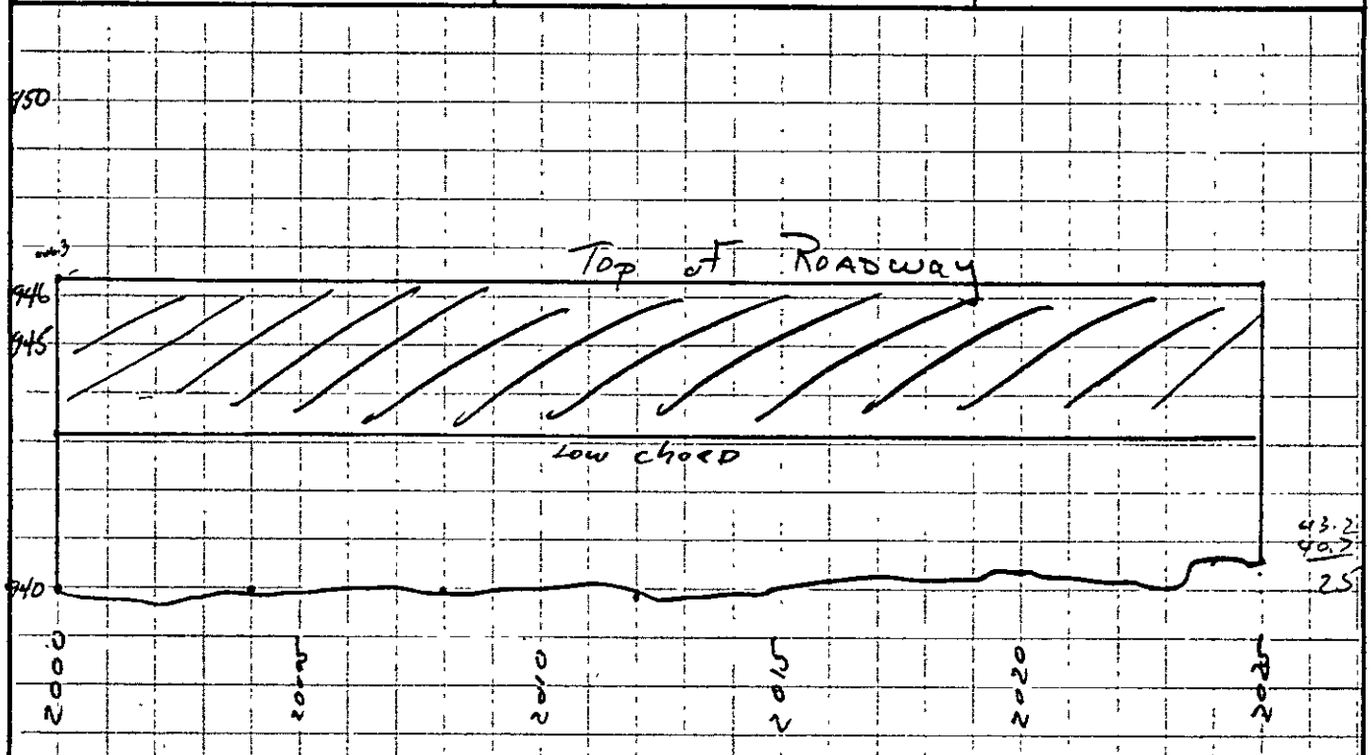
FORM CAI/DCP 112 (9/78)

APPENDIX B

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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Studies Summit Township GRAND River	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Stonewall Road
	SHEET OF / BOOK NO.



Area of BRIDGE opening:

$25(943.1 - 940.4) = 75$ sq ft

Wetted Perimeter:

$3.1 + 25 + 25 + 2.5 = 55.6$

$XKOR = h_A = \dfrac{29.1(.02)^2 23}{\left(\frac{75}{55.6}\right)^{\frac{4}{3}}} = .18$

$\underline{XKOR} = 1 + .5 + .18 = 1.7$

APPENDIX C

APPENDIX D

APPENDIX E

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Split Flow Run

00BREAK00

RECEIVED
OCT 1 0 1980
WATER MANAGEMENT

```
*****************************************************************
*  HEC2 WATER SURFACE PROFILES                                  *
*  VERSION OF NOVEMBER 1976                                     *
*  UPDATED JULY 1979                                            *
*  ERROR CORR - 01.02.03                                        *
*  MODIFICATION - 50.51.52.53                                   *
*                                                               *
*  RUN DATE  80/07/11. TIME  11.23.04.                          *
*****************************************************************
```

```
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
```

Grand River Model used for splitting flows between Grand River and the diversion from Vandercook Lake

Section 7 Bridge between Brown Lake and Vandercook Lake

```
**********************************************************
  HEC RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CODE - 01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

(
I1      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN
I2      100 YEAR FLOW
I3      GRAND RIVER
J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL      FQ
        0.      2.       0.       0.  0.000000     0.00      0.0       0.    937.000    0.000
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC     IBW      CHNIM     ITRACE
    1.000     0.000   -1.000    0.000    0.000    1.250     0.000     0.000    0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   38.000     1.000   42.000   41.000   40.000   53.000    27.000    21.000   22.000    2.000

   54.000     4.000   39.000    0.000  150.000    0.000     0.000     0.000    0.000     0.000

QT   5.000   200.000   300.000   400.000   500.000   100.000     0.000     0.000     0.000     0.000
NC    .060     .060      .040      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    .800    64.000  2000.000  2047.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  960.300  1719.000   955.500  1743.000   951.500  1759.000   948.400  1775.000   944.500  1793.000
GR  940.100  1809.000   940.900  1811.000   941.100  1830.000   940.700  1841.000   939.600  1857.000
GR  940.000  1859.000   939.900  1881.000   939.800  1909.000   939.700  1959.000   939.300  2000.000
GR  939.200  2003.000   938.700  2005.000   938.700  2007.000   937.100  2009.000   935.800  2014.000
GR  935.500  2017.000   935.700  2023.000   936.700  2028.000   937.400  2035.000   937.700  2042.000
GR  939.500  2046.000   939.300  2047.000   939.700  2059.000   939.900  2089.000   939.100  2095.000
GR  937.500  2099.000   937.200  2109.000   937.600  2116.000   939.100  2122.000   939.200  2130.000
GR  940.900  2134.000   941.600  2159.000   942.100  2173.000   942.100  2189.000   942.400  2200.000
GR  942.200  2250.000   942.200  2300.000   942.400  2350.000   942.900  2400.000   943.600  2450.000
GR  944.900  2500.000   946.800  2550.000   949.100  2600.000   951.900  2650.000   953.100  2700.000
GR  952.100  2750.000   950.100  2800.000   948.000  2850.000   946.100  2900.000   945.200  2950.000
GR  945.100  3000.000   944.700  3050.000   944.500  3100.000   944.000  3150.000   943.500  3200.000
GR  943.100  3250.000   942.900  3300.000   942.900  3350.000   943.900  3400.000     0.000     0.000

X1    .900    57.000  2000.000  2037.000    85.000    85.000    85.000     0.000     0.000     0.000
GR  950.100  1500.000   955.700  1550.000   952.700  1600.000   949.500  1650.000   946.200  1700.000
GR  944.000  1750.000   943.200  1800.000   944.400  1850.000   943.200  1885.000   942.900  1903.000
GR  942.700  1931.000   941.500  1953.000   941.400  1971.000   941.100  1987.000   940.700  2000.000
GR  937.700  2003.000   937.200  2006.000   937.100  2009.000   937.200  2012.000   937.100  2015.000
GR  937.000  2018.000   937.300  2021.000   937.500  2024.000   937.700  2026.000   941.200  2037.000
GR  941.100  2053.000   941.500  2080.000   942.000  2093.000   941.900  2103.000   942.400  2111.000
GR  942.500  2130.000   942.500  2153.000   942.400  2203.000   942.200  2250.000   942.200  2300.000
GR  942.400  2350.000   942.900  2400.000   943.600  2450.000   944.900  2500.000   946.800  2550.000
GR  949.100  2600.000   951.900  2650.000   953.100  2700.000   952.100  2750.000   950.100  2800.000
```

GR	948.000	2850.000	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000
GR	944.500	3100.000	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000
GR	942.900	3350.000	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.000	51.000	2000.000	2021.500	1.000	1.000	1.000	0.000	0.000	0.000
BT	31.000	1500.000	958.100	0.000	1550.000	955.700	0.000	1600.000	952.700	0.000
BT	1650.000	949.500	0.000	1700.000	946.200	0.000	1750.000	944.000	0.000	1800.000
BT	943.200	0.000	1850.000	943.400	0.000	1879.000	943.200	0.000	1900.000	943.100
BT	0.000	1950.000	942.800	0.000	1998.000	942.800	0.000	2000.000	942.800	937.100
BT	2000.000	942.800	940.800	2021.500	943.000	940.800	2021.500	943.000	937.300	2022.000
BT	943.100	0.000	2050.000	942.800	0.000	2100.000	942.600	0.000	2150.000	942.500
BT	0.000	2200.000	942.400	0.000	2250.000	942.200	0.000	2300.000	942.200	0.000
BT	2350.000	942.400	0.000	2400.000	942.900	0.000	2450.000	943.600	0.000	2500.000
BT	944.900	0.000	2550.000	946.800	0.000	2600.000	949.100	0.000	2650.000	951.900
BT	0.000	2700.000	953.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1879.000	943.100	1900.000
GR	942.800	1950.000	942.800	1998.000	942.800	2000.000	937.100	2000.000	936.900	2003.000
GR	936.800	2006.000	937.200	2009.000	937.000	2012.000	937.000	2015.000	937.200	2018.000
GR	937.300	2021.500	943.000	2021.500	943.100	2022.000	942.800	2050.000	942.600	2100.000
GR	942.500	2150.000	942.400	2200.000	942.200	2250.000	942.200	2300.000	942.400	2350.000
GR	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000	949.100	2600.000
GR	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000	948.000	2850.000
GR	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000	944.500	3100.000
GR	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000	942.900	3350.000
GR	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

X1	1.100	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	1.300	57.000	2000.000	2037.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	958.100	1500.000	955.700	1550.000	952.700	1600.000	949.500	1650.000	946.200	1700.000
GR	944.000	1750.000	943.200	1800.000	943.400	1850.000	943.200	1885.000	942.900	1903.000
GR	942.200	1931.000	941.500	1953.000	941.400	1971.000	941.100	1987.000	940.700	2000.000
GR	937.700	2003.000	937.200	2006.000	937.100	2009.000	937.200	2012.000	937.100	2015.000
GR	937.000	2018.000	937.300	2021.000	937.500	2024.000	937.700	2026.000	941.200	2037.000
GR	941.100	2053.000	941.500	2080.000	942.000	2093.000	941.900	2103.000	942.400	2111.000
GR	942.500	2130.000	942.500	2153.000	942.400	2203.000	942.200	2250.000	942.200	2300.000
GR	942.400	2350.000	942.900	2400.000	943.600	2450.000	944.900	2500.000	946.800	2550.000
GR	949.100	2600.000	951.900	2650.000	953.100	2700.000	952.100	2750.000	950.100	2800.000
GR	948.000	2850.000	946.100	2900.000	945.200	2950.000	945.100	3000.000	944.700	3050.000
GR	944.500	3100.000	944.000	3150.000	943.500	3200.000	943.100	3250.000	942.900	3300.000
GR	942.900	3350.000	943.900	3400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	40.000	1999.000	2025.000	2000.000	2250.000	2150.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	944.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000

GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000
X1	1.900	37.000	2000.000	2026.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	946.700	1900.000	946.400	1950.000	946.300	2000.000
GR	940.000	2000.000	940.000	2004.000	940.000	2008.000	939.900	2012.000	940.200	2016.000
GR	940.300	2016.000	940.300	2020.000	940.500	2024.000	940.700	2026.000	946.300	2026.000
GR	946.300	2050.000	946.500	2100.000	946.700	2150.000	946.900	2200.000	947.200	2250.000
GR	948.000	2300.000	949.600	2350.000	951.200	2400.000	952.700	2450.000	954.500	2500.000
GR	956.200	2550.000	957.700	2600.000	959.300	2650.000	961.100	2700.000	963.300	2750.000
GR	955.600	2800.000	967.300	2840.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	26.000	1597.000	956.400	0.000	1600.000	956.300	0.000	1650.000	954.000	0.000
BT	1700.000	951.900	0.000	1750.000	950.100	0.000	1800.000	948.500	0.000	1850.000
BT	947.300	0.000	1900.000	946.700	0.000	1950.000	946.400	0.000	2000.000	946.300
BT	940.000	2000.000	946.300	943.100	2026.000	946.300	943.200	2026.000	946.300	940.700
BT	2050.000	946.300	0.000	2100.000	946.500	0.000	2150.000	946.700	0.000	2200.000
BT	946.900	0.000	2250.000	947.200	0.000	2300.000	948.000	0.000	2350.000	949.600
BT	0.000	2400.000	951.200	0.000	2450.000	952.700	0.000	2500.000	954.500	0.000
BT	2550.000	956.200	0.000	2600.000	957.700	0.000	2650.000	959.300	0.000	0.000

BRIDGE SECTION B UPSTREAM FACE STONEWALL RD

X1	2.100	0.000	0.000	0.000	23.000	23.000	23.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	2.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	2.300	40.000	1999.000	2025.000	25.000	25.000	25.000	0.000	0.000	0.000
GR	956.400	1597.000	956.300	1600.000	954.000	1650.000	951.900	1700.000	950.100	1750.000
GR	948.500	1800.000	947.300	1850.000	945.700	1900.000	944.600	1950.000	945.500	1968.000
GR	945.200	1985.000	941.300	1999.000	940.500	2000.000	940.200	2004.000	940.000	2008.000
GR	939.900	2012.000	940.700	2012.000	940.000	2016.000	940.200	2020.000	940.700	2023.000
GR	941.900	2025.000	944.100	2027.000	944.800	2029.000	945.200	2050.000	946.500	2100.000
GR	946.700	2150.000	946.900	2200.000	947.200	2250.000	948.000	2300.000	949.600	2350.000
GR	951.200	2400.000	952.700	2450.000	954.500	2500.000	956.200	2550.000	957.700	2600.000
GR	959.300	2650.000	961.100	2700.000	963.300	2750.000	955.600	2800.000	967.300	2840.000
X1	2.600	46.000	2000.000	2042.000	700.000	600.000	625.000	0.000	0.000	0.000
GR	961.300	1675.000	960.300	1700.000	959.600	1716.000	958.300	1731.000	959.400	1744.000
GR	959.000	1750.000	956.400	1771.000	954.900	1800.000	953.200	1827.000	951.200	1850.000
GR	948.600	1874.000	947.300	1889.000	947.000	1900.000	946.500	1910.000	944.600	1926.000
GR	943.400	1950.000	942.800	1999.000	942.300	2000.000	941.800	2000.000	941.200	2003.000
GR	940.800	2006.000	940.200	2009.000	940.500	2011.000	940.700	2014.000	940.300	2017.000
GR	940.000	2021.000	940.000	2026.000	940.300	2030.000	940.600	2035.000	940.700	2038.000
GR	941.800	2042.000	943.900	2050.000	945.400	2053.000	949.800	2060.000	950.500	2066.000
GR	951.000	2082.000	951.000	2098.000	950.100	2100.000	958.800	2114.000	959.000	2125.000
GR	958.500	2135.000	957.800	2148.000	957.900	2150.000	959.700	2168.000	961.300	2173.000
GR	961.700	2178.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.900	27.000	2000.000	2021.000	75.000	75.000	75.000	0.000	0.000	0.000

GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.000	46.000	2000.000	2021.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	40.000	700.000	964.200	0.000	750.000	962.100	0.000	800.000	960.100	0.000
BT	850.000	958.800	0.000	900.000	958.000	0.000	950.000	957.600	0.000	1000.000
BT	956.900	0.000	1050.000	956.000	0.000	1100.000	955.400	0.000	1150.000	955.200
BT	0.000	1200.000	955.300	0.000	1250.000	955.800	0.000	1300.000	956.700	0.000
BT	1350.000	957.800	0.000	1400.000	959.400	0.000	1450.000	960.800	0.000	1500.000
BT	961.800	0.000	1550.000	962.300	0.000	1563.000	962.300	0.000	1600.000	962.100
BT	0.000	1650.000	960.100	0.000	1700.000	959.000	0.000	1750.000	956.400	0.000
BT	1800.000	953.500	0.000	1850.000	951.600	0.000	1900.000	950.900	0.000	1916.000
BT	950.800	0.000	1950.000	951.000	0.000	1975.000	951.400	0.000	2000.000	951.800
BT	942.000	2000.000	951.800	949.400	2021.000	952.100	949.300	2021.000	952.100	942.800
BT	2022.000	952.100	0.000	2028.000	952.100	0.000	2050.000	953.200	0.000	2100.000
BT	957.300	0.000	2150.000	962.300	0.000	2200.000	965.700	0.000	2243.000	967.300
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	964.200	700.000	962.100	750.000	960.100	800.000	958.800	850.000	958.000	900.000
GR	957.600	950.000	956.900	1000.000	956.000	1050.000	955.400	1100.000	955.200	1150.000
GR	955.300	1200.000	955.800	1250.000	956.700	1300.000	957.800	1350.000	959.500	1400.000
GR	960.800	1450.000	961.800	1500.000	962.300	1550.000	962.800	1563.000	962.100	1600.000
GR	960.100	1650.000	959.000	1700.000	956.400	1750.000	953.500	1800.000	951.600	1850.000
GR	950.900	1900.000	950.800	1916.000	951.000	1950.000	951.400	1975.000	951.800	2000.000
GR	942.000	2000.000	941.900	2003.000	941.200	2006.000	941.200	2009.000	941.200	2012.000
GR	941.100	2015.000	941.500	2018.000	942.800	2021.000	952.100	2021.000	952.100	2022.000
GR	952.100	2028.000	953.200	2050.000	957.300	2100.000	962.300	2150.000	965.700	2200.000
GR	967.300	2243.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION C UPSTREAM FACE RADGLEY RD

X1	3.100	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	3.200	27.000	2000.000	2021.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	960.300	1700.000	958.300	1721.000	959.600	1726.000	956.600	1750.000	953.800	1800.000
GR	951.100	1850.000	949.700	1900.000	949.500	1940.000	949.100	1950.000	949.300	1987.000
GR	941.800	2000.000	941.300	2002.000	941.200	2004.000	940.900	2007.000	940.700	2010.000
GR	940.800	2014.000	941.300	2018.000	941.900	2021.000	951.100	2029.000	951.500	2037.000
GR	951.500	2050.000	953.200	2066.000	954.700	2081.000	955.600	2095.000	956.200	2100.000
GR	961.500	2150.000	965.200	2186.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.300	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000

VALLEY SECTION D

X1	4.000	14.000	2000.000	2050.000	2800.000	3500.000	3900.000	0.000	0.000	0.000
GR	962.000	1800.000	956.000	1880.000	950.000	1950.000	947.500	1960.000	944.800	2000.000
GR	941.700	2010.000	941.500	2020.000	940.800	2030.000	941.800	2040.000	946.700	2050.000
GR	948.300	2100.000	952.000	2130.000	956.000	2170.000	960.000	2180.000	0.000	0.000

X1	4.800	29.000	2000.000	2051.000	3800.000	3000.000	3500.000	0.000	0.000	0.000
GR	950.000	500.000	948.000	970.000	946.700	1400.000	946.300	1800.000	943.500	1900.000
GR	943.800	1980.000	944.500	2000.000	940.500	2010.000	937.600	2020.000	938.000	2025.000
GR	939.700	2030.000	941.100	2040.000	943.100	2050.000	945.400	2051.000	946.500	2059.000
GR	945.500	2094.000	944.500	2101.000	946.800	2189.000	946.200	2201.000	946.700	2218.000
GR	948.800	2320.000	948.700	2371.000	950.100	2494.000	950.900	2563.000	951.300	2692.000
GR	950.700	2723.000	949.700	2866.000	945.500	2892.000	945.800	2922.000	0.000	0.000

X1	4.900	42.000	2000.000	2031.000	150.000	50.000	114.000	0.000	0.000	0.000
GR	965.500	871.000	963.000	1031.000	961.400	1135.000	960.100	1242.000	958.600	1348.000
GR	957.500	1452.000	955.700	1556.000	953.500	1659.000	951.800	1760.000	951.200	1860.000
GR	950.000	1960.000	950.400	1979.000	943.600	2000.000	943.500	2002.000	943.400	2003.000
GR	943.400	2006.000	943.700	2009.000	944.100	2012.000	944.300	2013.000	944.600	2019.000
GR	944.400	2020.000	944.300	2022.000	944.200	2025.000	944.500	2028.000	944.900	2030.000
GR	945.500	2031.000	950.400	2049.000	950.400	2058.000	950.300	2146.000	950.800	2249.000
GR	950.800	2475.000	951.300	2529.000	951.400	2657.000	951.700	2752.000	952.100	2847.000
GR	952.700	2944.000	952.700	3000.000	952.700	3100.000	952.700	3200.000	952.700	3300.000
GR	952.700	3400.000	952.700	3500.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	5.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	42.000	871.000	965.500	0.000	1031.000	963.000	0.000	1135.000	961.400	0.000
BT	1242.000	960.100	0.000	1348.000	958.600	0.000	1452.000	957.500	0.000	1556.000
BT	955.700	0.000	1659.000	953.500	0.000	1760.000	951.800	0.000	1860.000	951.200
BT	0.000	1960.000	951.700	950.000	1979.000	951.800	950.400	2000.000	952.000	943.600
BT	2002.000	952.000	946.000	2003.000	951.900	947.600	2006.000	951.900	949.600	2009.000
BT	951.900	949.600	2012.000	951.900	947.300	2013.000	951.900	944.300	2019.000	951.800
BT	944.600	2020.000	951.800	946.100	2022.000	951.700	947.100	2025.000	951.700	949.600
BT	2028.000	951.700	947.600	2030.000	951.700	946.300	2031.000	951.600	945.500	2049.000
BT	951.500	950.400	2058.000	951.500	950.300	2146.000	950.300	0.000	2249.000	950.800
BT	0.000	2475.000	950.800	0.000	2529.000	951.300	0.000	2657.000	951.400	0.000
BT	2752.000	951.700	0.000	2847.000	952.100	0.000	2944.000	952.700	0.000	3000.000
BT	952.700	0.000	3100.000	952.700	0.000	3200.000	952.700	0.000	3300.000	952.700
BT	0.000	3400.000	952.700	0.000	3500.000	952.700	0.000	0.000	0.000	0.000

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

X1	5.100	45.000	2000.000	2031.000	40.000	40.000	40.000	0.000	0.000	0.000
BT	45.000	871.000	965.500	0.000	1031.000	963.000	0.000	1135.000	961.400	0.000
BT	1242.000	960.100	0.000	1348.000	958.600	0.000	1452.000	957.500	0.000	1556.000
BT	955.700	0.000	1659.000	953.500	0.000	1760.000	951.800	0.000	1860.000	951.200
BT	0.000	1932.000	951.500	0.000	1956.000	951.600	951.300	1980.000	951.800	950.600
BT	2000.000	952.000	944.500	2002.000	952.000	947.100	2003.000	951.900	948.600	2006.000
BT	951.900	950.100	2009.000	951.900	949.800	2012.000	951.900	948.100	2013.000	951.900
BT	944.100	2019.000	951.800	944.500	2020.000	951.800	947.100	2022.000	951.700	948.400
BT	2025.000	951.700	950.100	2028.000	951.700	949.000	2030.000	951.700	947.100	2031.000
BT	951.600	946.000	2043.000	951.500	950.300	2058.000	951.500	950.000	2146.000	950.300
BT	949.500	2205.000	949.800	0.000	2254.000	949.400	0.000	2351.000	949.300	0.000
BT	2449.000	950.400	0.000	2529.000	951.300	0.000	2657.000	951.400	0.000	2752.000
BT	951.700	0.000	2847.000	952.100	0.000	2944.000	952.800	0.000	3000.000	952.800
BT	0.000	3100.000	952.800	0.000	3200.000	952.800	0.000	3300.000	952.800	0.000
BT	3400.000	952.800	0.000	3500.000	952.800	0.000	0.000	0.000	0.000	0.000
GR	965.500	871.000	963.000	1031.000	961.400	1135.000	960.100	1242.000	958.600	1348.000
GR	957.500	1452.000	955.700	1556.000	953.500	1659.000	951.800	1760.000	951.200	1860.000
GR	951.500	1932.000	951.300	1956.000	950.600	1980.000	944.500	2000.000	944.400	2002.000
GR	944.000	2003.000	943.400	2006.000	943.600	2009.000	943.800	2012.000	944.100	2013.000
GR	944.500	2019.000	944.400	2020.000	944.400	2022.000	944.200	2025.000	944.500	2028.000
GR	945.200	2030.000	946.000	2031.000	950.300	2043.000	950.000	2058.000	949.500	2146.000

GR	949.800	2205.000	949.400	2254.000	949.300	2351.000	950.400	2449.000	951.300	2529.000
GR	951.400	2657.000	951.700	2752.000	952.100	2847.000	952.800	2944.000	952.800	3000.000
GR	952.800	3100.000	952.800	3200.000	952.800	3300.000	952.800	3400.000	952.800	3500.000
X1	5.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

X1	6.000	26.000	2000.000	2021.000	4200.000	3800.000	4475.000	0.000	0.000	0.000
GR	945.540	1425.000	945.460	1440.000	945.580	1513.000	945.740	1590.000	947.380	1660.000
GR	947.660	1731.000	947.840	1786.000	947.640	1839.000	947.210	1891.000	946.590	1941.000
GR	946.710	1977.000	945.500	1994.000	944.860	2000.000	944.700	2002.000	944.490	2004.000
GR	944.350	2006.000	944.170	2008.000	944.130	2010.000	944.150	2012.000	944.150	2014.000
GR	944.420	2016.000	944.510	2018.000	944.960	2021.000	946.010	2060.000	947.250	2367.000
GR	947.240	2665.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.800	31.000	2000.000	2012.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	955.700	692.000	949.200	896.000	949.600	1036.000	949.700	1238.000	948.900	1377.000
GR	948.300	1519.000	948.300	1658.000	949.200	1796.000	949.200	1862.000	949.900	1925.000
GR	949.700	1968.000	950.800	1992.000	948.100	1994.000	945.100	2000.000	944.400	2001.000
GR	944.100	2004.000	944.000	2005.000	944.000	2007.000	944.100	2008.000	944.400	2010.000
GR	945.000	2012.000	946.700	2018.000	948.600	2026.000	949.300	2032.000	949.100	2067.000
GR	948.700	2155.000	948.100	2293.000	949.400	2439.000	957.300	2594.000	963.000	2759.000
GR	964.200	2863.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.900	31.000	2000.000	2012.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	955.700	692.000	949.200	896.000	949.600	1036.000	949.700	1238.000	948.900	1377.000
GR	948.300	1519.000	948.300	1658.000	949.200	1796.000	949.200	1862.000	949.900	1925.000
GR	950.000	1968.000	950.800	1992.000	951.000	2000.000	945.100	2000.000	944.400	2001.000
GR	944.100	2004.000	944.000	2005.000	944.000	2007.000	944.100	2008.000	944.400	2010.000
GR	945.000	2012.000	951.000	2012.000	950.800	2032.000	949.100	2050.000	949.100	2067.000
GR	948.700	2155.000	948.100	2293.000	949.400	2439.000	957.300	2594.000	963.000	2759.000
GR	964.200	2863.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	6.000	1992.000	950.800	0.000	2000.000	951.000	945.100	2000.000	951.000	950.000
BT	2012.000	951.000	950.000	2012.000	951.000	945.000	2032.000	950.800	0.000	0.000
X1	7.100	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	7.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	7.300	31.000	2000.000	2012.000	15.000	15.000	15.000	0.000	0.000	0.000
GR	955.700	692.000	949.200	896.000	949.600	1036.000	949.700	1238.000	948.900	1377.000
GR	948.300	1519.000	948.300	1658.000	949.200	1796.000	949.200	1862.000	949.900	1925.000
GR	949.700	1968.000	950.800	1992.000	948.100	1994.000	945.100	2000.000	944.400	2001.000
GR	944.100	2004.000	944.000	2005.000	944.000	2007.000	944.100	2008.000	944.400	2010.000
GR	945.000	2012.000	946.700	2018.000	948.600	2026.000	949.300	2032.000	949.100	2067.000
GR	948.700	2155.000	948.100	2293.000	949.400	2439.000	957.300	2594.000	963.000	2759.000
GR	964.200	2863.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF

CCHV= .100 CEHV= .300
*SECNO .800

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
3720 CRITICAL DEPTH ASSUMED									
.80	2.12	937.62	937.62	937.00	938.07	.44	0.00	0.00	939.30
200.	0.	194.	6.	0.	36.	4.	0.	0.	939.30
0.00	0.00	5.43	1.35	.075	.050	.075	0.000	935.50	2008.35
.029135	0.	0.	0.	0	10	0	0.00	49.25	2116.09
*SECNO .900									
.90	2.17	939.17	0.00	0.00	939.43	.26	1.35	.02	940.70
200.	0.	200.	0.	0.	49.	0.	0.	0.	941.20
.01	0.00	4.10	0.00	.075	.050	.075	.049	937.00	2001.53
.004935	85.	85.	85.	3	0	0	0.00	29.11	2030.64
*SECNO 1.000									
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80									
1.00	2.35	939.15	0.00	0.00	939.46	.30	.01	.01	942.80
200.	0.	200.	0.	0.	45.	0.	0.	0.	943.00
.01	0.00	4.42	0.00	.075	.050	.075	.049	936.80	2000.00
.012412	1.	1.	1.	2	0	0	0.00	21.50	2021.50
*SECNO 1.100									
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80									
BRIDGE SECTION A UPSTREAM FACE PROBERT RD									
1.10	2.68	939.48	0.00	0.00	939.71	.23	.25	.01	942.80
200.	0.	200.	0.	0.	52.	0.	0.	0.	943.00
.01	0.00	3.82	0.00	.075	.050	.075	.049	936.80	2000.00
.008079	25.	25.	25.	2	0	0	0.00	21.50	2021.50
*SECNO 1.200									
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.20	2.69	939.49	0.00	0.00	939.72	.22	.01	.00	942.80
200.	0.	200.	0.	0.	53.	0.	0.	0.	943.00

.01	0.00	3.80	0.00	.075	.050	.075	.048	936.80	2000.00
.006433	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.300

1.30	2.74	939.74	0.00	0.00	939.88	.14	.15	.01	940.70
200.	0.	200.	0.	0.	66.	0.	0.	0.	941.20
.01	0.00	3.04	0.00	.075	.050	.075	.048	937.00	2000.96
.004112	30.	30.	30.	2	0	0	0.00	31.43	2032.40

*SECNO 1.600

1.60	3.89	943.79	0.00	0.00	943.85	.07	3.97	.01	941.30
200.	8.	191.	1.	11.	90.	2.	4.	2.	941.90
.30	.72	2.12	.47	.075	.050	.075	.050	939.90	1990.07
.001045	2000.	2150.	2250.	6	0	0	0.00	36.64	2026.72

*SECNO 1.900

1.90	4.00	943.90	0.00	0.00	943.96	.07	.11	.00	946.30
200.	0.	200.	0.	0.	97.	0.	5.	2.	946.30
.31	0.00	2.05	0.00	.075	.050	.075	.050	939.90	2000.00
.001140	100.	100.	100.	2	0	0	0.00	26.00	2026.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 26 MIN FLTRD= 946.30 MAX FLLC= 943.20

2.00	3.97	943.87	0.00	0.00	943.98	.10	.00	.01	946.30
200.	0.	200.	0.	0.	78.	0.	5.	2.	946.30
.31	0.00	2.57	0.00	.075	.050	.075	.050	939.90	2000.00
.005662	1.	1.	1.	2	0	0	-18.82	26.00	2026.00

*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

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20

BRIDGE SECTION A UPSTREAM FACE STONEWALL RD

2.10	4.10	944.00	0.00	0.00	944.11	.10	.13	0.00	946.30
200.	0.	200.	0.	0.	78.	0.	5.	2.	946.30
.32	0.00	2.57	0.00	.075	1.050	.075	.050	939.90	2000.00
.005662	23.	23.	23.	2	0	0	-22.21	26.00	2026.00

*SECNO 2.200

2.20	4.15	944.05	0.00	0.00	944.11	.06	.00	.00	946.30
200.	0.	200.	0.	0.	101.	0.	5.	2.	946.30
.32	0.00	1.97	0.00	.075	.050	.075	.050	939.90	2000.00
.001004	1.	1.	1.	2	0	0	0.00	26.00	2026.00

*SECNO 2.300

2.30	4.18	944.08	0.00	0.00	944.14	.06	.02	.00	941.30
200.	9.	190.	1.	14.	48.	2.	5.	2.	941.90
.32	.67	1.94	.45	.075	.050	.075	.050	939.90	1969.02
.000785	25.	25.	25.	2	0	0	0.00	37.96	2026.98

*SECNO 2.800

2.80	4.36	944.36	0.00	0.00	944.38	.02	.24	.00	942.30
200.	24.	171.	5.	73.	160.	12.	7.	3.	941.80
.50	.33	1.07	.38	.075	.050	.075	.050	940.00	1930.74
.000225	700.	625.	600.	2	0	0	0.00	120.18	2050.93

*SECNO 2.900

2.90	3.63	944.33	0.00	0.00	944.45	.12	.04	.03	941.80
200.	5.	193.	2.	6.	68.	3.	8.	3.	941.90
.51	.93	2.85	.75	.075	.050	.075	.050	940.70	1995.62
.001948	75.	75.	75.	2	0	0	0.00	27.49	2023.11

*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

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

3.00	3.19	944.29	0.00	0.00	944.47	.18	.00	.02	951.80
200.	0.	200.	0.	0.	59.	0.	8.	3.	952.10
.51	0.00	3.41	0.00	.075	.050	.075	.050	941.10	2000.00
.005152	1.	1.	1.	2	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	3.37	944.47	0.00	0.00	944.63	.16	.16	.00	951.80
200.	0.	200.	0.	0.	62.	0.	8.	3.	952.10
.51	0.00	3.20	0.00	.075	.050	.075	.050	941.10	2000.00
.004307	34.	34.	34.	2	0	0	0.00	21.00	2021.00

*SECNO 3.200

3.20	3.83	944.53	0.00	0.00	944.64	.11	.00	.01	941.80
200.	6.	192.	2.	6.	72.	3.	8.	3.	941.90
.51	.88	2.67	.71	.075	.050	.075	.050	940.70	1995.26
.001573	1.	1.	1.	2	0	0	0.00	28.03	2023.29

*SECNO 3.300

3.30	3.87	944.57	0.00	0.00	944.67	.10	.03	.00	941.80

200.	6.	192.	2.	7.	73.	3.	8.	3.	941.90
.51	.57	2.64	.71	.075	.050	.075	.050	940.70	1945.20
.001521	20.	20.	20.	2	0	0	0.00	28.12	2023.32

*SECNO 4.000

VALLEY SECTION D

4.00	5.44	946.24	0.00	0.00	946.25	.02	1.57	.01	944.80
200.	3.	197.	0.	15.	197.	0.	21.	7.	946.70
1.61	.22	1.00	0.00	.075	.050	.075	.050	940.80	1978.59
.000184	2800.	3900.	3500.	4	0	0	0.00	70.49	2049.07

*SECNO 4.800

3265 DIVIDED FLOW

3280 CROSS SECTION 4.80 EXTENDED .61 FEET

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	TOPWID	ENDST
4.80	6.81	946.41	0.00	0.00	946.41	.00	.16	.00	944.50
200.	62.	128.	10.	424.	307.	125.	64.	32.	945.40
4.71	.15	.42	.08	.075	.050	.075	.050	937.60	1688.07
.000020	3800.	3500.	3000.	3	0	0	0.00	529.45	2922.00

*SECNO 4.900

4.90	2.95	946.35	0.00	0.00	946.45	.10	.01	.03	943.60
200.	15.	185.	1.	12.	69.	1.	66.	32.	945.50
4.73	1.26	2.67	.58	.075	.050	.075	.050	943.40	1991.52
.002812	150.	114.	50.	2	0	0	0.00	42.59	2034.11

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

5.00	2.85	946.25	0.00	0.00	946.50	.24	.00	.04	943.60
200.	0.	200.	0.	0.	51.	0.	66.	32.	945.50
4.73	0.00	3.95	0.00	.075	.050	.075	.050	943.40	1991.80
.010470	1.	1.	1.	2	0	0	-27.59	41.97	2033.77

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 45 MIN ELTRD= 949.30 MAX ELLC= 951.30

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	3.25	946.65	0.00	0.00	946.83	.18	.33	.01	944.50
200.	0.	200.	0.	0.	58.	0.	66.	32.	946.00

4.73	0.00	3.43	0.00	.075	.050	.075	.050	943.40	1992.97
.006548	40.	40.	40.	2	0	0	-25.86	39.84	2032.80

*SECNO 5.200

5.20	3.35	946.75	0.00	0.00	946.84	.09	.00	.01	944.50
200.	8.	192.	0.	8.	79.	1.	66.	32.	946.00
4.73	.92	2.42	.44	.075	.050	.075	.050	943.40	1992.61
.001947	1.	1.	1.	2	0	0	0.00	40.49	2033.10

*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 2.01 FEET

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

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	3.42	947.55	0.00	0.00	947.55	.00	.70	.01	944.86
200.	103.	31.	66.	510.	66.	457.	118.	84.	944.96
10.00	.20	.48	.14	.075	.050	.075	.050	944.13	1425.00
.000056	4200.	4475.	3800.	8	0	0	0.00	1095.01	2665.00

*SECNO 6.800

6.80	3.34	947.34	0.00	0.00	947.65	.31	.00	.09	945.10
200.	8.	174.	18.	5.	37.	10.	118.	84.	945.00
10.01	1.54	4.76	1.85	.075	.050	.075	.050	944.00	1995.52
.006037	10.	10.	10.	2	0	0	0.00	25.17	2020.69

*SECNO 6.900

6.90	3.50	947.50	0.00	0.00	947.92	.42	.23	.03	951.00
200.	0.	200.	0.	0.	38.	0.	118.	84.	951.00
10.01	0.00	5.20	0.00	.075	.050	.075	.050	944.00	2000.00
.010509	30.	30.	30.	2	0	0	0.00	12.00	2012.00

*SECNO 7.000

3370 NORMAL BRIDGE.NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.00	3.51	947.51	0.00	0.00	947.93	.42	.01	.00	951.00
200.	0.	200.	0.	0.	39.	0.	118.	84.	951.00
10.01	0.00	5.19	0.00	.075	.050	.075	.050	944.00	2000.00
.014568	1.	1.	1.	0	0	0	0.00	12.00	2012.00

*SECNO 7.100

3370 NORMAL BRIDGE.NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.10	4.05	948.05	0.00	0.00	948.35	.31	.41	.01	951.00
200.	0.	200.	0.	0.	45.	0.	118.	84.	951.00
10.01	0.00	4.44	0.00	.075	.050	.075	.050	944.00	2000.00
.005796	35.	35.	35.	2	0	0	0.00	12.00	2012.00

*SECNO 7.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOPL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7.20	4.06	948.06	0.00	0.00	948.36	.30	.01	.00	951.00
200.	0.	200.	0.	0.	45.	0.	118.	84.	951.00
10.01	0.00	4.42	0.00	.075	.050	.075	.050	944.00	2000.00
.006661	1.	1.	1.	0	0	0	0.00	12.00	2012.00

*SECNO 7.300

** 3265 DIVIDED FLOW

7.30	4.29	948.29	0.00	0.00	948.43	.14	.05	.02	945.10
200.	12.	160.	28.	10.	48.	26.	118.	85.	945.00
10.01	1.18	3.33	1.09	.075	.050	.075	.050	944.00	1993.86
.002057	15.	15.	15.	2	0	0	0.00	95.21	2314.12

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
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I1
I2
I3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	938.700	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	0.000	-1.000	0.000	0.000	1.250	0.000	0.000	0.000	0.000

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*PROF 2
CCHV=    .100 CEHV=    .300
*SECNO .800
3265 DIVIDED FLOW
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
O	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
	.80	938.70	0.00	938.70	938.86	.16	0.00	0.00	939.30
	300.	0.	255.	45.	0.	75.	27.	0.	0.	939.30
	0.00	0.00	3.39	1.68	.075	.050	.075	0.000	935.50	2007.00
	.005683	0.	0.	0.	0	0	0	0.00	63.65	2120.40
	.90	939.25	0.00	0.00	939.79	.54	.82	.11	940.70
	300.	0.	300.	0.	0.	51.	0.	0.	0.	941.20
	.00	0.00	5.87	0.00	.075	.050	.075	.049	937.00	2001.45
	.019531	85.	85.	85.	2	0	0	0.00	29.43	2030.88

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*SECNO 1.000
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  942.20 MAX ELLC=  940.80
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1.00	2.39	939.19	0.00	0.00	939.85	.66	.02	.04	942.80
300.	0.	300.	0.	0.	46.	0.	0.	0.	943.00
.00	0.00	6.52	0.00	.075	.050	.075	.049	936.80	2000.00
.026589	1.	1.	1.	2	0	0	0.00	21.50	2021.50

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*SECNO 1.100
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3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

1.10	3.12	939.92	0.00	0.00	940.29	.37	.41	.03	942.80
300.	0.	300.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.85	0.00	.075	.050	.075	.049	936.80	2000.00
.011259	25.	25.	25.	2	0	0	0.00	21.50	2021.50

*SECNO 1.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.20	3.14	939.94	0.00	0.00	940.30	.36	.01	.00	942.80
300.	0.	300.	0.	0.	62.	0.	0.	0.	943.00
.01	0.00	4.82	0.00	.075	.050	.075	.048	936.80	2000.00
.008644	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.300

1.30	3.30	940.30	0.00	0.00	940.50	.20	.18	.02	940.70
300.	0.	300.	0.	0.	84.	0.	0.	0.	941.20
.01	0.00	3.56	0.00	.075	.050	.075	.048	937.00	2000.40
.004504	30.	30.	30.	2	0	0	0.00	33.78	2034.18

*SECNO 1.800

3265 DIVIDED FLOW

1.80	4.72	944.62	0.00	0.00	944.71	.09	4.20	.01	941.30
300.	18.	280.	2.	20.	112.	4.	6.	2.	941.90
.26	.89	2.50	.65	.075	.050	.075	.050	939.90	1948.95
.001091	2000.	2150.	2250.	6	0	0	0.00	42.94	2028.49

*SECNO 1.900

1.90	4.84	944.74	0.00	0.00	944.84	.10	.12	.00	946.30
300.	0.	300.	0.	0.	119.	0.	6.	2.	946.30
.27	0.00	2.52	0.00	.075	.050	.075	.050	939.90	2000.00
.001392	100.	100.	100.	2	0	0	0.00	26.00	2026.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20

2.00	4.75	944.65	0.00	0.00	944.88	.23	.00	.04	946.30
300.	0.	300.	0.	0.	78.	0.	6.	2.	946.30
.27	0.00	3.65	0.00	.075	.050	.075	.050	939.90	2000.00
.012739	1.	1.	1.	2	0	0	-39.04	26.00	2026.00

*SECNO 2.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	
3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20										
BRIDGE SECTION B UPSTREAM FACE STONEWALL RD										
2.10	5.04	944.94	0.00	0.00	945.17	.23	.29	0.00	946.30	
300.	0.	300.	0.	0.	78.	0.	6.	2.	946.30	
.27	0.00	3.85	0.00	.075	.050	.075	.050	939.90	2000.00	
.012739	23.	23.	23.	2	0	0	-46.65	26.00	2026.00	
*SECNO 2.200										
2.20	5.21	945.11	0.00	0.00	945.19	.08	.00	.01	946.30	
300.	0.	300.	0.	0.	129.	0.	6.	2.	946.30	
.27	0.00	2.33	0.00	.075	.050	.075	.050	939.90	2000.00	
.001107	1.	1.	1.	2	0	0	0.00	26.00	2026.00	
*SECNO 2.300										
3265 DIVIDED FLOW										
2.30	5.25	945.15	0.00	0.00	945.22	.07	.02	.00	941.30	
300.	23.	273.	4.	36.	126.	9.	6.	2.	941.90	
.27	.64	2.17	.45	.075	.050	.075	.050	939.90	1925.08	
.000706	25.	25.	25.	2	0	0	0.00	97.99	2047.28	
*SECNO 2.800										
2.80	5.40	945.40	0.00	0.00	945.42	.02	.20	.01	942.30	
300.	64.	226.	10.	152.	203.	23.	10.	4.	941.80	
.46	.42	1.11	.45	.075	.050	.075	.050	940.00	1919.25	
.000174	700.	625.	600.	2	0	0	0.00	133.76	2053.00	
*SECNO 2.900										
2.90	4.64	945.34	0.00	0.00	945.49	.15	.03	.04	941.80	
300.	12.	284.	5.	11.	89.	5.	11.	4.	941.90	
.47	1.09	3.19	.88	.075	.050	.075	.050	940.70	1993.87	
.001698	75.	75.	75.	2	0	0	0.00	30.12	2023.99	
*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	
3370 NORMAL BRIDGE.NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40										
3.00	4.19	945.29	0.00	0.00	945.51	.22	.00	.02	951.80	
300.	0.	300.	0.	0.	80.	0.	11.	4.	952.10	

.47	0.00	3.77	0.00	.075	.050	.075	.050	941.10	2000.00
.004952	1.	1.	1.	2	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE.NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE HADGLEY RD

3.10	4.37	945.47	0.00	0.00	945.67	.20	.16	.00	951.80
300.	0.	300.	0.	0.	83.	0.	11.	4.	952.10
.47	0.00	3.60	0.00	.075	.050	.075	.050	941.10	2000.00
.004369	34.	34.	34.	2	0	0	0.00	21.00	2021.00

*SECNO 3.200

3.20	4.85	945.55	0.00	0.00	945.68	.13	.00	.01	941.80
300.	13.	282.	5.	12.	93.	6.	11.	4.	941.90
.47	1.04	3.03	.85	.075	.050	.075	.050	940.70	1993.51
.001435	1.	1.	1.	2	0	0	0.00	30.67	2024.17

*SECNO 3.300

3.30	4.88	945.58	0.00	0.00	945.71	.13	.03	.00	941.80
300.	13.	282.	5.	12.	94.	6.	11.	4.	941.90
.47	1.03	3.00	.84	.075	.050	.075	.050	940.70	1993.45
.001401	20.	20.	20.	2	0	0	0.00	30.75	2024.20

*SECNO 4.000

VALLEY SECTION D

4.00	6.45	947.25	0.00	0.00	947.27	.02	1.55	.01	944.80
300.	14.	286.	1.	45.	247.	5.	28.	9.	946.70
1.43	.31	1.16	.12	.075	.050	.075	.050	940.80	1963.67
.000188	2800.	3400.	3500.	4	0	0	0.00	103.59	2067.26

*SECNO 4.800

3265 DIVIDED FLOW

3280 CROSS SECTION 4.80 EXTENDED 1.60 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.80	9.79	947.39	0.00	0.00	947.40	.00	.12	.00	944.50
300.	127.	140.	33.	1054.	357.	329.	112.	60.	945.40
5.44	.12	.39	.10	.075	.050	.075	.050	937.60	1169.47
.000014	3800.	3500.	3000.	3	0	0	0.00	1113.21	2922.00

*SECNO 4.900

4.90	3.93	947.33	0.00	0.00	947.43	.10	.01	.03	943.60
300.	26.	269.	5.	21.	100.	6.	115.	62.	945.50
5.45	1.22	2.70	.77	.075	.050	.075	.050	943.40	1988.49
.011759	150.	114.	50.	2	0	0	0.00	49.23	2037.72

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

5.00	3.79	947.19	0.00	0.00	947.50	.31	.00	.06	943.60
300.	0.	300.	0.	0.	67.	0.	115.	62.	945.50
5.45	0.00	4.46	0.00	.075	.050	.075	.050	943.40	1988.92
.011236	1.	1.	1.	2	0	0	-53.08	48.29	2037.20

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 45 MIN ELTRD= 949.30 MAX ELLC= 951.30

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	4.22	947.62	0.00	0.00	947.85	.23	.34	.01	944.50
300.	0.	300.	0.	0.	78.	0.	115.	62.	946.00
5.45	0.00	3.86	0.00	.075	.050	.075	.050	943.40	1989.78
.006769	40.	40.	40.	2	0	0	-47.96	45.73	2035.51

*SECNO 5.200

5.20	4.37	947.77	0.00	0.00	947.86	.09	.00	.01	944.50
300.	17.	280.	3.	18.	111.	4.	115.	62.	946.00
5.45	.98	2.52	.65	.075	.050	.075	.050	943.40	1989.27
.001356	1.	1.	1.	2	0	0	0.00	46.67	2035.94

*SECNO 6.000

3280 CROSS SECTION 6.00 EXTENDED 2.70 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

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	4.11	948.24	0.00	0.00	948.24	.00	.37	.01	944.86
300.	144.	31.	125.	881.	80.	898.	207.	121.	944.96
12.16	.16	.39	.14	.075	.050	.075	.051	944.13	1425.00
.000025	4200.	4475.	3900.	6	0	0	0.00	1240.00	2665.00

*SECNO 6.800

6.80	3.94	947.94	0.00	0.00	948.37	.43	.00	.13	945.10
300.	15.	248.	36.	8.	44.	16.	207.	121.	945.00
12.16	1.91	5.67	2.30	.075	.050	.075	.051	944.00	1994.31

.006717	10.	10.	10.	2	0	0	0.00	28.92	2023.24

*SECNO 6.900

6.90	4.05	948.05	0.00	0.00	948.74	.69	.29	.08	951.00
300.	0.	300.	0.	0.	45.	0.	207.	121.	951.00
12.16	0.00	6.66	0.00	.075	.050	.075	.051	944.00	2000.00
.015154	30.	30.	30.	0	0	0	0.00	12.00	2012.00

*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 6 MIN FLTRD= 950.80 MAX FLLC= 950.00

7.00	4.08	948.08	0.00	0.00	948.76	.68	.02	.00	951.00
300.	0.	300.	0.	0.	45.	0.	207.	121.	951.00
12.16	0.00	6.62	0.00	.075	.050	.075	.051	944.00	2000.00
.021758	1.	1.	1.	1	0	0	0.00	12.00	2012.00

*SECNO 7.100

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 6 MIN FLTRD= 950.80 MAX FLLC= 950.00

7.10	4.96	948.96	0.00	0.00	949.00	.03	.17	.06	951.00
300.	104.	122.	73.	180.	56.	128.	208.	121.	951.00
12.17	.58	2.18	.57	.075	.050	.075	.051	944.00	1365.26
.002134	35.	35.	35.	2	0	0	0.00	701.40	2390.43

*SECNO 7.200

3265 DIVIDED FLOW

SECNO	DEPTH	QWSEL	QRIWS	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
7.20	4.95	948.95	0.00	0.00	949.00	.05	.00	.00	951.00
300.	93.	141.	65.	174.	56.	125.	208.	121.	951.00
12.17	.54	2.53	.52	.075	.050	.075	.051	944.00	1367.61
.001855	1.	1.	1.	2	0	0	0.00	692.49	2388.92

*SECNO 7.300

3265 DIVIDED FLOW

7.30	4.98	948.98	0.00	0.00	949.02	.04	.02	.00	945.10
300.	84.	136.	80.	201.	56.	163.	208.	122.	945.00
12.17	.42	2.41	.49	.075	.050	.075	.051	944.00	1362.43
.000873	15.	15.	15.	0	0	0	0.00	736.08	2392.26

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**************************************************
 HEC-2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	939.900	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.000	-1.000	0.000	0.000	1.250	0.000	0.000	0.000	0.000

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*PROF 3
CCHV=    .100 CEHV=    .300
*SECNO .800
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3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	OCH	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
.80	4.40	939.90	0.00	939.90	939.97	.07	0.00	0.00	939.30
400.	9.	302.	89.	26.	129.	75.	0.	0.	939.30
0.00	.35	2.34	1.18	.075	.050	.075	0.000	935.50	1852.64
.001665	0.	0.	0.	0	0	0	0.00	256.51	2131.65
*SECNO .900									
.90	2.91	939.91	0.00	0.00	940.40	.49	.31	.12	940.70
400.	0.	400.	0.	0.	72.	0.	0.	0.	941.20
.00	0.00	5.59	0.00	.075	.050	.075	.049	937.00	2000.78
.012876	85.	85.	85.	2	0	0	0.00	32.18	2032.96
*SECNO 1.000									

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

1.00	2.96	939.76	0.00	0.00	940.49	.73	.02	.07	942.80
400.	0.	400.	0.	0.	58.	0.	0.	0.	943.00
.00	0.00	6.85	0.00	.075	.050	.075	.049	936.80	2000.00
.023599	1.	1.	1.	2	0	0	0.00	21.50	2021.50

*SECNO 1.100

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

BRIDGE SECTION A UPSTREAM FACE PROBERT RD

1.10	3.67	940.47	0.00	0.00	940.93	.46	.41	.03	942.80
400.	0.	400.	0.	0.	74.	0.	0.	0.	943.00
.01	0.00	5.43	0.00	.075	.050	.075	.049	936.80	2000.00
.012195	25.	25.	25.	2	0	0	0.00	21.50	2021.50

*SECNO 1.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.20	3.69	940.49	0.00	0.00	940.94	.45	.01	.00	942.80
400.	0.	400.	0.	0.	74.	0.	0.	0.	943.00
.01	0.00	5.40	0.00	.075	.050	.075	.048	936.80	2000.00
.009103	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.300

1.30	3.92	940.92	0.00	0.00	941.14	.22	.18	.02	940.70
400.	0.	400.	0.	1.	106.	0.	0.	0.	941.20
.01	.29	3.78	0.00	.075	.050	.075	.048	937.00	1992.88
.004107	30.	30.	30.	2	0	0	0.00	43.24	2036.12

*SECNO 1.800

3265 DIVIDED FLOW

1.80	5.36	945.26	0.00	0.00	945.37	.11	4.22	.01	941.30
400.	33.	360.	6.	42.	128.	11.	7.	4.	941.90
.24	.80	2.81	.55	.075	.050	.075	.050	939.90	1920.52
.001150	2000.	2150.	2250.	5	0	0	0.00	112.07	2051.87

*SECNO 1.900

1.90	5.48	945.38	0.00	0.00	945.51	.13	.14	.01	946.30
400.	0.	400.	0.	0.	136.	0.	8.	4.	946.30
.25	0.00	2.94	0.00	.075	.050	.075	.050	939.90	2000.00
.001681	100.	100.	100.	2	0	0	0.00	26.00	2026.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20

2.00	5.29	945.19	0.00	0.00	945.60	.41	.00	.08	946.30
400.	0.	400.	0.	0.	78.	0.	8.	4.	946.30
.25	0.00	5.13	0.00	.075	.050	.075	.050	939.90	2000.00
.022647	1.	1.	1.	2	0	0	-53.07	26.00	2026.00

*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
3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20									
BRIDGE SECTION B UPSTREAM FACE STONEWALL RD									
2.10	5.81	945.71	0.00	0.00	946.12	.41	.52	0.00	946.30
400.	0.	400.	0.	0.	78.	0.	8.	4.	946.30
.25	0.00	5.13	0.00	.075	.050	.075	.050	939.90	2000.00
.022647	23.	23.	23.	2	0	0	-66.62	26.00	2026.00
*SECNO 2.200									
2.20	6.15	946.05	0.00	0.00	946.16	.11	.00	.03	946.30
400.	0.	400.	0.	0.	153.	0.	8.	4.	946.30
.25	0.00	2.61	0.00	.075	.050	.075	.050	939.90	2000.00
.001180	1.	1.	1.	2	0	0	0.00	26.00	2026.00
*SECNO 2.300									
2.30	6.23	946.13	0.00	0.00	946.18	.05	.02	.01	941.30
400.	70.	308.	22.	125.	151.	50.	8.	4.	941.90
.25	.56	2.04	.44	.075	.050	.075	.050	939.90	1886.61
.000486	25.	25.	25.	2	0	0	0.00	199.10	2085.71
*SECNO 2.800									
2.80	6.32	946.32	0.00	0.00	946.34	.01	.15	.00	942.30
400.	110.	274.	16.	230.	242.	33.	14.	7.	941.80
.44	.48	1.13	.49	.075	.050	.075	.050	940.00	1911.50
.000144	700.	625.	600.	2	0	0	0.00	142.96	2054.47
*SECNO 2.900									
2.90	5.54	946.24	0.00	0.00	946.41	.17	.03	.05	941.80
400.	20.	372.	8.	17.	108.	8.	15.	7.	941.90
.45	1.20	3.45	.98	.075	.050	.075	.050	940.70	1992.31
.001534	75.	75.	75.	2	0	0	0.00	32.46	2024.77

*SECNO 3.000									
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
3370 NORMAL BRIDGE.NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40									
3.00	5.08	946.18	0.00	0.00	946.44	.26	.00	.03	951.80
400.	0.	400.	0.	0.	98.	0.	15.	7.	952.10
.45	0.00	4.07	0.00	.075	.050	.075	.050	941.10	2000.00
.005005	1.	1.	1.	2	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE.NRD= 40 MIN EL.TRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	5.26	946.36	0.00	0.00	946.60	.24	.16	.00	951.80
400.	0.	400.	0.	0.	102.	0.	15.	7.	952.10
.45	0.00	3.92	0.00	.075	.050	.075	.050	941.10	2000.00
.004524	34.	34.	34.	2	0	0	0.00	21.00	2021.00

*SECNO 3.200

3.20	5.75	946.45	0.00	0.00	946.61	.16	.00	.01	941.80
400.	22.	370.	9.	19.	112.	9.	15.	7.	941.90
.45	1.15	3.29	.94	.075	.050	.075	.050	940.70	1991.93
.001324	1.	1.	1.	2	0	0	0.00	33.03	2024.96

*SECNO 3.300

3.30	5.78	946.48	0.00	0.00	946.64	.16	.03	.00	941.80
400.	22.	370.	9.	19.	113.	9.	15.	7.	941.90
.45	1.14	3.27	.94	.075	.050	.075	.050	940.70	1991.88
.001300	20.	20.	20.	2	0	0	0.00	33.10	2024.99

*SECNO 4.000

VALLEY SECTION D

4.00	7.28	948.08	0.00	0.00	948.11	.02	1.46	.01	944.80
400.	32.	362.	6.	78.	289.	30.	38.	14.	946.70
1.36	.41	1.25	.21	.075	.050	.075	.050	940.80	1957.66
.000179	2800.	3900.	3500.	4	0	0	0.00	135.65	2093.30

*SECNO 4.800

3265 DIVIDED FLOW

3280 CROSS SECTION 4.80 EXTENDED 2.40 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK 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	FNOST
4.80	10.60	948.20	0.00	0.00	948.20	.00	.09	.00	944.50
400.	203.	141.	56.	1828.	398.	529.	168.	77.	945.40
6.39	.11	.35	.11	.075	.050	.075	.050	937.60	922.43
.000010	3800.	3500.	3000.	3	0	0	0.00	1391.73	2922.00

*SECNO 4.900

4.90	4.73	948.13	0.00	0.00	948.24	.11	.00	.03	943.60
400.	39.	349.	11.	32.	124.	13.	172.	79.	945.50

6.40	1.25	2.81	.87	.075	.050	.075	.050	943.40	1986.01
.001420	150.	114.	50.	2	0	0	0.00	54.64	2040.66

*SECNO 5.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40

5.00	4.52	947.92	0.00	0.00	948.33	.41	.00	.09	943.60	
400.	0.	400.	0.	0.	78.	0.	172.	79.	945.50	
6.40	0.00	5.15	0.00	.075	.050	.075	.050	943.40	1986.65	
.014360	1.	1.	1.	2	0	0	-79.91	53.24	2039.90	

*SECNO 5.100

3370 NORMAL BRIDGE,NRD= 45 MIN ELTRD= 949.30 MAX ELLC= 951.30

BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE

5.10	5.07	948.47	0.00	0.00	948.77	.29	.42	.01	944.50
400.	0.	400.	0.	0.	92.	0.	172.	79.	946.00
6.40	0.00	4.35	0.00	.075	.050	.075	.050	943.40	1986.98
.008042	40.	40.	40.	2	0	0	-74.94	50.92	2037.90

*SECNO 5.200

5.20	5.29	948.69	0.00	0.00	948.79	.10	.00	.02	944.50
400.	30.	363.	8.	29.	139.	10.	172.	79.	946.00
6.40	1.03	2.60	.76	.075	.050	.075	.050	943.40	1986.26
.001062	1.	1.	1.	2	0	0	0.00	52.25	2038.51

*SECNO 6.000
3280 CROSS SECTION 6.00 EXTENDED 3.46 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	IOPWID	ENDST

VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE

6.00	4.87	949.00	0.00	0.00	949.00	.00	.20	.01	944.86
400.	188.	30.	181.	1319.	96.	1388.	310.	139.	944.96
14.23	.14	.32	.13	.075	.050	.075	.051	944.13	1425.00
.000015	4200.	4475.	3800.	5	0	0	0.00	1240.00	2665.00

*SECNO 6.800

3265 DIVIDED FLOW

6.20	4.94	948.94	0.00	0.00	949.03	.09	.00	.03	945.10
400.	106.	191.	103.	182.	56.	149.	310.	134.	945.00
14.23	.58	3.43	.69	.075	.050	.075	.051	944.00	1370.44

.001784	10.	10.	10.	2	0	0	0.00	705.26	2387.09

*SECNO 6.900

3265 DIVIDED FLOW

6.90	5.03	949.03	0.00	0.00	949.09	.06	.06	.00	951.00
400.	138.	166.	96.	208.	57.	150.	311.	140.	951.00
14.24	.66	2.91	.64	.075	.050	.075	.051	944.00	1353.13
.002429	30.	30.	30.	2	0	0	0.00	747.42	2398.27

*SECNO 7.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.00	5.06	949.06	0.00	0.00	949.10	.04	.00	.00	951.00
400.	153.	139.	107.	218.	57.	157.	311.	140.	951.00
14.24	.70	2.44	.68	.075	.050	.075	.051	944.00	1349.14
.002638	1.	1.	1.	2	0	0	0.00	762.57	2400.85

*SECNO 7.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.10	5.15	949.15	0.00	0.00	949.18	.02	.08	.00	951.00
400.	164.	121.	115.	257.	58.	188.	311.	140.	951.00
14.25	.64	2.07	.61	.075	.050	.075	.051	944.00	1333.77
.001887	35.	35.	35.	0	0	0	0.00	827.68	2410.79

*SECNO 7.200

3265 DIVIDED FLOW

SECNO 0 TIME SLOPE	DEPTH QLOB VLOB XLOBL	QWSEL QCH VCH XLCH	QRIWS QROB VROB XLOBR	WSELR ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
7.20	5.15	949.15	0.00	0.00	949.18	.03	.00	.00	951.00
400.	153.	139.	108.	259.	58.	190.	311.	140.	951.00
14.25	.59	2.38	.57	.075	.050	.075	.051	944.00	1332.89
.001602	1.	1.	1.	0	0	0	0.00	829.97	2411.36

*SECNO 7.300

3265 DIVIDED FLOW

7.30	5.16	949.16	0.00	0.00	949.20	.04	.02	.00	945.10

400.	134.	147.	119.	281.	59.	227.	311.	141.	945.00	
14.25	.48	2.51	.52	.075	.050	.075	.051	944.00	1330.60	
.000898	15.	15.	15.	1	0	0	0.00	855.58	2412.84	

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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I1
I2
I3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	-1.000000	0.00	0.0	0.	0.000	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.250	0.000	0.000	0.000	0.000

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*PROF 4

CCHV=    .100 CEHV=    .300
*SECNO .800
2096 WSEL NOT GIVEN,AVG OF MAX,MIN USED
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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
3720 CRITICAL DEPTH ASSUMED									
.80	1.45	936.95	936.95	0.00	937.40	.44	0.00	0.00	939.30
100.	0.	100.	0.	0.	19.	0.	0.	0.	939.30
0.00	0.00	5.35	0.00	.075	.050	.075	0.000	935.50	2009.56
.038518	0.	0.	0.	0	18	0	0.00	20.97	2030.54
*SECNO .900									
.90	1.60	938.60	0.00	0.00	938.74	.14	1.32	.03	940.70
100.	0.	100.	0.	0.	33.	0.	0.	0.	941.20
.01	0.00	3.05	0.00	.075	.050	.075	.049	937.00	2002.10
.008293	85.	85.	85.	5	0	0	0.00	26.72	2028.82
*SECNO 1.000									
3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80									
1.00	1.82	938.62	0.00	0.00	938.75	.14	.01	.00	942.80
100.	0.	100.	0.	0.	34.	0.	0.	0.	943.00
.01	0.00	2.95	0.00	.075	.050	.075	.049	936.80	2000.00
.007388	1.	1.	1.	0	0	0	0.00	21.50	2021.50

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*SECNO 1.100
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3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 942.20 MAX ELLC= 940.80

BRIDGE SECTION A UPSTREAM FACE PROFILE RD

1.10	2.00	938.80	0.00	0.00	938.91	.11	.16	.00	942.80
100.	0.	100.	0.	0.	38.	0.	0.	0.	943.00
.01	0.00	2.64	0.00	.075	.050	.075	.049	936.80	2000.00
.005286	25.	25.	25.	1	0	0	0.00	21.50	2021.50

*SECNO 1.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.20	2.01	938.81	0.00	0.00	938.92	.11	.00	.00	942.80
100.	0.	100.	0.	0.	38.	0.	0.	0.	943.00
.01	0.00	2.64	0.00	.075	.050	.075	.048	936.80	2000.00
.004486	1.	1.	1.	0	0	0	0.00	21.50	2021.50

*SECNO 1.300

1.30	1.95	938.95	0.00	0.00	939.04	.09	.12	.00	940.70
100.	0.	100.	0.	0.	42.	0.	0.	0.	941.20
.01	0.00	2.35	0.00	.075	.050	.075	.048	937.00	2001.75
.003766	30.	30.	30.	0	0	0	0.00	28.19	2029.94

*SECNO 1.800

1.80	2.79	942.69	0.00	0.00	942.73	.04	3.69	.00	941.30
100.	2.	98.	0.	3.	62.	0.	3.	2.	941.90
.39	.47	1.59	.26	.075	.050	.075	.050	939.90	1994.00
.000977	2000.	2150.	2250.	6	0	0	0.00	31.72	2025.72

*SECNO 1.900

1.90	2.89	942.79	0.00	0.00	942.82	.03	.09	.00	946.30
100.	0.	100.	0.	0.	69.	0.	3.	2.	946.30
.41	0.00	1.46	0.00	.075	.050	.075	.050	939.90	2000.00
.000836	100.	100.	100.	2	0	0	0.00	26.00	2026.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20

2.00	2.89	942.79	0.00	0.00	942.82	.03	.00	.00	946.30
100.	0.	100.	0.	0.	69.	0.	3.	2.	946.30
.41	0.00	1.46	0.00	.075	.050	.075	.050	939.90	2000.00
.001017	1.	1.	1.	0	0	0	0.00	26.00	2026.00

*SECNO 2.100

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

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 946.30 MAX ELLC= 943.20

BRIDGE SECTION B,UPSTREAM FACE STONEWALL RD

2.10	2.91	942.81	0.00	0.00	942.85	.03	.02	.00	946.30
100.	0.	100.	0.	0.	69.	0.	3.	2.	946.30
.42	0.00	1.45	0.00	.075	.050	.075	.050	939.90	2000.00
.000994	23.	23.	23.	0	0	0	0.00	26.00	2026.00

*SECNO 2.200

2.20	2.91	942.81	0.00	0.00	942.85	.03	.00	.00	946.30
100.	0.	100.	0.	0.	69.	0.	3.	2.	946.30
.42	0.00	1.45	0.00	.075	.050	.075	.050	939.90	2000.00
.000813	1.	1.	1.	0	0	0	0.00	26.00	2026.00

*SECNO 2.300

2.30	2.93	942.83	0.00	0.00	942.87	.03	.02	.00	941.30
100.	2.	98.	0.	4.	66.	0.	3.	2.	941.90
.42	.46	1.50	.26	.075	.050	.075	.050	939.90	1993.48
.000797	25.	25.	25.	0	0	0	0.00	32.37	2025.85

*SECNO 2.800

2.80	3.13	943.13	0.00	0.00	943.14	.01	.27	.00	942.30
100.	1.	99.	1.	5.	108.	3.	4.	2.	941.80
.61	.11	.91	.24	.075	.050	.075	.050	940.00	1972.16
.000275	700.	625.	600.	2	0	0	0.00	74.90	2047.06

*SECNO 2.900

2.90	2.43	943.13	0.00	0.00	943.21	.08	.05	.02	941.80
100.	1.	99.	0.	2.	43.	1.	4.	3.	941.90
.62	.67	2.32	.53	.075	.050	.075	.050	940.70	1997.70
.002403	75.	75.	75.	2	0	0	0.00	24.37	2022.07

*SECNO 3.000

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

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

3.00	1.99	943.09	0.00	0.00	943.23	.14	.00	.02	951.80
100.	0.	100.	0.	0.	33.	0.	4.	3.	952.10
.62	0.00	2.99	0.00	.075	.050	.075	.050	941.10	2000.00
.006566	1.	1.	1.	2	0	0	0.00	21.00	2021.00

*SECNO 3.100

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 950.80 MAX ELLC= 949.40

BRIDGE SECTION C UPSTREAM FACE BADGLEY RD

3.10	2.21	943.31	0.00	0.00	943.42	.11	.18	.00	951.80
100.	0.	100.	0.	0.	38.	0.	5.	3.	952.10
.63	0.00	2.63	0.00	.075	.050	.075	.050	941.10	2000.00
.004492	34.	34.	34.	2	0	0	0.00	21.00	2021.00

*SECNO 3.200

3.20	2.66	943.36	0.00	0.00	943.42	.07	.00	.00	941.80
100.	1.	98.	0.	2.	47.	1.	5.	3.	941.90
.63	.62	2.07	.49	.075	.050	.075	.050	940.70	1997.30
.001665	1.	1.	1.	2	0	0	0.00	24.97	2022.27

*SECNO 3.300

3.30	2.69	943.39	0.00	0.00	943.46	.06	.03	.00	941.80
100.	1.	98.	0.	2.	48.	1.	5.	3.	941.90
.63	.61	2.04	.49	.075	.050	.075	.050	940.70	1997.24
.001580	20.	20.	20.	2	0	0	0.00	25.06	2022.30

*SECNO 4.000

VALLEY SECTION D

4.00	4.11	944.91	0.00	0.00	944.91	.01	1.45	.01	944.80
100.	0.	100.	0.	0.	133.	0.	13.	6.	946.70
2.07	.00	.75	0.00	.075	.050	.075	.050	940.80	1998.47
.000163	2800.	3900.	3500.	5	0	0	0.00	47.86	2046.33

*SECNO 4.800

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
4.80	7.46	945.06	0.00	0.00	945.06	.00	.15	.00	944.50
100.	17.	83.	0.	175.	238.	7.	36.	17.	945.40
5.28	.10	.35	.04	.075	.050	.075	.050	937.60	1844.13
.000019	3800.	3500.	3000.	3	0	0	0.00	232.27	2122.59

*SECNO 4.900

4.90	1.53	944.93	0.00	0.00	945.13	.20	.01	.06	943.60
100.	6.	94.	0.	3.	26.	0.	36.	18.	945.50
5.29	2.02	3.68	0.00	.075	.050	.075	.050	943.40	1995.88
.019148	150.	114.	50.	2	0	0	0.00	34.18	2030.06

*SECNO 5.000

SECNO	DEPTH	CwSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

SECNO / TIME / SLOPE	DEPTH / VLOB / XLOBL	QLOB / VCH / XLCH	QCH / VROB / XLOBR	QROB / ALOB / ITRIAL	ALOB / ACH / IDC	ACH / AROB / ICONT	AROB / HV / CORAR	HL / VOL / TOPWID	OLOSS / TWA / ELMIN	BANK ELEV LEFT/RIGHT / SSTA / ENDST
3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD= 950.30 MAX ELLC= 950.40										
7185 MINIMUM SPECIFIC ENERGY										
3720 CRITICAL DEPTH ASSUMED										
	5.00	1.40	944.80	944.80	0.00	945.24	.44	.03	.07	943.60
	100.	0.	100.	0.	0.	19.	0.	36.	18.	945.50
	5.29	0.00	5.30	0.00	.075	.050	.075	.050	943.40	1996.29
	.048686	1.	1.	1.	2	22	0	-4.98	33.20	2029.50
*SECNO 5.100										
3370 NORMAL BRIDGE,NRD= 45 MIN ELTRD= 949.30 MAX ELLC= 951.30										
BRIDGE SECTION E UPSTREAM FACE GLENSHIRE DRIVE										
	5.10	2.29	945.69	0.00	0.00	945.80	.11	.54	.03	944.50
	100.	0.	100.	0.	0.	37.	0.	36.	18.	946.00
	5.30	0.00	2.71	0.00	.075	.050	.075	.050	943.40	1996.10
	.006156	40.	40.	40.	4	0	0	-11.80	34.52	2030.61
*SECNO 5.200										
	5.20	2.35	945.75	0.00	0.00	945.81	.06	.00	.01	944.50
	100.	2.	98.	0.	3.	48.	0.	36.	18.	946.00
	5.30	.72	2.03	0.00	.075	.050	.075	.050	943.40	1995.90
	.002626	1.	1.	1.	2	0	0	0.00	34.79	2030.69
*SECNO 6.000										
3265 DIVIDED FLOW										
3280 CROSS SECTION 6.00 EXTENDED 1.32 FEET										
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	
VALLEY SECTION F NEAR OUTLET FROM BROWN'S LAKE										
	6.00	2.73	946.86	0.00	0.00	946.86	.00	1.04	.01	944.86
	100.	53.	25.	21.	272.	51.	144.	61.	46.	944.96
	5.91	.20	.49	.15	.075	.050	.075	.050	944.13	1425.00
	.000083	4200.	4475.	3800.	5	0	0	0.00	565.50	2271.43
*SECNO 6.800										
	6.80	2.77	946.77	0.00	0.00	946.90	.14	.00	.04	945.10

100.	3.	92.	6.	3.	30.	6.	61.	46.	945.00
9.91	.94	3.09	1.05	.075	.050	.075	.050	944.00	1996.67
.003345	10.	10.	10.	2	0	0	0.00	21.61	2018.28

*SECNO 6.900

6.90	2.87	946.87	0.00	0.00	947.03	.16	.12	.01	951.00
100.	0.	100.	0.	0.	31.	0.	61.	46.	951.00
9.91	0.00	3.23	0.00	.075	.050	.075	.050	944.00	2000.00
.004918	30.	30.	30.	2	0	0	0.00	12.00	2012.00

*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.00	2.87	946.87	0.00	0.00	947.04	.16	.01	.00	951.00
100.	0.	100.	0.	0.	31.	0.	61.	46.	951.00
9.91	0.00	3.23	0.00	.075	.050	.075	.050	944.00	2000.00
.006437	1.	1.	1.	0	0	0	0.00	12.00	2012.00

*SECNO 7.100

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 950.80 MAX ELLC= 950.00

7.10	3.10	947.10	0.00	0.00	947.24	.14	.20	.00	951.00
100.	0.	100.	0.	0.	34.	0.	61.	46.	951.00
9.91	0.00	2.96	0.00	.075	.050	.075	.050	944.00	2000.00
.005143	35.	35.	35.	2	0	0	0.00	12.00	2012.00

*SECNO 7.200

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	XNH	WIN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CURAR	TOPWID	FNOSI

7.20	3.11	947.11	0.00	0.00	947.24	.14	.00	.00	951.00
100.	0.	100.	0.	0.	34.	0.	61.	46.	951.00
9.91	0.00	2.96	0.00	.075	.050	.075	.050	944.00	2000.00
.003799	1.	1.	1.	0	0	0	0.00	12.00	2012.00

*SECNO 7.300

7.30	3.20	947.20	0.00	0.00	947.29	.09	.04	.00	945.10
100.	4.	88.	8.	4.	35.	9.	61.	46.	945.00
9.91	.81	2.53	.96	.075	.050	.075	.050	944.00	1995.81
.001814	15.	15.	15.	2	0	0	0.00	24.29	2020.09

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Summary

00BREAK00

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**************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -   01.02.03
   MODIFICATION -   50.51.52.53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GRAND RIVER

SUMMARY PRINTOUT

	SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
*	.800	937.62	935.50	0.00	0.00	2008.35	0.00	2000.00	2047.00	937.62	2116.09	49.25	0.00
	.800	938.70	935.50	0.00	0.00	2007.00	0.00	2000.00	2047.00	0.00	2120.40	63.65	0.00
	.800	939.90	935.50	0.00	0.00	1852.64	0.00	2000.00	2047.00	0.00	2131.65	256.51	0.00
*	.800	936.95	935.50	0.00	0.00	2009.56	0.00	2000.00	2047.00	936.95	2030.54	20.97	0.00
	.900	939.17	937.00	0.00	0.00	2001.53	0.00	2000.00	2037.00	0.00	2030.64	29.11	85.00
	.900	939.25	937.00	0.00	0.00	2001.45	0.00	2000.00	2037.00	0.00	2030.88	29.43	85.00
	.900	939.91	937.00	0.00	0.00	2000.78	0.00	2000.00	2037.00	0.00	2032.96	32.18	85.00
	.900	938.60	937.00	0.00	0.00	2002.10	0.00	2000.00	2037.00	0.00	2028.82	26.72	85.00
	1.000	939.15	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.000	939.19	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.000	939.76	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.000	938.62	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.100	939.48	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
	1.100	939.92	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
	1.100	940.47	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
	1.100	938.80	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00
	1.200	939.49	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.200	939.94	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.200	940.49	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.200	938.81	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00
	1.300	939.74	937.00	0.00	0.00	2000.96	0.00	2000.00	2037.00	0.00	2032.40	31.43	30.00
	1.300	940.30	937.00	0.00	0.00	2000.40	0.00	2000.00	2037.00	0.00	2034.18	33.78	30.00
	1.300	940.92	937.00	0.00	0.00	1992.88	0.00	2000.00	2037.00	0.00	2036.12	43.24	30.00
	1.300	938.95	937.00	0.00	0.00	2001.75	0.00	2000.00	2037.00	0.00	2029.94	28.19	30.00
	1.800	943.79	939.90	0.00	0.00	1990.07	0.00	1999.00	2025.00	0.00	2026.72	36.64	2150.00
	1.800	944.62	939.90	0.00	0.00	1948.95	0.00	1999.00	2025.00	0.00	2028.49	42.94	2150.00
	1.800	945.26	939.90	0.00	0.00	1920.52	0.00	1999.00	2025.00	0.00	2051.87	112.07	2150.00
	1.800	942.69	939.90	0.00	0.00	1994.00	0.00	1999.00	2025.00	0.00	2025.72	31.72	2150.00
	1.900	943.90	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00
	1.900	944.74	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00
	1.900	945.38	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00
	1.900	942.79	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00

SECND	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STHNCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
2.000	943.87	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.000	944.65	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.000	945.19	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.000	942.79	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.100	944.00	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.100	944.94	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.100	945.71	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.100	942.81	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00
2.200	944.05	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.200	945.11	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.200	946.05	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.200	942.81	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00
2.300	944.08	939.90	0.00	0.00	1989.02	0.00	1999.00	2025.00	0.00	2026.98	37.96	25.00
2.300	945.15	939.90	0.00	0.00	1925.08	0.00	1999.00	2025.00	0.00	2047.28	97.99	25.00
2.300	946.13	939.90	0.00	0.00	1886.61	0.00	1999.00	2025.00	0.00	2085.71	199.10	25.00
2.300	942.83	939.90	0.00	0.00	1993.48	0.00	1999.00	2025.00	0.00	2025.85	32.37	25.00
2.800	944.36	940.00	0.00	0.00	1930.74	0.00	2000.00	2042.00	0.00	2050.93	120.18	625.00
2.800	945.40	940.00	0.00	0.00	1919.25	0.00	2000.00	2042.00	0.00	2053.00	133.76	625.00
2.800	946.32	940.00	0.00	0.00	1911.50	0.00	2000.00	2042.00	0.00	2054.47	142.96	625.00
2.800	943.13	940.00	0.00	0.00	1972.16	0.00	2000.00	2042.00	0.00	2047.06	74.90	625.00
2.900	944.33	940.70	0.00	0.00	1995.62	0.00	2000.00	2021.00	0.00	2023.11	27.49	75.00
2.900	945.34	940.70	0.00	0.00	1993.87	0.00	2000.00	2021.00	0.00	2023.99	30.12	75.00
2.900	946.24	940.70	0.00	0.00	1992.31	0.00	2000.00	2021.00	0.00	2024.77	32.46	75.00
2.900	943.13	940.70	0.00	0.00	1997.70	0.00	2000.00	2021.00	0.00	2022.07	24.37	75.00
3.000	944.29	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	945.29	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	946.18	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	943.09	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.100	944.47	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	945.47	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	946.36	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	943.31	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.200	944.53	940.70	0.00	0.00	1995.26	0.00	2000.00	2021.00	0.00	2023.29	28.03	1.00
3.200	945.55	940.70	0.00	0.00	1993.51	0.00	2000.00	2021.00	0.00	2024.17	30.67	1.00
3.200	946.45	940.70	0.00	0.00	1991.93	0.00	2000.00	2021.00	0.00	2024.96	33.03	1.00
3.200	943.36	940.70	0.00	0.00	1997.30	0.00	2000.00	2021.00	0.00	2022.27	24.97	1.00
3.300	944.57	940.70	0.00	0.00	1995.20	0.00	2000.00	2021.00	0.00	2023.32	28.12	20.00
3.300	945.58	940.70	0.00	0.00	1993.45	0.00	2000.00	2021.00	0.00	2024.20	30.75	20.00
3.300	946.48	940.70	0.00	0.00	1991.88	0.00	2000.00	2021.00	0.00	2024.99	33.10	20.00
3.300	943.39	940.70	0.00	0.00	1997.24	0.00	2000.00	2021.00	0.00	2022.30	25.06	20.00
4.000	946.24	940.80	0.00	0.00	1978.59	0.00	2000.00	2050.00	0.00	2049.07	70.49	3900.00
4.000	947.25	940.80	0.00	0.00	1963.67	0.00	2000.00	2050.00	0.00	2067.26	103.59	3900.00
4.000	948.08	940.80	0.00	0.00	1957.66	0.00	2000.00	2050.00	0.00	2093.30	135.65	3900.00
4.000	944.91	940.80	0.00	0.00	1998.47	0.00	2000.00	2050.00	0.00	2046.33	47.86	3900.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
4.800	946.41	937.60	0.00	0.00	1688.07	0.00	2000.00	2051.00	0.00	2922.00	529.45	3500.00
4.800	947.39	937.60	0.00	0.00	1169.47	0.00	2000.00	2051.00	0.00	2922.00	1113.21	3500.00
4.800	948.20	937.60	0.00	0.00	922.43	0.00	2000.00	2051.00	0.00	2922.00	1391.73	3500.00
4.800	945.06	937.60	0.00	0.00	1844.13	0.00	2000.00	2051.00	0.00	2122.59	232.27	3500.00
4.900	946.35	943.40	0.00	0.00	1991.52	0.00	2000.00	2031.00	0.00	2034.11	42.59	114.00
4.900	947.33	943.40	0.00	0.00	1988.49	0.00	2000.00	2031.00	0.00	2037.72	49.23	114.00
4.900	948.13	943.40	0.00	0.00	1986.01	0.00	2000.00	2031.00	0.00	2040.66	54.64	114.00
4.900	944.93	943.40	0.00	0.00	1995.88	0.00	2000.00	2031.00	0.00	2030.06	34.18	114.00
5.000	946.25	943.40	950.40	950.30	1991.80	0.00	2000.00	2031.00	0.00	2033.77	41.97	1.00
5.000	947.19	943.40	950.40	950.30	1988.92	0.00	2000.00	2031.00	0.00	2037.20	48.29	1.00
5.000	947.92	943.40	950.40	950.30	1986.65	0.00	2000.00	2031.00	0.00	2039.90	53.24	1.00
5.000	944.80	943.40	950.40	950.30	1996.29	0.00	2000.00	2031.00	944.80	2029.50	33.20	1.00
5.100	946.65	943.40	951.30	949.30	1992.97	0.00	2000.00	2031.00	0.00	2032.80	39.84	40.00
5.100	947.62	943.40	951.30	949.30	1989.78	0.00	2000.00	2031.00	0.00	2035.51	45.73	40.00
5.100	948.47	943.40	951.30	949.30	1986.98	0.00	2000.00	2031.00	0.00	2037.90	50.92	40.00
5.100	945.69	943.40	951.30	949.30	1996.10	0.00	2000.00	2031.00	0.00	2030.61	34.52	40.00
5.200	946.75	943.40	0.00	0.00	1992.61	0.00	2000.00	2031.00	0.00	2033.10	40.49	1.00
5.200	947.77	943.40	0.00	0.00	1989.27	0.00	2000.00	2031.00	0.00	2035.94	46.67	1.00
5.200	948.69	943.40	0.00	0.00	1986.26	0.00	2000.00	2031.00	0.00	2038.51	52.25	1.00
5.200	945.75	943.40	0.00	0.00	1995.90	0.00	2000.00	2031.00	0.00	2030.69	34.79	1.00
6.000	947.55	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1095.01	4475.00
6.000	948.24	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1240.00	4475.00
6.000	949.00	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1240.00	4475.00
6.000	946.86	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2271.43	565.50	4475.00
6.800	947.34	944.00	0.00	0.00	1995.52	0.00	2000.00	2012.00	0.00	2020.69	25.17	10.00
6.800	947.94	944.00	0.00	0.00	1994.31	0.00	2000.00	2012.00	0.00	2023.24	28.92	10.00
6.800	948.94	944.00	0.00	0.00	1370.44	0.00	2000.00	2012.00	0.00	2387.09	705.26	10.00
6.800	946.77	944.00	0.00	0.00	1996.67	0.00	2000.00	2012.00	0.00	2018.28	21.61	10.00
6.900	947.50	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
6.900	948.05	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
6.900	949.03	944.00	0.00	0.00	1353.13	0.00	2000.00	2012.00	0.00	2398.27	747.42	30.00
6.900	946.87	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
7.000	947.51	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.000	948.08	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.000	949.06	944.00	950.00	950.80	1349.14	0.00	2000.00	2012.00	0.00	2400.85	762.57	1.00
7.000	946.87	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.100	948.05	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	35.00
7.100	948.96	944.00	950.00	950.80	1365.26	0.00	2000.00	2012.00	0.00	2390.43	701.40	35.00
7.100	949.15	944.00	950.00	950.80	1333.77	0.00	2000.00	2012.00	0.00	2410.79	827.68	35.00
7.100	947.10	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	35.00
7.200	948.06	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.200	948.95	944.00	0.00	0.00	1367.61	0.00	2000.00	2012.00	0.00	2388.92	692.49	1.00
7.200	949.15	944.00	0.00	0.00	1332.89	0.00	2000.00	2012.00	0.00	2411.36	829.97	1.00
7.200	947.11	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
7.300	948.29	944.00	0.00	0.00	1993.86	0.00	2000.00	2012.00	0.00	2314.12	95.21	15.00
7.300	948.98	944.00	0.00	0.00	1362.43	0.00	2000.00	2012.00	0.00	2392.26	736.08	15.00
7.300	949.16	944.00	0.00	0.00	1330.60	0.00	2000.00	2012.00	0.00	2417.84	855.58	15.00
7.300	947.20	944.00	0.00	0.00	1995.81	0.00	2000.00	2012.00	0.00	2020.09	24.29	15.00

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	.800	0.00	0.00	0.00	935.50	200.00	937.62	937.62	938.07	291.35	5.43	40.10	11.72
	.800	0.00	0.00	0.00	935.50	300.00	938.70	0.00	938.86	56.83	3.39	101.94	39.80
	.800	0.00	0.00	0.00	935.50	400.00	939.90	0.00	939.97	16.65	2.34	230.81	98.02
*	.800	0.00	0.00	0.00	935.50	100.00	936.95	936.95	937.40	385.18	5.35	18.68	5.10
	.900	85.00	0.00	0.00	937.00	200.00	939.17	0.00	939.43	99.35	4.10	48.83	20.07
	.900	85.00	0.00	0.00	937.00	300.00	939.25	0.00	939.79	195.31	5.87	51.09	21.47
	.900	85.00	0.00	0.00	937.00	400.00	939.91	0.00	940.40	128.79	5.59	71.54	35.25
	.900	85.00	0.00	0.00	937.00	100.00	938.60	0.00	938.74	82.93	3.05	32.74	10.98
	1.000	1.00	942.20	940.80	936.80	200.00	939.15	0.00	939.46	124.12	4.42	45.26	17.95
	1.000	1.00	942.20	940.80	936.80	300.00	939.19	0.00	939.85	265.89	6.52	46.02	18.40
	1.000	1.00	942.20	940.80	936.80	400.00	939.76	0.00	940.49	235.99	6.85	58.42	26.04
	1.000	1.00	942.20	940.80	936.80	100.00	938.62	0.00	938.75	73.88	2.95	33.86	11.63
	1.100	25.00	942.20	940.80	936.80	200.00	939.48	0.00	939.71	80.79	3.82	52.40	22.25
	1.100	25.00	942.20	940.80	936.80	300.00	939.92	0.00	940.29	112.59	4.85	61.87	28.27
	1.100	25.00	942.20	940.80	936.80	400.00	940.47	0.00	940.93	121.95	5.43	73.69	36.22
	1.100	25.00	942.20	940.80	936.80	100.00	938.80	0.00	938.91	52.86	2.64	37.84	13.75
	1.200	1.00	0.00	0.00	936.80	200.00	939.49	0.00	939.72	64.33	3.80	52.62	24.94
	1.200	1.00	0.00	0.00	936.80	300.00	939.94	0.00	940.30	86.44	4.82	62.26	33.27
	1.200	1.00	0.00	0.00	936.80	400.00	940.49	0.00	940.94	91.03	5.40	74.01	41.92
	1.200	1.00	0.00	0.00	936.80	100.00	938.81	0.00	938.92	44.86	2.64	37.86	14.93
	1.300	30.00	0.00	0.00	937.00	200.00	939.74	0.00	939.88	41.12	3.04	65.80	31.19
	1.300	30.00	0.00	0.00	937.00	300.00	940.30	0.00	940.50	45.04	3.56	84.27	44.70
	1.300	30.00	0.00	0.00	937.00	400.00	940.92	0.00	941.14	41.07	3.78	106.66	62.42
	1.300	30.00	0.00	0.00	937.00	100.00	938.95	0.00	939.04	37.66	2.35	42.49	16.30
	1.800	2150.00	0.00	0.00	939.90	200.00	943.79	0.00	943.85	10.45	2.12	102.94	61.87
	1.800	2150.00	0.00	0.00	939.90	300.00	944.62	0.00	944.71	10.91	2.50	135.43	90.84
	1.800	2150.00	0.00	0.00	939.90	400.00	945.26	0.00	945.37	11.50	2.81	181.39	117.96
	1.800	2150.00	0.00	0.00	939.90	100.00	942.69	0.00	942.73	9.77	1.59	65.52	32.00
	1.900	100.00	0.00	0.00	939.90	200.00	943.90	0.00	943.96	11.40	2.05	97.34	58.23
	1.900	100.00	0.00	0.00	939.90	300.00	944.74	0.00	944.84	13.92	2.52	119.26	80.40
	1.900	100.00	0.00	0.00	939.90	400.00	945.38	0.00	945.51	16.81	2.94	135.87	97.55
	1.900	100.00	0.00	0.00	939.90	100.00	942.79	0.00	942.82	8.38	1.46	68.50	34.54
	2.000	1.00	946.30	943.20	939.90	200.00	943.87	0.00	943.98	56.62	2.57	77.90	26.58
	2.000	1.00	946.30	943.20	939.90	300.00	944.65	0.00	944.88	127.39	3.85	77.90	26.58
	2.000	1.00	946.30	943.20	939.90	400.00	945.19	0.00	945.60	226.47	5.13	77.90	26.58
	2.000	1.00	946.30	943.20	939.90	100.00	942.79	0.00	942.82	10.17	1.46	68.53	31.35
	2.100	23.00	946.30	943.20	939.90	200.00	944.00	0.00	944.11	56.62	2.57	77.90	26.58
	2.100	23.00	946.30	943.20	939.90	300.00	944.94	0.00	945.17	127.39	3.85	77.90	26.58
	2.100	23.00	946.30	943.20	939.90	400.00	945.71	0.00	946.12	226.47	5.13	77.90	26.58
	2.100	23.00	946.30	943.20	939.90	100.00	942.81	0.00	942.85	9.94	1.45	69.08	31.72
	2.200	1.00	0.00	0.00	939.90	200.00	944.05	0.00	944.11	10.09	1.97	101.36	62.98
	2.200	1.00	0.00	0.00	939.90	300.00	945.11	0.00	945.19	11.07	2.33	128.80	80.15

2.200	1.00	0.00	0.00	939.90	400.00	946.05	0.00	946.16	11.80	2.61	153.30	116.43
2.200	1.00	0.00	0.00	939.90	100.00	942.81	0.00	942.85	8.13	1.45	69.17	35.06

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2.300	25.00	0.00	0.00	939.90	200.00	944.08	0.00	944.14	7.85	1.94	113.85	71.37
2.300	25.00	0.00	0.00	939.90	300.00	945.15	0.00	945.22	7.06	2.17	170.90	112.94
2.300	25.00	0.00	0.00	939.90	400.00	946.13	0.00	946.18	4.86	2.04	325.71	181.46
2.300	25.00	0.00	0.00	939.90	100.00	942.83	0.00	942.87	7.97	1.50	70.15	35.42
2.800	625.00	0.00	0.00	940.00	200.00	944.36	0.00	944.38	2.25	1.07	245.13	133.26
2.800	625.00	0.00	0.00	940.00	300.00	945.40	0.00	945.42	1.74	1.11	378.14	227.15
2.800	625.00	0.00	0.00	940.00	400.00	946.32	0.00	946.34	1.44	1.13	505.37	333.31
2.800	625.00	0.00	0.00	940.00	100.00	943.13	0.00	943.14	2.75	.91	116.35	60.25
2.900	75.00	0.00	0.00	940.70	200.00	944.33	0.00	944.45	19.48	2.85	75.84	45.31
2.900	75.00	0.00	0.00	940.70	300.00	945.34	0.00	945.49	16.98	3.19	104.96	72.81
2.900	75.00	0.00	0.00	940.70	400.00	946.24	0.00	946.41	15.34	3.45	133.07	102.13
2.900	75.00	0.00	0.00	940.70	100.00	943.13	0.00	943.21	24.03	2.32	44.71	20.40
3.000	1.00	950.80	949.40	941.10	200.00	944.29	0.00	944.47	51.52	3.41	58.58	27.86
3.000	1.00	950.80	949.40	941.10	300.00	945.29	0.00	945.51	49.52	3.77	79.64	42.63
3.000	1.00	950.80	949.40	941.10	400.00	946.18	0.00	946.44	50.05	4.07	98.29	56.54
3.000	1.00	950.80	949.40	941.10	100.00	943.09	0.00	943.23	65.66	2.99	33.43	12.34
3.100	34.00	950.80	949.40	941.10	200.00	944.47	0.00	944.63	43.07	3.20	62.44	30.47
3.100	34.00	950.80	949.40	941.10	300.00	945.47	0.00	945.67	43.69	3.60	83.41	45.39
3.100	34.00	950.80	949.40	941.10	400.00	946.36	0.00	946.60	45.24	3.92	102.12	59.47
3.100	34.00	950.80	949.40	941.10	100.00	943.31	0.00	943.42	44.92	2.63	38.00	14.92
3.200	1.00	0.00	0.00	940.70	200.00	944.53	0.00	944.64	15.73	2.67	81.56	50.43
3.200	1.00	0.00	0.00	940.70	300.00	945.55	0.00	945.68	14.35	3.03	111.28	79.19
3.200	1.00	0.00	0.00	940.70	400.00	946.45	0.00	946.61	13.24	3.29	140.19	109.92
3.200	1.00	0.00	0.00	940.70	100.00	943.36	0.00	943.42	16.65	2.07	50.39	24.51
3.300	20.00	0.00	0.00	940.70	200.00	944.57	0.00	944.67	15.21	2.64	82.49	51.29
3.300	20.00	0.00	0.00	940.70	300.00	945.58	0.00	945.71	14.01	3.00	112.22	80.15
3.300	20.00	0.00	0.00	940.70	400.00	946.48	0.00	946.64	13.00	3.27	141.13	110.95
3.300	20.00	0.00	0.00	940.70	100.00	943.39	0.00	943.46	15.80	2.04	51.26	25.16
4.000	3900.00	0.00	0.00	940.80	200.00	946.24	0.00	946.25	1.84	1.00	212.46	147.26
4.000	3900.00	0.00	0.00	940.80	300.00	947.25	0.00	947.27	1.88	1.16	296.43	218.95
4.000	3900.00	0.00	0.00	940.80	400.00	948.08	0.00	948.11	1.79	1.25	396.90	298.78
4.000	3900.00	0.00	0.00	940.80	100.00	944.91	0.00	944.91	1.63	.75	133.03	78.37
4.800	3500.00	0.00	0.00	937.60	200.00	946.41	0.00	946.41	.20	.42	854.89	452.43
4.800	3500.00	0.00	0.00	937.60	300.00	947.39	0.00	947.40	.14	.39	1739.64	796.36
4.800	3500.00	0.00	0.00	937.60	400.00	948.20	0.00	948.20	.10	.35	2754.28	1265.72
4.800	3500.00	0.00	0.00	937.60	100.00	945.06	0.00	945.06	.19	.35	420.15	229.82
4.900	114.00	0.00	0.00	943.40	200.00	946.35	0.00	946.45	28.12	2.67	82.07	37.72
4.900	114.00	0.00	0.00	943.40	300.00	947.33	0.00	947.43	17.69	2.70	127.17	71.33
4.900	114.00	0.00	0.00	943.40	400.00	948.13	0.00	948.24	14.20	2.81	168.76	106.14
4.900	114.00	0.00	0.00	943.40	100.00	944.93	0.00	945.13	191.48	3.68	28.38	7.23
5.000	1.00	950.30	950.40	943.40	200.00	946.25	0.00	946.50	104.70	3.95	50.60	19.55
5.000	1.00	950.30	950.40	943.40	300.00	947.19	0.00	947.50	112.36	4.46	67.29	28.30
5.000	1.00	950.30	950.40	943.40	400.00	947.92	0.00	948.33	143.60	5.15	77.66	33.38
* 5.000	1.00	950.30	950.40	943.40	100.00	944.80	944.80	945.24	486.86	5.30	18.87	4.53

SECNO	XLOB	ELTRD	ELLOB	ELMIN	Q	CWSEL	CRIWS	EG	TOPWS	VCH	AREA	.01K
5.100	40.00	949.30	951.30	943.40	200.00	946.65	0.00	946.83	65.48	3.43	58.23	24.72
5.100	40.00	949.30	951.30	943.40	300.00	947.62	0.00	947.85	67.69	3.86	77.66	36.46
5.100	40.00	949.30	951.30	943.40	400.00	948.47	0.00	948.77	80.42	4.35	92.06	44.60
5.100	40.00	949.30	951.30	943.40	100.00	945.69	0.00	945.80	61.56	2.71	36.95	12.75
5.200	1.00	0.00	0.00	943.40	200.00	946.75	0.00	946.84	19.47	2.42	88.44	45.32
5.200	1.00	0.00	0.00	943.40	300.00	947.77	0.00	947.86	13.56	2.52	132.79	81.47
5.200	1.00	0.00	0.00	943.40	400.00	948.69	0.00	948.79	10.62	2.60	178.27	122.74
5.200	1.00	0.00	0.00	943.40	100.00	945.75	0.00	945.81	26.26	2.03	50.80	19.52
6.000	4475.00	0.00	0.00	944.13	200.00	947.55	0.00	947.55	.56	.48	1033.04	266.77
6.000	4475.00	0.00	0.00	944.13	300.00	948.24	0.00	948.24	.28	.39	1859.68	563.88
6.000	4475.00	0.00	0.00	944.13	400.00	949.00	0.00	949.00	.15	.32	2802.95	1034.62
6.000	4475.00	0.00	0.00	944.13	100.00	946.86	0.00	946.86	.83	.49	467.49	109.52
6.800	10.00	0.00	0.00	944.00	200.00	947.34	0.00	947.65	60.37	4.76	51.40	25.74
6.800	10.00	0.00	0.00	944.00	300.00	947.94	0.00	948.37	67.17	5.67	67.73	36.60
6.800	10.00	0.00	0.00	944.00	400.00	948.94	0.00	949.03	17.84	3.43	387.11	94.70
6.800	10.00	0.00	0.00	944.00	100.00	946.77	0.00	946.90	33.49	3.09	37.97	17.28
6.900	30.00	0.00	0.00	944.00	200.00	947.50	0.00	947.92	105.09	5.20	38.46	19.51
6.900	30.00	0.00	0.00	944.00	300.00	948.05	0.00	948.74	151.54	6.66	45.05	24.37
6.900	30.00	0.00	0.00	944.00	400.00	949.03	0.00	949.09	24.29	2.91	414.68	81.16
6.900	30.00	0.00	0.00	944.00	100.00	946.87	0.00	947.03	49.18	3.23	30.92	14.26
7.000	1.00	950.80	950.00	944.00	200.00	947.51	0.00	947.93	145.68	5.19	38.56	16.57
7.000	1.00	950.80	950.00	944.00	300.00	948.08	0.00	948.76	217.58	6.62	45.32	20.34
7.000	1.00	950.80	950.00	944.00	400.00	949.06	0.00	949.10	26.38	2.44	432.03	77.87
7.000	1.00	950.80	950.00	944.00	100.00	946.87	0.00	947.04	64.37	3.23	30.96	12.46
7.100	35.00	950.80	950.00	944.00	200.00	948.05	0.00	948.35	97.98	4.44	45.09	20.20
7.100	35.00	950.80	950.00	944.00	300.00	948.96	0.00	949.00	21.34	2.18	364.12	64.95
7.100	35.00	950.80	950.00	944.00	400.00	949.15	0.00	949.18	18.87	2.07	502.64	92.08
7.100	35.00	950.80	950.00	944.00	100.00	947.10	0.00	947.24	51.43	2.96	33.73	13.94
7.200	1.00	0.00	0.00	944.00	200.00	948.06	0.00	948.36	66.61	4.42	45.23	24.50
7.200	1.00	0.00	0.00	944.00	300.00	948.95	0.00	949.00	18.55	2.53	354.70	69.66
7.200	1.00	0.00	0.00	944.00	400.00	949.15	0.00	949.18	16.02	2.38	506.86	99.93
7.200	1.00	0.00	0.00	944.00	100.00	947.11	0.00	947.24	37.99	2.96	33.80	16.22
7.300	15.00	0.00	0.00	944.00	200.00	948.29	0.00	948.43	20.57	3.33	84.09	44.09
7.300	15.00	0.00	0.00	944.00	300.00	948.98	0.00	949.02	8.73	2.41	420.33	101.53
7.300	15.00	0.00	0.00	944.00	400.00	949.16	0.00	949.20	8.98	2.51	566.32	133.52
7.300	15.00	0.00	0.00	944.00	100.00	947.20	0.00	947.29	18.14	2.53	47.87	23.48

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	.800	200.00	937.62	0.00	0.00	.62	49.25	0.00
	.800	300.00	938.70	1.08	0.00	0.00	63.65	0.00
	.800	400.00	939.90	1.20	0.00	0.00	256.51	0.00
*	.800	100.00	936.95	-2.95	0.00	0.00	20.97	0.00
	.900	200.00	939.17	0.00	1.55	0.00	29.11	85.00
	.900	300.00	939.25	.08	.55	0.00	29.43	85.00
	.900	400.00	939.91	.66	.01	0.00	32.18	85.00
	.900	100.00	938.60	-1.32	1.65	0.00	26.72	85.00
	1.000	200.00	939.15	0.00	-.02	0.00	21.50	1.00
	1.000	300.00	939.19	.03	-.06	0.00	21.50	1.00
	1.000	400.00	939.76	.57	-.15	0.00	21.50	1.00
	1.000	100.00	938.62	-1.14	.02	0.00	21.50	1.00
	1.100	200.00	939.48	0.00	.33	0.00	21.50	25.00
	1.100	300.00	939.92	.44	.74	0.00	21.50	25.00
	1.100	400.00	940.47	.55	.71	0.00	21.50	25.00
	1.100	100.00	938.80	-1.67	.18	0.00	21.50	25.00
	1.200	200.00	939.49	0.00	.01	0.00	21.50	1.00
	1.200	300.00	939.94	.45	.01	0.00	21.50	1.00
	1.200	400.00	940.49	.55	.01	0.00	21.50	1.00
	1.200	100.00	938.81	-1.68	.00	0.00	21.50	1.00
	1.300	200.00	939.74	0.00	.24	0.00	31.43	30.00
	1.300	300.00	940.30	.57	.36	0.00	33.78	30.00
	1.300	400.00	940.92	.62	.43	0.00	43.24	30.00
	1.300	100.00	938.95	-1.96	.15	0.00	28.19	30.00
	1.800	200.00	943.79	0.00	4.05	0.00	36.64	2150.00
	1.800	300.00	944.62	.84	4.32	0.00	42.94	2150.00
	1.800	400.00	945.26	.64	4.34	0.00	112.07	2150.00
	1.800	100.00	942.69	-2.57	3.74	0.00	31.72	2150.00
	1.900	200.00	943.90	0.00	.11	0.00	26.00	100.00
	1.900	300.00	944.74	.84	.12	0.00	26.00	100.00
	1.900	400.00	945.38	.64	.12	0.00	26.00	100.00
	1.900	100.00	942.79	-2.59	.10	0.00	26.00	100.00
	2.000	200.00	943.87	0.00	-.02	0.00	26.00	1.00
	2.000	300.00	944.65	.78	-.09	0.00	26.00	1.00
	2.000	400.00	945.19	.54	-.19	0.00	26.00	1.00
	2.000	100.00	942.79	-2.40	.00	0.00	26.00	1.00
	2.100	200.00	944.00	0.00	.13	0.00	26.00	23.00
	2.100	300.00	944.94	.94	.29	0.00	26.00	23.00
	2.100	400.00	945.71	.77	.52	0.00	26.00	23.00
	2.100	100.00	942.81	-2.90	.02	0.00	26.00	23.00
	2.200	200.00	944.05	0.00	.05	0.00	26.00	1.00
	2.200	300.00	945.11	1.06	.16	0.00	26.00	1.00

2.200	400.00	946.05	.94	.34	0.00	26.00	1.00
2.200	100.00	942.81	-3.23	.00	0.00	26.00	1.00

St CNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.300	200.00	944.08	0.00	.03	0.00	37.96	25.00
2.300	300.00	945.15	1.07	.04	0.00	47.99	25.00
2.300	400.00	946.13	.98	.08	0.00	199.10	25.00
2.300	100.00	942.83	-3.29	.02	0.00	32.37	25.00
2.800	200.00	944.36	0.00	.29	0.00	120.18	625.00
2.800	300.00	945.40	1.04	.26	0.00	133.76	625.00
2.800	400.00	946.32	.92	.19	0.00	142.96	625.00
2.800	100.00	943.13	-3.19	.30	0.00	74.90	625.00
2.900	200.00	944.33	0.00	-.04	0.00	27.49	75.00
2.900	300.00	945.34	1.01	-.06	0.00	30.12	75.00
2.900	400.00	946.24	.90	-.09	0.00	32.46	75.00
2.900	100.00	943.13	-3.11	-.00	0.00	24.37	75.00
3.000	200.00	944.29	0.00	-.04	0.00	21.00	1.00
3.000	300.00	945.29	1.00	-.05	0.00	21.00	1.00
3.000	400.00	946.18	.89	-.06	0.00	21.00	1.00
3.000	100.00	943.09	-3.09	-.04	0.00	21.00	1.00
3.100	200.00	944.47	0.00	.18	0.00	21.00	34.00
3.100	300.00	945.47	1.00	.18	0.00	21.00	34.00
3.100	400.00	946.36	.89	.18	0.00	21.00	34.00
3.100	100.00	943.31	-3.05	.22	0.00	21.00	34.00
3.200	200.00	944.53	0.00	.06	0.00	28.03	1.00
3.200	300.00	945.55	1.01	.07	0.00	30.67	1.00
3.200	400.00	946.45	.91	.09	0.00	33.03	1.00
3.200	100.00	943.36	-3.10	.05	0.00	24.97	1.00
3.300	200.00	944.57	0.00	.03	0.00	28.12	20.00
3.300	300.00	945.58	1.01	.03	0.00	30.75	20.00
3.300	400.00	946.48	.91	.03	0.00	33.10	20.00
3.300	100.00	943.39	-3.09	.03	0.00	25.06	20.00
4.000	200.00	946.24	0.00	1.67	0.00	70.49	3900.00
4.000	300.00	947.25	1.01	1.67	0.00	103.59	3900.00
4.000	400.00	948.08	.83	1.60	0.00	135.65	3900.00
4.000	100.00	944.91	-3.18	1.51	0.00	47.86	3900.00
4.800	200.00	946.41	0.00	.17	0.00	529.45	3500.00
4.800	300.00	947.39	.98	.14	0.00	1113.21	3500.00
4.800	400.00	948.20	.81	.12	0.00	1391.73	3500.00
4.800	100.00	945.06	-3.14	.16	0.00	232.27	3500.00
4.900	200.00	946.35	0.00	-.06	0.00	42.59	114.00
4.900	300.00	947.33	.98	-.07	0.00	49.23	114.00
4.900	400.00	948.13	.80	-.07	0.00	54.64	114.00
4.900	100.00	944.93	-3.20	-.13	0.00	34.18	114.00
5.000	200.00	946.25	0.00	-.09	0.00	41.97	1.00
5.000	300.00	947.19	.93	-.14	0.00	48.29	1.00
5.000	400.00	947.92	.73	-.21	0.00	53.24	1.00
5.000	100.00	944.80	-3.12	-.13	0.00	33.20	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.100	200.00	946.65	0.00	.39	0.00	39.84	40.00
5.100	300.00	947.62	.97	.43	0.00	45.73	40.00
5.100	400.00	948.47	.86	.55	0.00	50.92	40.00
5.100	100.00	945.69	-2.78	.89	0.00	34.52	40.00
5.200	200.00	946.75	0.00	.11	0.00	40.49	1.00
5.200	300.00	947.77	1.02	.15	0.00	46.67	1.00
5.200	400.00	948.69	.92	.22	0.00	52.25	1.00
5.200	100.00	945.75	-2.94	.06	0.00	34.79	1.00
6.000	200.00	947.55	0.00	.80	0.00	1095.01	4475.00
6.000	300.00	948.24	.69	.47	0.00	1240.00	4475.00
6.000	400.00	949.00	.76	.31	0.00	1240.00	4475.00
6.000	100.00	946.86	-2.14	1.11	0.00	565.50	4475.00
6.800	200.00	947.34	0.00	-.22	0.00	25.17	10.00
6.800	300.00	947.94	.61	-.30	0.00	28.92	10.00
6.800	400.00	948.94	.99	-.06	0.00	705.26	10.00
6.800	100.00	946.77	-2.17	-.09	0.00	21.61	10.00
6.900	200.00	947.50	0.00	.16	0.00	12.00	30.00
6.900	300.00	948.05	.55	.11	0.00	12.00	30.00
6.900	400.00	949.03	.98	.10	0.00	747.42	30.00
6.900	100.00	946.87	-2.17	.10	0.00	12.00	30.00
7.000	200.00	947.51	0.00	.01	0.00	12.00	1.00
7.000	300.00	948.08	.57	.03	0.00	12.00	1.00
7.000	400.00	949.06	.98	.03	0.00	762.57	1.00
7.000	100.00	946.87	-2.19	.01	0.00	12.00	1.00
7.100	200.00	948.05	0.00	.54	0.00	12.00	35.00
7.100	300.00	948.96	.91	.89	0.00	701.40	35.00
7.100	400.00	949.15	.19	.09	0.00	827.68	35.00
7.100	100.00	947.10	-2.05	.23	0.00	12.00	35.00
7.200	200.00	948.06	0.00	.01	0.00	12.00	1.00
7.200	300.00	948.95	.90	-.01	0.00	692.49	1.00
7.200	400.00	949.15	.19	-.01	0.00	829.97	1.00
7.200	100.00	947.11	-2.04	.01	0.00	12.00	1.00
7.300	200.00	948.29	0.00	.23	0.00	95.21	15.00
7.300	300.00	948.98	.69	.03	0.00	736.08	15.00
7.300	400.00	949.16	.18	.01	0.00	855.58	15.00
7.300	100.00	947.20	-1.96	.09	0.00	24.29	15.00

SUMMARY OF ERRORS

CAUTION SECNO= .700 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .800 PROFILE= 4 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 5.000 PROFILE= 4 CRITICAL DEPTH ASSUMED

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Summary 100 yr natural

00BREAK00

STARTING WATER E. FOR GRAND RIVER

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**********************************************************
  HEC2 RELEASE DATED Nov 7x UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GRAND RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
50.600	936.66	932.40	0.00	0.00	1369.51	0.00	1978.00	2022.00	0.00	2907.64	1538.12	0.00
50.600	937.80	932.40	0.00	0.00	1300.71	0.00	1978.00	2022.00	0.00	2973.82	1673.10	0.00
50.600	938.30	932.40	0.00	0.00	1270.00	0.00	1978.00	2022.00	0.00	3003.36	1733.36	0.00
50.600	938.95	932.40	0.00	0.00	1230.07	0.00	1978.00	2022.00	0.00	3028.94	1798.87	0.00
50.800	937.01	934.80	0.00	0.00	2003.47	0.00	2000.00	2039.00	937.01	2036.90	33.44	3300.00
50.800	937.52	934.80	0.00	0.00	2000.87	0.00	2000.00	2039.00	0.00	2044.96	44.09	3300.00
50.800	938.18	934.80	0.00	0.00	1969.10	0.00	2000.00	2039.00	0.00	2060.17	91.07	3300.00
50.800	938.89	934.80	0.00	0.00	1965.55	0.00	2000.00	2039.00	0.00	2061.69	96.14	3300.00
50.900	938.54	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	100.00
50.900	938.91	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	100.00
50.900	938.87-.5	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	100.00
50.900	939.14	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	100.00
51.000	938.55	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.000	938.92	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.000	938.88	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.000	939.15	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.100	938.90	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	52.00
51.100	939.39	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	52.00
51.100	939.50	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	52.00
51.100	940.03	936.10	939.70	942.70	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	52.00
51.200	938.91 2.7	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.200	939.40	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.200	939.51	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.200	940.12	936.10	0.00	0.00	1988.00	0.00	1988.00	2016.50	0.00	2016.50	28.50	1.00
51.300	935.11	934.90	0.00	0.00	843.48	0.00	1981.00	2019.00	0.00	2042.15	1198.67	300.00
51.300	939.66	934.90	0.00	0.00	834.79	0.00	1981.00	2019.00	0.00	2043.39	1208.60	300.00
51.300	939.84	934.90	0.00	0.00	832.50	0.00	1981.00	2019.00	0.00	2043.71	1211.21	300.00
51.300	940.48	934.90	0.00	0.00	823.52	0.00	1981.00	2019.00	0.00	2045.00	1221.48	300.00
51.700	939.14	935.00	0.00	0.00	315.89	0.00	343.00	528.00	0.00	1119.46	803.57	3300.00
51.700	939.71	935.00	0.00	0.00	251.90	0.00	343.00	528.00	0.00	1239.93	988.03	3300.00
51.700	939.87	935.00	0.00	0.00	234.76	0.00	343.00	528.00	0.00	1272.20	1037.44	3300.00
51.700	940.48	935.00	0.00	0.00	197.25	0.00	343.00	528.00	0.00	1314.28	1117.03	3300.00

FRANCIS ST

Start of Study

Peaker Cut

A

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH	
.800	939.16	935.50	0.00	0.00	2003.17	0.00	2000.00	2047.00	0.00	2126.66	75.75	1450.00	
.800	939.73	935.50	0.00	0.00	1855.13	0.00	2000.00	2047.00	0.00	2131.24	161.87	1450.00	
.800	939.88	935.50	0.00	0.00	1852.90	0.00	2000.00	2047.00	0.00	2131.60	248.18	1450.00	
.800	940.47	935.50	0.00	0.00	1807.67	0.00	2000.00	2047.00	0.00	2132.98	290.84	1450.00	
.900	939.20	937.00	0.00	0.00	2001.50	0.00	2000.00	2037.00	0.00	2030.70	29.20	85.00	
.900	939.73	937.00	0.00	0.00	2000.97	0.00	2000.00	2037.00	0.00	2032.38	31.41	85.00	
.900	939.87	937.00	0.00	0.00	2000.83	0.00	2000.00	2037.00	0.00	2032.83	32.00	85.00	
.900	940.42	937.00	0.00	0.00	2000.28	0.00	2000.00	2037.00	0.00	2034.55	34.27	85.00	
1.000	939.18	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.000	939.69	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.000	939.82	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.000	940.36	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.100	939.37	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00	
1.100	939.88	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00	
1.100	940.03	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00	
1.100	940.53	936.80	940.80	942.20	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	25.00	
1.200	939.38	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.200	939.89	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.200	940.04	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.200	940.53	936.80	0.00	0.00	2000.00	0.00	2000.00	2021.50	0.00	2021.50	21.50	1.00	
1.300	939.55	937.00	0.00	0.00	2001.15	0.00	2000.00	2037.00	0.00	2031.80	30.65	30.00	
1.300	940.08	937.00	0.00	0.00	2000.62	0.00	2000.00	2037.00	0.00	2033.48	32.87	30.00	
1.300	940.25	937.00	0.00	0.00	2000.45	0.00	2000.00	2037.00	0.00	2034.01	33.55	30.00	
1.300	940.74	937.00	0.00	0.00	1998.65	0.00	2000.00	2037.00	0.00	2035.56	36.91	30.00	
1.800	943.26	939.90	0.00	0.00	1991.88	0.00	1999.00	2025.00	0.00	2026.26	34.38	2150.00	45°
1.800	943.78	939.90	0.00	0.00	1990.09	0.00	1999.00	2025.00	0.00	2026.71	36.62	2150.00	
1.800	943.98	939.90	0.00	0.00	1989.37	0.00	1999.00	2025.00	0.00	2026.89	37.52	2150.00	
1.800	944.26	939.90	0.00	0.00	1988.36	0.00	1999.00	2025.00	0.00	2027.47	39.11	2150.00	
1.900	943.40	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00	
1.900	943.90	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00	
1.900	944.10	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00	
1.900	944.40	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	100.00	
2.000	943.39	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.000	943.87	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.000	944.06	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.000	944.32	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.100	943.47	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00	
2.100	944.01	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00	
2.100	944.23	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00	
2.100	944.55	939.90	943.20	946.30	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	23.00	
2.200	943.48	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.200	944.07	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.200	944.32	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	
2.200	944.70	939.90	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	1.00	

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST.	TOPWID	XLCH
												f0.0
2.300	943.51	939.90	0.00	0.00	1991.08	0.00	1999.00	2025.00	0.00	2026.46	35.38	25.00
2.300	944.10	939.90	0.00	0.00	1988.94	0.00	1999.00	2025.00	0.00	2027.01	38.07	25.00
2.300	944.35	939.90	0.00	0.00	1988.05	0.00	1999.00	2025.00	0.00	2027.71	39.66	25.00
2.300	944.74	939.90	0.00	0.00	1943.74	0.00	1999.00	2025.00	0.00	2028.82	51.17	25.00
2.800	943.82	940.00	0.00	0.00	1941.63	0.00	2000.00	2042.00	0.00	2049.69	108.06	625.00
2.800	944.42	940.00	0.00	0.00	1929.59	0.00	2000.00	2042.00	0.00	2051.03	121.34	625.00
2.800	944.66	940.00	0.00	0.00	1925.52	0.00	2000.00	2042.00	0.00	2051.51	126.00	625.00
2.800	945.05	940.00	0.00	0.00	1922.25	0.00	2000.00	2042.00	0.00	2052.29	130.04	625.00
2.900	943.78	940.70	0.00	0.00	1996.56	0.00	2000.00	2021.00	0.00	2022.64	26.08	75.00
2.900	944.36	940.70	0.00	0.00	1995.56	0.00	2000.00	2021.00	0.00	2023.14	27.58	75.00
2.900	944.59	940.70	0.00	0.00	1995.16	0.00	2000.00	2021.00	0.00	2023.34	28.18	75.00
2.900	944.97	940.70	0.00	0.00	1994.51	0.00	2000.00	2021.00	0.00	2023.67	29.16	75.00
3.000	943.74	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	944.31	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	944.54	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.000	944.91	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	1.00
3.100	943.94	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	944.51	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	944.74	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.100	945.11	941.10	949.40	950.80	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	34.00
3.200	944.01	940.70	0.00	0.00	1996.17	0.00	2000.00	2021.00	0.00	2022.84	26.67	1.00
3.200	944.59	940.70	0.00	0.00	1995.17	0.00	2000.00	2021.00	0.00	2023.34	28.16	1.00
3.200	944.82	940.70	0.00	0.00	1994.77	0.00	2000.00	2021.00	0.00	2023.54	28.77	1.00
3.200	945.20	940.70	0.00	0.00	1994.11	0.00	2000.00	2021.00	0.00	2023.87	29.76	1.00
3.300	944.05	940.70	0.00	0.00	1996.11	0.00	2000.00	2021.00	0.00	2022.87	26.76	20.00
3.300	944.62	940.70	0.00	0.00	1995.11	0.00	2000.00	2021.00	0.00	2023.37	28.26	20.00
3.300	944.85	940.70	0.00	0.00	1994.71	0.00	2000.00	2021.00	0.00	2023.57	28.86	20.00
3.300	945.23	940.70	0.00	0.00	1994.05	0.00	2000.00	2021.00	0.00	2023.90	29.85	20.00
4.000	945.68	940.80	0.00	0.00	1986.92	0.00	2000.00	2050.00	0.00	2047.92	61.01	3900.00
4.000	946.33	940.80	0.00	0.00	1977.18	0.00	2000.00	2050.00	0.00	2049.27	72.08	3900.00
4.000	946.58	940.80	0.00	0.00	1973.53	0.00	2000.00	2050.00	0.00	2049.77	76.24	3900.00
4.000	946.98	940.80	0.00	0.00	1967.59	0.00	2000.00	2050.00	0.00	2058.99	91.39	3900.00
4.800	945.80	937.60	0.00	0.00	1817.76	0.00	2000.00	2051.00	0.00	2922.00	335.47	3500.00
4.800	946.49	937.60	0.00	0.00	1612.11	0.00	2000.00	2051.00	0.00	2922.00	616.09	3500.00
4.800	946.74	937.60	0.00	0.00	1385.60	0.00	2000.00	2051.00	0.00	2922.00	868.24	3500.00
4.800	947.14	937.60	0.00	0.00	1253.50	0.00	2000.00	2051.00	0.00	2922.00	1019.25	3500.00
4.900	945.78	943.40	0.00	0.00	1993.28	0.00	2000.00	2031.00	0.00	2032.02	38.74	114.00
4.900	946.44	943.40	0.00	0.00	1991.24	0.00	2000.00	2031.00	0.00	2034.44	43.20	114.00
4.900	946.68	943.40	0.00	0.00	1990.48	0.00	2000.00	2031.00	0.00	2035.35	44.87	114.00
4.900	947.08	943.40	0.00	0.00	1989.27	0.00	2000.00	2031.00	0.00	2036.79	47.52	114.00
5.000	945.75	943.40	950.40	950.30	1993.35	0.00	2000.00	2031.00	0.00	2031.93	38.57	1.00
5.000	946.37	943.40	950.40	950.30	1991.45	0.00	2000.00	2031.00	0.00	2034.19	42.75	1.00
5.000	946.60	943.40	950.40	950.30	1990.74	0.00	2000.00	2031.00	0.00	2035.03	44.29	1.00
5.000	946.96	943.40	950.40	950.30	1989.62	0.00	2000.00	2031.00	0.00	2036.37	46.75	1.00

SECNO	CWSEL	ELMIN	ELLC	FLTRD	SSTA	STFNCL	STCHL	STCHR	CRTWS	ENDST	TOPWID	XLCH
5.100	945.88	943.40	951.30	949.30	1995.47	0.00	2000.00	2031.00	0.00	2030.85	35.38	40.00
5.100	946.61	943.40	951.30	949.30	1993.09	0.00	2000.00	2031.00	0.00	2032.69	39.60	40.00
5.100	946.87	943.40	951.30	949.30	1992.22	0.00	2000.00	2031.00	0.00	2033.44	41.22	40.00
5.100	947.28	943.40	951.30	949.30	1990.88	0.00	2000.00	2031.00	0.00	2034.58	43.71	40.00
5.200	945.92	943.40	0.00	0.00	1995.35	0.00	2000.00	2031.00	0.00	2030.90	35.55	1.00
5.200	946.69	943.40	0.00	0.00	1992.91	0.00	2000.00	2031.00	0.00	2032.94	40.13	1.00
5.200	946.98	943.40	0.00	0.00	1991.87	0.00	2000.00	2031.00	0.00	2033.74	41.87	1.00
5.200	947.42	943.40	0.00	0.00	1990.44	0.00	2000.00	2031.00	0.00	2034.96	44.52	1.00
6.000	946.83	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2261.42	550.50	4475.00
6.000	947.48	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1066.41	4475.00
6.000	947.69	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1153.03	4475.00
6.000	948.00	944.13	0.00	0.00	1425.00	0.00	2000.00	2021.00	0.00	2665.00	1240.00	4475.00
6.800	946.72	944.00	0.00	0.00	1996.76	0.00	2000.00	2012.00	0.00	2018.08	21.32	10.00
6.800	947.21	944.00	0.00	0.00	1995.78	0.00	2000.00	2012.00	0.00	2020.16	24.38	10.00
6.800	947.37	944.00	0.00	0.00	1995.45	0.00	2000.00	2012.00	0.00	2020.84	25.38	10.00
6.800	947.56	944.00	0.00	0.00	1995.08	0.00	2000.00	2012.00	0.00	2021.61	26.53	10.00
6.900	946.62	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
6.900	947.32	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
6.900	947.55	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
6.900	947.78	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	30.00
7.000	946.63	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.000	947.39	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.000	947.56	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.000	947.80	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.100	947.05	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	35.00
7.100	947.92	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	35.00
7.100	948.21	944.00	950.00	950.80	2000.00	0.00	2000.00	2012.00	0.00	2305.16	49.06	35.00
7.100	948.86	944.00	950.00	950.80	1387.18	0.00	2000.00	2012.00	0.00	2378.01	625.77	35.00
7.200	947.05	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.200	947.93	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2012.00	12.00	1.00
7.200	948.22	944.00	0.00	0.00	2000.00	0.00	2000.00	2012.00	0.00	2306.78	54.02	1.00
7.200	948.84	944.00	0.00	0.00	1391.44	0.00	2000.00	2012.00	0.00	2376.00	612.79	1.00
7.300	947.14	944.00	0.00	0.00	1995.92	0.00	2000.00	2012.00	0.00	2019.85	23.93	15.00
7.300	948.16	944.00	0.00	0.00	1993.96	0.00	2000.00	2012.00	0.00	2299.65	50.46	15.00
7.300	948.55	944.00	0.00	0.00	1459.66	0.00	2000.00	2012.00	0.00	2343.62	423.21	15.00
7.300	948.90	944.00	0.00	0.00	1379.57	0.00	2000.00	2012.00	0.00	2381.63	672.07	15.00

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Mc Cain Drain

4) DOCUMENT TYPE: 100 yr run

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      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN.
T2      100 YEAR
T3      MC CAIN DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSFL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	955.670	0.000

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

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38.000	1.000	42.000	41.000	40.000	53.000	27.000	21.000	22.000	2.000
54.000	4.000	39.000	0.000	150.000	200.000	0.000	0.000	0.000	0.000

QT	5.000	234.000	312.000	360.000	520.000	360.000	0.000	0.000	0.000	0.000
NC	.130	.130	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

X1	30.000	41.000	1994.000	2032.000	2100.000	2100.000	2100.000	0.000	0.000	0.000
GR	974.300	1180.000	970.400	1228.000	970.900	1239.000	966.700	1352.000	966.200	1401.000
GR	964.600	1439.000	964.200	1502.000	962.100	1544.000	962.400	1606.000	958.600	1650.000
GR	959.500	1669.000	959.300	1690.000	959.200	1696.000	960.600	1720.000	961.100	1759.000
GR	958.300	1785.000	956.400	1812.000	954.400	1823.000	953.700	1896.000	955.100	1914.000
GR	955.400	1975.000	956.300	1984.000	954.900	1989.000	954.800	1994.000	952.300	2000.000
GR	952.200	2000.000	951.300	2005.000	951.300	2008.000	950.400	2013.000	950.200	2019.000
GR	951.200	2022.000	952.300	2025.000	954.200	2032.000	955.100	2035.000	953.900	2045.000
GR	954.000	2108.000	954.700	2180.000	956.900	2282.000	961.400	2412.000	967.500	2486.000
GR	971.400	2542.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	30.600	28.000	1995.000	2028.000	1725.000	1725.000	1725.000	0.000	0.000	0.000
GR	975.300	1109.000	974.500	1133.000	970.700	1177.000	965.700	1318.000	963.100	1416.000
GR	964.800	1476.000	963.700	1544.000	963.200	1596.000	964.000	1686.000	962.000	1763.000
GR	954.200	1823.000	955.500	1983.000	954.600	1995.000	952.000	2000.000	951.000	2004.000
GR	952.000	2010.000	954.000	2020.000	955.200	2028.000	955.200	2046.000	957.400	2102.000
GR	958.200	2197.000	959.300	2223.000	959.600	2238.000	959.500	2253.000	959.700	2259.000

MOORE BUSINESS FORMS, INC. 23

GR	961.100	2268.000	962.600	2326.000	963.700	2366.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1916.000	2030.000	0.000	0.000
X1	30.700	0.000	0.000	0.000	375.000	375.000	375.000	0.000	0.000	0.000
NC	.080	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1985.000	2030.000	0.000	0.000
X1	30.800	30.000	1987.000	2011.000	200.000	83.000	139.000	0.000	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.300	1300.000	957.500	1785.000
GR	955.900	1876.000	955.200	1980.000	953.000	1987.000	952.100	2000.000	950.800	2005.000
GR	950.800	2008.000	953.000	2011.000	956.300	2071.000	958.700	2167.000	959.700	2259.000
GR	960.700	2344.000	961.400	2443.000	961.500	2540.000	963.600	2634.000	966.600	2795.000
GR	966.700	2869.000	968.400	2970.000	971.600	3072.000	975.400	3196.000	978.700	3275.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

X1	30.900	38.000	2000.000	2017.000	60.000	75.000	62.000	.829	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.900	1338.000	961.900	1442.000
GR	961.200	1570.000	960.600	1678.000	960.200	1783.000	960.100	1890.000	960.300	1985.000
GR	960.400	1996.000	960.500	2000.000	951.500	2000.000	951.300	2006.000	950.800	2008.300
GR	951.300	2008.400	951.300	2009.200	951.300	2009.300	951.300	2017.000	960.500	2017.000
GR	960.700	2050.000	960.900	2083.000	961.500	2188.000	962.400	2317.000	963.700	2429.000
GR	964.500	2517.000	965.900	2620.000	967.400	2719.000	969.000	2817.000	970.900	2917.000
GR	972.700	3081.000	975.400	3196.000	978.700	3275.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SR	1.250	2.100	3.000	0.000	13.500	.829	85.000	0.000	950.800	950.800

BRIDGE SECTION C(UPSTREAM FACE M-60)

X1	32.100	38.000	2000.000	2017.000	188.000	188.000	188.000	.829	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.829	0.000
BT	37.000	434.000	970.100	0.000	524.000	969.400	0.000	640.000	968.800	0.000
BT	733.000	968.100	0.000	828.000	967.100	0.000	929.000	966.400	0.000	1028.000
BT	965.500	0.000	1128.000	964.500	0.000	1229.000	963.500	0.000	1328.000	962.500
BT	0.000	1430.000	961.700	0.000	1600.000	961.200	0.000	1700.000	961.000	0.000
BT	1800.000	960.800	0.000	1900.000	960.700	0.000	1950.000	960.600	0.000	1980.000
BT	960.400	0.000	2000.000	960.300	951.800	2000.000	960.300	957.500	2008.200	960.500
BT	957.500	2008.300	960.300	950.900	2009.200	960.300	950.900	2009.300	960.300	957.500
BT	2017.000	960.300	957.500	2017.000	960.300	951.100	2050.000	960.300	0.000	2090.000
BT	960.400	0.000	2194.000	960.900	0.000	2291.000	961.500	0.000	2391.000	962.300
BT	0.000	2491.000	963.300	0.000	2592.000	964.400	0.000	2692.000	965.800	0.000
BT	2791.000	967.400	0.000	2893.000	962.200	0.000	2991.000	971.000	0.000	3094.000
BT	972.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	970.100	434.000	969.400	524.000	968.800	640.000	968.100	733.000	967.100	828.000
GR	966.400	929.000	965.500	1028.000	964.500	1128.000	963.500	1229.000	962.500	1328.000
GR	961.700	1430.000	961.200	1600.000	961.000	1700.000	960.800	1800.000	960.700	1900.000
GR	960.600	1950.000	960.400	1980.000	960.300	2000.000	951.800	2000.000	951.000	2004.000

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GR	951.000	2008.200	950.900	2008.300	950.900	2009.200	950.800	2009.300	951.100	2017.000
GR	960.300	2017.000	960.300	2050.000	960.400	2090.000	960.900	2194.000	961.500	2291.000
GR	962.300	2391.000	963.300	2491.000	964.400	2592.000	965.800	2692.000	967.400	2791.000
GR	962.200	2893.000	971.000	2991.000	972.900	3094.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
QT	5.000	212.000	283.000	326.000	471.000	326.000	0.000	0.000	0.000	0.000
NC	.100	.090	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.300	35.000	1992.000	2015.000	42.000	42.000	42.000	0.000	0.000	0.000
GR	974.800	1397.000	964.600	1435.000	962.100	1537.000	961.200	1600.000	960.700	1645.000
GR	960.400	1713.000	959.200	1911.000	959.000	1944.000	959.100	1973.000	958.400	1982.000
GR	957.100	1987.000	955.900	1990.000	954.800	1992.000	953.600	1994.000	952.500	1997.000
GR	952.100	1998.000	952.000	2000.000	951.000	2004.000	950.900	2008.000	952.000	2011.000
GR	954.600	2015.000	957.400	2085.000	958.800	2153.000	959.000	2202.000	960.300	2303.000
GR	962.500	2407.000	964.900	2511.000	965.600	2617.000	965.100	2719.000	963.800	2790.000
GR	968.800	2910.000	970.800	3012.000	970.700	3068.000	971.900	3162.000	975.400	3255.000
NC	.080	.070	.044	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	32.700	43.000	2093.000	2111.000	950.000	1050.000	1000.000	0.000	0.000	0.000
GR	972.800	1156.000	968.900	1252.000	967.000	1300.000	963.800	1402.000	961.700	1500.000
GR	961.100	1598.000	960.600	1698.000	960.700	1796.000	960.700	1895.000	960.600	2000.000
GR	960.200	2019.000	959.500	2030.000	959.200	2063.000	957.600	2081.000	953.200	2093.000
GR	952.800	2100.000	952.100	2102.000	951.900	2105.000	951.800	2105.000	952.200	2106.000
GR	952.700	2107.000	953.400	2111.000	957.500	2119.000	957.900	2139.000	956.200	2150.000
GR	957.400	2214.000	958.500	2229.000	958.900	2296.000	959.800	2352.000	959.700	2391.000
GR	959.900	2484.000	961.100	2617.000	962.300	2696.000	963.300	2785.000	965.400	2868.000
GR	967.300	2969.000	971.300	3105.000	974.400	3209.000	977.000	3310.000	979.400	3412.000
GR	981.100	3558.000	982.900	3662.000	983.600	3699.000	0.000	0.000	0.000	0.000
NC	.070	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2090.000	2147.000	0.000	0.000
X1	32.800	0.000	0.000	0.000	150.000	250.000	200.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	32.900	39.000	2000.000	2024.000	33.000	200.000	72.000	.906	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	961.700	1400.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.800	2008.000	952.900	2010.000	953.000	2014.000	952.900	2016.000	952.800	2019.000
GR	953.000	2022.000	953.000	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
QT	5.000	196.000	262.000	302.000	436.000	302.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	3.000	0.000	13.450	0.000	79.400	0.000	952.000	952.000

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

X1	33.100	39.000	2000.000	2024.000	50.000	50.000	50.000	.906	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.906	0.000
BT	41.000	1056.000	972.800	0.000	1152.000	968.900	0.000	1200.000	967.000	0.000
BT	1302.000	963.800	0.000	1400.000	961.700	0.000	1498.000	961.100	0.000	1598.000
BT	960.600	0.000	1696.000	960.700	0.000	1795.000	960.700	0.000	1900.000	960.600
BT	0.000	1980.000	960.900	0.000	2000.000	961.000	952.900	2000.000	961.000	953.900
BT	2002.000	961.000	956.900	2005.000	961.000	957.900	2008.000	961.000	956.900	2010.000
BT	961.000	953.900	2010.000	961.000	952.700	2014.000	961.000	952.700	2014.000	961.000
BT	953.900	2016.000	961.000	956.900	2019.000	961.000	957.900	2022.000	961.100	956.900
BT	2024.000	961.100	953.900	2024.000	961.100	953.400	2075.000	961.500	0.000	2106.000
BT	960.800	0.000	2209.000	960.800	0.000	2312.000	961.100	0.000	2420.000	961.400
BT	0.000	2551.000	961.900	0.000	2653.000	962.100	0.000	2753.000	962.800	0.000
BT	2858.000	963.900	0.000	2962.000	965.100	0.000	3065.000	966.100	0.000	3269.000
BT	967.000	0.000	3317.000	966.700	0.000	3416.000	967.000	0.000	3517.000	967.600
BT	0.000	3622.000	967.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.400	2008.000	952.700	2010.000	952.700	2014.000	952.700	2016.000	952.800	2019.000
GR	953.000	2022.000	953.400	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1908.000	2028.000	0.000	0.000

X1	33.300	34.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	959.300	1726.000	958.500	1795.000	956.700	1901.000
GR	956.500	1995.000	956.900	2000.000	952.400	2002.000	952.100	2008.000	952.500	2010.000
GR	952.800	2019.000	953.200	2024.000	957.200	2026.000	959.700	2037.000	959.700	2072.000
GR	960.800	2106.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	.070	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	33.400	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000

X1	33.500	17.000	2000.000	2026.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	964.000	1100.000	960.000	1300.000	959.000	1500.000	958.700	1795.000	958.000	1900.000
GR	957.900	2000.000	953.400	2002.000	953.000	2008.000	953.000	2010.000	953.300	2019.000
GR	953.200	2024.000	957.200	2026.000	958.300	2100.000	958.600	2500.000	959.000	2700.000
GR	960.700	3000.000	964.000	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2028.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

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X1	33.800	36.000	2000.000	2019.000	1920.000	1050.000	1550.000	0.000	0.000	0.000
GR	983.700	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.500	1960.000	960.500	1980.000	960.500	1989.000
GR	956.300	2000.000	954.800	2003.000	954.800	2007.000	955.200	2011.000	957.400	2019.000
GR	957.900	2024.000	960.300	2033.000	961.300	2055.000	961.400	2138.000	961.800	2272.000
GR	962.000	2412.000	963.100	2444.000	962.200	2468.000	962.800	2648.000	963.400	2739.000
GR	962.000	3101.000	963.000	3160.000	963.900	3283.000	964.000	3351.000	965.000	3408.000
GR	966.000	3537.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.900	33.000	2004.000	2015.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2004.000	955.200	2004.000	955.100	2005.000
GR	955.200	2008.000	955.200	2009.500	955.300	2011.000	955.300	2014.000	955.400	2015.000
GR	962.500	2015.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
SB	0.000	1.700	2.920	0.000	8.800	0.000	47.500	0.000	955.100	955.100

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

X1	34.100	33.000	2000.000	2011.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	31.000	675.000	979.900	0.000	737.000	977.700	0.000	859.000	971.600	0.000
BT	977.000	967.000	0.000	1100.000	964.300	0.000	1229.000	962.900	0.000	1356.000
BT	962.600	0.000	1485.000	962.600	0.000	1612.000	962.200	0.000	1739.000	962.200
BT	0.000	1870.000	962.200	0.000	1950.000	962.200	0.000	2000.000	962.500	955.100
BT	2001.000	962.500	959.000	2003.000	962.500	959.800	2005.500	962.500	960.500	2008.000
BT	962.500	959.600	2010.000	962.500	958.000	2011.000	962.200	955.800	2020.000	962.500
BT	0.000	2050.000	962.600	0.000	2100.000	962.700	0.000	2219.000	962.900	0.000
BT	2373.000	963.200	0.000	2587.000	963.700	0.000	2741.000	963.500	0.000	2899.000
BT	962.800	0.000	3056.000	962.900	0.000	3265.000	964.500	0.000	3482.000	965.800
BT	0.000	3638.000	967.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2000.000	955.100	2000.000	955.200	2001.000
GR	955.400	2004.000	955.700	2005.500	955.500	2008.000	955.800	2010.000	955.800	2011.000
GR	962.500	2011.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
ET	0.000	7.100	7.100	7.100	7.100	7.100	1960.000	2070.000	0.000	0.000

X1	34.300	34.000	1995.000	2016.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	983.000	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.100	1987.000	958.000	1995.000	955.400	2000.000
GR	955.300	2003.000	955.100	2005.000	955.800	2011.000	958.100	2016.000	958.800	2023.000
GR	961.100	2117.000	960.800	2170.000	962.900	2219.000	962.000	2412.000	963.100	2444.000
GR	962.200	2468.000	962.800	2648.000	963.400	2739.000	963.000	3101.000	963.000	3160.000
GR	963.900	3283.000	964.000	3351.000	965.000	3408.000	966.000	3537.000	0.000	0.000
NC	.070	.070	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	34.400	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1980.000	2313.000	0.000	0.000
X1	34.700	29.000	2000.000	2031.000	960.000	933.000	950.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	958.400	2000.000	956.400	2004.000
GR	955.400	2008.000	955.900	2013.000	955.200	2018.000	955.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.400	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2033.000	0.000	0.000
X1	34.800	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
QT	5.000	158.000	236.000	296.000	484.000	296.000	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	34.900	48.000	2000.000	2017.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	978.000	1430.000	974.100	1543.000	971.000	1639.000	970.400	1697.000	968.500	1703.000
GR	967.900	1730.000	965.100	1797.000	964.600	1802.000	963.700	1894.000	963.400	1902.000
GR	964.000	1950.000	964.600	2000.000	956.200	2000.000	956.100	2000.500	956.000	2001.500
GR	955.900	2003.000	955.800	2004.000	955.700	2005.000	955.500	2006.500	955.300	2007.500
GR	955.300	2008.000	955.300	2009.000	955.300	2009.500	955.400	2010.500	955.700	2012.000
GR	955.900	2013.000	956.000	2014.000	956.100	2015.500	956.100	2016.500	956.100	2017.000
GR	964.600	2017.000	964.200	2020.000	964.200	2050.000	963.800	2110.000	963.600	2205.000
GR	963.400	2305.000	963.700	2406.000	963.800	2500.000	965.400	2600.000	966.100	2700.000
GR	968.900	2800.000	970.500	2900.000	972.100	3000.000	973.900	3100.000	975.500	3200.000
GR	976.800	3288.000	979.700	3387.000	981.900	3451.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.950	0.000	11.680	0.000	50.260	0.000	955.300	955.300

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

MOORE BUSINESS FORMS, INC 24

X1	35.100	0.000	0.000	0.000	80.000	80.000	80.000	0.000	0.000	0.000
BT	46.000	1430.000	978.000	0.000	1543.000	974.100	0.000	1639.000	971.000	0.000
BT	1697.000	970.400	0.000	1703.000	968.500	0.000	1730.000	967.900	0.000	1797.000
BT	965.100	0.000	1802.000	964.600	0.000	1894.000	963.700	0.000	1902.000	963.400
BT	0.000	1950.000	964.000	0.000	2000.000	964.600	956.200	2000.500	964.600	958.000
BT	2001.500	964.600	958.800	2003.000	964.600	959.500	2004.000	964.600	959.600	2005.000
BT	964.600	959.500	2006.500	964.600	958.800	2007.500	964.600	958.000	2008.000	964.600
BT	955.300	2009.000	964.600	955.300	2009.500	964.600	958.000	2010.500	964.600	958.800
BT	2012.000	964.600	959.500	2013.000	964.600	959.600	2014.000	964.600	959.500	2015.500
BT	964.600	958.800	2016.500	964.600	958.000	2017.000	964.600	956.100	2020.000	964.200
BT	0.000	2050.000	964.200	0.000	2110.000	963.800	0.000	2205.000	963.600	0.000
BT	2305.000	963.400	0.000	2406.000	963.700	0.000	2500.000	963.800	0.000	2600.000
BT	965.400	0.000	2700.000	966.100	0.000	2800.000	968.900	0.000	2900.000	970.500
BT	0.000	3000.000	972.100	0.000	3100.000	973.900	0.000	3200.000	975.500	0.000
BT	3288.000	976.800	0.000	3387.000	979.700	0.000	3451.000	981.900	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1990.000	2112.000	0.000	0.000
X1	35.300	29.000	2000.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	956.400	2000.000	955.400	2004.000
GR	954.400	2008.000	954.300	2013.000	954.200	2018.000	954.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.000	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	35.800	26.000	1995.000	2036.000	619.000	383.000	490.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	954.700	2007.000
GR	954.900	2013.000	957.000	2021.000	960.900	2036.000	960.600	2093.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
GR	980.900	3210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	35.900	40.000	2000.000	2011.000	36.000	36.000	36.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.600	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	36.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.300	2001.000	960.800	957.600	2002.000	960.800	958.000	2003.000	960.800	958.000
BT	2004.000	960.800	957.600	2004.500	960.800	957.300	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.300	2007.000	960.800	957.700	2008.000	960.800
BT	958.000	2009.000	960.800	958.000	2010.000	960.800	957.700	2010.500	960.800	957.300
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.200	0.000	0.000	0.000

BRIDGE SECTION G(CHRISTI HIGH)

X1	36.100	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	36.300	25.000	1995.000	2036.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	956.300	2007.000
GR	956.300	2013.000	957.000	2021.000	960.900	2030.000	960.600	2036.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	36.800	0.000	0.000	0.000	150.000	150.000	150.000	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	36.900	40.000	2000.000	2011.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.200	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	37.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.600	2001.000	960.800	957.900	2002.000	960.800	958.300	2003.000	960.800	958.300
BT	2004.000	960.800	957.900	2004.500	960.800	957.600	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.600	2007.000	960.800	957.900	2008.000	960.800
BT	958.300	2009.000	960.800	958.300	2010.000	960.800	957.900	2010.500	960.800	957.600
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.000	0.000	0.000	0.000

BRIDGE SECTION H(CHRISTI HIGH)

X1	37.100	0.000	0.000	0.000	40.500	40.500	40.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	37.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1961.000	2061.000	0.000	0.000
X1	37.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	38.000	45.000	2262.000	2298.000	1383.000	1400.000	1375.000	0.000	0.000	0.000
GR	969.400	486.000	970.600	518.000	971.400	566.000	975.000	670.000	977.800	774.000
GR	979.800	874.000	980.000	975.000	979.000	1130.000	979.300	1234.000	979.500	1337.000
GR	978.000	1422.000	974.600	1534.000	971.500	1641.000	967.200	1760.000	963.500	1895.000
GR	961.600	2000.000	961.700	2103.000	961.700	2208.000	961.900	2262.000	959.400	2270.000
GR	958.700	2275.000	958.300	2280.000	957.750	2283.000	959.200	2290.000	960.000	2294.000
GR	961.600	2298.000	963.100	2306.000	962.700	2327.000	961.800	2330.000	962.400	2441.000
GR	964.900	2502.000	967.400	2541.000	969.800	2589.000	971.000	2706.000	970.100	2808.000
GR	973.100	2942.000	974.100	3062.000	972.600	3073.000	972.900	3150.000	974.300	3165.000
GR	976.200	3268.000	977.900	3375.000	980.900	3450.000	983.600	3507.000	983.700	3572.000
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. 23

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

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 30.000

3265 DIVIDED FLOW

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

30.00	5.47	955.67	0.00	955.67	955.70	.03	0.00	0.00	954.80
360.	54.	230.	76.	177.	145.	240.	0.	0.	954.20
0.00	.31	1.58	.32	.130	.050	.130	0.000	950.20	1816.02
.000496	2100.	2100.	2100.	0	0	0	0.00	400.41	2224.97

*SECNO 30.600

30.60	5.61	956.61	0.00	0.00	956.64	.03	.94	.00	954.60
360.	141.	203.	16.	323.	120.	51.	21.	13.	955.20
.42	.44	1.69	.31	.120	.050	.120	.050	951.00	1804.44
.000607	1725.	1725.	1725.	2	0	0	0.00	277.54	2081.98

*SECNO 30.700

3470 ENCROACHMENT STATIONS=			1916.0	2030.0	TYPE=	1	TARGET=	114.000	
30.70	5.87	956.87	0.00	0.00	956.94	.06	.28	.01	954.60
360.	71.	288.	1.	132.	128.	3.	24.	15.	955.20
.48	.54	2.24	.36	.120	.050	.120	.050	951.00	1916.00
.000972	375.	375.	375.	2	0	0	0.00	114.00	2030.00

*SECNO 30.800

3470 ENCROACHMENT STATIONS=			1985.0	2030.0	TYPE=	1	TARGET=	45.000	
30.80	6.19	956.99	0.00	0.00	957.07	.08	.13	.00	953.00
360.	5.	290.	65.	7.	119.	66.	25.	15.	953.00
.49	.65	2.44	.99	.080	.050	.090	.050	950.80	1985.00
.000834	200.	139.	83.	0	0	0	0.00	45.00	2030.00

CCHV= .300 CEHV= .500

*SECNO 30.900

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
			BRIDGE SECTION B(DOWNSTREAM FACE M-60)						
30.90	6.18	956.98	0.00	0.00	957.29	.31	.11	.12	960.50
360.	0.	360.	0.	0.	80.	0.	25.	15.	960.50
.50	0.00	4.50	0.00	.080	.050	.090	.050	950.80	1741.62
.005055	60.	62.	75.	2	0	0	0.00	14.09	1755.71

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	2.10	3.00	0.00	13.50	.83	85.00	0.00	950.80	950.80

*SECNO 32.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 956.93 BRIDGE VELOCITY=, 4.63 CALCULATED CHANNEL AREA=, 78.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	957.32	.06	0.	360.	85.	85.	957.50	960.30
			BRIDGE SECTION C(UPSTREAM FACE M-60)						
32.10	6.23	957.03	0.00	0.00	957.32	.28	.03	0.00	960.30
360.	0.	360.	0.	0.	84.	0.	26.	16.	960.30
.51	0.00	4.28	0.00	.080	.015	.090	.047	950.80	1732.21
.000379	188.	188.	188.	0	0	0	0.00	14.09	1746.31
*SECNO 32.300									
32.30	6.43	957.33	0.00	0.00	957.40	.07	.02	.06	954.80
326.	3.	275.	48.	7.	117.	93.	26.	16.	954.60
.52	.46	2.34	.52	.100	.046	.090	.047	950.90	1986.12
.000658	42.	42.	42.	2	0	0	0.00	97.11	2083.23
CCHV= .100	CEHV= .300								
*SECNO 32.700									
32.70	6.16	957.96	0.00	0.00	958.03	.07	.63	.00	953.20
326.	25.	233.	67.	32.	95.	112.	31.	18.	953.40
.66	.80	2.46	.60	.080	.044	.070	.046	951.80	2076.91
.000601	950.	1000.	1050.	2	0	0	0.00	144.78	2221.69

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 32.800

3470 ENCROACHMENT STATIONS= 2090.0 2147.0 TYPE= 1 TARGET= 57.000

32.80	6.27	958.07	0.00	0.00	958.19	.12	.14	.01	953.20
326.	11.	284.	31.	13.	97.	35.	32.	19.	953.40
.68	.88	2.93	.89	.070	.042	.060	.046	951.80	2090.00
.000757	150.	200.	250.	2	0	0	0.00	57.00	2147.00

CCHV= .300 CEHV= .500

*SECNO 32.900

32.90	6.14	958.14	0.00	0.00	958.26	.12	.07	.00	961.00
326.	0.	326.	0.	0.	117.	0.	32.	19.	961.00
.69	0.00	2.78	0.00	.070	.042	.060	.046	952.00	1911.26
.001105	33.	72.	200.	0	0	0	0.00	21.74	1933.01

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	3.00	0.00	13.45	0.00	79.40	0.00	952.00	952.00

*SECNO 33.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.59	958.24	0.00	0.	302.	79.	79.	957.90	960.60

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

33.10	6.50	958.50	0.00	0.00	958.59	.09	.33	0.00	961.00
302.	0.	302.	0.	0.	128.	0.	32.	19.	961.00
.69	0.00	2.37	0.00	.070	.027	.060	.045	952.00	1911.26
.000300	50.	50.	50.	2	0	0	0.00	21.74	1933.01

*SECNO 33.300

3470 ENCROACHMENT STATIONS= 1908.0 2028.0 TYPE= 1 TARGET= 120.000

33.30	6.50	958.60	0.00	0.00	958.62	.02	.01	.02	956.90
302.	101.	201.	1.	184.	147.	2.	33.	19.	957.20
.71	.55	1.36	.35	.070	.050	.060	.046	952.10	1908.00
.000270	50.	50.	50.	2	0	0	0.00	120.00	2028.00

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	C#SEL	CRIWS	#SELK	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
CCHV= .100	CEHV= .300								
*SECNO 33.400									
33.40	6.52	958.62	0.00	0.00	958.64	.01	.02	.00	956.90
302.	120.	181.	1.	309.	148.	4.	33.	20.	957.20
.73	.39	1.22	.19	.070	.045	.080	.046	952.10	1784.49
.000175	75.	75.	75.	0	0	0	0.00	247.76	2032.26
*SECNO 33.500									
33.50	5.85	958.85	0.00	0.00	958.88	.02	.24	.00	957.90
302.	43.	203.	56.	157.	139.	263.	46.	35.	957.20
1.02	.27	1.46	.21	.070	.045	.080	.045	953.00	1637.23
.000271	1100.	1100.	1100.	1	0	0	0.00	992.98	2630.22
*SECNO 33.800									
3470 ENCROACHMENT STATIONS=		1995.0	2028.0	TYPE=	1	TARGET=		33.000	
33.80	4.86	959.66	0.00	0.00	959.82	.17	.90	.04	956.30
302.	17.	267.	18.	12.	77.	15.	57.	51.	957.40
1.15	1.45	3.45	1.21	.070	.050	.080	.047	954.80	1995.00
.002172	1920.	1550.	1050.	2	0	0	0.00	33.00	2028.00
CCHV= .300	CEHV= .500								
*SECNO 33.900									
33.90	4.53	959.63	0.00	0.00	960.24	.60	.19	.22	962.50
302.	0.	302.	0.	0.	48.	0.	57.	51.	962.50
1.15	0.00	6.24	0.00	.070	.050	.080	.047	955.10	2004.00
.013252	44.	44.	44.	2	0	0	0.00	11.00	2015.00

SPECIAL BRIDGE

SB	XK	XROR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	2.92	0.00	8.80	0.00	47.50	0.00	955.10	955.10

*SECNO 34.100

MOORE BUSINESS FORMS, INC. 23

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

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 960.317 ELLC= 960.500 PCWSE= 959.632 ELTRD= 962.200

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 962.20 MAX ELLC= 960.50

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

34.10	4.84	959.94	0.00	0.00	960.86	.92	.46	.16	962.50
302.	0.	302.	0.	0.	39.	0.	57.	52.	962.50
1.15	0.00	7.69	0.00	.070	.024	.080	.046	955.10	2000.00
.007938	46.	46.	46.	2	0	0	-9.60	11.00	2011.00

*SECNO 34.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1960.0 2070.0 TYPE= 1 TARGET= 110.000

34.30	6.02	961.12	0.00	0.00	961.17	.05	.05	.26	958.00
302.	19.	226.	57.	37.	106.	101.	57.	52.	958.10
1.16	.50	2.13	.57	.070	.040	.080	.046	955.10	1960.00
.000408	50.	50.	50.	2	0	0	0.00	110.00	2070.00

CCHV= .100 CEHV= .300

*SECNO 34.400

34.40	6.06	961.16	0.00	0.00	961.20	.04	.03	.00	958.00
302.	21.	206.	74.	47.	107.	146.	58.	52.	958.10
1.17	.46	1.93	.51	.070	.045	.070	.046	955.10	1929.36
.000419	70.	70.	70.	2	0	0	0.00	249.07	2178.43

*SECNO 34.700

3470 ENCROACHMENT STATIONS= 1980.0 2313.0 TYPE= 1 TARGET= 333.000

34.70	6.18	961.38	0.00	0.00	961.39	.01	.19	.00	958.40
302.	11.	190.	101.	34.	173.	355.	67.	58.	956.40
1.50	.33	1.10	.28	.070	.045	.070	.046	955.20	1980.00
.000116	960.	950.	933.	2	0	0	0.00	333.00	2313.00

MOORE BUSINESS FORMS, INC. 23

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

*SECNO 34.800

3470 ENCROACHMENT STATIONS= 2000.0 2033.0 TYPE= 1 TARGET= 33.000

34.80	6.26	961.46	0.00	0.00	961.51	.04	.11	.01	958.40
302.	0.	297.	5.	0.	176.	9.	72.	61.	956.40
1.60	0.00	1.69	.48	.070	.045	.070	.046	955.20	2000.00
.000305	600.	600.	600.	2	0	0	0.00	33.00	2033.00

CCHV= .300 CEHV= .500

*SECNO 34.900

34.90	6.14	961.44	0.00	0.00	961.58	.15	.03	.05	964.60
296.	0.	296.	0.	0.	97.	0.	72.	61.	964.60
1.61	0.00	3.06	0.00	.070	.045	.070	.046	955.30	2000.00
.001619	44.	44.	44.	2	0	0	0.00	17.00	2017.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.95	0.00	11.68	0.00	50.26	0.00	955.30	955.30

*SECNO 35.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
962.30	961.58	0.00	0.	296.	50.	50.	959.60	963.40

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

35.10	6.89	962.19	0.00	0.00	962.30	.11	.72	0.00	964.60
296.	0.	296.	0.	0.	109.	0.	73.	61.	964.60
1.62	0.00	2.70	0.00	.070	.015	.070	.046	955.30	2000.00
.000128	80.	80.	80.	2	0	0	0.00	17.00	2017.00

*SECNO 35.300

3470 ENCROACHMENT STATIONS= 1990.0 2112.0 TYPE= 1 TARGET= 122.000

35.30	8.12	962.32	0.00	0.00	962.34	.01	.00	.03	956.40
296.	14.	226.	57.	41.	231.	197.	73.	61.	956.40
1.63	.33	.98	.29	.070	.042	.070	.046	954.20	1990.00
.000053	50.	50.	50.	2	0	0	0.00	122.00	2112.00

MOORE BUSINESS FORMS, INC. 23

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

CCHV= .100 CEHV= .300
*SECNO 35.800

35.80	7.66	962.36	0.00	0.00	962.37	.01	.03	.00	960.80
296.	9.	224.	63.	43.	211.	220.	78.	63.	960.90
1.78	.21	1.06	.28	.060	.040	.060	.046	954.70	1939.72
.000099	619.	490.	383.	1	0	0	0.00	317.34	2257.06

CCHV= .300 CEHV= .500
*SECNO 35.900

35.90	7.25	962.35	0.00	0.00	962.38	.03	.01	.01	960.90
296.	35.	142.	120.	63.	74.	194.	78.	63.	960.80
1.79	.56	1.92	.62	.060	.040	.060	.046	955.10	1931.04
.000497	36.	36.	36.	0	0	0	0.00	263.12	2194.16

*SECNO 36.000

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

36.00	7.27	962.37	0.00	0.00	962.39	.02	.00	.00	960.90
296.	52.	67.	178.	63.	36.	194.	78.	63.	960.80
1.79	.83	1.83	.91	.060	.027	.060	.046	955.10	1930.99
.001092	1.	1.	1.	1	0	0	-37.52	263.29	2194.28

*SECNO 36.100

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

BRIDGE SECTION G(CHRISTI HIGH)

36.10	7.31	962.41	0.00	0.00	962.43	.02	.04	.00	960.90
296.	53.	64.	179.	66.	37.	203.	78.	63.	960.80
1.80	.80	1.75	.88	.060	.027	.060	.045	955.10	1929.87
.000981	41.	41.	41.	1	0	0	-37.52	267.58	2197.45

*SECNO 36.200

36.20	7.31	962.41	0.00	0.00	962.44	.03	.00	.00	960.90
296.	36.	137.	123.	66.	74.	204.	78.	63.	960.80
1.80	.55	1.84	.60	.060	.040	.060	.045	955.10	1929.69
.000454	1.	1.	1.	0	0	0	0.00	268.37	2198.06

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 36.300									
36.30	6.13	962.43	0.00	0.00	962.45	.02	.01	.00	960.80
296.	13.	217.	67.	48.	184.	210.	79.	64.	960.60
1.82	.26	1.18	.32	.060	.040	.060	.045	956.30	1936.83
.000147	50.	50.	50.	0	0	0	0.00	331.23	2268.05
CCHV= .100 CEHV= .300									
*SECNO 36.800									
36.80	6.16	962.46	0.00	0.00	962.47	.02	.02	.00	960.80
296.	13.	216.	67.	49.	184.	213.	80.	65.	960.60
1.86	.26	1.17	.32	.060	.040	.060	.045	956.30	1936.39
.000144	150.	150.	150.	2	0	0	0.00	333.34	2269.73
CCHV= .300 CEHV= .500									
*SECNO 36.900									
36.90	7.36	962.46	0.00	0.00	962.49	.02	.01	.00	960.90
296.	38.	132.	126.	72.	75.	214.	81.	65.	960.80
1.87	.53	1.76	.59	.060	.040	.060	.045	955.10	1923.01
.000413	50.	50.	50.	0	0	0	0.00	279.44	2202.45
*SECNO 37.000									
3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30									
37.00	7.37	962.47	0.00	0.00	962.49	.02	.00	.00	960.90
296.	53.	66.	177.	70.	40.	214.	81.	65.	960.80
1.87	.75	1.66	.83	.060	.027	.060	.045	955.10	1923.00
.000819	1.	1.	1.	0	0	0	-37.31	279.46	2202.46
*SECNO 37.100									
3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30									
BRIDGE SECTION H(CHRISTI HIGH)									
37.10	7.41	962.51	0.00	0.00	962.52	.02	.03	.00	960.90
296.	53.	65.	178.	72.	40.	220.	81.	66.	960.80
1.89	.74	1.60	.81	.060	.027	.060	.045	955.10	1921.93
.000756	41.	41.	41.	0	0	0	-37.50	283.46	2205.39

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 37.200									
37.20	7.40	962.50	0.00	0.00	962.53	.02	.00	.00	960.90
296.	39.	129.	128.	76.	75.	222.	81.	66.	960.80
1.89	.52	1.71	.58	.060	.040	.060	.045	955.10	1921.64
.000382	1.	1.	1.	0	0	0	0.00	284.53	2206.18
*SECNO 37.300									
3470 ENCROACHMENT STATIONS=		1961.0	2061.0	TYPE=	1	TARGET=	100.000		
37.30	7.41	962.51	0.00	0.00	962.57	.06	.03	.02	960.90
296.	42.	178.	76.	53.	76.	83.	82.	66.	960.80
1.89	.80	2.35	.92	.060	.040	.060	.045	955.10	1961.00
.000724	50.	50.	50.	1	0	0	0.00	100.00	2061.00
CCHV= .100 CEHV= .300									
*SECNO 38.000									
3265 DIVIDED FLOW									
VALLEY SECTION I									
38.00	5.21	962.96	0.00	0.00	962.97	.01	.40	.00	961.90
296.	131.	136.	29.	382.	129.	109.	95.	76.	961.60
2.47	.34	1.06	.27	.060	.040	.060	.044	957.75	1924.66
.000154	1383.	1375.	1400.	3	0	0	0.00	522.18	2454.74

MOORE BUSINESS FORMS, INC. 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54.
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	0.000000	0.00	0.0	0.	955.670	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

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

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 30.000

2800 NAT Q1= 161.61 WSEL= 955.67 ENC Q1= 161.61 WSEL= 955.77 RATIO= 0.0000
NAT Q1= 174. RATIOS LOB,CH,ROB= .1583 .6205 .2212 WSEL= 955.77

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1846.9 2154.6 TYPE= 4 TARGET= .069
VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

30.00	5.47	955.67	0.00	955.67	955.70	.03	0.00	0.00	954.80
360.	45.	245.	70.	139.	145.	190.	0.	0.	954.20
0.00	.32	1.69	.37	.130	.050	.130	0.000	950.20	1846.94
.000565	2100.	2100.	2100.	0	0	0	0.00	299.13	2154.62

*SECNO 30.600

2800 NAT Q1= 146.11 WSEL= 956.61 ENC Q1= 146.11 WSEL= 956.71 RATIO= 0.0000
NAT Q1= 157. RATIOS LOB,CH,ROB= .4016 .5508 .0476 WSEL= 956.71

3470 ENCROACHMENT STATIONS= 1825.1 2038.0 TYPE= 4 TARGET= .067

30.60	5.69	956.69	0.00	956.61	956.72	.03	1.02	.00	954.60
360.	141.	213.	5.	309.	123.	15.	18.	10.	955.20
.39	.46	1.74	.37	.120	.050	.120	.050	951.00	1825.15
.000622	1725.	1725.	1725.	2	0	0	0.00	212.81	2037.96

*SECNO 30.700

3470 ENCROACHMENT STATIONS= 1916.0 2030.0 TYPE= 1 TARGET= 114.000

30.70	5.95	956.95	0.00	956.87	957.01	.06	.28	.01	954.60
360.	73.	286.	1.	138.	131.	3.	21.	12.	955.20
.45	.53	2.18	.35	.120	.050	.120	.050	951.00	1916.00
.000894	375.	375.	375.	2	0	0	0.00	114.00	2030.00

*SECNO 30.800

3470 ENCROACHMENT STATIONS= 1985.0 2030.0 TYPE= 1 TARGET= 45.000

30.80	6.26	957.06	0.00	956.99	957.13	.07	.12	.00	953.00
360.	5.	290.	66.	7.	121.	67.	22.	12.	953.00
.47	.64	2.40	.98	.080	.050	.090	.050	950.80	1985.00
.000791	200.	139.	83.	0	0	0	0.00	45.00	2030.00

MOORE BUSINESS FORMS, INC. 23

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

CCHV= .300 CEHV= .500
*SECNO 30.900

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

30.90	6.24	957.04	0.00	956.98	957.35	.31	.10	.12	960.50
360.	0.	360.	0.	0.	81.	0.	22.	12.	960.50
.47	0.00	4.45	0.00	.080	.050	.090	.050	950.80	1741.62
.004894	60.	62.	75.	2	0	0	0.00	14.09	1755.71

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	2.10	3.00	0.00	13.50	.83	85.00	0.00	950.80	950.80

*SECNO 32.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 957.00 BRIDGE VELOCITY= 4.58 CALCULATED CHANNEL AREA= 79.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	957.38	.05	0.	360.	85.	85.	957.50	960.30

BRIDGE SECTION C(UPSTREAM FACE M-60)

32.10	6.30	957.10	0.00	957.03	957.38	.28	.03	0.00	960.30
360.	0.	360.	0.	0.	85.	0.	23.	12.	960.30
.49	0.00	4.23	0.00	.080	.015	.090	.047	950.80	1732.21
.000368	188.	188.	188.	0	0	0	0.00	14.09	1746.31

*SECNO 32.300
2800 NAT Q1= 127.09 WSEL= 957.33 ENC Q1= 127.09 WSEL= 957.43 RATIO= 0.0000
NAT Q1= 133. RATIOS LOB,CH,ROB= .0098 .8325 .1577 WSEL= 957.43

3470 ENCROACHMENT STATIONS= 1992.0 2041.1 TYPE= 4 TARGET= .043

32.30	6.48	957.38	0.00	957.33	957.46	.08	.02	.06	954.80
326.	0.	282.	44.	0.	118.	59.	23.	12.	954.60
.49	0.00	2.38	.75	.100	.046	.090	.047	950.90	1992.00
.000764	42.	42.	42.	2	0	0	0.00	49.13	2041.13

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

CCHV= .100 CEHV= .300
*SECNO 32.700
2800 NAT Q1= 132.93 WSEL= 957.96 ENC Q1= 132.93 WSEL= 958.06 RATIO= 0.0000
NAT Q1= 141. RATIOS LOB,CH,ROB= .0784 .6986 .2230 WSEL= 958.06

3470 ENCROACHMENT STATIONS= 2087.6 2191.4 TYPE= 4 TARGET= .055

32.70	6.27	958.07	0.00	957.96	958.14	.07	.68	.00	953.20
326.	17.	241.	68.	21.	97.	101.	27.	14.	953.40
.63	.82	2.50	.67	.080	.044	.070	.046	951.80	2087.59
.000603	950.	1000.	1050.	2	0	0	0.00	103.79	2191.37

*SECNO 32.800

3470 ENCROACHMENT STATIONS= 2090.0 2147.0 TYPE= 1 TARGET= 57.000

32.80	6.37	958.17	0.00	958.07	958.28	.11	.13	.01	953.20
326.	11.	281.	33.	13.	99.	38.	28.	14.	953.40
.65	.85	2.85	.87	.070	.042	.060	.046	951.60	2090.00
.000699	150.	200.	250.	2	0	0	0.00	57.00	2147.00

CCHV= .300 CEHV= .500
*SECNO 32.900

32.90	6.24	958.24	0.00	956.14	958.35	.12	.07	.00	961.00
326.	0.	326.	0.	0.	120.	0.	29.	14.	961.00
.66	0.00	2.73	0.00	.070	.042	.060	.046	952.00	1911.26
.001048	33.	72.	200.	0	0	0	0.00	21.74	1933.01

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	3.00	0.00	13.45	0.00	79.40	0.00	952.00	952.00

*SECNO 33.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.69	958.33	0.00	0.	302.	79.	79.	957.90	960.60

MOORE BUSINESS FORMS, INC. 23

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

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

33.10	6.60	958.60	0.00	958.50	958.69	.08	.33	0.00	961.00
302.	0.	302.	0.	0.	130.	0.	29.	14.	961.00
.67	0.00	2.33	0.00	.070	.027	.060	.045	952.00	1911.26
.000286	50.	50.	50.	2	0	0	0.00	21.74	1933.01

*SECNO 33.300

3470 ENCROACHMENT STATIONS= 1908.0 2028.0 TYPE= 1 TARGET= 120.000

33.30	6.60	958.70	0.00	958.60	958.72	.02	.01	.02	956.90
302.	104.	197.	1.	193.	150.	3.	29.	14.	957.20
.68	.54	1.32	.34	.070	.050	.060	.046	952.10	1908.00
.000246	50.	50.	50.	2	0	0	0.00	120.00	2028.00

CCHV= .100 CEHV= .300
*SECNO 33.400
2800 NAT Q1= 228.11 WSEL= 958.62 ENC Q1= 228.11 WSEL= 958.72 RATIO= 0.0000
NAT Q1= 242. RATIOS LOB,CH,ROB= .4164 .5804 .0032 WSEL= 958.72

3470 ENCROACHMENT STATIONS= 1874.8 2026.0 TYPE= 4 TARGET= .058

33.40	6.62	958.72	0.00	958.62	958.73	.02	.02	.00	956.90
302.	118.	184.	0.	256.	150.	0.	30.	15.	957.20
.70	.46	1.23	0.00	.070	.045	.080	.045	952.10	1874.80
.000184	75.	75.	75.	0	0	0	0.00	151.20	2026.00

*SECNO 33.500
2800 NAT Q1= 183.46 WSEL= 958.85 ENC Q1= 183.46 WSEL= 958.95 RATIO= 0.0000
NAT Q1= 204. RATIOS LOB,CH,ROB= .1602 .6227 .2171 WSEL= 958.95

3470 ENCROACHMENT STATIONS= 1894.7 2304.6 TYPE= 4 TARGET= .102

33.50	5.96	958.96	0.00	958.85	958.98	.02	.24	.00	957.90
302.	37.	210.	56.	105.	141.	206.	41.	22.	957.20
.97	.35	1.49	.27	.070	.045	.080	.045	953.00	1894.72
.000273	1100.	1100.	1100.	1	0	0	0.00	409.91	2304.63

*SECNO 33.800

3470 ENCROACHMENT STATIONS= 1995.0 2028.0 TYPE= 1 TARGET= 33.000

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
33.80	4.95	959.75	0.00	959.66	959.91	.16	.89	.04	956.30
302.	18.	266.	19.	12.	79.	16.	50.	28.	957.40
1.11	1.41	3.36	1.20	.070	.050	.080	.047	954.80	1995.00
.001999	1920.	1550.	1050.	2	0	0	0.00	33.00	2028.00

CCHV= .300 CEHV= .500

*SECNO 33.900

33.90	4.62	959.72	0.00	959.63	960.30	.58	.18	.21	962.50
302.	0.	302.	0.	0.	49.	0.	50.	28.	962.50
1.11	0.00	6.12	0.00	.070	.050	.080	.047	955.10	2004.00
.012562	44.	44.	44.	2	0	0	0.00	11.00	2015.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	2.92	0.00	8.80	0.00	47.50	0.00	955.10	955.10

*SECNO 34.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 960.376 ELLC= 960.500 PCWSE= 959.719 ELTRD= 962.200

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 962.20 MAX ELLC= 960.50

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

34.10	4.91	960.01	0.00	959.94	960.92	.91	.45	.16	962.50
302.	0.	302.	0.	0.	39.	0.	50.	28.	962.50
1.11	0.00	7.65	0.00	.070	.024	.080	.046	955.10	2000.00
.007967	46.	46.	46.	2	0	0	-10.15	11.00	2011.00

*SECNO 34.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1960.0 2070.0 TYPE= 1 TARGET= 110.000

34.30	6.07	961.17	0.00	961.12	961.23	.05	.05	.26	958.00
302.	20.	224.	59.	39.	107.	104.	50.	29.	958.10
1.12	.50	2.09	.56	.070	.040	.080	.046	955.10	1960.00
.000385	50.	50.	50.	2	0	0	0.00	110.00	2070.00

MOORE BUSINESS FORMS, INC. 23

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

CCHV= .100 CEHV= .300
*SECNO 34.400
2800 NAT QI= 147.52 WSEL= 961.16 ENC QI= 147.52 WSEL= 961.26 RATIO= 0.0000
NAT QI= 158. RATIOS LOB,CH,ROB= .0776 .6600 .2624 WSEL= 961.26

3470 ENCROACHMENT STATIONS= 1983.3 2069.4 TYPE= 4 TARGET= .065

34.40	6.11	961.21	0.00	961.16	961.26	.05	.03	.00	958.00
302.	14.	215.	73.	21.	108.	104.	50.	29.	958.10
1.13	.67	1.99	.70	.070	.045	.070	.046	955.10	1983.30
.000443	70.	70.	70.	0	0	0	0.00	86.13	2069.43

*SECNO 34.700

3470 ENCROACHMENT STATIONS= 1980.0 2313.0 TYPE= 1 TARGET= 333.000

34.70	6.23	961.43	0.00	961.38	961.44	.01	.19	.00	958.40
302.	11.	187.	104.	35.	175.	370.	59.	33.	956.40
1.47	.32	1.07	.28	.070	.045	.070	.046	955.20	1980.00
.000108	960.	950.	933.	2	0	0	0.00	333.00	2313.00

*SECNO 34.800

3470 ENCROACHMENT STATIONS= 2000.0 2033.0 TYPE= 1 TARGET= 33.000

34.80	6.31	961.51	0.00	961.46	961.55	.04	.10	.01	958.40
302.	0.	297.	5.	0.	177.	10.	64.	36.	956.40
1.57	0.00	1.68	.47	.070	.045	.070	.046	955.20	2000.00
.000297	600.	600.	600.	2	0	0	0.00	33.00	2033.00

CCHV= .300 CEHV= .500
*SECNO 34.900

34.90	6.19	961.49	0.00	961.44	961.63	.14	.03	.05	964.60
296.	0.	296.	0.	0.	98.	0.	65.	36.	964.60
1.58	0.00	3.03	0.00	.070	.045	.070	.046	955.30	2000.00
.001583	44.	44.	44.	2	0	0	0.00	17.00	2017.00

MOORE BUSINESS FORMS, INC. 23

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHD
	0.00	1.60	2.95	0.00	11.68	0.00	50.26	0.00	955.30	955.30

*SECNO 35.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
962.35	961.63	0.00	0.	296.	50.	50.	959.60	963.40

BRIDGE SECTION F (UPSTREAM FACE SPRING ARBOR RD)

35.10	6.94	962.24	0.00	962.19	962.35	.11	.72	0.00	964.60
296.	0.	296.	0.	0.	110.	0.	65.	36.	964.60
1.59	0.00	2.68	0.00	.070	.015	.070	.046	955.30	2000.00
.000125	80.	80.	80.	2	0	0	0.00	17.00	2017.00

*SECNO 35.300

3470 ENCROACHMENT STATIONS=		1990.0	2112.0	TYPE=	1	TARGET=	122.000		
35.30	8.17	962.37	0.00	962.32	962.38	.01	.00	.03	956.40
296.	14.	225.	57.	41.	233.	201.	65.	36.	956.40
1.60	.33	.97	.29	.070	.042	.070	.046	954.20	1990.00
.000052	50.	50.	50.	2	0	0	0.00	122.00	2112.00

CCHV= .100 CEHV= .300
*SECNO 35.800
2800 NAT Q1= 297.26 WSEL= 962.36 ENC Q1= 297.26 WSEL= 962.46 RATIO= .0000
NAT Q1= 314. RATIOS LOB,CH,ROB= .0337 .7399 .2264 WSEL= 962.46

3470 ENCROACHMENT STATIONS=		1990.4	2154.1	TYPE=	4	TARGET=	.053		
35.80	7.70	962.40	0.00	962.36	962.42	.02	.03	.00	960.90
296.	2.	233.	61.	7.	213.	181.	70.	37.	960.90
1.74	.28	1.10	.34	.060	.040	.060	.046	954.70	1990.40
.000104	619.	490.	383.	0	0	0	0.00	163.65	2154.05

MOORE BUSINESS FORMS, INC. 23

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

CCHV= .300 CEHV= .500
*SECNO 35.900
2800 NAT Q1= 132.74 WSEL= 962.35 ENC Q1= 132.74 WSEL= 962.45 RATIO= 0.0000
NAT Q1= 144. RATIOS LOB,CH,ROB= .1259 .4507 .4233 WSEL= 962.45

3470 ENCROACHMENT STATIONS= 1968.0 2127.1 TYPE= 4 TARGET= .079

35.90	7.30	962.40	0.00	962.35	962.43	.03	.01	.01	960.90
296.	27.	148.	121.	41.	74.	166.	70.	37.	960.80
1.75	.66	1.99	.73	.060	.040	.060	.046	955.10	1968.03
.000532	36.	36.	36.	1	0	0	0.00	159.03	2127.05

*SECNO 36.000
2800 NAT Q1= 89.57 WSEL= 962.37 ENC Q1= 89.57 WSEL= 962.47 RATIO= 0.0000
NAT Q1= 102. RATIOS LOB,CH,ROB= .1817 .2085 .6098 WSEL= 962.47

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

3470 ENCROACHMENT STATIONS= 1968.8 2126.6 TYPE= 4 TARGET= .120

36.00	7.31	962.41	0.00	962.37	962.44	.03	.00	.00	960.90
296.	40.	72.	183.	40.	37.	165.	70.	37.	960.80
1.75	1.01	1.97	1.11	.060	.027	.060	.046	955.10	1968.78
.001244	1.	1.	1.	0	0	0	-37.53	157.85	2126.63

*SECNO 36.100
2800 NAT Q1= 94.49 WSEL= 962.41 ENC Q1= 94.49 WSEL= 962.51 RATIO= 0.0000
NAT Q1= 107. RATIOS LOB,CH,ROB= .1841 .2021 .6138 WSEL= 962.51

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

3470 ENCROACHMENT STATIONS= 1967.9 2128.9 TYPE= 4 TARGET= .119
BRIDGE SECTION G(CHRISTI HIGH)

36.10	7.36	962.46	0.00	962.41	962.48	.03	.05	.00	960.90
296.	41.	70.	185.	43.	37.	174.	70.	38.	960.80
1.76	.97	1.87	1.06	.060	.027	.060	.045	955.10	1967.92
.001095	41.	41.	41.	1	0	0	-37.53	160.96	2128.88

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

*SECNO 36.200
2800 NAT Q1= 138.99 WSEL= 962.41 ENC Q1= 138.99 WSEL= 962.51 RATIO= 0.0000
NAT Q1= 151. RATIOS LOB,CH,ROB= .1301 .4358 .4340 WSEL= 962.51

3470 ENCROACHMENT STATIONS= 1966.9 2129.9 TYPE= 4 TARGET= .080

36.20	7.36	962.46	0.00	962.41	962.49	.03	.00	.00	960.90
296.	28.	143.	124.	44.	75.	176.	70.	38.	960.80
1.76	.64	1.91	.71	.060	.040	.060	.045	955.10	1966.91
.000484	1.	1.	1.	0	0	0	0.00	162.97	2129.88

*SECNO 36.300
2800 NAT Q1= 244.48 WSEL= 962.43 ENC Q1= 244.48 WSEL= 962.53 RATIO= 0.0000
NAT Q1= 260. RATIOS LOB,CH,ROB= .0461 .7121 .2418 WSEL= 962.53

3470 ENCROACHMENT STATIONS= 1986.7 2157.5 TYPE= 4 TARGET= .060

36.30	6.19	962.49	0.00	962.43	962.50	.02	.01	.00	960.80
296.	5.	227.	64.	13.	185.	168.	71.	38.	960.60
1.77	.37	1.23	.38	.060	.040	.060	.045	956.30	1986.73
.000156	50.	50.	50.	1	0	0	0.00	170.78	2157.51

CCHV= .100 CEHV= .300
*SECNO 36.800
2800 NAT Q1= 246.57 WSEL= 962.46 ENC Q1= 246.57 WSEL= 962.56 RATIO= 0.0000
NAT Q1= 264. RATIOS LOB,CH,ROB= .0470 .7072 .2459 WSEL= 962.56

3470 ENCROACHMENT STATIONS= 1988.0 2156.1 TYPE= 4 TARGET= .066

36.50	6.21	962.51	0.00	962.46	962.53	.02	.02	.00	960.80
296.	4.	227.	65.	11.	186.	170.	72.	38.	960.60
1.81	.37	1.22	.38	.060	.040	.060	.045	956.30	1987.98
.000153	150.	150.	150.	0	0	0	0.00	168.14	2156.12

CCHV= .300 CEHV= .500
*SECNO 36.900
2800 NAT Q1= 145.72 WSEL= 962.46 ENC Q1= 145.72 WSEL= 962.56 RATIO= .0000
NAT Q1= 159. RATIOS LOB,CH,ROB= .1367 .4201 .4432 WSEL= 962.56

3470 ENCROACHMENT STATIONS= 1965.0 2132.1 TYPE= 4 TARGET= .083

36.90	7.42	962.52	0.00	962.46	962.54	.03	.01	.00	960.90
296.	30.	138.	128.	48.	76.	186.	72.	39.	960.80
1.83	.63	1.83	.69	.060	.040	.060	.045	955.10	1965.02
.000436	50.	50.	50.	0	0	0	0.00	167.10	2132.13

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

*SECNO 37.000
2800 NAT Q1= 103.45 WSEL= 962.47 ENC Q1= 103.45 WSEL= 962.57 RATIO= 0.0000
NAT Q1= 117. RATIOS LOB,CH,ROB= .1840 .2079 .6082 WSEL= 962.57

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30

3470 ENCROACHMENT STATIONS= 1966.9 2131.8 TYPE= 4 TARGET= .117

37.00	7.42	962.52	0.00	962.47	962.55	.02	.00	.00	960.90
296.	42.	71.	183.	46.	41.	185.	72.	39.	960.80
1.83	.91	1.76	.99	.060	.027	.060	.045	955.10	1966.88
.000906	1.	1.	1.	0	0	0	-34.98	164.96	2131.84

*SECNO 37.100
2800 NAT Q1= 107.66 WSEL= 962.51 ENC Q1= 107.66 WSEL= 962.61 RATIO= 0.0000
NAT Q1= 122. RATIOS LOB,CH,ROB= .1856 .2033 .6110 WSEL= 962.61

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30

3470 ENCROACHMENT STATIONS= 1965.9 2134.0 TYPE= 4 TARGET= .115
BRIDGE SECTION H(CHRISTI HIGH)

37.10	7.46	962.56	0.00	962.51	962.58	.02	.04	.00	960.90
296.	42.	70.	184.	48.	41.	192.	72.	39.	960.80
1.84	.88	1.70	.96	.060	.027	.060	.045	955.10	1965.86
.000830	41.	41.	41.	0	0	0	-34.98	168.12	2133.98

*SECNO 37.200
2800 NAT Q1= 151.37 WSEL= 962.50 ENC Q1= 151.37 WSEL= 962.60 RATIO= 0.0000
NAT Q1= 164. RATIOS LOB,CH,ROB= .1398 .4099 .4504 WSEL= 962.60

3470 ENCROACHMENT STATIONS= 1963.2 2135.2 TYPE= 4 TARGET= .079

37.20	7.46	962.56	0.00	962.50	962.59	.03	.00	.00	960.90
296.	32.	134.	130.	52.	76.	194.	72.	39.	960.80
1.84	.61	1.76	.67	.060	.040	.060	.045	955.10	1963.23
.000405	1.	1.	1.	0	0	0	0.00	172.00	2135.23

*SECNO 37.300

SECNO	DEPTH	C&SEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 1961.0 2061.0 TYPE= 1 TARGET= 100.000

37.30	7.47	962.57	0.00	962.51	962.62	.05	.03	.01	960.90
296.	44.	174.	78.	55.	76.	86.	73.	39.	960.80
1.84	.79	2.29	.91	.060	.040	.060	.045	955.10	1961.00
.000677	50.	50.	50.	1	0	0	0.00	100.00	2061.00

CCHV= .100 CEHV= .300
*SECNO 38.000
2800 NAT Q1= 238.77 WSEL= 962.96 ENC Q1= 238.77 WSEL= 963.06 RATIO= 0.0000
NAT Q1= 264. RATIOS LOB,CH,ROB= .4570 .4354 .1075 WSEL= 963.06

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2000.5 2375.8 TYPE= 4 TARGET= .095
VALLEY SECTION I

38.00	5.28	963.03	0.00	962.96	963.04	.01	.41	.00	961.90
296.	132.	145.	19.	346.	131.	61.	85.	46.	961.60
2.37	.38	1.11	.31	.060	.040	.060	.044	957.75	2000.50
.000164	1383.	1375.	1400.	2	0	0	0.00	371.01	2375.84

MOORE BUSINESS FORMS, INC. 23

****
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

MC CAIN DRAIN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
30.000	955.67	950.20	0.00	0.00	1816.02	0.00	1994.00	2032.00	0.00	2224.97	400.41	2100.00
30.000	955.67	950.20	0.00	0.00	1846.94	1846.94	1994.00	2032.00	0.00	2154.62	299.13	2100.00
30.600	956.61	951.00	0.00	0.00	1804.44	0.00	1995.00	2028.00	0.00	2081.98	277.54	1725.00
30.600	956.69	951.00	0.00	0.00	1825.15	1825.15	1995.00	2028.00	0.00	2037.96	212.81	1725.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.95	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	957.06	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	957.04	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.10	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.300	957.33	950.90	0.00	0.00	1986.12	0.00	1992.00	2015.00	0.00	2083.23	97.11	42.00
32.300	957.38	950.90	0.00	0.00	1992.00	1992.00	1992.00	2015.00	0.00	2041.13	49.13	42.00
32.700	957.96	951.80	0.00	0.00	2076.91	0.00	2093.00	2111.00	0.00	2221.69	144.78	1000.00
32.700	958.07	951.80	0.00	0.00	2087.59	2087.59	2093.00	2111.00	0.00	2191.37	103.79	1000.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.17	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.24	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.60	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.70	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.400	958.62	952.10	0.00	0.00	1784.49	0.00	2000.00	2026.00	0.00	2032.26	247.76	75.00
33.400	958.72	952.10	0.00	0.00	1874.80	1874.80	2000.00	2026.00	0.00	2026.00	151.20	75.00
33.500	958.85	953.00	0.00	0.00	1637.23	0.00	2000.00	2026.00	0.00	2630.22	992.98	1100.00
33.500	958.96	953.00	0.00	0.00	1894.72	1894.72	2000.00	2026.00	0.00	2304.63	409.91	1100.00
33.800	959.66	954.80	0.00	0.00	1995.00	1995.00	2000.00	2019.00	0.00	2028.00	33.00	1550.00
33.800	959.75	954.80	0.00	0.00	1995.00	1995.00	2000.00	2019.00	0.00	2028.00	33.00	1550.00
33.900	959.63	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.72	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	960.01	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.300	961.12	955.10	0.00	0.00	1960.00	1960.00	1995.00	2016.00	0.00	2070.00	110.00	50.00
34.300	961.17	955.10	0.00	0.00	1960.00	1960.00	1995.00	2016.00	0.00	2070.00	110.00	50.00
34.400	961.16	955.10	0.00	0.00	1929.36	0.00	1995.00	2016.00	0.00	2178.43	249.07	70.00
34.400	961.21	955.10	0.00	0.00	1983.30	1983.30	1995.00	2016.00	0.00	2069.43	86.13	70.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.43	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.800	961.46	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.51	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.49	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.24	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.300	962.32	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.37	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.800	962.36	954.70	0.00	0.00	1939.72	0.00	1995.00	2036.00	0.00	2257.06	317.34	490.00
35.800	962.40	954.70	0.00	0.00	1990.40	1990.40	1995.00	2036.00	0.00	2154.05	163.65	490.00
35.900	962.35	955.10	0.00	0.00	1931.04	0.00	2000.00	2011.00	0.00	2194.16	263.12	36.00
35.900	962.40	955.10	0.00	0.00	1968.03	1968.03	2000.00	2011.00	0.00	2127.05	159.03	36.00
36.000	962.37	955.10	958.00	960.80	1930.99	0.00	2000.00	2011.00	0.00	2194.28	263.29	1.00
36.000	962.41	955.10	958.00	960.80	1968.78	1968.78	2000.00	2011.00	0.00	2126.63	157.85	1.00
36.100	962.41	955.10	958.00	960.80	1929.87	0.00	2000.00	2011.00	0.00	2197.45	267.58	41.00
36.100	962.46	955.10	958.00	960.80	1967.92	1967.92	2000.00	2011.00	0.00	2128.88	160.96	41.00

MOORE BUSINESS FORMS, INC. 24

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
36.200	962.41	955.10	0.00	0.00	1929.69	0.00	2000.00	2011.00	0.00	2198.06	268.37	1.00
36.200	962.46	955.10	0.00	0.00	1966.91	1966.91	2000.00	2011.00	0.00	2129.88	162.97	1.00
36.300	962.43	956.30	0.00	0.00	1936.83	0.00	1995.00	2036.00	0.00	2268.05	331.23	50.00
36.300	962.49	956.30	0.00	0.00	1986.73	1986.73	1995.00	2036.00	0.00	2157.51	170.78	50.00
36.800	962.46	956.30	0.00	0.00	1936.39	0.00	1995.00	2036.00	0.00	2269.73	333.34	150.00
36.800	962.51	956.30	0.00	0.00	1987.98	1987.98	1995.00	2036.00	0.00	2156.12	168.14	150.00
36.900	962.46	955.10	0.00	0.00	1923.01	0.00	2000.00	2011.00	0.00	2202.45	279.44	50.00
36.900	962.52	955.10	0.00	0.00	1965.02	1965.02	2000.00	2011.00	0.00	2132.13	167.10	50.00
37.000	962.47	955.10	958.30	960.80	1923.00	0.00	2000.00	2011.00	0.00	2202.46	279.46	1.00
37.000	962.52	955.10	958.30	960.80	1966.88	1966.88	2000.00	2011.00	0.00	2131.84	164.96	1.00
37.100	962.51	955.10	958.30	960.80	1921.93	0.00	2000.00	2011.00	0.00	2205.39	283.46	40.50
37.100	962.56	955.10	958.30	960.80	1965.86	1965.86	2000.00	2011.00	0.00	2133.98	168.12	40.50
37.200	962.50	955.10	0.00	0.00	1921.64	0.00	2000.00	2011.00	0.00	2206.18	284.53	1.00
37.200	962.56	955.10	0.00	0.00	1963.23	1963.23	2000.00	2011.00	0.00	2135.23	172.00	1.00
37.300	962.51	955.10	0.00	0.00	1961.00	1961.00	2000.00	2011.00	0.00	2061.00	100.00	50.00
37.300	962.57	955.10	0.00	0.00	1961.00	1961.00	2000.00	2011.00	0.00	2061.00	100.00	50.00
38.000	962.96	957.75	0.00	0.00	1924.66	0.00	2262.00	2298.00	0.00	2454.74	522.18	1375.00
38.000	963.03	957.75	0.00	0.00	2000.50	2000.50	2262.00	2298.00	0.00	2375.84	371.01	1375.00

MOORE BUSINESS FORMS, INC. 20

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	4.96	1.58	562.03	161.61
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	5.65	1.69	474.89	151.41
30.600	1725.00	0.00	0.00	951.00	360.00	956.61	0.00	956.64	6.07	1.69	494.11	146.11
30.600	1725.00	0.00	0.00	951.00	360.00	956.69	0.00	956.72	6.22	1.74	446.95	144.30
30.700	375.00	0.00	0.00	951.00	360.00	956.87	0.00	956.94	9.72	2.24	263.82	115.46
30.700	375.00	0.00	0.00	951.00	360.00	956.95	0.00	957.01	8.94	2.18	272.81	120.42
30.800	139.00	0.00	0.00	950.80	360.00	956.99	0.00	957.07	8.34	2.44	192.17	124.64
30.800	139.00	0.00	0.00	950.80	360.00	957.06	0.00	957.13	7.91	2.40	195.52	127.96
30.900	62.00	0.00	0.00	950.80	360.00	956.98	0.00	957.29	50.55	4.50	80.00	50.64
30.900	62.00	0.00	0.00	950.80	360.00	957.04	0.00	957.35	48.94	4.45	80.94	51.46
32.100	188.00	960.30	957.50	950.80	360.00	957.03	0.00	957.32	3.79	4.28	84.10	184.82
32.100	188.00	960.30	957.50	950.80	360.00	957.10	0.00	957.38	3.68	4.23	85.02	187.56
32.300	42.00	0.00	0.00	950.90	326.00	957.33	0.00	957.40	6.58	2.34	216.91	127.09
32.300	42.00	0.00	0.00	950.90	326.00	957.38	0.00	957.46	7.64	2.38	177.50	117.95
32.700	1000.00	0.00	0.00	951.80	326.00	957.96	0.00	958.03	6.01	2.46	238.37	132.93
32.700	1000.00	0.00	0.00	951.80	326.00	958.07	0.00	958.14	6.03	2.50	218.11	132.81
32.800	200.00	0.00	0.00	951.80	326.00	958.07	0.00	958.19	7.57	2.93	144.26	118.46
32.800	200.00	0.00	0.00	951.80	326.00	958.17	0.00	958.28	6.99	2.85	150.18	123.28
32.900	72.00	0.00	0.00	952.00	326.00	958.14	0.00	958.26	11.05	2.78	117.38	98.07
32.900	72.00	0.00	0.00	952.00	326.00	958.24	0.00	958.35	10.48	2.73	119.57	100.73
33.100	50.00	960.60	957.90	952.00	302.00	958.50	0.00	958.59	3.00	2.37	127.61	174.29
33.100	50.00	960.60	957.90	952.00	302.00	958.60	0.00	958.69	2.86	2.33	129.82	178.59
33.300	50.00	0.00	0.00	952.10	302.00	958.60	0.00	958.62	2.70	1.36	333.50	183.80
33.300	50.00	0.00	0.00	952.10	302.00	958.70	0.00	958.72	2.46	1.32	345.32	192.49
33.400	75.00	0.00	0.00	952.10	302.00	958.62	0.00	958.64	1.75	1.22	460.58	228.11
33.400	75.00	0.00	0.00	952.10	302.00	958.72	0.00	958.73	1.84	1.23	405.64	222.88
33.500	1100.00	0.00	0.00	953.00	302.00	958.85	0.00	958.88	2.71	1.46	559.47	183.46
33.500	1100.00	0.00	0.00	953.00	302.00	958.96	0.00	958.98	2.73	1.49	451.83	182.62
33.800	1550.00	0.00	0.00	954.80	302.00	959.66	0.00	959.82	21.72	3.45	104.25	64.79
33.800	1550.00	0.00	0.00	954.80	302.00	959.75	0.00	959.91	19.99	3.36	107.32	67.54
33.900	44.00	0.00	0.00	955.10	302.00	959.63	0.00	960.24	132.52	6.24	48.43	26.23
33.900	44.00	0.00	0.00	955.10	302.00	959.72	0.00	960.30	125.62	6.12	49.38	26.95

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.100	46.00	962.20	960.50	955.10	302.00	959.94	0.00	960.86	79.38	7.69	39.27	33.90
34.100	46.00	962.20	960.50	955.10	302.00	960.01	0.00	960.92	79.67	7.65	39.50	33.83
34.300	50.00	0.00	0.00	955.10	302.00	961.12	0.00	961.17	4.08	2.13	244.15	149.57
34.300	50.00	0.00	0.00	955.10	302.00	961.17	0.00	961.23	3.85	2.09	250.51	153.87
34.400	70.00	0.00	0.00	955.10	302.00	961.16	0.00	961.20	4.19	1.93	299.48	147.52
34.400	70.00	0.00	0.00	955.10	302.00	961.21	0.00	961.26	4.43	1.99	233.34	143.42
34.700	950.00	0.00	0.00	955.20	302.00	961.38	0.00	961.39	1.16	1.10	562.21	280.73
34.700	950.00	0.00	0.00	955.20	302.00	961.43	0.00	961.44	1.08	1.07	579.37	289.94
34.800	600.00	0.00	0.00	955.20	302.00	961.46	0.00	961.51	3.05	1.69	185.16	173.04
34.800	600.00	0.00	0.00	955.20	302.00	961.51	0.00	961.55	2.97	1.68	186.69	175.25
34.900	44.00	0.00	0.00	955.30	296.00	961.44	0.00	961.58	16.19	3.06	96.76	73.56
34.900	44.00	0.00	0.00	955.30	296.00	961.49	0.00	961.63	15.83	3.03	97.55	74.40
35.100	80.00	963.40	959.60	955.30	296.00	962.19	0.00	962.30	1.28	2.70	109.48	261.79
35.100	80.00	963.40	959.60	955.30	296.00	962.24	0.00	962.35	1.25	2.68	110.30	264.48
35.300	50.00	0.00	0.00	954.20	296.00	962.32	0.00	962.34	.53	.98	469.29	405.44
35.300	50.00	0.00	0.00	954.20	296.00	962.37	0.00	962.38	.52	.97	474.93	411.28
35.800	490.00	0.00	0.00	954.70	296.00	962.36	0.00	962.37	.99	1.06	474.20	297.26
35.800	490.00	0.00	0.00	954.70	296.00	962.40	0.00	962.42	1.04	1.10	400.93	289.84
35.900	36.00	0.00	0.00	955.10	296.00	962.35	0.00	962.38	4.97	1.92	330.38	132.74
35.900	36.00	0.00	0.00	955.10	296.00	962.40	0.00	962.43	5.32	1.99	281.70	128.32
36.000	1.00	960.80	958.00	955.10	296.00	962.37	0.00	962.39	10.92	1.83	293.34	89.57
36.000	1.00	960.80	958.00	955.10	296.00	962.41	0.00	962.44	12.44	1.97	242.08	83.92
36.100	41.00	960.80	958.00	955.10	296.00	962.41	0.00	962.43	9.81	1.75	305.26	94.49
36.100	41.00	960.80	958.00	955.10	296.00	962.46	0.00	962.48	10.95	1.87	254.01	89.46
36.200	1.00	0.00	0.00	955.10	296.00	962.41	0.00	962.44	4.54	1.84	344.71	138.99
36.200	1.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.84	1.91	294.66	134.48
36.300	50.00	0.00	0.00	956.30	296.00	962.43	0.00	962.45	1.47	1.18	441.24	244.48
36.300	50.00	0.00	0.00	956.30	296.00	962.49	0.00	962.50	1.56	1.23	365.99	236.66
36.800	150.00	0.00	0.00	956.30	296.00	962.46	0.00	962.47	1.44	1.17	445.39	246.57
36.800	150.00	0.00	0.00	956.30	296.00	962.51	0.00	962.53	1.53	1.22	367.68	239.55
36.900	50.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.13	1.76	360.95	145.72
36.900	50.00	0.00	0.00	955.10	296.00	962.52	0.00	962.54	4.36	1.83	309.47	141.72
37.000	1.00	960.80	958.30	955.10	296.00	962.47	0.00	962.49	8.19	1.66	323.69	103.45
37.000	1.00	960.80	958.30	955.10	296.00	962.52	0.00	962.55	9.06	1.76	271.28	98.36

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
37.100	40.50	960.80	958.30	955.10	296.00	962.51	0.00	962.52	7.56	1.60	333.14	107.66
37.100	40.50	960.80	958.30	955.10	296.00	962.56	0.00	962.58	8.30	1.70	280.91	102.75
37.200	1.00	0.00	0.00	955.10	296.00	962.50	0.00	962.53	3.82	1.71	373.25	151.37
37.200	1.00	0.00	0.00	955.10	296.00	962.56	0.00	962.59	4.05	1.76	321.56	147.13
37.300	50.00	0.00	0.00	955.10	296.00	962.51	0.00	962.57	7.24	2.35	211.23	110.00
37.300	50.00	0.00	0.00	955.10	296.00	962.57	0.00	962.62	6.77	2.29	217.07	113.73
38.000	1375.00	0.00	0.00	957.75	296.00	962.96	0.00	962.97	1.54	1.06	619.43	238.77
38.000	1375.00	0.00	0.00	957.75	296.00	963.03	0.00	963.04	1.64	1.11	538.16	230.89

MOORE BUSINESS FORMS, INC. 23

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	360.00	955.67	0.00	0.00	0.00	400.41	2100.00
30.000	360.00	955.67	0.00	0.00	0.00	299.13	2100.00
30.600	360.00	956.61	0.00	.94	0.00	277.54	1725.00
30.600	360.00	956.69	.08	1.02	.08	212.81	1725.00
30.700	360.00	956.87	0.00	.26	0.00	114.00	375.00
30.700	360.00	956.95	.08	.26	.08	114.00	375.00
30.800	360.00	956.99	0.00	.12	0.00	45.00	139.00
30.800	360.00	957.06	.07	.11	.07	45.00	139.00
30.900	360.00	956.98	0.00	-.01	0.00	14.09	62.00
30.900	360.00	957.04	.07	-.01	.07	14.09	62.00
32.100	360.00	957.03	0.00	.06	0.00	14.09	188.00
32.100	360.00	957.10	.07	.05	.07	14.09	188.00
32.300	326.00	957.33	0.00	.30	0.00	97.11	42.00
32.300	326.00	957.38	.05	.28	.05	49.13	42.00
32.700	326.00	957.96	0.00	.64	0.00	144.78	1000.00
32.700	326.00	958.07	.10	.68	.10	103.79	1000.00
32.800	326.00	958.07	0.00	.10	0.00	57.00	200.00
32.800	326.00	958.17	.10	.11	.10	57.00	200.00
32.900	326.00	958.14	0.00	.07	0.00	21.74	72.00
32.900	326.00	958.24	.10	.06	.10	21.74	72.00
33.100	302.00	958.50	0.00	.36	0.00	21.74	50.00
33.100	302.00	958.60	.10	.37	.10	21.74	50.00
33.300	302.00	958.60	0.00	.10	0.00	120.00	50.00
33.300	302.00	958.70	.10	.10	.10	120.00	50.00
33.400	302.00	958.62	0.00	.02	0.00	247.76	75.00
33.400	302.00	958.72	.10	.02	.10	151.20	75.00
33.500	302.00	958.85	0.00	.23	0.00	992.98	1100.00
33.500	302.00	958.96	.10	.24	.10	409.91	1100.00
33.800	302.00	959.66	0.00	.80	0.00	33.00	1550.00
33.800	302.00	959.75	.09	.79	.09	33.00	1550.00
33.900	302.00	959.63	0.00	-.03	0.00	11.00	44.00
33.900	302.00	959.72	.09	-.03	.09	11.00	44.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
34.100	302.00	959.94	0.00	.31	0.00	11.00	46.00
34.100	302.00	960.01	.07	.29	.07	11.00	46.00
34.300	302.00	961.12	0.00	1.18	0.00	110.00	50.00
34.300	302.00	961.17	.06	1.17	.06	110.00	50.00
34.400	302.00	961.16	0.00	.04	0.00	249.07	70.00
34.400	302.00	961.21	.05	.03	.05	86.13	70.00
34.700	302.00	961.38	0.00	.22	0.00	333.00	950.00
34.700	302.00	961.43	.05	.22	.05	333.00	950.00
34.800	302.00	961.46	0.00	.08	0.00	33.00	600.00
34.800	302.00	961.51	.05	.08	.05	33.00	600.00
34.900	296.00	961.44	0.00	-.02	0.00	17.00	44.00
34.900	296.00	961.49	.05	-.02	.05	17.00	44.00
35.100	296.00	962.19	0.00	.75	0.00	17.00	80.00
35.100	296.00	962.24	.05	.75	.05	17.00	80.00
35.300	296.00	962.32	0.00	.14	0.00	122.00	50.00
35.300	296.00	962.37	.05	.13	.05	122.00	50.00
35.800	296.00	962.36	0.00	.03	0.00	317.34	490.00
35.800	296.00	962.40	.05	.03	.05	163.65	490.00
35.900	296.00	962.35	0.00	-.00	0.00	263.12	36.00
35.900	296.00	962.40	.04	-.00	.04	159.03	36.00
36.000	296.00	962.37	0.00	.01	0.00	263.29	1.00
36.000	296.00	962.41	.04	.01	.04	157.85	1.00
36.100	296.00	962.41	0.00	.04	0.00	267.58	41.00
36.100	296.00	962.46	.05	.05	.05	160.96	41.00
36.200	296.00	962.41	0.00	-.00	0.00	268.37	1.00
36.200	296.00	962.46	.05	-.00	.05	162.97	1.00
36.300	296.00	962.43	0.00	.03	0.00	331.23	50.00
36.300	296.00	962.49	.05	.03	.05	170.78	50.00
36.800	296.00	962.46	0.00	.02	0.00	333.34	150.00
36.800	296.00	962.51	.05	.02	.05	168.14	150.00
36.900	296.00	962.46	0.00	.01	0.00	279.44	50.00
36.900	296.00	962.52	.05	.01	.05	167.10	50.00
37.000	296.00	962.47	0.00	.01	0.00	279.46	1.00
37.000	296.00	962.52	.05	.01	.05	164.96	1.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
37.100	296.00	962.51	0.00	.03	0.00	283.46	40.50
37.100	296.00	962.56	.05	.04	.05	168.12	40.50
37.200	296.00	962.50	0.00	-.00	0.00	284.53	1.00
37.200	296.00	962.56	.06	-.00	.06	172.00	1.00
37.300	296.00	962.51	0.00	.01	0.00	100.00	50.00
37.300	296.00	962.57	.06	.01	.06	100.00	50.00
38.000	296.00	962.96	0.00	.45	0.00	522.18	1375.00
38.000	296.00	963.03	.06	.45	.06	371.01	1375.00

MOORE BUSINESS FORMS, INC.

SUMMARY OF ERRORS

MOORE BUSINESS FORMS, INC. 23

FLOODWAY DATA. MC CAIN DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
30.000	308.	475.	.8	955.7	955.7	0.0
30.600	213.	447.	.8	956.7	956.6	.1
30.700	114.	273.	1.3	957.0	956.9	.1
30.800	45.	196.	1.8	957.1	957.0	.1
30.900	14.	81.	4.4	957.1	957.0	.1
32.100	14.	85.	4.2	957.1	957.0	.1
32.300	49.	178.	1.8	957.4	957.3	.1
32.700	104.	218.	1.5	958.1	958.0	.1
32.800	57.	150.	2.2	958.2	958.1	.1
32.900	22.	120.	2.7	958.2	958.1	.1
33.100	22.	130.	2.3	958.6	958.5	.1
33.300	120.	345.	.9	958.7	958.6	.1
33.400	151.	406.	.7	958.7	958.6	.1
33.500	410.	452.	.7	959.0	958.9	.1
33.800	33.	107.	2.8	959.8	959.7	.1
33.900	11.	49.	6.1	959.7	959.6	.1
34.100	11.	39.	7.6	960.0	959.9	.1
34.300	110.	251.	1.2	961.2	961.1	.1
34.400	86.	233.	1.3	961.2	961.2	0.0
34.700	333.	579.	.5	961.5	961.4	.1
34.800	33.	187.	1.6	961.5	961.5	0.0
34.900	17.	98.	3.0	961.4	961.4	0.0
35.100	17.	110.	2.7	962.2	962.2	0.0
35.300	122.	475.	.6	962.3	962.3	0.0
35.800	164.	401.	.7	962.4	962.4	0.0
35.900	159.	282.	1.1	962.4	962.4	0.0
36.000	158.	242.	1.2	962.4	962.4	0.0
36.100	161.	254.	1.2	962.4	962.4	0.0
36.200	163.	295.	1.0	962.4	962.4	0.0
36.300	171.	366.	.8	962.5	962.4	.1
36.800	168.	368.	.8	962.6	962.5	.1
36.900	167.	309.	1.0	962.6	962.5	.1
37.000	165.	271.	1.1	962.6	962.5	.1
37.100	168.	281.	1.1	962.6	962.5	.1
37.200	172.	322.	.9	962.6	962.5	.1
37.300	100.	217.	1.4	962.6	962.5	.1
38.000	375.	538.	.6	963.1	963.0	.1

MOORE BUSINESS FORMS, INC. 23

EWC - [RJW]
MCCAIN
10-13-80

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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 10/20/80

MOORE BUSINESS FORMS, INC. 23

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Mc CAIN DRAIN

4) DOCUMENT TYPE: ~~Cover~~ Convergence run Summary

00BREAK00

Convergence Run

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**********************************************************
  HEC2 RELEASE DATED NOV. 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

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

 C CAIN DRAIN

 SUMMARY PRINTOUT
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SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
26.000	945.57	938.76	0.00	0.00	1949.46	0.00	1995.00	2038.00	0.00	2367.39	417.93	0.00
26.000	944.57	938.76	0.00	0.00	1994.55	0.00	1995.00	2038.00	0.00	2202.00	177.07	0.00
26.000	946.57	938.76	0.00	0.00	1891.50	0.00	1995.00	2038.00	0.00	2500.40	608.90	0.00
27.000	948.38	942.16	0.00	0.00	1915.51	0.00	1995.00	2037.00	0.00	2281.74	366.22	5300.00
27.000	948.57	942.16	0.00	0.00	1911.21	0.00	1995.00	2037.00	0.00	2300.69	389.49	5300.00
27.000	948.12	942.16	0.00	0.00	1921.35	0.00	1995.00	2037.00	0.00	2256.04	334.69	5300.00
28.000	951.11	945.56	0.00	0.00	1786.81	0.00	1995.00	2035.00	0.00	2262.19	475.38	5200.00
28.000	951.07	945.56	0.00	0.00	1787.36	0.00	1995.00	2035.00	0.00	2260.46	473.10	5200.00
28.000	951.17	945.56	0.00	0.00	1786.01	0.00	1995.00	2035.00	0.00	2264.77	478.76	5200.00
28.800	954.86	948.56	0.00	0.00	1987.36	0.00	1994.00	2032.00	0.00	2230.81	243.45	4800.00
28.800	954.89	948.56	0.00	0.00	1987.14	0.00	1994.00	2032.00	0.00	2232.38	245.24	4800.00
28.800	954.81	948.56	0.00	0.00	1987.74	0.00	1994.00	2032.00	0.00	2228.18	240.44	4800.00
28.900	955.21	947.62	0.00	0.00	1802.25	0.00	1994.00	2032.00	0.00	2287.37	485.12	700.00
28.900	955.23	947.62	0.00	0.00	1801.94	0.00	1994.00	2032.00	0.00	2288.01	486.08	700.00
28.900	955.17	947.62	0.00	0.00	1802.71	0.00	1994.00	2032.00	0.00	2286.43	483.72	700.00
29.100	955.01	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.100	955.03	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.100	954.97	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.300	955.26	948.56	0.00	0.00	1984.68	0.00	1994.00	2032.00	0.00	2249.46	264.79	50.00
29.300	955.28	948.56	0.00	0.00	1984.53	0.00	1994.00	2032.00	0.00	2250.49	265.96	50.00
29.300	955.22	948.56	0.00	0.00	1984.89	0.00	1994.00	2032.00	0.00	2247.96	263.07	50.00
30.000	955.67	950.20	0.00	0.00	1815.99	0.00	1994.00	2032.00	0.00	2225.22	400.76	2100.00
30.000	955.69	950.20	0.00	0.00	1815.91	0.00	1994.00	2032.00	0.00	2225.90	401.71	2100.00
30.000	955.65	950.20	0.00	0.00	1816.10	0.00	1994.00	2032.00	0.00	2224.25	399.38	2100.00
30.600	956.62	951.00	0.00	0.00	1804.45	0.00	1995.00	2028.00	0.00	2081.92	277.46	1725.00
30.600	956.62	951.00	0.00	0.00	1804.44	0.00	1995.00	2028.00	0.00	2081.98	277.54	1725.00
30.600	956.61	951.00	0.00	0.00	1804.48	0.00	1995.00	2028.00	0.00	2081.83	277.36	1725.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.55	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.04	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.300	957.33	950.90	0.00	0.00	1986.11	0.00	1992.00	2015.00	0.00	2083.28	97.17	42.00
32.300	957.33	950.90	0.00	0.00	1986.11	0.00	1992.00	2015.00	0.00	2083.31	97.20	42.00
32.300	957.33	950.90	0.00	0.00	1986.12	0.00	1992.00	2015.00	0.00	2083.23	97.12	42.00
32.700	957.97	951.80	0.00	0.00	2076.90	0.00	2093.00	2111.00	0.00	2221.70	144.80	1000.00
32.700	957.97	951.80	0.00	0.00	2076.89	0.00	2093.00	2111.00	0.00	2221.71	144.82	1000.00
32.700	957.97	951.80	0.00	0.00	2076.91	0.00	2093.00	2111.00	0.00	2221.69	144.78	1000.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.400	958.62	952.10	0.00	0.00	1784.42	0.00	2000.00	2026.00	0.00	2032.26	247.84	75.00
33.400	958.62	952.10	0.00	0.00	1784.37	0.00	2000.00	2026.00	0.00	2032.26	247.89	75.00
33.400	958.62	952.10	0.00	0.00	1784.48	0.00	2000.00	2026.00	0.00	2032.26	247.78	75.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00

SECNO	CNSEL	ELMIN	ELLC	FLTPD	SSTA	STFNCL	STCHL	STCHR	CRIWS	ENDST	TOPWTR	XLEN
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.41	263.47	1.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.41	263.47	1.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.42	263.47	1.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.10	150.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.09	150.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.10	150.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00

SECNO	CWSEL	ELMIN	ELLOB	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
37.000	962.49	955.10	958.30	960.80	1922.34	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.000	962.49	955.10	958.30	960.80	1922.34	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.000	962.49	955.10	958.30	960.80	1922.33	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.56	50.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.56	50.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.57	50.00
38.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00
38.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00
38.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCain Drain

4) DOCUMENT TYPE: Input data

00BREAK00

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED APRIL 1980                                    *
*                                                        *
*  RUN DATE  80/10/13.  TIME  07.12.42.                  *
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616             *
*  (916) 440-2105 (FTS) 448-2105       *
****************************************
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Multi-Profile
McCain
10-13-80

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

Received
10/20/80

*GENERAL MESSAGE

*HEC-2 MESSAGE

** HEC-2 MESSAGE **

MAY 13 -- THE STANDARD VERSION OF HEC-2 HAS BEEN UPDATE TO INCLUDE MODIFICATION 54 AND ERROR CORRECTION 04. DOCUMENTATION DESCRIBING THESE CHANGE WILL BE FURNISHED TO PROGRAM USERS IN JUNE. PLEASE CALL AL MONTALVO OR RICHARD HAYES AT (FTS) 448=2105 IF YOU HAVE QUESTIONS REGARDING THESE CHANGES.

**** SUMMARY OF MODIFICATION 54 ****

1. HEC-2 OUTPUT HAS BEEN MADE MORE READABLE BY THE ADDITION OF A PAGING ROUTINE TO CONTROL PRINTING AND PAGING. THE ROUTINE ALSO PROVIDES A PAGE NUMBER AND DATE AT THE TOP OF EACH PAGE OF OUTPUT. THIS ENHANCEMENT WAS REQUESTED BY THE FORT WORTH DISTRICT.

2. THE PROGRAM WILL NOW AUTOMATICALLY CALCULATE FLOOD HAZARD FACTORS FOR STREAMS WHICH REQUIRE MULTIPLE FIA ZONES.

MOORE BUSINESS FORMS, INC. 23

3. THE CHANNEL IMPROVEMENT (CHIMP) ROUTINE HAS BEEN ENHANCED TO PROVIDE THE CAPABILITY TO MODEL PILOT CHANNELS, TO FILL THE OLD CHANNEL AREA PRIOR TO EXCAVATION, AND TO CHANGE THE CHANNEL REACH LENGTH.

MOORE BUSINESS FORMS, INC. 23

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

C
I1      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN.
T2      10 YR LEVEL
I3      MC CAIN DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	954.760	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	150.000	201.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
J5	LPRNT	NUMSEC	********REQUESTED SECTION NUMBERS********							
	-10.000	-10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	234.000	312.000	360.000	520.000	360.000	0.000	0.000	0.000	0.000
NC	.130	.130	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

X1	30.000	41.000	1994.000	2032.000	2100.000	2100.000	2100.000	0.000	0.000	0.000
GR	974.300	1180.000	970.400	1228.000	970.900	1239.000	966.700	1352.000	966.200	1401.000
GR	964.600	1439.000	964.200	1502.000	962.100	1544.000	962.400	1606.000	958.600	1650.000
GR	959.500	1669.000	959.300	1690.000	959.200	1696.000	960.600	1720.000	961.100	1759.000
GR	958.300	1785.000	956.400	1812.000	954.400	1823.000	953.700	1896.000	955.100	1914.000
GR	955.400	1975.000	956.300	1984.000	954.900	1989.000	954.800	1994.000	952.300	2000.000
GR	952.200	2000.000	951.300	2005.000	951.300	2008.000	950.400	2013.000	950.200	2019.000
GR	951.200	2022.000	952.300	2025.000	954.200	2032.000	955.100	2035.000	953.900	2045.000
GR	954.000	2108.000	954.700	2180.000	956.900	2282.000	961.400	2412.000	967.500	2486.000
GR	971.400	2542.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.600	28.000	1995.000	2028.000	1725.000	1725.000	1725.000	0.000	0.000	0.000
GR	975.300	1109.000	974.500	1133.000	970.700	1177.000	965.700	1318.000	963.100	1416.000
GR	964.800	1476.000	963.700	1544.000	963.200	1596.000	964.000	1686.000	962.000	1763.000
GR	954.200	1823.000	955.500	1983.000	954.600	1995.000	952.000	2000.000	951.000	2004.000
GR	952.000	2010.000	954.000	2020.000	955.200	2028.000	955.200	2046.000	957.400	2102.000
GR	958.200	2197.000	959.300	2223.000	959.600	2238.000	959.500	2253.000	959.700	2259.000

MOORE BUSINESS FORMS, INC. 23

GR	961.100	2268.000	962.600	2326.000	963.700	2366.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1916.000	2030.000	0.000	0.000
X1	30.700	0.000	0.000	0.000	375.000	375.000	375.000	0.000	0.000	0.000
NC	.080	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1985.000	2030.000	0.000	0.000
X1	30.800	30.000	1987.000	2011.000	200.000	83.000	139.000	0.000	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.300	1300.000	957.500	1785.000
GR	955.900	1876.000	955.200	1980.000	953.000	1987.000	952.100	2000.000	950.800	2005.000
GR	950.800	2008.000	953.000	2011.000	956.300	2071.000	958.700	2167.000	959.700	2259.000
GR	960.700	2344.000	961.400	2443.000	961.500	2540.000	963.600	2634.000	966.600	2795.000
GR	966.700	2869.000	968.400	2970.000	971.600	3072.000	975.400	3196.000	978.700	3275.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

X1	30.900	38.000	2000.000	2017.000	60.000	75.000	62.000	.829	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.900	1338.000	961.900	1442.000
GR	961.200	1570.000	960.600	1678.000	960.200	1783.000	960.100	1890.000	960.300	1985.000
GR	960.400	1996.000	960.500	2000.000	951.500	2000.000	951.300	2006.000	950.800	2008.300
GR	951.300	2008.400	951.300	2009.200	951.300	2009.300	951.300	2017.000	960.500	2017.000
GR	960.700	2050.000	960.900	2083.000	961.500	2188.000	962.400	2317.000	963.700	2429.000
GR	964.500	2517.000	965.900	2620.000	967.400	2719.000	969.000	2817.000	970.900	2917.000
GR	972.700	3081.000	975.400	3196.000	978.700	3275.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	2.100	3.000	0.000	13.500	.829	85.000	0.000	950.800	950.800

BRIDGE SECTION C(UPSTREAM FACE M-60)

X1	32.100	38.000	2000.000	2017.000	188.000	188.000	188.000	.829	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.829	0.000
BT	37.000	434.000	970.100	0.000	524.000	969.400	0.000	640.000	968.800	0.000
BT	733.000	968.100	0.000	828.000	967.100	0.000	929.000	966.400	0.000	1028.000
BT	965.500	0.000	1128.000	964.500	0.000	1229.000	963.500	0.000	1328.000	962.500
BT	0.000	1430.000	961.700	0.000	1600.000	961.200	0.000	1700.000	961.000	0.000
BT	1800.000	960.800	0.000	1900.000	960.700	0.000	1950.000	960.600	0.000	1980.000
BT	960.400	0.000	2000.000	960.300	951.800	2000.000	960.300	957.500	2008.200	960.500
BT	957.500	2008.300	960.300	950.900	2009.200	960.300	950.900	2009.300	960.300	957.500
BT	2017.000	960.300	957.500	2017.000	960.300	951.100	2050.000	960.300	0.000	2090.000
BT	960.400	0.000	2194.000	960.900	0.000	2291.000	961.500	0.000	2391.000	962.300
BT	0.000	2491.000	963.300	0.000	2592.000	964.400	0.000	2692.000	965.800	0.000
BT	2791.000	967.400	0.000	2893.000	962.200	0.000	2991.000	971.000	0.000	3094.000
BT	972.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	970.100	434.000	969.400	524.000	968.800	640.000	968.100	733.000	967.100	828.000
GR	966.400	929.000	965.500	1028.000	964.500	1128.000	963.500	1229.000	962.500	1328.000
GR	961.700	1430.000	961.200	1600.000	961.000	1700.000	960.800	1800.000	960.700	1900.000
GR	960.600	1950.000	960.400	1980.000	960.300	2000.000	951.800	2000.000	951.000	2004.000

MOORE BUSINESS FORMS, INC. 23

GR	951.000	2008.200	950.900	2008.300	950.900	2009.200	950.800	2009.300	951.100	2017.000
GR	960.300	2017.000	960.300	2050.000	960.400	2090.000	960.900	2194.000	961.500	2291.000
GR	962.300	2391.000	963.300	2491.000	964.400	2592.000	965.800	2692.000	967.400	2791.000
GR	962.200	2893.000	971.000	2991.000	972.900	3094.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
QT	5.000	212.000	283.000	326.000	471.000	326.000	0.000	0.000	0.000	0.000
NC	.100	.090	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.300	35.000	1992.000	2015.000	42.000	42.000	42.000	0.000	0.000	0.000
GR	974.800	1397.000	964.600	1435.000	962.100	1537.000	961.200	1600.000	960.700	1645.000
GR	960.400	1713.000	959.200	1911.000	959.000	1944.000	959.100	1973.000	958.400	1982.000
GR	957.100	1987.000	955.900	1990.000	954.800	1992.000	953.600	1994.000	952.500	1997.000
GR	952.100	1998.000	952.000	2000.000	951.000	2004.000	950.900	2008.000	952.000	2011.000
GR	954.600	2015.000	957.400	2085.000	958.800	2153.000	959.000	2202.000	960.300	2303.000
GR	962.500	2407.000	964.900	2511.000	965.600	2617.000	965.100	2719.000	963.800	2790.000
GR	968.800	2910.000	970.800	3012.000	970.700	3068.000	971.900	3162.000	975.400	3255.000
NC	.080	.070	.044	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	32.700	43.000	2093.000	2111.000	950.000	1050.000	1000.000	0.000	0.000	0.000
GR	972.800	1156.000	968.900	1252.000	967.000	1300.000	963.800	1402.000	961.700	1500.000
GR	961.100	1598.000	960.600	1698.000	960.700	1796.000	960.700	1895.000	960.600	2000.000
GR	960.200	2019.000	959.500	2030.000	959.200	2063.000	957.600	2081.000	953.200	2093.000
GR	952.800	2100.000	952.100	2102.000	951.900	2105.000	951.800	2105.000	952.200	2106.000
GR	952.700	2107.000	953.400	2111.000	957.500	2119.000	957.900	2139.000	956.200	2150.000
GR	957.400	2214.000	958.500	2229.000	958.900	2296.000	959.800	2352.000	959.700	2391.000
GR	959.900	2484.000	961.100	2617.000	962.300	2696.000	963.300	2785.000	965.400	2868.000
GR	967.300	2969.000	971.300	3105.000	974.400	3209.000	977.000	3310.000	979.400	3412.000
GR	981.100	3558.000	982.900	3662.000	983.600	3699.000	0.000	0.000	0.000	0.000
NC	.070	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2090.000	2147.000	0.000	0.000
X1	32.800	0.000	0.000	0.000	150.000	250.000	200.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	32.900	39.000	2000.000	2024.000	33.000	200.000	72.000	.906	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	961.700	1400.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.800	2008.000	952.900	2010.000	953.000	2014.000	952.900	2016.000	952.800	2019.000
GR	953.000	2022.000	953.000	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
QT	5.000	196.000	262.000	302.000	436.000	302.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	3.000	0.000	13.450	0.000	79.400	0.000	952.000	952.000

MOORE MEDICAL CORP., INC. 23

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

X1	33.100	39.000	2000.000	2024.000	50.000	50.000	50.000	.906	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.906	0.000
BT	41.000	1056.000	972.800	0.000	1152.000	968.900	0.000	1200.000	967.000	0.000
BT	1302.000	963.800	0.000	1400.000	961.700	0.000	1498.000	961.100	0.000	1598.000
BT	960.600	0.000	1696.000	960.700	0.000	1795.000	960.700	0.000	1900.000	960.600
BT	0.000	1980.000	960.900	0.000	2000.000	961.000	952.900	2000.000	961.000	953.900
BT	2002.000	961.000	956.900	2005.000	961.000	957.900	2008.000	961.000	956.900	2010.000
BT	961.000	953.900	2010.000	961.000	952.700	2014.000	961.000	952.700	2014.000	961.000
BT	953.900	2016.000	961.000	956.900	2019.000	961.000	957.900	2022.000	961.100	956.900
BT	2024.000	961.100	953.900	2024.000	961.100	953.400	2075.000	961.500	0.000	2106.000
BT	960.800	0.000	2209.000	960.800	0.000	2312.000	961.100	0.000	2420.000	961.400
BT	0.000	2551.000	961.900	0.000	2653.000	962.100	0.000	2753.000	962.800	0.000
BT	2858.000	963.900	0.000	2962.000	965.100	0.000	3065.000	966.100	0.000	3269.000
BT	967.000	0.000	3317.000	966.700	0.000	3416.000	967.000	0.000	3517.000	967.600
BT	0.000	3622.000	967.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.400	2008.000	952.700	2010.000	952.700	2014.000	952.700	2016.000	952.800	2019.000
GR	953.000	2022.000	953.400	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1908.000	2028.000	0.000	0.000

X1	33.300	34.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	959.300	1726.000	958.500	1795.000	956.700	1901.000
GR	956.500	1995.000	956.900	2000.000	952.400	2002.000	952.100	2008.000	952.500	2010.000
GR	952.800	2019.000	953.200	2024.000	957.200	2026.000	959.700	2037.000	959.700	2072.000
GR	960.800	2106.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	.070	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	33.400	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000

X1	33.500	17.000	2000.000	2026.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	964.000	1100.000	960.000	1300.000	959.000	1500.000	958.700	1795.000	958.000	1900.000
GR	957.900	2000.000	953.400	2002.000	953.000	2008.000	953.000	2010.000	953.300	2019.000
GR	953.200	2024.000	957.200	2026.000	958.300	2100.000	958.600	2500.000	959.000	2700.000
GR	960.700	3000.000	964.000	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2028.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	33.800	36.000	2000.000	2019.000	1920.000	1050.000	1550.000	0.000	0.000	0.000
GR	983.700	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.500	1960.000	960.500	1980.000	960.500	1989.000
GR	956.300	2000.000	954.800	2003.000	954.800	2007.000	955.200	2011.000	957.400	2019.000
GR	957.900	2024.000	960.300	2033.000	961.300	2055.000	961.400	2138.000	961.800	2272.000
GR	962.000	2412.000	963.100	2444.000	962.200	2468.000	962.800	2648.000	963.400	2739.000
GR	962.000	3101.000	963.000	3160.000	963.900	3283.000	964.000	3351.000	965.000	3408.000
GR	966.000	3537.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.900	33.000	2004.000	2015.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2004.000	955.200	2004.000	955.100	2005.000
GR	955.200	2008.000	955.200	2009.500	955.300	2011.000	955.300	2014.000	955.400	2015.000
GR	962.500	2015.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
SB	0.000	1.700	2.920	0.000	8.800	0.000	47.500	0.000	955.100	955.100

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

X1	34.100	33.000	2000.000	2011.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	31.000	675.000	979.900	0.000	737.000	977.700	0.000	859.000	971.600	0.000
BT	977.000	967.000	0.000	1100.000	964.300	0.000	1229.000	962.900	0.000	1356.000
BT	962.600	0.000	1485.000	962.600	0.000	1612.000	962.200	0.000	1739.000	962.200
BT	0.000	1870.000	962.200	0.000	1950.000	962.200	0.000	2000.000	962.500	955.100
BT	2001.000	962.500	959.000	2003.000	962.500	959.800	2005.500	962.500	960.500	2008.000
BT	962.500	959.600	2010.000	962.500	958.000	2011.000	962.200	955.800	2020.000	962.500
BT	0.000	2050.000	962.600	0.000	2100.000	962.700	0.000	2219.000	962.900	0.000
BT	2373.000	963.200	0.000	2587.000	963.700	0.000	2741.000	963.500	0.000	2899.000
BT	962.800	0.000	3056.000	962.900	0.000	3265.000	964.500	0.000	3482.000	965.800
BT	0.000	3638.000	967.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2000.000	955.100	2000.000	955.200	2001.000
GR	955.400	2004.000	955.700	2005.500	955.500	2008.000	955.800	2010.000	955.800	2011.000
GR	962.500	2011.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
ET	0.000	7.100	7.100	7.100	7.100	7.100	1960.000	2070.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	34.300	34.000	1995.000	2016.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	983.000	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.100	1987.000	958.000	1995.000	955.400	2000.000
GR	955.300	2003.000	955.100	2005.000	955.800	2011.000	958.100	2016.000	958.800	2023.000
GR	961.100	2117.000	960.800	2170.000	962.900	2219.000	962.000	2412.000	963.100	2444.000
GR	962.200	2468.000	962.800	2648.000	963.400	2739.000	963.000	3101.000	963.000	3160.000
GR	963.900	3283.000	964.000	3351.000	965.000	3408.000	966.000	3537.000	0.000	0.000
NC	.070	.070	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	34.400	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1980.000	2313.000	0.000	0.000
X1	34.700	29.000	2000.000	2031.000	960.000	933.000	950.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	958.400	2000.000	956.400	2004.000
GR	955.400	2008.000	955.900	2013.000	955.200	2018.000	955.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.400	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2033.000	0.000	0.000
X1	34.800	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
QT	5.000	158.000	236.000	296.000	484.000	296.000	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	34.900	48.000	2000.000	2017.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	978.000	1430.000	974.100	1543.000	971.000	1639.000	970.400	1697.000	968.500	1703.000
GR	967.900	1730.000	965.100	1797.000	964.600	1802.000	963.700	1894.000	963.400	1902.000
GR	964.000	1950.000	964.600	2000.000	956.200	2000.000	956.100	2000.500	956.000	2001.500
GR	955.900	2003.000	955.800	2004.000	955.700	2005.000	955.500	2006.500	955.300	2007.500
GR	955.300	2008.000	955.300	2009.000	955.300	2009.500	955.400	2010.500	955.700	2012.000
GR	955.900	2013.000	956.000	2014.000	956.100	2015.500	956.100	2016.500	956.100	2017.000
GR	964.600	2017.000	964.200	2020.000	964.200	2050.000	963.800	2110.000	963.600	2205.000
GR	963.400	2305.000	963.700	2406.000	963.800	2500.000	965.400	2600.000	966.100	2700.000
GR	968.900	2800.000	970.500	2900.000	972.100	3000.000	973.900	3100.000	975.500	3200.000
GR	976.800	3288.000	979.700	3387.000	981.900	3451.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.950	0.000	11.680	0.000	50.260	0.000	955.300	955.300

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

MOORE BUSINESS FORMS, INC. 22

X1	35.100	0.000	0.000	0.000	80.000	80.000	80.000	0.000	0.000	0.000
BT	46.000	1430.000	978.000	0.000	1543.000	974.100	0.000	1639.000	971.000	0.000
BT	1697.000	970.400	0.000	1703.000	968.500	0.000	1730.000	967.900	0.000	1797.000
BT	965.100	0.000	1802.000	964.600	0.000	1894.000	963.700	0.000	1902.000	963.400
BT	0.000	1950.000	964.000	0.000	2000.000	964.600	956.200	2000.500	964.600	958.000
BT	2001.500	964.600	958.800	2003.000	964.600	959.500	2004.000	964.600	959.600	2005.000
BT	964.600	959.500	2006.500	964.600	958.800	2007.500	964.600	958.000	2008.000	964.600
BT	955.300	2009.000	964.600	955.300	2009.500	964.600	958.000	2010.500	964.600	958.800
BT	2012.000	964.600	959.500	2013.000	964.600	959.600	2014.000	964.600	959.500	2015.500
BT	964.600	958.800	2016.500	964.600	958.000	2017.000	964.600	956.100	2020.000	964.200
BT	0.000	2050.000	964.200	0.000	2110.000	963.800	0.000	2205.000	963.600	0.000
BT	2305.000	963.400	0.000	2406.000	963.700	0.000	2500.000	963.800	0.000	2600.000
BT	965.400	0.000	2700.000	966.100	0.000	2800.000	968.900	0.000	2900.000	970.500
BT	0.000	3000.000	972.100	0.000	3100.000	973.900	0.000	3200.000	975.500	0.000
BT	3288.000	976.800	0.000	3387.000	979.700	0.000	3451.000	981.900	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1990.000	2112.000	0.000	0.000
X1	35.300	29.000	2000.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	956.400	2000.000	955.400	2004.000
GR	954.400	2008.000	954.300	2013.000	954.200	2018.000	954.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.000	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	35.800	26.000	1995.000	2036.000	619.000	383.000	490.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	954.700	2007.000
GR	954.900	2013.000	957.000	2021.000	960.900	2036.000	960.600	2093.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
GR	980.900	3210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	35.900	40.000	2000.000	2011.000	36.000	36.000	36.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.600	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	36.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.300	2001.000	960.800	957.600	2002.000	960.800	958.000	2003.000	960.800	958.000
BT	2004.000	960.800	957.600	2004.500	960.800	957.300	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.300	2007.000	960.800	957.700	2008.000	960.800
BT	958.000	2009.000	960.800	958.000	2010.000	960.800	957.700	2010.500	960.800	957.300
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.200	0.000	0.000	0.000

BRIDGE SECTION G(CHRISTI HIGH)

X1	36.100	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	36.300	25.000	1995.000	2036.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	956.300	2007.000
GR	956.300	2013.000	957.000	2021.000	960.900	2030.000	960.600	2036.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	36.800	0.000	0.000	0.000	150.000	150.000	150.000	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	36.900	40.000	2000.000	2011.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.200	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	37.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.600	2001.000	960.800	957.900	2002.000	960.800	958.300	2003.000	960.800	958.300
BT	2004.000	960.800	957.900	2004.500	960.800	957.600	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.600	2007.000	960.800	957.900	2008.000	960.800
BT	958.300	2009.000	960.800	958.300	2010.000	960.800	957.900	2010.500	960.800	957.600
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.000	0.000	0.000	0.000

BRIDGE SECTION A(CHRISTI HIGH)

X1	37.100	0.000	0.000	0.000	40.500	40.500	40.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	37.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1961.000	2061.000	0.000	0.000
X1	37.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	38.000	45.000	2262.000	2298.000	1383.000	1400.000	1375.000	0.000	0.000	0.000
GR	969.400	486.000	970.600	518.000	971.400	566.000	975.000	670.000	977.800	774.000
GR	979.800	874.000	980.000	975.000	979.000	1130.000	979.300	1234.000	979.500	1337.000
GR	978.000	1422.000	974.600	1534.000	971.500	1641.000	967.200	1760.000	963.500	1895.000
GR	961.600	2000.000	961.700	2103.000	961.700	2208.000	961.900	2262.000	959.400	2270.000
GR	958.700	2275.000	958.300	2280.000	957.750	2283.000	959.200	2290.000	960.000	2294.000
GR	961.600	2298.000	963.100	2306.000	962.700	2327.000	961.800	2330.000	962.400	2441.000
GR	964.900	2502.000	967.400	2541.000	969.800	2589.000	971.000	2706.000	970.100	2808.000
GR	973.100	2942.000	974.100	3062.000	972.600	3073.000	972.900	3150.000	974.300	3165.000
GR	976.200	3268.000	977.900	3375.000	980.900	3450.000	983.600	3507.000	983.700	3572.000
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. 23

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

T1
T2
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	955.480	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

T1
T2       100-YEAR FLOOD
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.    955.670     0.000
J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

T1
T2       500 YR FLOW
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       5.        0.        0.  0.000000      0.00      0.0       0.    956.100     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
```

MOORE BUSINESS FORMS, INC. 23



1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCAIN DRAIN ~~Grand River~~

4) DOCUMENT TYPE: Report



HYDRAULIC ANALYSIS REPORT

MC CAIN DRAIN AT THE TOWNSHIP OF SUMMIT
JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

August, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for McCain Drain within the corporate boundary of the township of Summit. The reach studied in detail began at the west township boundary line and extended about 10,850 feet upstream. McCain Drain flows in a northwesterly direction in the northwest portion of the township. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates Inc. in November 1978. In addition to field cross-section data, a 7.5 minute series topographic map with 10-foot contour interval, along with a 5-foot contour map were used.

The flows for the 10-year, 50-year, 100-year, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated March 24, 1980.

Analysis of the hydraulic characteristic of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material, and without an in-depth study an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. Calcuations for loss coefficients and coefficients of discharge are contained in Appendix A.

Manning's Roughness Coefficients

For Channel	.04 - .05
For Overbank	.06 - .13

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

The only high-water mark for McCain Drain is located at M-60 highway. An elevation of 955 was recorded on July 5, 1971. This information was obtained from Geoffrey Snyder, Jackson County Drain Commissioner. Rainfall data shows about 2.78 inches fell in a 24-hour period. In compliance with Technical Paper 40, reference 1, that quantity of rainfall would correspond to a recurrence interval of less than 10-year frequency. The analysis we have made with regards to computed water surface elevations compares favorably with the above condition.

STARTING CONDITIONS

The starting water surface elevation was specified by the slope area method. A starting slope of .00064 feet per feet was used. The starting water surface elevation was varied by two feet from the slope-area depth to ensure that the water surfaces converged at the downstream limit of the study. A copy of the convergence run printout is contained in Appendix E.

SPECIAL PROBLEMS

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	30	Valley Section, downstream limit study
	30.6	Valley Section
	30.7	Valley Section, Repeated Section
	30.8	Valley Section, downstream face
B	30.9	Downstream Face, M-60 Highway
C	32.1	Upstream Face, M-60 Highway
	32.3	Valley Section
	32.7	Valley Section
	32.8	Valley Section, Repeated Section
	32.9	Bridge Section, downstream face
D	33.1	Upstream Face
	33.3	Valley Section
	33.4	Valley Section, Repeated Section
	33.5	Valley Section
	33.8	Valley Section, Bridge Section
	33.9	Bridge Section, Downstream Face
E	34.1	Upstream Face, Robinson Road
	34.3	Valley Section
	34.4	Valley Section, Repeated Section
	34.7	Valley Section
	34.8	Valley Section, Repeated Section
	34.9	Bridge Section, Downstream Face
F	35.1	Upstream Face, Spring Arbor Road
	35.3	Valley Section
	35.8	Valley Section
G	35.9	Bridge Section
	36.0	Downstream Face
	36.1	Upstream Face, Lumen Christi
	36.2	1' Upstream
	36.3	Valley Section
	36.8	Valley Section
	36.9	1' Downstream of Bridge
	37.0	Downstream Face
H	37.1	Upstream Face of Lumen Christi Bridge
	37.2	1' Upstream
	37.3	Valley Section
I	38.0	Valley Section, End of Detail Study

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

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

PROFILES

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

MAP

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for multi-profile run and floodway run along with convergence run are contained in Appendix E.

REFERENCES

1. U.S. Weather Bureau, Rainfall Frequency Atlas of United States, Technical Paper 40.

APPENDIX A

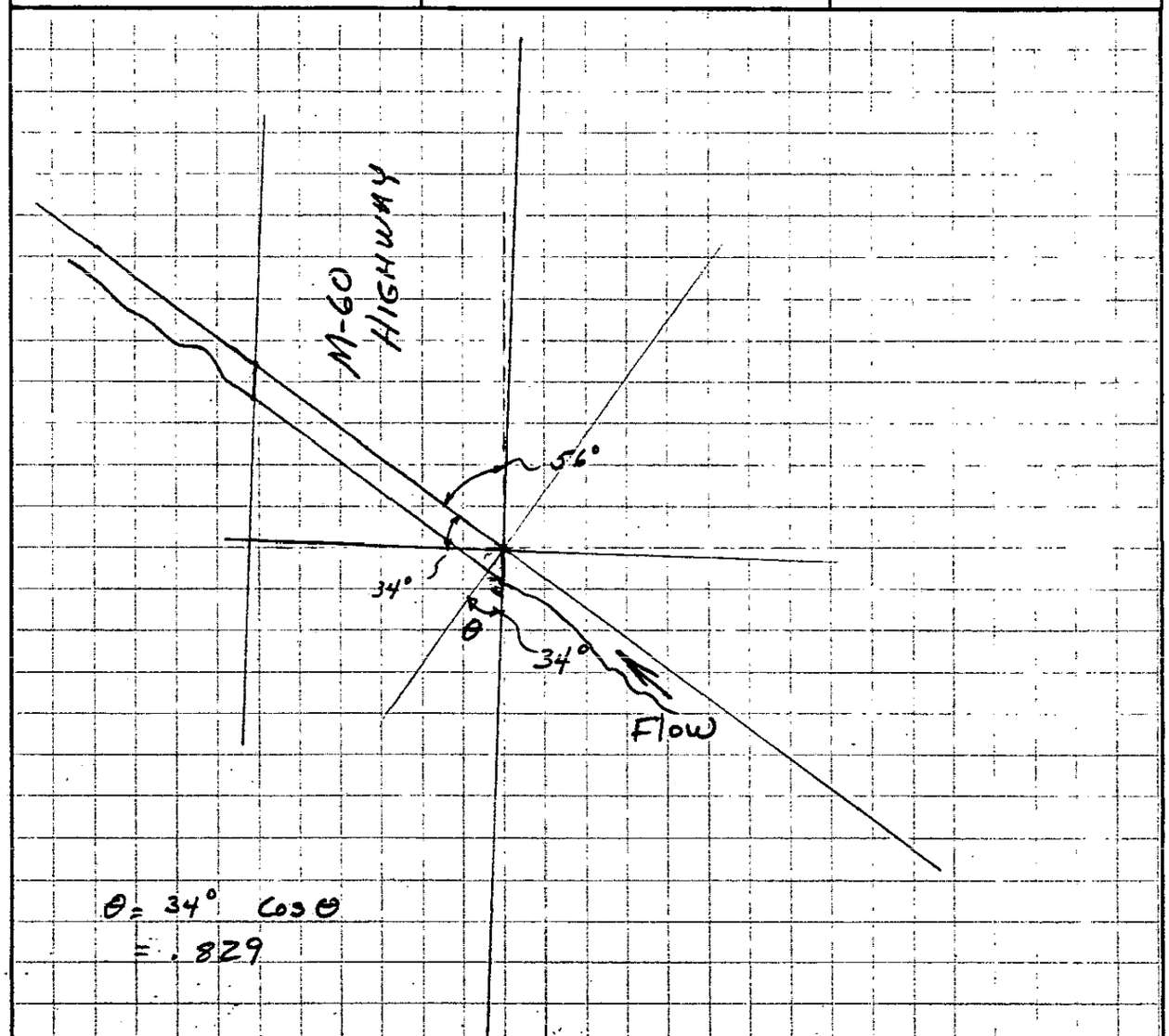
APPENDIX B

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

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway Bridge Skew
	SHEET OF / BOOK NO.



$\theta = 34°$ $\cos\theta$

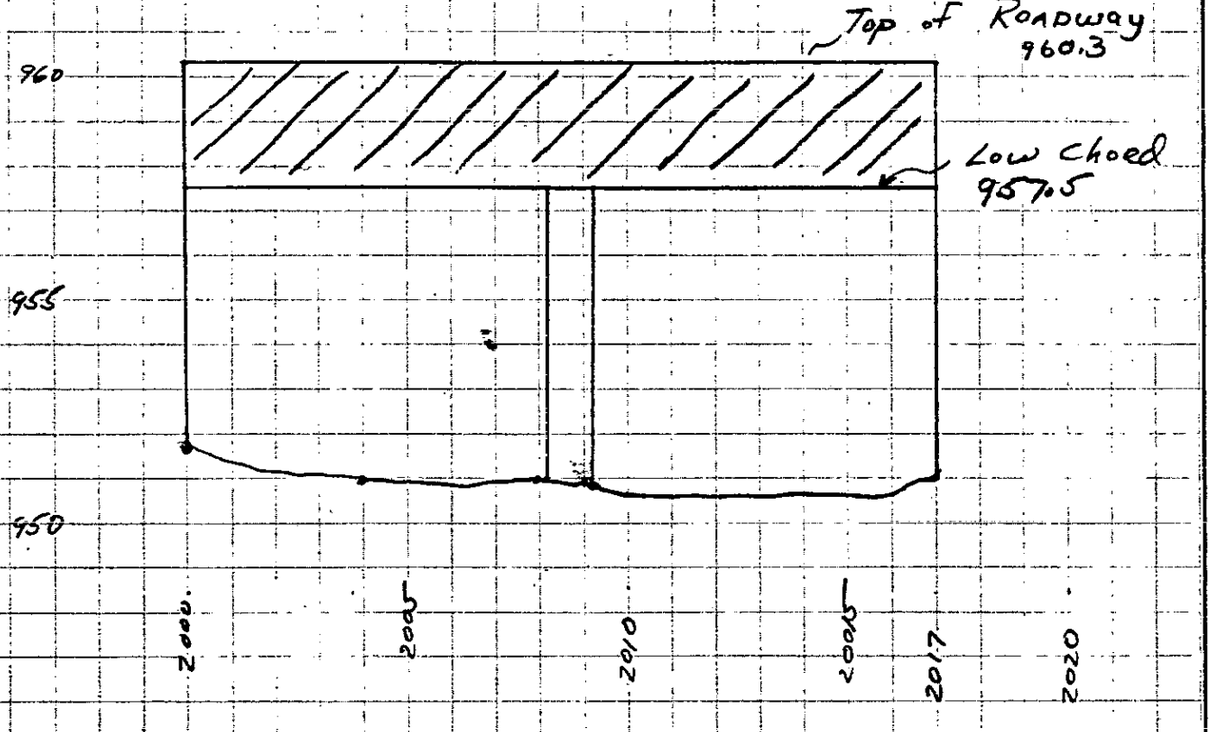
$= .829$

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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway BRIDGE
	SHEET OF / BOOK NO.

Description : 2 Concrete Box Culverts
8' wide, 188' long, 34° skewed
Headwall parallel to embankment
no headwalls.



Calculations adjusted for skew angle

Upper Area Factor

17' wide x .829 = 14.09

Area : $\frac{13.26}{2}(957.5-951.4) + \frac{13.26}{2}(957.5-950.8)$

= 84.86 sq Ft.

FORM CAI/DCP 112 (9/78)

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway Bridge	SHEET OF / BOOK NO.

Wetted Perimeter: $(6.632)2 + 2(6.1) + 2(6.632) + 2(6.6) = 51.93$ FT.

Bureau of Public Roads

$$XKOR = 1 + .5 + \frac{29\,n^2 L}{R^{\frac{4}{3}}}$$

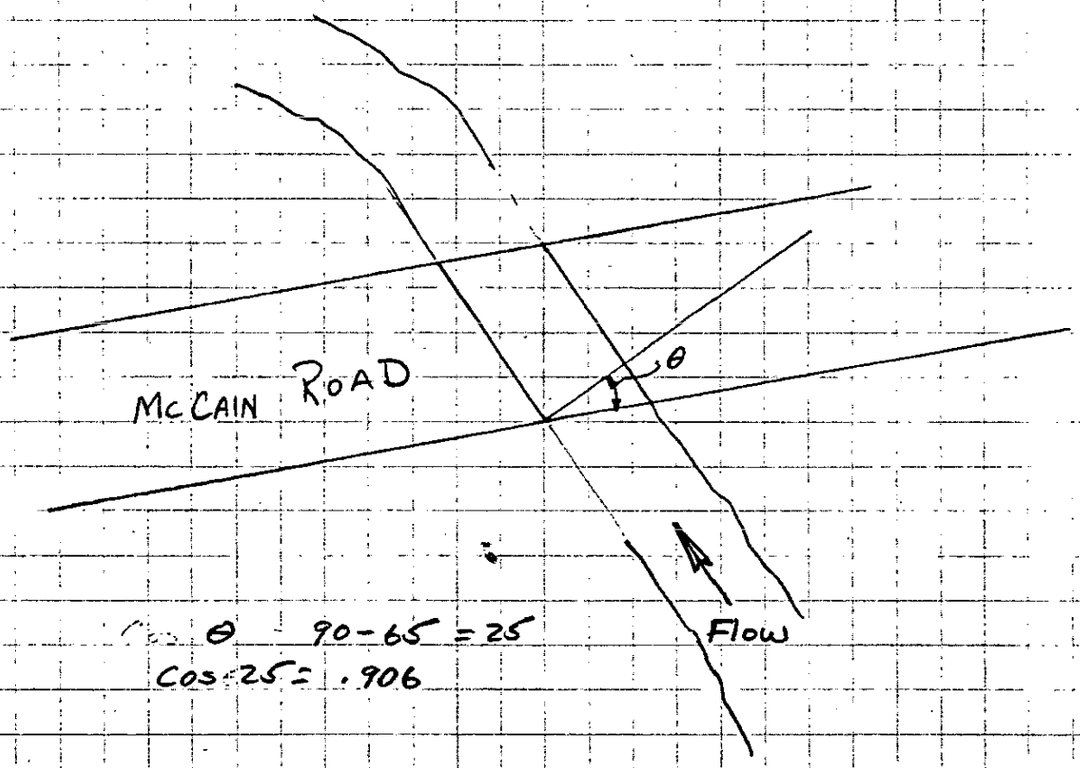
$$XKOR = 1 + .5 + .63 \cong 2.1$$

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

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE JOB NO.
CALC. BY/DATE (SIGNATURE) CHECKED BY/DATE (SIGNATURE)	SUBJECT McCain Road Bridge Bridge Skew
	SHEET OF BOOK NO.



θ = 90 - 65 = 25

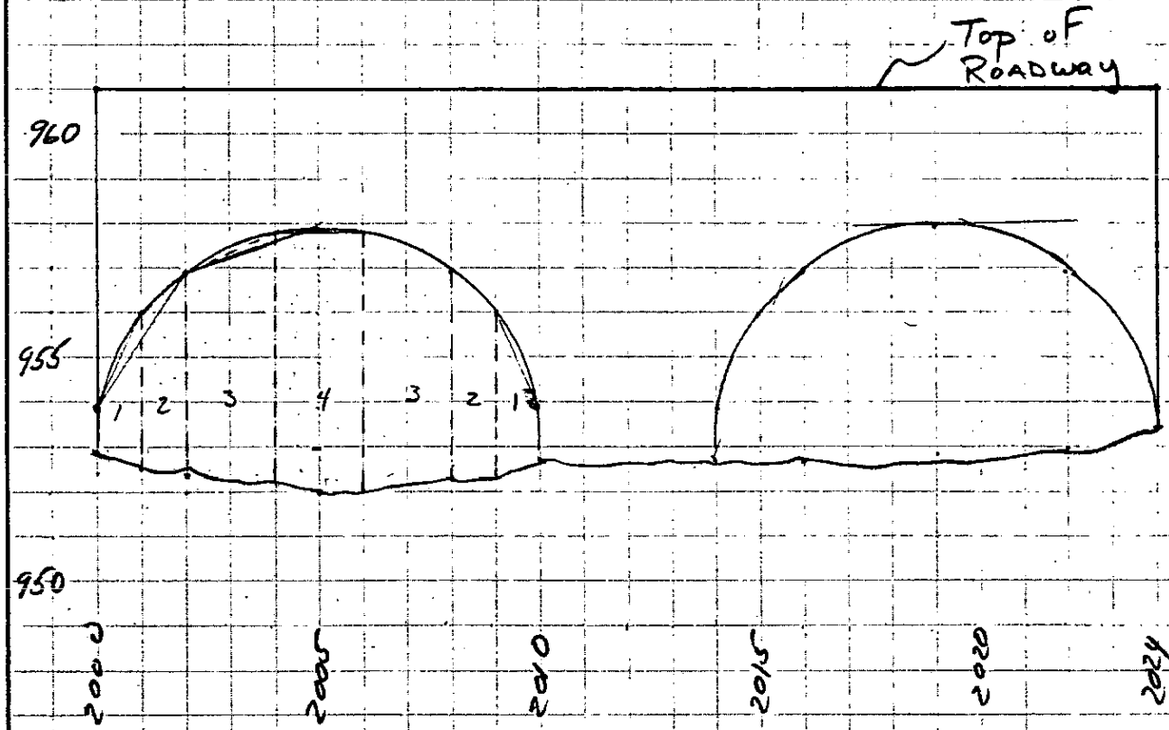
Cos 25 = .906

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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT McCain Road
	SHEET OF / BOOK NO.

Description: 2 - 10' cmp pipe, 50 Ft. long, skew 25°, no wing walls



Calculations adjusted for skew
.906 (Distance)

$Area_T = 4\,Area_1 + 4\,Area_2 + 4\,Area_3 + 2\,Area_4$

$= 4(.906)(2.3) + 4(.906)(4) + 4(1.812)(5.0) + 2(1.812)5.6$

Area = 79.36 sq Ft.

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

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study McCain Drain Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: McCain Drain	SHEET / OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Wetted Perimeter

$= 4(2.196) + 4(1.27) + 4(1.98) + 2(1.81) + 20(.906)$

$= 43.55$

$$XKOR = 1 + .5 + \frac{29 n^2 \ell}{R^{\frac{4}{3}}}$$

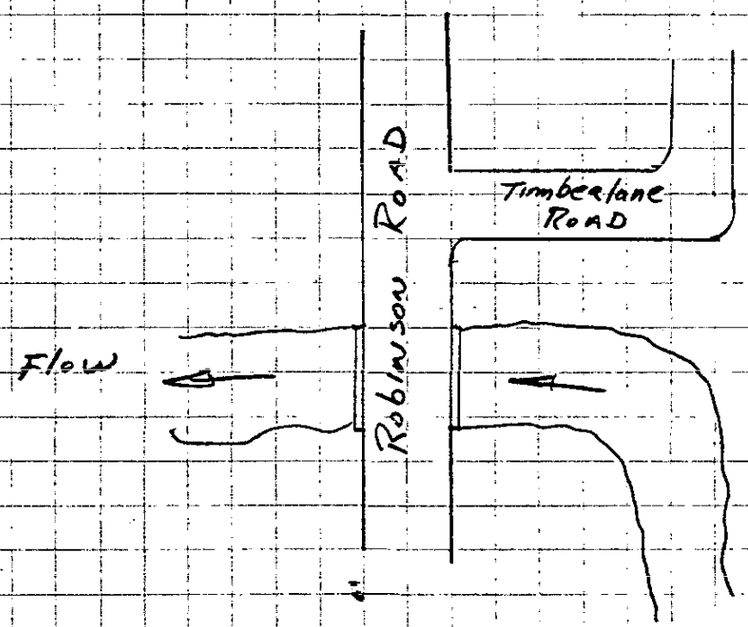
$$1 + .5 + \frac{29(.027)^2(50)}{2.22}$$

$XKOR = 1.97 \sim 2.0$

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

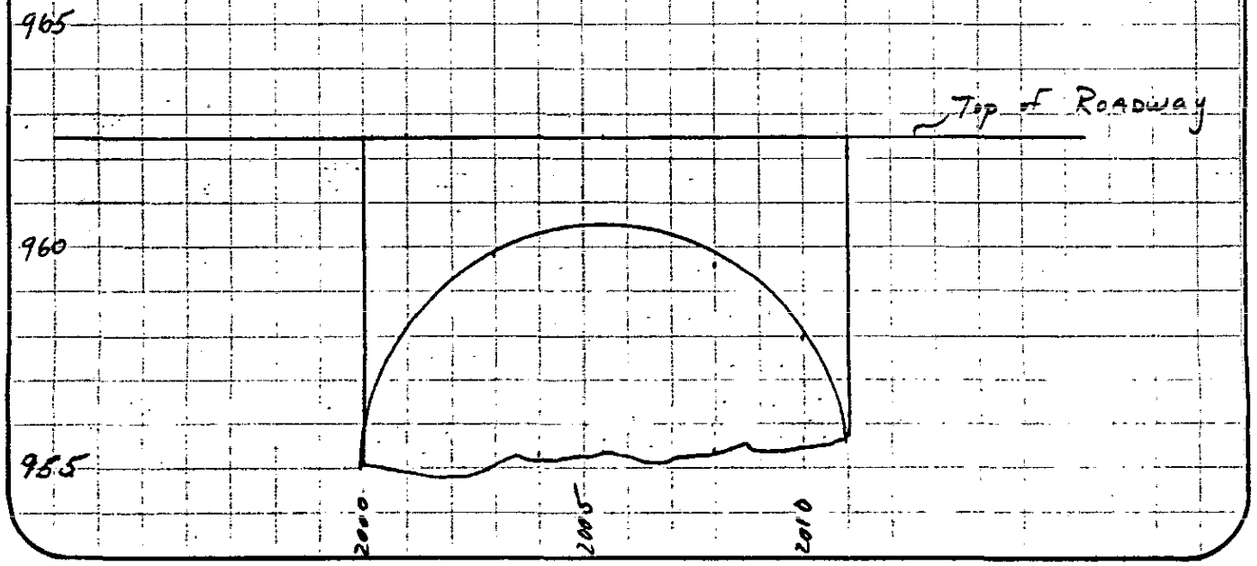
CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Robinson Road	SHEET OF / BOOK NO.



Description:

11' Dia. C.M.P. pipe
No wing walls, concrete face, 46 feet long, paved surface



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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Robinson Rd.
	SHEET OF / BOOK NO.

AREA $= \frac{1}{2}\frac{\pi D^2}{4} = \frac{1}{2}\,3.14\left(\frac{11}{4}\right)^2 = 47.5$ sq. Ft.

wetted Perimeter $= 2\pi R\left(\frac{1}{2}\right) = 17.3$ ft.

XKOR =

$$17.5 + \frac{29\,n^2\,l}{R^{\frac{4}{3}}}$$

$$17.5 + \frac{29(.024)^2\,46}{3.84}$$

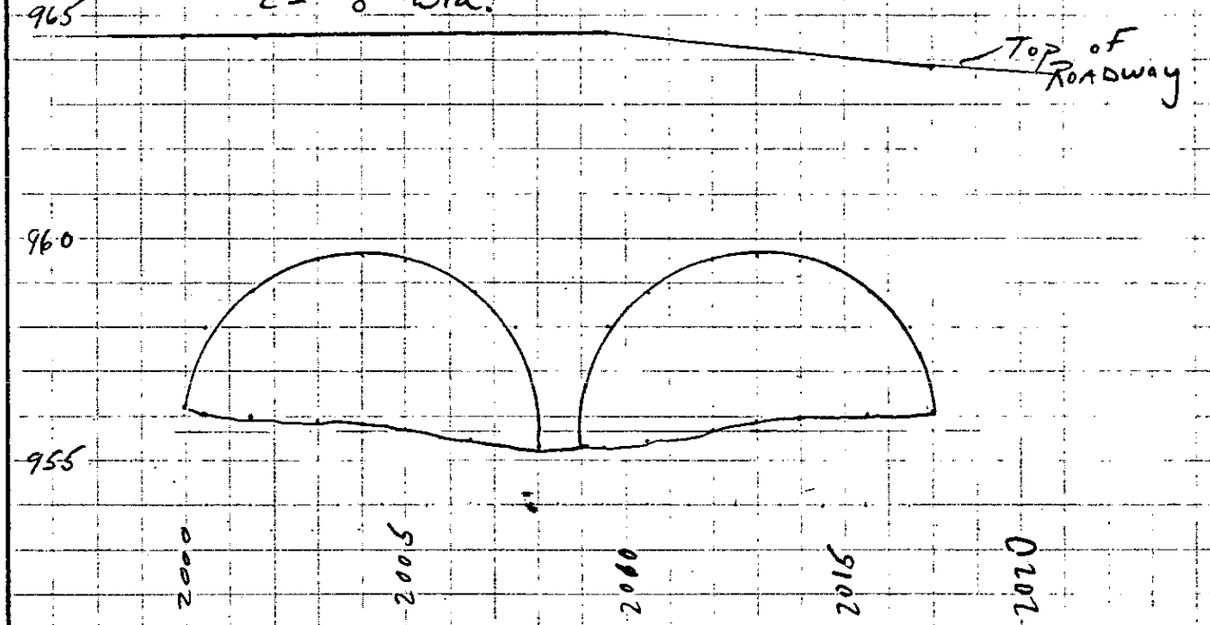
$17.5 + 2 = \underline{1.7}$

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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Spring Arbor Rd.	SHEET OF / BOOK NO.

Description: 80' wide, paved surface, concrete material wingwalls at 2 - 8' Dia.



Area: $2 \frac{\pi D^2}{4}\left(\frac{1}{2}\right)$

$= 2\ (3.14)\left(\frac{8}{4}\right)^2 \frac{1}{2} = 50.26$ sq. ft.

Wetted Perimeter:

$2\pi R\left(\frac{1}{2}\right)2 = 25.1$ ft

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

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study, McCain Drain, Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Spring Arbor Rd.	SHEET / OF / BOOK NO.

$$XKOR = 1 + .4 + \frac{29\,n^2\,l}{R^{4/3}}$$

↑ wing walls at 30°-75° to barrell
crown square edged

$$\frac{29(.075)^2\,80}{2^{4/3}}$$

$XKOR = 1 + .4 + .20$

$= 1.60$

APPENDIX C

APPENDIX D

APPENDIX E

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCain Drain

4) DOCUMENT TYPE: Summary

****
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

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.000	2100.00	0.00	0.00	950.20	234.00	954.76	0.00	954.80	8.96	1.78	254.43	78.16
30.000	2100.00	0.00	0.00	950.20	312.00	955.48	0.00	955.50	4.94	1.53	487.13	140.34
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	4.96	1.58	562.03	161.61
30.000	2100.00	0.00	0.00	950.20	520.00	956.10	0.00	956.13	5.74	1.83	740.26	217.03
30.600	1725.00	0.00	0.00	951.00	234.00	956.05	0.00	956.08	6.19	1.53	341.82	94.07
30.600	1725.00	0.00	0.00	951.00	312.00	956.42	0.00	956.44	6.04	1.63	440.88	126.98
30.600	1725.00	0.00	0.00	951.00	360.00	956.61	0.00	956.64	6.07	1.69	494.11	146.11
30.600	1725.00	0.00	0.00	951.00	520.00	957.14	0.00	957.18	6.40	1.90	646.27	205.55
30.700	375.00	0.00	0.00	951.00	234.00	956.30	0.00	956.35	8.04	1.83	198.76	82.52
30.700	375.00	0.00	0.00	951.00	312.00	956.67	0.00	956.73	9.11	2.10	241.15	103.38
30.700	375.00	0.00	0.00	951.00	360.00	956.87	0.00	956.94	9.72	2.24	263.82	115.46
30.700	375.00	0.00	0.00	951.00	520.00	957.42	0.00	957.51	11.70	2.69	326.61	152.05
30.800	139.00	0.00	0.00	950.80	234.00	956.39	0.00	956.44	5.50	1.82	165.99	99.81
30.800	139.00	0.00	0.00	950.80	312.00	956.78	0.00	956.84	7.27	2.21	183.02	115.72
30.800	139.00	0.00	0.00	950.80	360.00	956.99	0.00	957.07	8.34	2.44	192.17	124.64
30.800	139.00	0.00	0.00	950.80	520.00	957.56	0.00	957.69	11.85	3.12	217.95	151.08
30.900	62.00	0.00	0.00	950.80	234.00	956.40	0.00	956.57	28.69	3.25	71.89	43.69
30.900	62.00	0.00	0.00	950.80	312.00	956.78	0.00	957.03	41.87	4.04	77.20	48.22
30.900	62.00	0.00	0.00	950.80	360.00	956.98	0.00	957.29	50.55	4.50	80.00	50.64
30.900	62.00	0.00	0.00	950.80	520.00	957.51	0.00	958.06	82.59	5.94	87.49	57.22
32.100	188.00	960.30	957.50	950.80	234.00	956.42	0.00	956.57	2.15	3.10	75.54	159.67
32.100	188.00	960.30	957.50	950.80	312.00	956.82	0.00	957.05	3.14	3.85	81.10	175.94
32.100	188.00	960.30	957.50	950.80	360.00	957.03	0.00	957.32	3.79	4.28	84.10	184.82
32.100	188.00	960.30	957.50	950.80	520.00	958.33	0.00	958.73	4.68	5.08	102.38	240.44
32.300	42.00	0.00	0.00	950.90	212.00	956.56	0.00	956.62	5.56	1.93	150.83	89.87
32.300	42.00	0.00	0.00	950.90	283.00	957.05	0.00	957.12	6.33	2.21	190.97	112.46
32.300	42.00	0.00	0.00	950.90	326.00	957.33	0.00	957.40	6.58	2.34	216.91	127.09
32.300	42.00	0.00	0.00	950.90	471.00	958.80	0.00	958.85	3.90	2.13	415.18	238.65

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
32.700	1000.00	0.00	0.00	951.80	212.00	957.14	0.00	957.21	6.20	2.23	141.41	85.17
32.700	1000.00	0.00	0.00	951.80	283.00	957.68	0.00	957.75	6.23	2.41	199.48	113.38
32.700	1000.00	0.00	0.00	951.80	326.00	957.96	0.00	958.03	6.01	2.46	238.37	132.93
32.700	1000.00	0.00	0.00	951.80	471.00	959.18	0.00	959.22	3.45	2.14	465.05	253.66
32.800	200.00	0.00	0.00	951.80	212.00	957.26	0.00	957.33	5.94	2.33	108.35	86.99
32.800	200.00	0.00	0.00	951.80	283.00	957.79	0.00	957.89	7.03	2.73	129.06	106.73
32.800	200.00	0.00	0.00	951.80	326.00	958.07	0.00	958.19	7.57	2.93	144.26	118.46
32.800	200.00	0.00	0.00	951.80	471.00	959.22	0.00	959.35	6.87	3.18	209.97	179.72
32.900	72.00	0.00	0.00	952.00	212.00	957.32	0.00	957.39	7.55	2.13	99.56	77.17
32.900	72.00	0.00	0.00	952.00	283.00	957.86	0.00	957.96	9.72	2.57	111.27	90.77
32.900	72.00	0.00	0.00	952.00	326.00	958.14	0.00	958.26	11.05	2.78	117.38	98.07
32.900	72.00	0.00	0.00	952.00	471.00	959.28	0.00	959.45	13.36	3.31	142.08	128.86
33.100	50.00	960.60	957.90	952.00	196.00	957.34	0.00	957.46	13.16	2.78	70.45	54.03
33.100	50.00	960.60	957.90	952.00	262.00	958.12	0.00	958.19	2.74	2.20	119.35	158.35
33.100	50.00	960.60	957.90	952.00	302.00	958.50	0.00	958.59	3.00	2.37	127.61	174.29
33.100	50.00	960.60	957.90	952.00	436.00	960.10	0.00	960.21	3.17	2.68	162.44	244.81
33.300	50.00	0.00	0.00	952.10	196.00	957.49	0.00	957.52	3.76	1.39	200.75	101.05
33.300	50.00	0.00	0.00	952.10	262.00	958.20	0.00	958.23	3.02	1.37	285.80	150.84
33.300	50.00	0.00	0.00	952.10	302.00	958.60	0.00	958.62	2.70	1.36	333.50	183.80
33.300	50.00	0.00	0.00	952.10	436.00	960.24	0.00	960.25	1.53	1.22	530.07	352.13
33.400	75.00	0.00	0.00	952.10	196.00	957.52	0.00	957.54	2.87	1.36	229.52	115.70
33.400	75.00	0.00	0.00	952.10	262.00	958.23	0.00	958.24	2.11	1.28	368.26	180.24
33.400	75.00	0.00	0.00	952.10	302.00	958.62	0.00	958.64	1.75	1.22	460.58	228.11
33.400	75.00	0.00	0.00	952.10	436.00	960.26	0.00	960.26	.64	.88	1015.73	543.04
33.500	1100.00	0.00	0.00	953.00	196.00	957.91	0.00	957.95	4.73	1.69	130.07	90.13
33.500	1100.00	0.00	0.00	953.00	262.00	958.52	0.00	958.56	4.02	1.71	294.95	130.72
33.500	1100.00	0.00	0.00	953.00	302.00	958.85	0.00	958.88	2.71	1.46	559.47	183.46
33.500	1100.00	0.00	0.00	953.00	436.00	960.30	0.00	960.30	.26	.53	2589.59	854.48
33.800	1550.00	0.00	0.00	954.80	196.00	959.09	0.00	959.19	16.01	2.68	85.39	48.99
33.800	1550.00	0.00	0.00	954.80	262.00	959.59	0.00	959.72	17.43	3.05	101.93	62.76
33.800	1550.00	0.00	0.00	954.80	302.00	959.66	0.00	959.82	21.72	3.45	104.25	64.79
33.800	1550.00	0.00	0.00	954.80	436.00	960.26	0.00	960.51	27.38	4.25	124.10	83.32
33.900	44.00	0.00	0.00	955.10	196.00	959.11	0.00	959.44	78.91	4.59	42.71	22.06
33.900	44.00	0.00	0.00	955.10	262.00	959.58	0.00	960.04	103.27	5.48	47.81	25.78
33.900	44.00	0.00	0.00	955.10	302.00	959.63	0.00	960.24	132.52	6.24	48.43	26.23
33.900	44.00	0.00	0.00	955.10	436.00	960.14	0.00	961.15	205.47	8.08	53.99	30.42
34.100	46.00	962.20	960.50	955.10	196.00	959.28	0.00	959.75	36.66	5.46	35.88	32.37
34.100	46.00	962.20	960.50	955.10	262.00	959.81	0.00	960.52	59.67	6.76	38.77	33.92
34.100	46.00	962.20	960.50	955.10	302.00	959.94	0.00	960.86	79.38	7.69	39.27	33.90
34.100	46.00	962.20	960.50	955.10	436.00	961.59	0.00	962.25	27.04	6.50	67.04	83.84

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.300	50.00	0.00	0.00	955.10	196.00	959.86	0.00	959.93	6.71	2.26	118.87	75.66
34.300	50.00	0.00	0.00	955.10	262.00	960.71	0.00	960.77	4.66	2.15	199.42	121.38
34.300	50.00	0.00	0.00	955.10	302.00	961.12	0.00	961.17	4.08	2.13	244.15	149.57
34.300	50.00	0.00	0.00	955.10	436.00	962.42	0.00	962.47	2.77	2.04	387.48	262.12
34.400	70.00	0.00	0.00	955.10	196.00	959.92	0.00	959.98	7.61	2.16	123.49	71.05
34.400	70.00	0.00	0.00	955.10	262.00	960.76	0.00	960.81	5.16	2.03	217.88	115.35
34.400	70.00	0.00	0.00	955.10	302.00	961.16	0.00	961.20	4.19	1.93	299.48	147.52
34.400	70.00	0.00	0.00	955.10	436.00	962.47	0.00	962.48	1.56	1.37	824.46	349.30
34.700	950.00	0.00	0.00	955.20	196.00	960.29	0.00	960.31	1.91	1.22	240.53	141.84
34.700	950.00	0.00	0.00	955.20	262.00	961.02	0.00	961.04	1.38	1.15	443.38	223.09
34.700	950.00	0.00	0.00	955.20	302.00	961.38	0.00	961.39	1.16	1.10	562.21	280.73
34.700	950.00	0.00	0.00	955.20	436.00	962.57	0.00	962.58	.66	.94	958.39	537.56
34.800	600.00	0.00	0.00	955.20	196.00	960.41	0.00	960.44	2.44	1.35	150.37	125.36
34.800	600.00	0.00	0.00	955.20	262.00	961.12	0.00	961.16	2.79	1.56	173.80	156.93
34.800	600.00	0.00	0.00	955.20	302.00	961.46	0.00	961.51	3.05	1.69	185.16	173.04
34.800	600.00	0.00	0.00	955.20	436.00	962.61	0.00	962.67	3.60	2.04	222.88	229.93
34.900	44.00	0.00	0.00	955.30	158.00	960.41	0.00	960.47	8.05	1.99	79.42	55.70
34.900	44.00	0.00	0.00	955.30	236.00	961.11	0.00	961.21	12.17	2.59	91.13	67.65
34.900	44.00	0.00	0.00	955.30	296.00	961.44	0.00	961.58	16.19	3.06	96.76	73.56
34.900	44.00	0.00	0.00	955.30	484.00	962.54	0.00	962.81	26.61	4.19	115.44	93.82
35.100	80.00	963.40	959.60	955.30	158.00	960.60	0.00	960.66	.80	1.92	82.47	176.28
35.100	80.00	963.40	959.60	955.30	236.00	961.57	0.00	961.66	1.07	2.39	98.94	227.63
35.100	80.00	963.40	959.60	955.30	296.00	962.19	0.00	962.30	1.28	2.70	109.48	261.79
35.100	80.00	963.40	959.60	955.30	484.00	963.62	0.00	963.82	1.97	3.61	155.56	344.53
35.300	50.00	0.00	0.00	954.20	158.00	960.66	0.00	960.67	.48	.79	266.89	227.47
35.300	50.00	0.00	0.00	954.20	236.00	961.67	0.00	961.68	.52	.91	389.79	327.89
35.300	50.00	0.00	0.00	954.20	296.00	962.32	0.00	962.34	.53	.98	469.29	405.44
35.300	50.00	0.00	0.00	954.20	484.00	963.86	0.00	963.88	.61	1.18	657.24	621.68
35.800	490.00	0.00	0.00	954.70	158.00	960.70	0.00	960.72	1.75	1.10	144.36	119.56
35.800	490.00	0.00	0.00	954.70	236.00	961.70	0.00	961.72	1.34	1.13	302.66	203.51
35.800	490.00	0.00	0.00	954.70	296.00	962.36	0.00	962.37	.99	1.06	474.20	297.26
35.800	490.00	0.00	0.00	954.70	484.00	963.90	0.00	963.90	.36	.76	1501.58	811.19
35.900	36.00	0.00	0.00	955.10	158.00	960.66	0.00	960.78	16.02	2.87	55.10	39.48
35.900	36.00	0.00	0.00	955.10	236.00	961.69	0.00	961.76	10.45	2.59	174.47	73.00
35.900	36.00	0.00	0.00	955.10	296.00	962.35	0.00	962.38	4.97	1.92	330.38	132.74
35.900	36.00	0.00	0.00	955.10	484.00	963.90	0.00	963.91	1.29	1.12	922.19	425.55
36.000	1.00	960.80	958.00	955.10	158.00	960.20	957.55	961.25	317.83	8.24	19.17	8.86
36.000	1.00	960.80	958.00	955.10	236.00	961.68	0.00	961.77	49.45	3.35	137.06	33.56
36.000	1.00	960.80	958.00	955.10	296.00	962.37	0.00	962.39	10.92	1.83	293.34	89.57
36.000	1.00	960.80	958.00	955.10	484.00	963.90	0.00	963.91	1.68	.93	884.20	373.86

MOORE BUSINESS FORMS, INC. 20

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
36.100	41.00	960.80	958.00	955.10	158.00	961.73	0.00	961.76	19.40	2.12	144.70	35.87
36.100	41.00	960.80	958.00	955.10	236.00	961.88	0.00	961.92	25.85	2.54	177.63	46.42
36.100	41.00	960.80	958.00	955.10	296.00	962.41	0.00	962.43	9.81	1.75	305.26	94.49
36.100	41.00	960.80	958.00	955.10	484.00	963.91	0.00	963.91	1.65	.92	890.52	376.33
36.200	1.00	0.00	0.00	955.10	158.00	961.73	0.00	961.76	4.24	1.66	185.56	76.70
36.200	1.00	0.00	0.00	955.10	236.00	961.88	0.00	961.93	7.31	2.21	215.88	87.30
36.200	1.00	0.00	0.00	955.10	296.00	962.41	0.00	962.44	4.54	1.84	344.71	138.99
36.200	1.00	0.00	0.00	955.10	484.00	963.91	0.00	963.91	1.28	1.12	928.84	428.17
36.300	50.00	0.00	0.00	956.30	158.00	961.77	0.00	961.78	1.06	.90	256.18	153.42
36.300	50.00	0.00	0.00	956.30	236.00	961.93	0.00	961.95	1.90	1.24	294.37	171.19
36.300	50.00	0.00	0.00	956.30	296.00	962.43	0.00	962.45	1.47	1.18	441.24	244.48
36.300	50.00	0.00	0.00	956.30	484.00	963.91	0.00	963.92	.44	.78	1455.52	733.60
36.800	150.00	0.00	0.00	956.30	158.00	961.78	0.00	961.80	1.04	.89	259.69	155.02
36.800	150.00	0.00	0.00	956.30	236.00	961.96	0.00	961.98	1.82	1.22	301.48	174.73
36.800	150.00	0.00	0.00	956.30	296.00	962.46	0.00	962.47	1.44	1.17	445.39	246.57
36.800	150.00	0.00	0.00	956.30	484.00	963.92	0.00	963.92	.43	.77	1465.23	739.63
36.900	50.00	0.00	0.00	955.10	158.00	961.79	0.00	961.81	3.88	1.60	196.05	80.25
36.900	50.00	0.00	0.00	955.10	236.00	961.97	0.00	962.01	6.22	2.06	236.11	94.63
36.900	50.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.13	1.76	360.95	145.72
36.900	50.00	0.00	0.00	955.10	484.00	963.92	0.00	963.93	1.22	1.09	955.57	438.69
37.000	1.00	960.80	958.30	955.10	158.00	961.79	0.00	961.81	14.38	1.92	160.05	41.66
37.000	1.00	960.80	958.30	955.10	236.00	961.98	0.00	962.01	18.46	2.26	199.65	54.92
37.000	1.00	960.80	958.30	955.10	296.00	962.47	0.00	962.49	8.19	1.66	323.69	103.45
37.000	1.00	960.80	958.30	955.10	484.00	963.92	0.00	963.93	1.59	.92	905.60	383.48
37.100	40.50	960.80	958.30	955.10	158.00	961.85	0.00	961.87	11.92	1.77	172.70	45.76
37.100	40.50	960.80	958.30	955.10	236.00	962.05	0.00	962.08	14.55	2.04	219.09	61.86
37.100	40.50	960.80	958.30	955.10	296.00	962.51	0.00	962.52	7.56	1.60	333.14	107.66
37.100	40.50	960.80	958.30	955.10	484.00	963.93	0.00	963.94	1.57	.91	911.47	385.79
37.200	1.00	0.00	0.00	955.10	158.00	961.85	0.00	961.87	3.50	1.53	208.14	84.47
37.200	1.00	0.00	0.00	955.10	236.00	962.05	0.00	962.08	5.37	1.93	255.08	101.81
37.200	1.00	0.00	0.00	955.10	296.00	962.50	0.00	962.53	3.82	1.71	373.25	151.37
37.200	1.00	0.00	0.00	955.10	484.00	963.93	0.00	963.94	1.20	1.08	962.49	441.46
37.300	50.00	0.00	0.00	955.10	158.00	961.86	0.00	961.90	4.68	1.77	144.82	73.06
37.300	50.00	0.00	0.00	955.10	236.00	962.07	0.00	962.13	7.98	2.36	165.71	83.55
37.300	50.00	0.00	0.00	955.10	296.00	962.51	0.00	962.57	7.24	2.35	211.23	110.00
37.300	50.00	0.00	0.00	955.10	484.00	963.92	0.00	963.96	4.93	2.20	351.96	217.99
38.000	1375.00	0.00	0.00	957.75	158.00	962.30	0.00	962.31	2.08	1.07	299.23	109.54
38.000	1375.00	0.00	0.00	957.75	236.00	962.62	0.00	962.64	2.06	1.14	450.12	164.45
38.000	1375.00	0.00	0.00	957.75	296.00	962.96	0.00	962.97	1.54	1.06	619.43	238.77
38.000	1375.00	0.00	0.00	957.75	484.00	964.14	0.00	964.15	.58	.79	1295.08	634.39

MOORE BUSINESS FORMS, INC. 23

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	234.00	954.76	0.00	0.00	0.00	273.33	2100.00
30.000	312.00	955.48	.72	0.00	0.00	387.98	2100.00
30.000	360.00	955.67	.19	0.00	0.00	400.41	2100.00
30.000	520.00	956.10	.43	0.00	0.00	428.54	2100.00
30.600	234.00	956.05	0.00	1.29	0.00	258.71	1725.00
30.600	312.00	956.42	.37	.94	0.00	271.11	1725.00
30.600	360.00	956.61	.19	.94	0.00	277.54	1725.00
30.600	520.00	957.14	.53	1.04	0.00	295.15	1725.00
30.700	234.00	956.30	0.00	.25	0.00	114.00	375.00
30.700	312.00	956.67	.37	.25	.37	114.00	375.00
30.700	360.00	956.87	.20	.26	.57	114.00	375.00
30.700	520.00	957.42	.55	.28	1.12	114.00	375.00
30.800	234.00	956.39	0.00	.09	0.00	45.00	139.00
30.800	312.00	956.78	.39	.11	.39	45.00	139.00
30.800	360.00	956.99	.21	.12	.59	45.00	139.00
30.800	520.00	957.56	.57	.14	1.17	45.00	139.00
30.900	234.00	956.40	0.00	.01	0.00	14.09	62.00
30.900	312.00	956.78	.38	-.00	.38	14.09	62.00
30.900	360.00	956.98	.20	-.01	.58	14.09	62.00
30.900	520.00	957.51	.53	-.05	1.11	14.09	62.00
32.100	234.00	956.42	0.00	.02	0.00	14.09	188.00
32.100	312.00	956.82	.39	.04	.39	14.09	188.00
32.100	360.00	957.03	.21	.06	.61	14.09	188.00
32.100	520.00	958.33	1.30	.82	1.90	14.09	188.00
32.300	212.00	956.56	0.00	.14	0.00	75.75	42.00
32.300	283.00	957.05	.49	.23	.49	89.14	42.00
32.300	326.00	957.33	.28	.30	.77	97.11	42.00
32.300	471.00	958.80	1.47	.47	2.24	176.73	42.00
32.700	212.00	957.14	0.00	.58	0.00	92.40	1000.00
32.700	283.00	957.68	.54	.63	.54	125.17	1000.00
32.700	326.00	957.96	.29	.64	.82	144.78	1000.00
32.700	471.00	959.18	1.22	.38	2.04	250.41	1000.00
32.800	212.00	957.26	0.00	.11	0.00	32.39	200.00
32.800	283.00	957.79	.53	.11	.53	51.17	200.00
32.800	326.00	958.07	.28	.10	.81	57.00	200.00
32.800	471.00	959.22	1.15	.04	1.96	57.00	200.00

MOORE BUSINESS FORMS, INC. 29

SECNO	Q	CwSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
32.900	212.00	957.32	0.00	.06	0.00	21.74	72.00
32.900	283.00	957.86	.54	.07	.54	21.74	72.00
32.900	326.00	958.14	.28	.07	.82	21.74	72.00
32.900	471.00	959.28	1.14	.06	1.96	21.74	72.00
33.100	196.00	957.34	0.00	.02	0.00	21.74	50.00
33.100	262.00	958.12	.78	.26	.78	21.74	50.00
33.100	302.00	958.50	.38	.36	1.16	21.74	50.00
33.100	436.00	960.10	1.60	.82	2.76	21.74	50.00
33.300	196.00	957.49	0.00	.15	0.00	119.29	50.00
33.300	262.00	958.20	.71	.08	.71	120.00	50.00
33.300	302.00	958.60	.40	.10	1.11	120.00	50.00
33.300	436.00	960.24	1.64	.14	2.74	120.00	50.00
33.400	196.00	957.52	0.00	.03	0.00	174.71	75.00
33.400	262.00	958.23	.71	.02	.71	219.29	75.00
33.400	302.00	958.62	.40	.02	1.10	247.76	75.00
33.400	436.00	960.26	1.63	.02	2.74	457.34	75.00
33.500	196.00	957.91	0.00	.38	0.00	72.81	1100.00
33.500	262.00	958.52	.62	.30	.62	567.17	1100.00
33.500	302.00	958.85	.33	.23	.95	992.98	1100.00
33.500	436.00	960.30	1.45	.05	2.40	1645.20	1100.00
33.800	196.00	959.09	0.00	1.19	0.00	33.00	1550.00
33.800	262.00	959.59	.50	1.07	.50	33.00	1550.00
33.800	302.00	959.66	.07	.80	.57	33.00	1550.00
33.800	436.00	960.26	.60	-.04	1.17	33.00	1550.00
33.900	196.00	959.11	0.00	.02	0.00	11.00	44.00
33.900	262.00	959.58	.46	-.01	.46	11.00	44.00
33.900	302.00	959.63	.06	-.03	.52	11.00	44.00
33.900	436.00	960.14	.51	-.12	1.02	11.00	44.00
34.100	196.00	959.28	0.00	.17	0.00	11.00	46.00
34.100	262.00	959.81	.53	.23	.53	11.00	46.00
34.100	302.00	959.94	.13	.31	.66	11.00	46.00
34.100	436.00	961.59	1.66	1.46	2.31	11.00	46.00
34.300	196.00	959.86	0.00	.57	0.00	78.29	50.00
34.300	262.00	960.71	.86	.90	.86	110.00	50.00
34.300	302.00	961.12	.40	1.18	1.26	110.00	50.00
34.300	436.00	962.42	1.31	.83	2.57	110.00	50.00
34.400	196.00	959.92	0.00	.06	0.00	80.88	70.00
34.400	262.00	960.76	.84	.04	.84	150.65	70.00
34.400	302.00	961.16	.40	.04	1.24	249.07	70.00
34.400	436.00	962.47	1.31	.05	2.56	972.91	70.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
34.700	196.00	960.29	0.00	.37	0.00	215.98	950.00
34.700	262.00	961.02	.74	.27	.74	324.32	950.00
34.700	302.00	961.38	.36	.22	1.09	333.00	950.00
34.700	436.00	962.57	1.19	.10	2.28	333.00	950.00
34.800	196.00	960.41	0.00	.12	0.00	33.00	600.00
34.800	262.00	961.12	.71	.10	.71	33.00	600.00
34.800	302.00	961.46	.34	.08	1.05	33.00	600.00
34.800	436.00	962.61	1.14	.04	2.20	33.00	600.00
34.900	158.00	960.41	0.00	.00	0.00	17.00	44.00
34.900	236.00	961.11	.70	-.01	.70	17.00	44.00
34.900	296.00	961.44	.33	-.02	1.03	17.00	44.00
34.900	424.00	962.54	1.10	-.07	2.13	17.00	44.00
35.100	158.00	960.60	0.00	.19	0.00	17.00	80.00
35.100	236.00	961.57	.97	.46	.97	17.00	80.00
35.100	296.00	962.19	.62	.75	1.59	17.00	80.00
35.100	484.00	963.62	1.43	1.08	3.02	219.47	80.00
35.300	158.00	960.66	0.00	.07	0.00	119.10	50.00
35.300	236.00	961.67	1.01	.10	1.01	122.00	50.00
35.300	296.00	962.32	.65	.14	1.66	122.00	50.00
35.300	484.00	963.86	1.54	.25	3.20	122.00	50.00
35.800	158.00	960.70	0.00	.03	0.00	65.85	490.00
35.800	236.00	961.70	1.01	.03	1.01	217.47	490.00
35.800	296.00	962.36	.65	.03	1.66	317.34	490.00
35.800	484.00	963.90	1.54	.03	3.20	801.41	490.00
35.900	158.00	960.66	0.00	-.04	0.00	11.00	36.00
35.900	236.00	961.69	1.03	-.02	1.03	200.13	36.00
35.900	296.00	962.35	.67	-.00	1.70	263.12	36.00
35.900	484.00	963.90	1.54	.00	3.24	696.95	36.00
36.000	158.00	960.20	0.00	-.46	0.00	11.00	1.00
36.000	236.00	961.68	1.48	-.00	1.48	200.19	1.00
36.000	296.00	962.37	.68	.01	2.17	263.29	1.00
36.000	484.00	963.90	1.53	.00	3.70	696.56	1.00
36.100	158.00	961.73	0.00	1.53	0.00	203.73	41.00
36.100	236.00	961.88	.15	.20	.15	218.33	41.00
36.100	296.00	962.41	.53	.04	.68	267.58	41.00
36.100	484.00	963.91	1.50	.01	2.18	794.13	41.00
36.200	158.00	961.73	0.00	.00	0.00	205.25	1.00
36.200	236.00	961.88	.14	-.00	.14	218.64	1.00
36.200	296.00	962.41	.53	-.00	.67	268.37	1.00
36.200	484.00	963.91	1.50	-.00	2.17	794.23	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
36.300	158.00	961.77	0.00	.03	0.00	218.25	50.00
36.300	236.00	961.93	.17	.06	.17	244.68	50.00
36.300	296.00	962.43	.50	.03	.67	331.23	50.00
36.300	484.00	963.91	1.48	.01	2.14	802.64	50.00
36.800	158.00	961.78	0.00	.02	0.00	220.76	150.00
36.800	236.00	961.96	.18	.03	.18	249.57	150.00
36.800	296.00	962.46	.49	.02	.67	333.34	150.00
36.800	484.00	963.92	1.46	.01	2.14	803.53	150.00
36.900	158.00	961.79	0.00	.00	0.00	211.12	50.00
36.900	236.00	961.97	.18	.00	.18	229.28	50.00
36.900	296.00	962.46	.50	.01	.68	279.44	50.00
36.900	484.00	963.92	1.46	.00	2.14	804.34	50.00
37.000	158.00	961.79	0.00	.00	0.00	210.68	1.00
37.000	236.00	961.98	.19	.01	.19	228.81	1.00
37.000	296.00	962.47	.50	.01	.69	279.46	1.00
37.000	484.00	963.92	1.45	.00	2.14	804.36	1.00
37.100	158.00	961.85	0.00	.06	0.00	216.63	40.50
37.100	236.00	962.05	.21	.08	.21	237.24	40.50
37.100	296.00	962.51	.45	.03	.66	283.46	40.50
37.100	484.00	963.93	1.42	.01	2.09	805.06	40.50
37.200	158.00	961.85	0.00	-.00	0.00	216.76	1.00
37.200	236.00	962.05	.20	-.00	.20	237.40	1.00
37.200	296.00	962.50	.45	-.00	.66	284.53	1.00
37.200	484.00	963.93	1.43	-.00	2.08	805.15	1.00
37.300	158.00	961.86	0.00	.01	0.00	100.00	50.00
37.300	236.00	962.07	.21	.02	.21	100.00	50.00
37.300	296.00	962.51	.45	.01	.65	100.00	50.00
37.300	484.00	963.92	1.41	-.01	2.06	100.00	50.00
38.000	158.00	962.30	0.00	.44	0.00	434.04	1375.00
38.000	236.00	962.62	.32	.56	.32	479.28	1375.00
38.000	296.00	962.96	.34	.45	.66	522.18	1375.00
38.000	484.00	964.14	1.18	.22	1.84	611.92	1375.00

MOORE BUSINESS FORMS, INC. 23

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR MC CAIN DRAIN

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
30.000	0.	-.91	-.19	.43
30.600	1725.	-.56	-.19	.53
30.700	2100.	-.57	-.20	.55
30.800	2239.	-.59	-.21	.57
30.900	2301.	-.58	-.20	.53
32.100	2489.	-.61	-.21	1.30
32.300	2531.	-.77	-.28	1.47
32.700	3531.	-.82	-.29	1.22
32.800	3731.	-.81	-.28	1.15
32.900	3803.	-.82	-.28	1.14
33.100	3853.	-1.16	-.38	1.60
33.300	3903.	-1.11	-.40	1.64
33.400	3978.	-1.10	-.40	1.63
33.500	5078.	-.95	-.33	1.45
33.800	6628.	-.57	-.07	.60
33.900	6672.	-.52	-.06	.51
34.100	6718.	-.66	-.13	1.66
34.300	6768.	-1.26	-.40	1.31
34.400	6838.	-1.24	-.40	1.31
34.700	7788.	-1.09	-.36	1.19
34.800	8388.	-1.05	-.34	1.14
34.900	8432.	-1.03	-.33	1.10
35.100	8512.	-1.59	-.62	1.43
35.300	8562.	-1.66	-.65	1.54
35.800	9052.	-1.66	-.65	1.54
35.900	9088.	-1.70	-.67	1.54
36.000	9089.	-2.17	-.68	1.53
36.100	9130.	-.68	-.53	1.50
36.200	9131.	-.67	-.53	1.50
36.300	9181.	-.67	-.50	1.48
36.800	9331.	-.67	-.49	1.46
36.900	9381.	-.68	-.50	1.46
37.000	9382.	-.69	-.50	1.45
37.100	9423.	-.66	-.45	1.42
37.200	9424.	-.66	-.45	1.43
37.300	9474.	-.65	-.45	1.41
38.000	10849.	-.66	-.34	1.18

MOORE BUSINESS FORMS, INC. 23

WEIGHTED AVG FOR REACH -.87 -.31 1.12

FHF FOR THE REACH = 010 WITH 94.3 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

MOORE BUSINESS FORMS, INC. 73

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Mc Cain Drain

4) DOCUMENT TYPE: 100 yr run

00BREAK00

MOORE BUSINESS FORMS, INC 23

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

C
T1      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN.
T2      100 YEAR
T3      MC CAIN DRAIN
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSFL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	955.670	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38.000	1.000	42.000	41.000	40.000	53.000	27.000	21.000	22.000	2.000
	54.000	4.000	39.000	0.000	150.000	200.000	0.000	0.000	0.000	0.000
QT	5.000	234.000	312.000	360.000	520.000	360.000	0.000	0.000	0.000	0.000
NC	.130	.130	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

X1	30.000	41.000	1994.000	2032.000	2100.000	2100.000	2100.000	0.000	0.000	0.000
GR	974.300	1180.000	970.400	1228.000	970.900	1239.000	966.700	1352.000	966.200	1401.000
GR	964.600	1439.000	964.200	1502.000	962.100	1544.000	962.400	1606.000	958.600	1650.000
GR	959.500	1669.000	959.300	1690.000	959.200	1696.000	960.600	1720.000	961.100	1759.000
GR	958.300	1785.000	956.400	1812.000	954.400	1823.000	953.700	1896.000	955.100	1914.000
GR	955.400	1975.000	956.300	1984.000	954.900	1989.000	954.800	1994.000	952.300	2000.000
GR	952.200	2000.000	951.300	2005.000	951.300	2008.000	950.400	2013.000	950.200	2019.000
GR	951.200	2022.000	952.300	2025.000	954.200	2032.000	955.100	2035.000	953.900	2045.000
GR	954.000	2108.000	954.700	2180.000	956.900	2282.000	961.400	2412.000	967.500	2486.000
GR	971.400	2542.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.600	28.000	1995.000	2028.000	1725.000	1725.000	1725.000	0.000	0.000	0.000
GR	975.300	1109.000	974.500	1133.000	970.700	1177.000	965.700	1318.000	963.100	1416.000
GR	964.800	1476.000	963.700	1544.000	963.200	1596.000	964.000	1686.000	962.000	1763.000
GR	954.200	1823.000	955.500	1983.000	954.600	1995.000	952.000	2000.000	951.000	2004.000
GR	952.000	2010.000	954.000	2020.000	955.200	2028.000	955.200	2046.000	957.400	2102.000
GR	958.200	2197.000	959.300	2223.000	959.600	2238.000	959.500	2253.000	959.700	2259.000

GR	961.100	2268.000	962.600	2326.000	963.700	2366.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1916.000	2030.000	0.000	0.000
X1	30.700	0.000	0.000	0.000	375.000	375.000	375.000	0.000	0.000	0.000
NC	.080	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1985.000	2030.000	0.000	0.000
X1	30.800	30.000	1987.000	2011.000	200.000	83.000	139.000	0.000	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.300	1300.000	957.500	1785.000
GR	955.900	1876.000	955.200	1980.000	953.000	1987.000	952.100	2000.000	950.800	2005.000
GR	950.800	2008.000	953.000	2011.000	956.300	2071.000	958.700	2167.000	959.700	2259.000
GR	960.700	2344.000	961.400	2443.000	961.500	2540.000	963.600	2634.000	966.600	2795.000
GR	966.700	2869.000	968.400	2970.000	971.600	3072.000	975.400	3196.000	978.700	3275.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

X1	30.900	38.000	2000.000	2017.000	60.000	75.000	62.000	.829	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.900	1338.000	961.900	1442.000
GR	961.200	1570.000	960.600	1678.000	960.200	1783.000	960.100	1890.000	960.300	1985.000
GR	960.400	1996.000	960.500	2000.000	951.500	2000.000	951.300	2006.000	950.800	2008.300
GR	951.300	2008.400	951.300	2009.200	951.300	2009.300	951.300	2017.000	960.500	2017.000
GR	960.700	2050.000	960.900	2083.000	961.500	2188.000	962.400	2317.000	963.700	2429.000
GR	964.500	2517.000	965.900	2620.000	967.400	2719.000	969.000	2817.000	970.900	2917.000
GR	972.700	3081.000	975.400	3196.000	978.700	3275.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SP	1.250	2.100	3.000	0.000	13.500	.829	85.000	0.000	950.800	950.800

BRIDGE SECTION C(UPSTREAM FACE M-60)

X1	32.100	38.000	2000.000	2017.000	188.000	188.000	188.000	.829	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.829	0.000
BT	37.000	434.000	970.100	0.000	524.000	969.400	0.000	640.000	968.800	0.000
BT	733.000	968.100	0.000	828.000	967.100	0.000	929.000	966.400	0.000	1028.000
BT	965.500	0.000	1128.000	964.500	0.000	1229.000	963.500	0.000	1328.000	962.500
BT	0.000	1430.000	961.700	0.000	1600.000	961.200	0.000	1700.000	961.000	0.000
BT	1800.000	960.800	0.000	1900.000	960.700	0.000	1950.000	960.600	0.000	1980.000
BT	960.400	0.000	2000.000	960.300	951.800	2000.000	960.300	957.500	2008.200	960.500
BT	957.500	2008.300	960.300	950.900	2009.200	960.300	950.900	2009.300	960.300	957.500
BT	2017.000	960.300	957.500	2017.000	960.300	951.100	2050.000	960.300	0.000	2090.000
BT	960.400	0.000	2194.000	960.900	0.000	2291.000	961.500	0.000	2391.000	962.300
BT	0.000	2491.000	963.300	0.000	2592.000	964.400	0.000	2692.000	965.800	0.000
BT	2791.000	967.400	0.000	2893.000	962.200	0.000	2991.000	971.000	0.000	3094.000
BT	972.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	970.100	434.000	969.400	524.000	968.800	640.000	968.100	733.000	967.100	828.000
GR	966.400	929.000	965.500	1028.000	964.500	1128.000	963.500	1229.000	962.500	1328.000
GR	961.700	1430.000	961.200	1600.000	961.000	1700.000	960.800	1800.000	960.700	1900.000
GR	960.600	1950.000	960.400	1980.000	960.300	2000.000	951.800	2000.000	951.000	2004.000

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GR	951.000	2008.200	950.900	2008.300	950.900	2009.200	950.800	2009.300	951.100	2017.000
GR	960.300	2017.000	960.300	2050.000	960.400	2090.000	960.900	2194.000	961.500	2291.000
GR	962.300	2391.000	963.300	2491.000	964.400	2592.000	965.800	2692.000	967.400	2791.000
GR	962.200	2893.000	971.000	2991.000	972.900	3094.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
QT	5.000	212.000	283.000	326.000	471.000	326.000	0.000	0.000	0.000	0.000
NC	.100	.090	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.300	35.000	1992.000	2015.000	42.000	42.000	42.000	0.000	0.000	0.000
GR	974.800	1397.000	964.600	1435.000	962.100	1537.000	961.200	1600.000	960.700	1645.000
GR	960.400	1713.000	959.200	1911.000	959.000	1944.000	959.100	1973.000	958.400	1982.000
GR	957.100	1987.000	955.900	1990.000	954.800	1992.000	953.600	1994.000	952.500	1997.000
GR	952.100	1998.000	952.000	2000.000	951.000	2004.000	950.900	2008.000	952.000	2011.000
GR	954.600	2015.000	957.400	2085.000	958.800	2153.000	959.000	2202.000	960.300	2303.000
GR	962.500	2407.000	964.900	2511.000	965.600	2617.000	965.100	2719.000	963.800	2790.000
GR	968.800	2910.000	970.800	3012.000	970.700	3068.000	971.900	3162.000	975.400	3255.000
NC	.080	.070	.044	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	32.700	43.000	2093.000	2111.000	950.000	1050.000	1000.000	0.000	0.000	0.000
GR	972.800	1156.000	968.900	1252.000	967.000	1300.000	963.800	1402.000	961.700	1500.000
GR	961.100	1598.000	960.600	1698.000	960.700	1796.000	960.700	1895.000	960.600	2000.000
GR	960.200	2019.000	959.500	2030.000	959.200	2063.000	957.600	2081.000	953.200	2093.000
GR	952.800	2100.000	952.100	2102.000	951.900	2105.000	951.800	2105.000	952.200	2106.000
GR	952.700	2107.000	953.400	2111.000	957.500	2119.000	957.900	2139.000	956.200	2150.000
GR	957.400	2214.000	958.500	2229.000	958.900	2296.000	959.800	2352.000	959.700	2391.000
GR	959.900	2484.000	961.100	2617.000	962.300	2696.000	963.300	2785.000	965.400	2868.000
GR	967.300	2969.000	971.300	3105.000	974.400	3209.000	977.000	3310.000	979.400	3412.000
GR	981.100	3558.000	982.900	3662.000	983.600	3699.000	0.000	0.000	0.000	0.000
NC	.070	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2090.000	2147.000	0.000	0.000
X1	32.800	0.000	0.000	0.000	150.000	250.000	200.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	32.900	39.000	2000.000	2024.000	33.000	200.000	72.000	.906	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	961.700	1400.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.800	2008.000	952.900	2010.000	953.000	2014.000	952.900	2016.000	952.800	2019.000
GR	953.000	2022.000	953.000	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
QT	5.000	196.000	262.000	302.000	436.000	302.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	3.000	0.000	13.450	0.000	79.400	0.000	952.000	952.000

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

X1	33.100	39.000	2000.000	2024.000	50.000	50.000	50.000	.906	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.906	0.000
BT	41.000	1056.000	972.800	0.000	1152.000	968.900	0.000	1200.000	967.000	0.000
BT	1302.000	963.800	0.000	1400.000	961.700	0.000	1498.000	961.100	0.000	1598.000
BT	960.600	0.000	1696.000	960.700	0.000	1795.000	960.700	0.000	1900.000	960.600
BT	0.000	1980.000	960.900	0.000	2000.000	961.000	952.900	2000.000	961.000	953.900
BT	2002.000	961.000	956.900	2005.000	961.000	957.900	2008.000	961.000	956.900	2010.000
BT	961.000	953.900	2010.000	961.000	952.700	2014.000	961.000	952.700	2014.000	961.000
BT	953.900	2016.000	961.000	956.900	2019.000	961.000	957.900	2022.000	961.100	956.900
BT	2024.000	961.100	953.900	2024.000	961.100	953.400	2075.000	961.500	0.000	2106.000
BT	960.800	0.000	2209.000	960.800	0.000	2312.000	961.100	0.000	2420.000	961.400
BT	0.000	2551.000	961.900	0.000	2653.000	962.100	0.000	2753.000	962.800	0.000
BT	2858.000	963.900	0.000	2962.000	965.100	0.000	3065.000	966.100	0.000	3269.000
BT	967.000	0.000	3317.000	966.700	0.000	3416.000	967.000	0.000	3517.000	967.600
BT	0.000	3622.000	967.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.400	2008.000	952.700	2010.000	952.700	2014.000	952.700	2016.000	952.800	2019.000
GR	953.000	2022.000	953.400	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1908.000	2028.000	0.000	0.000

X1	33.300	34.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	959.300	1726.000	958.500	1795.000	956.700	1901.000
GR	956.500	1995.000	956.900	2000.000	952.400	2002.000	952.100	2008.000	952.500	2010.000
GR	952.800	2019.000	953.200	2024.000	957.200	2026.000	959.700	2037.000	959.700	2072.000
GR	960.800	2106.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	.070	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	33.400	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000

X1	33.500	17.000	2000.000	2026.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	964.000	1100.000	960.000	1300.000	959.000	1500.000	958.700	1795.000	958.000	1900.000
GR	957.900	2000.000	953.400	2002.000	953.000	2008.000	953.000	2010.000	953.300	2019.000
GR	953.200	2024.000	957.200	2026.000	958.300	2100.000	958.600	2500.000	959.000	2700.000
GR	960.700	3000.000	964.000	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2028.000	0.000	0.000

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X1	33.800	36.000	2000.000	2019.000	1920.000	1050.000	1550.000	0.000	0.000	0.000
GR	983.700	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.500	1960.000	960.500	1980.000	960.500	1989.000
GR	956.300	2000.000	954.800	2003.000	954.800	2007.000	955.200	2011.000	957.400	2019.000
GR	957.900	2024.000	960.300	2033.000	961.300	2055.000	961.400	2138.000	961.800	2272.000
GR	962.000	2412.000	963.100	2444.000	962.200	2468.000	962.800	2648.000	963.400	2739.000
GR	962.000	3101.000	963.000	3160.000	963.900	3283.000	964.000	3351.000	965.000	3408.000
GR	966.000	3537.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	33.900	33.000	2004.000	2015.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2004.000	955.200	2004.000	955.100	2005.000
GR	955.200	2008.000	955.200	2009.500	955.300	2011.000	955.300	2014.000	955.400	2015.000
GR	962.500	2015.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
SB	0.000	1.700	2.920	0.000	8.800	0.000	47.500	0.000	955.100	955.100

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

X1	34.100	33.000	2000.000	2011.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	31.000	675.000	979.900	0.000	737.000	977.700	0.000	859.000	971.600	0.000
BT	977.000	967.000	0.000	1100.000	964.300	0.000	1229.000	962.900	0.000	1356.000
BT	962.600	0.000	1485.000	962.600	0.000	1612.000	962.200	0.000	1739.000	962.200
BT	0.000	1870.000	962.200	0.000	1950.000	962.200	0.000	2000.000	962.500	955.100
BT	2001.000	962.500	959.000	2003.000	962.500	959.800	2005.500	962.500	960.500	2008.000
BT	962.500	959.600	2010.000	962.500	958.000	2011.000	962.200	955.800	2020.000	962.500
BT	0.000	2050.000	962.600	0.000	2100.000	962.700	0.000	2219.000	962.900	0.000
BT	2373.000	963.200	0.000	2587.000	963.700	0.000	2741.000	963.500	0.000	2899.000
BT	962.800	0.000	3056.000	962.900	0.000	3265.000	964.500	0.000	3482.000	965.800
BT	0.000	3638.000	967.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2000.000	955.100	2000.000	955.200	2001.000
GR	955.400	2004.000	955.700	2005.500	955.500	2008.000	955.800	2010.000	955.800	2011.000
GR	962.500	2011.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
ET	0.000	7.100	7.100	7.100	7.100	7.100	1960.000	2070.000	0.000	0.000

X1	34.300	34.000	1995.000	2016.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	983.000	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.100	1987.000	958.000	1995.000	955.400	2000.000
GR	955.300	2003.000	955.100	2005.000	955.800	2011.000	958.100	2016.000	958.800	2023.000
GR	961.100	2117.000	960.800	2170.000	962.900	2219.000	962.000	2412.000	963.100	2444.000
GR	962.200	2468.000	962.800	2648.000	963.400	2739.000	963.000	3101.000	963.000	3160.000
GR	963.900	3283.000	964.000	3351.000	965.000	3408.000	966.000	3537.000	0.000	0.000
NC	.070	.070	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	34.400	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1980.000	2313.000	0.000	0.000
X1	34.700	29.000	2000.000	2031.000	960.000	933.000	950.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	958.400	2000.000	956.400	2004.000
GR	955.400	2008.000	955.900	2013.000	955.200	2018.000	955.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.400	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2033.000	0.000	0.000
X1	34.800	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
QT	5.000	158.000	236.000	296.000	484.000	296.000	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	34.900	48.000	2000.000	2017.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	978.000	1430.000	974.100	1543.000	971.000	1639.000	970.400	1697.000	968.500	1703.000
GR	967.900	1730.000	965.100	1797.000	964.600	1802.000	963.700	1894.000	963.400	1902.000
GR	964.000	1950.000	964.600	2000.000	956.200	2000.000	956.100	2000.500	956.000	2001.500
GR	955.900	2003.000	955.800	2004.000	955.700	2005.000	955.500	2006.500	955.300	2007.500
GR	955.300	2008.000	955.300	2009.000	955.300	2009.500	955.400	2010.500	955.700	2012.000
GR	955.900	2013.000	956.000	2014.000	956.100	2015.500	956.100	2016.500	956.100	2017.000
GR	964.600	2017.000	964.200	2020.000	964.200	2050.000	963.800	2110.000	963.600	2205.000
GR	963.400	2305.000	963.700	2406.000	963.800	2500.000	965.400	2600.000	966.100	2700.000
GR	968.900	2800.000	970.500	2900.000	972.100	3000.000	973.900	3100.000	975.500	3200.000
GR	976.800	3288.000	979.700	3387.000	981.900	3451.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.950	0.000	11.680	0.000	50.260	0.000	955.300	955.300

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

MOORE BUSINESS FORMS, INC

X1	35.100	0.000	0.000	0.000	80.000	80.000	80.000	0.000	0.000	0.000
BT	46.000	1430.000	978.000	0.000	1543.000	974.100	0.000	1639.000	971.000	0.000
BT	1697.000	970.400	0.000	1703.000	968.500	0.000	1730.000	967.900	0.000	1797.000
BT	965.100	0.000	1802.000	964.600	0.000	1894.000	963.700	0.000	1902.000	963.400
BT	0.000	1950.000	964.000	0.000	2000.000	964.600	956.200	2000.500	964.600	958.000
BT	2001.500	964.600	958.800	2003.000	964.600	959.500	2004.000	964.600	959.600	2005.000
BT	964.600	959.500	2006.500	964.600	958.800	2007.500	964.600	958.000	2008.000	964.600
BT	955.300	2009.000	964.600	955.300	2009.500	964.600	958.000	2010.500	964.600	958.800
BT	2012.000	964.600	959.500	2013.000	964.600	959.600	2014.000	964.600	959.500	2015.500
BT	964.600	958.800	2016.500	964.600	958.000	2017.000	964.600	956.100	2020.000	964.200
BT	0.000	2050.000	964.200	0.000	2110.000	963.800	0.000	2205.000	963.600	0.000
BT	2305.000	963.400	0.000	2406.000	963.700	0.000	2500.000	963.800	0.000	2600.000
BT	965.400	0.000	2700.000	966.100	0.000	2800.000	968.900	0.000	2900.000	970.500
BT	0.000	3000.000	972.100	0.000	3100.000	973.900	0.000	3200.000	975.500	0.000
BT	3288.000	976.800	0.000	3387.000	979.700	0.000	3451.000	981.900	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1990.000	2112.000	0.000	0.000

X1	35.300	29.000	2000.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	956.400	2000.000	955.400	2004.000
GR	954.400	2008.000	954.300	2013.000	954.200	2018.000	954.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.000	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

X1	35.800	26.000	1995.000	2036.000	619.000	383.000	490.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	954.700	2007.000
GR	954.900	2013.000	957.000	2021.000	960.900	2036.000	960.600	2093.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
GR	980.900	3210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	35.900	40.000	2000.000	2011.000	36.000	36.000	36.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.600	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	36.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.300	2001.000	960.800	957.600	2002.000	960.800	958.000	2003.000	960.800	958.000
BT	2004.000	960.800	957.600	2004.500	960.800	957.300	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.300	2007.000	960.800	957.700	2008.000	960.800
BT	958.000	2009.000	960.800	958.000	2010.000	960.800	957.700	2010.500	960.800	957.300
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.200	0.000	0.000	0.000

BRIDGE SECTION G(CHRISTI HIGH)

X1	36.100	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	36.300	25.000	1995.000	2036.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	956.300	2007.000
GR	956.300	2013.000	957.000	2021.000	960.900	2030.000	960.600	2036.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	36.800	0.000	0.000	0.000	150.000	150.000	150.000	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	36.900	40.000	2000.000	2011.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.200	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	37.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.600	2001.000	960.800	957.900	2002.000	960.800	958.300	2003.000	960.800	958.300
BT	2004.000	960.800	957.900	2004.500	960.800	957.600	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.600	2007.000	960.800	957.900	2008.000	960.800
BT	958.300	2009.000	960.800	958.300	2010.000	960.800	957.900	2010.500	960.800	957.600
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.000	0.000	0.000	0.000

BRIDGE SECTION H(CHRISTI HIGH)

X1	37.100	0.000	0.000	0.000	40.500	40.500	40.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	37.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1961.000	2061.000	0.000	0.000
X1	37.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	38.000	45.000	2262.000	2298.000	1383.000	1400.000	1375.000	0.000	0.000	0.000
GR	969.400	486.000	970.600	518.000	971.400	566.000	975.000	670.000	977.800	774.000
GR	979.800	874.000	980.000	975.000	979.000	1130.000	979.300	1234.000	979.500	1337.000
GR	978.000	1422.000	974.600	1534.000	971.500	1641.000	967.200	1760.000	963.500	1895.000
GR	961.600	2000.000	961.700	2103.000	961.700	2208.000	961.900	2262.000	959.400	2270.000
GR	958.700	2275.000	958.300	2280.000	957.750	2283.000	959.200	2290.000	960.000	2294.000
GR	961.600	2298.000	963.100	2306.000	962.700	2327.000	961.800	2330.000	962.400	2441.000
GR	964.900	2502.000	967.400	2541.000	969.800	2589.000	971.000	2706.000	970.100	2808.000
GR	973.100	2942.000	974.100	3062.000	972.600	3073.000	972.900	3150.000	974.300	3165.000
GR	976.200	3268.000	977.900	3375.000	980.900	3450.000	983.600	3507.000	983.700	3572.000
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 23

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

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 30.000

3265 DIVIDED FLOW

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

30.00	5.47	955.67	0.00	955.67	955.70	.03	0.00	0.00	954.80
360.	54.	230.	76.	177.	145.	240.	0.	0.	954.20
0.00	.31	1.58	.32	.130	.050	.130	0.000	950.20	1816.02
.000496	2100.	2100.	2100.	0	0	0	0.00	400.41	2224.97

*SECNO 30.600

30.60	5.61	956.61	0.00	0.00	956.64	.03	.94	.00	954.60
360.	141.	203.	16.	323.	120.	51.	21.	13.	955.20
.42	.44	1.69	.31	.120	.050	.120	.050	951.00	1804.44
.000607	1725.	1725.	1725.	2	0	0	0.00	277.54	2081.98

*SECNO 30.700

3470 ENCROACHMENT STATIONS= 1916.0 2030.0 TYPE= 1 TARGET= 114.000

30.70	5.87	956.87	0.00	0.00	956.94	.06	.28	.01	954.60
360.	71.	288.	1.	132.	128.	3.	24.	15.	955.20
.48	.54	2.24	.36	.120	.050	.120	.050	951.00	1916.00
.000972	375.	375.	375.	2	0	0	0.00	114.00	2030.00

*SECNO 30.800

3470 ENCROACHMENT STATIONS= 1985.0 2030.0 TYPE= 1 TARGET= 45.000

30.80	6.19	956.99	0.00	0.00	957.07	.08	.13	.00	953.00
360.	5.	290.	65.	7.	119.	66.	25.	15.	953.00
.49	.65	2.44	.99	.080	.050	.090	.050	950.80	1985.00
.000834	200.	139.	83.	0	0	0	0.00	45.00	2030.00

CCHV= .300 CEHV= .500

*SECNO 30.900

MOORE BUSINESS FORMS, INC. 23

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

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

30.90	6.18	956.98	0.00	0.00	957.29	.31	.11	.12	960.50
360.	0.	360.	0.	0.	80.	0.	25.	15.	960.50
.50	0.00	4.50	0.00	.080	.050	.090	.050	950.80	1741.62
.005055	60.	62.	75.	2	0	0	0.00	14.09	1755.71

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	2.10	3.00	0.00	13.50	.83	85.00	0.00	950.80	950.80

*SECNO 32.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 956.93 BRIDGE VELOCITY=, 4.63 CALCULATED CHANNEL AREA=, 78.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	957.32	.06	0.	360.	85.	85.	957.50	960.30

BRIDGE SECTION C(UPSTREAM FACE M-60)

32.10	6.23	957.03	0.00	0.00	957.32	.28	.03	0.00	960.30
360.	0.	360.	0.	0.	84.	0.	26.	16.	960.30
.51	0.00	4.28	0.00	.080	.015	.090	.047	950.80	1732.21
.000379	188.	188.	188.	0	0	0	0.00	14.09	1746.31

*SECNO 32.300

32.30	6.43	957.33	0.00	0.00	957.40	.07	.02	.06	954.80
326.	3.	275.	48.	7.	117.	93.	26.	16.	954.60
.52	.46	2.34	.52	.100	.046	.090	.047	950.90	1986.12
.000658	42.	42.	42.	2	0	0	0.00	97.11	2083.23

CCHV= .100 CEHV= .300
*SECNO 32.700

32.70	6.16	957.96	0.00	0.00	958.03	.07	.63	.00	953.20
326.	25.	233.	67.	32.	95.	112.	31.	18.	953.40
.66	.80	2.46	.60	.080	.044	.070	.046	951.80	2076.91
.000601	950.	1000.	1050.	2	0	0	0.00	144.78	2221.69

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

*SECNO 32.800

3470 ENCROACHMENT STATIONS= 2090.0 2147.0 TYPE= 1 TARGET= 57.000

32.80	6.27	958.07	0.00	0.00	958.19	.12	.14	.01	953.20
326.	11.	284.	31.	13.	97.	35.	32.	19.	953.40
.68	.88	2.93	.89	.070	.042	.060	.046	951.80	2090.00
.000757	150.	200.	250.	2	0	0	0.00	57.00	2147.00

CCHV= .300 CEHV= .500

*SECNO 32.900

32.90	6.14	958.14	0.00	0.00	958.26	.12	.07	.00	961.00
326.	0.	326.	0.	0.	117.	0.	32.	19.	961.00
.69	0.00	2.78	0.00	.070	.042	.060	.046	952.00	1911.26
.001105	33.	72.	200.	0	0	0	0.00	21.74	1933.01

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	3.00	0.00	13.45	0.00	79.40	0.00	952.00	952.00

*SECNO 33.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.59	958.24	0.00	0.	302.	79.	79.	957.90	960.60

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

33.10	6.50	958.50	0.00	0.00	958.59	.09	.33	0.00	961.00
302.	0.	302.	0.	0.	128.	0.	32.	19.	961.00
.69	0.00	2.37	0.00	.070	.027	.060	.045	952.00	1911.26
.000300	50.	50.	50.	2	0	0	0.00	21.74	1933.01

*SECNO 33.300

3470 ENCROACHMENT STATIONS= 1908.0 2028.0 TYPE= 1 TARGET= 120.000

33.30	6.50	958.60	0.00	0.00	958.62	.02	.01	.02	956.90
302.	101.	201.	1.	184.	147.	2.	33.	19.	957.20
.71	.55	1.36	.35	.070	.050	.060	.046	952.10	1908.00
.000270	50.	50.	50.	2	0	0	0.00	120.00	2028.00

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
CCHV= .100	CEHV= .300								
*SECNO 33.400									
33.40	6.52	958.62	0.00	0.00	958.64	.01	.02	.00	956.90
302.	120.	181.	1.	309.	148.	4.	33.	20.	957.20
.73	.39	1.22	.19	.070	.045	.080	.046	952.10	1784.49
.000175	75.	75.	75.	0	0	0	0.00	247.76	2032.26
*SECNO 33.500									
33.50	5.85	958.85	0.00	0.00	958.88	.02	.24	.00	957.90
302.	43.	203.	56.	157.	139.	263.	46.	35.	957.20
1.02	.27	1.46	.21	.070	.045	.080	.045	953.00	1637.23
.000271	1100.	1100.	1100.	1	0	0	0.00	992.98	2630.22
*SECNO 33.800									
3470 ENCROACHMENT STATIONS=		1995.0	2028.0	TYPE=	1	TARGET=		33.000	
33.80	4.86	959.66	0.00	0.00	959.82	.17	.90	.04	956.30
302.	17.	267.	18.	12.	77.	15.	57.	51.	957.40
1.15	1.45	3.45	1.21	.070	.050	.080	.047	954.80	1995.00
.002172	1920.	1550.	1050.	2	0	0	0.00	33.00	2028.00
CCHV= .300	CEHV= .500								
*SECNO 33.900									
33.90	4.53	959.63	0.00	0.00	960.24	.60	.19	.22	962.50
302.	0.	302.	0.	0.	48.	0.	57.	51.	962.50
1.15	0.00	6.24	0.00	.070	.050	.080	.047	955.10	2004.00
.013252	44.	44.	44.	2	0	0	0.00	11.00	2015.00

SPECIAL BRIDGE

SB	XK	XROR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	2.92	0.00	8.80	0.00	47.50	0.00	955.10	955.10

*SECNO 34.100

MOORE BUSINESS FORMS, INC. 23

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

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 960.317 ELLC= 960.500 PCWSE= 959.632 ELTRD= 962.200

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 962.20 MAX ELLC= 960.50

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

34.10	4.84	959.94	0.00	0.00	960.86	.92	.46	.16	962.50
302.	0.	302.	0.	0.	39.	0.	57.	52.	962.50
1.15	0.00	7.69	0.00	.070	.024	.080	.046	955.10	2000.00
.007938	46.	46.	46.	2	0	0	-9.60	11.00	2011.00

*SECNO 34.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1960.0 2070.0 TYPE= 1 TARGET= 110.000

34.30	6.02	961.12	0.00	0.00	961.17	.05	.05	.26	958.00
302.	19.	226.	57.	37.	106.	101.	57.	52.	958.10
1.16	.50	2.13	.57	.070	.040	.080	.046	955.10	1960.00
.000408	50.	50.	50.	2	0	0	0.00	110.00	2070.00

CCHV= .100 CEHV= .300

*SECNO 34.400

34.40	6.06	961.16	0.00	0.00	961.20	.04	.03	.00	958.00
302.	21.	206.	74.	47.	107.	146.	58.	52.	958.10
1.17	.46	1.93	.51	.070	.045	.070	.046	955.10	1929.36
.000419	70.	70.	70.	2	0	0	0.00	249.07	2178.43

*SECNO 34.700

3470 ENCROACHMENT STATIONS= 1980.0 2313.0 TYPE= 1 TARGET= 333.000

34.70	6.18	961.38	0.00	0.00	961.39	.01	.19	.00	958.40
302.	11.	190.	101.	34.	173.	355.	67.	58.	956.40
1.50	.33	1.10	.28	.070	.045	.070	.046	955.20	1980.00
.000116	960.	950.	933.	2	0	0	0.00	333.00	2313.00

MOORE BUSINESS FORMS, INC 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	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

*SECNO 34.800

3470 ENCROACHMENT STATIONS=		2000.0	2033.0	TYPE=	1	TARGET=		33.000	
34.80	6.26	961.46	0.00	0.00	961.51	.04	.11	.01	958.40
302.	0.	297.	5.	0.	176.	9.	72.	61.	956.40
1.60	0.00	1.69	.48	.070	.045	.070	.046	955.20	2000.00
.000305	600.	600.	600.	2	0	0	0.00	33.00	2033.00

CCHV= .300 CEHV= .500

*SECNO 34.900

34.90	6.14	961.44	0.00	0.00	961.58	.15	.03	.05	964.60
296.	0.	296.	0.	0.	97.	0.	72.	61.	964.60
1.61	0.00	3.06	0.00	.070	.045	.070	.046	955.30	2000.00
.001619	44.	44.	44.	2	0	0	0.00	17.00	2017.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.95	0.00	11.68	0.00	50.26	0.00	955.30	955.30

*SECNO 35.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
962.30	961.58	0.00	0.	296.	50.	50.	959.60	963.40

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

35.10	6.89	962.19	0.00	0.00	962.30	.11	.72	0.00	964.60
296.	0.	296.	0.	0.	109.	0.	73.	61.	964.60
1.62	0.00	2.70	0.00	.070	.015	.070	.046	955.30	2000.00
.000128	80.	80.	80.	2	0	0	0.00	17.00	2017.00

*SECNO 35.300

3470 ENCROACHMENT STATIONS=		1990.0	2112.0	TYPE=	1	TARGET=		122.000	
35.30	8.12	962.32	0.00	0.00	962.34	.01	.00	.03	956.40
296.	14.	226.	57.	41.	231.	197.	73.	61.	956.40
1.63	.33	.98	.29	.070	.042	.070	.046	954.20	1990.00
.000053	50.	50.	50.	2	0	0	0.00	122.00	2112.00

MOORE BUSINESS FORMS, INC 23

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	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 35.800

35.80	7.66	962.36	0.00	0.00	962.37	.01	.03	.00	960.80
296.	9.	224.	63.	43.	211.	220.	78.	63.	960.90
1.78	.21	1.06	.28	.060	.040	.060	.046	954.70	1939.72
.000099	619.	490.	383.	1	0	0	0.00	317.34	2257.06

CCHV= .300 CEHV= .500
*SECNO 35.900

35.90	7.25	962.35	0.00	0.00	962.38	.03	.01	.01	960.90
296.	35.	142.	120.	63.	74.	194.	78.	63.	960.80
1.79	.56	1.92	.62	.060	.040	.060	.046	955.10	1931.04
.000497	36.	36.	36.	0	0	0	0.00	263.12	2194.16

*SECNO 36.000

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

36.00	7.27	962.37	0.00	0.00	962.39	.02	.00	.00	960.90
296.	52.	67.	178.	63.	36.	194.	78.	63.	960.80
1.79	.83	1.83	.91	.060	.027	.060	.046	955.10	1930.99
.001092	1.	1.	1.	1	0	0	-37.52	263.29	2194.28

*SECNO 36.100

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

BRIDGE SECTION G(CHRISTI HIGH)

36.10	7.31	962.41	0.00	0.00	962.43	.02	.04	.00	960.90
296.	53.	64.	179.	66.	37.	203.	78.	63.	960.80
1.80	.80	1.75	.88	.060	.027	.060	.045	955.10	1929.87
.000981	41.	41.	41.	1	0	0	-37.52	267.58	2197.45

*SECNO 36.200

36.20	7.31	962.41	0.00	0.00	962.44	.03	.00	.00	960.90
296.	36.	137.	123.	66.	74.	204.	78.	63.	960.80
1.80	.55	1.84	.60	.060	.040	.060	.045	955.10	1929.69
.000454	1.	1.	1.	0	0	0	0.00	268.37	2198.06

MOORE BUSINESS FORMS, INC 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 36.300									
36.30	6.13	962.43	0.00	0.00	962.45	.02	.01	.00	960.80
296.	13.	217.	67.	48.	184.	210.	79.	64.	960.60
1.82	.26	1.18	.32	.060	.040	.060	.045	956.30	1936.83
.000147	50.	50.	50.	0	0	0	0.00	331.23	2268.05
CCHV= .100	CEHV= .300								
*SECNO 36.800									
36.80	6.16	962.46	0.00	0.00	962.47	.02	.02	.00	960.80
296.	13.	216.	67.	49.	184.	213.	80.	65.	960.60
1.86	.26	1.17	.32	.060	.040	.060	.045	956.30	1936.39
.000144	150.	150.	150.	2	0	0	0.00	333.34	2269.73
CCHV= .300	CEHV= .500								
*SECNO 36.900									
36.90	7.36	962.46	0.00	0.00	962.49	.02	.01	.00	960.90
296.	38.	132.	126.	72.	75.	214.	81.	65.	960.80
1.87	.53	1.76	.59	.060	.040	.060	.045	955.10	1923.01
.000413	50.	50.	50.	0	0	0	0.00	279.44	2202.45
*SECNO 37.000									
3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30									
37.00	7.37	962.47	0.00	0.00	962.49	.02	.00	.00	960.90
296.	53.	66.	177.	70.	40.	214.	81.	65.	960.80
1.87	.75	1.66	.83	.060	.027	.060	.045	955.10	1923.00
.000819	1.	1.	1.	0	0	0	-37.31	279.46	2202.46
*SECNO 37.100									
3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30									
BRIDGE SECTION H(CHRISTI HIGH)									
37.10	7.41	962.51	0.00	0.00	962.52	.02	.03	.00	960.90
296.	53.	65.	178.	72.	40.	220.	81.	66.	960.80
1.89	.74	1.60	.81	.060	.027	.060	.045	955.10	1921.93
.000756	41.	41.	41.	0	0	0	-37.50	283.46	2205.39

MOORE ENGINEERING, TEXAS, INC A3

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 37.200									
37.20	7.40	962.50	0.00	0.00	962.53	.02	.00	.00	960.90
296.	39.	129.	128.	76.	75.	222.	81.	66.	960.80
1.89	.52	1.71	.58	.060	.040	.060	.045	955.10	1921.64
.000382	1.	1.	1.	0	0	0	0.00	284.53	2206.18
*SECNO 37.300									
3470 ENCROACHMENT STATIONS=		1961.0	2061.0	TYPE=	1	TARGET=		100.000	
37.30	7.41	962.51	0.00	0.00	962.57	.06	.03	.02	960.90
296.	42.	178.	76.	53.	76.	83.	82.	66.	960.80
1.89	.80	2.35	.92	.060	.040	.060	.045	955.10	1961.00
.000724	50.	50.	50.	1	0	0	0.00	100.00	2061.00

CCHV= .100 CEHV= .300
*SECNO 38.000

3265 DIVIDED FLOW

VALLEY SECTION I

38.00	5.21	962.96	0.00	0.00	962.97	.01	.40	.00	961.90
296.	131.	136.	29.	382.	129.	109.	95.	76.	961.60
2.47	.34	1.06	.27	.060	.040	.060	.044	957.75	1924.66
.000154	1383.	1375.	1400.	3	0	0	0.00	572.18	2454.74

MOORE BUSINESS FORMS, INC. 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03.04
  MODIFICATION -  50,51,52,53.54.
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	0.000000	0.00	0.0	0.	955.670	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 30.000
2800 NAT Q1= 161.61 WSEL= 955.67 ENC Q1= 161.61 WSEL= 955.77 RATIO= 0.0000
NAT Q1= 174. RATIOS LOB,CH,ROB= .1583 .6205 .2212 WSEL= 955.77

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1846.9 2154.6 TYPE= 4 TARGET= .069
VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

30.00	5.47	955.67	0.00	955.67	955.70	.03	0.00	0.00	954.80
360.	45.	245.	70.	139.	145.	190.	0.	0.	954.20
0.00	.32	1.69	.37	.130	.050	.130	0.000	950.20	1846.94
.000565	2100.	2100.	2100.	0	0	0	0.00	299.13	2154.62

*SECNO 30.600
2800 NAT Q1= 146.11 WSEL= 956.61 ENC Q1= 146.11 WSEL= 956.71 RATIO= 0.0000
NAT Q1= 157. RATIOS LOB,CH,ROB= .4016 .5508 .0476 WSEL= 956.71

3470 ENCROACHMENT STATIONS= 1825.1 2038.0 TYPE= 4 TARGET= .067

30.60	5.69	956.69	0.00	956.61	956.72	.03	1.02	.00	954.60
360.	141.	213.	5.	309.	123.	15.	18.	10.	955.20
.39	.46	1.74	.37	.120	.050	.120	.050	951.00	1825.15
.000622	1725.	1725.	1725.	2	0	0	0.00	212.81	2037.96

*SECNO 30.700

3470 ENCROACHMENT STATIONS= 1916.0 2030.0 TYPE= 1 TARGET= 114.000

30.70	5.95	956.95	0.00	956.87	957.01	.06	.28	.01	954.60
360.	73.	286.	1.	138.	131.	3.	21.	12.	955.20
.45	.53	2.18	.35	.120	.050	.120	.050	951.00	1916.00
.000894	375.	375.	375.	2	0	0	0.00	114.00	2030.00

*SECNO 30.800

3470 ENCROACHMENT STATIONS= 1985.0 2030.0 TYPE= 1 TARGET= 45.000

30.80	6.26	957.06	0.00	956.99	957.13	.07	.12	.00	953.00
360.	5.	290.	66.	7.	121.	67.	22.	12.	953.00
.47	.64	2.40	.98	.080	.050	.090	.050	950.80	1985.00
.000791	200.	139.	83.	0	0	0	0.00	45.00	2030.00

MOORE BUSINESS FORMS, INC 23

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

CCHV= .300 CEHV= .500
*SECNO 30.900
BRIDGE SECTION B(DOWNSTREAM FACE M-60)

30.90	6.24	957.04	0.00	956.98	957.35	.31	.10	.12	960.50
360.	0.	360.	0.	0.	81.	0.	22.	12.	960.50
.47	0.00	4.45	0.00	.080	.050	.090	.050	950.80	1741.62
.004894	60.	62.	75.	2	0	0	0.00	14.09	1755.71

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	2.10	3.00	0.00	13.50	.83	85.00	0.00	950.80	950.80

*SECNO 32.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 957.00 BRIDGE VELOCITY=. 4.58 CALCULATED CHANNEL AREA=. 79.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTPD
0.00	957.38	.05	0.	360.	85.	85.	957.50	960.30

BRIDGE SECTION C(UPSTREAM FACE M-60)

32.10	6.30	957.10	0.00	957.03	957.38	.28	.03	0.00	960.30
360.	0.	360.	0.	0.	85.	0.	23.	12.	960.30
.49	0.00	4.23	0.00	.080	.015	.090	.047	950.80	1732.21
.000368	188.	188.	188.	0	0	0	0.00	14.09	1746.31

*SECNO 32.300
2800 NAT Q1= 127.09 WSEL= 957.33 ENC Q1= 127.09 WSEL= 957.43 RATIO= 0.0000
NAT Q1= 133. RATIOS LOB,CH,ROB= .0098 .8325 .1577 WSEL= 957.43

3470 ENCROACHMENT STATIONS= 1992.0 2041.1 TYPE= 4 TARGET= .043

32.30	6.48	957.38	0.00	957.33	957.46	.08	.02	.06	954.80
326.	0.	282.	44.	0.	118.	59.	23.	12.	954.60
.49	0.00	2.38	.75	.100	.046	.090	.047	950.90	1992.00
.000764	42.	42.	42.	2	0	0	0.00	49.13	2041.13

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

CCHV= .100 CEHV= .300
*SECNO 32.700
2800 NAT Q1= 132.93 WSEL= 957.96 ENC Q1= 132.93 WSEL= 958.06 RATIO= 0.0000
NAT Q1= 141. RATIOS LOB,CH,ROB= .0784 .6986 .2230 WSEL= 958.06

3470 ENCROACHMENT STATIONS= 2087.6 2191.4 TYPE= 4 TARGET= .055

32.70	6.27	958.07	0.00	957.96	958.14	.07	.68	.00	953.20
326.	17.	241.	68.	21.	97.	101.	27.	14.	953.40
.63	.82	2.50	.67	.080	.044	.070	.046	951.80	2087.59
.000603	950.	1000.	1050.	2	0	0	0.00	103.79	2191.37

*SECNO 32.800

3470 ENCROACHMENT STATIONS= 2090.0 2147.0 TYPE= 1 TARGET= 57.000

32.80	6.37	958.17	0.00	958.07	958.28	.11	.13	.01	953.20
326.	11.	281.	33.	13.	99.	36.	28.	14.	953.40
.65	.85	2.85	.87	.070	.042	.060	.046	951.80	2090.00
.000699	150.	200.	250.	2	0	0	0.00	57.00	2147.00

CCHV= .300 CEHV= .500
*SECNO 32.900

32.90	6.24	958.24	0.00	958.14	958.35	.12	.07	.00	961.00
326.	0.	326.	0.	0.	120.	0.	29.	14.	961.00
.66	0.00	2.73	0.00	.070	.042	.060	.046	952.00	1911.26
.001048	33.	72.	200.	0	0	0	0.00	21.74	1933.01

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	3.00	0.00	13.45	0.00	79.40	0.00	952.00	952.00

*SECNO 33.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
958.69	958.33	0.00	0.	302.	79.	79.	957.90	960.60

MOORE BUSINESS FORMS, INC 23

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

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

33.10	6.60	958.60	0.00	958.50	958.69	.08	.33	0.00	961.00
302.	0.	302.	0.	0.	130.	0.	29.	14.	961.00
.67	0.00	2.33	0.00	.070	.027	.060	.045	952.00	1911.26
.000286	50.	50.	50.	2	0	0	0.00	21.74	1933.01

*SECNO 33.300

3470 ENCROACHMENT STATIONS= 1908.0 2028.0 TYPE= 1 TARGET= 120.000

33.30	6.60	958.70	0.00	958.60	958.72	.02	.01	.02	956.90
302.	104.	197.	1.	193.	150.	3.	29.	14.	957.20
.68	.54	1.32	.34	.070	.050	.060	.046	952.10	1908.00
.000246	50.	50.	50.	2	0	0	0.00	120.00	2028.00

CCHV= .100 CEHV= .300

*SECNO 33.400

2800 NAT Q1= 228.11 WSEL= 958.62 ENC Q1= 228.11 WSEL= 958.72 RATIO= 0.0000

NAT Q1= 242. RATIOS LOB,CH,ROB= .4164 .5804 .0032 WSEL= 958.72

3470 ENCROACHMENT STATIONS= 1874.8 2026.0 TYPE= 4 TARGET= .058

33.40	6.62	958.72	0.00	958.62	958.73	.02	.02	.00	956.90
302.	118.	184.	0.	256.	150.	0.	30.	15.	957.20
.70	.46	1.23	0.00	.070	.045	.080	.045	952.10	1874.80
.000184	75.	75.	75.	0	0	0	0.00	151.20	2026.00

*SECNO 33.500

2800 NAT Q1= 183.46 WSEL= 958.85 ENC Q1= 183.46 WSEL= 958.95 RATIO= 0.0000

NAT Q1= 204. RATIOS LOB,CH,ROB= .1602 .6227 .2171 WSEL= 958.95

3470 ENCROACHMENT STATIONS= 1894.7 2304.6 TYPE= 4 TARGET= .102

33.50	5.96	958.96	0.00	958.85	958.98	.02	.24	.00	957.90
302.	37.	210.	56.	105.	141.	206.	41.	22.	957.20
.97	.35	1.49	.27	.070	.045	.080	.045	953.00	1894.72
.000273	1100.	1100.	1100.	1	0	0	0.00	409.91	2304.63

*SECNO 33.800

3470 ENCROACHMENT STATIONS= 1995.0 2028.0 TYPE= 1 TARGET= 33.000

MOORE BUSINESS FORMS, INC 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
33.80	4.95	959.75	0.00	959.66	959.91	.16	.89	.04	956.30
302.	18.	266.	19.	12.	79.	16.	50.	28.	957.40
1.11	1.41	3.36	1.20	.070	.050	.080	.047	954.80	1995.00
.001999	1920.	1550.	1050.	2	0	0	0.00	33.00	2028.00

CCHV= .300 CEHV= .500

*SECNO 33.900

33.90	4.62	959.72	0.00	959.63	960.30	.58	.18	.21	962.50
302.	0.	302.	0.	0.	49.	0.	50.	28.	962.50
1.11	0.00	6.12	0.00	.070	.050	.080	.047	955.10	2004.00
.012562	44.	44.	44.	2	0	0	0.00	11.00	2015.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.70	2.92	0.00	8.80	0.00	47.50	0.00	955.10	955.10

*SECNO 34.100

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 960.376 ELLC= 960.500 PCWSE= 959.719 FLTRD= 962.200

3370 NORMAL BRIDGE.NRD= 31 MIN ELTRD= 962.20 MAX ELLC= 960.50

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

34.10	4.91	960.01	0.00	959.94	960.92	.91	.45	.16	962.50
302.	0.	302.	0.	0.	39.	0.	50.	28.	962.50
1.11	0.00	7.65	0.00	.070	.024	.080	.046	955.10	2000.00
.007967	46.	46.	46.	2	0	0	-10.15	11.00	2011.00

*SECNO 34.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1960.0 2070.0 TYPE= 1 TARGET= 110.000

34.30	6.07	961.17	0.00	961.12	961.23	.05	.05	.26	958.00
302.	20.	224.	59.	39.	107.	104.	50.	29.	958.10
1.12	.50	2.09	.56	.070	.040	.080	.046	955.10	1960.00
.000385	50.	50.	50.	2	0	0	0.00	110.00	2070.00

MOORE BUSINESS FORMS, INC. 23

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

CCHV= .100 CEHV= .300
*SECNO 34.400
2800 NAT Q1= 147.52 WSEL= 961.16 ENC Q1= 147.52 WSEL= 961.26 RATIO= 0.0000
NAT Q1= 158. RATIOS LOB,CH,ROB= .0776 .6600 .2624 WSEL= 961.26

3470 ENCROACHMENT STATIONS= 1983.3 2069.4 TYPE= 4 TARGET= .065

34.40	6.11	961.21	0.00	961.16	961.26	.05	.03	.00	958.00
302.	14.	215.	73.	21.	108.	104.	50.	29.	958.10
1.13	.67	1.99	.70	.070	.045	.070	.046	955.10	1983.30
.000443	70.	70.	70.	0	0	0	0.00	86.13	2069.43

*SECNO 34.700

3470 ENCROACHMENT STATIONS= 1980.0 2313.0 TYPE= 1 TARGET= 333.000

34.70	6.23	961.43	0.00	961.38	961.44	.01	.18	.00	958.40
302.	11.	187.	104.	35.	175.	370.	59.	33.	956.40
1.47	.32	1.07	.28	.070	.045	.070	.046	955.20	1980.00
.000108	960.	950.	933.	2	0	0	0.00	333.00	2313.00

*SECNO 34.800

3470 ENCROACHMENT STATIONS= 2000.0 2033.0 TYPE= 1 TARGET= 33.000

34.80	6.31	961.51	0.00	961.46	961.55	.04	.10	.01	958.40
302.	0.	297.	5.	0.	177.	10.	64.	36.	956.40
1.57	0.00	1.68	.47	.070	.045	.070	.046	955.20	2000.00
.000297	600.	600.	600.	2	0	0	0.00	33.00	2033.00

CCHV= .300 CEHV= .500
*SECNO 34.900

34.90	6.19	961.49	0.00	961.44	961.63	.14	.03	.05	964.60
296.	0.	296.	0.	0.	98.	0.	65.	36.	964.60
1.58	0.00	3.03	0.00	.070	.045	.070	.046	955.30	2000.00
.001583	44.	44.	44.	2	0	0	0.00	17.00	2017.00

MOORE BUSINESS FORMS, INC 23

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.95	0.00	11.68	0.00	50.26	0.00	955.30	955.30

*SECNO 35.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWFIK	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
962.35	961.63	0.00	0.	296.	50.	50.	959.60	963.40

BRIDGE SECTION F (UPSTREAM FACE SPRING ARBOR RD)

35.10	6.94	962.24	0.00	962.19	962.35	.11	.72	0.00	964.60
296.	0.	296.	0.	0.	110.	0.	65.	36.	964.60
1.59	0.00	2.68	0.00	.070	.015	.070	.046	955.30	2000.00
.000125	80.	80.	80.	2	0	0	0.00	17.00	2017.00

*SECNO 35.300

3470 ENCROACHMENT STATIONS= 1990.0 2112.0 TYPE= 1 TARGET= 122.000

35.30	8.17	962.37	0.00	962.32	962.38	.01	.00	.03	956.40
296.	14.	225.	57.	41.	233.	201.	65.	36.	956.40
1.60	.33	.97	.29	.070	.042	.070	.046	954.20	1990.00
.000052	50.	50.	50.	2	0	0	0.00	122.00	2112.00

CCHV= .100 CEHV= .300
*SECNO 35.800
2800 NAT QI= 297.26 WSEL= 962.36 ENC QI= 297.26 WSEL= 962.46 RATIO= .0000
NAT QI= 314. RATIOS LOB,CH,ROB= .0337 .7399 .2264 WSEL= 962.46

3470 ENCROACHMENT STATIONS= 1990.4 2154.1 TYPE= 4 TARGET= .053

35.80	7.70	962.40	0.00	962.36	962.42	.02	.03	.00	960.90
296.	2.	233.	61.	7.	213.	181.	70.	37.	960.90
1.74	.28	1.10	.34	.060	.040	.060	.046	954.70	1990.40
.000104	619.	490.	383.	0	0	0	0.00	163.65	2154.05

MOORE BUSINESS FORMS, INC 23

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

CCHV= .300 CEHV= .500
*SECNO 35.900
2800 NAT Q1= 132.74 WSEL= 962.35 ENC Q1= 132.74 WSEL= 962.45 RATIO= 0.0000
NAT Q1= 144. RATIOS LOB,CH,ROB= .1259 .4507 .4233 WSEL= 962.45

3470 ENCROACHMENT STATIONS= 1968.0 2127.1 TYPE= 4 TARGET= .079

35.90	7.30	962.40	0.00	962.35	962.43	.03	.01	.01	960.90
296.	27.	148.	121.	41.	74.	166.	70.	37.	960.80
1.75	.66	1.99	.73	.060	.040	.060	.046	955.10	1968.03
.000532	36.	36.	36.	1	0	0	0.00	159.03	2127.05

*SECNO 36.000
2800 NAT Q1= 89.57 WSEL= 962.37 ENC Q1= 89.57 WSEL= 962.47 RATIO= 0.0000
NAT Q1= 102. RATIOS LOB,CH,ROB= .1817 .2085 .6098 WSEL= 962.47

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

3470 ENCROACHMENT STATIONS= 1968.8 2126.6 TYPE= 4 TARGET= .120

36.00	7.31	962.41	0.00	962.37	962.44	.03	.00	.00	960.90
296.	40.	72.	183.	40.	37.	165.	70.	37.	960.80
1.75	1.01	1.97	1.11	.060	.027	.060	.046	955.10	1968.78
.001244	1.	1.	1.	0	0	0	-37.53	157.85	2126.63

*SECNO 36.100
2800 NAT Q1= 94.49 WSEL= 962.41 ENC Q1= 94.49 WSEL= 962.51 RATIO= 0.0000
NAT Q1= 107. RATIOS LOB,CH,ROB= .1841 .2021 .6138 WSEL= 962.51

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.00

3470 ENCROACHMENT STATIONS= 1967.9 2128.9 TYPE= 4 TARGET= .119
BRIDGE SECTION G(CHRISTI HIGH)

36.10	7.36	962.46	0.00	962.41	962.48	.03	.05	.00	960.90
296.	41.	70.	185.	43.	37.	174.	70.	38.	960.80
1.76	.97	1.87	1.06	.060	.027	.060	.045	955.10	1967.92
.001095	41.	41.	41.	1	0	0	-37.53	160.96	2128.88

MOORE BUSINESS FORMS, INC. 23

MOORE BUSINESS FORMS, INC 23

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

*SECNO 36.200
 2800 NAT Q1=     138.99  WSEL=     962.41  ENC Q1=     138.99  WSEL=     962.51  RATIO=  0.0000
 NAT Q1=     151.  RATIOS LOB,CH,ROB=    .1301    .4358    .4340  WSEL=     962.51

3470 ENCROACHMENT STATIONS=     1966.9     2129.9  TYPE=      4  TARGET=          .080
     36.20      7.36    962.46      0.00    962.41    962.49       .03        .00        .00    960.90
       296.       28.       143.       124.       44.       75.       176.       70.       38.     960.80
      1.76       .64      1.91       .71      .060      .040      .060      .045    955.10    1966.91
  .000484         1.        1.        1.         0         0         0      0.00    162.97    2129.88

*SECNO 36.300
 2800 NAT Q1=     244.48  WSEL=     962.43  ENC Q1=     244.48  WSEL=     962.53  RATIO=  0.0000
 NAT Q1=     260.  RATIOS LOB,CH,ROB=    .0461    .7121    .2418  WSEL=     962.53

3470 ENCROACHMENT STATIONS=     1986.7     2157.5  TYPE=      4  TARGET=          .060
     36.30      6.19    962.49      0.00    962.43    962.50       .02        .01        .00    960.80
       296.       5.       227.       64.       13.       185.      168.       71.       38.     960.60
      1.77       .37      1.23       .38      .060      .040      .060      .045    956.30    1986.73
  .000156        50.       50.       50.         1         0         0      0.00    170.78    2157.51

CCHV=     .100 CEHV=     .300
*SECNO 36.800
 2800 NAT Q1=     246.57  WSEL=     962.46  ENC Q1=     246.57  WSEL=     962.56  RATIO=  0.0000
 NAT Q1=     264.  RATIOS LOB,CH,ROB=    .0470    .7072    .2459  WSEL=     962.56

3470 ENCROACHMENT STATIONS=     1988.0     2156.1  TYPE=      4  TARGET=          .066
     36.60      6.21    962.51      0.00    962.46    962.53       .02        .02        .00    960.80
       296.       4.       227.       65.       11.       186.      170.       72.       38.     960.60
      1.81       .37      1.22       .38      .060      .040      .060      .045    956.30    1987.98
  .000153        150.      150.      150.        0         0         0      0.00    168.14    2156.12

CCHV=     .300 CEHV=     .500
*SECNO 36.900
 2800 NAT Q1=     145.72  WSEL=     962.46  ENC Q1=     145.72  WSEL=     962.56  RATIO=   .0000
 NAT Q1=     159.  RATIOS LOB,CH,ROB=    .1367    .4201    .4432  WSEL=     962.56

3470 ENCROACHMENT STATIONS=     1965.0     2132.1  TYPE=      4  TARGET=          .083
     36.90      7.42    962.52      0.00    962.46    962.54       .03        .01        .00    960.90
       296.       30.       138.       128.       48.       76.       186.       72.       39.     960.80
      1.83       .63      1.83       .69      .060      .040      .060      .045    955.10    1965.02
  .000436        50.       50.       50.         0         0         0      0.00    167.10    2132.13
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 37.000
2800 NAT Q1= 103.45 WSEL= 962.47 ENC Q1= 103.45 WSEL= 962.57 RATIO= 0.0000
NAT Q1= 117. RATIOS LOB,CH,ROB= .1840 .2079 .6082 WSEL= 962.57

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30

3470 ENCROACHMENT STATIONS= 1966.9 2131.8 TYPE= 4 TARGET= .117

37.00	7.42	962.52	0.00	962.47	962.55	.02	.00	.00	960.90
296.	42.	71.	183.	46.	41.	185.	72.	39.	960.80
1.83	.91	1.76	.99	.060	.027	.060	.045	955.10	1966.88
.000906	1.	1.	1.	0	0	0	-34.98	164.96	2131.84

*SECNO 37.100
2800 NAT Q1= 107.66 WSEL= 962.51 ENC Q1= 107.66 WSEL= 962.61 RATIO= 0.0000
NAT Q1= 122. RATIOS LOB,CH,ROB= .1856 .2033 .6110 WSEL= 962.61

3370 NORMAL BRIDGE,NRD= 39 MIN ELTRD= 960.80 MAX ELLC= 958.30

3470 ENCROACHMENT STATIONS= 1965.9 2134.0 TYPE= 4 TARGET= .115
BRIDGE SECTION H(CHRISTI HIGH)

37.10	7.46	962.56	0.00	962.51	962.58	.02	.04	.00	960.90
296.	42.	70.	184.	48.	41.	192.	72.	39.	960.80
1.84	.88	1.70	.96	.060	.027	.060	.045	955.10	1965.86
.000830	41.	41.	41.	0	0	0	-34.98	168.12	2133.98

*SECNO 37.200
2800 NAT Q1= 151.37 WSEL= 962.50 ENC Q1= 151.37 WSEL= 962.60 RATIO= 0.0000
NAT Q1= 164. RATIOS LOB,CH,ROB= .1398 .4099 .4504 WSEL= 962.60

3470 ENCROACHMENT STATIONS= 1963.2 2135.2 TYPE= 4 TARGET= .079

37.20	7.46	962.56	0.00	962.50	962.59	.03	.00	.00	960.90
296.	32.	134.	130.	52.	76.	194.	72.	39.	960.80
1.84	.61	1.76	.67	.060	.040	.060	.045	955.10	1963.23
.000405	1.	1.	1.	0	0	0	0.00	172.00	2135.23

*SECNO 37.300

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

3470 ENCROACHMENT STATIONS= 1961.0 2061.0 TYPE= 1 TARGET= 100.000

37.30	7.47	962.57	0.00	962.51	962.62	.05	.03	.01	960.90
296.	44.	174.	78.	55.	76.	86.	73.	39.	960.80
1.84	.79	2.29	.91	.060	.040	.060	.045	955.10	1961.00
.000677	50.	50.	50.	1	0	0	0.00	100.00	2061.00

CCHV= .100 CEHV= .300
*SECNO 38.000
2800 NAT Q1= 238.77 WSEL= 962.96 ENC Q1= 238.77 WSEL= 963.06 RATIO= 0.0000
NAT Q1= 264. RATIOS LOB,CH,ROB= .4570 .4354 .1075 WSEL= 963.06

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2000.5 2375.8 TYPE= 4 TARGET= .095
VALLEY SECTION 1

38.00	5.28	963.03	0.00	962.96	963.04	.01	.41	.00	961.90
296.	132.	145.	19.	346.	131.	61.	85.	46.	961.60
2.37	.38	1.11	.31	.060	.040	.060	.044	957.75	2000.50
.000164	1383.	1375.	1400.	2	0	0	0.00	371.01	2375.84

MOORE BUSINESS FORMS, INC 23

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HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01,02,03,04
MODIFICATION - 50,51,52,53,54
****

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

MC CAIN DRAIN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
30.000	955.67	950.20	0.00	0.00	1816.02	0.00	1994.00	2032.00	0.00	2224.97	400.41	2100.00
30.000	955.67	950.20	0.00	0.00	1846.94	1846.94	1994.00	2032.00	0.00	2154.62	299.13	2100.00
30.600	956.61	951.00	0.00	0.00	1804.44	0.00	1995.00	2028.00	0.00	2081.98	277.54	1725.00
30.600	956.69	951.00	0.00	0.00	1825.15	1825.15	1995.00	2028.00	0.00	2037.96	212.81	1725.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.95	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	957.06	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	957.04	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.10	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.300	957.33	950.90	0.00	0.00	1986.12	0.00	1992.00	2015.00	0.00	2083.23	97.11	42.00
32.300	957.38	950.90	0.00	0.00	1992.00	1992.00	1992.00	2015.00	0.00	2041.13	49.13	42.00
32.700	957.96	951.80	0.00	0.00	2076.91	0.00	2093.00	2111.00	0.00	2221.69	144.78	1000.00
32.700	958.07	951.80	0.00	0.00	2087.59	2087.59	2093.00	2111.00	0.00	2191.37	103.79	1000.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.17	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.24	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.60	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STFNCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.70	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.400	958.62	952.10	0.00	0.00	1784.49	0.00	2000.00	2026.00	0.00	2032.26	247.76	75.00
33.400	958.72	952.10	0.00	0.00	1874.80	1874.80	2000.00	2026.00	0.00	2026.00	151.20	75.00
33.500	958.85	953.00	0.00	0.00	1637.23	0.00	2000.00	2026.00	0.00	2630.22	992.98	1100.00
33.500	958.96	953.00	0.00	0.00	1894.72	1894.72	2000.00	2026.00	0.00	2304.63	409.91	1100.00
33.800	959.66	954.80	0.00	0.00	1995.00	1995.00	2000.00	2019.00	0.00	2028.00	33.00	1550.00
33.800	959.75	954.80	0.00	0.00	1995.00	1995.00	2000.00	2019.00	0.00	2028.00	33.00	1550.00
33.900	959.63	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.72	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	960.01	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.300	961.12	955.10	0.00	0.00	1960.00	1960.00	1995.00	2016.00	0.00	2070.00	110.00	50.00
34.300	961.17	955.10	0.00	0.00	1960.00	1960.00	1995.00	2016.00	0.00	2070.00	110.00	50.00
34.400	961.16	955.10	0.00	0.00	1929.36	0.00	1995.00	2016.00	0.00	2178.43	249.07	70.00
34.400	961.21	955.10	0.00	0.00	1983.30	1983.30	1995.00	2016.00	0.00	2069.43	96.13	70.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.43	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.800	961.46	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.51	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.49	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.24	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.300	962.32	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.37	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.800	962.36	954.70	0.00	0.00	1939.72	0.00	1995.00	2036.00	0.00	2257.06	317.34	490.00
35.800	962.40	954.70	0.00	0.00	1990.40	1990.40	1995.00	2036.00	0.00	2154.05	163.65	490.00
35.900	962.35	955.10	0.00	0.00	1931.04	0.00	2000.00	2011.00	0.00	2194.16	263.12	36.00
35.900	962.40	955.10	0.00	0.00	1968.03	1968.03	2000.00	2011.00	0.00	2127.05	159.03	36.00
36.000	962.37	955.10	958.00	960.80	1930.99	0.00	2000.00	2011.00	0.00	2194.28	263.29	1.00
36.000	962.41	955.10	958.00	960.80	1968.78	1968.78	2000.00	2011.00	0.00	2126.63	157.85	1.00
36.100	962.41	955.10	958.00	960.80	1929.87	0.00	2000.00	2011.00	0.00	2197.45	267.58	41.00
36.100	962.46	955.10	958.00	960.80	1967.92	1967.92	2000.00	2011.00	0.00	2128.88	160.96	41.00

MOORE BUSINESS FORMS INC 24

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
36.200	962.41	955.10	0.00	0.00	1929.69	0.00	2000.00	2011.00	0.00	2198.06	268.37	1.00
36.200	962.46	955.10	0.00	0.00	1966.91	1966.91	2000.00	2011.00	0.00	2129.88	162.97	1.00
36.300	962.43	956.30	0.00	0.00	1936.83	0.00	1995.00	2036.00	0.00	2268.05	331.23	50.00
36.300	962.49	956.30	0.00	0.00	1986.73	1986.73	1995.00	2036.00	0.00	2157.51	170.78	50.00
36.800	962.46	956.30	0.00	0.00	1936.39	0.00	1995.00	2036.00	0.00	2269.73	333.34	150.00
36.800	962.51	956.30	0.00	0.00	1987.98	1987.98	1995.00	2036.00	0.00	2156.12	168.14	150.00
36.900	962.46	955.10	0.00	0.00	1923.01	0.00	2000.00	2011.00	0.00	2202.45	279.44	50.00
36.900	962.52	955.10	0.00	0.00	1965.02	1965.02	2000.00	2011.00	0.00	2132.13	167.10	50.00
37.000	962.47	955.10	958.30	960.80	1923.00	0.00	2000.00	2011.00	0.00	2202.46	279.46	1.00
37.000	962.52	955.10	958.30	960.80	1966.88	1966.88	2000.00	2011.00	0.00	2131.84	164.96	1.00
37.100	962.51	955.10	958.30	960.80	1921.93	0.00	2000.00	2011.00	0.00	2205.39	283.46	40.50
37.100	962.56	955.10	958.30	960.80	1965.86	1965.86	2000.00	2011.00	0.00	2133.98	168.12	40.50
37.200	962.50	955.10	0.00	0.00	1921.64	0.00	2000.00	2011.00	0.00	2206.18	284.53	1.00
37.200	962.56	955.10	0.00	0.00	1963.23	1963.23	2000.00	2011.00	0.00	2135.23	172.00	1.00
37.300	962.51	955.10	0.00	0.00	1961.00	1961.00	2000.00	2011.00	0.00	2061.00	100.00	50.00
37.300	962.57	955.10	0.00	0.00	1961.00	1961.00	2000.00	2011.00	0.00	2061.00	100.00	50.00
38.000	962.96	957.75	0.00	0.00	1924.66	0.00	2262.00	2298.00	0.00	2454.74	522.18	1375.00
38.000	963.03	957.75	0.00	0.00	2000.50	2000.50	2262.00	2298.00	0.00	2375.84	371.01	1375.00

MOORE BUSINESS FORMS, INC 20

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	4.96	1.58	562.03	161.61
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	5.65	1.69	474.89	151.41
30.600	1725.00	0.00	0.00	951.00	360.00	956.61	0.00	956.64	6.07	1.69	494.11	146.11
30.600	1725.00	0.00	0.00	951.00	360.00	956.69	0.00	956.72	6.22	1.74	446.95	144.30
30.700	375.00	0.00	0.00	951.00	360.00	956.87	0.00	956.94	9.72	2.24	263.82	115.46
30.700	375.00	0.00	0.00	951.00	360.00	956.95	0.00	957.01	8.94	2.18	272.81	120.42
30.800	139.00	0.00	0.00	950.80	360.00	956.99	0.00	957.07	8.34	2.44	192.17	124.64
30.800	139.00	0.00	0.00	950.80	360.00	957.06	0.00	957.13	7.91	2.40	195.52	127.96
30.900	62.00	0.00	0.00	950.80	360.00	956.98	0.00	957.29	50.55	4.50	80.00	50.64
30.900	62.00	0.00	0.00	950.80	360.00	957.04	0.00	957.35	48.94	4.45	80.94	51.46
32.100	188.00	960.30	957.50	950.80	360.00	957.03	0.00	957.32	3.79	4.28	84.10	184.82
32.100	188.00	960.30	957.50	950.80	360.00	957.10	0.00	957.38	3.68	4.23	85.02	187.56
32.300	42.00	0.00	0.00	950.90	326.00	957.33	0.00	957.40	6.58	2.34	216.91	127.09
32.300	42.00	0.00	0.00	950.90	326.00	957.38	0.00	957.46	7.64	2.38	177.50	117.95
32.700	1000.00	0.00	0.00	951.80	326.00	957.96	0.00	958.03	6.01	2.46	238.37	132.93
32.700	1000.00	0.00	0.00	951.80	326.00	958.07	0.00	959.14	6.03	2.50	218.11	132.81
32.800	200.00	0.00	0.00	951.80	326.00	958.07	0.00	958.19	7.57	2.93	144.26	118.46
32.800	200.00	0.00	0.00	951.80	326.00	958.17	0.00	958.28	6.99	2.85	150.18	123.28
32.900	72.00	0.00	0.00	952.00	326.00	958.14	0.00	958.26	11.05	2.78	117.38	98.07
32.900	72.00	0.00	0.00	952.00	326.00	958.24	0.00	958.35	10.48	2.73	119.57	100.73
33.100	50.00	960.60	957.90	952.00	302.00	958.50	0.00	958.59	3.00	2.37	127.61	174.29
33.100	50.00	960.60	957.90	952.00	302.00	958.60	0.00	958.69	2.86	2.33	129.82	178.59
33.300	50.00	0.00	0.00	952.10	302.00	958.60	0.00	958.62	2.70	1.36	333.50	183.80
33.300	50.00	0.00	0.00	952.10	302.00	958.70	0.00	958.72	2.46	1.32	345.32	192.49
33.400	75.00	0.00	0.00	952.10	302.00	958.62	0.00	958.64	1.75	1.22	460.58	228.11
33.400	75.00	0.00	0.00	952.10	302.00	958.72	0.00	958.73	1.84	1.23	405.64	222.88
33.500	1100.00	0.00	0.00	953.00	302.00	958.85	0.00	958.88	2.71	1.46	559.47	183.46
33.500	1100.00	0.00	0.00	953.00	302.00	958.96	0.00	958.98	2.73	1.49	451.83	182.62
33.800	1550.00	0.00	0.00	954.80	302.00	959.66	0.00	959.82	21.72	3.45	104.25	64.79
33.800	1550.00	0.00	0.00	954.80	302.00	959.75	0.00	959.91	19.99	3.36	107.32	67.54
33.900	44.00	0.00	0.00	955.10	302.00	959.63	0.00	960.24	132.52	6.24	48.43	26.23
33.900	44.00	0.00	0.00	955.10	302.00	959.72	0.00	960.30	125.62	6.12	49.38	26.95

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.100	46.00	962.20	960.50	955.10	302.00	959.94	0.00	960.86	79.38	7.69	39.27	33.90
34.100	46.00	962.20	960.50	955.10	302.00	960.01	0.00	960.92	79.67	7.65	39.50	33.83
34.300	50.00	0.00	0.00	955.10	302.00	961.12	0.00	961.17	4.08	2.13	244.15	149.57
34.300	50.00	0.00	0.00	955.10	302.00	961.17	0.00	961.23	3.85	2.09	250.51	153.87
34.400	70.00	0.00	0.00	955.10	302.00	961.16	0.00	961.20	4.19	1.93	299.48	147.52
34.400	70.00	0.00	0.00	955.10	302.00	961.21	0.00	961.26	4.43	1.99	233.34	143.42
34.700	950.00	0.00	0.00	955.20	302.00	961.38	0.00	961.39	1.16	1.10	562.21	280.73
34.700	950.00	0.00	0.00	955.20	302.00	961.43	0.00	961.44	1.08	1.07	579.37	289.94
34.800	600.00	0.00	0.00	955.20	302.00	961.46	0.00	961.51	3.05	1.69	185.16	173.04
34.800	600.00	0.00	0.00	955.20	302.00	961.51	0.00	961.55	2.97	1.68	186.69	175.25
34.900	44.00	0.00	0.00	955.30	296.00	961.44	0.00	961.58	16.19	3.06	96.76	73.56
34.900	44.00	0.00	0.00	955.30	296.00	961.49	0.00	961.63	15.83	3.03	97.55	74.40
35.100	80.00	963.40	959.60	955.30	296.00	962.19	0.00	962.30	1.28	2.70	109.48	261.79
35.100	80.00	963.40	959.60	955.30	296.00	962.24	0.00	962.35	1.25	2.68	110.30	264.48
35.300	50.00	0.00	0.00	954.20	296.00	962.32	0.00	962.34	.53	.98	469.29	405.44
35.300	50.00	0.00	0.00	954.20	296.00	962.37	0.00	962.38	.52	.97	474.93	411.28
35.800	490.00	0.00	0.00	954.70	296.00	962.36	0.00	962.37	.99	1.06	474.20	297.26
35.800	490.00	0.00	0.00	954.70	296.00	962.40	0.00	962.42	1.04	1.10	400.93	289.84
35.900	36.00	0.00	0.00	955.10	296.00	962.35	0.00	962.38	4.97	1.92	330.38	132.74
35.900	36.00	0.00	0.00	955.10	296.00	962.40	0.00	962.43	5.32	1.99	281.70	128.32
36.000	1.00	960.80	958.00	955.10	296.00	962.37	0.00	962.39	10.92	1.83	293.34	89.57
36.000	1.00	960.80	958.00	955.10	296.00	962.41	0.00	962.44	12.44	1.97	242.08	83.92
36.100	41.00	960.80	958.00	955.10	296.00	962.41	0.00	962.43	9.81	1.75	305.26	94.49
36.100	41.00	960.80	958.00	955.10	296.00	962.46	0.00	962.48	10.95	1.87	254.01	89.46
36.200	1.00	0.00	0.00	955.10	296.00	962.41	0.00	962.44	4.54	1.84	344.71	138.99
36.200	1.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.84	1.91	294.66	134.48
36.300	50.00	0.00	0.00	956.30	296.00	962.43	0.00	962.45	1.47	1.18	441.24	244.48
36.300	50.00	0.00	0.00	956.30	296.00	962.49	0.00	962.50	1.56	1.23	365.99	236.66
36.800	150.00	0.00	0.00	956.30	296.00	962.46	0.00	962.47	1.44	1.17	445.39	246.57
36.800	150.00	0.00	0.00	956.30	296.00	962.51	0.00	962.53	1.53	1.22	367.68	239.55
36.900	50.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.13	1.76	360.95	145.72
36.900	50.00	0.00	0.00	955.10	296.00	962.52	0.00	962.54	4.36	1.83	309.47	141.72
37.000	1.00	960.80	958.30	955.10	296.00	962.47	0.00	962.49	8.19	1.66	323.69	103.45
37.000	1.00	960.80	958.30	955.10	296.00	962.52	0.00	962.55	9.06	1.76	271.28	98.36

MOORE BUSINESS FORMS, INC. 43

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
37.100	40.50	960.80	958.30	955.10	296.00	962.51	0.00	962.52	7.56	1.60	333.14	107.66
37.100	40.50	960.80	958.30	955.10	296.00	962.56	0.00	962.58	8.30	1.70	280.91	102.75
37.200	1.00	0.00	0.00	955.10	296.00	962.50	0.00	962.53	3.82	1.71	373.25	151.37
37.200	1.00	0.00	0.00	955.10	296.00	962.56	0.00	962.59	4.05	1.76	321.56	147.13
37.300	50.00	0.00	0.00	955.10	296.00	962.51	0.00	962.57	7.24	2.35	211.23	110.00
37.300	50.00	0.00	0.00	955.10	296.00	962.57	0.00	962.62	6.77	2.29	217.07	113.73
38.000	1375.00	0.00	0.00	957.75	296.00	962.96	0.00	962.97	1.54	1.06	619.43	238.77
38.000	1375.00	0.00	0.00	957.75	296.00	963.03	0.00	963.04	1.64	1.11	538.16	230.89

MOORE BUSINESS FORMS, INC. 23

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	360.00	955.67	0.00	0.00	0.00	400.41	2100.00
30.000	360.00	955.67	0.00	0.00	0.00	299.13	2100.00
30.600	360.00	956.61	0.00	.94	0.00	277.54	1725.00
30.600	360.00	956.69	.08	1.02	.08	212.81	1725.00
30.700	360.00	956.87	0.00	.26	0.00	114.00	375.00
30.700	360.00	956.95	.08	.26	.08	114.00	375.00
30.800	360.00	956.99	0.00	.12	0.00	45.00	139.00
30.800	360.00	957.06	.07	.11	.07	45.00	139.00
30.900	360.00	956.98	0.00	-.01	0.00	14.09	62.00
30.900	360.00	957.04	.07	-.01	.07	14.09	62.00
32.100	360.00	957.03	0.00	.06	0.00	14.09	188.00
32.100	360.00	957.10	.07	.05	.07	14.09	188.00
32.300	326.00	957.33	0.00	.30	0.00	97.11	42.00
32.300	326.00	957.38	.05	.28	.05	49.13	42.00
32.700	326.00	957.96	0.00	.64	0.00	144.78	1000.00
32.700	326.00	958.07	.10	.68	.10	103.79	1000.00
32.800	326.00	958.07	0.00	.10	0.00	57.00	200.00
32.800	326.00	958.17	.10	.11	.10	57.00	200.00
32.900	326.00	958.14	0.00	.07	0.00	21.74	72.00
32.900	326.00	958.24	.10	.06	.10	21.74	72.00
33.100	302.00	958.50	0.00	.36	0.00	21.74	50.00
33.100	302.00	958.60	.10	.37	.10	21.74	50.00
33.300	302.00	958.60	0.00	.10	0.00	120.00	50.00
33.300	302.00	958.70	.10	.10	.10	120.00	50.00
33.400	302.00	958.62	0.00	.02	0.00	247.76	75.00
33.400	302.00	958.72	.10	.02	.10	151.20	75.00
33.500	302.00	958.85	0.00	.23	0.00	992.98	1100.00
33.500	302.00	958.96	.10	.24	.10	409.91	1100.00
33.800	302.00	959.66	0.00	.80	0.00	33.00	1550.00
33.800	302.00	959.75	.09	.79	.09	33.00	1550.00
33.900	302.00	959.63	0.00	-.03	0.00	11.00	44.00
33.900	302.00	959.72	.09	-.03	.09	11.00	44.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
34.100	302.00	959.94	0.00	.31	0.00	11.00	46.00
34.100	302.00	960.01	.07	.29	.07	11.00	46.00
34.300	302.00	961.12	0.00	1.18	0.00	110.00	50.00
34.300	302.00	961.17	.06	1.17	.06	110.00	50.00
34.400	302.00	961.16	0.00	.04	0.00	249.07	70.00
34.400	302.00	961.21	.05	.03	.05	86.13	70.00
34.700	302.00	961.38	0.00	.22	0.00	333.00	950.00
34.700	302.00	961.43	.05	.22	.05	333.00	950.00
34.800	302.00	961.46	0.00	.08	0.00	33.00	600.00
34.800	302.00	961.51	.05	.08	.05	33.00	600.00
34.900	296.00	961.44	0.00	-.02	0.00	17.00	44.00
34.900	296.00	961.49	.05	-.02	.05	17.00	44.00
35.100	296.00	962.19	0.00	.75	0.00	17.00	80.00
35.100	296.00	962.24	.05	.75	.05	17.00	80.00
35.300	296.00	962.32	0.00	.14	0.00	122.00	50.00
35.300	296.00	962.37	.05	.13	.05	122.00	50.00
35.800	296.00	962.36	0.00	.03	0.00	317.34	490.00
35.800	296.00	962.40	.05	.03	.05	163.65	490.00
35.900	296.00	962.35	0.00	-.00	0.00	263.12	36.00
35.900	296.00	962.40	.04	-.00	.04	159.03	36.00
36.000	296.00	962.37	0.00	.01	0.00	263.29	1.00
36.000	296.00	962.41	.04	.01	.04	157.85	1.00
36.100	296.00	962.41	0.00	.04	0.00	267.58	41.00
36.100	296.00	962.46	.05	.05	.05	160.96	41.00
36.200	296.00	962.41	0.00	-.00	0.00	268.37	1.00
36.200	296.00	962.46	.05	-.00	.05	162.97	1.00
36.300	296.00	962.43	0.00	.03	0.00	331.23	50.00
36.300	296.00	962.49	.05	.03	.05	170.78	50.00
36.800	296.00	962.46	0.00	.02	0.00	333.34	150.00
36.800	296.00	962.51	.05	.02	.05	168.14	150.00
36.900	296.00	962.46	0.00	.01	0.00	279.44	50.00
36.900	296.00	962.52	.05	.01	.05	167.10	50.00
37.000	296.00	962.47	0.00	.01	0.00	279.46	1.00
37.000	296.00	962.52	.05	.01	.05	164.96	1.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
37.100	296.00	962.51	0.00	.03	0.00	283.46	40.50
37.100	296.00	962.56	.05	.04	.05	168.12	40.50
37.200	296.00	962.50	0.00	-.00	0.00	284.53	1.00
37.200	296.00	962.56	.06	-.00	.06	172.00	1.00
37.300	296.00	962.51	0.00	.01	0.00	100.00	50.00
37.300	296.00	962.57	.06	.01	.06	100.00	50.00
38.000	296.00	962.96	0.00	.45	0.00	522.18	1375.00
38.000	296.00	963.03	.06	.45	.06	371.01	1375.00

SUMMARY OF ERRORS

MOORE BUSINESS FORMS, INC 23

FLOODWAY DATA, MC CAIN DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
30.000	308.	475.	.8	955.7	955.7	0.0
30.600	213.	447.	.8	956.7	956.6	.1
30.700	114.	273.	1.3	957.0	956.9	.1
30.800	45.	196.	1.8	957.1	957.0	.1
30.900	14.	81.	4.4	957.1	957.0	.1
32.100	14.	85.	4.2	957.1	957.0	.1
32.300	49.	178.	1.8	957.4	957.3	.1
32.700	104.	218.	1.5	958.1	958.0	.1
32.800	57.	150.	2.2	958.2	958.1	.1
32.900	22.	120.	2.7	958.2	958.1	.1
33.100	22.	130.	2.3	958.6	958.5	.1
33.300	120.	345.	.9	958.7	958.6	.1
33.400	151.	406.	.7	958.7	958.6	.1
33.500	410.	452.	.7	959.0	958.9	.1
33.800	33.	107.	2.8	959.8	959.7	.1
33.900	11.	49.	6.1	959.7	959.6	.1
34.100	11.	39.	7.6	960.0	959.9	.1
34.300	110.	251.	1.2	961.2	961.1	.1
34.400	86.	233.	1.3	961.2	961.2	0.0
34.700	333.	579.	.5	961.5	961.4	.1
34.800	33.	187.	1.6	961.5	961.5	0.0
34.900	17.	98.	3.0	961.4	961.4	0.0
35.100	17.	110.	2.7	962.2	962.2	0.0
35.300	122.	475.	.6	962.3	962.3	0.0
35.800	164.	401.	.7	962.4	962.4	0.0
35.900	159.	282.	1.1	962.4	962.4	0.0
36.000	158.	242.	1.2	962.4	962.4	0.0
36.100	161.	254.	1.2	962.4	962.4	0.0
36.200	163.	295.	1.0	962.4	962.4	0.0
36.300	171.	366.	.8	962.5	962.4	.1
36.800	168.	368.	.8	962.6	962.5	.1
36.900	167.	309.	1.0	962.6	962.5	.1
37.000	165.	271.	1.1	962.6	962.5	.1
37.100	168.	281.	1.1	962.6	962.5	.1
37.200	172.	322.	.9	962.6	962.5	.1
37.300	100.	217.	1.4	962.6	962.5	.1
38.000	375.	538.	.6	963.1	963.0	.1

MOORE BUSINESS FORMS, INC. 23

EWC - RUN
MCCAIN
10-13-80

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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 10/20/80

MOORE BUSINESS FORMS, INC 23

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Mc CAIN DRAIN

4) DOCUMENT TYPE: ~~Conver~~ Convergence run Summary

00BREAK00

Convergence Run

HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01.02.03
MODIFICATION - 50.51.52.53

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

MC CAIN DRAIN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
26.000	945.57	938.76	0.00	0.00	1949.46	0.00	1995.00	2038.00	0.00	2367.39	417.93	0.00
26.000	944.57	938.76	0.00	0.00	1994.55	0.00	1995.00	2038.00	0.00	2202.00	177.07	0.00
26.000	946.57	938.76	0.00	0.00	1691.50	0.00	1995.00	2038.00	0.00	2500.40	608.90	0.00
27.000	946.38	942.16	0.00	0.00	1915.51	0.00	1995.00	2037.00	0.00	2281.74	366.22	5300.00
27.000	942.57	942.16	0.00	0.00	1911.21	0.00	1995.00	2037.00	0.00	2300.69	389.49	5300.00
27.000	946.12	942.16	0.00	0.00	1921.35	0.00	1995.00	2037.00	0.00	2256.04	334.69	5300.00
28.000	951.11	945.56	0.00	0.00	1786.81	0.00	1995.00	2035.00	0.00	2262.19	475.38	5200.00
28.000	951.07	945.56	0.00	0.00	1787.36	0.00	1995.00	2035.00	0.00	2260.46	473.10	5200.00
28.000	951.17	945.56	0.00	0.00	1786.01	0.00	1995.00	2035.00	0.00	2264.77	478.76	5200.00
28.800	954.86	948.56	0.00	0.00	1987.36	0.00	1994.00	2032.00	0.00	2230.81	243.45	4800.00
28.800	954.89	948.56	0.00	0.00	1987.14	0.00	1994.00	2032.00	0.00	2232.38	245.24	4800.00
28.800	954.81	948.56	0.00	0.00	1987.74	0.00	1994.00	2032.00	0.00	2228.18	240.44	4800.00
28.900	955.21	947.62	0.00	0.00	1802.25	0.00	1994.00	2032.00	0.00	2287.37	485.12	700.00
28.900	955.23	947.62	0.00	0.00	1801.94	0.00	1994.00	2032.00	0.00	2288.01	486.08	700.00
28.900	955.17	947.62	0.00	0.00	1802.71	0.00	1994.00	2032.00	0.00	2286.43	483.72	700.00
29.100	955.01	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.100	955.03	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.100	954.97	948.56	955.70	957.40	2000.00	0.00	2000.00	2021.00	0.00	2021.00	21.00	25.00
29.300	955.26	948.56	0.00	0.00	1984.68	0.00	1994.00	2032.00	0.00	2249.46	264.79	50.00
29.300	955.25	948.56	0.00	0.00	1984.53	0.00	1994.00	2032.00	0.00	2250.49	265.96	50.00
29.300	955.22	948.56	0.00	0.00	1984.89	0.00	1994.00	2032.00	0.00	2247.96	263.07	50.00
30.000	955.67	950.20	0.00	0.00	1815.99	0.00	1994.00	2032.00	0.00	2225.22	400.76	2100.00
30.000	955.69	950.20	0.00	0.00	1815.91	0.00	1994.00	2032.00	0.00	2225.90	401.71	2100.00
30.000	955.65	950.20	0.00	0.00	1816.10	0.00	1994.00	2032.00	0.00	2224.25	399.38	2100.00
30.600	956.62	951.00	0.00	0.00	1804.45	0.00	1995.00	2028.00	0.00	2081.92	277.46	1725.00
30.600	956.62	951.00	0.00	0.00	1804.44	0.00	1995.00	2028.00	0.00	2081.98	277.54	1725.00
30.600	956.61	951.00	0.00	0.00	1804.48	0.00	1995.00	2028.00	0.00	2081.83	277.36	1725.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.85	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00
30.700	956.87	951.00	0.00	0.00	1916.00	1916.00	1995.00	2028.00	0.00	2030.00	114.00	375.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.800	956.99	950.80	0.00	0.00	1985.00	1985.00	1987.00	2011.00	0.00	2030.00	45.00	139.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
30.900	956.98	950.80	0.00	0.00	1741.62	0.00	1741.62	1755.71	0.00	1755.71	14.09	62.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.04	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.100	957.03	950.80	957.50	960.30	1732.21	0.00	1732.21	1746.31	0.00	1746.31	14.09	188.00
32.300	957.33	950.90	0.00	0.00	1986.11	0.00	1992.00	2015.00	0.00	2083.28	97.17	42.00
32.300	957.33	950.90	0.00	0.00	1986.11	0.00	1992.00	2015.00	0.00	2083.31	97.20	42.00
32.300	957.33	950.90	0.00	0.00	1986.12	0.00	1992.00	2015.00	0.00	2083.23	97.12	42.00
32.700	957.97	951.80	0.00	0.00	2076.90	0.00	2093.00	2111.00	0.00	2221.70	144.80	1000.00
32.700	957.97	951.80	0.00	0.00	2076.89	0.00	2093.00	2111.00	0.00	2221.71	144.82	1000.00
32.700	957.97	951.80	0.00	0.00	2076.91	0.00	2093.00	2111.00	0.00	2221.69	144.78	1000.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.800	958.07	951.80	0.00	0.00	2090.00	2090.00	2093.00	2111.00	0.00	2147.00	57.00	200.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
32.900	958.14	952.00	0.00	0.00	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	72.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.100	958.50	952.00	957.90	960.60	1911.26	0.00	1911.26	1933.01	0.00	1933.01	21.74	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.300	958.60	952.10	0.00	0.00	1908.00	1908.00	2000.00	2026.00	0.00	2028.00	120.00	50.00
33.400	958.62	952.10	0.00	0.00	1784.42	0.00	2000.00	2026.00	0.00	2032.26	247.84	75.00
33.400	958.62	952.10	0.00	0.00	1784.37	0.00	2000.00	2026.00	0.00	2032.26	247.89	75.00
33.400	958.62	952.10	0.00	0.00	1784.48	0.00	2000.00	2026.00	0.00	2032.26	247.78	75.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.800	959.67	954.80	0.00	0.00	1991.17	0.00	2000.00	2019.00	0.00	2030.65	39.48	2650.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
33.900	959.64	955.10	0.00	0.00	2004.00	0.00	2004.00	2015.00	0.00	2015.00	11.00	44.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.100	959.94	955.10	960.50	962.20	2000.00	0.00	2000.00	2011.00	0.00	2011.00	11.00	46.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00
34.300	961.12	955.10	0.00	0.00	1931.36	0.00	1995.00	2016.00	0.00	2177.61	246.25	50.00

SECNO	CNSEL	FLMIN	ELLC	FLTPO	SSTA	STFNCL	STCHL	STCHR	CRI S	ENDST	TO	ALL
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.400	961.16	955.10	0.00	0.00	1929.19	0.00	1995.00	2016.00	0.00	2178.50	249.31	70.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.700	961.38	955.20	0.00	0.00	1980.00	1980.00	2000.00	2031.00	0.00	2313.00	333.00	950.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.800	961.47	955.20	0.00	0.00	2000.00	2000.00	2000.00	2031.00	0.00	2033.00	33.00	600.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
34.900	961.44	955.30	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	44.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.100	962.19	955.30	959.60	963.40	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	80.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.300	962.33	954.20	0.00	0.00	1990.00	1990.00	2000.00	2031.00	0.00	2112.00	122.00	50.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.800	962.36	954.70	0.00	0.00	1939.66	0.00	1995.00	2036.00	0.00	2257.32	317.66	490.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
35.900	962.36	955.10	0.00	0.00	1930.99	0.00	2000.00	2011.00	0.00	2194.29	263.30	36.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.41	263.47	1.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.41	263.47	1.00
36.000	962.37	955.10	958.00	960.80	1930.94	0.00	2000.00	2011.00	0.00	2194.42	263.47	1.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.100	962.41	955.10	958.00	960.80	1929.83	0.00	2000.00	2011.00	0.00	2197.60	267.77	41.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.200	962.41	955.10	0.00	0.00	1929.65	0.00	2000.00	2011.00	0.00	2198.21	268.56	1.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.300	962.45	956.30	0.00	0.00	1936.77	0.00	1995.00	1412.00	0.00	2268.26	331.49	50.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.10	150.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.09	150.00
36.800	962.48	956.30	0.00	0.00	1935.19	0.00	1995.00	1412.00	0.00	2274.28	339.10	150.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00
36.900	962.48	955.10	0.00	0.00	1922.18	0.00	2000.00	2011.00	0.00	2204.71	282.53	50.00

SECNO	CWSEL	FLMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
37.000	962.49	955.10	958.30	960.80	1922.34	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.000	962.49	955.10	958.30	960.80	1922.34	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.000	962.49	955.10	958.30	960.80	1922.33	0.00	2000.00	2011.00	0.00	2204.29	281.95	1.00
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.100	962.53	955.10	958.30	960.80	1921.32	0.00	2000.00	2011.00	0.00	2207.05	285.73	40.50
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.200	962.52	955.10	0.00	0.00	1921.05	0.00	2000.00	2011.00	0.00	2207.80	286.75	1.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.56	50.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.56	50.00
37.300	962.54	955.10	0.00	0.00	1920.30	0.00	2000.00	2011.00	0.00	2209.86	289.57	50.00
36.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00
36.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00
36.000	962.89	957.75	0.00	0.00	1928.67	0.00	2262.00	2298.00	0.00	2452.97	512.20	1375.00

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCain Drain

4) DOCUMENT TYPE: Input data

00BREAK00

MOORE BUSINESS FORMS, INC 23

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED APRIL 1980                                    *
*                                                        *
*  RUN DATE  80/10/13. TIME  07.12.42.                   *
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
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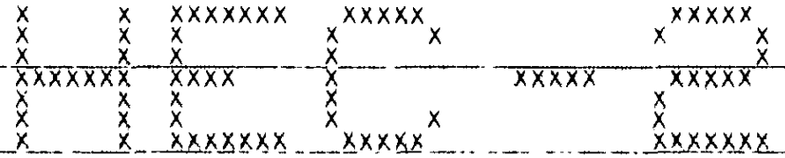
Multi-Profile
McCain
10-13-80

Received
10/20/80



*GENERAL MESSAGE

*HEC-2 MESSAGE

** HEC-2 MESSAGE **

MAY 13 -- THE STANDARD VERSION OF HEC-2 HAS BEEN UPDATE TO INCLUDE MODIFICATION 54 AND ERROR CORRECTION 04. DOCUMENTATION DESCRIBING THESE CHANGE WILL BE FURNISHED TO PROGRAM USERS IN JUNE. PLEASE CALL AL MONTALVO OR RICHARD HAYES AT (FTS) 448-2105 IF YOU HAVE QUESTIONS REGARDING THESE CHANGES.

**** SUMMARY OF MODIFICATION 54 ****

1. HEC-2 OUTPUT HAS BEEN MADE MORE READABLE BY THE ADDITION OF A PAGING ROUTINE TO CONTROL PRINTING AND PAGING. THE ROUTINE ALSO PROVIDES A PAGE NUMBER AND DATE AT THE TOP OF EACH PAGE OF OUTPUT. THIS ENHANCEMENT WAS REQUESTED BY THE FORT WORTH DISTRICT.

2. THE PROGRAM WILL NOW AUTOMATICALLY CALCULATE FLOOD HAZARD FACTORS FOR STREAMS WHICH REQUIRE MULTIPLE FIA ZONES.

3. THE CHANNEL IMPROVEMENT (CHIMP) ROUTINE HAS BEEN ENHANCED TO PROVIDE THE CAPABILITY TO MODEL PILOT CHANNELS. TO FILL THE OLD CHANNEL AREA PRIOR TO EXCAVATION. AND TO CHANGE THE CHANNEL REACH LENGTH.

MOORE BUSINESS FORMS, INC 23

MOORE BUSINESS FORMS, INC. 23

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

C
T1      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN.
T2      10 YR LEVEL
T3      MC CAIN DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	954.760	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	150.000	201.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

	-10.000	-10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	234.000	312.000	360.000	520.000	360.000	0.000	0.000	0.000	0.000
NC	.130	.130	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A(WEST TOWNSHIP LINE SUMMIT)

X1	30.000	41.000	1994.000	2032.000	2100.000	2100.000	2100.000	0.000	0.000	0.000
GR	974.300	1180.000	970.400	1228.000	970.900	1239.000	966.700	1352.000	966.200	1401.000
GR	964.600	1439.000	964.200	1502.000	962.100	1544.000	962.400	1606.000	958.600	1650.000
GR	959.500	1669.000	959.300	1690.000	959.200	1696.000	960.600	1720.000	961.100	1759.000
GR	958.300	1785.000	956.400	1812.000	954.400	1823.000	953.700	1896.000	955.100	1914.000
GR	955.400	1975.000	956.300	1984.000	954.900	1989.000	954.800	1994.000	952.300	2000.000
GR	952.200	2000.000	951.300	2005.000	951.300	2008.000	950.400	2013.000	950.200	2019.000
GR	951.200	2022.000	952.300	2025.000	954.200	2032.000	955.100	2035.000	953.900	2045.000
GR	954.000	2108.000	954.700	2160.000	956.900	2282.000	961.400	2412.000	967.500	2486.000
GR	971.400	2542.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.600	28.000	1995.000	2028.000	1725.000	1725.000	1725.000	0.000	0.000	0.000
GR	975.300	1109.000	974.500	1133.000	970.700	1177.000	965.700	1318.000	963.100	1416.000
GR	964.800	1476.000	963.700	1544.000	963.200	1596.000	964.000	1686.000	962.000	1763.000
GR	954.200	1823.000	955.500	1983.000	954.600	1995.000	952.000	2000.000	951.000	2004.000
GR	952.000	2010.000	954.000	2020.000	955.200	2028.000	955.200	2046.000	957.400	2102.000
GR	958.200	2197.000	959.300	2223.000	959.600	2238.000	959.500	2253.000	959.700	2259.000

GR	961.100	2268.000	962.600	2326.000	963.700	2366.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1916.000	2030.000	0.000	0.000
X1	30.700	0.000	0.000	0.000	375.000	375.000	375.000	0.000	0.000	0.000
NC	.080	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1985.000	2030.000	0.000	0.000
X1	30.800	30.000	1987.000	2011.000	200.000	83.000	139.000	0.000	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.300	1300.000	957.500	1785.000
GR	955.900	1876.000	955.200	1980.000	953.000	1987.000	952.100	2000.000	950.800	2005.000
GR	950.800	2008.000	953.000	2011.000	956.300	2071.000	958.700	2167.000	959.700	2259.000
GR	960.700	2344.000	961.400	2443.000	961.500	2540.000	963.600	2634.000	966.600	2795.000
GR	966.700	2869.000	968.400	2970.000	971.600	3072.000	975.400	3196.000	978.700	3275.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B(DOWNSTREAM FACE M-60)

X1	30.900	38.000	2000.000	2017.000	60.000	75.000	62.000	.829	0.000	0.000
GR	972.300	489.000	971.900	570.000	970.500	673.000	968.900	781.000	967.400	895.000
GR	966.100	1003.000	965.100	1117.000	964.000	1226.000	962.900	1338.000	961.900	1442.000
GR	961.200	1570.000	960.600	1678.000	960.200	1783.000	960.100	1890.000	960.300	1985.000
GR	960.400	1996.000	960.500	2000.000	951.500	2000.000	951.300	2006.000	950.800	2008.300
GR	951.300	2008.400	951.300	2009.200	951.300	2009.300	951.300	2017.000	960.500	2017.000
GR	960.700	2050.000	960.900	2083.000	961.500	2188.000	962.400	2317.000	963.700	2429.000
GR	964.500	2517.000	965.900	2620.000	967.400	2719.000	969.000	2817.000	970.900	2917.000
GR	972.700	3081.000	975.400	3196.000	978.700	3275.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	2.100	3.000	0.000	13.500	.829	85.000	0.000	950.800	950.800

BRIDGE SECTION C(UPSTREAM FACE M-60)

X1	32.100	38.000	2000.000	2017.000	188.000	188.000	188.000	.829	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.829	0.000
BT	37.000	434.000	970.100	0.000	524.000	969.400	0.000	640.000	968.800	0.000
BT	733.000	968.100	0.000	828.000	967.100	0.000	929.000	966.400	0.000	1028.000
BT	965.500	0.000	1128.000	964.500	0.000	1229.000	963.500	0.000	1328.000	962.500
BT	0.000	1430.000	961.700	0.000	1600.000	961.200	0.000	1700.000	961.000	0.000
BT	1800.000	960.800	0.000	1900.000	960.700	0.000	1950.000	960.600	0.000	1980.000
BT	960.400	0.000	2000.000	960.300	951.800	2000.000	960.300	957.500	2008.200	960.500
BT	957.500	2008.300	960.300	950.900	2009.200	960.300	950.900	2009.300	960.300	957.500
BT	2017.000	960.300	957.500	2017.000	960.300	951.100	2050.000	960.300	0.000	2090.000
BT	960.400	0.000	2194.000	960.900	0.000	2291.000	961.500	0.000	2391.000	962.300
BT	0.000	2491.000	963.300	0.000	2592.000	964.400	0.000	2692.000	965.800	0.000
BT	2791.000	967.400	0.000	2893.000	962.200	0.000	2991.000	971.000	0.000	3094.000
BT	972.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	970.100	434.000	969.400	524.000	968.800	640.000	968.100	733.000	967.100	828.000
GR	966.400	929.000	965.500	1028.000	964.500	1128.000	963.500	1229.000	962.500	1328.000
GR	961.700	1430.000	961.200	1600.000	961.000	1700.000	960.800	1800.000	960.700	1900.000
GR	960.600	1950.000	960.400	1980.000	960.300	2000.000	951.800	2000.000	951.000	2004.000

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GR	951.000	2008.200	950.900	2008.300	950.900	2009.200	950.800	2009.300	951.100	2017.000
GR	960.300	2017.000	960.300	2050.000	960.400	2090.000	960.900	2194.000	961.500	2291.000
GR	962.300	2391.000	963.300	2491.000	964.400	2592.000	965.800	2692.000	967.400	2791.000
GR	962.200	2893.000	971.000	2991.000	972.900	3094.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
DT	5.000	212.000	283.000	326.000	471.000	326.000	0.000	0.000	0.000	0.000
NC	.100	.090	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.300	35.000	1992.000	2015.000	42.000	42.000	42.000	0.000	0.000	0.000
GR	974.800	1397.000	964.600	1435.000	962.100	1537.000	961.200	1600.000	960.700	1645.000
GR	960.400	1713.000	959.200	1911.000	959.000	1944.000	959.100	1973.000	958.400	1982.000
GR	957.100	1987.000	955.900	1990.000	954.800	1992.000	953.600	1994.000	952.500	1997.000
GR	952.100	1998.000	952.000	2000.000	951.000	2004.000	950.900	2008.000	952.000	2011.000
GR	954.600	2015.000	957.400	2085.000	958.800	2153.000	959.000	2202.000	960.300	2303.000
GR	962.500	2407.000	964.900	2511.000	965.600	2617.000	965.100	2719.000	963.800	2790.000
GR	968.800	2910.000	970.800	3012.000	970.700	3068.000	971.900	3162.000	975.400	3255.000
NC	.080	.070	.044	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	32.700	43.000	2093.000	2111.000	950.000	1050.000	1000.000	0.000	0.000	0.000
GR	972.800	1156.000	968.900	1252.000	967.000	1300.000	963.800	1402.000	961.700	1500.000
GR	961.100	1598.000	960.600	1698.000	960.700	1796.000	960.700	1895.000	960.600	2000.000
GR	960.200	2019.000	959.500	2030.000	959.200	2063.000	957.600	2081.000	953.200	2093.000
GR	952.800	2100.000	952.100	2102.000	951.900	2105.000	951.800	2105.000	952.200	2106.000
GR	952.700	2107.000	953.400	2111.000	957.500	2119.000	957.900	2139.000	956.200	2150.000
GR	957.400	2214.000	958.500	2229.000	958.900	2296.000	959.800	2352.000	959.700	2391.000
GR	959.900	2484.000	961.100	2617.000	962.300	2696.000	963.300	2785.000	965.400	2868.000
GR	967.300	2969.000	971.300	3105.000	974.400	3209.000	977.000	3310.000	979.400	3412.000
GR	981.100	3558.000	982.900	3662.000	983.600	3699.000	0.000	0.000	0.000	0.000
NC	.070	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2090.000	2147.000	0.000	0.000
X1	32.800	0.000	0.000	0.000	150.000	250.000	200.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	32.900	39.000	2000.000	2024.000	33.000	200.000	72.000	.906	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	961.700	1400.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.800	2008.000	952.900	2010.000	953.000	2014.000	952.900	2016.000	952.800	2019.000
GR	953.000	2022.000	953.000	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
DT	5.000	196.000	262.000	302.000	436.000	302.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	3.000	0.000	13.450	0.000	79.400	0.000	952.000	952.000

BRIDGE SECTION D(UPSTREAM FACE MCCAIN RD)

X1	33.100	39.000	2000.000	2024.000	50.000	50.000	50.000	.906	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.906	0.000
BT	41.000	1056.000	972.800	0.000	1152.000	968.900	0.000	1200.000	967.000	0.000
BT	1302.000	963.800	0.000	1400.000	961.700	0.000	1498.000	961.100	0.000	1598.000
BT	960.600	0.000	1696.000	960.700	0.000	1795.000	960.700	0.000	1900.000	960.600
BT	0.000	1980.000	960.900	0.000	2000.000	961.000	952.900	2000.000	961.000	953.900
BT	2002.000	961.000	956.900	2005.000	961.000	957.900	2008.000	961.000	956.900	2010.000
BT	961.000	953.900	2010.000	961.000	952.700	2014.000	961.000	952.700	2014.000	961.000
BT	953.900	2016.000	961.000	956.900	2019.000	961.000	957.900	2022.000	961.100	956.900
BT	2024.000	961.100	953.900	2024.000	961.100	953.400	2075.000	961.500	0.000	2106.000
BT	960.800	0.000	2209.000	960.800	0.000	2312.000	961.100	0.000	2420.000	961.400
BT	0.000	2551.000	961.900	0.000	2653.000	962.100	0.000	2753.000	962.800	0.000
BT	2858.000	963.900	0.000	2962.000	965.100	0.000	3065.000	966.100	0.000	3269.000
BT	967.000	0.000	3317.000	966.700	0.000	3416.000	967.000	0.000	3517.000	967.600
BT	0.000	3622.000	967.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	960.700	1696.000	960.700	1795.000	960.600	1900.000
GR	960.900	1980.000	961.000	2000.000	952.900	2000.000	952.400	2002.000	952.000	2005.000
GR	952.400	2008.000	952.700	2010.000	952.700	2014.000	952.700	2016.000	952.800	2019.000
GR	953.000	2022.000	953.400	2024.000	961.000	2024.000	960.500	2075.000	960.800	2106.000
GR	960.800	2209.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1908.000	2028.000	0.000	0.000

X1	33.300	34.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.800	1056.000	968.900	1152.000	967.000	1200.000	963.800	1302.000	963.500	1406.000
GR	961.100	1498.000	960.600	1598.000	959.300	1726.000	958.500	1795.000	956.700	1901.000
GR	956.500	1995.000	956.900	2000.000	952.400	2002.000	952.100	2008.000	952.500	2010.000
GR	952.800	2019.000	953.200	2024.000	957.200	2026.000	959.700	2037.000	959.700	2072.000
GR	960.800	2106.000	961.100	2312.000	961.400	2420.000	961.900	2551.000	962.100	2653.000
GR	962.800	2753.000	963.900	2858.000	965.100	2962.000	966.100	3065.000	967.000	3269.000
GR	966.700	3317.000	967.000	3416.000	967.600	3517.000	967.800	3622.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	.070	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	33.400	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000

X1	33.500	17.000	2000.000	2026.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	964.000	1100.000	960.000	1300.000	959.000	1500.000	958.700	1795.000	958.000	1900.000
GR	957.900	2000.000	953.400	2002.000	953.000	2008.000	953.000	2010.000	953.300	2019.000
GR	953.200	2024.000	957.200	2026.000	958.300	2100.000	958.600	2500.000	959.000	2700.000
GR	960.700	3000.000	964.000	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2028.000	0.000	0.000

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X1	33.800	36.000	2000.000	2019.000	1920.000	1050.000	1550.000	0.000	0.000	0.000
GR	983.700	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.500	1960.000	960.500	1980.000	960.500	1989.000
GR	956.300	2000.000	954.800	2003.000	954.800	2007.000	955.200	2011.000	957.400	2019.000
GR	957.900	2024.000	960.300	2033.000	961.300	2055.000	961.400	2138.000	961.800	2272.000
GR	962.000	2412.000	963.100	2444.000	962.200	2468.000	962.800	2648.000	963.400	2739.000
GR	962.000	3101.000	963.000	3160.000	963.900	3283.000	964.000	3351.000	965.000	3408.000
GR	966.000	3537.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	33.900	33.000	2004.000	2015.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2004.000	955.200	2004.000	955.100	2005.000
GR	955.200	2008.000	955.200	2009.500	955.300	2011.000	955.300	2014.000	955.400	2015.000
GR	962.500	2015.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
SB	0.000	1.700	2.920	0.000	8.800	0.000	47.500	0.000	955.100	955.100

BRIDGE SECTION E(UPSTREAM FACE ROBINSON RD)

X1	34.100	33.000	2000.000	2011.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	31.000	675.000	979.900	0.000	737.000	977.700	0.000	859.000	971.600	0.000
BT	977.000	967.000	0.000	1100.000	964.300	0.000	1229.000	962.900	0.000	1356.000
BT	962.600	0.000	1485.000	962.600	0.000	1612.000	962.200	0.000	1739.000	962.200
BT	0.000	1870.000	962.200	0.000	1950.000	962.200	0.000	2000.000	962.500	955.100
BT	2001.000	962.500	959.000	2003.000	962.500	959.800	2005.500	962.500	960.500	2008.000
BT	962.500	959.600	2010.000	962.500	958.000	2011.000	962.200	955.800	2020.000	962.500
BT	0.000	2050.000	962.600	0.000	2100.000	962.700	0.000	2219.000	962.900	0.000
BT	2373.000	963.200	0.000	2587.000	963.700	0.000	2741.000	963.500	0.000	2899.000
BT	962.800	0.000	3056.000	962.900	0.000	3265.000	964.500	0.000	3482.000	965.800
BT	0.000	3638.000	967.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	979.900	675.000	977.700	737.000	971.600	859.000	967.000	977.000	964.300	1100.000
GR	962.900	1229.000	962.600	1356.000	962.600	1485.000	962.200	1612.000	962.200	1739.000
GR	962.200	1870.000	962.200	1950.000	962.500	2000.000	955.100	2000.000	955.200	2001.000
GR	955.400	2004.000	955.700	2005.500	955.500	2008.000	955.800	2010.000	955.800	2011.000
GR	962.500	2011.000	962.500	2020.000	962.600	2050.000	962.700	2100.000	962.900	2219.000
GR	963.200	2373.000	963.600	2587.000	963.500	2741.000	962.800	2899.000	962.900	3056.000
GR	964.500	3265.000	965.800	3482.000	967.300	3638.000	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
ET	0.000	7.100	7.100	7.100	7.100	7.100	1960.000	2070.000	0.000	0.000

MOORE BUSINESS FORMS INC 13

X1	34.300	34.000	1995.000	2016.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	983.000	697.000	981.000	721.000	978.600	781.000	978.300	853.000	969.700	930.000
GR	964.400	1051.000	963.000	1087.000	962.900	1229.000	962.600	1356.000	962.200	1612.000
GR	962.200	1870.000	960.800	1950.000	960.100	1987.000	958.000	1995.000	955.400	2000.000
GR	955.300	2003.000	955.100	2005.000	955.800	2011.000	958.100	2016.000	958.800	2023.000
GR	961.100	2117.000	960.800	2170.000	962.900	2219.000	962.000	2412.000	963.100	2444.000
GR	962.200	2468.000	962.800	2648.000	963.400	2739.000	963.000	3101.000	963.000	3160.000
GR	963.900	3283.000	964.000	3351.000	965.000	3408.000	966.000	3537.000	0.000	0.000
NC	.070	.070	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	34.400	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1980.000	2313.000	0.000	0.000
X1	34.700	29.000	2000.000	2031.000	960.000	933.000	950.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1883.000	960.100	1990.000	958.400	2000.000	956.400	2004.000
GR	955.400	2008.000	955.900	2013.000	955.200	2018.000	955.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.400	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2033.000	0.000	0.000
X1	34.800	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
QT	5.000	158.000	236.000	296.000	484.000	296.000	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	34.900	48.000	2000.000	2017.000	44.000	44.000	44.000	0.000	0.000	0.000
GR	978.000	1430.000	974.100	1543.000	971.000	1639.000	970.400	1697.000	968.500	1703.000
GR	967.900	1730.000	965.100	1797.000	964.600	1802.000	963.700	1894.000	963.400	1902.000
GR	964.000	1950.000	964.600	2000.000	956.200	2000.000	956.100	2000.500	956.000	2001.500
GR	955.900	2003.000	955.800	2004.000	955.700	2005.000	955.500	2006.500	955.300	2007.500
GR	955.300	2008.000	955.300	2009.000	955.300	2009.500	955.400	2010.500	955.700	2012.000
GR	955.900	2013.000	956.000	2014.000	956.100	2015.500	956.100	2016.500	956.100	2017.000
GR	964.600	2017.000	964.200	2020.000	964.200	2050.000	963.800	2110.000	963.600	2205.000
GR	963.400	2305.000	963.700	2406.000	963.800	2500.000	965.400	2600.000	966.100	2700.000
GR	968.900	2800.000	970.500	2900.000	972.100	3000.000	973.900	3100.000	975.500	3200.000
GR	976.800	3288.000	979.700	3387.000	981.900	3451.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.950	0.000	11.680	0.000	50.260	0.000	955.300	955.300

BRIDGE SECTION F(UPSTREAM FACE SPRING ARBOR RD)

MOORE BUSINESS FORMS, INC. 23

X1	35.100	0.000	0.000	0.000	80.000	80.000	80.000	0.000	0.000	0.000
BT	46.000	1430.000	978.000	0.000	1543.000	974.100	0.000	1639.000	971.000	0.000
BT	1697.000	970.400	0.000	1703.000	968.500	0.000	1730.000	967.900	0.000	1797.000
BT	965.100	0.000	1802.000	964.600	0.000	1894.000	963.700	0.000	1902.000	963.400
BT	0.000	1950.000	964.000	0.000	2000.000	964.600	956.200	2000.500	964.600	958.000
BT	2001.500	964.600	958.800	2003.000	964.600	959.500	2004.000	964.600	959.600	2005.000
BT	964.600	959.500	2006.500	964.600	958.800	2007.500	964.600	958.000	2008.000	964.600
BT	955.300	2009.000	964.600	955.300	2009.500	964.600	958.000	2010.500	964.600	958.800
BT	2012.000	964.600	959.500	2013.000	964.600	959.600	2014.000	964.600	959.500	2015.500
BT	964.600	958.800	2016.500	964.600	958.000	2017.000	964.600	956.100	2020.000	964.200
BT	0.000	2050.000	964.200	0.000	2110.000	963.800	0.000	2205.000	963.600	0.000
BT	2305.000	963.400	0.000	2406.000	963.700	0.000	2500.000	963.800	0.000	2600.000
BT	965.400	0.000	2700.000	966.100	0.000	2800.000	968.900	0.000	2900.000	970.500
BT	0.000	3000.000	972.100	0.000	3100.000	973.900	0.000	3200.000	975.500	0.000
BT	3288.000	976.800	0.000	3387.000	979.700	0.000	3451.000	981.900	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1990.000	2112.000	0.000	0.000

X1	35.300	29.000	2000.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	978.800	1410.000	977.900	1456.000	968.100	1608.000	970.500	1643.000	970.800	1691.000
GR	964.300	1716.000	960.900	1863.000	960.100	1990.000	956.400	2000.000	955.400	2004.000
GR	954.400	2008.000	954.300	2013.000	954.200	2018.000	954.200	2021.000	955.300	2027.000
GR	956.400	2031.000	959.600	2041.000	961.100	2137.000	959.400	2215.000	960.000	2269.000
GR	961.500	2357.000	960.300	2472.000	960.700	2543.000	962.300	2691.000	965.200	2799.000
GR	967.600	2951.000	974.000	3126.000	979.700	3195.000	981.800	3240.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

X1	35.800	26.000	1995.000	2036.000	619.000	383.000	490.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	954.700	2007.000
GR	954.900	2013.000	957.000	2021.000	960.900	2036.000	960.600	2093.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
GR	980.900	3210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	35.900	40.000	2000.000	2011.000	36.000	36.000	36.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.600	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC 23

X1	36.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.300	2001.000	960.800	957.600	2002.000	960.800	958.000	2003.000	960.800	958.000
BT	2004.000	960.800	957.600	2004.500	960.800	957.300	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.300	2007.000	960.800	957.700	2008.000	960.800
BT	958.000	2009.000	960.800	958.000	2010.000	960.800	957.700	2010.500	960.800	957.300
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.200	0.000	0.000	0.000

BRIDGE SECTION G(CHRISTI HIGH)

X1	36.100	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	36.300	25.000	1995.000	2036.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	982.500	1412.000	980.800	1437.000	976.600	1526.000	972.800	1620.000	969.300	1708.000
GR	966.600	1809.000	963.400	1903.000	960.800	1995.000	956.900	2000.000	956.300	2007.000
GR	956.300	2013.000	957.000	2021.000	960.900	2030.000	960.600	2036.000	961.900	2195.000
GR	962.600	2289.000	962.800	2386.000	962.600	2485.000	962.600	2587.000	963.000	2650.000
GR	965.300	2752.000	970.100	2848.000	972.300	2950.000	972.200	3056.000	978.200	3148.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	36.800	0.000	0.000	0.000	150.000	150.000	150.000	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	36.900	40.000	2000.000	2011.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	981.000	1432.000	975.500	1537.000	972.300	1637.000	968.700	1740.000	965.400	1842.000
GR	963.200	1900.000	961.600	1950.000	960.900	2000.000	956.200	2000.000	956.000	2000.500
GR	955.800	2001.000	955.500	2002.000	955.700	2003.000	955.800	2004.000	955.800	2004.500
GR	955.800	2005.000	955.800	2006.000	955.500	2006.500	955.500	2007.000	955.100	2008.000
GR	955.300	2009.000	955.800	2010.000	955.900	2010.500	956.000	2011.000	960.800	2011.000
GR	960.900	2050.000	961.000	2101.000	962.400	2197.000	963.500	2291.000	963.900	2388.000
GR	963.900	2484.000	963.500	2580.000	963.800	2677.000	965.300	2779.000	964.100	2816.000
GR	968.900	2851.000	969.800	2886.000	972.900	2914.000	973.600	2965.000	976.200	3092.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC '73

X1	37.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	39.000	1432.000	981.000	0.000	1537.000	975.500	0.000	1637.000	972.300	0.000
BT	1740.000	968.700	0.000	1842.000	965.400	0.000	1900.000	963.600	0.000	1950.000
BT	961.600	0.000	2000.000	960.900	956.200	2000.000	960.900	956.200	2000.500	960.800
BT	957.600	2001.000	960.800	957.900	2002.000	960.800	958.300	2003.000	960.800	958.300
BT	2004.000	960.800	957.900	2004.500	960.800	957.600	2005.000	960.800	955.800	2006.000
BT	960.800	955.800	2006.500	960.800	957.600	2007.000	960.800	957.900	2008.000	960.800
BT	958.300	2009.000	960.800	958.300	2010.000	960.800	957.900	2010.500	960.800	957.600
BT	2011.000	960.800	956.000	2050.000	960.900	0.000	2101.000	961.000	0.000	2197.000
BT	962.400	0.000	2291.000	963.500	0.000	2388.000	963.900	0.000	2484.000	963.900
BT	0.000	2580.000	963.500	0.000	2677.000	963.800	0.000	2779.000	965.300	0.000
BT	2816.000	964.100	0.000	2851.000	968.900	0.000	2886.000	969.800	0.000	2914.000
BT	972.400	0.000	2965.000	973.600	0.000	3092.000	976.000	0.000	0.000	0.000

BRIDGE SECTION A(CHRISTI HIGH)

X1	37.100	0.000	0.000	0.000	40.500	40.500	40.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	37.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1961.000	2061.000	0.000	0.000
X1	37.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION I

X1	38.000	45.000	2262.000	2298.000	1383.000	1400.000	1375.000	0.000	0.000	0.000
GR	969.400	486.000	970.600	518.000	971.400	566.000	975.000	670.000	977.800	774.000
GR	979.800	874.000	980.000	975.000	979.000	1130.000	979.300	1234.000	979.500	1337.000
GR	978.000	1422.000	974.600	1534.000	971.500	1641.000	967.200	1760.000	963.500	1895.000
GR	961.600	2000.000	961.700	2103.000	961.700	2208.000	961.900	2262.000	959.400	2270.000
GR	958.700	2275.000	958.300	2280.000	957.750	2283.000	959.200	2290.000	960.000	2294.000
GR	961.600	2298.000	963.100	2306.000	962.700	2327.000	961.800	2330.000	962.400	2441.000
GR	964.900	2502.000	967.400	2541.000	969.800	2589.000	971.000	2706.000	970.100	2808.000
GR	973.100	2942.000	974.100	3062.000	972.600	3073.000	972.900	3150.000	974.300	3165.000
GR	976.200	3268.000	977.900	3375.000	980.900	3450.000	983.600	3507.000	983.700	3572.000
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 93

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	955.480	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2       100-YEAR FLOOD
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.   955.670     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1
T2       500 YR FLOW
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -10.       5.        0.        0.  0.000000      0.00      0.0       0.    956.100     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
```

MOORE BUSINESS FORMS, INC. 23

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCAIN DRAIN ~~Ground River~~

4) DOCUMENT TYPE: Report

00BREAK00

38

HYDRAULIC ANALYSIS REPORT

MC CAIN DRAIN AT THE TOWNSHIP OF SUMMIT
JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

August, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for McCain Drain within the corporate boundary of the township of Summit. The reach studied in detail began at the west township boundary line and extended about 10,850 feet upstream. McCain Drain flows in a northwesterly direction in the northwest portion of the township. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates Inc. in November 1978. In addition to field cross-section data, a 7.5 minute series topographic map with 10-foot contour interval, along with a 5-foot contour map were used.

The flows for the 10-year, 50-year, 100-year, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated March 24, 1980.

Analysis of the hydraulic characteristic of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material, and without an in-depth study an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. Calcuations for loss coefficients and coefficients of discharge are contained in Appendix A.

Manning's Roughness Coefficients

For Channel	.04 - .05
For Overbank	.06 - .13

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

The only high-water mark for McCain Drain is located at M-60 highway. An elevation of 955 was recorded on July 5, 1971. This information was obtained from Geoffrey Snyder, Jackson County Drain Commissioner. Rainfall data shows about 2.78 inches fell in a 24-hour period. In compliance with Technical Paper 40, reference 1, that quantity of rainfall would correspond to a recurrence interval of less than 10-year frequency. The analysis we have made with regards to computed water surface elevations compares favorably with the above condition.

STARTING CONDITIONS

The starting water surface elevation was specified by the slope area method. A starting slope of .00064 feet per feet was used. The starting water surface elevation was varied by two feet from the slope-area depth to ensure that the water surfaces converged at the downstream limit of the study. A copy of the convergence run printout is contained in Appendix E.

SPECIAL PROBLEMS

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	30	Valley Section, downstream limit study
	30.6	Valley Section
	30.7	Valley Section, Repeated Section
	30.8	Valley Section, downstream face
B	30.9	Downstream Face, M-60 Highway
C	32.1	Upstream Face, M-60 Highway
	32.3	Valley Section
	32.7	Valley Section
	32.8	Valley Section, Repeated Section
	32.9	Bridge Section, downstream face
D	33.1	Upstream Face
	33.3	Valley Section
	33.4	Valley Section, Repeated Section
	33.5	Valley Section
	33.8	Valley Section, Bridge Section
	33.9	Bridge Section, Downstream Face
E	34.1	Upstream Face, Robinson Road
	34.3	Valley Section
	34.4	Valley Section, Repeated Section
	34.7	Valley Section
	34.8	Valley Section, Repeated Section
	34.9	Bridge Section, Downstream Face
F	35.1	Upstream Face, Spring Arbor Road
	35.3	Valley Section
	35.8	Valley Section
G	35.9	Bridge Section
	36.0	Downstream Face
	36.1	Upstream Face, Lumen Christi
	36.2	1' Upstream
	36.3	Valley Section
	36.8	Valley Section
	36.9	1' Downstream of Bridge
	37.0	Downstream Face
H	37.1	Upstream Face of Lumen Christi Bridge
	37.2	1' Upstream
	37.3	Valley Section
I	38.0	Valley Section, End of Detail Study

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

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

PROFILES

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

MAP

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for multi-profile run and floodway run along with convergence run are contained in Appendix E.

REFERENCES

1. U.S. Weather Bureau, Rainfall Frequency Atlas of United States, Technical Paper 40.

APPENDIX A

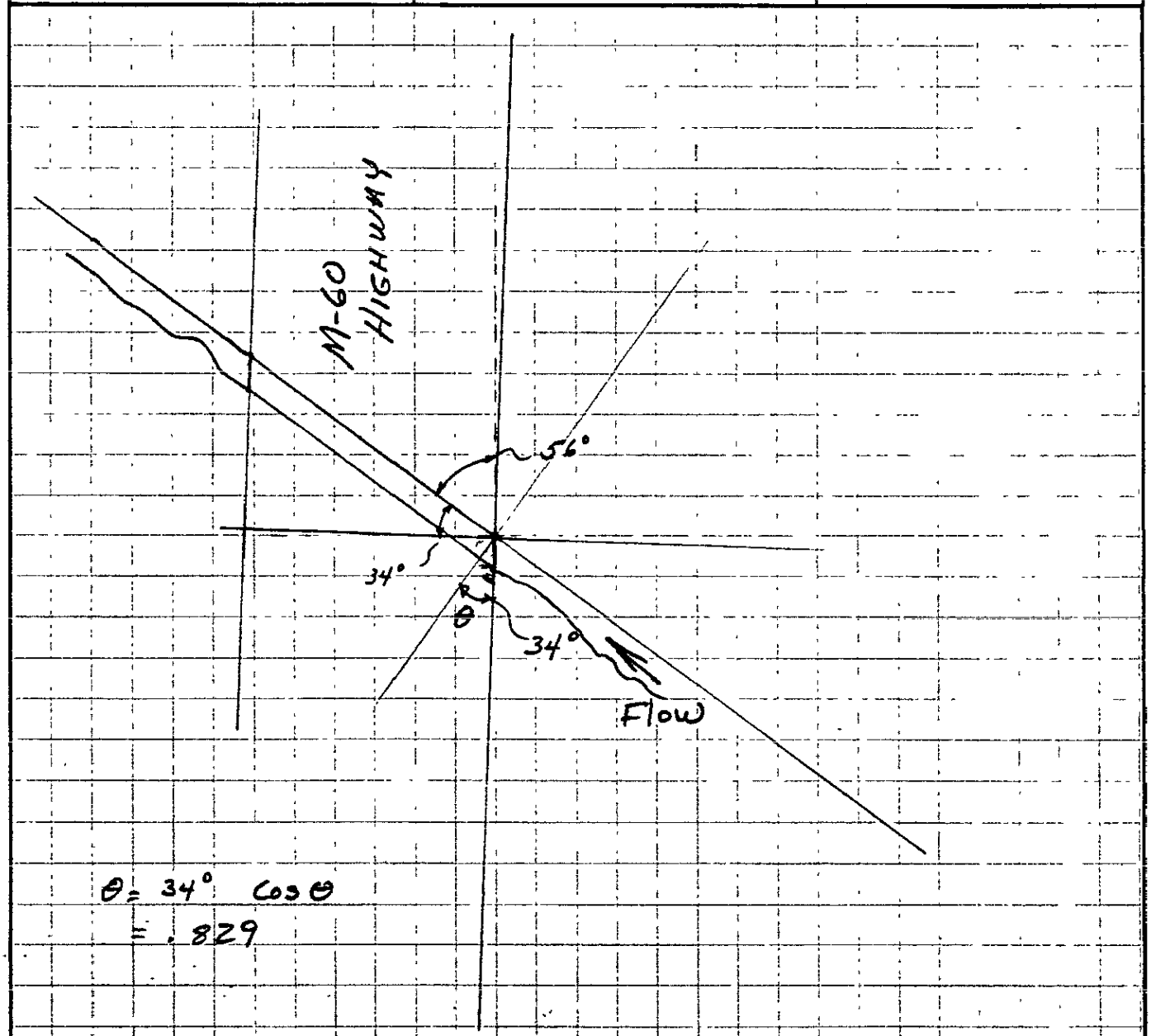
APPENDIX B

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

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway BRIDGE Skew
	SHEET OF / BOOK NO.



$\theta = 34^\circ \quad \cos\theta$

$= .829$

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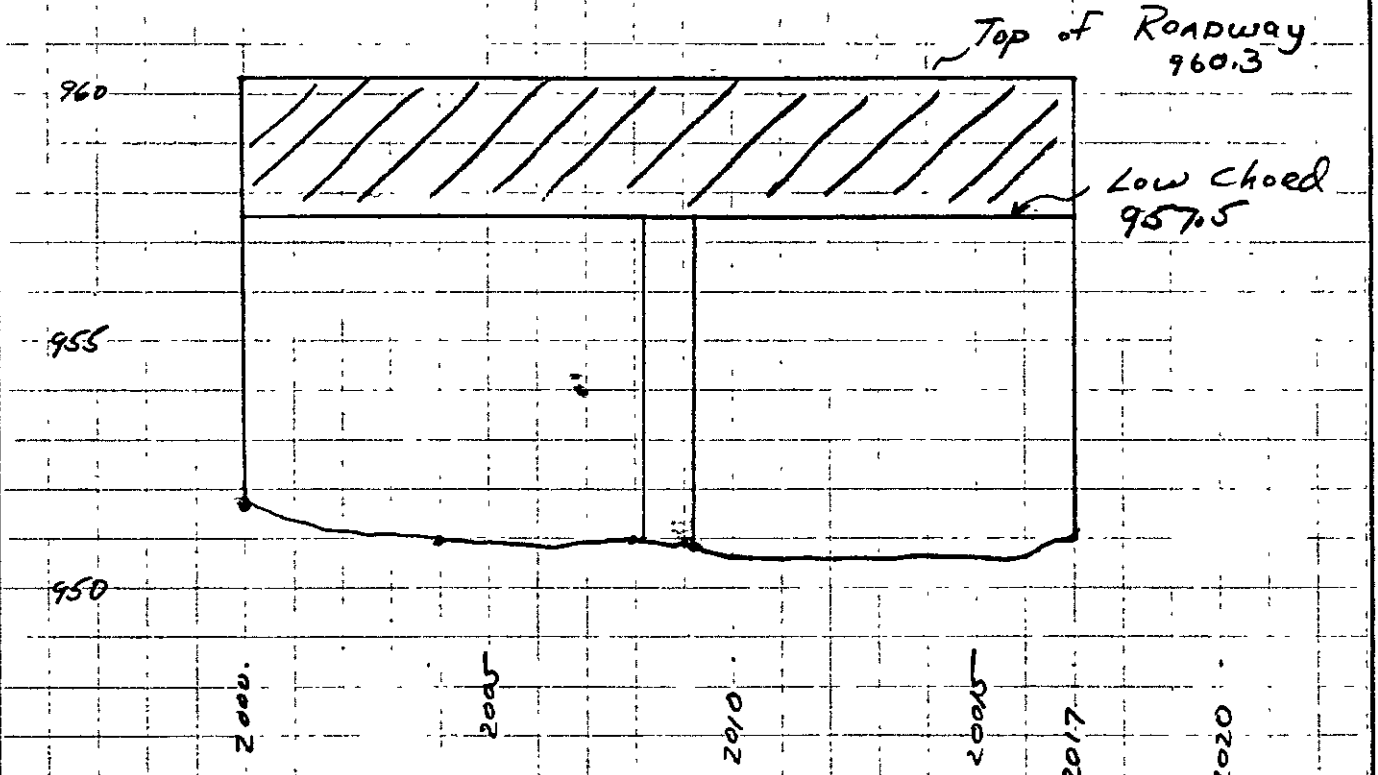
209 E Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway BRIDGE
SHEET OF / BOOK NO.	

Description : 2 Concrete Box Culverts
8' wide, 188' long, 34° skewed
Headwall parallel to embankment
no headwalls.



Calculations adjusted for skew angle
upon skew factor
17' wide x .829 = 14.09

Area : $\frac{13.26}{2}(957.5-951.4) + \frac{13.26}{2}(957.5-950.8)$

= 84.86 sq ft.

FC-M CAL/DCP 112 (9/78)

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT M-60 Highway Bridge	SHEET OF / BOOK NO.

Wetted Perimeter: $(6.632)2 + 2(6.1) + 2(6.632) + 2(6.6) = 51.93$ FT.

Bureau of Public Roads

$$XKOR = 1 + .5 + \frac{29\,n^2\,L}{R^{\frac{4}{3}}}$$

$XKOR = 1 + .5 + .63 \cong 2.1$

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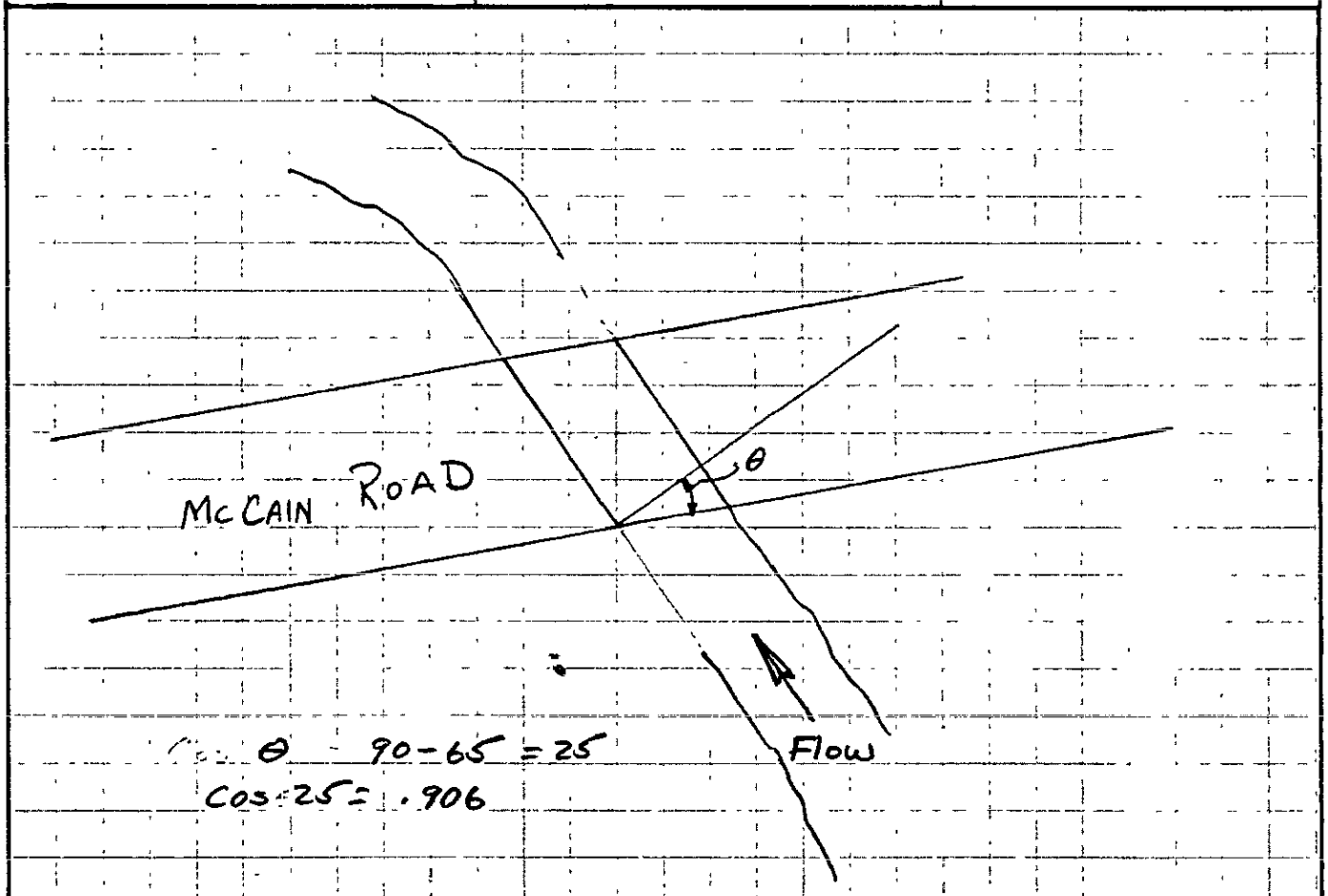
209 E. Washington Avenue Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT McCain Road Bridge BRIDGE Skew
	SHEET OF / BOOK NO.



θ = 90 − 65 = 25

Cos 25 = .906

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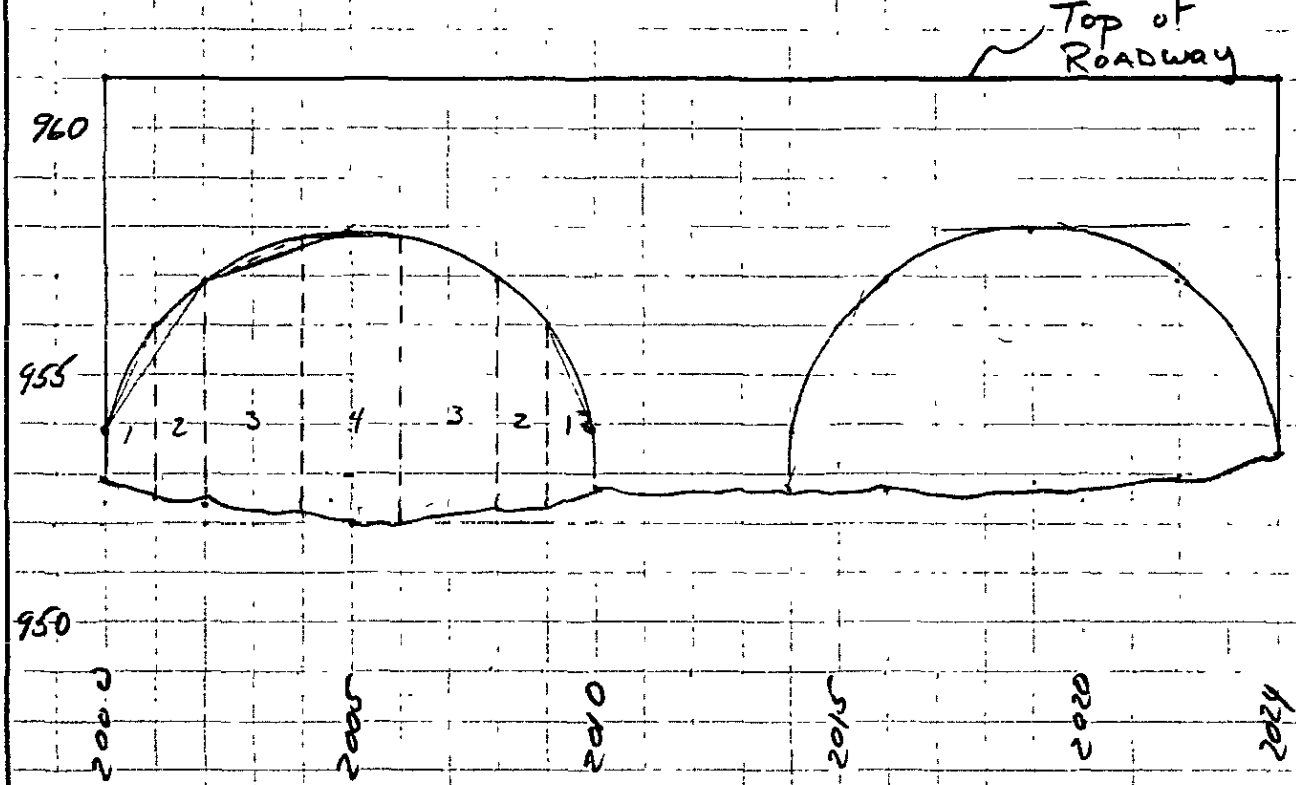
209 E. Washington Avenue Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study, McCain Drain, Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: McCain Road
	SHEET OF / BOOK NO.

Description: 2 - 10' cmp pipes, 50 Ft. long, skew 25°, no wing walls



Calculations adjusted for skew

.906 (Distance)

$AREA_T = 4\,AREA_1 + 4\,AREA_2 + 4\,AREA_3 + 2\,AREA_4$

$= 4(.906)(2.3) + 4(.906)(4) + 4(1.812)(5.0) + 2(1.812)5.6$

AREA = 79.36 sq Ft.

CLIENT/OWNER	FILING CODE
Flood Insurance Study McCain Drain Summit Township	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: McCain Drain
CHECKED BY/DATE (SIGNATURE)	SHEET OF BOOK NO.

Wetted Perimeter

$= 4(2.196) + 4(1.27) + 4(1.98) + 2(1.81) + 20(.906)$

$= 43.55$

$$XKOR = 1 + .5 + \frac{29 n^2 \ell}{R^{\frac{4}{3}}}$$

$$1 + .5 + \frac{29(.027)^2(50)}{2.22}$$

$XKOR = 1.97 \sim 2.0$

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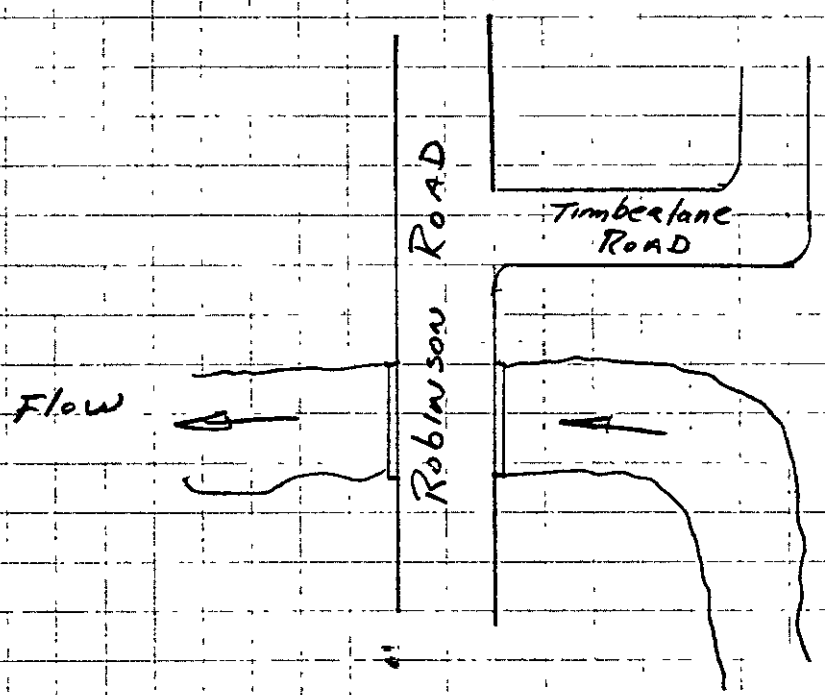
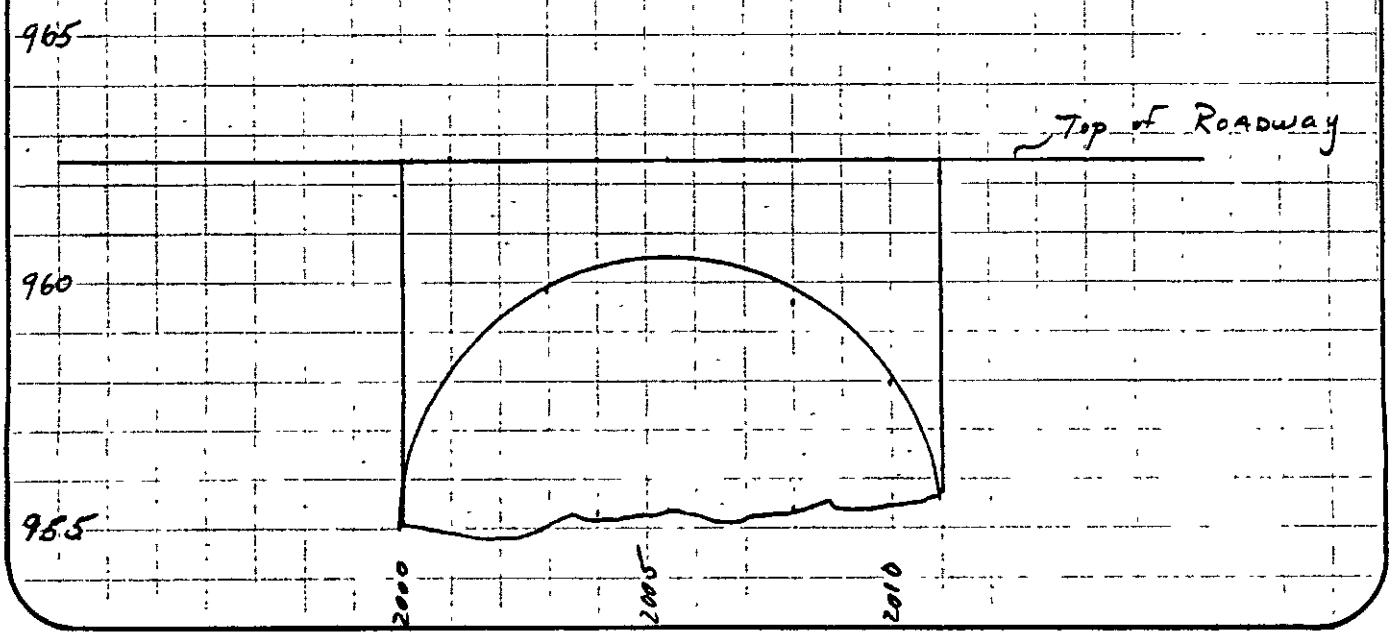
CALCULATION SHEET REV

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Robinson Road
	SHEET OF / BOOK NO.



Description:

11' Dia. C.M.P. pipe
No wingwalls, concrete face, 46 feet long, paved surface



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CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Robinson Rd.
	SHEET OF / BOOK NO.

AREA $= \frac{1}{2}\pi\frac{D^2}{4} = \frac{1}{2}\,3.14\left(\frac{11}{4}\right)^2 = 47.5$ sq. Ft.

Wetted Perimeter $= 2\pi R\left(\frac{1}{2}\right) = 17.3$ ft.

$$XKOR = 14.5 + \frac{29\,n^2\,l}{R^{\frac{4}{3}}}$$

$$14.5 + \frac{29(.024)^2\,46}{3.84}$$

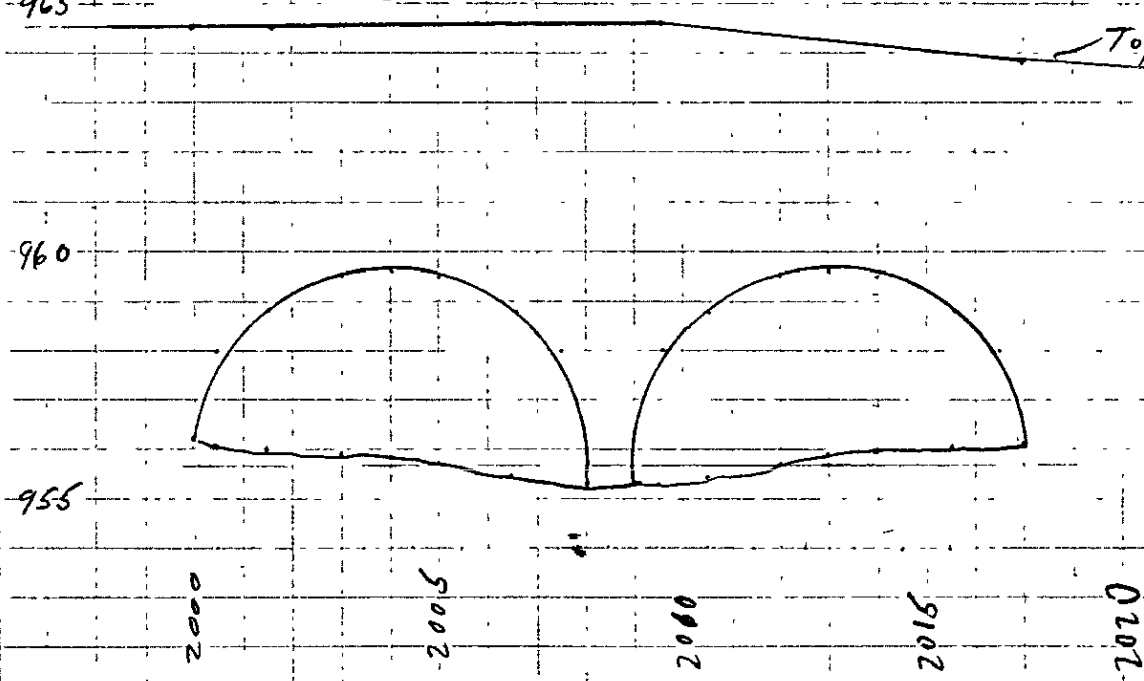
$14.5 \div 2 = \underline{1.7}$

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

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study McCain Drain Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Spring Arbor Rd.
SHEET OF / BOOK NO.	

Description: 80' wide, paved surface, concrete material wingwalls at 2 - 8' Dia.



Area: $2 \frac{\pi D^2}{4}\left(\frac{1}{2}\right)$

$= 2\ (3.14)\left(\frac{8}{4}\right)^2 \frac{1}{2} = 50.26$ sq. ft.

Wetted Perimeter:

$2\pi R\left(\frac{1}{2}\right)2 = 25.1$ ft

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

CALCULATION SHEET REV.

CLIENT/OWNER: Flood Insurance Study, McCain Drain, Summit Township	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Spring Arbor Rd.
	SHEET OF / BOOK NO.

$$XKOR = 1 + .4 + \frac{29\, n^2 \ell}{R^{4/3}}$$

wing walls at 30°-75° to barrell
crown square edged

$$\frac{29(.015)^2\, 80}{2^{4/3}}$$

XKOR = 1 + .4 + .20
= 1.60

APPENDIX C

APPENDIX D

APPENDIX E

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: McCain Drain

4) DOCUMENT TYPE: Summary

****
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

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOK*S	VCH	AREA	.01K
30.000	2100.00	0.00	0.00	950.20	234.00	954.76	0.00	954.80	8.96	1.78	254.43	78.16
30.000	2100.00	0.00	0.00	950.20	312.00	955.48	0.00	955.50	4.94	1.53	487.13	140.34
30.000	2100.00	0.00	0.00	950.20	360.00	955.67	0.00	955.70	4.96	1.58	562.03	161.61
30.000	2100.00	0.00	0.00	950.20	520.00	956.10	0.00	956.13	5.74	1.83	740.26	217.03
30.600	1725.00	0.00	0.00	951.00	234.00	956.05	0.00	956.08	6.19	1.53	341.82	94.07
30.600	1725.00	0.00	0.00	951.00	312.00	956.42	0.00	956.44	6.04	1.63	440.88	126.98
30.600	1725.00	0.00	0.00	951.00	360.00	956.61	0.00	956.64	6.07	1.69	494.11	146.11
30.600	1725.00	0.00	0.00	951.00	520.00	957.14	0.00	957.18	6.40	1.90	646.27	205.55
30.700	375.00	0.00	0.00	951.00	234.00	956.30	0.00	956.35	8.04	1.83	198.76	82.52
30.700	375.00	0.00	0.00	951.00	312.00	956.67	0.00	956.73	9.11	2.10	241.15	103.38
30.700	375.00	0.00	0.00	951.00	360.00	956.87	0.00	956.94	9.72	2.24	263.82	115.46
30.700	375.00	0.00	0.00	951.00	520.00	957.42	0.00	957.51	11.70	2.69	326.61	152.05
30.800	139.00	0.00	0.00	950.80	234.00	956.39	0.00	956.44	5.50	1.82	165.99	99.81
30.800	139.00	0.00	0.00	950.80	312.00	956.78	0.00	956.84	7.27	2.21	183.02	115.72
30.800	139.00	0.00	0.00	950.80	360.00	956.99	0.00	957.07	8.34	2.44	192.17	124.64
30.800	139.00	0.00	0.00	950.80	520.00	957.56	0.00	957.69	11.85	3.12	217.95	151.08
30.900	62.00	0.00	0.00	950.80	234.00	956.40	0.00	956.57	28.69	3.25	71.89	43.69
30.900	62.00	0.00	0.00	950.80	312.00	956.78	0.00	957.03	41.87	4.04	77.20	48.22
30.900	62.00	0.00	0.00	950.80	360.00	956.98	0.00	957.29	50.55	4.50	80.00	50.64
30.900	62.00	0.00	0.00	950.80	520.00	957.51	0.00	958.06	82.59	5.94	87.49	57.22
32.100	188.00	960.30	957.50	950.80	234.00	956.42	0.00	956.57	2.15	3.10	75.54	159.67
32.100	188.00	960.30	957.50	950.80	312.00	956.82	0.00	957.05	3.14	3.85	81.10	175.94
32.100	188.00	960.30	957.50	950.80	360.00	957.03	0.00	957.32	3.79	4.28	84.10	184.82
32.100	188.00	960.30	957.50	950.80	520.00	958.33	0.00	958.73	4.68	5.08	102.38	240.44
32.300	42.00	0.00	0.00	950.90	212.00	956.56	0.00	956.62	5.56	1.93	150.83	89.87
32.300	42.00	0.00	0.00	950.90	283.00	957.05	0.00	957.12	6.33	2.21	190.97	112.46
32.300	42.00	0.00	0.00	950.90	326.00	957.33	0.00	957.40	6.58	2.34	216.91	127.09
32.300	42.00	0.00	0.00	950.90	471.00	958.80	0.00	958.85	3.90	2.13	415.18	238.65

MOORE BUSINESS FORMS, INC 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
32.700	1000.00	0.00	0.00	951.80	212.00	957.14	0.00	957.21	6.20	2.23	141.41	85.17
32.700	1000.00	0.00	0.00	951.80	283.00	957.68	0.00	957.75	6.23	2.41	199.48	113.38
32.700	1000.00	0.00	0.00	951.80	326.00	957.96	0.00	958.03	6.01	2.46	238.37	132.93
32.700	1000.00	0.00	0.00	951.80	471.00	959.18	0.00	959.22	3.45	2.14	465.05	253.66
32.800	200.00	0.00	0.00	951.80	212.00	957.26	0.00	957.33	5.94	2.33	108.35	86.99
32.800	200.00	0.00	0.00	951.80	283.00	957.79	0.00	957.89	7.03	2.73	129.06	106.73
32.800	200.00	0.00	0.00	951.80	326.00	958.07	0.00	958.19	7.57	2.93	144.26	118.46
32.800	200.00	0.00	0.00	951.80	471.00	959.22	0.00	959.35	6.87	3.18	209.97	179.72
32.900	72.00	0.00	0.00	952.00	212.00	957.32	0.00	957.39	7.55	2.13	99.56	77.17
32.900	72.00	0.00	0.00	952.00	283.00	957.86	0.00	957.96	9.72	2.57	111.27	90.77
32.900	72.00	0.00	0.00	952.00	326.00	958.14	0.00	958.26	11.05	2.78	117.38	98.07
32.900	72.00	0.00	0.00	952.00	471.00	959.28	0.00	959.45	13.36	3.31	142.08	128.86
33.100	50.00	960.60	957.90	952.00	196.00	957.34	0.00	957.46	13.16	2.78	70.45	54.03
33.100	50.00	960.60	957.90	952.00	262.00	958.12	0.00	958.19	2.74	2.20	119.35	158.35
33.100	50.00	960.60	957.90	952.00	302.00	958.50	0.00	958.59	3.00	2.37	127.61	174.29
33.100	50.00	960.60	957.90	952.00	436.00	960.10	0.00	960.21	3.17	2.68	162.44	244.81
33.300	50.00	0.00	0.00	952.10	196.00	957.49	0.00	957.52	3.76	1.39	200.75	101.05
33.300	50.00	0.00	0.00	952.10	262.00	958.20	0.00	958.23	3.02	1.37	285.80	150.84
33.300	50.00	0.00	0.00	952.10	302.00	958.60	0.00	958.62	2.70	1.36	333.50	183.80
33.300	50.00	0.00	0.00	952.10	436.00	960.24	0.00	960.25	1.53	1.22	530.07	352.13
33.400	75.00	0.00	0.00	952.10	196.00	957.52	0.00	957.54	2.87	1.36	229.52	115.70
33.400	75.00	0.00	0.00	952.10	262.00	958.23	0.00	958.24	2.11	1.28	368.26	180.24
33.400	75.00	0.00	0.00	952.10	302.00	958.62	0.00	958.64	1.75	1.22	460.58	228.11
33.400	75.00	0.00	0.00	952.10	436.00	960.26	0.00	960.26	.64	.88	1015.73	543.04
33.500	1100.00	0.00	0.00	953.00	196.00	957.91	0.00	957.95	4.73	1.69	130.07	90.13
33.500	1100.00	0.00	0.00	953.00	262.00	958.52	0.00	958.56	4.02	1.71	294.95	130.72
33.500	1100.00	0.00	0.00	953.00	302.00	958.85	0.00	958.88	2.71	1.46	559.47	183.46
33.500	1100.00	0.00	0.00	953.00	436.00	960.30	0.00	960.30	.26	.53	2589.59	854.48
33.800	1550.00	0.00	0.00	954.80	196.00	959.09	0.00	959.19	16.01	2.68	85.39	48.99
33.800	1550.00	0.00	0.00	954.80	262.00	959.59	0.00	959.72	17.43	3.05	101.93	62.76
33.800	1550.00	0.00	0.00	954.80	302.00	959.66	0.00	959.82	21.72	3.45	104.25	64.79
33.800	1550.00	0.00	0.00	954.80	436.00	960.26	0.00	960.51	27.38	4.25	124.10	83.32
33.900	44.00	0.00	0.00	955.10	196.00	959.11	0.00	959.44	78.91	4.59	42.71	22.06
33.900	44.00	0.00	0.00	955.10	262.00	959.58	0.00	960.04	103.27	5.48	47.81	25.78
33.900	44.00	0.00	0.00	955.10	302.00	959.63	0.00	960.24	132.52	6.24	48.43	26.23
33.900	44.00	0.00	0.00	955.10	436.00	960.14	0.00	961.15	205.47	8.08	53.99	30.42
34.100	46.00	962.20	960.50	955.10	196.00	959.28	0.00	959.75	36.66	5.46	35.88	32.37
34.100	46.00	962.20	960.50	955.10	262.00	959.81	0.00	960.52	59.67	6.76	38.77	33.92
34.100	46.00	962.20	960.50	955.10	302.00	959.94	0.00	960.86	79.38	7.69	39.27	33.90
34.100	46.00	962.20	960.50	955.10	436.00	961.59	0.00	962.25	27.04	6.50	67.04	83.84

MOORE BUSINESS FORMS, INC 23

MOORE BUSINESS FORMS, INC 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.300	50.00	0.00	0.00	955.10	196.00	959.86	0.00	959.93	6.71	2.26	118.87	75.66
34.300	50.00	0.00	0.00	955.10	262.00	960.71	0.00	960.77	4.66	2.15	199.42	121.38
34.300	50.00	0.00	0.00	955.10	302.00	961.12	0.00	961.17	4.08	2.13	244.15	149.57
34.300	50.00	0.00	0.00	955.10	436.00	962.42	0.00	962.47	2.77	2.04	387.48	262.12
34.400	70.00	0.00	0.00	955.10	196.00	959.92	0.00	959.98	7.61	2.16	123.49	71.05
34.400	70.00	0.00	0.00	955.10	262.00	960.76	0.00	960.81	5.16	2.03	217.88	115.35
34.400	70.00	0.00	0.00	955.10	302.00	961.16	0.00	961.20	4.19	1.93	299.48	147.52
34.400	70.00	0.00	0.00	955.10	436.00	962.47	0.00	962.48	1.56	1.37	824.46	349.30
34.700	950.00	0.00	0.00	955.20	196.00	960.29	0.00	960.31	1.91	1.22	240.53	141.84
34.700	950.00	0.00	0.00	955.20	262.00	961.02	0.00	961.04	1.38	1.15	443.38	223.09
34.700	950.00	0.00	0.00	955.20	302.00	961.38	0.00	961.39	1.16	1.10	562.21	280.73
34.700	950.00	0.00	0.00	955.20	436.00	962.57	0.00	962.58	.66	.94	958.39	537.56
34.800	600.00	0.00	0.00	955.20	196.00	960.41	0.00	960.44	2.44	1.35	150.37	125.36
34.800	600.00	0.00	0.00	955.20	262.00	961.12	0.00	961.16	2.79	1.56	173.80	156.93
34.800	600.00	0.00	0.00	955.20	302.00	961.46	0.00	961.51	3.05	1.69	185.16	173.04
34.800	600.00	0.00	0.00	955.20	436.00	962.61	0.00	962.67	3.60	2.04	222.88	229.93
34.900	44.00	0.00	0.00	955.30	158.00	960.41	0.00	960.47	8.05	1.99	79.42	55.70
34.900	44.00	0.00	0.00	955.30	236.00	961.11	0.00	961.21	12.17	2.59	91.13	67.65
34.900	44.00	0.00	0.00	955.30	296.00	961.44	0.00	961.58	16.19	3.06	96.76	73.56
34.900	44.00	0.00	0.00	955.30	484.00	962.54	0.00	962.81	26.61	4.19	115.44	93.82
35.100	80.00	963.40	959.60	955.30	158.00	960.60	0.00	960.66	.80	1.92	82.47	176.28
35.100	80.00	963.40	959.60	955.30	236.00	961.57	0.00	961.66	1.07	2.39	98.94	227.63
35.100	80.00	963.40	959.60	955.30	296.00	962.19	0.00	962.30	1.28	2.70	109.48	261.79
35.100	80.00	963.40	959.60	955.30	484.00	963.62	0.00	963.82	1.97	3.61	155.56	344.53
35.300	50.00	0.00	0.00	954.20	158.00	960.66	0.00	960.67	.48	.79	266.89	227.47
35.300	50.00	0.00	0.00	954.20	236.00	961.67	0.00	961.68	.52	.91	389.79	327.89
35.300	50.00	0.00	0.00	954.20	296.00	962.32	0.00	962.34	.53	.98	469.29	405.44
35.300	50.00	0.00	0.00	954.20	484.00	963.86	0.00	963.88	.61	1.18	657.24	621.68
35.800	490.00	0.00	0.00	954.70	158.00	960.70	0.00	960.72	1.75	1.10	144.36	119.56
35.800	490.00	0.00	0.00	954.70	236.00	961.70	0.00	961.72	1.34	1.13	302.66	203.51
35.800	490.00	0.00	0.00	954.70	296.00	962.36	0.00	962.37	.99	1.06	474.20	297.26
35.800	490.00	0.00	0.00	954.70	484.00	963.90	0.00	963.90	.36	.76	1501.58	811.19
35.900	36.00	0.00	0.00	955.10	158.00	960.66	0.00	960.78	16.02	2.87	55.10	39.48
35.900	36.00	0.00	0.00	955.10	236.00	961.69	0.00	961.76	10.45	2.59	174.47	73.00
35.900	36.00	0.00	0.00	955.10	296.00	962.35	0.00	962.38	4.97	1.92	330.38	132.74
35.900	36.00	0.00	0.00	955.10	484.00	963.90	0.00	963.91	1.29	1.12	922.19	425.55
36.000	1.00	960.80	958.00	955.10	158.00	960.20	957.55	961.25	317.83	8.24	19.17	8.86
36.000	1.00	960.80	958.00	955.10	236.00	961.68	0.00	961.77	49.45	3.35	137.06	33.56
36.000	1.00	960.80	958.00	955.10	296.00	962.37	0.00	962.39	10.92	1.83	293.34	89.57
36.000	1.00	960.80	958.00	955.10	484.00	963.90	0.00	963.91	1.68	.93	884.20	373.86

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
36.100	41.00	960.80	958.00	955.10	158.00	961.73	0.00	961.76	19.40	2.12	144.70	35.87
36.100	41.00	960.80	958.00	955.10	236.00	961.88	0.00	961.92	25.85	2.54	177.63	46.42
36.100	41.00	960.80	958.00	955.10	296.00	962.41	0.00	962.43	9.81	1.75	305.26	94.49
36.100	41.00	960.80	958.00	955.10	484.00	963.91	0.00	963.91	1.65	.92	890.52	376.33
36.200	1.00	0.00	0.00	955.10	158.00	961.73	0.00	961.76	4.24	1.66	185.56	76.70
36.200	1.00	0.00	0.00	955.10	236.00	961.88	0.00	961.93	7.31	2.21	215.88	87.30
36.200	1.00	0.00	0.00	955.10	296.00	962.41	0.00	962.44	4.54	1.84	344.71	138.99
36.200	1.00	0.00	0.00	955.10	484.00	963.91	0.00	963.91	1.28	1.12	928.84	428.17
36.300	50.00	0.00	0.00	956.30	158.00	961.77	0.00	961.78	1.06	.90	256.18	153.42
36.300	50.00	0.00	0.00	956.30	236.00	961.93	0.00	961.95	1.90	1.24	294.37	171.19
36.300	50.00	0.00	0.00	956.30	296.00	962.43	0.00	962.45	1.47	1.18	441.24	244.48
36.300	50.00	0.00	0.00	956.30	484.00	963.91	0.00	963.92	.44	.78	1455.52	733.60
36.800	150.00	0.00	0.00	956.30	158.00	961.78	0.00	961.80	1.04	.89	259.69	155.02
36.800	150.00	0.00	0.00	956.30	236.00	961.96	0.00	961.98	1.82	1.22	301.48	174.73
36.800	150.00	0.00	0.00	956.30	296.00	962.46	0.00	962.47	1.44	1.17	445.39	246.57
36.800	150.00	0.00	0.00	956.30	484.00	963.92	0.00	963.92	.43	.77	1465.23	739.63
36.900	50.00	0.00	0.00	955.10	158.00	961.79	0.00	961.81	3.88	1.60	196.05	80.25
36.900	50.00	0.00	0.00	955.10	236.00	961.97	0.00	962.01	6.22	2.06	236.11	94.63
36.900	50.00	0.00	0.00	955.10	296.00	962.46	0.00	962.49	4.13	1.76	360.95	145.72
36.900	50.00	0.00	0.00	955.10	484.00	963.92	0.00	963.93	1.22	1.09	955.57	438.69
37.000	1.00	960.80	958.30	955.10	158.00	961.79	0.00	961.81	14.38	1.92	160.05	41.66
37.000	1.00	960.80	958.30	955.10	236.00	961.98	0.00	962.01	18.46	2.26	199.65	54.92
37.000	1.00	960.80	958.30	955.10	296.00	962.47	0.00	962.49	8.19	1.66	323.69	103.45
37.000	1.00	960.80	958.30	955.10	484.00	963.92	0.00	963.93	1.59	.92	905.60	383.48
37.100	40.50	960.80	958.30	955.10	158.00	961.85	0.00	961.87	11.92	1.77	172.70	45.76
37.100	40.50	960.80	958.30	955.10	236.00	962.05	0.00	962.08	14.55	2.04	219.09	61.86
37.100	40.50	960.80	958.30	955.10	296.00	962.51	0.00	962.52	7.56	1.60	333.14	107.66
37.100	40.50	960.80	958.30	955.10	484.00	963.93	0.00	963.94	1.57	.91	911.47	385.79
37.200	1.00	0.00	0.00	955.10	158.00	961.85	0.00	961.87	3.50	1.53	208.14	84.47
37.200	1.00	0.00	0.00	955.10	236.00	962.05	0.00	962.08	5.37	1.93	255.08	101.81
37.200	1.00	0.00	0.00	955.10	296.00	962.50	0.00	962.53	3.82	1.71	373.25	151.37
37.200	1.00	0.00	0.00	955.10	484.00	963.93	0.00	963.94	1.20	1.08	962.49	441.46
37.300	50.00	0.00	0.00	955.10	158.00	961.86	0.00	961.90	4.68	1.77	144.82	73.06
37.300	50.00	0.00	0.00	955.10	236.00	962.07	0.00	962.13	7.98	2.36	165.71	83.55
37.300	50.00	0.00	0.00	955.10	296.00	962.51	0.00	962.57	7.24	2.35	211.23	110.00
37.300	50.00	0.00	0.00	955.10	484.00	963.92	0.00	963.96	4.93	2.20	351.96	217.99
38.000	1375.00	0.00	0.00	957.75	158.00	962.30	0.00	962.31	2.08	1.07	299.23	109.54
38.000	1375.00	0.00	0.00	957.75	236.00	962.62	0.00	962.64	2.06	1.14	450.12	164.45
38.000	1375.00	0.00	0.00	957.75	296.00	962.96	0.00	962.97	1.54	1.06	619.43	238.77
38.000	1375.00	0.00	0.00	957.75	484.00	964.14	0.00	964.15	.58	.79	1295.08	634.39

MOORE BUSINESS FORMS, INC. 23

MC CAIN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	234.00	954.76	0.00	0.00	0.00	273.33	2100.00
30.000	312.00	955.48	.72	0.00	0.00	387.98	2100.00
30.000	360.00	955.67	.19	0.00	0.00	400.41	2100.00
30.000	520.00	956.10	.43	0.00	0.00	428.54	2100.00
30.600	234.00	956.05	0.00	1.29	0.00	258.71	1725.00
30.600	312.00	956.42	.37	.94	0.00	271.11	1725.00
30.600	360.00	956.61	.19	.94	0.00	277.54	1725.00
30.600	520.00	957.14	.53	1.04	0.00	295.15	1725.00
30.700	234.00	956.30	0.00	.25	0.00	114.00	375.00
30.700	312.00	956.67	.37	.25	.37	114.00	375.00
30.700	360.00	956.87	.20	.26	.57	114.00	375.00
30.700	520.00	957.42	.55	.28	1.12	114.00	375.00
30.800	234.00	956.39	0.00	.09	0.00	45.00	139.00
30.800	312.00	956.78	.39	.11	.39	45.00	139.00
30.800	360.00	956.99	.21	.12	.59	45.00	139.00
30.800	520.00	957.56	.57	.14	1.17	45.00	139.00
30.900	234.00	956.40	0.00	.01	0.00	14.09	62.00
30.900	312.00	956.78	.38	-.00	.38	14.09	62.00
30.900	360.00	956.98	.20	-.01	.58	14.09	62.00
30.900	520.00	957.51	.53	-.05	1.11	14.09	62.00
32.100	234.00	956.42	0.00	.02	0.00	14.09	188.00
32.100	312.00	956.82	.39	.04	.39	14.09	188.00
32.100	360.00	957.03	.21	.06	.61	14.09	188.00
32.100	520.00	958.33	1.30	.82	1.90	14.09	188.00
32.300	212.00	956.56	0.00	.14	0.00	75.75	42.00
32.300	283.00	957.05	.49	.23	.49	89.14	42.00
32.300	326.00	957.33	.28	.30	.77	97.11	42.00
32.300	471.00	958.80	1.47	.47	2.24	176.73	42.00
32.700	212.00	957.14	0.00	.58	0.00	92.40	1000.00
32.700	283.00	957.68	.54	.63	.54	125.17	1000.00
32.700	326.00	957.96	.29	.64	.82	144.78	1000.00
32.700	471.00	959.18	1.22	.38	2.04	250.41	1000.00
32.800	212.00	957.26	0.00	.11	0.00	32.39	200.00
32.800	283.00	957.79	.53	.11	.53	51.17	200.00
32.800	326.00	958.07	.28	.10	.81	57.00	200.00
32.800	471.00	959.22	1.15	.04	1.96	57.00	200.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CvSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
32.900	212.00	957.32	0.00	.06	0.00	21.74	72.00
32.900	283.00	957.86	.54	.07	.54	21.74	72.00
32.900	326.00	958.14	.28	.07	.82	21.74	72.00
32.900	471.00	959.28	1.14	.06	1.96	21.74	72.00
33.100	196.00	957.34	0.00	.02	0.00	21.74	50.00
33.100	262.00	958.12	.78	.26	.78	21.74	50.00
33.100	302.00	958.50	.38	.36	1.16	21.74	50.00
33.100	436.00	960.10	1.60	.82	2.76	21.74	50.00
33.300	196.00	957.49	0.00	.15	0.00	119.29	50.00
33.300	262.00	958.20	.71	.08	.71	120.00	50.00
33.300	302.00	958.60	.40	.10	1.11	120.00	50.00
33.300	436.00	960.24	1.64	.14	2.74	120.00	50.00
33.400	196.00	957.52	0.00	.03	0.00	174.71	75.00
33.400	262.00	958.23	.71	.02	.71	219.29	75.00
33.400	302.00	958.62	.40	.02	1.10	247.76	75.00
33.400	436.00	960.26	1.63	.02	2.74	457.34	75.00
33.500	196.00	957.91	0.00	.38	0.00	72.81	1100.00
33.500	262.00	958.52	.62	.30	.62	567.17	1100.00
33.500	302.00	958.85	.33	.23	.95	992.98	1100.00
33.500	436.00	960.30	1.45	.05	2.40	1645.20	1100.00
33.800	196.00	959.09	0.00	1.19	0.00	33.00	1550.00
33.800	262.00	959.59	.50	1.07	.50	33.00	1550.00
33.800	302.00	959.66	.07	.80	.57	33.00	1550.00
33.800	436.00	960.26	.60	-.04	1.17	33.00	1550.00
33.900	196.00	959.11	0.00	.02	0.00	11.00	44.00
33.900	262.00	959.58	.46	-.01	.46	11.00	44.00
33.900	302.00	959.63	.06	-.03	.52	11.00	44.00
33.900	436.00	960.14	.51	-.12	1.02	11.00	44.00
34.100	196.00	959.28	0.00	.17	0.00	11.00	46.00
34.100	262.00	959.81	.53	.23	.53	11.00	46.00
34.100	302.00	959.94	.13	.31	.66	11.00	46.00
34.100	436.00	961.59	1.66	1.46	2.31	11.00	46.00
34.300	196.00	959.86	0.00	.57	0.00	78.29	50.00
34.300	262.00	960.71	.86	.90	.86	110.00	50.00
34.300	302.00	961.12	.40	1.18	1.26	110.00	50.00
34.300	436.00	962.42	1.31	.83	2.57	110.00	50.00
34.400	196.00	959.92	0.00	.06	0.00	80.88	70.00
34.400	262.00	960.76	.84	.04	.84	150.65	70.00
34.400	302.00	961.16	.40	.04	1.24	249.07	70.00
34.400	436.00	962.47	1.31	.05	2.56	972.91	70.00

MOORE BUSINESS FORMS, INC 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
34.700	196.00	960.29	0.00	.37	0.00	215.98	950.00
34.700	262.00	961.02	.74	.27	.74	324.32	950.00
34.700	302.00	961.38	.36	.22	1.09	333.00	950.00
34.700	436.00	962.57	1.19	.10	2.28	333.00	950.00
34.800	196.00	960.41	0.00	.12	0.00	33.00	600.00
34.800	262.00	961.12	.71	.10	.71	33.00	600.00
34.800	302.00	961.46	.34	.08	1.05	33.00	600.00
34.800	436.00	962.61	1.14	.04	2.20	33.00	600.00
34.900	158.00	960.41	0.00	.00	0.00	17.00	44.00
34.900	236.00	961.11	.70	-.01	.70	17.00	44.00
34.900	296.00	961.44	.33	-.02	1.03	17.00	44.00
34.900	424.00	962.54	1.10	-.07	2.13	17.00	44.00
35.100	158.00	960.60	0.00	.19	0.00	17.00	80.00
35.100	236.00	961.57	.97	.46	.97	17.00	80.00
35.100	296.00	962.19	.62	.75	1.59	17.00	80.00
35.100	484.00	963.62	1.43	1.08	3.02	219.47	80.00
35.300	158.00	960.66	0.00	.07	0.00	119.10	50.00
35.300	236.00	961.67	1.01	.10	1.01	122.00	50.00
35.300	296.00	962.32	.65	.14	1.66	122.00	50.00
35.300	484.00	963.86	1.54	.25	3.20	122.00	50.00
35.800	158.00	960.70	0.00	.03	0.00	65.85	490.00
35.800	236.00	961.70	1.01	.03	1.01	217.47	490.00
35.800	296.00	962.36	.65	.03	1.66	317.34	490.00
35.800	484.00	963.90	1.54	.03	3.20	801.41	490.00
35.900	158.00	960.66	0.00	-.04	0.00	11.00	36.00
35.900	236.00	961.69	1.03	-.02	1.03	200.13	36.00
35.900	296.00	962.35	.67	-.00	1.70	263.12	36.00
35.900	484.00	963.90	1.54	.00	3.24	696.95	36.00
36.000	158.00	960.20	0.00	-.46	0.00	11.00	1.00
36.000	236.00	961.68	1.48	-.00	1.48	200.19	1.00
36.000	296.00	962.37	.68	.01	2.17	263.29	1.00
36.000	484.00	963.90	1.53	.00	3.70	696.56	1.00
36.100	158.00	961.73	0.00	1.53	0.00	203.73	41.00
36.100	236.00	961.88	.15	.20	.15	218.33	41.00
36.100	296.00	962.41	.53	.04	.68	267.58	41.00
36.100	484.00	963.91	1.50	.01	2.18	794.13	41.00
36.200	158.00	961.73	0.00	.00	0.00	205.25	1.00
36.200	236.00	961.88	.14	-.00	.14	218.64	1.00
36.200	296.00	962.41	.53	-.00	.67	268.37	1.00
36.200	484.00	963.91	1.50	-.00	2.17	794.23	1.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
36.300	158.00	961.77	0.00	.03	0.00	218.25	50.00
36.300	236.00	961.93	.17	.06	.17	244.68	50.00
36.300	296.00	962.43	.50	.03	.67	331.23	50.00
36.300	484.00	963.91	1.48	.01	2.14	802.64	50.00
36.800	158.00	961.78	0.00	.02	0.00	220.76	150.00
36.800	236.00	961.96	.18	.03	.18	249.57	150.00
36.800	296.00	962.46	.49	.02	.67	333.34	150.00
36.800	484.00	963.92	1.46	.01	2.14	803.53	150.00
36.900	158.00	961.79	0.00	.00	0.00	211.12	50.00
36.900	236.00	961.97	.18	.00	.18	229.28	50.00
36.900	296.00	962.46	.50	.01	.68	279.44	50.00
36.900	484.00	963.92	1.46	.00	2.14	804.34	50.00
37.000	158.00	961.79	0.00	.00	0.00	210.68	1.00
37.000	236.00	961.98	.19	.01	.19	228.81	1.00
37.000	296.00	962.47	.50	.01	.69	279.46	1.00
37.000	484.00	963.92	1.45	.00	2.14	804.36	1.00
37.100	158.00	961.85	0.00	.06	0.00	216.63	40.50
37.100	236.00	962.05	.21	.08	.21	237.24	40.50
37.100	296.00	962.51	.45	.03	.66	283.46	40.50
37.100	484.00	963.93	1.42	.01	2.09	805.06	40.50
37.200	158.00	961.85	0.00	-.00	0.00	216.76	1.00
37.200	236.00	962.05	.20	-.00	.20	237.40	1.00
37.200	296.00	962.50	.45	-.00	.66	284.53	1.00
37.200	484.00	963.93	1.43	-.00	2.08	805.15	1.00
37.300	158.00	961.86	0.00	.01	0.00	100.00	50.00
37.300	236.00	962.07	.21	.02	.21	100.00	50.00
37.300	296.00	962.51	.45	.01	.65	100.00	50.00
37.300	484.00	963.92	1.41	-.01	2.06	100.00	50.00
38.000	158.00	962.30	0.00	.44	0.00	434.04	1375.00
38.000	236.00	962.62	.32	.56	.32	479.28	1375.00
38.000	296.00	962.96	.34	.45	.66	522.18	1375.00
38.000	484.00	964.14	1.18	.22	1.84	611.92	1375.00

MOORE BUSINESS FORMS, INC. 23

SUMMARY OF FRRORS

MOORE [illegible], INC 43

FLOOD INSURANCE ZONE DATA FOR MC CAIN DRAIN

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
30.000	0.	-.91	-.19	.43
30.600	1725.	-.56	-.19	.53
30.700	2100.	-.57	-.20	.55
30.800	2239.	-.59	-.21	.57
30.900	2301.	-.58	-.20	.53
32.100	2489.	-.61	-.21	1.30
32.300	2531.	-.77	-.28	1.47
32.700	3531.	-.82	-.29	1.22
32.800	3731.	-.81	-.28	1.15
32.900	3803.	-.82	-.28	1.14
33.100	3853.	-1.16	-.38	1.60
33.300	3903.	-1.11	-.40	1.64
33.400	3978.	-1.10	-.40	1.63
33.500	5078.	-.95	-.33	1.45
33.800	6628.	-.57	-.07	.60
33.900	6672.	-.52	-.06	.51
34.100	6718.	-.66	-.13	1.66
34.300	6768.	-1.26	-.40	1.31
34.400	6838.	-1.24	-.40	1.31
34.700	7788.	-1.09	-.36	1.19
34.800	8388.	-1.05	-.34	1.14
34.900	8432.	-1.03	-.33	1.10
35.100	8512.	-1.59	-.62	1.43
35.300	8562.	-1.66	-.65	1.54
35.800	9052.	-1.66	-.65	1.54
35.900	9088.	-1.70	-.67	1.54
36.000	9089.	-2.17	-.68	1.53
36.100	9130.	-.68	-.53	1.50
36.200	9131.	-.67	-.53	1.50
36.300	9181.	-.67	-.50	1.48
36.800	9331.	-.67	-.49	1.46
36.900	9381.	-.68	-.50	1.46
37.000	9382.	-.69	-.50	1.45
37.100	9423.	-.66	-.45	1.42
37.200	9424.	-.66	-.45	1.43
37.300	9474.	-.65	-.45	1.41
38.000	10849.	-.66	-.34	1.18

MOORE BUSINESS FORMS, INC 23

WEIGHTED AVG FOR REACH -.87 -.31 1.12

FHF FOR THE REACH = 010 WITH 94.3 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

MOORE BUSINESS FORMS INC 73



1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Peterson Lake Drain

4) DOCUMENT TYPE: 100 yr run 1980



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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      FIS SUMMIT TOWNSHIP, JACKSON COUNTY, MICHIGAN
T2      100-YEAR FLOOD
T3      PETERSON LAKE DRAIN
```

approved submittal

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ	
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	967.270	0.000	
J2	NPROF	IPLCT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE	
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
J3	VARIABLE CODES FOR SUMMARY PRINTOUT										
	38.000	1.000	42.000	41.000	40.000	53.000	27.000	21.000	22.000	28.000	
	54.000	4.000	39.000	0.000	150.000	0.000	0.000	0.000	0.000	0.000	
NC	.100	.100	.040	.100	.300	0.000	0.000	0.000	0.000	0.000	
QT	4.000	167.000	0.000	276.000	0.000	0.000	0.000	0.000	0.000	0.000	

VALLEY SECTION A

X1	39.800	12.000	2000.000	2007.000	0.000	0.000	0.000	0.000	0.000	0.000	
X3	0.000	0.000	0.000	1990.000	0.000	2017.000	0.000	0.000	0.000	0.000	
GR	970.300	1879.000	962.000	1905.000	961.200	1917.000	962.300	1925.000	962.800	1999.000	
GR	961.700	2000.000	961.300	2003.500	961.900	2007.000	962.500	2008.000	963.200	2015.000	
GR	967.200	2023.000	966.400	2032.000	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	
QT	4.000	94.000	0.000	149.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	39.900	17.000	2000.000	2004.500	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	966.000	966.000	0.000	
GR	970.000	1300.000	967.300	1830.000	962.500	1830.000	962.900	1910.000	963.000	1995.000	
GR	962.200	1997.000	960.500	2000.000	957.000	2000.500	957.000	2002.000	957.000	2004.000	
GR	960.500	2004.500	962.500	2008.000	963.200	2015.000	962.700	2050.000	963.400	2080.000	
GR	966.200	2100.000	970.000	2150.000	0.000	0.000	0.000	0.000	0.000	0.000	
SB	0.000	2.150	3.000	0.000	4.500	0.000	18.000	0.000	957.000	957.000	

BRIDGE SECTION B UPSTREAM FACE ABANDONED RR

X1	40.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	961.000	966.400	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	966.400	966.400	0.000
BT	15.000	1300.000	970.000	0.000	1830.000	967.300	962.500	1910.000	966.400	962.900
BT	1995.000	966.400	963.000	1997.000	966.400	962.200	2000.000	966.400	960.500	2000.000
BT	966.400	961.000	2004.500	966.400	961.000	2004.500	966.400	960.500	2008.000	966.400
BT	962.500	2015.000	966.400	963.200	2050.000	966.400	962.700	2080.000	966.400	963.400
BT	2100.000	966.400	966.200	2150.000	970.000	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	40.300	13.000	2000.000	2100.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.000	1500.000	966.400	1850.000	964.000	1940.000	962.300	1950.000	962.000	2000.000
GR	961.500	2001.000	961.300	2050.000	961.500	2099.000	962.000	2100.000	964.000	2120.000
GR	964.800	2200.000	968.000	2250.000	972.000	2370.000	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	40.800	11.000	2000.000	2008.000	115.000	115.000	115.000	0.000	0.000	0.000
GR	972.000	1800.000	964.000	1850.000	963.000	1860.000	963.000	2000.000	961.000	2003.000
GR	960.700	2004.000	962.000	2006.000	963.000	2008.000	964.000	2070.000	968.000	2200.000
GR	972.000	2350.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	40.900	14.000	2000.000	2003.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	972.000	1800.000	964.000	1850.000	963.000	1860.000	963.000	2000.000	960.800	2000.000
GR	960.700	2000.500	960.500	2001.500	960.800	2002.500	961.000	2003.000	963.000	2003.000
GR	963.000	2060.000	964.000	2070.000	968.000	2200.000	972.000	2350.000	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	41.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	14.000	1800.000	972.000	0.000	1850.000	964.000	0.000	1860.000	963.000	0.000
BT	2000.000	963.000	960.800	2000.000	963.000	961.800	2000.500	963.000	962.500	2001.500
BT	963.000	962.800	2002.500	963.000	962.700	2003.000	963.000	962.000	2003.000	963.000
BT	961.000	2060.000	963.000	0.000	2070.000	964.000	0.000	2200.000	968.000	0.000
BT	2350.000	972.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION C UPSTREAM FACE UNNAMED BRIDGE

X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	41.200	0.000	0.000	0.000	1.000	1.000	1.000	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	41.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	4.000	42.000	0.000	58.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	42.000	12.000	2000.000	2010.000	570.000	570.000	570.000	0.000	0.000	0.000
GR	970.000	700.000	966.000	1200.000	965.000	1300.000	964.000	2000.000	961.800	2002.000
GR	961.500	2005.000	962.000	2007.000	964.000	2010.000	965.000	2300.000	968.000	2400.000
GR	970.000	2700.000	972.000	2800.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	84.000	0.000	145.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION E

X1	50.000	11.000	2000.000	2020.000	1150.000	1150.000	1150.000	0.000	0.000	0.000
X5	-4.000	.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	970.000	600.000	968.000	1200.000	964.700	1220.000	964.700	1800.000	964.000	2000.000
GR	963.000	2005.000	961.500	2010.000	962.000	2015.000	964.200	2020.000	964.700	3000.000
GR	970.000	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	50.800	12.000	2000.000	2021.000	580.000	580.000	580.000	0.000	0.000	0.000
GR	972.000	1550.000	969.400	1850.000	967.300	1900.000	965.400	1910.000	965.400	2000.000
GR	964.500	2007.000	964.000	2010.000	964.600	2015.000	965.300	2021.000	965.400	2200.000
GR	967.800	2250.000	969.500	2400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	50.900	9.000	2000.000	2003.000	80.000	25.000	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	973.000	1400.000	966.400	2000.000	965.400	2000.000	964.700	2000.500	964.600	2001.500
GR	964.700	2002.500	965.400	2003.000	966.400	2003.000	969.500	2500.000	0.000	0.000
SB	0.000	3.300	3.000	0.000	2.370	0.000	7.100	0.000	964.600	964.600

BRIDGE SECTION F UPSTREAM FACE VROOMAN ROAD

X1	51.100	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	967.100	968.300	0.000	0.000	0.000	0.000	0.000
BT	7.000	1400.000	973.000	0.000	2000.000	968.900	966.400	2000.500	968.900	967.100
BT	2001.500	968.900	967.400	2002.500	968.900	967.100	2003.000	968.300	966.400	2500.000
BT	969.500	0.000	0.000	0.000	0.000	0.000	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

VALLEY SECTION G

X1	52.000	8.000	2000.000	2020.000	500.000	1200.000	1000.000	0.000	0.000	0.000
GR	972.000	1750.000	968.000	2000.000	967.000	2005.000	966.000	2010.000	967.000	2015.000
GR	968.000	2020.000	968.700	2150.000	972.000	2200.000	0.000	0.000	0.000	0.000

VALLEY SECTION H

X1	53.000	0.000	0.000	0.000	620.000	490.000	610.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 39.800
3280 CROSS SECTION 39.80 EXTENDED .87 FEET

3470 ENCROACHMENT STATIONS= 1990.0 2017.0 TYPE= 1 TARGET= 27.000
VALLEY SECTION A

39.80	5.97	967.27	0.00	967.27	967.45	.18	0.00	0.00	961.70
276.	61.	169.	56.	46.	40.	43.	0.	0.	961.90
0.00	1.12	4.23	1.30	.100	.040	.100	0.000	961.30	1990.00
.001282	0.	0.	0.	0	0	0	0.00	27.00	2017.00

CCHV= .300 CEHV= .500
*SECNO 39.900

39.90	10.50	967.50	0.00	0.00	967.50	.00	.00	.05	960.50
149.	92.	13.	45.	804.	46.	412.	1.	0.	960.50
.09	.11	.28	.11	.100	.040	.100	.039	957.00	1789.94
.000008	40.	40.	40.	2	0	0	0.00	327.22	2117.16

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	3.00	0.00	4.50	0.00	18.00	0.00	957.00	957.00

*SECNO 40.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
969.79	967.50	0.00	135.	14.	18.	18.	961.00	966.40

BRIDGE SECTION B UPSTREAM FACE ABANDONED RR

40.10	10.52	967.52	0.00	0.00	967.52	.00	.02	0.00	960.50
149.	92.	13.	45.	808.	46.	414.	1.	0.	960.50
.09	.11	.27	.11	.100	.040	.100	.038	957.00	1785.94
.000008	0.	0.	0.	0	0	6	0.00	331.49	2117.43

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 40.300									
40.30	6.22	967.52	0.00	0.00	967.52	.00	.00	.00	962.00
149.	27.	104.	17.	561.	612.	398.	2.	1.	962.00
.19	.05	.17	.04	.100	.040	.100	.039	961.30	1779.71
.000002	50.	50.	50.	0	0	0	0.00	462.86	2242.57
CCHV= .100 CEHV= .300									
*SECNO 40.800									
40.80	6.82	967.52	0.00	0.00	967.53	.00	.00	.00	963.00
149.	90.	16.	44.	713.	46.	451.	6.	2.	963.00
.42	.13	.34	.10	.100	.040	.100	.039	960.70	1827.97
.000010	115.	115.	115.	0	0	0	0.00	356.59	2184.56
CCHV= .300 CEHV= .500									
*SECNO 40.900									
40.90	7.03	967.53	0.00	0.00	967.53	.00	.00	.00	963.00
149.	91.	5.	53.	713.	21.	500.	7.	2.	963.00
.53	.13	.24	.11	.100	.040	.100	.039	960.50	1827.97
.000010	50.	50.	50.	0	0	0	0.00	356.59	2184.56
*SECNO 41.000									
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 963.00 MAX ELLC= 962.80									
41.00	7.03	967.53	0.00	0.00	967.53	.00	.00	.00	963.00
149.	91.	6.	53.	713.	19.	500.	7.	2.	963.00
.53	.13	.30	.11	.100	.020	.100	.039	960.50	1827.97
.000010	1.	1.	1.	0	0	0	-1.35	356.61	2184.58
*SECNO 41.100									
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 963.00 MAX ELLC= 962.80									
BRIDGE SECTION C UPSTREAM FACE UNNAMED BRIDGE									
41.10	7.03	967.53	0.00	0.00	967.53	.00	.00	.00	963.00
149.	91.	6.	53.	713.	19.	500.	8.	2.	963.00
.57	.13	.30	.11	.100	.020	.100	.038	960.50	1827.97
.000010	17.	17.	17.	0	0	0	-1.35	356.62	2184.58

SECNO / Q / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / IWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 41.200									
41.20	7.03	967.53	0.00	0.00	967.53	.00	.00	.00	963.00
149.	.88.	9.	51.	713.	21.	500.	8.	2.	963.00
.57	.12	.46	.10	.100	.020	.100	.038	960.50	1827.97
.000010	1.	1.	1.	0	0	0	0.00	356.62	2184.58
*SECNO 41.300									
41.30	7.03	967.53	0.00	0.00	967.53	.00	.00	.00	963.00
149.	.91.	5.	53.	713.	21.	500.	9.	3.	963.00
.69	.13	.24	.11	.100	.040	.100	.038	960.50	1827.96
.000010	50.	50.	50.	0	0	0	0.00	356.63	2184.60

CCHV= .100 CEHV= .300

*SECNO 42.000 VALLEY SECTION D									
42.00	6.03	967.53	0.00	0.00	967.53	.00	.00	.00	964.00
58.	.39.	3.	16.	2472.	52.	986.	40.	14.	964.00
9.56	.02	.05	.02	.100	.040	.100	.039	961.50	1008.50
.000000	570.	570.	570.	0	0	0	0.00	1375.90	2384.40
*SECNO 50.000 WATER EL=X5 CARD= 967.528 VALLEY SECTION E									
50.00	6.03	967.53	0.00	0.00	967.53	.00	.00	.00	964.00
145.	.57.	8.	80.	2300.	98.	3167.	160.	57.	964.20
20.79	.02	.09	.03	.100	.040	.100	.040	961.50	1202.86
.000001	1150.	1150.	1150.	0	0	0	0.00	1903.84	3106.70
*SECNO 50.800									
50.80	3.53	967.53	0.00	0.00	967.53	.00	.00	.00	965.40
145.	.36.	32.	77.	204.	59.	437.	202.	72.	965.30
21.42	.18	.54	.18	.100	.040	.100	.040	964.00	1894.57
.000054	580.	580.	580.	0	0	0	0.00	349.76	2244.33

CCHV= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 50.900									
50.90	2.91	967.51	0.00	0.00	967.56	.05	.01	.02	966.40
145.	42.	30.	73.	57.	8.	101.	202.	73.	966.40
21.43	.73	3.64	.73	.080	.030	.080	.040	964.60	1898.09
.003336	80.	50.	25.	1	0	0	0.00	284.64	2182.73

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.30	3.00	0.00	2.37	0.00	7.10	0.00	964.60	964.60

*SECNO 51.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
988.88	967.56	0.00	109.	37.	7.	6.	967.10	968.30

BRIDGE SECTION F UPSTREAM FACE VROOMAN ROAD

51.10	4.27	968.87	0.00	0.00	968.87	.00	1.31	0.00	966.40
145.	49.	8.	87.	278.	12.	490.	203.	73.	966.40
21.49	.18	.68	.18	.080	.030	.080	.039	964.60	1775.17
.000069	45.	45.	45.	0	0	10	0.00	624.32	2399.49

*SECNO 52.000
VALLEY SECTION G

52.00	3.03	969.03	0.00	0.00	969.08	.05	.18	.03	968.00
145.	12.	93.	40.	33.	41.	90.	213.	82.	968.00
21.66	.37	2.28	.44	.100	.040	.100	.040	966.00	1935.42
.001503	500.	1000.	1200.	2	0	0	0.00	219.63	2155.05

*SECNO 53.000
VALLEY SECTION H

53.00	3.51	969.51	0.00	0.00	969.53	.02	.44	.01	968.00
145.	19.	73.	54.	71.	50.	155.	216.	85.	968.00
21.84	.26	1.45	.35	.100	.040	.100	.040	966.00	1905.99
.000462	620.	610.	490.	1	0	0	0.00	256.19	2162.18

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	964.960	0.000

J2	NPROF	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 39.800

3470 ENCROACHMENT STATIONS= 1990.0 2017.0 TYPE= 1 TARGET= 27.000
VALLEY SECTION A

39.80	3.66	964.96	0.00	964.96	965.20	.24	0.00	0.00	961.70
167.	28.	113.	26.	22.	24.	20.	0.	0.	961.90
0.00	1.23	4.74	1.32	.100	.040	.100	0.000	961.30	1990.00
.003210	0.	0.	0.	0	0	0	0.00	27.00	2017.00

CCHV= .300 CEHV= .500
*SECNO 39.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 966.00 ELREA= 966.00

39.90	8.21	965.21	0.00	0.00	965.32	.11	.08	.04	960.50
94.	0.	94.	0.	0.	35.	0.	0.	0.	960.50
.00	0.00	2.67	0.00	.100	.040	.100	.039	957.00	2000.00
.001039	40.	40.	40.	2	0	0	0.00	4.50	2004.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.15	3.00	0.00	4.50	0.00	18.00	0.00	957.00	957.00

*SECNO 40.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
966.12	965.32	0.00	0.	94.	18.	18.	961.00	966.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 966.40 ELREA= 966.40
BRIDGE SECTION B UPSTREAM FACE ABANDONED RR

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
40.10	9.03	966.03	0.00	0.00	966.12	.09	.80	0.00	960.50
94.	0.	94.	0.	0.	39.	0.	0.	0.	960.50
.00	0.00	2.42	0.00	.100	.040	.100	.038	957.00	2000.00
.000745	0.	0.	0.	2	0	0	0.00	4.50	2004.50
*SECNO 40.300									
40.30	4.85	966.15	0.00	0.00	966.15	.00	.00	.03	962.00
94.	14.	72.	8.	317.	474.	217.	1.	0.	962.00
.11	.04	.15	.03	.100	.040	.100	.039	961.30	1859.38
.000002	50.	50.	50.	2	0	0	0.00	361.71	2221.09
CCHV= .100 CEHV= .300									
*SECNO 40.800									
40.80	5.45	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	59.	12.	23.	482.	35.	239.	3.	1.	963.00
.33	.12	.35	.10	.100	.040	.100	.039	960.70	1836.56
.000015	115.	115.	115.	2	0	0	0.00	303.32	2139.89
CCHV= .300 CEHV= .500									
*SECNO 40.900									
40.90	5.65	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	60.	4.	30.	482.	16.	281.	4.	1.	963.00
.45	.12	.25	.11	.100	.040	.100	.039	960.50	1836.56
.000016	50.	50.	50.	0	0	0	0.00	303.34	2139.90
*SECNO 41.000									
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 963.00 MAX ELLC= 962.80									
41.00	5.65	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	59.	5.	30.	482.	15.	281.	4.	1.	963.00
.45	.12	.31	.11	.100	.020	.100	.039	960.50	1836.55
.000015	1.	1.	1.	0	0	0	-1.35	303.36	2139.92
*SECNO 41.100									
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 963.00 MAX ELLC= 962.80									

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOE	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOE	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
BRIDGE SECTION C UPSTREAM FACE UNNAMED BRIDGE									
41.10	5.65	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	.59.	5.	30.	482.	15.	281.	4.	2.	963.00
.49	.12	.31	.11	.100	.020	.100	.038	960.50	1836.55
.000015	17.	17.	17.	0	0	0	-1.35	303.37	2139.93
*SECNO 41.200									
41.20	5.65	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	.57.	8.	29.	482.	16.	281.	4.	2.	963.00
.49	.12	.48	.10	.100	.020	.100	.038	960.50	1836.55
.000014	1.	1.	1.	0	0	0	0.00	303.37	2139.93
*SECNO 41.300									
41.30	5.65	966.15	0.00	0.00	966.15	.00	.00	.00	963.00
94.	60.	4.	30.	482.	16.	281.	5.	2.	963.00
.60	.12	.25	.11	.100	.040	.100	.038	960.50	1836.55
.000016	50.	50.	50.	0	0	0	0.00	303.40	2139.95

CCHV= .100 CEHV= .300

*SECNO 42.000

VALLEY SECTION D									
42.00	4.66	966.16	0.00	0.00	966.16	.00	.00	.00	964.00
42.	27.	3.	11.	1230.	38.	504.	22.	11.	964.00
6.30	.02	.09	.02	.100	.040	.100	.039	961.50	1179.86
.000001	570.	570.	570.	0	0	0	0.00	1158.84	2338.70

*SECNO 50.000

WATER EL=X5 CARD= 966.156

VALLEY SECTION E									
50.00	4.66	966.16	0.00	0.00	966.16	.00	.00	.00	964.00
84.	.31.	7.	46.	1212.	70.	1711.	85.	51.	964.20
15.89	.03	.11	.03	.100	.040	.100	.040	961.50	1211.18
.000002	1150.	1150.	1150.	0	0	0	0.00	1843.75	3054.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 50.800									
50.80	2.16	966.16	0.00	0.00	966.16	.01	.00	.00	965.40
84.	17.	29.	38.	70.	31.	150.	106.	65.	965.30
16.21	.24	.95	.25	.100	.040	.100	.040	964.00	1906.02
.000397	580.	580.	580.	0	0	0	0.00	309.74	2215.76
CCHV= .300 CEHV= .500									
*SECNO 50.900									
3685 20 TRIALS ATTEMPTED WSEL,CWSEL									
3693 PROBABLE MINIMUM SPECIFIC ENERGY									
3720 CRITICAL DEPTH ASSUMED									
50.90	2.49	967.09	967.09	0.00	967.26	.17	.05	.08	966.40
84.	18.	35.	31.	22.	7.	38.	106.	66.	966.40
16.22	.82	5.05	.82	.080	.030	.080	.040	964.60	1937.30
.008079	60.	50.	25.	20	12	0	0.00	176.29	2113.58
SPECIAL BRIDGE									

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.30	3.00	0.00	2.37	0.00	7.10	0.00	964.60	964.60

*SECNO 51.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
974.26	967.26	0.00	45.	40.	7.	6.	967.10	968.30

BRIDGE SECTION F UPSTREAM FACE VROOMAN ROAD

51.10	4.10	968.70	0.00	0.00	968.70	.00	1.44	0.00	966.40
84.	28.	5.	50.	240.	12.	424.	107.	66.	966.40
16.31	.12	.46	.12	.080	.030	.080	.039	964.60	1790.92
.000034	45.	45.	45.	0	0	9	0.00	580.80	2371.72

*SECNO 52.000
VALLEY SECTION G

52.00	2.78	968.78	0.00	0.00	968.81	.04	.10	.02	968.00
84.	5.	64.	15.	19.	35.	55.	115.	75.	968.00
16.50	.26	1.79	.28	.100	.040	.100	.040	966.00	1951.57
.001111	500.	1000.	1200.	3	0	0	0.00	199.56	2151.13

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 53.000

VALLEY SECTION H

53.00	3.15	969.15	0.00	0.00	969.16	.01	.34	.01	968.00
84.	8.	50.	26.	41.	43.	106.	117.	77.	968.00
16.70	.20	1.17	.24	.100	.040	.100	.040	966.00	1928.04
.000365	620.	610.	490.	2	0	0	0.00	228.79	2156.84

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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

PETERSON LAKE DRAIN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
39.800	967.27	961.30	0.00	0.00	1990.00	1990.00	2000.00	2007.00	2017.00	2017.00	27.00	0.00
39.800	964.96	961.30	0.00	0.00	1990.00	1990.00	2000.00	2007.00	2017.00	2017.00	27.00	0.00
39.900	967.50	957.00	0.00	0.00	1789.94	0.00	2000.00	2004.50	0.00	2117.16	327.22	40.00
39.900	965.21	957.00	0.00	0.00	2000.00	0.00	2000.00	2004.50	0.00	2004.50	4.50	40.00
40.100	967.52	957.00	961.00	966.40	1785.94	0.00	2000.00	2004.50	0.00	2117.43	331.49	1.00
40.100	966.03	957.00	961.00	966.40	2000.00	0.00	2000.00	2004.50	0.00	2004.50	4.50	1.00
40.300	967.52	961.30	0.00	0.00	1779.71	0.00	2000.00	2100.00	0.00	2242.57	462.86	50.00
40.300	966.15	961.30	0.00	0.00	1859.38	0.00	2000.00	2100.00	0.00	2221.09	361.71	50.00
40.800	967.52	960.70	0.00	0.00	1827.97	0.00	2000.00	2008.00	0.00	2184.56	356.59	115.00
40.800	966.15	960.70	0.00	0.00	1836.56	0.00	2000.00	2008.00	0.00	2139.89	303.32	115.00
40.900	967.53	960.50	0.00	0.00	1827.97	0.00	2000.00	2003.00	0.00	2184.56	356.59	50.00
40.900	966.15	960.50	0.00	0.00	1836.56	0.00	2000.00	2003.00	0.00	2139.90	303.34	50.00
41.000	967.53	960.50	962.80	963.00	1827.97	0.00	2000.00	2003.00	0.00	2184.58	356.61	1.00
41.000	966.15	960.50	962.80	963.00	1836.55	0.00	2000.00	2003.00	0.00	2139.92	303.36	1.00
41.100	967.53	960.50	962.80	963.00	1827.97	0.00	2000.00	2003.00	0.00	2184.58	356.62	17.00
41.100	966.15	960.50	962.80	963.00	1836.55	0.00	2000.00	2003.00	0.00	2139.93	303.37	17.00
41.200	967.53	960.50	0.00	0.00	1827.97	0.00	2000.00	2003.00	0.00	2184.58	356.62	1.00
41.200	966.15	960.50	0.00	0.00	1836.55	0.00	2000.00	2003.00	0.00	2139.93	303.37	1.00
41.300	967.53	960.50	0.00	0.00	1827.96	0.00	2000.00	2003.00	0.00	2184.60	356.63	50.00
41.300	966.15	960.50	0.00	0.00	1836.55	0.00	2000.00	2003.00	0.00	2139.95	303.40	50.00
42.000	967.53	961.50	0.00	0.00	1008.50	0.00	2000.00	2010.00	0.00	2384.40	1375.90	570.00
42.000	966.16	961.50	0.00	0.00	1179.86	0.00	2000.00	2010.00	0.00	2338.70	1158.84	570.00

	SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
*	50.000	967.53	961.50	0.00	0.00	1202.86	0.00	2000.00	2020.00	0.00	3106.70	1903.84	1150.00
*	50.000	966.16	961.50	0.00	0.00	1211.18	0.00	2000.00	2020.00	0.00	3054.93	1843.75	1150.00
	50.800	967.53	964.00	0.00	0.00	1894.57	0.00	2000.00	2021.00	0.00	2244.33	349.76	580.00
	50.800	966.16	964.00	0.00	0.00	1906.02	0.00	2000.00	2021.00	0.00	2215.76	309.74	580.00
	50.900	967.51	964.60	0.00	0.00	1898.09	0.00	2000.00	2003.00	0.00	2182.73	284.64	50.00
*	50.900	967.09	964.60	0.00	0.00	1937.30	0.00	2000.00	2003.00	0.00	2113.58	176.29	50.00
	51.100	968.87	964.60	967.10	968.30	1775.17	0.00	2000.00	2003.00	0.00	2399.49	624.32	45.00
	51.100	968.70	964.60	967.10	968.30	1790.92	0.00	2000.00	2003.00	0.00	2371.72	580.80	45.00
	52.000	969.03	966.00	0.00	0.00	1935.42	0.00	2000.00	2020.00	0.00	2155.05	219.63	1000.00
	52.000	968.78	966.00	0.00	0.00	1951.57	0.00	2000.00	2020.00	0.00	2151.13	199.56	1000.00
	53.000	969.51	966.00	0.00	0.00	1905.99	0.00	2000.00	2020.00	0.00	2162.18	256.19	610.00
	53.000	969.15	966.00	0.00	0.00	1928.04	0.00	2000.00	2020.00	0.00	2156.84	228.79	610.00

PETERSON LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	39.800	0.00	0.00	0.00	961.30	276.00	967.27	0.00	967.45	12.82	4.23	128.71	77.07
	39.800	0.00	0.00	0.00	961.30	167.00	964.96	0.00	965.20	32.10	4.74	66.34	29.48
	39.900	40.00	0.00	0.00	957.00	149.00	967.50	0.00	967.50	.08	.28	1261.18	530.17
	39.900	40.00	0.00	0.00	957.00	94.00	965.21	0.00	965.32	10.39	2.67	35.21	29.17
	40.100	1.00	966.40	961.00	957.00	149.00	967.52	0.00	967.52	.08	.27	1267.89	534.01
	40.100	1.00	966.40	961.00	957.00	94.00	966.03	0.00	966.12	7.45	2.42	38.89	34.44
	40.300	50.00	0.00	0.00	961.30	149.00	967.52	0.00	967.52	.02	.17	1571.41	1083.97
	40.300	50.00	0.00	0.00	961.30	94.00	966.15	0.00	966.15	.02	.15	1008.17	646.10
	40.800	115.00	0.00	0.00	960.70	149.00	967.52	0.00	967.53	.10	.34	1209.65	467.65
	40.800	115.00	0.00	0.00	960.70	94.00	966.15	0.00	966.15	.15	.35	756.11	240.08
	40.900	50.00	0.00	0.00	960.50	149.00	967.53	0.00	967.53	.10	.24	1233.17	459.84
	40.900	50.00	0.00	0.00	960.50	94.00	966.15	0.00	966.15	.16	.25	779.71	237.65
	41.000	1.00	963.00	962.80	960.50	149.00	967.53	0.00	967.53	.10	.30	1231.97	462.41
	41.000	1.00	963.00	962.80	960.50	94.00	966.15	0.00	966.15	.15	.31	778.54	239.09
	41.100	17.00	963.00	962.80	960.50	149.00	967.53	0.00	967.53	.10	.30	1232.03	462.44
	41.100	17.00	963.00	962.80	960.50	94.00	966.15	0.00	966.15	.15	.31	778.62	239.12
	41.200	1.00	0.00	0.00	960.50	149.00	967.53	0.00	967.53	.10	.46	1233.38	475.10
	41.200	1.00	0.00	0.00	960.50	94.00	966.15	0.00	966.15	.14	.48	779.97	248.18
	41.300	50.00	0.00	0.00	960.50	149.00	967.53	0.00	967.53	.10	.24	1233.53	460.03
	41.300	50.00	0.00	0.00	960.50	94.00	966.15	0.00	966.15	.16	.25	780.16	237.85
	42.000	570.00	0.00	0.00	961.50	58.00	967.53	0.00	967.53	.00	.05	3510.52	1072.20
	42.000	570.00	0.00	0.00	961.50	42.00	966.16	0.00	966.16	.01	.09	1773.03	384.11
*	50.000	1150.00	0.00	0.00	961.50	145.00	967.53	0.00	967.53	.01	.09	5564.28	1774.05
*	50.000	1150.00	0.00	0.00	961.50	84.00	966.16	0.00	966.16	.02	.11	2993.42	659.42
	50.800	580.00	0.00	0.00	964.00	145.00	967.53	0.00	967.53	.54	.54	700.41	197.67
	50.800	580.00	0.00	0.00	964.00	84.00	966.16	0.00	966.16	3.97	.95	250.59	42.16
	50.900	50.00	0.00	0.00	964.60	145.00	967.51	0.00	967.56	33.36	3.64	166.07	25.10
*	50.900	50.00	0.00	0.00	964.60	84.00	967.09	967.09	967.26	80.79	5.05	66.68	9.35
	51.100	45.00	968.30	967.10	964.60	145.00	968.87	0.00	968.87	.69	.68	780.55	174.50
	51.100	45.00	968.30	967.10	964.60	84.00	968.70	0.00	968.70	.34	.46	676.19	144.86
	52.000	1000.00	0.00	0.00	966.00	145.00	969.03	0.00	969.08	15.03	2.28	163.70	37.40
	52.000	1000.00	0.00	0.00	966.00	84.00	968.78	0.00	968.81	11.11	1.79	109.54	25.20

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
53.000	610.00	0.00	0.00	966.00	145.00	969.51	0.00	969.53	4.62	1.45	275.73	67.48
53.000	610.00	0.00	0.00	966.00	84.00	969.15	0.00	969.16	3.65	1.17	190.16	43.99

PETERSON LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	39.800	276.00	967.27	0.00	0.00	0.00	27.00	0.00
	39.800	167.00	964.96	-2.31	0.00	0.00	27.00	0.00
	39.900	149.00	967.50	0.00	.23	0.00	327.22	40.00
	39.900	94.00	965.21	-2.29	.25	0.00	4.50	40.00
	40.100	149.00	967.52	0.00	.02	0.00	331.49	1.00
	40.100	94.00	966.03	-1.49	.82	0.00	4.50	1.00
	40.300	149.00	967.52	0.00	.00	0.00	462.86	50.00
	40.300	94.00	966.15	-1.37	.12	0.00	361.71	50.00
	40.800	149.00	967.52	0.00	.00	0.00	356.59	115.00
	40.800	94.00	966.15	-1.37	.00	0.00	303.32	115.00
	40.900	149.00	967.53	0.00	.00	0.00	356.59	50.00
	40.900	94.00	966.15	-1.37	.00	0.00	303.34	50.00
	41.000	149.00	967.53	0.00	.00	0.00	356.61	1.00
	41.000	94.00	966.15	-1.37	.00	0.00	303.36	1.00
	41.100	149.00	967.53	0.00	.00	0.00	356.62	17.00
	41.100	94.00	966.15	-1.37	.00	0.00	303.37	17.00
	41.200	149.00	967.53	0.00	-.00	0.00	356.62	1.00
	41.200	94.00	966.15	-1.37	-.00	0.00	303.37	1.00
	41.300	149.00	967.53	0.00	.00	0.00	356.63	50.00
	41.300	94.00	966.15	-1.37	.00	0.00	303.40	50.00
	42.000	58.00	967.53	0.00	.00	0.00	1375.90	570.00
	42.000	42.00	966.16	-1.37	.00	0.00	1158.84	570.00
*	50.000	145.00	967.53	0.00	.00	0.00	1903.84	1150.00
*	50.000	84.00	966.16	-1.37	.00	0.00	1843.75	1150.00
	50.800	145.00	967.53	0.00	.00	0.00	349.76	580.00
	50.800	84.00	966.16	-1.37	-.00	0.00	309.74	580.00
	50.900	145.00	967.51	0.00	-.02	0.00	284.64	50.00
*	50.900	84.00	967.09	-.42	.93	0.00	176.29	50.00
	51.100	145.00	968.87	0.00	1.36	0.00	624.32	45.00
	51.100	84.00	968.70	-.17	1.61	0.00	580.80	45.00
	52.000	145.00	969.03	0.00	.16	0.00	219.63	1000.00
	52.000	84.00	968.78	-.25	.08	0.00	199.56	1000.00

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
53.000	145.00	969.51	0.00	.48	0.00	256.19	610.00
53.000	84.00	969.15	-.36	.38	0.00	228.79	610.00

SUMMARY OF ERRORS

NOTE	SECNO=	50.000	PROFILE= 1	WSEL BASED ON X5 CARD
NOTE	SECNO=	50.000	PROFILE= 2	WSEL BASED ON X5 CARD
CAUTION	SECNO=	50.900	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	50.900	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	50.900	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL



1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: PETERSON LAKE DRAIN

4) DOCUMENT TYPE: Report



38

RECEIVED
OCT 1 1980
WATER MANAGEMENT

HYDRAULIC ANALYSIS REPORT

PETERSON LAKE DRAIN

Not a county drain

AT THE TOWNSHIP OF SUMMIT

JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

SEPTEMBER, 1980

Packet
Hec 2 i/o
Maps
Detailed Maps

INTRODUCTION

This hydraulic analysis report covers calculations performed for the Peterson Lake Drain within the township of Summit. The reach studied in limited detail began at an abandoned railroad berm and extended 4,330 feet upstream. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in November, 1978. Additional cross section data was interpolated from 4-foot contour maps. Also, a 7.5 minute series topographic map with a 10-foot contour interval was used.

The flows for the 10- and 100-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated *June 4, 1980*.

Analyses of the hydraulic characteristics of the flooding source studied in limited detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Without an indepth study, an "n" value can only be estimated. The roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections.

Manning's Roughness Coefficient

For channel	.03-.04
For overbanks	.08-.10

Coefficients for

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

There were no known high-water marks in the reach studied.

STARTING CONDITIONS

The starting water surface elevations were specified by the slope area method. A starting slope of .002 foot per foot was used. The starting water surface elevation was varied by plus and minus 1 foot from the slope area depth to ensure that the water surface converged at the downstream limit of the study. A copy of the convergence run printout is contained in Appendix A.

SPECIAL PROBLEMS

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	39.8	Valley Section
	39.9	Bridge Section
B	40.1	Upstream Face, abandoned RR
	40.3	Valley Section
	40.8	Valley Section
	40.9	1 Foot downstream
	41.0	Bridge Section
C	41.1	Upstream Face, unnamed bridge
	41.2	1 Foot upstream
	41.3	Valley Section
D	42.0	Valley Section
E	50.0	Valley Section
	50.8	Valley Section
	50.9	Bridge Section
F	51.1	Upstream Face, Vrooman Road
G	52.0	Valley Section
H	53.0	Valley Section

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

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

PROFILES

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

MAP

A copy of the 100-year flood plain cross section location is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

HEC-II printouts for the 10- and 100-year floods are contained in Appendix E.

APPENDIX A

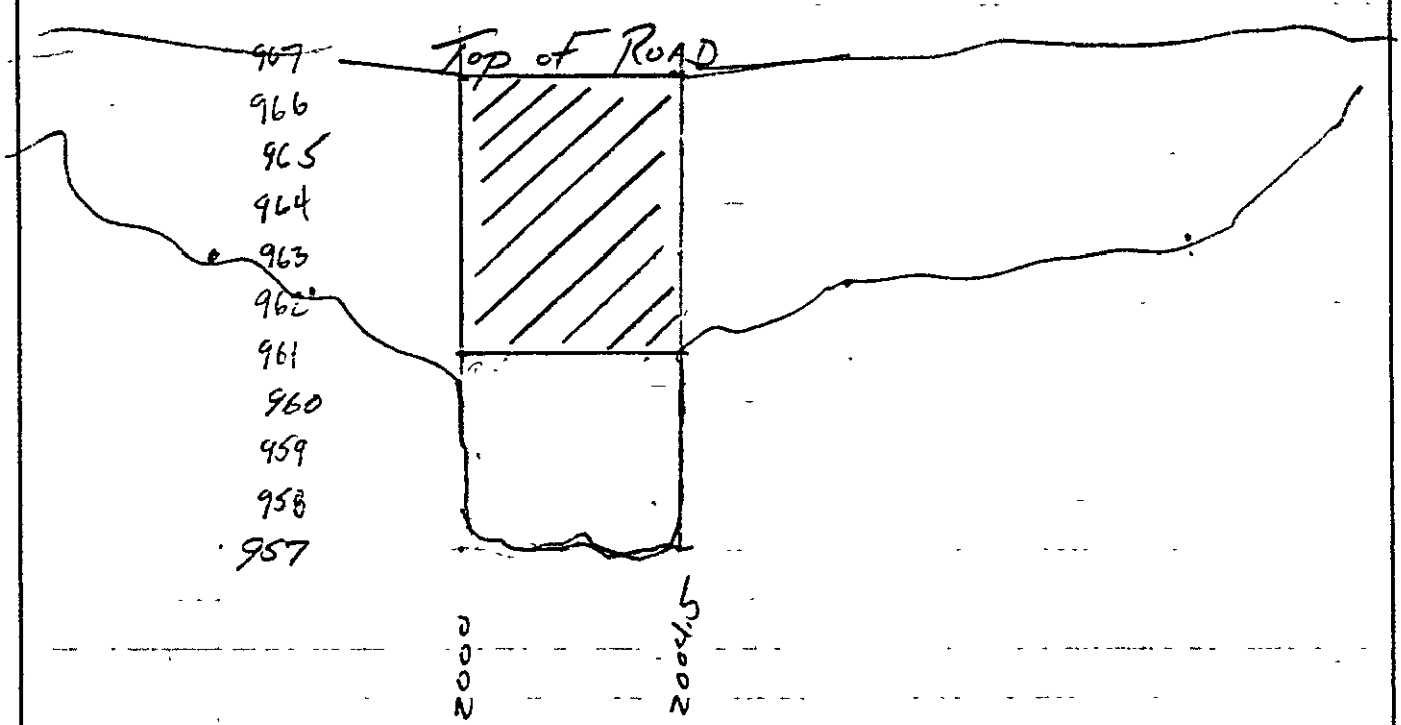
APPENDIX B

Gilbert/Commonwealth
209 E. Washington Avenue Jackson MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE
F.I.S. Summit Township Peterson Lake Drain	JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT: Old R.R. Crossing
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO



Area = 45 x 4 = 18

Wetted Perm = 17

$K_n = \frac{291 (.03)^2 27}{(1.059)^{\frac{4}{3}}} = .65$

XKOK = .65 + 1 + .5 = 2.15

CLIENT/OWNER	FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE) DVD 12-18-79	SUBJECT
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO.

Unnamed Creek Tributary to Peterson Lake

Crossing @ Vrooman Road

XKOR Calculations

3' dia CMP 45' long with Projected ends

$n = 0.027$

$$K_f = \frac{29.1 \times (.027)^2 \times 45}{0.75^{4/3}} = 1.401$$

$K_{entrance} = 0.9$

$K_{exit} = 1.0$

$XKOR = \underline{3.301}$

Weir Coefficient

Paved Road Surface

Expected $\frac{h}{L} < 0.15$

$h \approx 0.5'$

$C = \underline{3.02}$

Equivalent Channel Width = 2.37'

Area = 7.1 ft²

Culvert invert : U/S 964.57

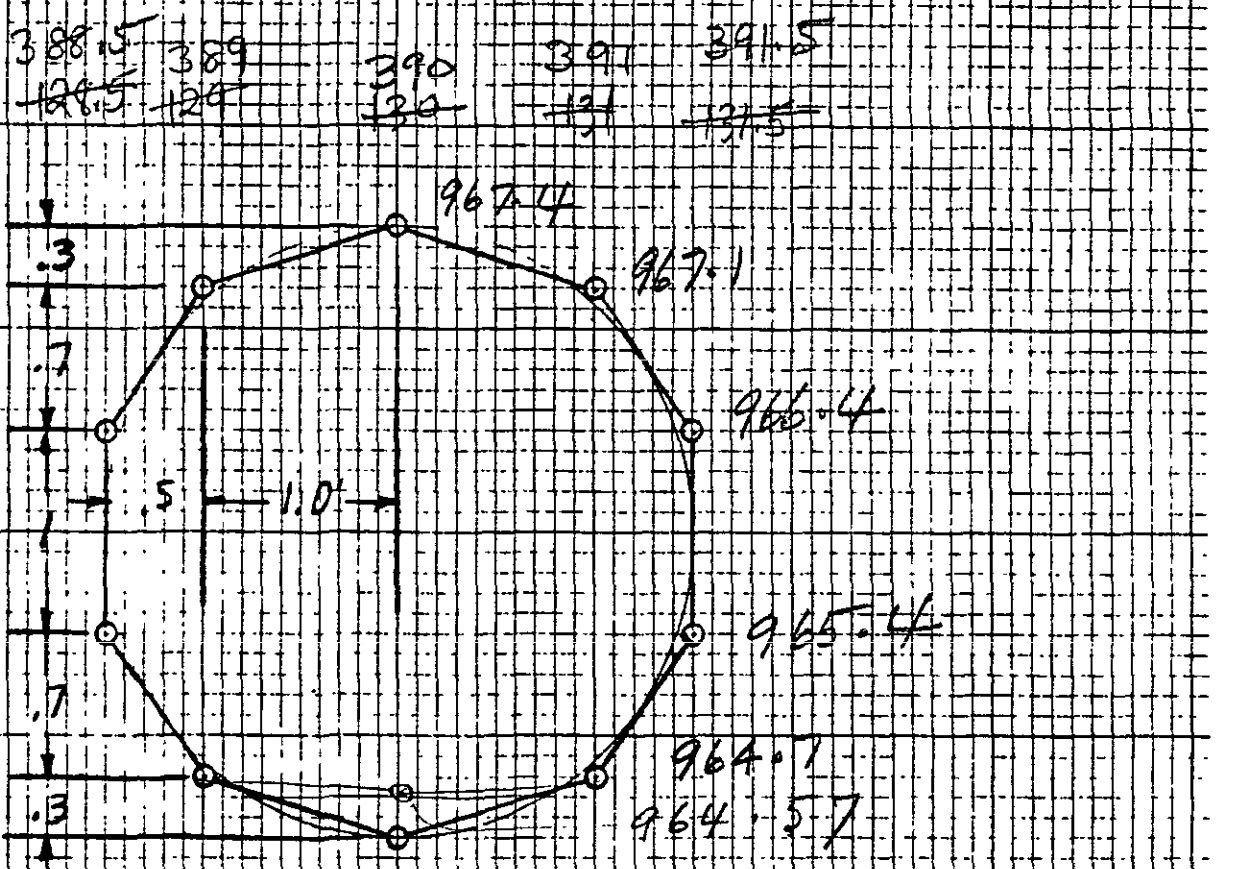
D/S 964.55

36" Dia. Conduit

Area = 7.1 ft²

W.P. = 9.42 ft

Scale: 1" = 1'



Approximation Model

A = 7.1 ft² (100%)

W.P. = 9.62 ft (98%)

R. = .74 (98)

APPENDIX C

APPENDIX D

APPENDIX E

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Peterson Lake Drain

4) DOCUMENT TYPE: Summary 1979 Convergence Run

00BREAK00

Convergence Run

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PETERSON LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	100.000	0.00	0.00	0.00	959.30	276.00	962.42	0.00	962.51	20.23	3.36	200.72	61.37
	100.000	0.00	0.00	0.00	959.30	276.00	963.84	0.00	963.86	2.94	1.67	415.78	160.97
	100.000	0.00	0.00	0.00	959.30	276.00	961.84	0.00	962.10	61.76	5.05	126.56	35.12
	101.000	1200.00	0.00	0.00	961.00	276.00	963.01	0.00	963.01	1.65	.69	1206.31	215.04
	101.000	1200.00	0.00	0.00	961.00	276.00	963.94	0.00	963.94	.27	.36	2140.83	533.29
	101.000	1200.00	0.00	0.00	961.00	276.00	962.89	0.00	962.89	2.25	.77	1094.79	184.14
*	101.800	350.00	0.00	0.00	961.00	276.00	963.45	963.45	964.37	305.77	10.82	54.66	15.78
*	101.800	350.00	0.00	0.00	961.00	276.00	963.45	963.45	964.37	305.77	10.82	54.66	15.78
*	101.800	350.00	0.00	0.00	961.00	276.00	963.45	963.45	964.37	304.21	10.80	54.75	15.82
	101.900	50.00	0.00	0.00	957.00	276.00	964.16	0.00	965.23	100.77	8.28	33.32	27.49
	101.900	50.00	0.00	0.00	957.00	276.00	964.16	0.00	965.23	100.77	8.28	33.32	27.49
	101.900	50.00	0.00	0.00	957.00	276.00	964.16	0.00	965.23	100.80	8.28	33.32	27.49
	102.100	58.00	972.00	968.00	957.00	276.00	964.01	961.51	966.96	582.62	13.80	20.00	11.43
	102.100	58.00	972.00	968.00	957.00	276.00	964.01	961.51	966.96	582.62	13.80	20.00	11.43
	102.100	58.00	972.00	968.00	957.00	276.00	964.01	961.51	966.96	582.62	13.80	20.00	11.43
	39.800	60.00	0.00	0.00	961.20	276.00	967.27	0.00	967.28	.99	1.17	602.19	277.14
	39.800	60.00	0.00	0.00	961.20	276.00	967.27	0.00	967.28	.99	1.17	602.19	277.14
	39.800	60.00	0.00	0.00	961.20	276.00	967.27	0.00	967.28	.99	1.17	602.16	277.12

Convergence achieved prior to storing reach.

PETERSON LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	100.000	276.00	962.42	0.00	0.00	2.42	135.70	0.00
	100.000	276.00	963.84	1.42	0.00	0.00	166.53	0.00
	100.000	276.00	961.84	-2.00	0.00	0.00	116.80	0.00
	101.000	276.00	963.01	0.00	.59	0.00	963.52	1200.00
	101.000	276.00	963.94	.93	.10	0.00	1044.46	1200.00
	101.000	276.00	962.89	-1.05	1.05	0.00	953.40	1200.00
*	101.800	276.00	963.45	0.00	-.44	0.00	29.00	350.00
*	101.800	276.00	963.45	.00	-.49	0.00	29.00	350.00
*	101.800	276.00	963.45	.00	.56	0.00	29.00	350.00
	101.900	276.00	964.16	0.00	.72	0.00	5.00	50.00
	101.900	276.00	964.16	-.00	.72	0.00	5.00	50.00
	101.900	276.00	964.16	-.00	.71	0.00	5.00	50.00
	102.100	276.00	964.01	0.00	-.16	0.00	5.00	58.00
	102.100	276.00	964.01	-.00	-.16	0.00	5.00	58.00
	102.100	276.00	964.01	-.00	-.16	0.00	5.00	58.00
	39.800	276.00	967.27	0.00	3.27	0.00	135.00	60.00
	39.800	276.00	967.27	-.00	3.27	0.00	135.00	60.00
	39.800	276.00	967.27	-.00	3.27	0.00	135.00	60.00

SUMMARY OF ERRORS

CAUTION	SECNO=	101.800	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	101.800	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	101.800	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	101.800	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	101.800	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	101.800	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	101.800	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	101.800	PROFILE= 3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	101.800	PROFILE= 3	20 TRIALS ATTEMPTED TO BALANCE WSEL

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Tributary to Grand River

4) DOCUMENT TYPE: 50 - 100 - 500 yr runs

00BREAK00

Multi Profile
Unnamed Trib.
Summit

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

C
T1                FIS  SUMMIT TOWNSHIP
T2     10 YEAR LEVEL
T3                TRIBUTARY TO GRAND RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        2.        0.        0.  0.000000      0.00      0.0       0.    946.100     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    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      .080      .080      .040      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000    97.000   107.000   114.000   138.000   114.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

                  VALLEY SECTION A

X1     9.000    13.000  2000.000  2020.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   955.000  1200.000   950.000  1250.000   946.500  1290.000   945.800  1330.000   945.800  2000.000
GR   943.000  2004.000   942.000  2007.000   942.300  2010.000   942.200  2016.000   946.300  2020.000
GR   946.300  2280.000   950.000  2320.000   955.000  2380.000     0.000     0.000     0.000     0.000

X1     9.800    28.000  1997.000  2049.000  1000.000   800.000   930.000     0.000     0.000     0.000
GR   952.000  1750.000   949.800  1827.000   949.200  1847.000   948.200  1865.000   947.600  1901.000
GR   948.000  1921.000   947.200  1938.000   946.600  1943.000   944.900  1963.000   947.000  1997.000
GR   943.800  2000.000   943.700  2006.000   943.000  2010.000   943.800  2014.000   943.800  2018.000
GR   943.200  2022.000   942.700  2036.000   942.700  2037.000   943.300  2041.000   944.100  2046.000
GR   947.600  2049.000   948.400  2057.000   949.600  2129.000   949.500  2141.000   949.900  2206.000
GR   954.600  2259.000   956.700  2311.000   955.800  2383.000     0.000     0.000     0.000     0.000
NC      .080      .080      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
ET     7.100     7.100     7.100     7.100     7.100     7.100  2000.000  2006.000     0.000     0.000

X1     9.900    32.000  2000.000  2006.000    50.000    50.000    50.000     0.000     0.000     0.000
GR   966.900  1189.000   965.900  1248.000   963.500  1329.000   960.800  1404.000   957.900  1478.000
GR   955.000  1554.000   951.600  1659.000   950.400  1730.000   949.600  1803.000   948.900  1874.000
GR   948.300  1959.000   948.500  2000.000   943.400  2000.000   943.300  2001.000   943.200  2002.000
GR   943.300  2003.000   943.200  2004.000   943.300  2005.000   943.700  2006.000   948.500  2006.000
GR   948.700  2027.000   949.700  2103.000   951.700  2177.000   953.800  2240.000   955.700  2304.000
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GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	17.000	0.000	943.200	943.200
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B PLATEAU ST.

X1	10.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	30.000	1189.000	966.900	0.000	1248.000	965.900	0.000	1329.000	963.500	0.000
BT	1404.000	960.800	0.000	1478.000	957.900	0.000	1554.000	955.000	0.000	1659.000
BT	951.600	0.000	1730.000	950.400	0.000	1803.000	949.600	0.000	1874.000	948.900
BT	0.000	1959.000	948.300	0.000	2000.000	948.500	943.400	2001.000	948.500	945.900
BT	2002.000	948.500	947.100	2003.000	948.500	947.400	2004.000	948.500	947.100	2005.000
BT	948.500	945.900	2006.000	948.500	943.700	2027.000	948.700	0.000	2103.000	949.700
BT	0.000	2177.000	951.700	0.000	2240.000	953.800	0.000	2304.000	955.700	0.000
BT	2352.000	956.400	0.000	2496.000	957.200	0.000	2587.000	957.600	0.000	2691.000
BT	957.900	0.000	2706.000	957.900	0.000	2738.000	958.600	0.000	2764.000	959.400
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	1968.000	2018.000	0.000	0.000

X1	10.300	37.000	1980.000	2014.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	966.900	1189.000	965.900	1248.000	963.500	1329.000	960.800	1404.000	957.900	1478.000
GR	955.000	1554.000	951.600	1659.000	950.400	1730.000	949.600	1803.000	948.900	1874.000
GR	948.000	1922.000	947.700	1942.000	947.300	1961.000	946.400	1968.000	946.400	1979.000
GR	945.900	1980.000	943.300	2000.000	943.000	2003.000	943.700	2006.000	944.800	2010.000
GR	944.900	2014.000	945.700	2018.000	947.800	2020.000	948.000	2020.000	948.100	2040.000
GR	948.200	2050.000	949.700	2103.000	951.700	2177.000	953.800	2240.000	955.700	2304.000
GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	10.800	44.000	2095.000	2119.000	750.000	850.000	850.000	0.000	0.000	0.000
GR	967.100	1343.000	966.600	1452.000	964.400	1519.000	963.600	1612.000	962.700	1667.000
GR	962.700	1685.000	962.400	1780.000	960.100	1797.000	959.200	1897.000	958.000	1916.000
GR	957.700	1944.000	957.300	1949.000	959.400	1971.000	958.800	2010.000	957.600	2018.000
GR	954.000	2029.000	953.400	2037.000	953.100	2045.000	951.700	2046.000	949.700	2070.000
GR	947.300	2082.000	946.800	2095.000	944.400	2100.000	944.200	2101.000	944.400	2103.000
GR	948.300	2119.000	950.060	2150.000	954.600	2200.000	957.000	2215.000	956.700	2240.000
GR	956.700	2247.000	958.600	2298.000	959.800	2298.000	959.900	2300.000	961.300	2316.000
GR	962.200	2373.000	961.400	2375.000	961.400	2391.000	962.400	2394.000	962.500	2400.000
GR	962.800	2410.000	964.100	2412.000	966.000	2498.000	966.500	2500.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	10.900	27.000	2100.000	2105.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1459.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.200	1757.000	958.200	1825.000	956.900	1891.000	956.000	2000.000
GR	955.200	2100.000	945.500	2100.000	944.000	2101.000	943.900	2102.500	944.200	2104.000
GR	946.000	2105.000	955.200	2105.000	954.800	2160.000	955.100	2200.000	955.400	2236.000
GR	956.800	2310.000	959.900	2382.000	962.700	2448.000	965.000	2514.000	965.900	2545.000
GR	966.600	2580.000	967.400	2645.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.200	3.000	0.000	3.500	0.000	15.500	0.000	943.900	943.900
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION C BADGELY RD.

X1	11.100	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	25.000	1403.000	965.800	0.000	1459.000	964.800	0.000	1529.000	963.400	0.000
BT	1577.000	962.200	0.000	1624.000	961.200	0.000	1690.000	960.200	0.000	1757.000
BT	959.200	0.000	1825.000	958.200	0.000	1891.000	956.900	0.000	2000.000	956.000
BT	0.000	2100.000	955.200	945.500	2101.000	955.200	947.700	2102.500	955.200	948.100
BT	2104.000	955.200	947.600	2105.000	955.200	946.000	2160.000	954.800	0.000	2200.000
BT	955.100	0.000	2236.000	955.400	0.000	2310.000	956.800	0.000	2382.000	959.900
BT	0.000	2448.000	962.700	0.000	2514.000	965.000	0.000	2545.000	965.900	0.000
BT	2580.000	966.600	0.000	2645.000	967.400	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	11.300	25.000	2100.000	2115.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1495.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.600	1757.000	958.300	1825.000	956.900	1891.000	956.000	2000.000
GR	954.700	2054.000	953.700	2072.000	948.100	2100.000	944.200	2101.000	944.400	2102.000
GR	944.700	2104.000	950.300	2115.000	951.400	2150.000	953.400	2232.000	954.500	2280.000
GR	955.500	2288.000	959.000	2312.000	960.500	2333.000	961.600	2350.000	961.400	2371.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000
X1	11.800	30.000	2092.000	2104.000	1300.000	1050.000	1170.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.900	27.000	2094.000	2100.000	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	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	954.000	2094.000	946.300	2094.000	946.200	2097.000	946.700	2100.000	953.400	2100.000
GR	953.800	2200.000	960.000	2400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.000	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	0.000	959.400	0.000	100.000	958.700	0.000	200.000	958.100	0.000
BT	300.000	957.400	0.000	400.000	956.800	0.000	500.000	956.100	0.000	600.000
BT	955.500	0.000	700.000	954.800	0.000	757.000	954.200	0.000	853.000	953.100
BT	0.000	956.000	953.000	0.000	1211.000	950.800	0.000	1309.000	950.800	0.000
BT	1407.000	951.000	0.000	1505.000	952.200	0.000	1604.000	953.500	0.000	1701.000
BT	954.600	0.000	1801.000	955.300	0.000	1899.000	955.400	0.000	1998.000	954.500
BT	0.000	2094.000	954.000	946.300	2094.000	954.000	951.600	2100.000	953.400	951.600
BT	2100.000	953.400	946.700	2200.000	953.800	0.000	2400.000	960.000	0.000	0.000

BRIDGE SECTION D HORTON RD.

X1	12.100	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	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	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.200	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
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000
X1	12.300	30.000	2092.000	2104.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
QT	5.000	173.000	248.000	304.000	487.000	304.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	12.500	14.000	2000.000	2020.000	1800.000	1900.000	2100.000	0.000	0.000	0.000
GR	960.000	900.000	955.000	1360.000	952.800	1400.000	950.000	1800.000	950.000	1800.000
GR	950.000	2000.000	949.000	2005.000	948.000	2010.000	948.500	2015.000	950.000	2020.000
GR	950.000	2300.000	952.000	2400.000	955.000	2540.000	960.000	2630.000	0.000	0.000
QT	5.000	101.000	109.000	116.000	139.000	116.000	0.000	0.000	0.000	0.000

VALLEY SECTION F

X1	12.800	32.000	1990.000	2010.000	1200.000	1400.000	1400.000	0.000	0.000	0.000
GR	964.000	245.000	955.100	652.000	954.900	755.000	952.400	944.000	952.300	970.000
GR	951.700	1100.000	951.900	1200.000	951.300	1300.000	950.700	1400.000	951.000	1500.000
GR	951.400	1600.000	953.700	1800.000	952.400	1900.000	952.300	1950.000	951.600	1990.000
GR	950.400	1994.000	949.800	2000.000	949.400	2001.000	949.600	2003.000	950.400	2005.000
GR	952.900	2010.000	953.100	2018.000	953.200	2100.000	954.800	2400.000	955.500	2500.000
GR	954.700	2600.000	952.800	2700.000	953.400	2800.000	952.500	2900.000	954.800	3000.000
GR	957.000	3100.000	960.800	3200.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
**********************************************************

T1
T2
T3
J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.        3.         0.         0.  0.000000        0.00       0.0        0.    946.700    0.000
J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     2.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
    -10.       4.        0.        0.  0.000000      0.00       0.0       0.   947.000     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
    -10.       5.        0.        0.  0.000000      0.00       0.0        0.   947.400     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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HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.000	0.00	0.00	0.00	942.00	97.00	946.10	0.00	946.12	2.64	1.16	263.54	59.68
9.000	0.00	0.00	0.00	942.00	107.00	946.70	0.00	946.70	.37	.49	802.04	175.23
9.000	0.00	0.00	0.00	942.00	114.00	947.00	0.00	947.00	.18	.36	1102.03	267.06
9.000	0.00	0.00	0.00	942.00	138.00	947.40	0.00	947.40	.11	.30	1505.12	418.48
9.800	930.00	0.00	0.00	942.70	97.00	946.24	0.00	946.25	.90	.67	164.05	102.21
9.800	930.00	0.00	0.00	942.70	107.00	946.74	0.00	946.75	.62	.61	210.55	135.92
9.800	930.00	0.00	0.00	942.70	114.00	947.02	0.00	947.03	.52	.59	240.38	158.16
9.800	930.00	0.00	0.00	942.70	138.00	947.42	0.00	947.42	.51	.62	284.23	194.03
9.900	50.00	0.00	0.00	943.20	97.00	945.98	0.00	946.55	159.30	6.04	16.05	7.69
9.900	50.00	0.00	0.00	943.20	107.00	946.52	0.00	947.00	119.65	5.56	19.25	9.78
9.900	50.00	0.00	0.00	943.20	114.00	946.81	0.00	947.26	108.32	5.43	21.00	10.95
9.900	50.00	0.00	0.00	943.20	138.00	947.15	0.00	947.71	124.74	5.99	23.05	12.36
10.100	60.00	948.30	947.40	943.20	97.00	946.65	0.00	947.24	85.03	6.17	15.71	10.52
10.100	60.00	948.30	947.40	943.20	107.00	947.07	0.00	947.70	93.38	6.39	16.74	11.07
10.100	60.00	948.30	947.40	943.20	114.00	947.37	0.00	948.06	116.90	6.67	17.10	10.54
10.100	60.00	948.30	947.40	943.20	138.00	948.35	0.00	948.67	24.55	4.56	30.70	27.85
10.300	20.00	0.00	0.00	943.00	97.00	947.41	0.00	947.42	1.30	.89	124.91	85.10
10.300	20.00	0.00	0.00	943.00	107.00	947.89	0.00	947.90	.95	.83	148.76	109.70
10.300	20.00	0.00	0.00	943.00	114.00	948.26	0.00	948.27	.76	.80	167.17	130.40
10.300	20.00	0.00	0.00	943.00	138.00	948.76	0.00	948.77	.74	.85	192.33	160.93
10.800	850.00	0.00	0.00	944.20	97.00	947.63	0.00	947.71	15.75	2.24	49.40	24.44
10.800	850.00	0.00	0.00	944.20	107.00	948.05	0.00	948.10	10.16	1.95	65.01	33.56
10.800	850.00	0.00	0.00	944.20	114.00	948.38	0.00	948.42	7.17	1.75	78.82	42.58
10.800	850.00	0.00	0.00	944.20	138.00	948.87	0.00	948.91	5.31	1.71	103.15	59.87
10.900	20.00	0.00	0.00	943.90	97.00	947.43	0.00	948.05	170.09	6.33	15.33	7.44
10.900	20.00	0.00	0.00	943.90	107.00	947.83	0.00	948.42	152.71	6.19	17.29	8.66
10.900	20.00	0.00	0.00	943.90	114.00	948.16	0.00	948.72	138.19	6.02	18.94	9.70
10.900	20.00	0.00	0.00	943.90	138.00	948.59	0.00	949.25	155.36	6.54	21.10	11.07
11.100	50.00	954.80	948.10	943.90	97.00	948.09	0.00	948.72	106.35	6.39	15.17	9.41
11.100	50.00	954.80	948.10	943.90	107.00	949.14	0.00	949.45	27.07	4.48	23.87	20.56
11.100	50.00	954.80	948.10	943.90	114.00	949.72	0.00	950.01	23.37	4.26	26.77	23.58
11.100	50.00	954.80	948.10	943.90	138.00	951.03	0.00	951.30	20.54	4.14	33.30	30.45

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.300	10.00	0.00	0.00	944.20	97.00	948.78	0.00	948.92	26.55	3.02	33.04	18.83
11.300	10.00	0.00	0.00	944.20	107.00	949.44	0.00	949.54	16.12	2.60	44.70	26.65
11.300	10.00	0.00	0.00	944.20	114.00	950.01	0.00	950.08	10.53	2.26	57.23	35.13
11.300	10.00	0.00	0.00	944.20	138.00	951.33	0.00	951.37	4.28	1.77	110.80	66.69
11.800	1170.00	0.00	0.00	946.00	97.00	950.73	0.00	950.81	10.80	2.28	43.42	29.52
11.800	1170.00	0.00	0.00	946.00	107.00	950.96	0.00	951.05	10.50	2.35	48.62	33.02
11.800	1170.00	0.00	0.00	946.00	114.00	951.18	0.00	951.27	9.64	2.34	55.25	36.71
11.800	1170.00	0.00	0.00	946.00	138.00	951.94	0.00	952.00	6.83	2.21	89.87	52.79
11.900	50.00	0.00	0.00	946.20	97.00	950.76	0.00	950.97	43.85	3.66	26.48	14.65
11.900	50.00	0.00	0.00	946.20	107.00	950.99	0.00	951.22	47.12	3.85	27.82	15.59
11.900	50.00	0.00	0.00	946.20	114.00	951.20	0.00	951.44	47.86	3.92	29.08	16.48
11.900	50.00	0.00	0.00	946.20	138.00	951.91	0.00	952.18	49.92	4.14	33.36	19.53
12.000	1.00	950.80	951.60	946.20	97.00	950.76	0.00	950.97	11.38	3.66	26.49	28.75
12.000	1.00	950.80	951.60	946.20	107.00	950.99	0.00	951.22	12.36	3.84	27.83	30.44
12.000	1.00	950.80	951.60	946.20	114.00	951.20	0.00	951.44	12.67	3.92	29.10	32.03
12.000	1.00	950.80	951.60	946.20	138.00	951.90	0.00	952.20	20.34	4.38	31.50	30.60
12.100	44.00	950.80	951.60	946.20	97.00	950.82	0.00	951.02	11.06	3.62	26.83	29.17
12.100	44.00	950.80	951.60	946.20	107.00	951.05	0.00	951.27	11.99	3.79	28.20	30.90
12.100	44.00	950.80	951.60	946.20	114.00	951.26	0.00	951.49	12.30	3.87	29.47	32.50
12.100	44.00	950.80	951.60	946.20	138.00	951.99	0.00	952.28	20.34	4.38	31.50	30.60
12.200	1.00	0.00	0.00	946.20	97.00	950.82	0.00	951.03	42.40	3.62	26.83	14.90
12.200	1.00	0.00	0.00	946.20	107.00	951.05	0.00	951.28	45.50	3.79	28.21	15.86
12.200	1.00	0.00	0.00	946.20	114.00	951.26	0.00	951.50	46.26	3.87	29.48	16.76
12.200	1.00	0.00	0.00	946.20	138.00	952.05	0.00	952.30	47.01	4.04	34.19	20.13
12.300	50.00	0.00	0.00	946.00	97.00	951.08	0.00	951.14	7.72	2.06	51.91	34.92
12.300	50.00	0.00	0.00	946.00	107.00	951.33	0.00	951.40	7.36	2.09	60.67	39.44
12.300	50.00	0.00	0.00	946.00	114.00	951.55	0.00	951.62	6.73	2.07	70.16	43.95
12.300	50.00	0.00	0.00	946.00	138.00	952.37	0.00	952.41	4.42	1.88	119.20	65.63
12.500	2100.00	0.00	0.00	948.00	173.00	951.38	0.00	951.38	.65	.55	898.48	213.77
12.500	2100.00	0.00	0.00	948.00	248.00	951.64	0.00	951.64	.74	.62	1107.28	287.43
12.500	2100.00	0.00	0.00	948.00	304.00	951.84	0.00	951.85	.75	.65	1276.85	351.57
12.500	2100.00	0.00	0.00	948.00	487.00	952.57	0.00	952.57	.58	.67	1946.78	639.54
12.800	1400.00	0.00	0.00	949.40	101.00	951.54	0.00	951.55	12.02	1.45	185.37	29.14
12.800	1400.00	0.00	0.00	949.40	109.00	951.78	0.00	951.78	4.80	1.00	283.32	49.77
12.800	1400.00	0.00	0.00	949.40	116.00	951.97	0.00	951.97	2.57	.79	393.93	72.35
12.800	1400.00	0.00	0.00	949.40	139.00	952.64	0.00	952.64	.43	.39	923.92	210.95

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.000	97.00	946.10	0.00	0.00	0.00	706.95	0.00
9.000	107.00	946.70	.60	0.00	0.00	996.61	0.00
9.000	114.00	947.00	.30	0.00	0.00	1003.28	0.00
9.000	138.00	947.40	.40	0.00	0.00	1012.18	0.00
9.800	97.00	946.24	0.00	.14	0.00	87.70	930.00
9.800	107.00	946.74	.50	.04	0.00	101.82	930.00
9.800	114.00	947.02	.28	.02	0.00	108.97	930.00
9.800	138.00	947.42	.39	.02	0.00	115.30	930.00
9.900	97.00	945.98	0.00	-.26	0.00	6.00	50.00
9.900	107.00	946.52	.54	-.23	.54	6.00	50.00
9.900	114.00	946.81	.29	-.22	.83	6.00	50.00
9.900	138.00	947.15	.34	-.27	1.17	6.00	50.00
10.100	97.00	946.65	0.00	.67	0.00	6.00	60.00
10.100	107.00	947.07	.42	.55	.42	6.00	60.00
10.100	114.00	947.37	.30	.56	.72	6.00	60.00
10.100	138.00	948.35	.98	1.20	1.70	23.60	60.00
10.300	97.00	947.41	0.00	.76	0.00	50.00	20.00
10.300	107.00	947.89	.48	.82	.48	50.00	20.00
10.300	114.00	948.26	.37	.89	.85	50.00	20.00
10.300	138.00	948.76	.50	.41	1.35	50.00	20.00
10.800	97.00	947.63	0.00	.22	0.00	35.91	850.00
10.800	107.00	948.05	.41	.16	.41	39.67	850.00
10.800	114.00	948.38	.33	.12	.75	43.78	850.00
10.800	138.00	948.87	.49	.11	1.24	54.92	850.00
10.900	97.00	947.43	0.00	-.20	0.00	5.00	20.00
10.900	107.00	947.83	.39	-.22	.39	5.00	20.00
10.900	114.00	948.16	.33	-.22	.72	5.00	20.00
10.900	138.00	948.59	.43	-.28	1.16	5.00	20.00
11.100	97.00	948.09	0.00	.66	0.00	5.00	50.00
11.100	107.00	949.14	1.05	1.32	1.05	5.00	50.00
11.100	114.00	949.72	.58	1.57	1.63	5.00	50.00
11.100	138.00	951.03	1.31	2.44	2.94	5.00	50.00
11.300	97.00	948.78	0.00	.69	0.00	15.40	10.00
11.300	107.00	949.44	.66	.29	.66	19.99	10.00
11.300	114.00	950.01	.57	.28	1.23	23.96	10.00
11.300	138.00	951.33	1.32	.30	2.55	63.89	10.00
11.800	97.00	950.73	0.00	1.95	0.00	18.39	1170.00
11.800	107.00	950.96	.23	1.53	.23	26.31	1170.00
11.800	114.00	951.18	.22	1.18	.45	33.81	1170.00
11.800	138.00	951.94	.75	.61	1.21	59.13	1170.00
11.900	97.00	950.76	0.00	.03	0.00	6.00	50.00
11.900	107.00	950.99	.22	.02	.22	6.00	50.00

11:900	114:00	951:20	:21	-:01	:43	6:00	50:00
11.900	138.00	951.91	.71	-.03	1.15	6.00	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12.000	97.00	950.76	0.00	.00	0.00	6.00	1.00
12.000	107.00	950.99	.22	.00	.22	6.00	1.00
12.000	114.00	951.20	.21	.00	.43	6.00	1.00
12.000	138.00	951.90	.70	-.01	1.13	6.00	1.00
12.100	97.00	950.82	0.00	.06	0.00	6.00	44.00
12.100	107.00	951.05	.23	.06	.23	6.00	44.00
12.100	114.00	951.26	.21	.06	.44	6.00	44.00
12.100	138.00	951.99	.72	.09	1.17	6.00	44.00
12.200	97.00	950.82	0.00	.00	0.00	6.00	1.00
12.200	107.00	951.05	.23	.00	.23	6.00	1.00
12.200	114.00	951.26	.21	.00	.44	6.00	1.00
12.200	138.00	952.05	.78	.06	1.23	6.00	1.00
12.300	97.00	951.08	0.00	.26	0.00	30.27	50.00
12.300	107.00	951.33	.25	.28	.25	38.87	50.00
12.300	114.00	951.55	.22	.29	.48	46.44	50.00
12.300	138.00	952.37	.81	.32	1.29	74.10	50.00
12.500	173.00	951.38	0.00	.31	0.00	766.73	2100.00
12.500	248.00	951.64	.25	.31	.25	817.57	2100.00
12.500	304.00	951.84	.21	.29	.46	856.63	2100.00
12.500	487.00	952.57	.73	.20	1.19	994.30	2100.00
12.800	101.00	951.54	0.00	.16	0.00	370.31	1400.00
12.800	109.00	951.78	.24	.14	.24	498.88	1400.00
12.800	116.00	951.97	.19	.12	.43	646.89	1400.00
12.800	139.00	952.64	.67	.07	1.10	932.36	1400.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR TRIBUTARY TO GRA

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10	2	0.2
9.000	0.	-.90	-.30	.40
9.800	930.	-.78	-.28	.39
9.900	980.	-.83	-.29	.34
10.100	1040.	-.72	-.30	.98
10.300	1060.	-.85	-.37	.50
10.800	1910.	-.75	-.33	.49
10.900	1930.	-.72	-.33	.43
11.100	1980.	-1.63	-.58	1.31
11.300	1990.	-1.23	-.57	1.32
11.800	3160.	-.45	-.22	.75
11.900	3210.	-.43	-.21	.71
12.000	3211.	-.43	-.21	.70
12.100	3255.	-.44	-.21	.72
12.200	3256.	-.44	-.21	.78
12.300	3306.	-.48	-.22	.81
12.500	5406.	-.46	-.21	.73
12.800	6806.	-.43	-.19	.67
WEIGHTED AVG FOR REACH		-.63	-.27	.71

FHF FOR THE REACH = 005 WITH 99.1 OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

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**********************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR =  01,02,03
 MODIFICATION -  50,51,52,53
**********************************************************
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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Tributary to Grand River

4) DOCUMENT TYPE: 50 - 100 - 500 yr runs

00BREAK00

Multi Profile
Unnamed Trib.
Summit

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

C
T1              FIS  SUMMIT TOWNSHIP
T2      10 YEAR LEVEL
T3              TRIBUTARY TO GRAND RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       2.        0.        0.  0.000000      0.00      0.0         0.    946.100     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    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      .080      .080      .040      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000    97.000   107.000   114.000   138.000   114.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

                VALLEY SECTION A

X1     9.000    13.000  2000.000  2020.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   955.000  1200.000   950.000  1250.000   946.500  1290.000   945.800  1330.000   945.800  2000.000
GR   943.000  2004.000   942.000  2007.000   942.300  2010.000   942.200  2016.000   946.300  2020.000
GR   946.300  2280.000   950.000  2320.000   955.000  2380.000     0.000     0.000     0.000     0.000

X1     9.800    28.000  1997.000  2049.000  1000.000   800.000   930.000     0.000     0.000     0.000
GR   952.000  1750.000   949.800  1827.000   949.200  1847.000   948.200  1865.000   947.600  1901.000
GR   948.000  1921.000   947.200  1938.000   946.600  1943.000   944.900  1963.000   947.000  1997.000
GR   943.800  2000.000   943.700  2006.000   943.000  2010.000   943.800  2014.000   943.800  2018.000
GR   943.200  2022.000   942.700  2036.000   942.700  2037.000   943.300  2041.000   944.100  2046.000
GR   947.600  2049.000   948.400  2057.000   949.600  2129.000   949.500  2141.000   949.900  2206.000
GR   954.600  2259.000   956.700  2311.000   955.800  2383.000     0.000     0.000     0.000     0.000
NC      .080      .080      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
ET     7.100     7.100     7.100     7.100     7.100     7.100  2000.000  2006.000     0.000     0.000

X1     9.900    32.000  2000.000  2006.000    50.000    50.000    50.000     0.000     0.000     0.000
GR   966.900  1189.000   965.900  1248.000   963.500  1329.000   960.800  1404.000   957.900  1478.000
GR   955.000  1554.000   951.600  1659.000   950.400  1730.000   949.600  1803.000   948.900  1874.000
GR   948.300  1959.000   948.500  2000.000   943.400  2000.000   943.300  2001.000   943.200  2002.000
GR   943.300  2003.000   943.200  2004.000   943.300  2005.000   943.700  2006.000   948.500  2006.000
GR   948.700  2027.000   949.700  2103.000   951.700  2177.000   953.800  2240.000   955.700  2304.000
```

GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	17.000	0.000	943.200	943.200
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B PLATEAU ST.

X1	10.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	30.000	1189.000	966.900	0.000	1248.000	965.900	0.000	1329.000	963.500	0.000
BT	1404.000	960.800	0.000	1478.000	957.900	0.000	1554.000	955.000	0.000	1659.000
BT	951.600	0.000	1730.000	950.400	0.000	1803.000	949.600	0.000	1874.000	948.900
BT	0.000	1959.000	948.300	0.000	2000.000	948.500	943.400	2001.000	948.500	945.900
BT	2002.000	948.500	947.100	2003.000	948.500	947.400	2004.000	948.500	947.100	2005.000
BT	948.500	945.900	2006.000	948.500	943.700	2027.000	948.700	0.000	2103.000	949.700
BT	0.000	2177.000	951.700	0.000	2240.000	953.800	0.000	2304.000	955.700	0.000
BT	2352.000	956.400	0.000	2496.000	957.200	0.000	2587.000	957.600	0.000	2691.000
BT	957.900	0.000	2706.000	957.900	0.000	2738.000	958.600	0.000	2764.000	959.400
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	1968.000	2018.000	0.000	0.000

X1	10.300	37.000	1980.000	2014.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	966.900	1189.000	965.900	1248.000	963.500	1329.000	960.800	1404.000	957.900	1478.000
GR	955.000	1554.000	951.600	1659.000	950.400	1730.000	949.600	1803.000	948.900	1874.000
GR	948.000	1922.000	947.700	1942.000	947.300	1961.000	946.400	1968.000	946.400	1979.000
GR	945.900	1980.000	943.300	2000.000	943.000	2003.000	943.700	2006.000	944.800	2010.000
GR	944.900	2014.000	945.700	2018.000	947.800	2020.000	948.000	2020.000	948.100	2040.000
GR	948.200	2050.000	949.700	2103.000	951.700	2177.000	953.800	2240.000	955.700	2304.000
GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	10.800	44.000	2095.000	2119.000	750.000	850.000	850.000	0.000	0.000	0.000
GR	967.100	1343.000	966.600	1452.000	964.400	1519.000	963.600	1612.000	962.700	1667.000
GR	962.700	1685.000	962.400	1780.000	960.100	1797.000	959.200	1897.000	958.000	1916.000
GR	957.700	1944.000	957.300	1949.000	959.400	1971.000	958.800	2010.000	957.600	2018.000
GR	954.000	2029.000	953.400	2037.000	953.100	2045.000	951.700	2046.000	949.700	2070.000
GR	947.300	2082.000	946.800	2095.000	944.400	2100.000	944.200	2101.000	944.400	2103.000
GR	948.300	2119.000	950.060	2150.000	954.600	2200.000	957.000	2215.000	956.700	2240.000
GR	956.700	2247.000	958.600	2298.000	959.800	2298.000	959.900	2300.000	961.300	2316.000
GR	962.200	2373.000	961.400	2375.000	961.400	2391.000	962.400	2394.000	962.500	2400.000
GR	962.800	2410.000	964.100	2412.000	966.000	2498.000	966.500	2500.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	10.900	27.000	2100.000	2105.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1459.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.200	1757.000	958.200	1825.000	956.900	1891.000	956.000	2000.000
GR	955.200	2100.000	945.500	2100.000	944.000	2101.000	943.900	2102.500	944.200	2104.000
GR	946.000	2105.000	955.200	2105.000	954.800	2160.000	955.100	2200.000	955.400	2236.000
GR	956.800	2310.000	959.900	2382.000	962.700	2448.000	965.000	2514.000	965.900	2545.000
GR	966.600	2580.000	967.400	2645.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.200	3.000	0.000	3.500	0.000	15.500	0.000	943.900	943.900
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION C BADGELY RD.

X1	11.100	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	25.000	1403.000	965.800	0.000	1459.000	964.800	0.000	1529.000	963.400	0.000
BT	1577.000	962.200	0.000	1624.000	961.200	0.000	1690.000	960.200	0.000	1757.000
BT	959.200	0.000	1825.000	958.200	0.000	1891.000	956.900	0.000	2000.000	956.000
BT	0.000	2100.000	955.200	945.500	2101.000	955.200	947.700	2102.500	955.200	948.100
BT	2104.000	955.200	947.600	2105.000	955.200	946.000	2160.000	954.800	0.000	2200.000
BT	955.100	0.000	2236.000	955.400	0.000	2310.000	956.800	0.000	2382.000	959.900
BT	0.000	2448.000	962.700	0.000	2514.000	965.000	0.000	2545.000	965.900	0.000
BT	2580.000	966.600	0.000	2645.000	967.400	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	11.300	25.000	2100.000	2115.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1495.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.600	1757.000	958.300	1825.000	956.900	1891.000	956.000	2000.000
GR	954.700	2054.000	953.700	2072.000	948.100	2100.000	944.200	2101.000	944.400	2102.000
GR	944.700	2104.000	950.300	2115.000	951.400	2150.000	953.400	2232.000	954.500	2280.000
GR	955.500	2288.000	959.000	2312.000	960.500	2333.000	961.600	2350.000	961.400	2371.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000

X1	11.800	30.000	2092.000	2104.000	1300.000	1050.000	1170.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	11.900	27.000	2094.000	2100.000	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	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	954.000	2094.000	946.300	2094.000	946.200	2097.000	946.700	2100.000	953.400	2100.000
GR	953.800	2200.000	960.000	2400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	12.000	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	0.000	959.400	0.000	100.000	958.700	0.000	200.000	958.100	0.000
BT	300.000	957.400	0.000	400.000	956.800	0.000	500.000	956.100	0.000	600.000
BT	955.500	0.000	700.000	954.800	0.000	757.000	954.200	0.000	853.000	953.100
BT	0.000	956.000	953.000	0.000	1211.000	950.800	0.000	1309.000	950.800	0.000
BT	1407.000	951.000	0.000	1505.000	952.200	0.000	1604.000	953.500	0.000	1701.000
BT	954.600	0.000	1801.000	955.300	0.000	1899.000	955.400	0.000	1998.000	954.500
BT	0.000	2094.000	954.000	946.300	2094.000	954.000	951.600	2100.000	953.400	951.600
BT	2100.000	953.400	946.700	2200.000	953.800	0.000	2400.000	960.000	0.000	0.000

BRIDGE SECTION D HORTON RD.

X1	12.100	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	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	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.200	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
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000
X1	12.300	30.000	2092.000	2104.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
QT	5.000	173.000	248.000	304.000	487.000	304.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	12.500	14.000	2000.000	2020.000	1800.000	1900.000	2100.000	0.000	0.000	0.000
GR	960.000	900.000	955.000	1360.000	952.800	1400.000	950.000	1800.000	950.000	1800.000
GR	950.000	2000.000	949.000	2005.000	948.000	2010.000	948.500	2015.000	950.000	2020.000
GR	950.000	2300.000	952.000	2400.000	955.000	2540.000	960.000	2630.000	0.000	0.000
QT	5.000	101.000	109.000	116.000	139.000	116.000	0.000	0.000	0.000	0.000

VALLEY SECTION F

X1	12.800	32.000	1990.000	2010.000	1200.000	1400.000	1400.000	0.000	0.000	0.000
GR	964.000	245.000	955.100	652.000	954.900	755.000	952.400	944.000	952.300	970.000
GR	951.700	1100.000	951.900	1200.000	951.300	1300.000	950.700	1400.000	951.000	1500.000
GR	951.400	1600.000	953.700	1800.000	952.400	1900.000	952.300	1950.000	951.600	1990.000
GR	950.400	1994.000	949.800	2000.000	949.400	2001.000	949.600	2003.000	950.400	2005.000
GR	952.900	2010.000	953.100	2018.000	953.200	2100.000	954.800	2400.000	955.500	2500.000
GR	954.700	2600.000	952.800	2700.000	953.400	2800.000	952.500	2900.000	954.800	3000.000
GR	957.000	3100.000	960.800	3200.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       3.        0.        0.  0.000000     0.00       0.0       0.   946.700     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2
T3
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      4.        0.        0.   0.000000     0.00      0.0       0.     947.000    0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3
J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       5.        0.        0.  0.000000      0.00      0.0       0.  947.400    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
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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.000	0.00	0.00	0.00	942.00	97.00	946.10	0.00	946.12	2.64	1.16	263.54	59.68
9.000	0.00	0.00	0.00	942.00	107.00	946.70	0.00	946.70	.37	.49	802.04	175.23
9.000	0.00	0.00	0.00	942.00	114.00	947.00	0.00	947.00	.18	.36	1102.03	267.06
9.000	0.00	0.00	0.00	942.00	138.00	947.40	0.00	947.40	.11	.30	1505.12	418.48
9.800	930.00	0.00	0.00	942.70	97.00	946.24	0.00	946.25	.90	.67	164.05	102.21
9.800	930.00	0.00	0.00	942.70	107.00	946.74	0.00	946.75	.62	.61	210.55	135.92
9.800	930.00	0.00	0.00	942.70	114.00	947.02	0.00	947.03	.52	.59	240.38	158.16
9.800	930.00	0.00	0.00	942.70	138.00	947.42	0.00	947.42	.51	.62	284.23	194.03
9.900	50.00	0.00	0.00	943.20	97.00	945.98	0.00	946.55	159.30	6.04	16.05	7.69
9.900	50.00	0.00	0.00	943.20	107.00	946.52	0.00	947.00	119.65	5.56	19.25	9.78
9.900	50.00	0.00	0.00	943.20	114.00	946.81	0.00	947.26	108.32	5.43	21.00	10.95
9.900	50.00	0.00	0.00	943.20	138.00	947.15	0.00	947.71	124.74	5.99	23.05	12.36
10.100	60.00	948.30	947.40	943.20	97.00	946.65	0.00	947.24	85.03	6.17	15.71	10.52
10.100	60.00	948.30	947.40	943.20	107.00	947.07	0.00	947.70	93.38	6.39	16.74	11.07
10.100	60.00	948.30	947.40	943.20	114.00	947.37	0.00	948.06	116.90	6.67	17.10	10.54
10.100	60.00	948.30	947.40	943.20	138.00	948.35	0.00	948.67	24.55	4.56	30.70	27.85
10.300	20.00	0.00	0.00	943.00	97.00	947.41	0.00	947.42	1.30	.89	124.91	85.10
10.300	20.00	0.00	0.00	943.00	107.00	947.89	0.00	947.90	.95	.83	148.76	109.70
10.300	20.00	0.00	0.00	943.00	114.00	948.26	0.00	948.27	.76	.80	167.17	130.40
10.300	20.00	0.00	0.00	943.00	138.00	948.76	0.00	948.77	.74	.85	192.33	160.93
10.800	850.00	0.00	0.00	944.20	97.00	947.63	0.00	947.71	15.75	2.24	49.40	24.44
10.800	850.00	0.00	0.00	944.20	107.00	948.05	0.00	948.10	10.16	1.95	65.01	33.56
10.800	850.00	0.00	0.00	944.20	114.00	948.38	0.00	948.42	7.17	1.75	78.82	42.58
10.800	850.00	0.00	0.00	944.20	138.00	948.87	0.00	948.91	5.31	1.71	103.15	59.87
10.900	20.00	0.00	0.00	943.90	97.00	947.43	0.00	948.05	170.09	6.33	15.33	7.44
10.900	20.00	0.00	0.00	943.90	107.00	947.83	0.00	948.42	152.71	6.19	17.29	8.66
10.900	20.00	0.00	0.00	943.90	114.00	948.16	0.00	948.72	138.19	6.02	18.94	9.70
10.900	20.00	0.00	0.00	943.90	138.00	948.59	0.00	949.25	155.36	6.54	21.10	11.07
11.100	50.00	954.80	948.10	943.90	97.00	948.09	0.00	948.72	106.35	6.39	15.17	9.41
11.100	50.00	954.80	948.10	943.90	107.00	949.14	0.00	949.45	27.07	4.48	23.87	20.56
11.100	50.00	954.80	948.10	943.90	114.00	949.72	0.00	950.01	23.37	4.26	26.77	23.58
11.100	50.00	954.80	948.10	943.90	138.00	951.03	0.00	951.30	20.54	4.14	33.30	30.45

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.300	10.00	0.00	0.00	944.20	97.00	948.78	0.00	948.92	26.55	3.02	33.04	18.83
11.300	10.00	0.00	0.00	944.20	107.00	949.44	0.00	949.54	16.12	2.60	44.70	26.65
11.300	10.00	0.00	0.00	944.20	114.00	950.01	0.00	950.08	10.53	2.26	57.23	35.13
11.300	10.00	0.00	0.00	944.20	138.00	951.33	0.00	951.37	4.28	1.77	110.80	66.69
11.800	1170.00	0.00	0.00	946.00	97.00	950.73	0.00	950.81	10.80	2.28	43.42	29.52
11.800	1170.00	0.00	0.00	946.00	107.00	950.96	0.00	951.05	10.50	2.35	48.62	33.02
11.800	1170.00	0.00	0.00	946.00	114.00	951.18	0.00	951.27	9.64	2.34	55.25	36.71
11.800	1170.00	0.00	0.00	946.00	138.00	951.94	0.00	952.00	6.83	2.21	89.87	52.79
11.900	50.00	0.00	0.00	946.20	97.00	950.76	0.00	950.97	43.85	3.66	26.48	14.65
11.900	50.00	0.00	0.00	946.20	107.00	950.99	0.00	951.22	47.12	3.85	27.82	15.59
11.900	50.00	0.00	0.00	946.20	114.00	951.20	0.00	951.44	47.86	3.92	29.08	16.48
11.900	50.00	0.00	0.00	946.20	138.00	951.91	0.00	952.18	49.92	4.14	33.36	19.53
12.000	1.00	950.80	951.60	946.20	97.00	950.76	0.00	950.97	11.38	3.66	26.49	28.75
12.000	1.00	950.80	951.60	946.20	107.00	950.99	0.00	951.22	12.36	3.84	27.83	30.44
12.000	1.00	950.80	951.60	946.20	114.00	951.20	0.00	951.44	12.67	3.92	29.10	32.03
12.000	1.00	950.80	951.60	946.20	138.00	951.90	0.00	952.20	20.34	4.38	31.50	30.60
12.100	44.00	950.80	951.60	946.20	97.00	950.82	0.00	951.02	11.06	3.62	26.83	29.17
12.100	44.00	950.80	951.60	946.20	107.00	951.05	0.00	951.27	11.99	3.79	28.20	30.90
12.100	44.00	950.80	951.60	946.20	114.00	951.26	0.00	951.49	12.30	3.87	29.47	32.50
12.100	44.00	950.80	951.60	946.20	138.00	951.99	0.00	952.28	20.34	4.38	31.50	30.60
12.200	1.00	0.00	0.00	946.20	97.00	950.82	0.00	951.03	42.40	3.62	26.83	14.90
12.200	1.00	0.00	0.00	946.20	107.00	951.05	0.00	951.28	45.50	3.79	28.21	15.86
12.200	1.00	0.00	0.00	946.20	114.00	951.26	0.00	951.50	46.26	3.87	29.48	16.76
12.200	1.00	0.00	0.00	946.20	138.00	952.05	0.00	952.30	47.01	4.04	34.19	20.13
12.300	50.00	0.00	0.00	946.00	97.00	951.08	0.00	951.14	7.72	2.06	51.91	34.92
12.300	50.00	0.00	0.00	946.00	107.00	951.33	0.00	951.40	7.36	2.09	60.67	39.44
12.300	50.00	0.00	0.00	946.00	114.00	951.55	0.00	951.62	6.73	2.07	70.16	43.95
12.300	50.00	0.00	0.00	946.00	138.00	952.37	0.00	952.41	4.42	1.88	119.20	65.63
12.500	2100.00	0.00	0.00	948.00	173.00	951.38	0.00	951.38	.65	.55	898.48	213.77
12.500	2100.00	0.00	0.00	948.00	248.00	951.64	0.00	951.64	.74	.62	1107.28	287.43
12.500	2100.00	0.00	0.00	948.00	304.00	951.84	0.00	951.85	.75	.65	1276.85	351.57
12.500	2100.00	0.00	0.00	948.00	487.00	952.57	0.00	952.57	.58	.67	1946.78	639.54
12.800	1400.00	0.00	0.00	949.40	101.00	951.54	0.00	951.55	12.02	1.45	185.37	29.14
12.800	1400.00	0.00	0.00	949.40	109.00	951.78	0.00	951.78	4.80	1.00	283.32	49.77
12.800	1400.00	0.00	0.00	949.40	116.00	951.97	0.00	951.97	2.57	.79	393.93	72.35
12.800	1400.00	0.00	0.00	949.40	139.00	952.64	0.00	952.64	.43	.39	923.92	210.95

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.000	97.00	946.10	0.00	0.00	0.00	706.95	0.00
9.000	107.00	946.70	.60	0.00	0.00	996.61	0.00
9.000	114.00	947.00	.30	0.00	0.00	1003.28	0.00
9.000	138.00	947.40	.40	0.00	0.00	1012.18	0.00
9.800	97.00	946.24	0.00	.14	0.00	87.70	930.00
9.800	107.00	946.74	.50	.04	0.00	101.82	930.00
9.800	114.00	947.02	.28	.02	0.00	108.97	930.00
9.800	138.00	947.42	.39	.02	0.00	115.30	930.00
9.900	97.00	945.98	0.00	-.26	0.00	6.00	50.00
9.900	107.00	946.52	.54	-.23	.54	6.00	50.00
9.900	114.00	946.81	.29	-.22	.83	6.00	50.00
9.900	138.00	947.15	.34	-.27	1.17	6.00	50.00
10.100	97.00	946.65	0.00	.67	0.00	6.00	60.00
10.100	107.00	947.07	.42	.55	.42	6.00	60.00
10.100	114.00	947.37	.30	.56	.72	6.00	60.00
10.100	138.00	948.35	.98	1.20	1.70	23.60	60.00
10.300	97.00	947.41	0.00	.76	0.00	50.00	20.00
10.300	107.00	947.89	.48	.82	.48	50.00	20.00
10.300	114.00	948.26	.37	.89	.85	50.00	20.00
10.300	138.00	948.76	.50	.41	1.35	50.00	20.00
10.800	97.00	947.63	0.00	.22	0.00	35.91	850.00
10.800	107.00	948.05	.41	.16	.41	39.67	850.00
10.800	114.00	948.38	.33	.12	.75	43.78	850.00
10.800	138.00	948.87	.49	.11	1.24	54.92	850.00
10.900	97.00	947.43	0.00	-.20	0.00	5.00	20.00
10.900	107.00	947.83	.39	-.22	.39	5.00	20.00
10.900	114.00	948.16	.33	-.22	.72	5.00	20.00
10.900	138.00	948.59	.43	-.28	1.16	5.00	20.00
11.100	97.00	948.09	0.00	.66	0.00	5.00	50.00
11.100	107.00	949.14	1.05	1.32	1.05	5.00	50.00
11.100	114.00	949.72	.58	1.57	1.63	5.00	50.00
11.100	138.00	951.03	1.31	2.44	2.94	5.00	50.00
11.300	97.00	948.78	0.00	.69	0.00	15.40	10.00
11.300	107.00	949.44	.66	.29	.66	19.99	10.00
11.300	114.00	950.01	.57	.28	1.23	23.96	10.00
11.300	138.00	951.33	1.32	.30	2.55	63.89	10.00
11.800	97.00	950.73	0.00	1.95	0.00	18.39	1170.00
11.800	107.00	950.96	.23	1.53	.23	26.31	1170.00
11.800	114.00	951.18	.22	1.18	.45	33.81	1170.00
11.800	138.00	951.94	.75	.61	1.21	59.13	1170.00
11.900	97.00	950.76	0.00	.03	0.00	6.00	50.00
11.900	107.00	950.99	.22	.02	.22	6.00	50.00

11.900	114.00	951.20	.21	-.01	.43	6.00	50.00
11.900	138.00	951.91	.71	-.03	1.15	6.00	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12.000	97.00	950.76	0.00	.00	0.00	6.00	1.00
12.000	107.00	950.99	.22	.00	.22	6.00	1.00
12.000	114.00	951.20	.21	.00	.43	6.00	1.00
12.000	138.00	951.90	.70	-.01	1.13	6.00	1.00
12.100	97.00	950.82	0.00	.06	0.00	6.00	44.00
12.100	107.00	951.05	.23	.06	.23	6.00	44.00
12.100	114.00	951.26	.21	.06	.44	6.00	44.00
12.100	138.00	951.99	.72	.09	1.17	6.00	44.00
12.200	97.00	950.82	0.00	.00	0.00	6.00	1.00
12.200	107.00	951.05	.23	.00	.23	6.00	1.00
12.200	114.00	951.26	.21	.00	.44	6.00	1.00
12.200	138.00	952.05	.78	.06	1.23	6.00	1.00
12.300	97.00	951.08	0.00	.26	0.00	30.27	50.00
12.300	107.00	951.33	.25	.28	.25	38.87	50.00
12.300	114.00	951.55	.22	.29	.48	46.44	50.00
12.300	138.00	952.37	.81	.32	1.29	74.10	50.00
12.500	173.00	951.38	0.00	.31	0.00	766.73	2100.00
12.500	248.00	951.64	.25	.31	.25	817.57	2100.00
12.500	304.00	951.84	.21	.29	.46	856.63	2100.00
12.500	487.00	952.57	.73	.20	1.19	994.30	2100.00
12.800	101.00	951.54	0.00	.16	0.00	370.31	1400.00
12.800	109.00	951.78	.24	.14	.24	498.88	1400.00
12.800	116.00	951.97	.19	.12	.43	646.89	1400.00
12.800	139.00	952.64	.67	.07	1.10	932.36	1400.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR TRIBUTARY TO GRA

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10	2	0.2
9.000	0.	-.90	-.30	.40
9.800	930.	-.78	-.28	.39
9.900	980.	-.83	-.29	.34
10.100	1040.	-.72	-.30	.98
10.300	1060.	-.85	-.37	.50
10.800	1910.	-.75	-.33	.49
10.900	1930.	-.72	-.33	.43
11.100	1980.	-1.63	-.58	1.31
11.300	1990.	-1.23	-.57	1.32
11.800	3160.	-.45	-.22	.75
11.900	3210.	-.43	-.21	.71
12.000	3211.	-.43	-.21	.70
12.100	3255.	-.44	-.21	.72
12.200	3256.	-.44	-.21	.78
12.300	3306.	-.48	-.22	.81
12.500	5406.	-.46	-.21	.73
12.800	6806.	-.43	-.19	.67
WEIGHTED AVG FOR REACH		-.63	-.27	.71

FHF FOR THE REACH = 005 WITH 99.1 OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

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**********************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************
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00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Tributary to Grand River

4) DOCUMENT TYPE: 100 yr run

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
C
T1              FIS  SUMMIT TOWNSHIP
T2              100  YR LEVEL
T3              TRIBUTARY TO GRAND RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.        0.        0.  0.000000      0.00      0.0       0.   947.000    0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    1.000      0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   38.000      1.000    42.000    41.000    40.000    53.000    27.000    21.000    22.000     2.000
   54.000      4.000    39.000     0.000   150.000   200.000     0.000     0.000     0.000     0.000
NC    .080       .080      .040      .100      .300     0.000     0.000     0.000     0.000     0.000
QT   5.000     97.000    107.000   114.000   138.000   114.000     0.000     0.000     0.000     0.000
ET   0.000      0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

VALLEY SECTION A
X1   9.000     13.000  2000.000  2020.000     0.000     0.000     0.000     0.000     0.000     0.000
GR 955.000   1200.000   950.000  1250.000   946.500  1290.000   945.800  1330.000   945.800  2000.000
GR 943.000   2004.000   942.000  2007.000   942.300  2010.000   942.200  2016.000   946.300  2020.000
GR 946.300   2280.000   950.000  2320.000   955.000  2380.000     0.000     0.000     0.000     0.000

X1   9.800     28.000  1997.000  2049.000  1000.000   800.000   930.000     0.000     0.000     0.000
GR 952.000   1750.000   949.800  1827.000   949.200  1847.000   948.200  1865.000   947.600  1901.000
GR 948.000   1921.000   947.200  1938.000   946.600  1943.000   944.900  1963.000   947.000  1997.000
GR 943.800   2000.000   943.700  2006.000   943.000  2010.000   943.800  2014.000   943.800  2018.000
GR 943.200   2022.000   942.700  2036.000   942.700  2037.000   943.300  2041.000   944.100  2046.000
GR 947.600   2049.000   948.400  2057.000   949.600  2129.000   949.500  2141.000   949.900  2206.000
GR 954.600   2259.000   956.700  2311.000   955.800  2383.000     0.000     0.000     0.000     0.000
NC    .080       .080      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
ET   7.100      7.100     7.100     7.100     7.100     7.100  2000.000  2006.000     0.000     0.000

X1   9.900     32.000  2000.000  2006.000    50.000    50.000    50.000     0.000     0.000     0.000
GR 966.900   1189.000   965.900  1248.000   963.500  1329.000   960.800  1404.000   957.900  1478.000
GR 955.000   1554.000   951.600  1659.000   950.400  1730.000   949.600  1803.000   948.900  1874.000
GR 948.300   1959.000   948.500  2000.000   943.400  2000.000   943.300  2001.000   943.200  2002.000
GR 943.300   2003.000   943.200  2004.000   943.300  2005.000   943.700  2006.000   948.500  2006.000
GR 948.700   2027.000   949.700  2103.000   951.700  2177.000   953.800  2240.000   955.700  2304.000
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MOORE BUSINESS FORMS, INC. 23

GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	17.000	0.000	943.200	943.200
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION B PLATEAU ST.

X1	10.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	30.000	1189.000	966.900	0.000	1248.000	965.900	0.000	1329.000	963.500	0.000
BT	1404.000	960.800	0.000	1478.000	957.900	0.000	1554.000	955.000	0.000	1659.000
BT	951.600	0.000	1730.000	950.400	0.000	1803.000	949.600	0.000	1874.000	948.900
BT	0.000	1959.000	948.300	0.000	2000.000	948.500	943.400	2001.000	948.500	945.900
BT	2002.000	948.500	947.100	2003.000	948.500	947.400	2004.000	948.500	947.100	2005.000
BT	948.500	945.900	2006.000	948.500	943.700	2027.000	948.700	0.000	2103.000	949.700
BT	0.000	2177.000	951.700	0.000	2240.000	953.800	0.000	2304.000	955.700	0.000
BT	2352.000	956.400	0.000	2496.000	957.200	0.000	2587.000	957.600	0.000	2691.000
BT	957.900	0.000	2706.000	957.900	0.000	2738.000	958.600	0.000	2764.000	959.400
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	1968.000	2018.000	0.000	0.000

X1	10.300	37.000	1980.000	2014.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	966.900	1189.000	965.900	1248.000	963.500	1329.000	960.800	1404.000	957.900	1478.000
GR	955.000	1554.000	951.600	1659.000	950.400	1730.000	949.600	1803.000	948.900	1874.000
GR	948.000	1922.000	947.700	1942.000	947.300	1961.000	946.400	1968.000	946.400	1979.000
GR	945.900	1980.000	943.300	2000.000	943.000	2003.000	943.700	2006.000	944.800	2010.000
GR	944.900	2014.000	945.700	2018.000	947.800	2020.000	948.000	2020.000	948.100	2040.000
GR	948.200	2050.000	949.700	2103.000	951.700	2177.000	953.800	2240.000	955.700	2304.000
GR	956.400	2352.000	957.200	2496.000	957.600	2587.000	957.900	2691.000	957.900	2706.000
GR	958.600	2738.000	959.400	2764.000	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	10.800	44.000	2095.000	2119.000	750.000	850.000	850.000	0.000	0.000	0.000
GR	967.100	1343.000	966.600	1452.000	964.400	1519.000	963.600	1612.000	962.700	1667.000
GR	962.700	1685.000	962.400	1780.000	960.100	1797.000	959.200	1897.000	958.000	1916.000
GR	957.700	1944.000	957.300	1949.000	959.400	1971.000	958.800	2010.000	957.600	2018.000
GR	954.000	2029.000	953.400	2037.000	953.100	2045.000	951.700	2046.000	949.700	2070.000
GR	947.300	2082.000	946.800	2095.000	944.400	2100.000	944.200	2101.000	944.400	2103.000
GR	948.300	2119.000	950.060	2150.000	954.600	2200.000	957.000	2215.000	956.700	2240.000
GR	956.700	2247.000	958.600	2298.000	959.800	2298.000	959.900	2300.000	961.300	2316.000
GR	962.200	2373.000	961.400	2375.000	961.400	2391.000	962.400	2394.000	962.500	2400.000
GR	962.800	2410.000	964.100	2412.000	966.000	2498.000	966.500	2500.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	10.900	27.000	2100.000	2105.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1459.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.200	1757.000	958.200	1825.000	956.900	1891.000	956.000	2000.000
GR	955.200	2100.000	945.500	2100.000	944.000	2101.000	943.900	2102.500	944.200	2104.000
GR	946.000	2105.000	955.200	2105.000	954.800	2160.000	955.100	2200.000	955.400	2236.000
GR	956.800	2310.000	959.900	2382.000	962.700	2448.000	965.000	2514.000	965.900	2545.000
GR	966.600	2580.000	967.400	2645.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.200	3.000	0.000	3.500	0.000	15.500	0.000	943.900	943.900
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC 23

BRIDGE SECTION C BADGELY RD.

X1	11.100	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	25.000	1403.000	965.800	0.000	1459.000	964.800	0.000	1529.000	963.400	0.000
BT	1577.000	962.200	0.000	1624.000	961.200	0.000	1690.000	960.200	0.000	1757.000
BT	959.200	0.000	1825.000	958.200	0.000	1891.000	956.900	0.000	2000.000	956.000
BT	0.000	2100.000	955.200	945.500	2101.000	955.200	947.700	2102.500	955.200	948.100
BT	2104.000	955.200	947.600	2105.000	955.200	946.000	2160.000	954.800	0.000	2200.000
BT	955.100	0.000	2236.000	955.400	0.000	2310.000	956.800	0.000	2382.000	959.900
BT	0.000	2448.000	962.700	0.000	2514.000	965.000	0.000	2545.000	965.900	0.000
BT	2580.000	966.600	0.000	2645.000	967.400	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	11.300	25.000	2100.000	2115.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	965.800	1403.000	964.800	1495.000	963.400	1529.000	962.200	1577.000	961.200	1624.000
GR	960.200	1690.000	959.600	1757.000	958.300	1825.000	956.900	1891.000	956.000	2000.000
GR	954.700	2054.000	953.700	2072.000	948.100	2100.000	944.200	2101.000	944.400	2102.000
GR	944.700	2104.000	950.300	2115.000	951.400	2150.000	953.400	2232.000	954.500	2280.000
GR	955.500	2288.000	959.000	2312.000	960.500	2333.000	961.600	2350.000	961.400	2371.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000

X1	11.800	30.000	2092.000	2104.000	1300.000	1050.000	1170.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	11.900	27.000	2094.000	2100.000	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	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	954.000	2094.000	946.300	2094.000	946.200	2097.000	946.700	2100.000	953.400	2100.000
GR	953.800	2200.000	960.000	2400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	12.000	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	0.000	959.400	0.000	100.000	958.700	0.000	200.000	958.100	0.000
BT	300.000	957.400	0.000	400.000	956.800	0.000	500.000	956.100	0.000	600.000
BT	955.500	0.000	700.000	954.800	0.000	757.000	954.200	0.000	853.000	953.100
BT	0.000	956.000	953.000	0.000	1211.000	950.800	0.000	1309.000	950.800	0.000
BT	1407.000	951.000	0.000	1505.000	952.200	0.000	1604.000	953.500	0.000	1701.000
BT	954.600	0.000	1801.000	955.300	0.000	1899.000	955.400	0.000	1998.000	954.500
BT	0.000	2094.000	954.000	946.300	2094.000	954.000	951.600	2100.000	953.400	951.600
BT	2100.000	953.400	946.700	2200.000	953.800	0.000	2400.000	960.000	0.000	0.000

BRIDGE SECTION D HORTON RD.

MOORE BUSINESS FORMS, INC. 23

X1	12.100	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	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	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.200	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
ET	7.100	7.100	7.100	7.100	7.100	7.100	2082.000	2200.000	0.000	0.000
X1	12.300	30.000	2092.000	2104.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	959.400	0.000	958.700	100.000	958.100	200.000	957.400	300.000	956.800	400.000
GR	956.100	500.000	955.500	600.000	954.800	700.000	954.200	757.000	953.100	853.000
GR	953.000	956.000	950.800	1211.000	950.800	1309.000	951.000	1407.000	952.200	1505.000
GR	953.500	1604.000	954.600	1701.000	955.300	1801.000	955.400	1899.000	954.500	1998.000
GR	952.900	2050.000	952.600	2082.000	950.100	2092.000	947.100	2092.500	946.000	2095.000
GR	946.000	2099.000	947.000	2100.000	950.600	2104.000	953.800	2200.000	960.000	2400.000
QT	5.000	173.000 ✓	248.000 ✓	304.000 ✓	487.000 ✓	304.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	12.500	14.000	2000.000	2020.000	1800.000	1900.000	2100.000	0.000	0.000	0.000
GR	960.000	900.000	955.000	1360.000	952.800	1400.000	950.000	1800.000	950.000	1800.000
GR	950.000	2000.000	949.000	2005.000	948.000	2010.000	948.500	2015.000	950.000	2020.000
GR	950.000	2300.000 ✓	952.000 ✓	2400.000 ✓	955.000 ✓	2540.000	960.000	2630.000	0.000	0.000
QT	5.000	101.000 ✓	109.000 ✓	116.000 ✓	139.000 ✓	116.000	0.000	0.000	0.000	0.000

VALLEY SECTION F

X1	12.800	32.000	1990.000	2010.000	1200.000	1400.000	1400.000	0.000	0.000	0.000
GR	964.000	245.000	955.100	652.000	954.900	755.000	952.400	944.000	952.300	970.000
GR	951.700	1100.000	951.900	1200.000	951.300	1300.000	950.700	1400.000	951.000	1500.000
GR	951.400	1600.000	953.700	1800.000	952.400	1900.000	952.300	1950.000	951.600	1990.000
GR	950.400	1994.000	949.800	2000.000	949.400	2001.000	949.600	2003.000	950.400	2005.000
GR	952.900	2010.000	953.100	2018.000	953.200	2100.000	954.800	2400.000	955.500	2500.000
GR	954.700	2600.000	952.800	2700.000	953.400	2800.000	952.500	2900.000	954.800	3000.000
GR	957.000	3100.000	960.800	3200.000	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 23

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 9.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
			VALLEY SECTION A						
9.00	5.00	947.00	0.00	947.00	947.00	.00	0.00	0.00	945.80
114.	74.	28.	11.	839.	78.	185.	0.	0.	946.30
0.00	.09	.36	.06	.080	.040	.080	0.000	942.00	1284.29
.000018	0.	0.	0.	0	0	0	0.00	1003.28	2287.57

*SECNO 9.800

9.80	4.32	947.02	0.00	0.00	947.03	.00	.03	.00	947.00
114.	9.	105.	0.	62.	178.	0.	15.	12.	947.60
.48	.15	.59	0.00	.080	.040	.080	.039	942.70	1939.53
.000052	1000.	930.	800.	0	0	0	0.00	108.97	2048.50

CCHV= .300 CEHV= .500

*SECNO 9.900

3470 ENCROACHMENT STATIONS=		2000.0	2006.0	TYPE=	1	TARGET=		6.000	
9.90	3.61	946.81	0.00	0.00	947.26	.46	.01	.23	948.50
114.	0.	114.	0.	0.	21.	0.	15.	12.	100000.00
.48	0.00	5.43	0.00	.080	.040	.080	.039	943.20	2000.00
.010832	50.	50.	50.	2	0	0	0.00	6.00	2006.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	FLCHU	ELCHD
	0.00	2.50	3.00	0.00	4.00	0.00	17.00	0.00	943.20	943.20

*SECNO 10.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 947.265 ELLC= 947.400 PCWSE= 946.807 ELTRD= 948.300

3370 NORMAL BRIDGE,NRD= 30 MIN ELTRD= 948.30 MAX ELLC= 947.40

BRIDGE SECTION B PLATEAU ST.

10.10	4.17	947.37	0.00	0.00	948.06	.69	.67	.12	948.50
114.	0.	114.	0.	0.	17.	0.	15.	12.	948.50
.48	0.00	6.67	0.00	.080	.025	.080	.038	943.20	2000.00
.011690	60.	60.	60.	3	0	0	-7.24	6.00	2006.00

MOORE BUSINESS FORMS, INC 23

*SECNO 10.300

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=			1968.0	2018.0	TYPE=	1	TARGET=	50.000	
10.30	5.26	948.26	0.00	0.00	948.27	.01	.01	.20	945.90
114.	5.	106.	3.	23.	133.	12.	15.	12.	944.90
.49	.22	.80	.24	.080	.040	.080	.038	943.00	1968.00
.000076	20.	20.	20.	2	0	0	0.00	50.00	2018.00

CCHV= .100 CEHV= .300

*SECNO 10.800

10.80	4.18	948.38	0.00	0.00	948.42	.04	.15	.01	946.80
114.	11.	103.	0.	20.	59.	0.	17.	13.	948.30
.63	.56	1.75	.00	.080	.040	.080	.039	944.20	2076.61
.000717	750.	850.	850.	3	0	0	0.00	43.78	2120.38

CCHV= .300 CEHV= .500

*SECNO 10.900

3301 HV CHANGED MORE THAN HVINS

10.90	4.26	948.16	0.00	0.00	948.72	.56	.04	.26	955.20
114.	0.	114.	0.	0.	19.	0.	17.	13.	955.20
.63	0.00	6.02	0.00	.080	.040	.080	.039	943.90	2100.00
.013819	20.	20.	20.	2	0	0	0.00	5.00	2105.00

SPECIAL BRIDGE

SK	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.00	0.00	3.50	0.00	15.50	0.00	943.90	943.90

*SECNO 11.100

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPP	BAREA	TRAPEZOID AREA	ELLC	ELTRD
950.01	948.72	0.00	0.	114.	16.	15.	948.10	954.80

BRIDGE SECTION C BADGELY RD.

11.10	5.82	949.72	0.00	0.00	950.01	.28	1.29	0.00	955.20
114.	0.	114.	0.	0.	27.	0.	17.	13.	955.20
.64	0.00	4.26	0.00	.080	.025	.080	.039	943.90	2100.00
.002337	50.	50.	50.	2	0	0	0.00	5.00	2105.00

MOORE BUSINESS FORMS, INC 23

*SECNO 11.300

11.30	5.81	950.01	0.00	0.00	950.08	.08	.02	.06	948.10
114.	5.	109.	0.	9.	48.	0.	17.	13.	950.30
.64	.58	2.26	0.00	.080	.040	.080	.039	944.20	2090.47
.001053	10.	10.	10.	2	0	0	0.00	23.96	2114.42

CCHV= .100 CEHV= .300

*SECNO 11.800

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

3470 ENCROACHMENT STATIONS= 2082.0 2200.0 TYPE= 1 TARGET= 118.000

11.80	5.18	951.18	0.00	0.00	951.27	.08	1.18	.00	950.10
114.	1.	112.	1.	2.	48.	5.	19.	14.	950.60
.78	.38	2.34	.25	.080	.040	.080	.039	946.00	2087.67
.000964	1300.	1170.	1050.	3	0	0	0.00	33.81	2121.48

CCHV= .300 CEHV= .500

*SECNO 11.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 954.00 ELREA= 953.40

11.90	5.00	951.20	0.00	0.00	951.44	.24	.09	.08	954.00
114.	0.	114.	0.	0.	29.	0.	19.	14.	953.40
.78	0.00	3.92	0.00	.080	.040	.080	.039	946.20	2094.00
.004786	50.	50.	50.	2	0	0	0.00	6.00	2100.00

*SECNO 12.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 950.80 MAX ELLC= 951.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 954.00 ELREA= 953.40

12.00	5.00	951.20	0.00	0.00	951.44	.24	.00	.00	954.00
114.	0.	114.	0.	0.	29.	0.	19.	14.	953.40
.78	0.00	3.92	0.00	.080	.015	.080	.039	946.20	2094.00
.001267	1.	1.	1.	0	0	0	0.00	6.00	2100.00

*SECNO 12.100

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 950.80 MAX ELLC= 951.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 954.00 ELREA= 953.40

BRIDGE SECTION D HORTON RD.

12.10	5.06	951.26	0.00	0.00	951.49	.23	.05	.00	954.00
114.	0.	114.	0.	0.	29.	0.	19.	14.	953.40

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.79	0.00	3.87	0.00	.080	.015	.080	.039	946.20	2094.00
.001230	44.	44.	44.	2	0	0	0.00	6.00	2100.00

*SECNO 12.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 954.00 ELREA= 953.40

12.20	5.06	951.26	0.00	0.00	951.50	.23	.00	.00	954.00
114.	0.	114.	0.	0.	29.	0.	19.	14.	953.40
.79	0.00	3.87	0.00	.080	.040	.080	.039	946.20	2094.00
.004626	1.	1.	1.	0	0	0	0.00	6.00	2100.00

*SECNO 12.300

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

3470 ENCROACHMENT STATIONS= 2082.0 2200.0 TYPE= 1 TARGET= 118.000

12.30	5.55	951.55	0.00	0.00	951.62	.06	.07	.05	950.10
114.	2.	108.	4.	4.	52.	14.	19.	14.	950.60
.79	.38	2.07	.29	.080	.040	.080	.039	946.00	2086.18
.000673	50.	50.	50.	2	0	0	0.00	46.44	2132.62

CCHV= .100 CEHV= .300

*SECNO 12.500

12.50	3.84	951.84	0.00	0.00	951.85	.00	.22	.01	950.00
304.	127.	39.	138.	614.	59.	603.	48.	33.	950.00
2.80	.21	.65	.23	.080	.040	.080	.040	948.00	1535.83
.000075	1800.	2100.	1900.	4	0	0	0.00	856.63	2392.46

*SECNO 12.800

3265 DIVIDED FLOW

VALLEY SECTION F

12.80	2.57	951.97	0.00	0.00	951.97	.00	.13	.00	951.60
116.	93.	23.	0.	365.	29.	0.	73.	55.	952.90
3.79	.26	.79	0.00	.080	.040	.080	.041	949.40	1041.77
.000257	1200.	1400.	1400.	2	0	0	0.00	646.89	2008.14

MOORE BUSINESS FORMS INC 23

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
     -10.        6.         0.         0.   0.000000       0.00       0.0        0.     947.000     0.000

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

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 9.000
 2800 NAT Q1=     267.06  WSEL=     947.00  ENC Q1=     267.06  WSEL=     947.10  RATIO=  0.0000
 NAT Q1=     302.  RATIOS LOB,CH,ROB=    .6614    .2271    .1114  WSEL=     947.10
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     1365.4     2147.1  TYPE=      4  TARGET=          .115
                 VALLEY SECTION A

     9.00      5.00    947.00      0.00    947.00    947.00       .00      0.00      0.00    945.80
     114.       76.       31.        6.      762.       78.       89.        0.        0.    946.30
     0.00       .10       .40       .07      .080      .040      .080     0.000    942.00   1365.40
  .000023        0.        0.        0.         0         0         0      0.00    781.69   2147.09

*SECNO 9.800
 2800 NAT Q1=     158.16  WSEL=     947.02  ENC Q1=     158.16  WSEL=     947.12  RATIO=  0.0000
 NAT Q1=     168.  RATIOS LOB,CH,ROB=    .0873    .9127  0.0000  WSEL=     947.12

3470 ENCROACHMENT STATIONS=     1968.7     2049.0  TYPE=      4  TARGET=          .056
     9.80      4.33    947.03      0.00    947.02    947.03       .01       .03       .00    947.00
     114.        3.      111.        0.       26.      179.        0.       13.       10.    947.60
      .44       .13       .62      0.00      .080      .040      .080      .039    942.70   1968.70
  .000057     1000.      930.      800.         0         0         0      0.00     79.81   2048.51

CCHV=     .300 CEHV=     .500
*SECNO 9.900

3470 ENCROACHMENT STATIONS=     2000.0     2006.0  TYPE=      1  TARGET=         6.000
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MOORE BUSINESS FORMS, INC 23

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     9.90      3.61    946.81      0.00    946.81    947.27       .46       .01       .23    948.50
     114.        0.      114.        0.        0.       21.        0.       13.       10.  100000.00
      .44      0.00      5.42      0.00      .080      .040      .080      .039    943.20   2000.00
  .010776       50.       50.       50.         2         0         0      0.00      6.00   2006.00

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       17.00      0.00      943.20     943.20

*SECNO 10.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=    947.270  ELLC=    947.400  PCWSE=    946.814  ELTRD=    948.300

3370 NORMAL BRIDGE,NRD= 30 MIN ELTRD=  948.30 MAX ELLC=  947.40

                 BRIDGE SECTION B  PLATEAU ST.

    10.10      4.17    947.37      0.00    947.37    948.06       .69       .67       .12    948.50
     114.        0.      114.        0.        0.       17.        0.       13.       10.    948.50
      .44      0.00      6.67      0.00      .080      .025      .080      .038    943.20   2000.00
  .011724       60.       60.       60.         3         0         0     -7.27      6.00   2006.00

*SECNO 10.300

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

3470 ENCROACHMENT STATIONS=     1968.0     2018.0  TYPE=      1  TARGET=       50.000
    10.30      5.26    948.26      0.00    948.26    948.27       .01       .01       .20    945.90
     114.        5.      106.        3.       23.      133.       12.       13.       10.    944.90
      .45       .22       .80       .24      .080      .040      .080      .038    943.00   1968.00
  .000076       20.       20.       20.         2         0         0      0.00     50.00   2018.00

CCHV=     .100 CEHV=     .300
*SECNO 10.800
    10.80      4.18    948.38      0.00    948.38    948.43       .04       .15       .01    946.80
     114.       11.      103.        0.       20.       59.        0.       15.       10.    948.30
      .59       .56      1.75       .00      .080      .040      .080      .039    944.20   2076.58
  .000712      750.      850.      850.         3         0         0      0.00     43.88   2120.47

CCHV=     .300 CEHV=     .500
*SECNO 10.900

3301 HV CHANGED MORE THAN HVINS
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MOORE BUSINESS FORMS, INC 23

10.90	4.26	948.16	0.00	948.16	948.72	.56	.04	.26	955.20
114.	0.	114.	0.	0.	19.	0.	15.	11.	955.20
.59	0.00	6.01	0.00	.080	.040	.080	.039	943.90	2100.00
.013774	20.	20.	20.	2	0	0	0.00	5.00	2105.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.00	0.00	3.50	0.00	15.50	0.00	943.90	943.90

*SECNO 11.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
950.01	948.72	0.00	0.	114.	16.	15.	948.10	954.80

BRIDGE SECTION C BADGELY RD.

11.10	5.83	949.73	0.00	949.72	950.01	.28	1.29	0.00	955.20
114.	0.	114.	0.	0.	27.	0.	15.	11.	955.20
.60	0.00	4.25	0.00	.080	.025	.080	.039	943.90	2100.00
.002331	50.	50.	50.	2	0	0	0.00	5.00	2105.00

*SECNO 11.300

11.30	5.81	950.01	0.00	950.01	950.09	.08	.02	.06	948.10
114.	5.	109.	0.	9.	48.	0.	15.	11.	950.30
.60	.58	2.26	0.00	.080	.040	.080	.039	944.20	2090.44
.001048	10.	10.	10.	2	0	0	0.00	23.99	2114.43

CCHV= .100 CEHV= .300
*SECNO 11.800

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	XNK	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 2082.0 2200.0 TYPE= 1 TARGET= 118.000

11.80	5.18	951.18	0.00	951.18	951.27	.08	1.18	.00	950.10
114.	1.	112.	1.	2.	48.	5.	17.	11.	950.60
.74	.38	2.34	.25	.080	.040	.080	.039	946.00	2087.66
.000963	1300.	1170.	1050.	3	0	0	0.00	33.86	2121.52

CCHV= .300 CEHV= .500
*SECNO 11.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 954.00 ELREA= 953.40

11.90	5.00	951.20	0.00	951.20	951.44	.24	.09	.08	954.00
114.	0.	114.	0.	0.	29.	0.	17.	11.	953.40

MOORE BUSINESS FORMS, INC 23

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      .74      0.00      3.92      0.00      .080      .040      .080      .039    946.20   2094.00
  .004782       50.       50.       50.         2         0         0      0.00      6.00   2100.00

 *SECNO 12.000
 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  950.80 MAX ELLC=  951.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      954.00 ELREA=      953.40

    12.00      5.00    951.20      0.00    951.20    951.44       .24       .00       .00    954.00
      114.       0.       114.       0.       0.       29.       0.       17.       11.    953.40
      .74      0.00      3.92      0.00      .080      .015      .080      .039    946.20   2094.00
  .001266         1.        1.        1.         0         0         0      0.00      6.00   2100.00

 *SECNO 12.100
 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  950.80 MAX ELLC=  951.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      954.00 ELREA=      953.40

                  BRIDGE SECTION D  HORTON  RD.
    12.10      5.06    951.26      0.00    951.26    951.50       .23       .05       .00    954.00
      114.       0.       114.       0.       0.       29.       0.       17.       11.    953.40
      .75      0.00      3.87      0.00      .080      .015      .080      .039    946.20   2094.00
  .001229        44.       44.       44.         2         0         0      0.00      6.00   2100.00

 *SECNO 12.200
 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      954.00 ELREA=      953.40

    12.20      5.07    951.27      0.00    951.26    951.50       .23       .00       .00    954.00
      114.       0.       114.       0.       0.       29.       0.       17.       11.    953.40
      .75      0.00      3.87      0.00      .080      .040      .080      .039    946.20   2094.00
  .004623         1.        1.        1.         0         0         0      0.00      6.00   2100.00

 *SECNO 12.300
    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

 3470 ENCROACHMENT STATIONS=     2082.0     2200.0  TYPE=      1  TARGET=      118.000
    12.30      5.56    951.56      0.00    951.55    951.62       .06       .07       .05    950.10
      114.       2.       108.       4.       4.       52.       14.       17.       11.    950.60
      .75       .38      2.07       .29      .080      .040      .080      .039    946.00   2086.18
  .000672        50.       50.       50.         2         0         0      0.00     46.48   2132.66

 CCHV=     .100 CEHV=     .300
 *SECNO 12.500
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MOORE BUSINESS FORMS, INC. 23

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 2800 NAT Q1=    351.57  WSEL=    951.84  ENC Q1=    351.57  WSEL=    951.94  RATIO=  0.0000
  NAT Q1=     384.  RATIOS LOB,CH,ROB=    .4212    .1236    .4551  WSEL=    951.94

 3470 ENCROACHMENT STATIONS=    1721.4    2302.1  TYPE=      4  TARGET=          .084
    12.50     3.87   951.87     0.00   951.84   951.87      .00      .25      .01   950.00
      304.      126.      42.      136.      500.       60.      528.      42.      25.   950.00
     2.50       .25       .70      .26      .080      .040      .080      .040   948.00  1721.38
  .000084     1800.     2100.     1900.         3         0         0      0.00   580.70  2302.08

 *SECNO 12.800
  2800 NAT Q1=     72.35  WSEL=    951.97  ENC Q1=     72.35  WSEL=    952.07  RATIO=  0.0000
  NAT Q1=      87.  RATIOS LOB,CH,ROB=    .8219    .1781   0.0000  WSEL=    952.07

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=    1343.1    2010.0  TYPE=      4  TARGET=          .170

                VALLEY SECTION F

    12.80     2.61   952.01     0.00   951.97   952.02      .00      .14      .00   951.60
      116.      90.      26.       0.      283.       30.       0.      62.      38.   952.90
     3.31       .32       .87     0.00      .080      .040      .080      .041   949.40  1343.13
  .000305     1200.     1400.     1400.         2         0         0      0.00   351.82  2008.22
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MOORE BUSINESS FORMS, INC 23

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY TO GRA

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
9.000	947.00	942.00	0.00	0.00	1284.29	0.00	2000.00	2020.00	0.00	2287.57	1003.28	0.00
9.000	947.00	942.00	0.00	0.00	1365.40	1365.40	2000.00	2020.00	0.00	2147.09	781.69	0.00
9.800	947.02	942.70	0.00	0.00	1939.53	0.00	1997.00	2049.00	0.00	2048.50	108.97	930.00
9.800	947.03	942.70	0.00	0.00	1968.70	1968.70	1997.00	2049.00	0.00	2048.51	79.81	930.00
9.900	946.81	943.20	0.00	0.00	2000.00	2000.00	2000.00	2006.00	0.00	2006.00	6.00	50.00
9.900	946.81	943.20	0.00	0.00	2000.00	2000.00	2000.00	2006.00	0.00	2006.00	6.00	50.00
10.100	947.37	943.20	947.40	948.30	2000.00	0.00	2000.00	2006.00	0.00	2006.00	6.00	60.00
10.100	947.37	943.20	947.40	948.30	2000.00	0.00	2000.00	2006.00	0.00	2006.00	6.00	60.00
10.300	948.26	943.00	0.00	0.00	1968.00	1968.00	1980.00	2014.00	0.00	2018.00	50.00	20.00
10.300	948.26	943.00	0.00	0.00	1968.00	1968.00	1980.00	2014.00	0.00	2018.00	50.00	20.00
10.800	948.38	944.20	0.00	0.00	2076.61	0.00	2095.00	2119.00	0.00	2120.38	43.78	850.00
10.800	948.38	944.20	0.00	0.00	2076.58	0.00	2095.00	2119.00	0.00	2120.47	43.88	850.00
10.900	948.16	943.90	0.00	0.00	2100.00	0.00	2100.00	2105.00	0.00	2105.00	5.00	20.00
10.900	948.16	943.90	0.00	0.00	2100.00	0.00	2100.00	2105.00	0.00	2105.00	5.00	20.00
11.100	949.72	943.90	948.10	954.80	2100.00	0.00	2100.00	2105.00	0.00	2105.00	5.00	50.00
11.100	949.73	943.90	948.10	954.80	2100.00	0.00	2100.00	2105.00	0.00	2105.00	5.00	50.00
11.300	950.01	944.20	0.00	0.00	2090.47	0.00	2100.00	2115.00	0.00	2114.42	23.96	10.00
11.300	950.01	944.20	0.00	0.00	2090.44	0.00	2100.00	2115.00	0.00	2114.43	23.99	10.00
11.800	951.18	946.00	0.00	0.00	2087.67	2082.00	2092.00	2104.00	0.00	2121.48	33.81	1170.00
11.800	951.18	946.00	0.00	0.00	2087.66	2082.00	2092.00	2104.00	0.00	2121.52	33.86	1170.00
11.900	951.20	946.20	0.00	0.00	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	50.00
11.900	951.20	946.20	0.00	0.00	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	50.00
12.000	951.20	946.20	951.60	950.80	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	1.00
12.000	951.20	946.20	951.60	950.80	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	1.00
12.100	951.26	946.20	951.60	950.80	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	44.00
12.100	951.26	946.20	951.60	950.80	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	44.00

MOORE BUSINESS FORMS, INC 23

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
12.200	951.26	946.20	0.00	0.00	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	1.00
12.200	951.27	946.20	0.00	0.00	2094.00	0.00	2094.00	2100.00	0.00	2100.00	6.00	1.00
12.300	951.55	946.00	0.00	0.00	2086.18	2082.00	2092.00	2104.00	0.00	2132.62	46.44	50.00
12.300	951.56	946.00	0.00	0.00	2086.18	2082.00	2092.00	2104.00	0.00	2132.66	46.48	50.00
12.500	951.84	948.00	0.00	0.00	1535.83	0.00	2000.00	2020.00	0.00	2392.46	856.63	2100.00
12.500	951.87	948.00	0.00	0.00	1721.38	1721.38	2000.00	2020.00	0.00	2302.08	580.70	2100.00
12.800	951.97	949.40	0.00	0.00	1041.77	0.00	1990.00	2010.00	0.00	2008.14	646.89	1400.00
12.800	952.01	949.40	0.00	0.00	1343.13	1343.13	1990.00	2010.00	0.00	2008.22	351.82	1400.00

MOORE BUSINESS FORMS, INC 23

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.000	0.00	0.00	0.00	942.00	114.00	947.00	0.00	947.00	.18	.36	1102.03	267.06
9.000	0.00	0.00	0.00	942.00	114.00	947.00	0.00	947.00	.23	.40	928.43	238.26
9.800	930.00	0.00	0.00	942.70	114.00	947.02	0.00	947.03	.52	.59	240.38	158.16
9.800	930.00	0.00	0.00	942.70	114.00	947.03	0.00	947.03	.57	.62	204.45	150.88
9.900	50.00	0.00	0.00	943.20	114.00	946.81	0.00	947.26	108.32	5.43	21.00	10.95
9.900	50.00	0.00	0.00	943.20	114.00	946.81	0.00	947.27	107.76	5.42	21.04	10.98
10.100	60.00	948.30	947.40	943.20	114.00	947.37	0.00	948.06	116.90	6.67	17.10	10.54
10.100	60.00	948.30	947.40	943.20	114.00	947.37	0.00	948.06	117.24	6.67	17.10	10.53
10.300	20.00	0.00	0.00	943.00	114.00	948.26	0.00	948.27	.76	.80	167.17	130.40
10.300	20.00	0.00	0.00	943.00	114.00	948.26	0.00	948.27	.76	.80	167.43	130.70
10.800	850.00	0.00	0.00	944.20	114.00	948.38	0.00	948.42	7.17	1.75	78.82	42.58
10.800	850.00	0.00	0.00	944.20	114.00	948.38	0.00	948.43	7.12	1.75	79.02	42.73
10.900	20.00	0.00	0.00	943.90	114.00	948.16	0.00	948.72	138.19	6.02	18.94	9.70
10.900	20.00	0.00	0.00	943.90	114.00	948.16	0.00	948.72	137.74	6.01	18.97	9.71
11.100	50.00	954.80	948.10	943.90	114.00	949.72	0.00	950.01	23.37	4.26	26.77	23.58
11.100	50.00	954.80	948.10	943.90	114.00	949.73	0.00	950.01	23.31	4.25	26.80	23.61
11.300	10.00	0.00	0.00	944.20	114.00	950.01	0.00	950.08	10.53	2.26	57.23	35.13
11.300	10.00	0.00	0.00	944.20	114.00	950.01	0.00	950.09	10.48	2.26	57.35	35.21
11.800	1170.00	0.00	0.00	946.00	114.00	951.18	0.00	951.27	9.64	2.34	55.25	36.71
11.800	1170.00	0.00	0.00	946.00	114.00	951.18	0.00	951.27	9.63	2.34	55.30	36.73
11.900	50.00	0.00	0.00	946.20	114.00	951.20	0.00	951.44	47.86	3.92	29.08	16.48
11.900	50.00	0.00	0.00	946.20	114.00	951.20	0.00	951.44	47.82	3.92	29.09	16.48
12.000	1.00	950.80	951.60	946.20	114.00	951.20	0.00	951.44	12.67	3.92	29.10	32.03
12.000	1.00	950.80	951.60	946.20	114.00	951.20	0.00	951.44	12.66	3.92	29.11	32.04
12.100	44.00	950.80	951.60	946.20	114.00	951.26	0.00	951.49	12.30	3.87	29.47	32.50
12.100	44.00	950.80	951.60	946.20	114.00	951.26	0.00	951.50	12.29	3.87	29.48	32.51
12.200	1.00	0.00	0.00	946.20	114.00	951.26	0.00	951.50	46.26	3.87	29.48	16.76
12.200	1.00	0.00	0.00	946.20	114.00	951.27	0.00	951.50	46.23	3.87	29.49	16.77
12.300	50.00	0.00	0.00	946.00	114.00	951.55	0.00	951.62	6.73	2.07	70.16	43.95
12.300	50.00	0.00	0.00	946.00	114.00	951.56	0.00	951.62	6.72	2.07	70.21	43.97
12.500	2100.00	0.00	0.00	948.00	304.00	951.84	0.00	951.85	.75	.65	1276.85	351.57
12.500	2100.00	0.00	0.00	948.00	304.00	951.87	0.00	951.87	.84	.70	1087.05	330.95
12.800	1400.00	0.00	0.00	949.40	116.00	951.97	0.00	951.97	2.57	.79	393.93	72.35
12.800	1400.00	0.00	0.00	949.40	116.00	952.01	0.00	952.02	3.05	.87	312.94	66.40

MOORE BUSINESS FORMS, INC 23

TRIBUTARY TO GRA

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.000	114.00	947.00	0.00	0.00	0.00	1003.28	0.00
9.000	114.00	947.00	0.00	0.00	0.00	781.69	0.00
9.800	114.00	947.02	0.00	.02	0.00	108.97	930.00
9.800	114.00	947.03	.00	.03	.00	79.81	930.00
9.900	114.00	946.81	0.00	-.22	0.00	6.00	50.00
9.900	114.00	946.81	.01	-.22	.01	6.00	50.00
10.100	114.00	947.37	0.00	.56	0.00	6.00	60.00
10.100	114.00	947.37	.01	.56	.01	6.00	60.00
10.300	114.00	948.26	0.00	.89	0.00	50.00	20.00
10.300	114.00	948.26	.01	.89	.01	50.00	20.00
10.800	114.00	948.38	0.00	.12	0.00	43.78	850.00
10.800	114.00	948.38	.00	.12	.00	43.88	850.00
10.900	114.00	948.16	0.00	-.22	0.00	5.00	20.00
10.900	114.00	948.16	.01	-.22	.01	5.00	20.00
11.100	114.00	949.72	0.00	1.57	0.00	5.00	50.00
11.100	114.00	949.73	.01	1.57	.01	5.00	50.00
11.300	114.00	950.01	0.00	.28	0.00	23.96	10.00
11.300	114.00	950.01	.01	.28	.01	23.99	10.00
11.800	114.00	951.18	0.00	1.18	0.00	33.81	1170.00
11.800	114.00	951.18	.00	1.17	.00	33.86	1170.00
11.900	114.00	951.20	0.00	.01	0.00	6.00	50.00
11.900	114.00	951.20	.00	.01	.00	6.00	50.00
12.000	114.00	951.20	0.00	.00	0.00	6.00	1.00
12.000	114.00	951.20	.00	.00	.00	6.00	1.00
12.100	114.00	951.26	0.00	.06	0.00	6.00	44.00
12.100	114.00	951.26	.00	.06	.00	6.00	44.00
12.200	114.00	951.26	0.00	.00	0.00	6.00	1.00
12.200	114.00	951.27	.00	.00	.00	6.00	1.00
12.300	114.00	951.55	0.00	.29	0.00	46.44	50.00
12.300	114.00	951.56	.00	.29	.00	46.48	50.00
12.500	304.00	951.84	0.00	.29	0.00	856.63	2100.00
12.500	304.00	951.87	.03	.31	.03	580.70	2100.00
12.800	116.00	951.97	0.00	.12	0.00	646.89	1400.00
12.800	116.00	952.01	.04	.14	.04	351.82	1400.00

MOORE BUSINESS FORMS, INC 213

SUMMARY OF ERRORS

MOORE BUSINESS FORMS, INC 73

FLOODWAY DATA. TRIBUTARY TO GRA
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
9.000	782.	928.	.1	947.0	947.0	0.0
9.800	80.	204.	.6	947.0	947.0	0.0
9.900	6.	21.	5.4	946.8	946.8	0.0
10.100	6.	17.	6.7	947.4	947.4	0.0
10.300	50.	167.	.7	948.3	948.3	0.0
10.800	44.	79.	1.4	948.4	948.4	0.0
10.900	5.	19.	6.0	948.2	948.2	0.0
11.100	5.	27.	4.3	949.7	949.7	0.0
11.300	24.	57.	2.0	950.0	950.0	0.0
11.800	34.	55.	2.1	951.2	951.2	0.0
11.900	6.	29.	3.9	951.2	951.2	0.0
12.000	6.	29.	3.9	951.2	951.2	0.0
12.100	6.	29.	3.9	951.3	951.3	0.0
12.200	6.	29.	3.9	951.3	951.3	0.0
12.300	46.	70.	1.6	951.6	951.6	0.0
12.500	581.	1087.	.3	951.8	951.8	0.0
12.800	665.	313.	.4	952.0	952.0	0.0

MOORE BUSINESS FORMS, INC 23

ENC. RUN
UNNAMED TRIB.
Summit

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -   01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************
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MOORE BUSINESS FORMS, INC 23

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Tributary of Grand River

4) DOCUMENT TYPE: Report

00BREAK00

HYDRAULIC ANALYSIS REPORT

UNNAMED TRIBUTARY TO GRAND RIVER AT THE TOWNSHIP OF SUMMIT

JACKSON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

AUGUST, 1980

Packet
- Hec 2 's
- FBFW MAP 01

Introduction

This hydraulic analysis report covers calculations performed for an unnamed tributary to the Grand River within the township of Summit. The reach studied in detail began at its confluence with the Grand River and extended about 6,810 feet upstream. Cross section data used in the hydraulic computations was surveyed by Commonwealth Associates in November, 1978. In addition, topographic maps with 5-foot and 10-foot contour intervals were used.

The flows for the 10-, 50-, 100-, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated June 4, 1980.

Analysis of the hydraulic characteristics of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

Method of Analysis

Water surface elevations of floods of the selected recurrence intervals were computed utilizing the Corps of Engineers' HEC-2 step backwater computer program.

Variables and Coefficients

Manning's coefficient of roughness, "n," depends on several factors such as type and amount of vegetation, channel configuration, and alignment. Without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. Calculations for loss and discharge coefficients are contained in Appendix B.

Manning's Roughness Coefficient

For channel	.025-.04
Overbanks	.08

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

High-Water Marks

For the reach studied there were no known high-water marks.

Starting Conditions

Figure 1, a hydrograph developed from the TR-20 computer program for the unnamed tributary and the Grand River show their peak times to be concurrent. Therefore, the starting water elevations for the unnamed tributary are based on the computed water elevations from the Grand River study.

Special Problems

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	9	Valley Section, confluence with Grand River
	9.8	Valley Section
	9.9	Downstream bridge
B	10.1	Upstream face, Plateau Street
	10.3	Valley Section
	10.8	Valley Section
	10.9	Bridge Section, downstream face
C	11.1	Upstream face, Badgley Road
	11.3	Valley Section
	11.8	Valley Section
	11.9	Bridge Section
	12.0	Downstream face
D	12.1	Upstream face, Horton Road
	12.2	One foot upstream
	12.3	Valley Section
	12.5	Valley Section
E	12.8	Valley Section

Bridge Notes and Sketches

Bridge notes and sketches are contained in Appendix B.

Cross Section Plots

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

Profiles

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

Map

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

Computer Backwater Runs/Printouts

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

References

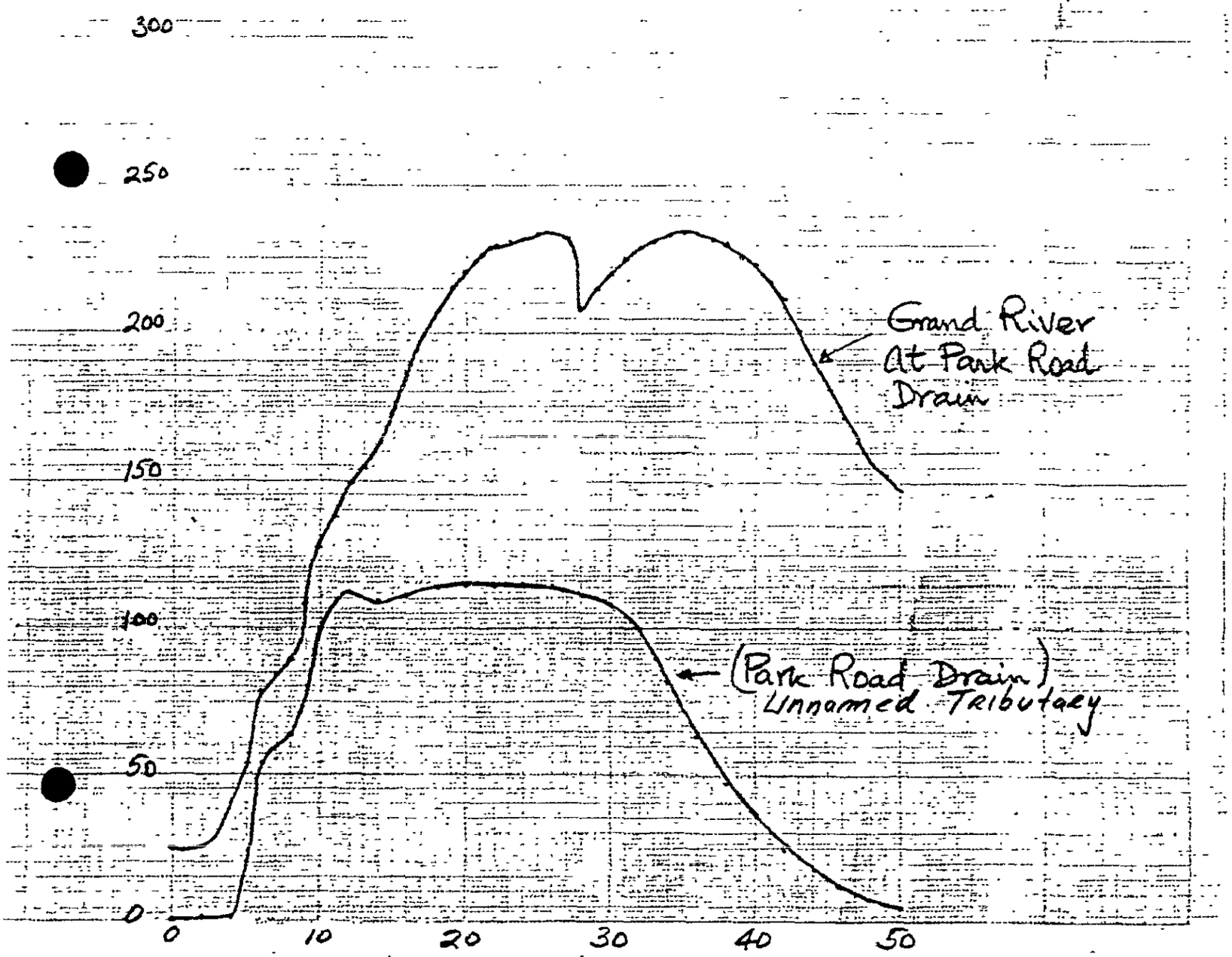
1. Corps of Engineers, U.S. Army, Flood Plain Information, Lookingglass River, Clinton County, Michigan, Detroit District, 1969.

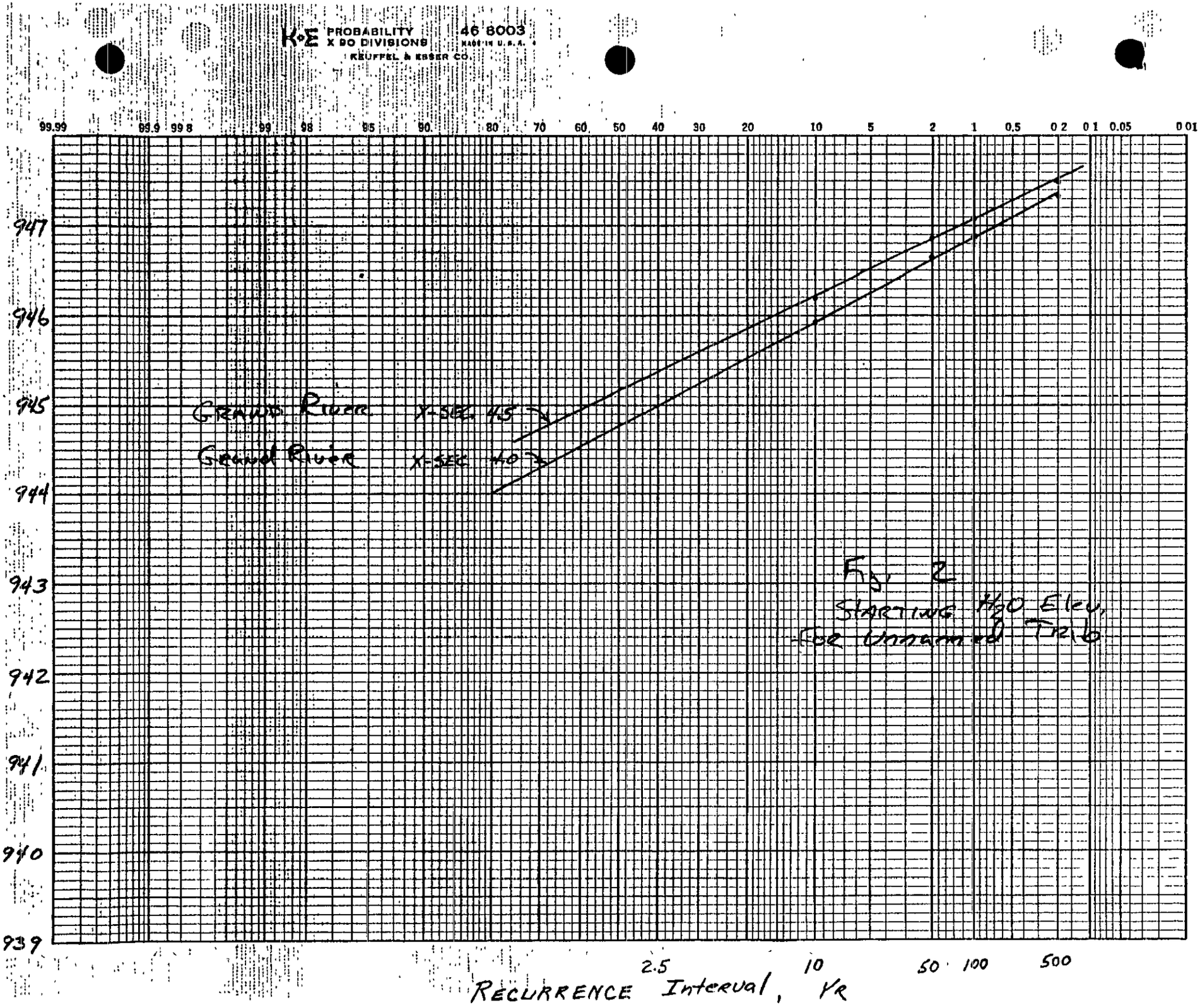
APPENDIX A

Gilbert Commonwealth Companies	Commonwealth Associates Inc. engineers/consultants/architects	OHIO EDISON COMPANY	FILING CODE / JOB NO.
	CALC. BY/DATE / REVIEW BY/DATE	SUBJECT	SHEET ___ OF ___ / BOOK NO. / REV.

100-Year Flood Hydrographs
(Data from TR-20 Run)

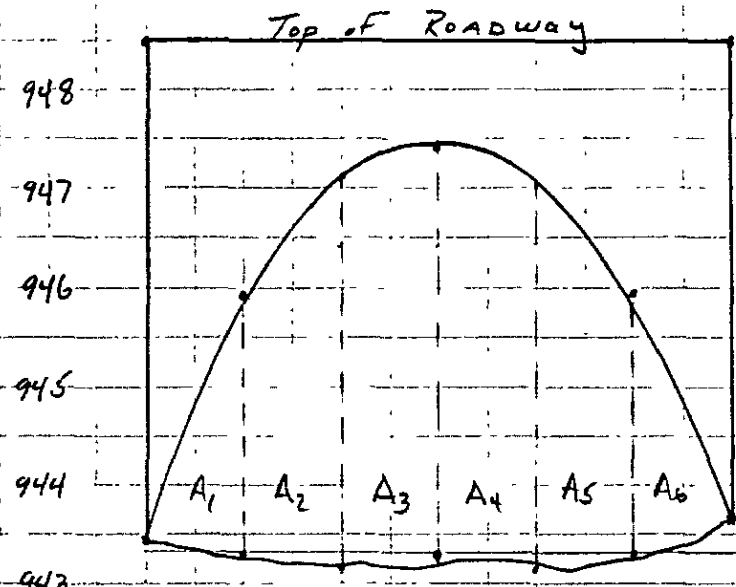
Figuee 1




K&E PROBABILITY 46 8003
X 90 DIVISIONS
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
947
946
945
944
943
942
941
940
939
WATER SURFACE ELEVATION
GRAND RIVER X-SEC. 45
GRAND RIVER X-SEC. 40
FIG. 2
STARTING H2O ELEV. FOR UNWARNED TRIB
2.5 10 50 100 500
RECURRENCE INTERVAL, YR

APPENDIX B

CLIENT/OWNER	FILING CODE
Flood Insurance Study Summit Township Unnamed Tributary	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Plateau St.
CHECKED BY/DATE (SIGNATURE)	SHEET OF BOOK NO.



$$\text{Area} = A_T = A_1 + A_2 + A_3 + A_4 + A_5 + A_6$$

$$A_T = 2\left(\tfrac{1}{2}\right)(1)(2.6) + 2(3.2) + 2(4.0)$$

$$A_T = 17$$

Wetted Perimeter: $(2.6 + 1.5 + 1.0) + (1.6 + 1.5 + 2.4) + 6 = 16$

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

CALCULATION SHEET

REV.

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

XKOR =

$$h_p = \frac{29.1(n^2)L}{R^{4/3}} = \frac{29.1(.025)^2 60}{\left(\frac{17}{16}\right)^{4/3}}$$

$$h_A = 1.0$$

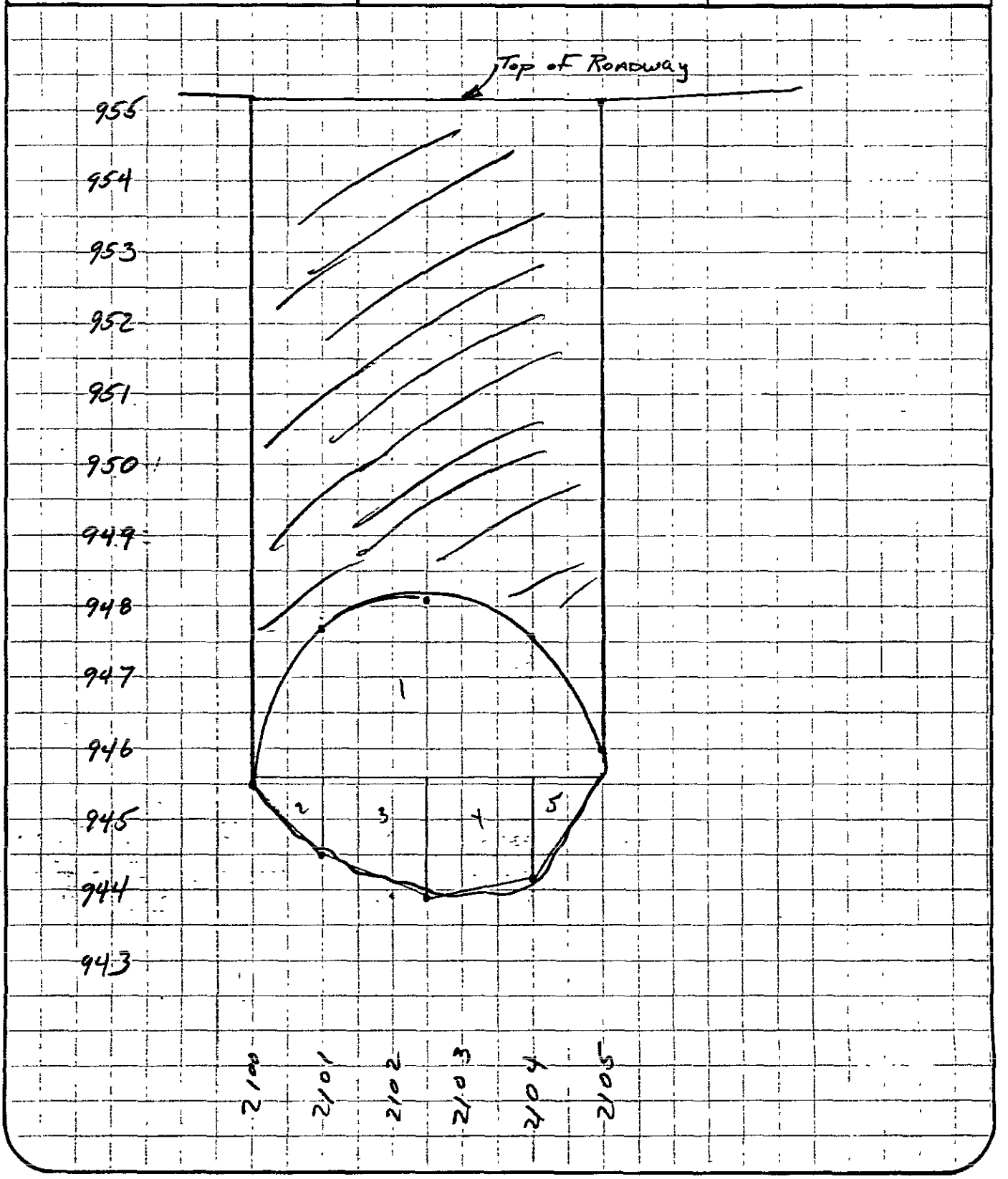
XKOR = 1.0 + .5 + 1.0 = 2.5

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

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study Summit Township Unnamed Tributary	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Badgely Rd.
	SHEET OF / BOOK NO.



CALCULATION SHEET REV.

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

$$\text{AREA} = A_1 + A_2 + A_3 + A_4 + A_5$$

$$\frac{1}{2}(3.14)\frac{(5)^2}{4} + \frac{1}{2}(1.1)(1) + 1.5(1.4) + 1.5(1.55) + \frac{1}{2}(1.4)(1)$$

Wetted Perimeter

$$2\pi R\tfrac{1}{2} + 5 = 15.49$$

$$2\pi(2.5)\tfrac{1}{2} = 12.85$$

XKOR

$$h_f = \frac{29.1(.025)^2(50)}{\left(\frac{15.49}{12.85}\right)^{\frac{4}{3}}} = .7$$

XKOR = $1 + .5 + .7 = 2.2$

APPENDIX C

APPENDIX D

APPENDIX E

00BREAK00

1) COUNTY: Jackson

2) STUDY NAME: Summit

3) WATERCOURSE: Tributary of Grand River

4) DOCUMENT TYPE: ~~Diversion f~~ ~~Lake~~ Vandercook Lake diversion run

00BREAK00

```
**********************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -  01.02.03
   MODIFICATION -  50,51,52,53
**********************************************

C
T1      FIS SUMMIT TOWNSHIP JACKSON COUNTY MICHIGAN
T2      100 YEAR FLOW
T3      SHARP LAKE DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSFL       FQ
        0.       2.         0.         0.   0.000000       0.00       0.0        0.      935.400     0.000
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
    1.000      0.000     -1.000      0.000      0.000      1.250      0.000      0.000      0.000      0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   38.000      1.000     42.000     41.000     40.000     53.000     27.000     21.000     22.000      2.000
   54.000      4.000     39.000      0.000    150.000      0.000      0.000      0.000      0.000      0.000
NC    .060       .060       .040       .100       .300      0.000      0.000      0.000      0.000      0.000
QT   4.000    200.000    400.000    600.000    800.000      0.000      0.000      0.000      0.000      0.000

X1  99.800     15.000   2000.000   2042.000      0.000      0.000      0.000      0.000      0.000      0.000
GR 942.100   1876.000    936.800   1934.000    937.000   1988.000    936.500   2000.000    934.330   2003.000
GR 933.080   2010.000    932.700   2015.000    933.900   2023.000    935.100   2038.000    936.400   2042.000
GR 936.700   2115.000    936.700   2193.000    936.800   2271.000    938.800   2342.000    942.000   2390.000

X1  99.900     14.000   2000.000   2022.000    200.000    200.000    200.000      0.000      0.000      0.000
GR 943.600   1628.000    943.400   1734.000    942.800   1830.000    941.400   1926.000    941.400   1998.000
GR 941.400   2000.000    934.400   2000.000    934.500   2011.000    934.600   2022.000    941.400   2022.000
GR 941.900   2116.000    943.000   2213.000    943.200   2308.000    943.300   2403.000      0.000      0.000

X1 100.000      0.000      0.000      0.000      5.000      5.000      5.000      0.000      0.000      0.000
GR  13.000   1628.000    943.600      0.000   1734.000    943.400      0.000   1830.000    942.800      0.000
GR 1926.000    941.400      0.000   1998.000    941.400      0.000   2000.000    941.400    934.400   2000.000
GR  941.400    939.200   2022.000    941.400    939.200   2022.000    941.400    934.600   2116.000    941.900
GR    0.000   2213.000    943.000      0.000   2308.000    943.200      0.000   2403.000    943.300      0.000

                    BRIDGE SECTION A UPSTREAM FACE PARK RD

X1  100.100      0.000      0.000      0.000     27.000     27.000     27.000      0.000      0.000      0.000
XC    0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000

X1  100.200      0.000      0.000      0.000      5.000      5.000      5.000      0.000      0.000      0.000
```

X1	100.300	16.000	1996.000	2067.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	948.400	1825.000	937.500	1903.000	936.600	1982.000	936.100	1996.000	934.600	1999.000
GR	934.100	2007.000	933.900	2022.000	933.800	2039.000	934.100	2053.000	935.500	2065.000
GR	936.300	2067.000	936.600	2071.000	938.700	2181.000	936.800	2271.000	938.800	2342.000
GR	943.300	2340.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	100.800	11.000	2000.000	2025.000	2000.000	2200.000	2000.000	0.000	0.000	0.000
GR	944.000	1875.000	943.800	1919.000	941.000	1935.000	937.600	2000.000	936.400	2006.000
GR	935.800	2014.000	935.800	2023.000	939.000	2025.000	946.500	2038.000	947.100	2055.000
GR	950.600	2079.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	100.900	14.000	2000.000	2018.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	945.100	1722.000	944.200	1819.000	944.000	1924.000	944.000	1995.000	944.000	2000.000
GR	936.300	2000.000	936.100	2012.000	936.200	2018.000	943.900	2018.000	943.900	2024.000
GR	944.200	2112.000	945.500	2206.000	947.400	2298.000	949.000	2392.000	0.000	0.000
X1	101.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	1722.000	945.100	0.000	1819.000	944.200	0.000	1924.000	944.000	0.000
BT	1995.000	944.000	0.000	2000.000	944.000	936.300	2000.000	944.000	942.300	2018.000
BT	943.900	942.300	2018.000	943.900	936.200	2024.000	943.900	0.000	2112.000	944.200
BT	0.000	2206.000	945.500	0.000	2298.000	947.400	0.000	2392.000	949.000	0.000

BRIDGE SECTION B UPSTREAM FACE FRANCIS ST

X1	101.100	0.000	0.000	0.000	63.000	63.000	63.000	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	101.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	101.300	10.000	2000.000	2058.000	145.000	145.000	145.000	0.000	0.000	0.000
GR	948.900	1925.000	947.000	2000.000	939.000	2030.000	938.100	2032.000	937.300	2044.000
GR	937.800	2055.000	939.000	2058.000	946.500	2071.000	947.100	2088.000	950.600	2112.000

VALLEY SECTION C

X1	102.000	10.000	2000.000	2025.000	1000.000	1100.000	1000.000	0.000	0.000	0.000
GR	963.000	1900.000	963.000	1965.000	958.200	1967.000	941.500	2000.000	940.200	2005.000
GR	939.800	2013.000	940.300	2021.000	941.500	2025.000	958.200	2126.000	965.800	2284.000
X1	102.800	11.000	2000.000	2055.000	1000.000	1000.000	950.000	0.000	0.000	0.000
GR	962.000	1933.000	961.500	1957.000	946.800	1989.000	945.200	2000.000	942.300	2008.000
GR	941.000	2017.000	940.400	2026.000	944.100	2033.000	954.100	2055.000	961.000	2087.000
GR	961.800	2133.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	102.900	10.000	2000.000	2023.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	964.200	1826.000	961.300	1925.000	961.000	1993.000	961.100	2000.000	943.900	2000.000
GR	943.600	2012.000	944.500	2023.000	961.100	2023.000	961.800	2122.000	963.200	2220.000

X1	103.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
RT	9.000	1826.000	964.200	0.000	1925.000	961.300	0.000	1993.000	961.000	0.000
BT	2000.000	961.100	943.900	2000.000	961.100	958.400	2023.000	961.100	958.400	2023.000
BT	961.100	944.500	2122.000	961.800	0.000	2220.000	963.200	0.000	0.000	0.000

BRIDGE SECTION D UPSTREAM FACE RINKLEY RD

X1	103.100	0.000	0.000	0.000	39.500	39.500	39.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	103.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	103.400	14.000	2000.000	2056.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	957.900	1773.000	953.200	1862.000	949.900	1869.000	949.700	1893.000	948.500	1970.000
GR	947.600	2000.000	944.400	2001.000	943.900	2009.000	943.600	2024.000	942.900	2032.000
GR	944.500	2043.000	948.200	2056.000	952.000	2143.000	955.400	2189.000	0.000	0.000

VALLEY SECTION E

X1	104.000	28.000	1887.000	1934.000	3500.000	1700.000	2000.000	0.000	0.000	0.000
GR	949.500	0.000	946.500	189.000	947.100	343.000	947.200	353.000	947.800	446.000
GR	946.800	535.000	946.700	621.000	945.500	637.000	943.700	645.000	944.600	649.000
GR	945.500	654.000	946.000	657.000	945.900	803.000	946.300	1018.000	945.500	1083.000
GR	945.500	1181.000	945.400	1279.000	945.900	1437.000	945.200	1795.000	946.000	1887.000
GR	945.600	1890.000	944.500	1900.000	944.300	1911.000	944.400	1923.000	945.600	1930.000
GR	947.300	1934.000	947.300	2030.000	947.100	2133.000	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 99.800

SECNO	DEPTH	C&SEL	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	TOPWID	ENDST
99.80	2.70	935.40	0.00	935.40	935.60	.20	0.00	0.00	936.50
200.	0.	200.	0.	0.	56.	0.	0.	0.	936.40
0.00	0.00	3.59	0.00	.075	.050	.075	0.000	932.70	2001.52
.008813	0.	0.	0.	0	0	0	0.00	37.40	2038.92

*SECNO 99.900

99.90	2.50	936.90	0.00	0.00	937.12	.22	1.52	.01	941.40
200.	0.	200.	0.	0.	53.	0.	0.	0.	941.40
.01	0.00	3.79	0.00	.075	.050	.075	.050	934.40	2000.00
.006596	200.	200.	200.	2	0	0	0.00	22.00	2022.00

*SECNO 100.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 941.40 MAX ELLC= 939.20

100.00	2.55	936.95	0.00	0.00	937.16	.22	.04	.00	941.40
200.	0.	200.	0.	0.	54.	0.	0.	0.	941.40
.02	0.00	3.73	0.00	.075	.050	.075	.050	934.40	2000.00
.007809	5.	5.	5.	0	0	0	0.00	22.00	2022.00

*SECNO 100.100

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 941.40 MAX ELLC= 939.20

BRIDGE SECTION A UPSTREAM FACE PARK RD

100.10	2.77	937.17	0.00	0.00	937.35	.18	.18	.00	941.40
200.	0.	200.	0.	0.	59.	0.	0.	0.	941.40
.02	0.00	3.41	0.00	.075	.050	.075	.049	934.40	2000.00
.006015	27.	27.	27.	2	0	0	0.00	22.00	2022.00

*SECNO 100.200

SECNO	DEPTH	C&SEL	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	TOPWID	ENDST
100.20	2.80	937.20	0.00	0.00	937.38	.18	.03	.00	941.40
200.	0.	200.	0.	0.	59.	0.	0.	0.	941.40
.02	0.00	3.36	0.00	.075	.050	.075	.049	934.40	2000.00
.004558	5.	5.	5.	0	0	0	0.00	22.00	2022.00

*SECNO 100.300

100.30	3.64	937.44	0.00	0.00	937.45	.01	.06	.02	936.10
200.	7.	164.	29.	46.	227.	159.	1.	1.	936.30
.08	.16	.72	.18	.075	.050	.075	.049	933.80	1908.63
.000127	150.	150.	150.	2	0	0	0.00	384.95	2293.57

*SECNO 100.800

100.80	2.26	936.06	0.00	0.00	938.37	.31	.83	.09	937.60	(Just u/s OF
200.	2.	196.	0.	2.	44.	0.	12.	11.	939.00	Sharp Lake)
.21	.79	4.51	0.00	.075	.050	.075	.050	935.80	1991.16	
.011275	2000.	2000.	2200.	4	0	0	0.00	33.25	2024.41	

*SECNO 100.900

100.90	2.70	938.80	0.00	0.00	939.08	.28	.70	.00	944.00
200.	0.	200.	0.	0.	47.	0.	13.	11.	943.90
.21	0.00	4.25	0.00	.075	.050	.075	.050	936.10	2000.00
.007896	75.	75.	75.	3	0	0	0.00	18.00	2018.00

*SECNO 101.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

101.00	2.71	938.81	0.00	0.00	939.09	.28	.01	.00	944.00
200.	0.	200.	0.	0.	47.	0.	13.	11.	943.90
.21	0.00	4.23	0.00	.075	.050	.075	.050	936.10	2000.00
.010195	1.	1.	1.	0	0	0	0.00	18.00	2018.00

*SECNO 101.100

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

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

BRIDGE SECTION B UPSTREAM FACE FRANCIS ST

101.10	3.29	939.39	0.00	0.00	939.58	.19	.48	.01	944.00
200.	0.	200.	0.	0.	58.	0.	13.	11.	943.90
.22	0.00	3.47	0.00	.075	.050	.075	.050	936.10	2000.00
.005868	63.	63.	63.	0	0	0	0.00	18.00	2018.00

*SECNO 101.200

101.20	3.30	939.40	0.00	0.00	939.58	.19	.00	.00	944.00
200.	0.	200.	0.	0.	58.	0.	13.	11.	943.90
.22	0.00	3.46	0.00	.075	.050	.075	.050	936.10	2000.00
.004257	1.	1.	1.	0	0	0	0.00	18.00	2018.00

*SECNO 101.300

101.30	2.75	940.05	0.00	0.00	940.14	.14	.60	.00	947.00
200.	0.	199.	1.	0.	66.	1.	13.	11.	939.00

.23	0.00	3.04	.75	.075	.050	.075	.050	937.30	2026.07
.004090	145.	145.	145.	2	0	0	0.00	33.75	2059.82

*SECNO 102.000

VALLEY SECTION C

102.00	3.29	943.09	0.00	0.00	943.21	.12	3.01	.00	941.50
200.	2.	192.	6.	2.	69.	8.	15.	12.	941.50
.34	.76	2.78	.81	.075	.050	.075	.050	939.80	1996.86
.002305	1000.	1000.	1100.	4	0	0	0.00	37.76	2034.62

*SECNO 102.800

102.80	4.43	944.83	0.00	0.00	944.90	.07	1.69	.00	945.20
200.	0.	200.	0.	0.	93.	0.	16.	13.	954.10
.46	0.00	2.14	0.00	.075	.050	.075	.050	940.40	2001.01
.001415	1000.	950.	1000.	3	0	0	0.00	33.61	2034.62

*SECNO 102.900

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

102.90	1.62	945.22	945.22	0.00	945.89	.67	.30	.18	961.10
200.	0.	200.	0.	0.	30.	0.	17.	13.	961.10
.46	0.00	6.58	0.00	.075	.050	.075	.050	943.60	2000.00
.037900	75.	75.	75.	20	22	0	0.00	23.00	2023.00

*SECNO 103.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

103.00	1.87	945.47	0.00	0.00	945.94	.47	.03	.02	961.10
200.	0.	200.	0.	0.	36.	0.	17.	13.	961.10
.46	0.00	5.50	0.00	.075	.050	.075	.050	943.60	2000.00
.024381	1.	1.	1.	5	0	0	0.00	23.00	2023.00

*SECNO 103.100

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

BRIDGE SECTION D UPSTREAM FACE HINKLEY RD

103.10	2.64	946.24	0.00	0.00	946.46	.21	.49	.03	961.10
200.	0.	200.	0.	0.	54.	0.	17.	13.	961.10
.47	0.00	3.71	0.00	.075	.050	.075	.050	943.60	2000.00

.007539	40.	40.	40.	2	0	0	0.00	23.00	2023.00

*SECNO 103.200

103.20	2.65	946.25	0.00	0.00	946.46	.21	.01	.00	961.10
200.	0.	200.	0.	0.	54.	0.	17.	13.	961.10
.47	0.00	3.08	0.00	.075	.050	.075	.050	943.60	2000.00
.006075	1.	1.	1.	0	0	0	0.00	23.00	2023.00

*SECNO 103.400

103.40	3.79	946.69	0.00	0.00	946.72	.03	.24	.02	947.60
200.	0.	200.	0.	0.	134.	0.	17.	13.	948.20
.49	0.00	1.49	0.00	.075	.050	.075	.050	942.90	2000.29
.000726	150.	150.	150.	3	0	0	0.00	50.39	2050.68

*SECNO 104.000

3265 DIVIDED FLOW

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

VALLEY SECTION F

104.00	3.21	946.91	0.00	0.00	946.91	.00	.19	.00	946.00
200.	177.	23.	0.	1569.	96.	0.	85.	75.	947.30
6.30	.11	.24	0.00	.075	.050	.075	.045	943.70	162.98
.000025	3500.	2000.	1700.	5	0	0	0.00	1540.18	1933.09

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STPT     METRIC   HVINS    Q        WSEL     FQ
     -10.      3.       0.       0.  0.000000    0.00     0.0      0.   937.800   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     2.000    0.000   -1.000    0.000    0.000    1.250    0.000    0.000    0.000    0.000

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 99.800
   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

    99.80     5.10   937.80     0.00   937.80   937.82      .02     0.00     0.00   936.50
     400.      28.     241.     131.      67.     154.     277.       0.       0.   936.40
     0.00      .41     1.57      .47     .075     .050     .075    0.000   932.70  1923.06
  .000509       0.       0.       0.        0        0        0     0.00   383.44  2306.50

*SECNO 99.900
    99.90     3.35   937.75     0.00     0.00   938.24      .49      .27      .14   941.40
     400.       0.     400.       0.       0.      72.       0.       1.       1.   941.40
      .01     0.00     5.59     0.00     .075     .050     .075     .050   934.40  2000.00
  .010382     200.     200.     200.        2        0        0     0.00    22.00  2022.00

*SECNO 100.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  941.40 MAX ELLC=  939.20

   100.00     3.43   937.83     0.00     0.00   938.30      .46      .06      .00   941.40
     400.       0.     400.       0.       0.      73.       0.       1.       1.   941.40
      .01     0.00     5.45     0.00     .075     .050     .075     .050   934.40  2000.00
  .012717       5.       5.       5.        2        0        0     0.00    22.00  2022.00

*SECNO 100.100

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  941.40 MAX ELLC=  939.20
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BRIDGE SECTION A,UPSTREAM FACE PARK RD

100.10	3.83	938.23	0.00	0.00	938.60	.37	.29	.01	941.40
400.	0.	400.	0.	0.	82.	0.	1.	1.	941.40
.01	0.00	4.88	0.00	.075	.050	.075	.049	934.40	2000.00
.009294	27.	27.	27.	2	0	0	0.00	22.00	2022.00

*SECNO 100.200

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
100.20	3.88	938.28	0.00	0.00	938.64	.36	.04	.00	941.40
400.	0.	400.	0.	0.	83.	0.	1.	1.	941.40
.01	0.00	4.81	0.00	.075	.050	.075	.049	934.40	2000.00
.006565	5.	5.	5.	0	0	0	0.00	22.00	2022.00

*SECNO 100.300

100.30	4.91	938.71	0.00	0.00	938.71	.01	.04	.04	936.10
400.	44.	229.	128.	169.	317.	475.	3.	2.	936.30
.09	.26	.72	.27	.075	.050	.075	.049	933.80	1894.40
.000081	150.	150.	150.	2	0	0	0.00	444.12	2338.52

*SECNO 100.800

100.80	3.14	938.94	0.00	0.00	939.41	.47	.56	.14	937.60
400.	27.	373.	0.	17.	66.	0.	28.	14.	939.00
.20	1.59	5.66	0.00	.075	.050	.075	.049	935.80	1974.30
.010978	2000.	2000.	2200.	4	0	0	0.00	50.66	2024.97

*SECNO 100.900

100.90	3.63	939.73	0.00	0.00	940.34	.61	.89	.04	944.00
400.	0.	400.	0.	0.	64.	0.	28.	14.	943.90
.20	0.00	6.67	0.00	.075	.050	.075	.049	936.10	2000.00
.012722	75.	75.	75.	2	0	0	0.00	18.00	2018.00

*SECNO 101.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

101.00	3.65	939.75	0.00	0.00	940.35	.61	.01	.00	944.00
400.	0.	400.	0.	0.	64.	0.	28.	14.	943.90
.20	0.00	6.25	0.00	.075	.050	.075	.049	936.10	2000.00
.017523	1.	1.	1.	0	0	0	0.00	18.00	2018.00

*SECNO 101.100

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= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

BRIDGE SECTION F UPSTREAM FACE FRANCIS ST

101.10	4.67	940.77	0.00	0.00	941.14	.36	.76	.02	944.00
400.	0.	400.	0.	0.	83.	0.	28.	14.	943.90
.20	0.00	4.84	0.00	.075	.050	.075	.049	936.10	2000.00
.008804	63.	63.	63.	2	0	0	0.00	18.00	2018.00

*SECNO 101.200

101.20	4.68	940.78	0.00	0.00	941.14	.36	.01	.00	944.00
400.	0.	400.	0.	0.	83.	0.	28.	14.	943.90
.20	0.00	4.83	0.00	.075	.050	.075	.049	936.10	2000.00
.005944	1.	1.	1.	0	0	0	0.00	18.00	2018.00

*SECNO 101.300

101.30	4.26	941.56	0.00	0.00	941.73	.17	.57	.02	947.00
400.	0.	394.	6.	0.	118.	6.	29.	14.	939.00
.22	0.00	3.33	1.12	.075	.050	.075	.049	937.30	2020.39
.002796	145.	145.	145.	2	0	0	0.00	42.05	2062.44

*SECNO 102.000

VALLEY SECTION C

102.00	4.44	944.24	0.00	0.00	944.44	.20	2.70	.01	941.50
400.	9.	363.	28.	7.	98.	23.	32.	15.	941.50
.30	1.15	3.71	1.23	.075	.050	.075	.049	939.80	1994.58
.0025H1	1000.	1000.	1100.	3	0	0	0.00	47.02	2041.60

*SECNO 102.800

102.80	5.82	946.22	0.00	0.00	946.34	.12	1.89	.01	945.20
400.	2.	398.	0.	4.	143.	0.	35.	16.	954.10
.39	.50	2.78	0.00	.075	.050	.075	.049	940.40	1992.99
.001577	1000.	950.	1000.	3	0	0	0.00	44.67	2037.66

*SECNO 102.900

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROH	ALOB	ACH	AROH	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROH	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

102.90	2.39	945.99	945.99	0.00	947.06	1.07	.32	.28	961.10
400.	0.	400.	0.	0.	48.	0.	35.	16.	961.10
.39	0.00	6.28	0.00	.075	.050	.075	.049	943.60	2000.00
.035117	75.	75.	75.	20	18	0	0.00	23.00	2023.00

*SECNO 103.000

3370 NORMAL BRIDGE.NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

103.00	2.71	946.31	945.99	0.00	947.12	.81	.03	.03	961.10
400.	0.	400.	0.	0.	55.	0.	35.	16.	961.10
.39	0.00	7.21	0.00	.075	.050	.075	.049	943.60	2000.00
.027613	1.	1.	1.	15	26	0	0.00	23.00	2023.00

*SECNO 103.100

3370 NORMAL BRIDGE.NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

BRIDGE SECTION D UPSTREAM FACE HINKLEY RD

103.10	3.77	947.37	0.00	0.00	947.76	.39	.60	.04	961.10
400.	0.	400.	0.	0.	80.	0.	35.	16.	961.10
.40	0.00	5.00	0.00	.075	.050	.075	.049	943.60	2000.00
.009662	40.	40.	40.	2	0	0	0.00	23.00	2023.00

*SECNO 103.200

103.20	3.78	947.38	0.00	0.00	947.77	.38	.01	.00	961.10
400.	0.	400.	0.	0.	80.	0.	35.	16.	961.10
.40	0.00	4.97	0.00	.075	.050	.075	.049	943.60	2000.00
.007326	1.	1.	1.	0	0	0	0.00	23.00	2023.00

*SECNO 103.400

103.40	5.12	948.02	0.00	0.00	948.08	.06	.28	.03	947.60
400.	1.	399.	0.	3.	204.	0.	35.	16.	948.20
.42	.20	1.96	0.00	.075	.050	.075	.049	942.90	1986.27
.000817	150.	150.	150.	2	0	0	0.00	69.07	2055.34

*SECNO 104.000

3280 CROSS SECTION 104.00 EXTENDED 1.06 FEET

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

VALLEY SECTION E

104.00	4.46	948.16	0.00	0.00	948.16	.00	.07	.01	946.00
400.	361.	29.	10.	3665.	154.	181.	195.	95.	947.30
7.56	.10	.19	.05	.075	.050	.075	.045	943.70	84.61
.000008	3500.	2000.	1700.	4	0	0	0.00	2048.39	2133.00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
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 J1
 T2
 T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	939.100	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.000	-1.000	0.000	0.000	1.250	0.000	0.000	0.000	0.000

*PROF 3

CCHV= .100 CEHV= .300

*SECNO 99.800

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
99.80	6.40	939.10	0.00	939.10	939.11	.01	0.00	0.00	936.50
600.	74.	234.	292.	176.	209.	650.	0.	0.	936.40
0.00	.42	1.12	.45	.075	.050	.075	0.000	932.70	1908.83
.000174	0.	0.	0.	0	0	0	0.00	437.67	2346.50

*SECNO 99.900

3301 HV CHANGED MORE THAN HVINS

99.90	4.37	938.77	0.00	0.00	939.40	.63	.11	.19	941.40
600.	0.	600.	0.	0.	94.	0.	3.	1.	941.40
.01	0.00	6.37	0.00	.075	.050	.075	.050	934.40	2000.00
.010263	200.	200.	200.	2	0	0	0.00	22.00	2022.00

*SECNO 100.000

3370 NORMAL BRIDGE,NRO= 13 MIN ELTRD= 941.40 MAX ELLC= 939.20

100.00	4.46	938.86	0.00	0.00	939.47	.61	.06	.00	941.40
600.	0.	600.	0.	0.	96.	0.	3.	1.	941.40
.01	0.00	6.26	0.00	.075	.050	.075	.050	934.40	2000.00
.013560	5.	5.	5.	2	0	0	0.00	22.00	2022.00

*SECNO 100.100

3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD= 941.40 MAX ELLC= 934.20

BRIDGE SECTION A UPSTREAM FACE PARK RD

100.10	4.99	939.39	0.00	0.00	939.41	.52	.44	.01	941.40
600.	0.	600.	0.	0.	163.	0.	3.	1.	941.40
.01	0.00	5.80	0.00	.075	.050	.075	.049	934.40	2000.00
.019607	27.	27.	27.	5	0	0	-4.24	22.00	2022.00

*SECNO 100.200

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST
100.20	5.11	939.51	0.00	0.00	939.97	.46	.05	.01	941.40
600.	0.	600.	0.	0.	110.	0.	3.	1.	941.40
.01	0.00	5.44	0.00	.075	.050	.075	.049	934.40	2000.00
.006458	5.	5.	5.	2	0	0	0.00	22.00	2022.00

*SECNO 100.300

100.30	6.24	940.04	0.00	0.00	940.04	.00	.02	.05	936.10
600.	87.	269.	245.	310.	411.	848.	6.	2.	936.30
.10	.28	.65	.29	.075	.050	.075	.049	933.80	1884.89
.000047	150.	150.	150.	2	0	0	0.00	470.25	2355.14

*SECNO 100.800

100.80	4.31	940.11	0.00	0.00	940.47	.35	.32	.11	937.60
600.	105.	494.	1.	60.	95.	1.	47.	15.	939.00
.23	1.74	5.20	.92	.075	.050	.075	.049	935.80	1951.95
.005689	2000.	2000.	2200.	4	0	0	0.00	74.98	2026.93

*SECNO 100.900

3301 HV CHANGED MORE THAN HVINS

100.90	4.26	940.36	0.00	0.00	941.35	.99	.69	.19	944.00
600.	0.	600.	0.	0.	75.	0.	47.	15.	943.90
.23	0.00	7.97	0.00	.075	.050	.075	.049	936.10	2000.00
.017653	75.	75.	75.	2	0	0	0.00	18.00	2018.00

*SECNO 101.000

3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

101.00	4.31	940.41	0.00	0.00	941.37	.97	.02	.00	944.00
600.	0.	600.	0.	0.	76.	0.	47.	15.	943.90
.23	0.00	7.89	0.00	.075	.050	.075	.049	936.10	2000.00
.024717	1.	1.	1.	2	0	0	0.00	18.00	2018.00

*SECNO 101.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3376 NORMAL BRIDGE.NRD= 13 MIN EL IRD= 943.90 MAX EL IC= 942.30

BRIDGE SECTION B UPSTREAM FACE FRANCIS ST

101.10	5.80	941.90	0.00	0.00	942.42	.53	1.01	.04	944.00
600.	0.	600.	0.	0.	103.	0.	47.	15.	943.90
.23	0.00	5.84	0.00	.075	.050	.075	.049	936.10	2000.00
.011164	63.	63.	63.	2	0	0	0.00	18.00	2018.00

*SECNO 101.200

101.20	5.81	941.91	0.00	0.00	942.43	.53	.01	.00	944.00
600.	0.	600.	0.	0.	103.	0.	47.	15.	943.90
.23	0.00	5.82	0.00	.075	.050	.075	.049	936.10	2000.00
.007165	1.	1.	1.	0	0	0	0.00	18.00	2018.00

*SECNO 101.300

101.30	5.52	942.82	0.00	0.00	943.00	.18	.53	.03	947.00
600.	0.	584.	16.	0.	168.	13.	48.	15.	939.00
.24	0.00	3.47	1.31	.075	.050	.075	.049	937.30	2015.69
.002222	145.	145.	145.	2	0	0	0.00	48.92	2064.61

*SECNO 102.000

VALLEY SECTION C

102.00	5.37	945.17	0.00	0.00	945.43	.25	2.41	.02	941.50
600.	19.	520.	61.	13.	121.	41.	52.	17.	941.50
.32	1.40	4.28	1.50	.075	.050	.075	.049	939.80	1992.72
.002578	1000.	1000.	1100.	3	0	0	0.00	54.55	2047.27

*SECNO 102.800

102.80	6.83	947.23	0.00	0.00	947.39	.16	1.95	.01	945.20
600.	12.	588.	0.	14.	182.	0.	56.	18.	954.10
.40	.91	3.22	0.00	.075	.050	.075	.049	940.40	1988.07
.001664	1000.	950.	1000.	2	0	0	0.00	51.81	2039.88

*SECNO 102.900

3301 HV CHANGED MORE THAN HVINS

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

102.90	3.18	946.78	0.00	0.00	948.04	1.26	.33	.33	961.10
600.	0.	600.	0.	0.	67.	0.	56.	18.	961.10

.40	0.00	9.00	0.00	.075	.050	.075	.049	943.60	2000.00
.029191	75.	75.	75.	3	0	0	0.00	23.00	2023.00

*SECNO 103.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

103.00	3.34	946.94	0.00	0.00	948.08	1.15	.03	.01	961.10
600.	0.	600.	0.	0.	70.	0.	56.	18.	961.10
.40	0.00	8.60	0.00	.075	.050	.075	.049	943.60	2000.00
.032090	1.	1.	1.	3	0	0	0.00	23.00	2023.00

*SECNO 103.100

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

BRIDGE SECTION D UPSTREAM FACE HINKLEY RD

103.10	4.70	948.30	0.00	0.00	948.85	.54	.70	.06	961.10
600.	0.	600.	0.	0.	101.	0.	56.	18.	961.10
.40	0.00	5.92	0.00	.075	.050	.075	.049	943.60	2000.00
.011249	40.	40.	40.	2	0	0	0.00	23.00	2023.00

*SECNO 103.200

103.20	4.72	948.32	0.00	0.00	948.86	.54	.01	.00	961.10
600.	0.	600.	0.	0.	102.	0.	56.	18.	961.10
.40	0.00	5.89	0.00	.075	.050	.075	.049	943.60	2000.00
.008126	1.	1.	1.	0	0	0	0.00	23.00	2023.00

*SECNO 103.400

103.40	6.19	949.09	0.00	0.00	949.16	.07	.26	.05	947.60
600.	20.	578.	3.	42.	264.	9.	57.	18.	948.20
.42	.47	2.19	.31	.075	.050	.075	.049	942.90	1932.43
.000734	150.	150.	150.	2	0	0	0.00	143.84	2076.27

*SECNO 104.000

3280 CROSS SECTION 104.00 EXTENDED 2.12 FEET

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

VALLEY SECTION E

104.00	5.52	949.22	0.00	0.00	949.22	.00	.05	.01	946.00
600.	537.	36.	27.	5613.	204.	392.	303.	103.	947.30
7.95	.10	.17	.07	.075	.050	.075	.045	943.70	17.78

.000005	3500.	2000.	1700.	3	0	0	0.00	2115.22	2133.00

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
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T1
T2
T3

J1  ICHECK     INO       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       5.        0.        0.  0.000000      0.00      0.0       0.    940.100     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15.000     0.000    -1.000     0.000     0.000     1.250     0.000     0.000     0.000     0.000
*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO 99.800
   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       PIN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID    ENDST

    99.80      7.40    940.10      0.00    940.10    940.11      .01      0.00      0.00    936.50
      800.      114.      253.      433.      279.      251.      962.        0.        0.    936.40
     0.00       .42      1.01       .45       .075      .050      .075    0.000    932.70   1897.89
  .000110        0.        0.        0.         0         0         0     0.00    463.61   2361.50

*SECNO 99.900
3301 HV CHANGED MORE THAN HVINS

    99.90      5.23    939.63      0.00      0.00    940.41      .78       .07       .23    941.40
      800.        0.      800.        0.        0.    113.        0.        4.        1.    941.40
      .01      0.00      7.07      0.00       .075      .050      .075      .050    934.40   2000.00
  .010646       200.      200.      200.         2         0         0     0.00     22.00   2022.00

*SECNO 100.000
3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  941.40 MAX ELLC=  939.20

   100.00      5.22    939.62      0.00      0.00    940.54      .93       .09       .05    941.40
      800.        0.      800.        0.        0.    103.        0.        4.        1.    941.40
      .01      0.00      7.74      0.00       .075      .050      .075      .050    934.40   2000.00
  .034857         5.        5.        5.         2         0         0    -9.14     22.00   2022.00

*SECNO 100.100
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3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD= 941.40 MAX ELLC= 939.20

BRIDGE SECTION A UPSTREAM FACE PARK RD

100.10	6.16	940.56	0.00	0.00	941.49	.93	.94	0.00	941.40
800.	0.	800.	0.	0.	103.	0.	4.	1.	941.40
.01	0.00	7.74	0.00	.075	.050	.075	.049	934.40	2000.00
.034857	27.	27.	27.	2	0	0	-29.44	22.00	2022.00

*SECNO 100.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	VLOB	VCH	VROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	XLOBL	XLCH	XLOBR	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE				ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
100.20	6.72	941.12	0.00	0.00	941.59	.47	.05	.05	941.40
800.	0.	800.	0.	0.	146.	0.	4.	1.	941.40
.01	0.00	5.49	0.00	.075	.050	.075	.049	934.40	2000.00
.005149	5.	5.	5.	2	0	0	0.00	22.00	2022.00

*SECNO 100.300

100.30	7.84	941.64	0.00	0.00	941.65	.00	.01	.05	936.10
800.	133.	299.	368.	498.	525.	1325.	8.	2.	936.30
.12	.27	.57	.28	.075	.050	.075	.049	933.80	1873.37
.000026	150.	150.	150.	2	0	0	0.00	498.92	2372.30

*SECNO 100.800

100.80	5.89	941.69	0.00	0.00	941.87	.18	.17	.05	937.60
800.	255.	539.	6.	157.	135.	6.	72.	16.	939.00
.29	1.62	4.01	1.01	.075	.050	.075	.049	935.80	1931.04
.002126	2000.	2000.	2200.	3	0	0	0.00	98.63	2029.67

*SECNO 100.900

3301 HV CHANGED MORE THAN HVINS

100.90	5.27	941.37	0.00	0.00	942.51	1.14	.35	.29	944.00
800.	0.	800.	0.	0.	93.	0.	72.	17.	943.90
.30	0.00	6.56	0.00	.075	.050	.075	.049	936.10	2000.00
.016852	75.	75.	75.	2	0	0	0.00	18.00	2018.00

*SECNO 101.000

3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD= 943.90 MAX ELLC= 942.30

101.00	5.25	941.39	0.00	0.00	942.53	1.13	.02	.00	944.00
800.	0.	800.	0.	0.	94.	0.	72.	17.	943.90
.30	0.00	6.55	0.00	.075	.050	.075	.049	936.10	2000.00
.025348	1.	1.	1.	1	0	0	0.00	18.00	2018.00

*SECNO 101.100

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= 13 MIN FLTRD= 943.90 MAX ELLC= 942.30

BRIDGE SECTION B UPSTREAM FACE FRANCIS ST

101.10	7.28	943.38	0.00	0.00	944.20	.82	1.64	.03	944.00
800.	0.	800.	0.	0.	110.	0.	72.	17.	943.90
.30	0.00	7.27	0.00	.075	.050	.075	.049	936.10	2000.00
.026725	63.	63.	63.	2	0	0	-19.39	18.00	2018.00

*SECNO 101.200

101.20	7.59	943.69	0.00	0.00	944.24	.54	.01	.03	944.00
800.	0.	800.	0.	0.	135.	0.	72.	17.	943.90
.30	0.00	5.92	0.00	.075	.050	.075	.049	936.10	2000.00
.006022	1.	1.	1.	2	0	0	0.00	18.00	2018.00

*SECNO 101.300

101.30	7.19	944.49	0.00	0.00	944.63	.15	.36	.04	947.00
800.	0.	766.	34.	0.	244.	26.	73.	17.	939.00
.31	0.00	3.14	1.29	.075	.050	.075	.049	937.30	2009.43
.001335	145.	145.	145.	3	0	0	0.00	58.08	2067.51

*SECNO 102.000

VALLEY SECTION C

102.00	6.33	946.13	0.00	0.00	946.40	.27	1.73	.04	941.50
800.	33.	660.	107.	21.	145.	65.	79.	18.	941.50
.38	1.54	4.55	1.65	.075	.050	.075	.049	939.80	1990.84
.002294	1000.	1000.	1100.	3	0	0	0.00	62.18	2053.02

*SECNO 102.800

102.80	7.69	948.09	0.00	0.00	948.28	.19	1.87	.01	945.20
800.	31.	769.	0.	25.	218.	0.	84.	19.	954.10
.46	1.27	3.53	0.00	.075	.050	.075	.049	940.40	1986.19
.001684	1000.	950.	1000.	2	0	0	0.00	55.59	2041.78

*SECNO 102.900

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
102.90	3.97	947.57	0.00	0.00	948.96	1.38	.32	.36	961.10
800.	0.	800.	0.	0.	85.	0.	84.	20.	961.10

.46	0.00	9.44	0.00	.075	.050	.075	.049	943.60	2000.00
.025051	75.	75.	75.	3	0	0	0.00	23.00	2023.00

*SECNO 103.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

103.00	4.10	947.70	0.00	0.00	948.99	1.29	.03	.01	961.10
800.	0.	800.	0.	0.	88.	0.	84.	20.	961.10
.46	0.00	9.13	0.00	.075	.050	.075	.049	943.60	2000.00
.029955	1.	1.	1.	2	0	0	0.00	23.00	2023.00

*SECNO 103.100

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 961.00 MAX ELLC= 958.40

BRIDGE SECTION D UPSTREAM FACE HINKLEY RD

103.10	5.50	949.10	0.00	0.00	949.79	.69	.74	.06	961.10
800.	0.	800.	0.	0.	120.	0.	85.	20.	961.10
.46	0.00	6.66	0.00	.075	.050	.075	.049	943.60	2000.00
.012745	40.	40.	40.	2	0	0	0.00	23.00	2023.00

*SECNO 103.200

103.20	5.51	949.11	0.00	0.00	949.80	.69	.01	.00	961.10
800.	0.	800.	0.	0.	120.	0.	85.	20.	961.10
.46	0.00	6.66	0.00	.075	.050	.075	.049	943.60	2000.00
.008902	1.	1.	1.	0	0	0	0.00	23.00	2023.00

*SECNO 103.400

3301 HV CHANGED MORE THAN HVINS

103.40	7.12	950.02	0.00	0.00	950.09	.07	.23	.06	947.60
800.	78.	705.	17.	135.	316.	38.	86.	20.	948.20
.48	.58	2.23	.45	.075	.050	.075	.049	942.90	1868.75
.000600	150.	150.	150.	2	0	0	0.00	228.84	2097.59

*SECNO 104.000

3280 CROSS SECTION 104.00 EXTENDED 3.03 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	IOC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION E

104.00	6.43	950.13	0.00	0.00	950.13	.00	.04	.01	946.00	
800.	713.	43.	44.	7339.	247.	574.	411.	108.	947.30	
8.06	.10	.17	.08	.075	.050	.075	.045	943.70	0.00	
.000004	3500.	2000.	1700.	3	0	0	0.00	2133.00	2133.00	

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SHARP LAKE DRAIN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOP
99.800	935.40	932.70	0.00	0.00	2001.52	0.00	2000.00	2042.00	0.00	2038.92	3
99.800	937.80	932.70	0.00	0.00	1923.06	0.00	2000.00	2042.00	0.00	2306.50	38
99.800	939.10	932.70	0.00	0.00	1908.83	0.00	2000.00	2042.00	0.00	2346.50	43
99.800	940.10	932.70	0.00	0.00	1897.89	0.00	2000.00	2042.00	0.00	2361.50	46
99.900	936.90	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
99.900	937.75	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
99.900	938.77	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
99.900	939.63	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.000	936.95	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.000	937.83	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.000	938.86	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.000	939.62	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.100	937.17	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.100	938.23	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.100	939.39	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.100	940.56	934.40	939.20	941.40	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.200	937.20	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.200	938.28	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.200	939.51	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.200	941.12	934.40	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	2
100.300	937.44	933.80	0.00	0.00	1908.63	0.00	1996.00	2067.00	0.00	2293.57	38
100.300	938.71	933.80	0.00	0.00	1894.40	0.00	1996.00	2067.00	0.00	2338.52	44
100.300	940.04	933.80	0.00	0.00	1884.89	0.00	1996.00	2067.00	0.00	2355.14	47
100.300	941.64	933.80	0.00	0.00	1873.37	0.00	1996.00	2067.00	0.00	2372.30	49
100.800	938.06	935.80	0.00	0.00	1991.16	0.00	2000.00	2025.00	0.00	2024.41	3
100.800	938.94	935.80	0.00	0.00	1974.30	0.00	2000.00	2025.00	0.00	2024.97	50
100.800	940.11	935.80	0.00	0.00	1951.95	0.00	2000.00	2025.00	0.00	2026.93	74
100.800	941.69	935.80	0.00	0.00	1931.04	0.00	2000.00	2025.00	0.00	2029.67	98
100.900	938.80	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18
100.900	939.73	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18
100.900	940.36	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18
100.900	941.37	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18

	SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPW
	101.000	938.81	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.000	939.75	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.000	940.41	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.000	941.34	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.100	939.39	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.100	940.77	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.100	941.90	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.100	943.38	936.10	942.30	943.90	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.200	939.40	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.200	940.78	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.200	941.91	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.200	943.69	936.10	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	1
	101.300	940.05	937.30	0.00	0.00	2026.07	0.00	2000.00	2058.00	0.00	2059.82	3
	101.300	941.56	937.30	0.00	0.00	2020.39	0.00	2000.00	2058.00	0.00	2062.44	4
	101.300	942.82	937.30	0.00	0.00	2015.69	0.00	2000.00	2058.00	0.00	2064.61	4
	101.300	944.49	937.30	0.00	0.00	2009.43	0.00	2000.00	2058.00	0.00	2067.51	5
	102.000	943.09	939.80	0.00	0.00	1996.86	0.00	2000.00	2025.00	0.00	2034.62	3
	102.000	944.24	939.80	0.00	0.00	1994.58	0.00	2000.00	2025.00	0.00	2041.60	4
	102.000	945.17	939.80	0.00	0.00	1992.72	0.00	2000.00	2025.00	0.00	2047.27	5
	102.000	946.13	939.80	0.00	0.00	1990.84	0.00	2000.00	2025.00	0.00	2053.02	6
	102.800	944.83	940.40	0.00	0.00	2001.01	0.00	2000.00	2055.00	0.00	2034.62	3
	102.800	946.22	940.40	0.00	0.00	1992.99	0.00	2000.00	2055.00	0.00	2037.66	4
	102.800	947.23	940.40	0.00	0.00	1988.07	0.00	2000.00	2055.00	0.00	2039.88	5
	102.800	948.09	940.40	0.00	0.00	1986.19	0.00	2000.00	2055.00	0.00	2041.78	5
*	102.900	945.22	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	945.22	2023.00	2
*	102.900	945.99	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	945.99	2023.00	2
	102.900	946.78	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	102.900	947.57	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.000	945.47	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.000	946.31	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	945.99	2023.00	2
	103.000	946.94	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.000	947.70	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.100	946.24	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.100	947.37	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.100	948.30	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.100	949.10	943.60	958.40	961.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.200	946.25	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.200	947.38	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.200	948.32	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.200	949.11	943.60	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	2
	103.400	946.69	942.90	0.00	0.00	2000.29	0.00	2000.00	2056.00	0.00	2050.68	4
	103.400	948.02	942.90	0.00	0.00	1986.27	0.00	2000.00	2056.00	0.00	2055.34	5
	103.400	949.09	942.90	0.00	0.00	1932.43	0.00	2000.00	2056.00	0.00	2076.27	1
	103.400	950.02	942.90	0.00	0.00	1868.75	0.00	2000.00	2056.00	0.00	2097.59	2

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STFNCL	STCHL	STCHR	CRIWS	ENDST	TO
104.000	946.91	943.70	0.00	0.00	162.98	0.00	1887.00	1934.00	0.00	1933.09	15
104.000	948.16	943.70	0.00	0.00	84.61	0.00	1887.00	1934.00	0.00	2133.00	20
104.000	949.22	943.70	0.00	0.00	17.78	0.00	1887.00	1934.00	0.00	2133.00	21
104.000	950.13	943.70	0.00	0.00	0.00	0.00	1887.00	1934.00	0.00	2133.00	21

SHARP LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
99.400	0.00	0.00	0.00	932.70	200.00	935.40	0.00	935.60	88.13	3.59	55.64	21.30
99.800	0.00	0.00	0.00	932.70	400.00	937.80	0.00	937.82	5.09	1.57	497.44	177.25
99.800	0.00	0.00	0.00	932.70	600.00	939.10	0.00	939.11	1.74	1.12	1034.24	454.61
99.800	0.00	0.00	0.00	932.70	800.00	940.10	0.00	940.11	1.10	1.01	1484.88	761.77
99.900	200.00	0.00	0.00	934.40	200.00	936.90	0.00	937.12	65.96	3.79	52.75	24.63
99.900	200.00	0.00	0.00	934.40	400.00	937.75	0.00	938.24	103.82	5.59	71.53	34.26
99.900	200.00	0.00	0.00	934.40	600.00	938.77	0.00	939.40	102.63	6.37	94.13	59.23
99.900	200.00	0.00	0.00	934.40	800.00	939.63	0.00	940.41	106.46	7.07	113.09	77.53
100.000	5.00	941.40	939.20	934.40	200.00	936.95	0.00	937.16	78.09	3.73	53.67	22.63
100.000	5.00	941.40	939.20	934.40	400.00	937.83	0.00	938.30	127.17	5.45	73.35	35.47
100.000	5.00	941.40	939.20	934.40	600.00	938.86	0.00	939.47	135.60	6.26	95.88	51.53
100.000	5.00	941.40	939.20	934.40	800.00	939.62	0.00	940.54	348.57	7.74	103.40	42.85
100.100	27.00	941.40	939.20	934.40	200.00	937.17	0.00	937.35	60.15	3.41	58.71	25.79
100.100	27.00	941.40	939.20	934.40	400.00	938.23	0.00	938.60	92.94	4.88	82.00	41.49
100.100	27.00	941.40	939.20	934.40	600.00	939.39	0.00	939.91	196.07	5.80	103.40	42.85
100.100	27.00	941.40	939.20	934.40	800.00	940.56	0.00	941.49	348.57	7.74	103.40	42.85
100.200	5.00	0.00	0.00	934.40	200.00	937.20	0.00	937.38	45.58	3.36	59.47	29.62
100.200	5.00	0.00	0.00	934.40	400.00	938.28	0.00	938.64	65.85	4.81	83.20	49.29
100.200	5.00	0.00	0.00	934.40	600.00	939.51	0.00	939.97	64.58	5.44	110.20	74.66
100.200	5.00	0.00	0.00	934.40	800.00	941.12	0.00	941.59	51.49	5.49	145.65	111.49
100.300	150.00	0.00	0.00	933.80	200.00	937.44	0.00	937.45	1.27	.72	432.12	177.64
100.300	150.00	0.00	0.00	933.80	400.00	938.71	0.00	938.71	.81	.72	960.03	444.12
100.300	150.00	0.00	0.00	933.80	600.00	940.04	0.00	940.04	.47	.65	1569.36	874.87
100.300	150.00	0.00	0.00	933.80	800.00	941.64	0.00	941.65	.26	.57	2348.98	1576.71
100.800	2000.00	0.00	0.00	935.80	200.00	938.06	0.00	938.37	112.75	4.51	46.07	18.84
100.800	2000.00	0.00	0.00	935.80	400.00	938.94	0.00	939.41	109.78	5.66	83.08	38.18
100.800	2000.00	0.00	0.00	935.80	600.00	940.11	0.00	940.47	56.89	5.20	156.49	79.55
100.800	2000.00	0.00	0.00	935.80	800.00	941.69	0.00	941.87	21.26	4.01	297.75	173.50
100.900	75.00	0.00	0.00	936.10	200.00	938.80	0.00	939.08	78.96	4.25	47.10	22.51
100.900	75.00	0.00	0.00	936.10	400.00	939.73	0.00	940.34	127.22	6.27	63.82	35.46
100.900	75.00	0.00	0.00	936.10	600.00	940.36	0.00	941.35	176.53	7.97	75.25	45.16
100.900	75.00	0.00	0.00	936.10	800.00	941.37	0.00	942.51	168.52	8.56	93.42	61.63
101.000	1.00	943.90	942.30	936.10	200.00	938.81	0.00	939.09	101.95	4.23	47.27	19.81
101.000	1.00	943.90	942.30	936.10	400.00	939.75	0.00	940.35	175.23	6.25	64.00	30.22
101.000	1.00	943.90	942.30	936.10	600.00	940.41	0.00	941.37	247.17	7.89	76.02	38.16
101.000	1.00	943.90	942.30	936.10	800.00	941.39	0.00	942.53	253.48	8.55	93.57	50.25
101.100	63.00	943.90	942.30	936.10	200.00	939.39	0.00	939.58	58.68	3.47	57.56	26.11
101.100	63.00	943.90	942.30	936.10	400.00	940.77	0.00	941.14	88.04	4.84	82.59	42.63
101.100	63.00	943.90	942.30	936.10	600.00	941.90	0.00	942.42	111.64	5.84	102.81	56.79
101.100	63.00	943.90	942.30	936.10	800.00	943.38	0.00	944.20	267.25	7.27	110.10	48.94
101.200	1.00	0.00	0.00	936.10	200.00	939.40	0.00	939.58	42.57	3.46	57.84	30.65
101.200	1.00	0.00	0.00	936.10	400.00	940.78	0.00	941.14	59.44	4.83	82.83	51.88

101.200	1.00	0.00	0.00	936.10	600.00	941.91	0.00	942.43	71.65	5.82	103.14	70.88
101.200	1.00	0.00	0.00	936.10	800.00	943.69	0.00	944.24	60.22	5.92	135.18	103.09

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOK*S	VCH	AREA	.01K
	101.300	145.00	0.00	0.00	937.30	200.00	940.05	0.00	940.19	40.90	3.04	66.60	31.27
	101.300	145.00	0.00	0.00	937.30	400.00	941.56	0.00	941.73	27.96	3.33	124.00	75.65
	101.300	145.00	0.00	0.00	937.30	600.00	942.82	0.00	943.00	22.22	3.47	180.97	127.28
	101.300	145.00	0.00	0.00	937.30	800.00	944.49	0.00	944.63	13.35	3.14	270.35	218.93
	102.000	1000.00	0.00	0.00	939.80	200.00	943.09	0.00	943.21	23.05	2.78	79.17	41.66
	102.000	1000.00	0.00	0.00	939.80	400.00	944.24	0.00	944.44	25.81	3.71	128.06	78.73
	102.000	1000.00	0.00	0.00	939.80	600.00	945.17	0.00	945.43	25.78	4.28	175.75	118.16
	102.000	1000.00	0.00	0.00	939.80	800.00	946.13	0.00	946.40	22.94	4.55	231.19	167.03
	102.800	950.00	0.00	0.00	940.40	200.00	944.83	0.00	944.90	14.15	2.14	93.40	53.17
	102.800	950.00	0.00	0.00	940.40	400.00	946.22	0.00	946.34	15.77	2.78	146.86	100.71
	102.800	950.00	0.00	0.00	940.40	600.00	947.23	0.00	947.39	16.64	3.22	196.06	147.09
	102.800	950.00	0.00	0.00	940.40	800.00	948.09	0.00	948.28	16.84	3.53	242.49	194.95
*	102.900	75.00	0.00	0.00	943.60	200.00	945.22	945.22	945.89	379.00	6.58	30.40	10.27
*	102.900	75.00	0.00	0.00	943.60	400.00	945.99	945.99	947.06	351.17	8.28	48.29	21.35
	102.900	75.00	0.00	0.00	943.60	600.00	946.78	0.00	948.04	291.91	9.00	66.64	35.12
	102.900	75.00	0.00	0.00	943.60	800.00	947.57	0.00	948.96	250.51	9.44	84.73	50.55
	103.000	1.00	961.00	958.40	943.60	200.00	945.47	0.00	945.94	243.81	5.50	36.34	12.81
	103.000	1.00	961.00	958.40	943.60	400.00	946.31	945.99	947.12	276.13	7.21	55.49	24.07
	103.000	1.00	961.00	958.40	943.60	600.00	946.94	0.00	948.08	320.90	8.60	69.73	33.49
	103.000	1.00	961.00	958.40	943.60	800.00	947.70	0.00	948.99	299.55	9.13	87.62	46.22
	103.100	39.50	961.00	958.40	943.60	200.00	946.24	0.00	946.46	75.39	3.71	53.84	23.03
	103.100	39.50	961.00	958.40	943.60	400.00	947.37	0.00	947.76	96.62	5.00	80.00	40.69
	103.100	39.50	961.00	958.40	943.60	600.00	948.30	0.00	948.85	112.49	5.92	101.43	56.57
	103.100	39.50	961.00	958.40	943.60	800.00	949.10	0.00	949.79	127.45	6.68	119.77	70.86
	103.200	1.00	0.00	0.00	943.60	200.00	946.25	0.00	946.46	60.75	3.68	54.36	25.66
	103.200	1.00	0.00	0.00	943.60	400.00	947.38	0.00	947.77	73.26	4.97	80.43	46.73
	103.200	1.00	0.00	0.00	943.60	600.00	948.32	0.00	948.86	81.26	5.89	101.92	66.56
	103.200	1.00	0.00	0.00	943.60	800.00	949.11	0.00	949.80	89.02	6.66	120.21	84.79
	103.400	150.00	0.00	0.00	942.90	200.00	946.69	0.00	946.72	7.26	1.49	133.87	74.22
	103.400	150.00	0.00	0.00	942.90	400.00	948.02	0.00	948.08	8.17	1.96	206.86	139.90
	103.400	150.00	0.00	0.00	942.90	600.00	949.09	0.00	949.16	7.34	2.19	315.13	221.39
	103.400	150.00	0.00	0.00	942.90	800.00	950.02	0.00	950.09	6.00	2.23	488.79	326.67
	104.000	2000.00	0.00	0.00	943.70	200.00	946.91	0.00	946.91	.25	.24	1664.45	400.52
	104.000	2000.00	0.00	0.00	943.70	400.00	948.16	0.00	948.16	.08	.19	4000.32	1378.19
	104.000	2000.00	0.00	0.00	943.70	600.00	949.22	0.00	949.22	.05	.17	6208.93	2691.76
	104.000	2000.00	0.00	0.00	943.70	800.00	950.13	0.00	950.13	.04	.17	8159.75	4140.93

SHARP LAKE DRAIN

SUMMARY PRINTOUT TABLE 150

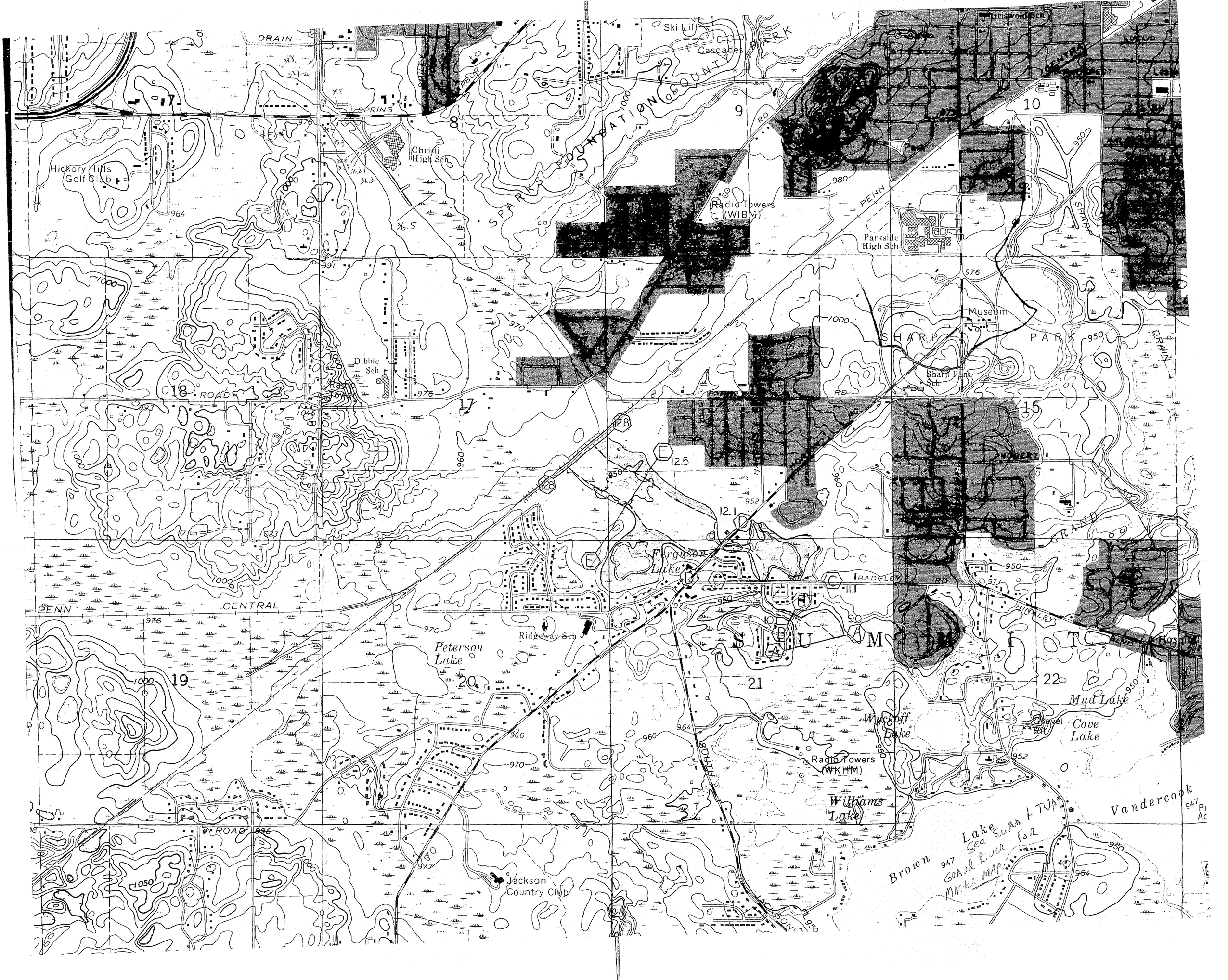
SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
99.600	200.00	935.40	0.00	0.00	0.00	37.40	0.00
99.600	400.00	937.80	2.40	0.00	0.00	383.44	0.00
99.800	600.00	939.10	1.30	0.00	0.00	437.67	0.00
99.800	800.00	940.10	1.00	0.00	0.00	463.61	0.00
99.900	200.00	936.90	0.00	1.50	0.00	22.00	200.00
99.900	400.00	937.75	.85	-.05	0.00	22.00	200.00
99.900	600.00	938.77	1.02	-.33	0.00	22.00	200.00
99.900	800.00	939.63	.86	-.47	0.00	22.00	200.00
100.000	200.00	936.95	0.00	.04	0.00	22.00	5.00
100.000	400.00	937.83	.89	.08	0.00	22.00	5.00
100.000	600.00	938.86	1.02	.08	0.00	22.00	5.00
100.000	800.00	939.62	.76	-.02	0.00	22.00	5.00
100.100	200.00	937.17	0.00	.22	0.00	22.00	27.00
100.100	400.00	938.23	1.06	.39	0.00	22.00	27.00
100.100	600.00	939.39	1.16	.53	0.00	22.00	27.00
100.100	800.00	940.56	1.17	.94	0.00	22.00	27.00
100.200	200.00	937.20	0.00	.03	0.00	22.00	5.00
100.200	400.00	938.28	1.08	.05	0.00	22.00	5.00
100.200	600.00	939.51	1.23	.12	0.00	22.00	5.00
100.200	800.00	941.12	1.61	.56	0.00	22.00	5.00
100.300	200.00	937.44	0.00	.24	0.00	384.95	150.00
100.300	400.00	938.71	1.26	.43	0.00	444.12	150.00
100.300	600.00	940.04	1.33	.53	0.00	470.25	150.00
100.300	800.00	941.64	1.61	.53	0.00	498.92	150.00
100.800	200.00	938.06	0.00	.62	0.00	33.25	2000.00
100.800	400.00	938.94	.88	.24	0.00	50.66	2000.00
100.800	600.00	940.11	1.17	.08	0.00	74.98	2000.00
100.800	800.00	941.69	1.58	.05	0.00	98.63	2000.00
100.900	200.00	938.80	0.00	.74	0.00	18.00	75.00
100.900	400.00	939.73	.93	.78	0.00	18.00	75.00
100.900	600.00	940.36	.64	.25	0.00	18.00	75.00
100.900	800.00	941.37	1.00	-.32	0.00	18.00	75.00
101.000	200.00	938.81	0.00	.01	0.00	18.00	1.00
101.000	400.00	939.75	.93	.02	0.00	18.00	1.00
101.000	600.00	940.41	.66	.04	0.00	18.00	1.00
101.000	800.00	941.39	.98	.02	0.00	18.00	1.00
101.100	200.00	939.39	0.00	.58	0.00	18.00	63.00
101.100	400.00	940.77	1.38	1.03	0.00	18.00	63.00
101.100	600.00	941.90	1.12	1.49	0.00	18.00	63.00
101.100	800.00	943.38	1.48	1.99	0.00	18.00	63.00
101.200	200.00	939.40	0.00	.01	0.00	18.00	1.00
101.200	400.00	940.78	1.39	.01	0.00	18.00	1.00

1011.200	600.00	943.69	1.78	.01	0.00	18.00	1.00

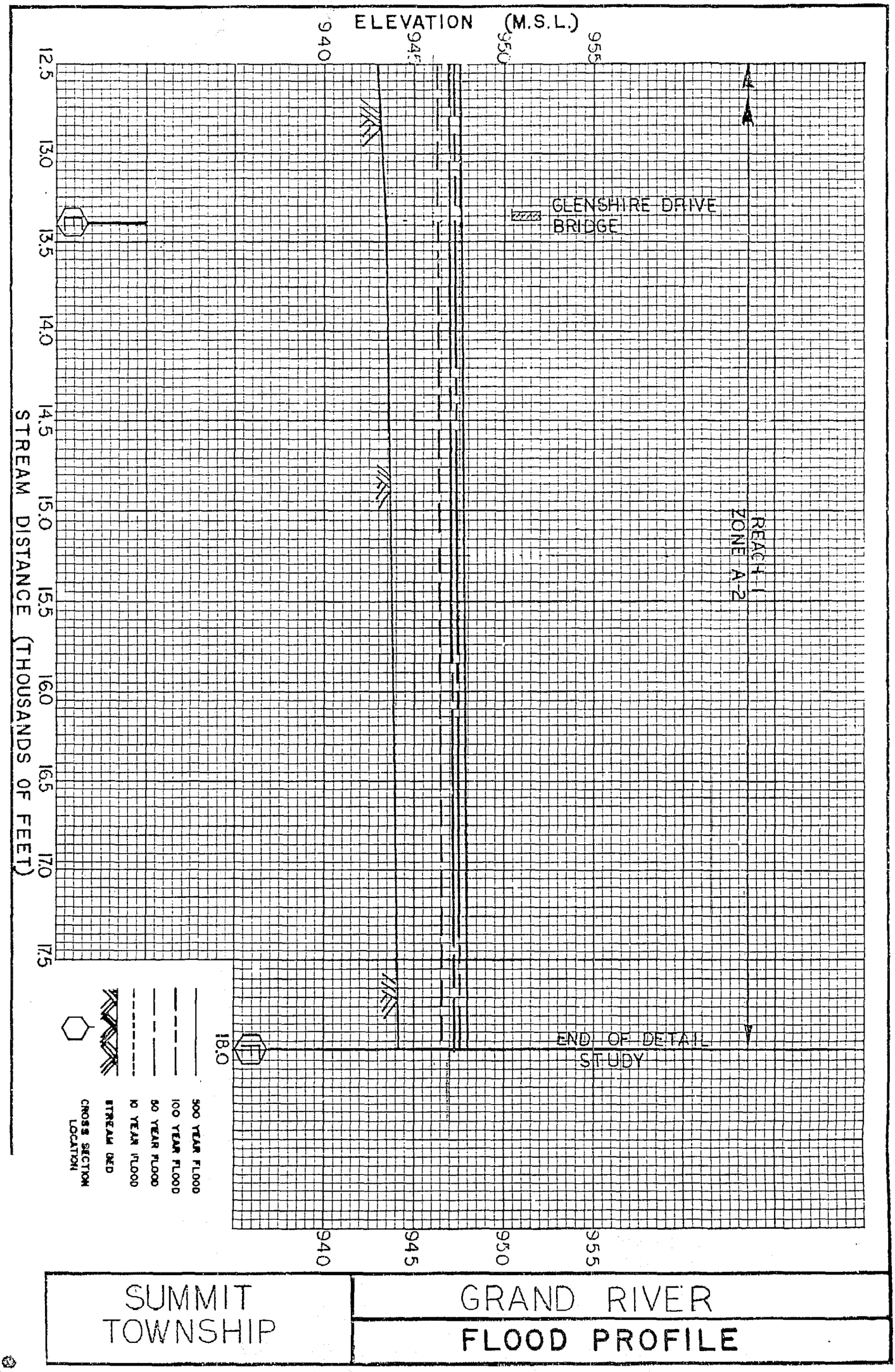
	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	101.300	200.00	940.05	0.00	.65	0.00	33.75	145.00
	101.300	400.00	941.56	1.52	.78	0.00	42.05	145.00
	101.300	600.00	942.82	1.25	.91	0.00	48.92	145.00
	101.300	800.00	944.49	1.67	.79	0.00	58.08	145.00
	102.000	200.00	943.09	0.00	3.04	0.00	37.76	1000.00
	102.000	400.00	944.24	1.15	2.68	0.00	47.02	1000.00
	102.000	600.00	945.17	.93	2.36	0.00	54.55	1000.00
	102.000	800.00	946.13	.96	1.65	0.00	62.18	1000.00
	102.800	200.00	944.83	0.00	1.74	0.00	33.61	950.00
	102.800	400.00	946.22	1.39	1.98	0.00	44.67	950.00
	102.800	600.00	947.23	1.01	2.05	0.00	51.81	950.00
	102.800	800.00	948.09	.86	1.96	0.00	55.59	950.00
*	102.900	200.00	945.22	0.00	-.38	0.00	23.00	75.00
*	102.900	400.00	945.99	.78	-.23	0.00	23.00	75.00
	102.900	600.00	946.78	.79	-.45	0.00	23.00	75.00
	102.900	800.00	947.57	.79	-.52	0.00	23.00	75.00
	103.000	200.00	945.47	0.00	.25	0.00	23.00	1.00
	103.000	400.00	946.31	.84	.32	0.00	23.00	1.00
	103.000	600.00	946.94	.63	.15	0.00	23.00	1.00
	103.000	800.00	947.70	.76	.13	0.00	23.00	1.00
	103.100	200.00	946.24	0.00	.77	0.00	23.00	39.50
	103.100	400.00	947.37	1.13	1.06	0.00	23.00	39.50
	103.100	600.00	948.30	.93	1.37	0.00	23.00	39.50
	103.100	800.00	949.10	.80	1.40	0.00	23.00	39.50
	103.200	200.00	946.25	0.00	.01	0.00	23.00	1.00
	103.200	400.00	947.38	1.13	.01	0.00	23.00	1.00
	103.200	600.00	948.32	.93	.02	0.00	23.00	1.00
	103.200	800.00	949.11	.80	.02	0.00	23.00	1.00
	103.400	200.00	946.69	0.00	.43	0.00	50.39	150.00
	103.400	400.00	948.02	1.33	.63	0.00	69.07	150.00
	103.400	600.00	949.09	1.07	.77	0.00	143.84	150.00
	103.400	800.00	950.02	.93	.91	0.00	228.84	150.00
	104.000	200.00	946.91	0.00	.23	0.00	1540.18	2000.00
	104.000	400.00	948.16	1.24	.14	0.00	2048.39	2000.00
	104.000	600.00	949.22	1.06	.12	0.00	2115.22	2000.00
	104.000	800.00	950.13	.92	.11	0.00	2133.00	2000.00

SUMMARY OF ERRORS

CAUTION SECNO= 102.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 102.900 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 102.900 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 102.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 102.900 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 102.900 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL



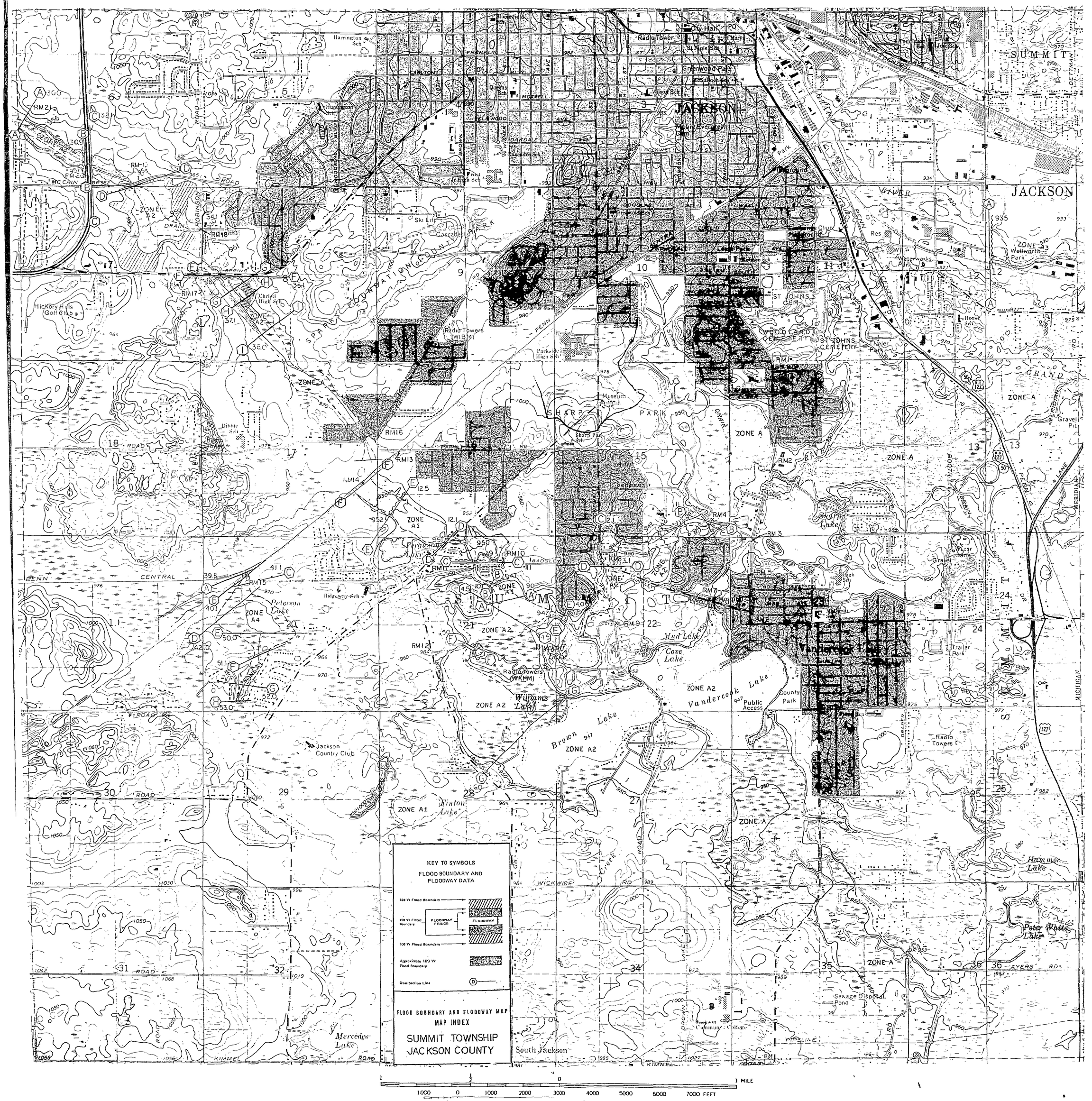
Ski Lift
Cascades
Griswold Sch
DRAIN
SPRING
Christi High Sch
Hickory Hills Golf Club
SPARKS FOUNDATION COUNTY PARK
Radio Towers (WIBM)
PENN
Parkside High Sch
Museum
SHARP PARK
Sharp Park Sch
Dibble Sch
Radio Tower
ROAD
Ferguson Lake
BADGLEY RD
CENTRAL
Ridgeway Sch
Peterson Lake
SUMMIT
Mud Lake
Cove Lake
Wyckoff Lake
Radio Towers (WKHM)
Williams Lake
Vandercook
Brown Lake
Jackson Country Club



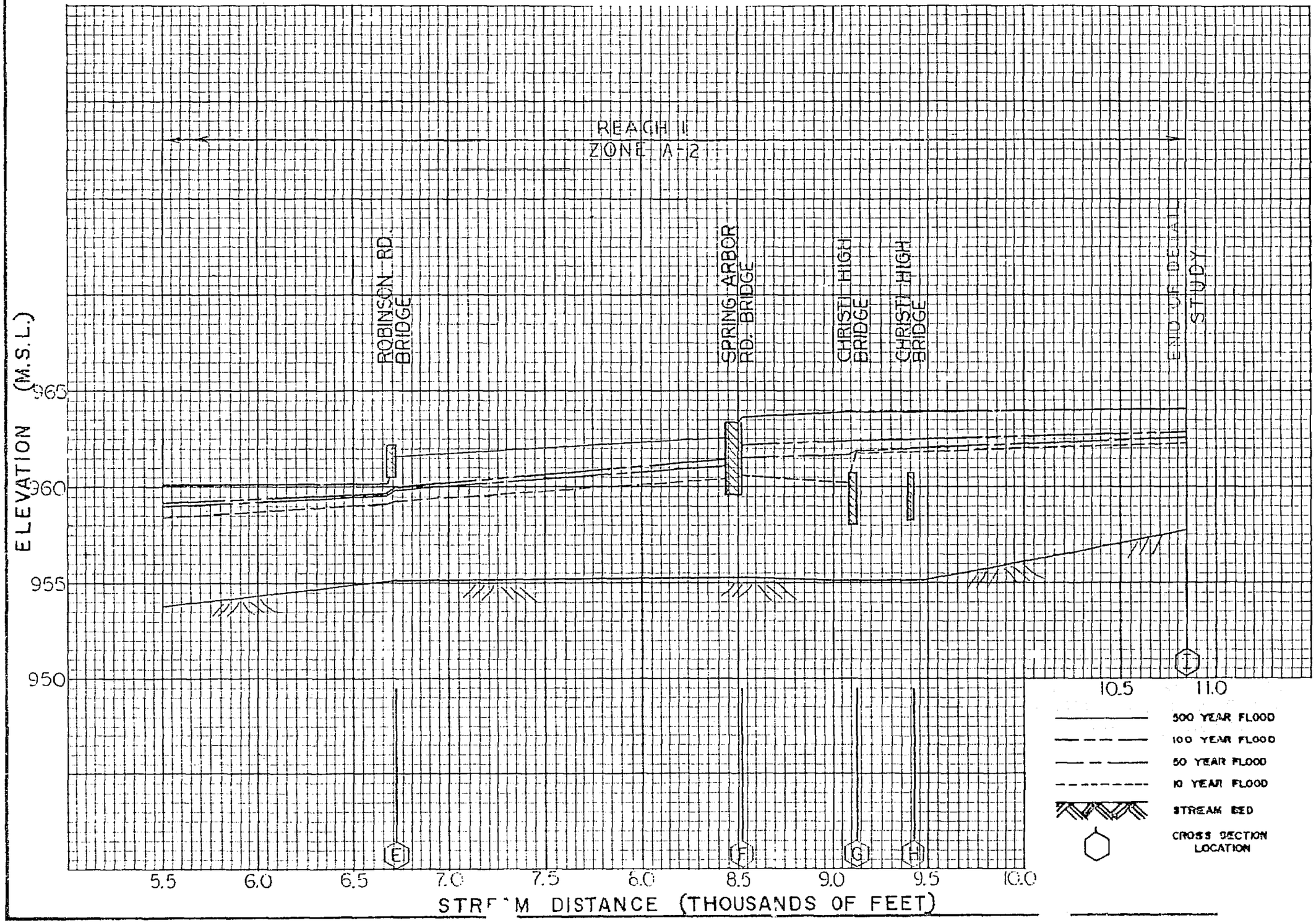
SUMMIT TOWNSHIP	GRAND RIVER
	FLOOD PROFILE

Summit Twp.

2



KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500 Yr Flood Boundary
100 Yr Flood Boundary
FLOODWAY FRINGE
FLOODWAY
500 Yr Flood Boundary
Approximate 100 Yr Flood Boundary
Cross Section Line
FLOOD BOUNDARY AND FLOODWAY MAP
MAP INDEX
SUMMIT TOWNSHIP
JACKSON COUNTY
JACKSON
SUMMIT
ZONE A
ZONE A1
ZONE A2
ZONE A4
Vandercook Lake
Brown Lake
Mud Lake
Cove Lake
Wilkins Lake
Peterson Lake
Finton Lake
Mercedes Lake
Hammer Lake
Peter White Lake
Jackson Country Club
Hickory Hills Golf Club
Radio Towers (WIBM)
Radio Towers (WKHM)
Sharp Park
Museum
Public Access
County Park
Sewage Disposal Pond
Jackson Community College
South Jackson
Wellworth Park
Trailer Park
Gravel Pit
Radio Towers
Cascades
Ski Lift
Greenwood Park
Best Park
Harrington Sch
Christi High Sch
Parkside High Sch
Ridgeway Sch
Dibble Sch
Hoover Sch
Wilson Sch
Cascades Sch
Frost Jr High Sch
Queens Sch
Bloomfield Sch
Wilson Sch
Sharp Park Sch
Lease Park
Waterworks Park
Res
Trailer Park
Gravel Pit
Sewage Disposal Pond
Jackson Community College
PENN CENTRAL
MICHIGAN
MERIDIAN
AYERS RD
WICKWIRE RD
KIMMEL ROAD
PIPELINE
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET



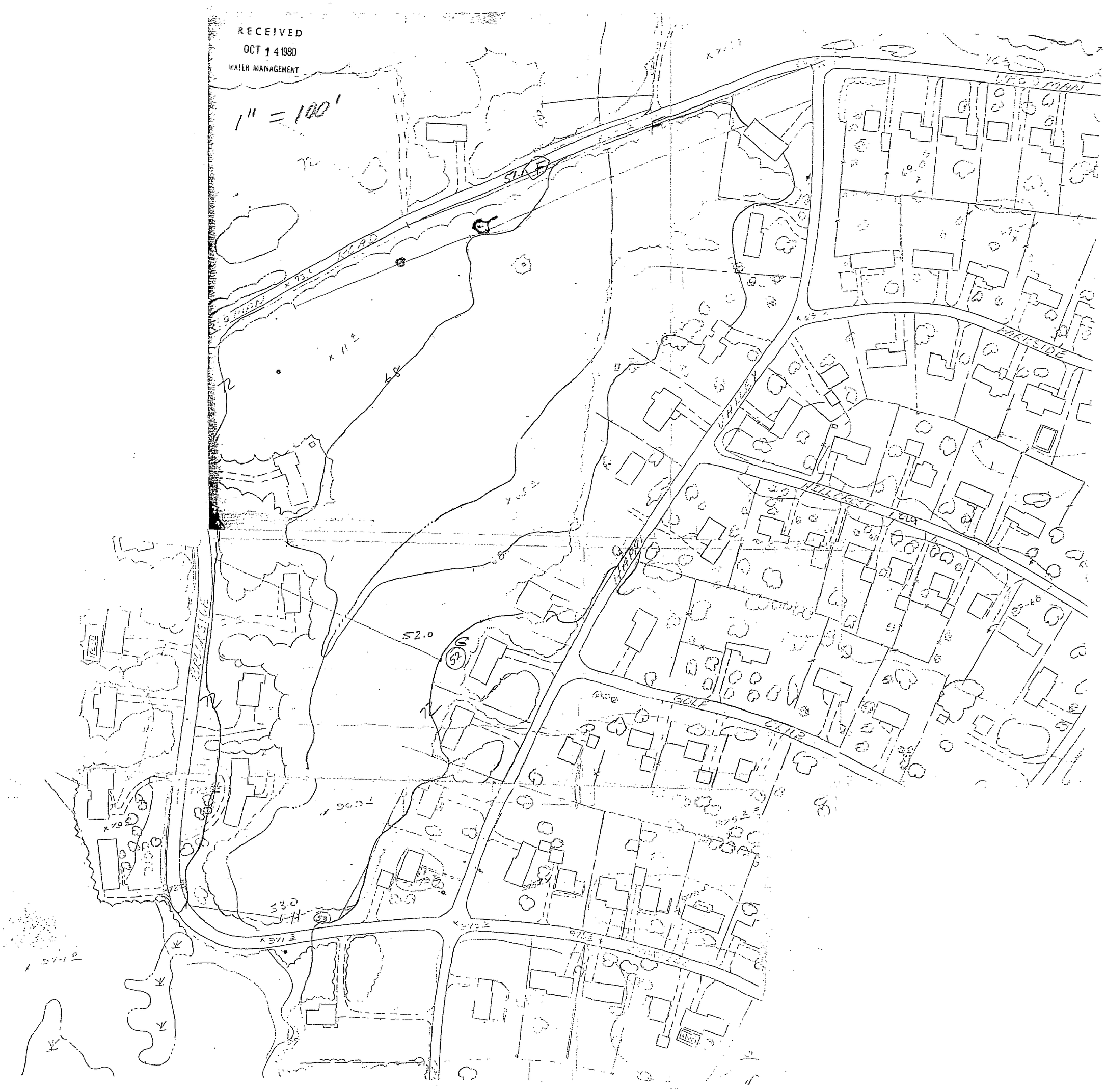
MCCAIN DRAIN

FLOOD PROFILE

SUMMIT TOWNSHIP

RECEIVED
OCT 14 1980
WATER MANAGEMENT

1" = 100'



100YR.

ELEVATION IN FEET
960.00
962.00
964.00
966.00
968.00
970.00
972.00
974.00
976.00
978.00

1860.00 1880.00 1900.00 1920.00 1940.00 1960.00 1980.00 2000.00 2020.00 2040.00 2060.00 2080.00 2100.00 2120.00

DISTANCE IN FEET

SECTION NO. 39.800

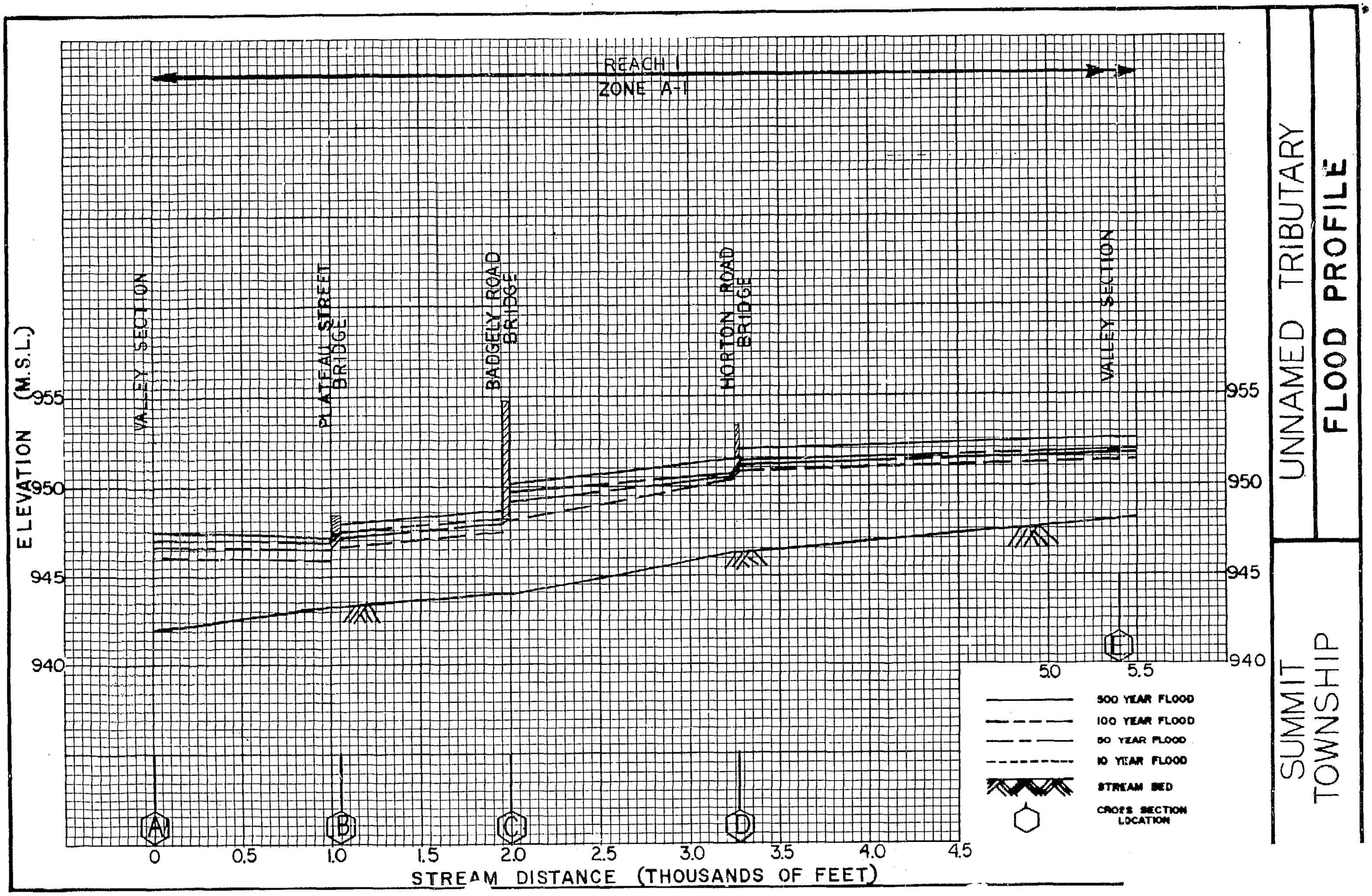
FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

UNNAMED TRIBUTARY

FLOOD PROFILE

SUMMIT TOWNSHIP



REACH
ZONE A-2

ELEVATION (M.S.L.)

950
945
940

6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0

STREAM DISTANCE (THOUSANDS OF FEET)

11.5 12.0 12.5

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

GRAND RIVER

FLOOD PROFILE

SUMMIT TOWNSHIP



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

Revised 10/20/83

FLOOD BOUNDARY AND FLOODWAY MAP

SUMMIT TOWNSHIP, MICH.
MC CAIN DRAIN

ABRAMS
AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

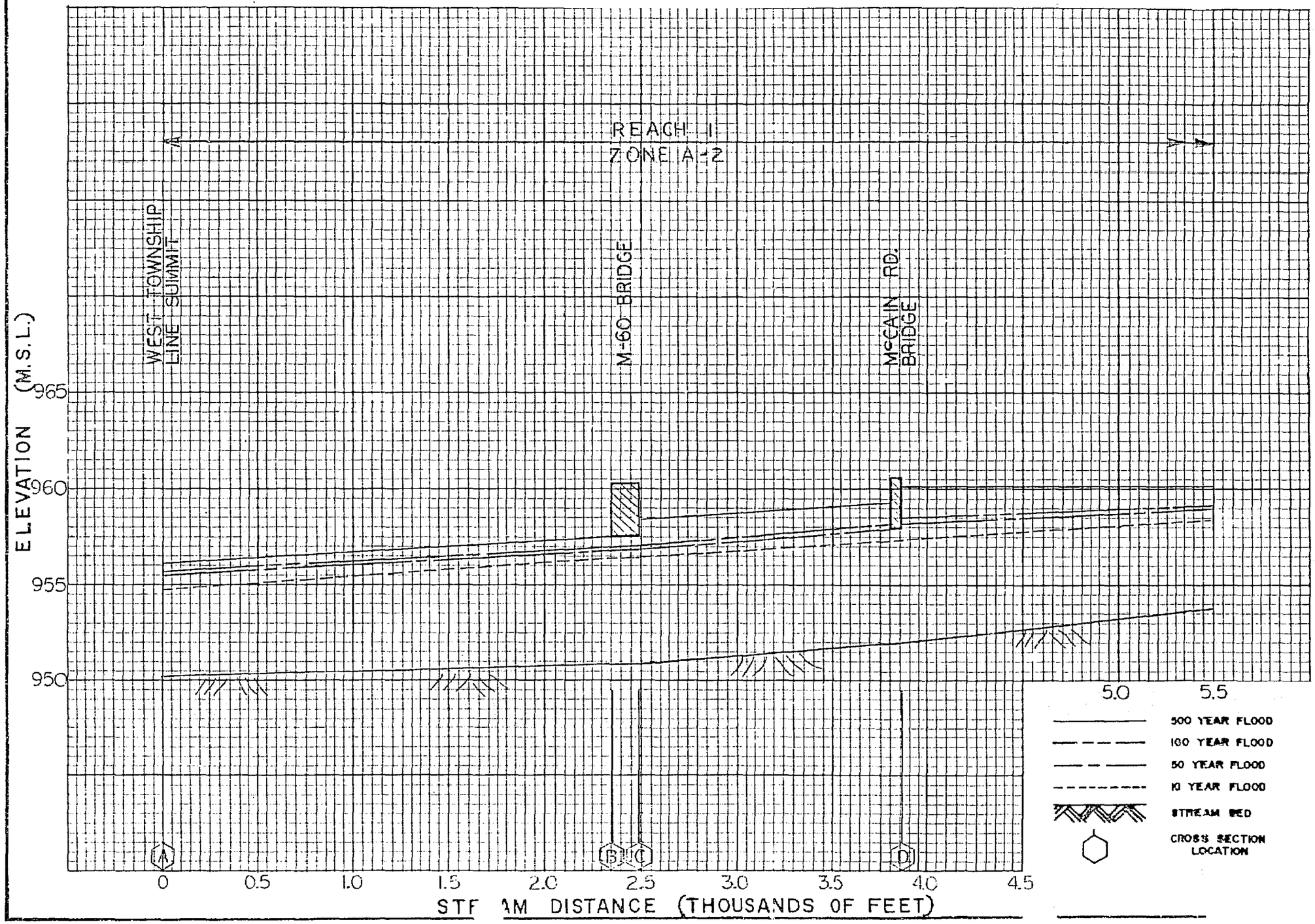
400 0 400 800 1200
SCALE 1" = 400' CONTOUR INTERVAL 5'

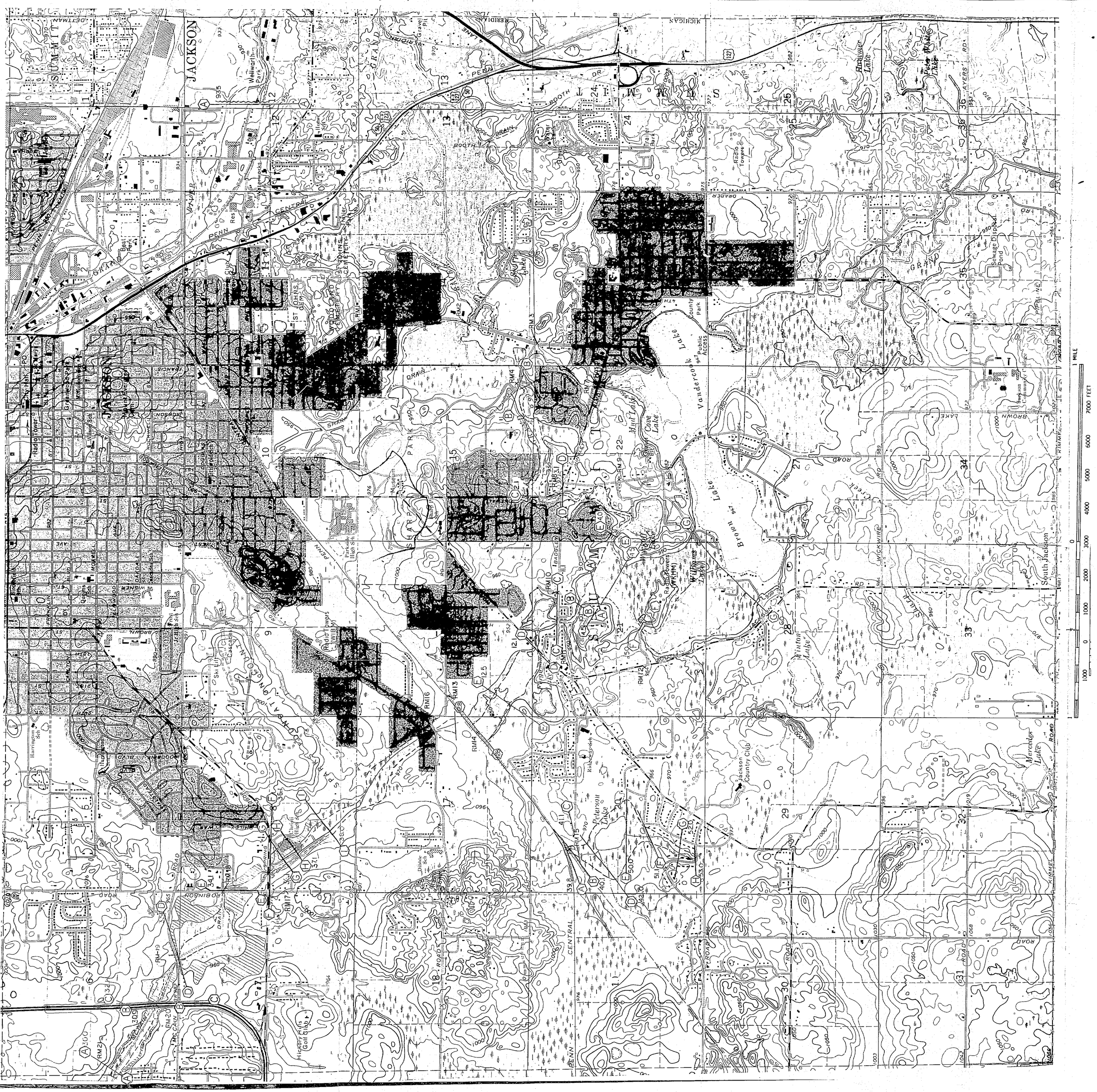
A. A. S. C. 17298

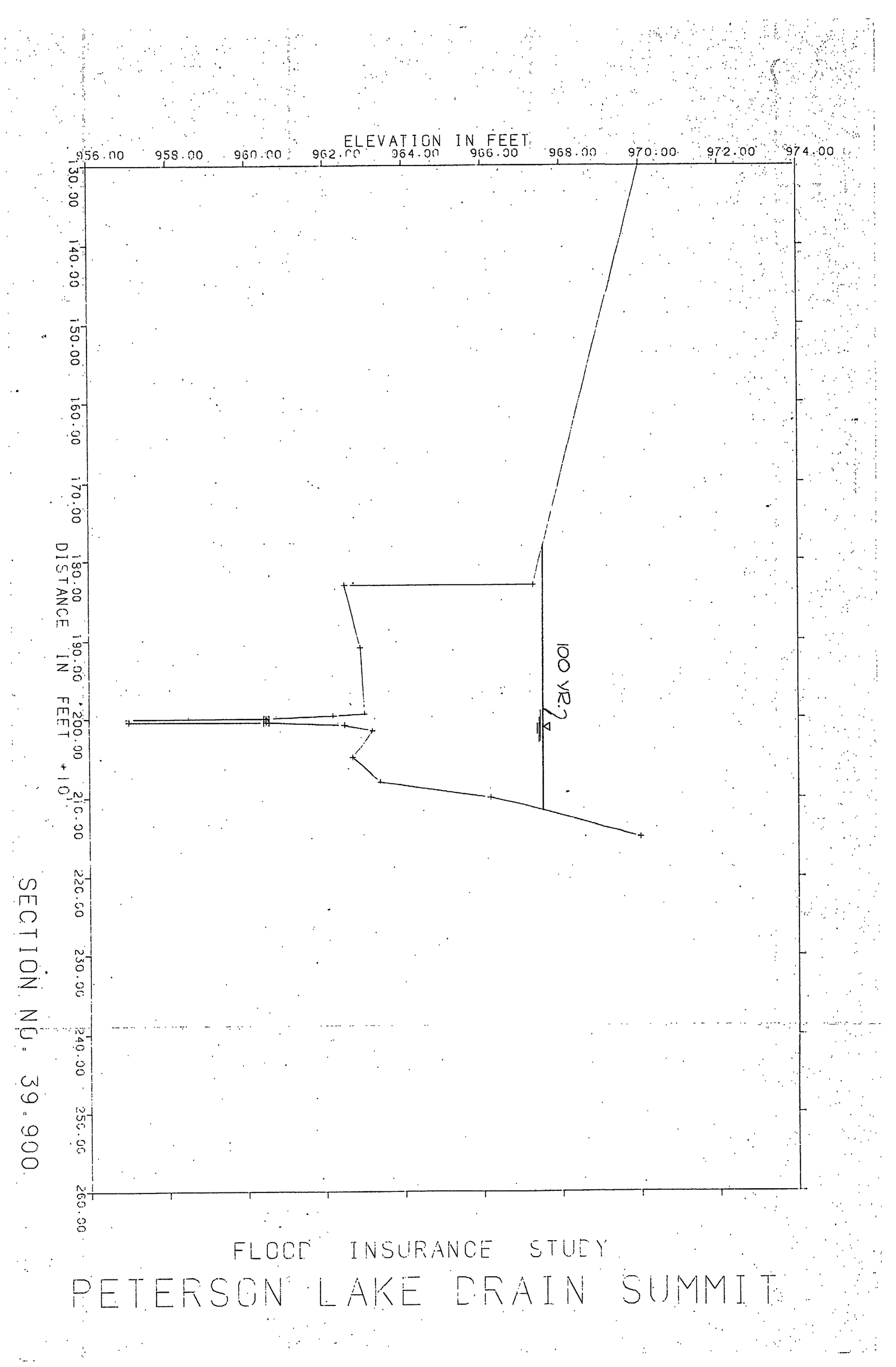
MCCAIN DRAIN

FLOOD PROFILE

SUMMIT TOWNSHIP




JACKSON
SUMMIT
Wellworth Park
Radio Towers
Sewage Disposal Pond
Public Access
Vandercook Lake
Mud Lake
Cove Lake
Brown Lake
Hinton Lake
Peterson Lake
Jackson Country Club
Mercedes Lake
South Jackson
Hickory Hills Golf Club
Radio Towers (WKHM)
Radio Towers (WIBM)
Parkside High Sch
Harrington Sch
Jackson Community College
PENN CENTRAL
GRAND
BROWN LAKE
WICKWIRE
KIMMEL
ROBINSON
MICHIGAN
MERIDIAN
1 MILE
7000 FEET



SECTION NO. 39.900

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

FLOOD PROFILE

UNNAMED TRIBUTARY

SUMMIT TOWNSHIP

REACH 1
ZONE A-1

END OF DETAILED STUDY

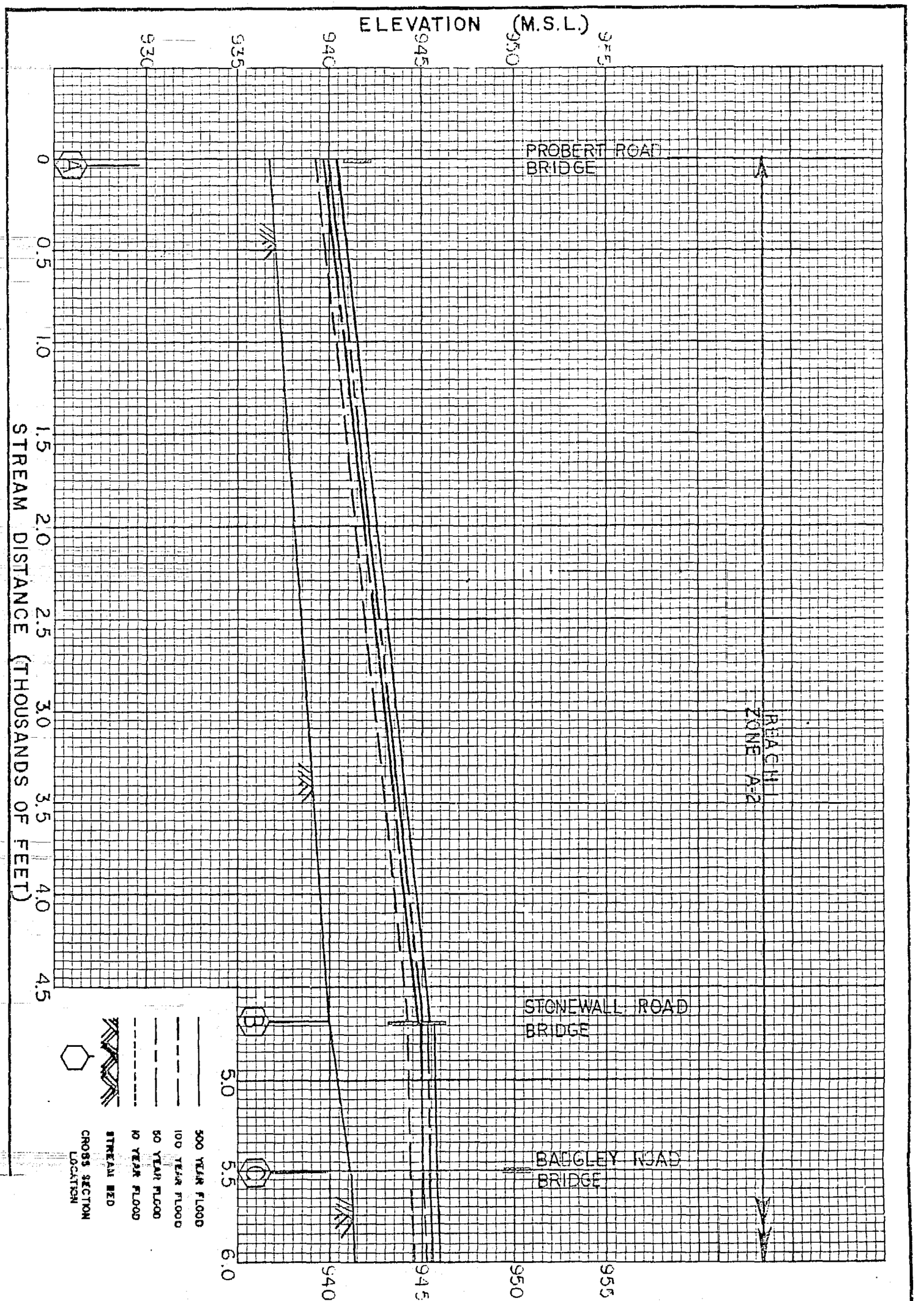
ELEVATION (M.S.L.)

955
950
945
940

5.5
6.0
6.5
7.0

STREAM DISTANCE (THOUSANDS OF FEET)

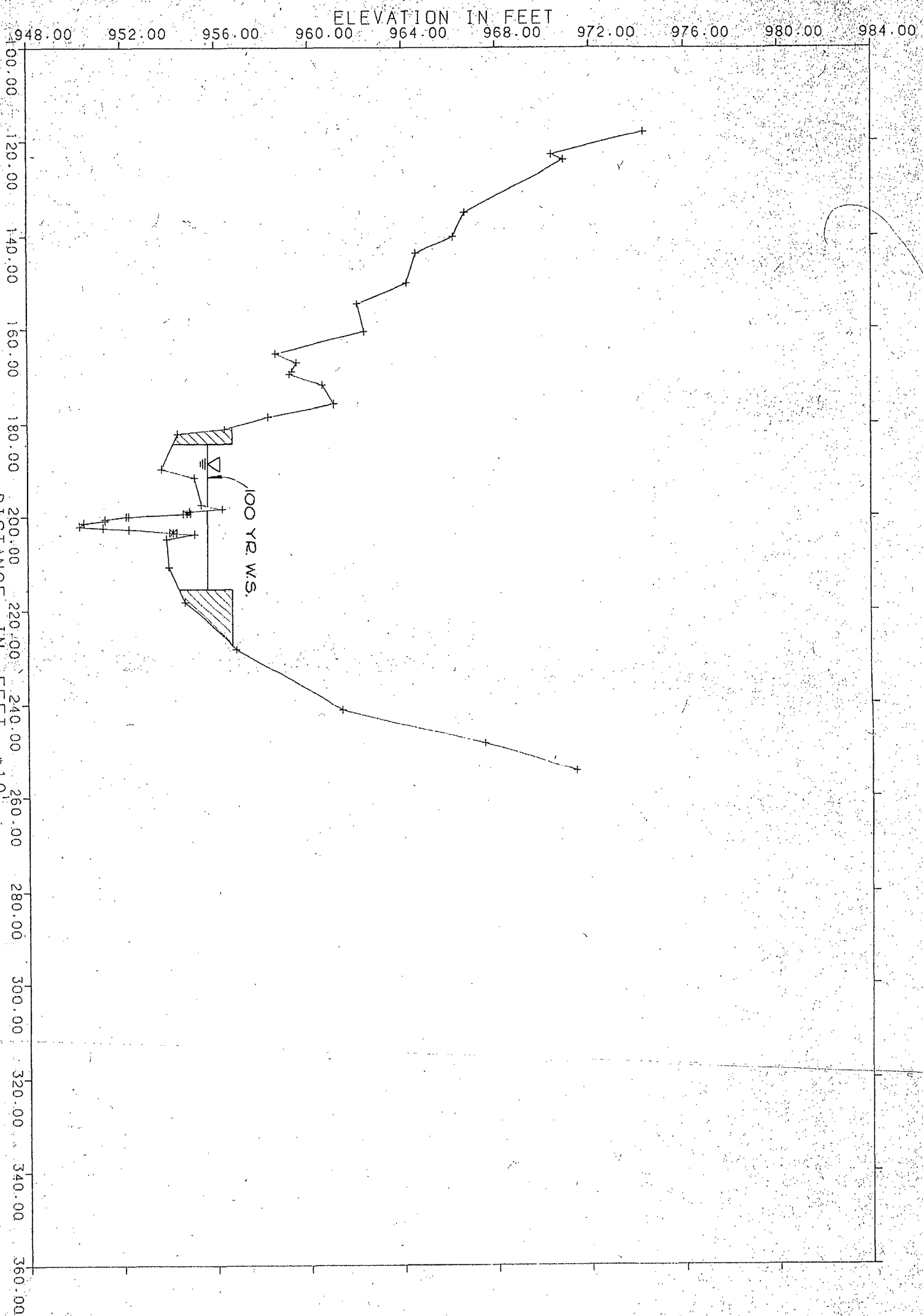
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION



SUMMIT TOWNSHIP

GRAND RIVER

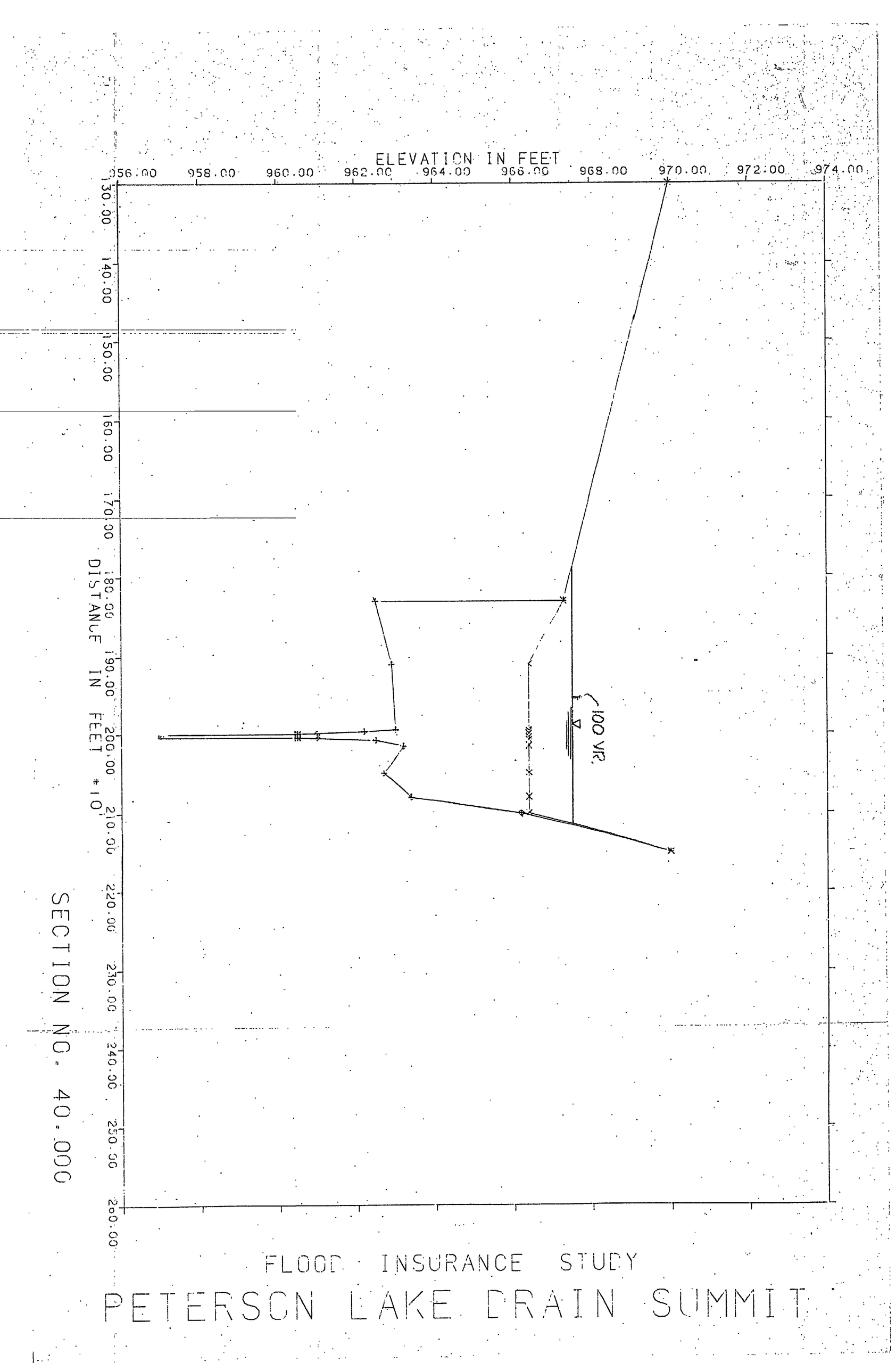
FLOOD PROFILE



SECTION NO. 30.000

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT


ELEVATION IN FEET
956.00
958.00
960.00
962.00
964.00
966.00
968.00
970.00
972.00
974.00
130.00
140.00
150.00
160.00
170.00
180.00
190.00
200.00
210.00
220.00
230.00
240.00
250.00
260.00
DISTANCE IN FEET * 10
100 YR.
SECTION NO. 40.000
FLOOD INSURANCE STUDY
PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET

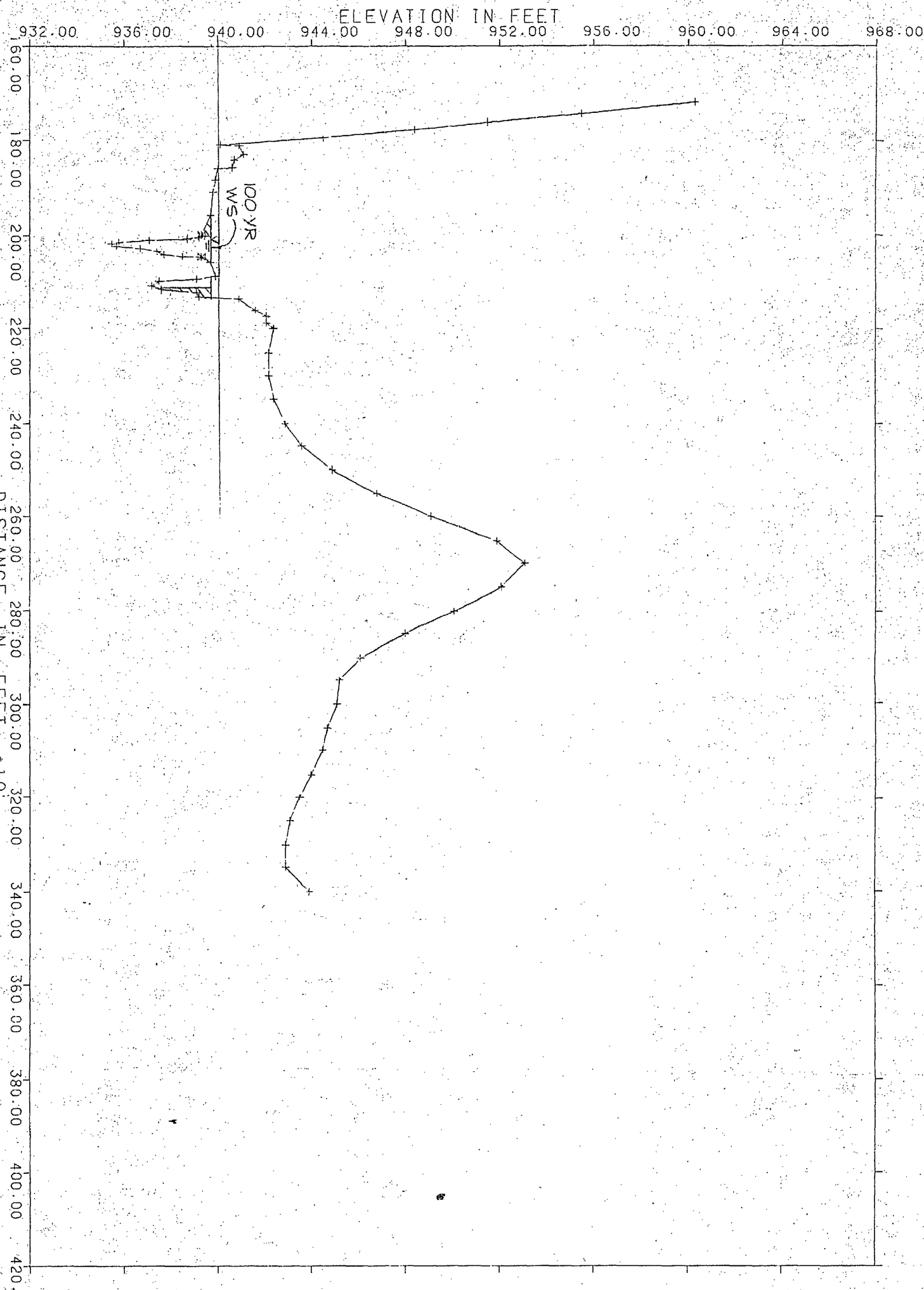
960.00
958.00
956.00
954.00
952.00
950.00
948.00
946.00
944.00
942.00

100 YR. W.S.

120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00

DISTANCE IN FEET *10

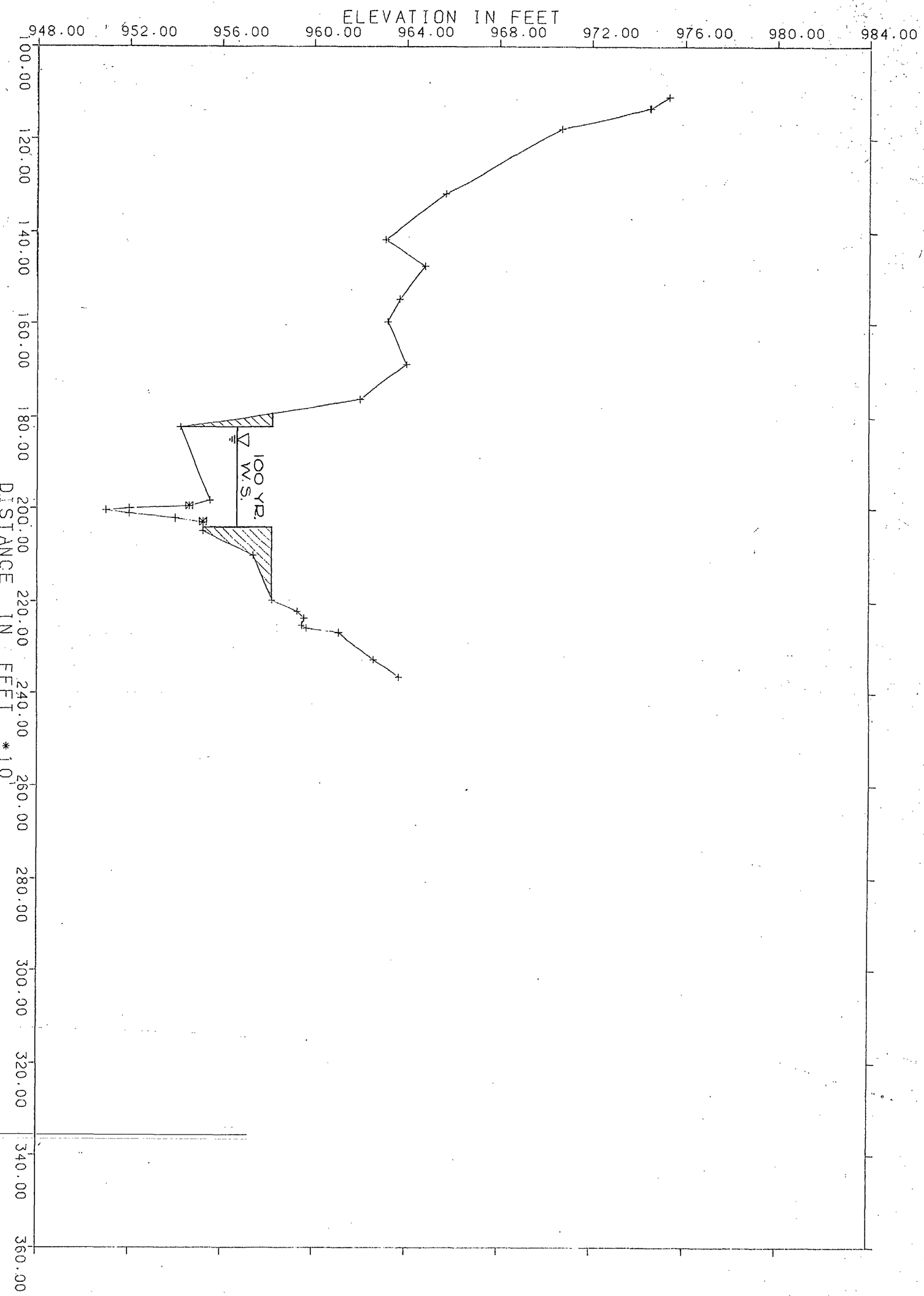
SECTION NO. 9.000



SECTION NO. 0.800

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT



SECTION NO. 30.600

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

100 YR.

ELEVATION IN FEET
960.00
962.00
964.00
966.00
968.00
970.00
972.00
974.00
976.00
978.00

150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00

DISTANCE IN FEET +10'

SECTION NO. 40.300

FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET
960.00
958.00
956.00
954.00
952.00
950.00
948.00
946.00
944.00
942.00

100YR WS

170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00

DISTANCE IN FEET *10

SECTION NO. 9.800

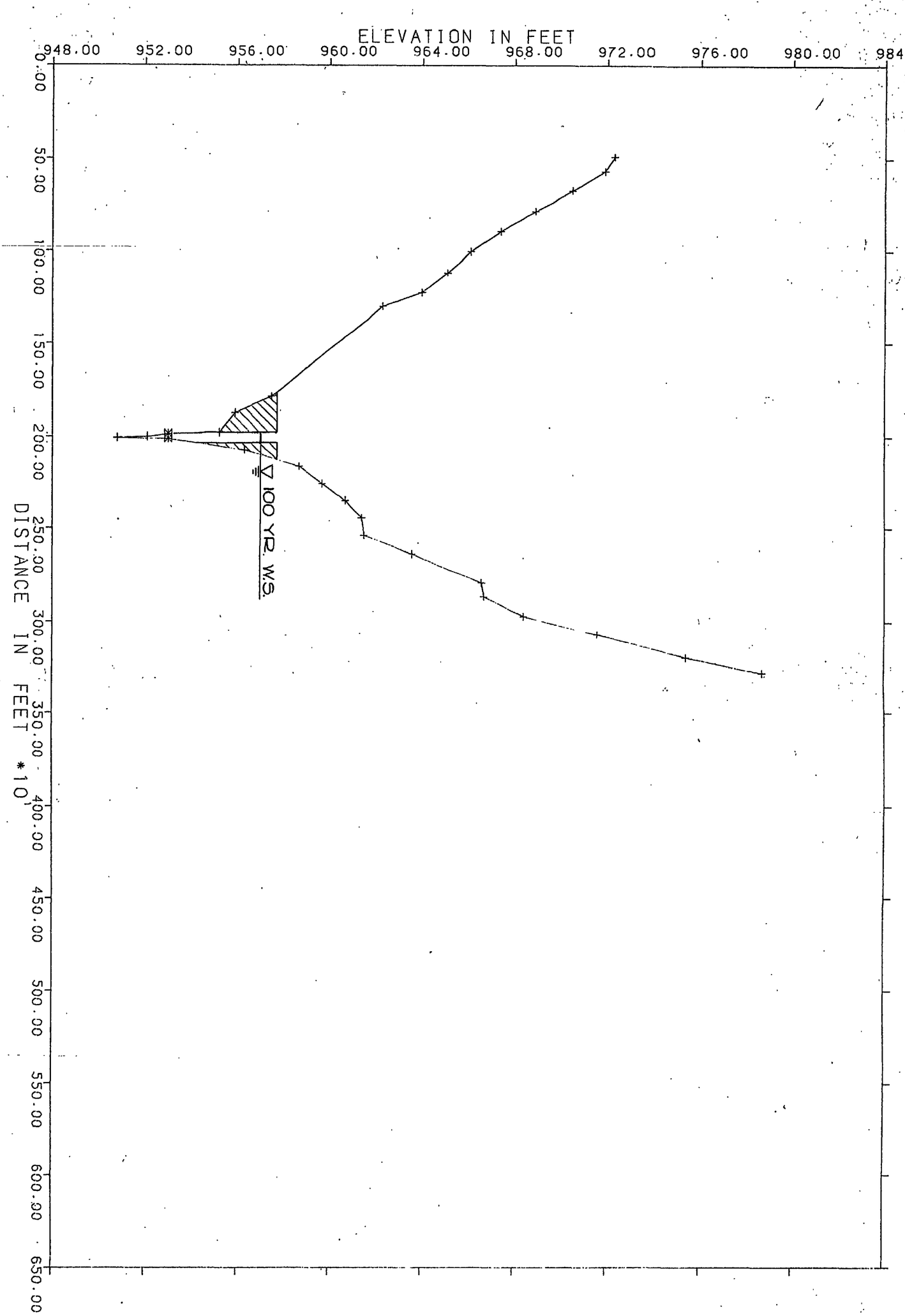
FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

ELEVATION IN FEET
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00

100 YR. W.S.

40.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00
DISTANCE IN FEET *10

SECTION NO. 0.900



SECTION NO. 30.800

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

100 YR.

ELEVATION IN FEET

960.00 962.00 964.00 966.00 968.00 970.00 972.00 974.00 976.00 978.00

1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00 2400.00 2450.00

DISTANCE IN FEET

SECTION NO. 40.800



SECTION NO. 9.900

FLOOD INSURANCE STUDY

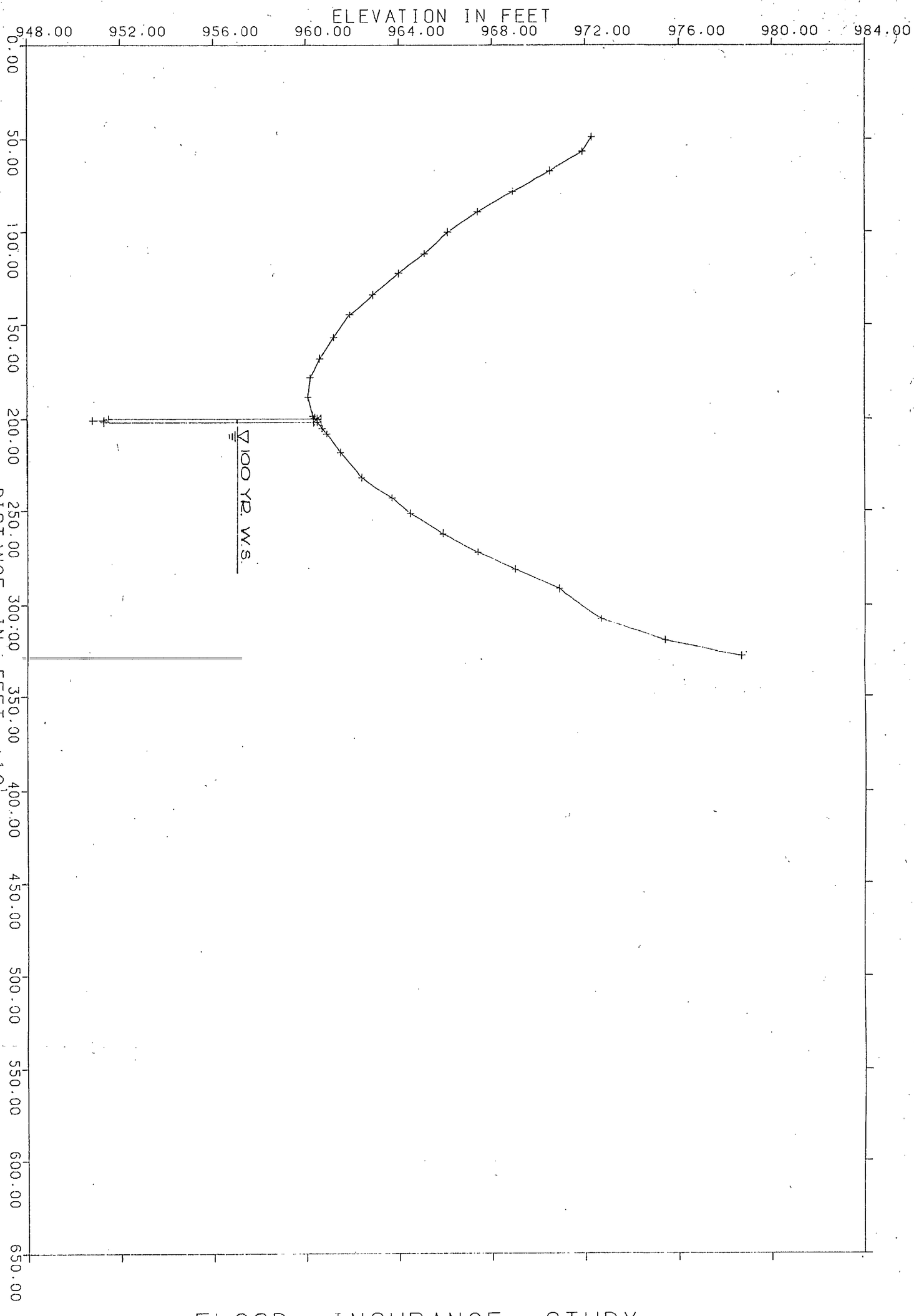
UNNAMED TRIBUTARY AT SUMMIT



SECTION NO. 1.000

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT



SECTION NO. 30.900

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY

100 YR.

ELEVATION IN FEET

960.00
962.00
964.00
966.00
968.00
970.00
972.00
974.00
976.00
978.00

1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00 2400.00 2450.00

DISTANCE IN FEET

SECTION NO. 40.900

FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

100YR. WS

ELEVATION IN FEET
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00

100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00

DISTANCE IN FEET *10

SECTION NO. 10.100

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT

ELEVATION IN FEET

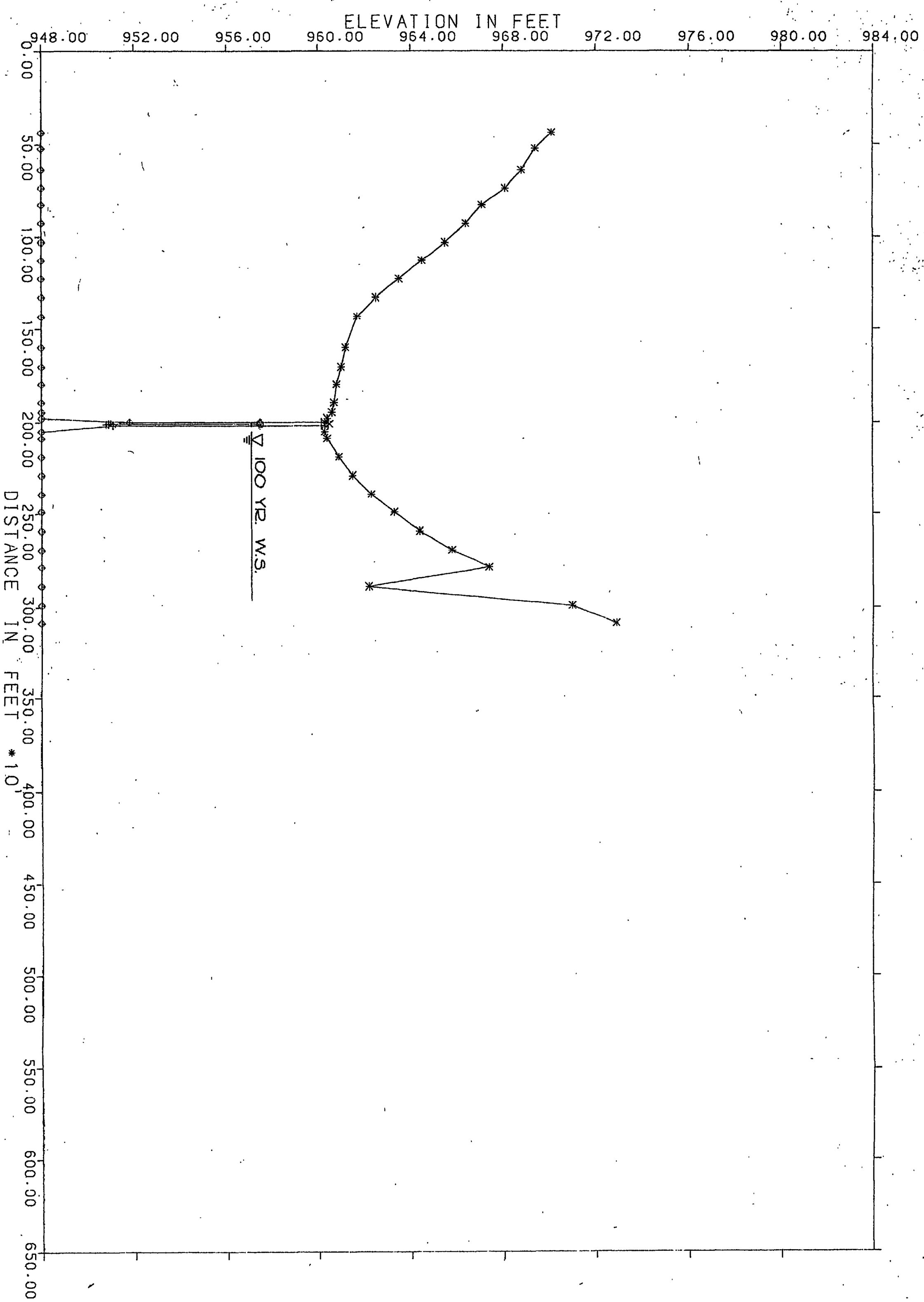
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00

100 YR WS

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00

DISTANCE IN FEET *10

SECTION NO. 1.300



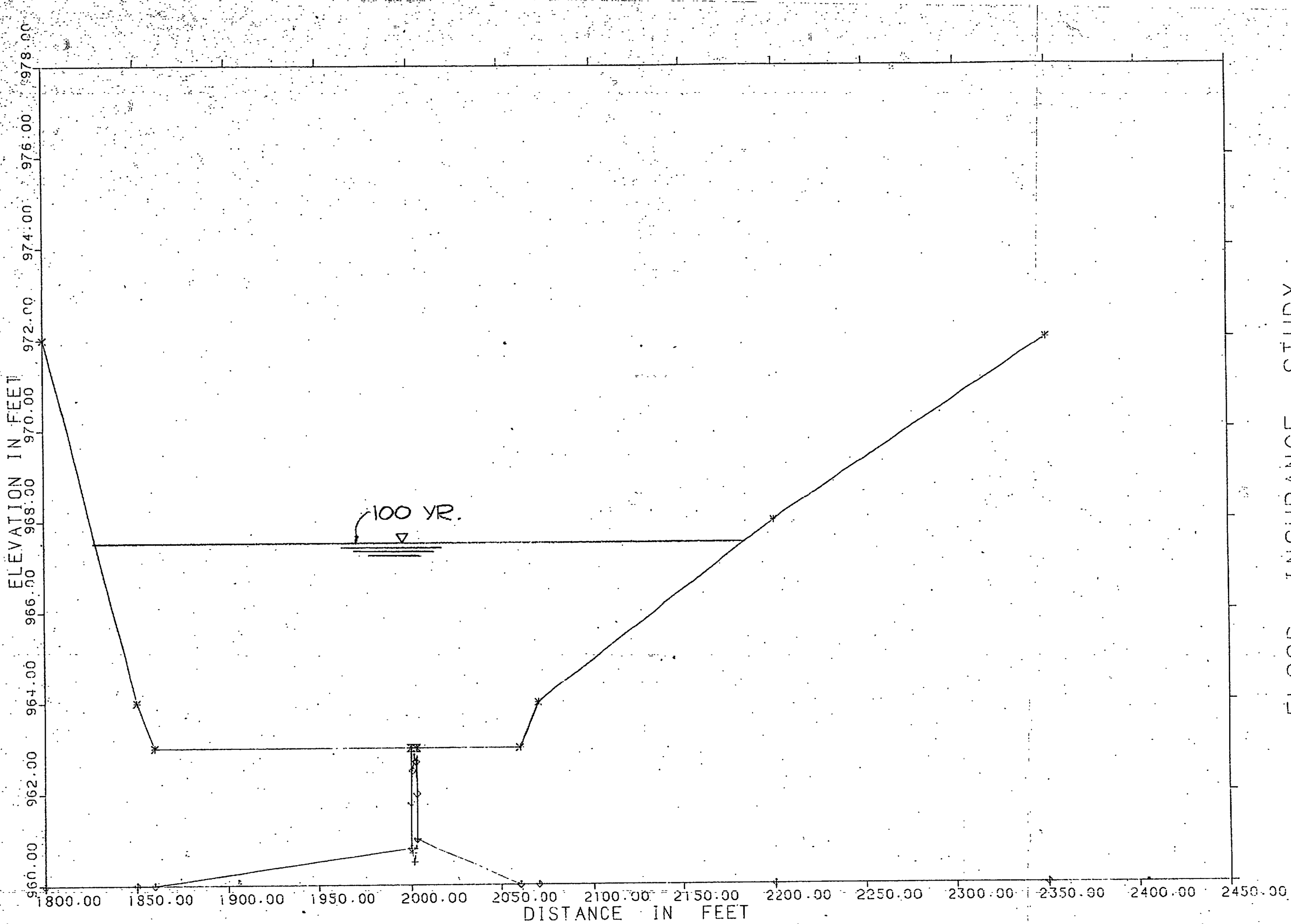
FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

DRAIN SUMMIT

FLOOD INSURANCE STUDY

PETERSON LAKE



SECTION NO. 41.000

FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

100 YR. WS

ELEVATION IN FEET
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00

100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00

DISTANCE IN FEET *10

SECTION NO. 10.300

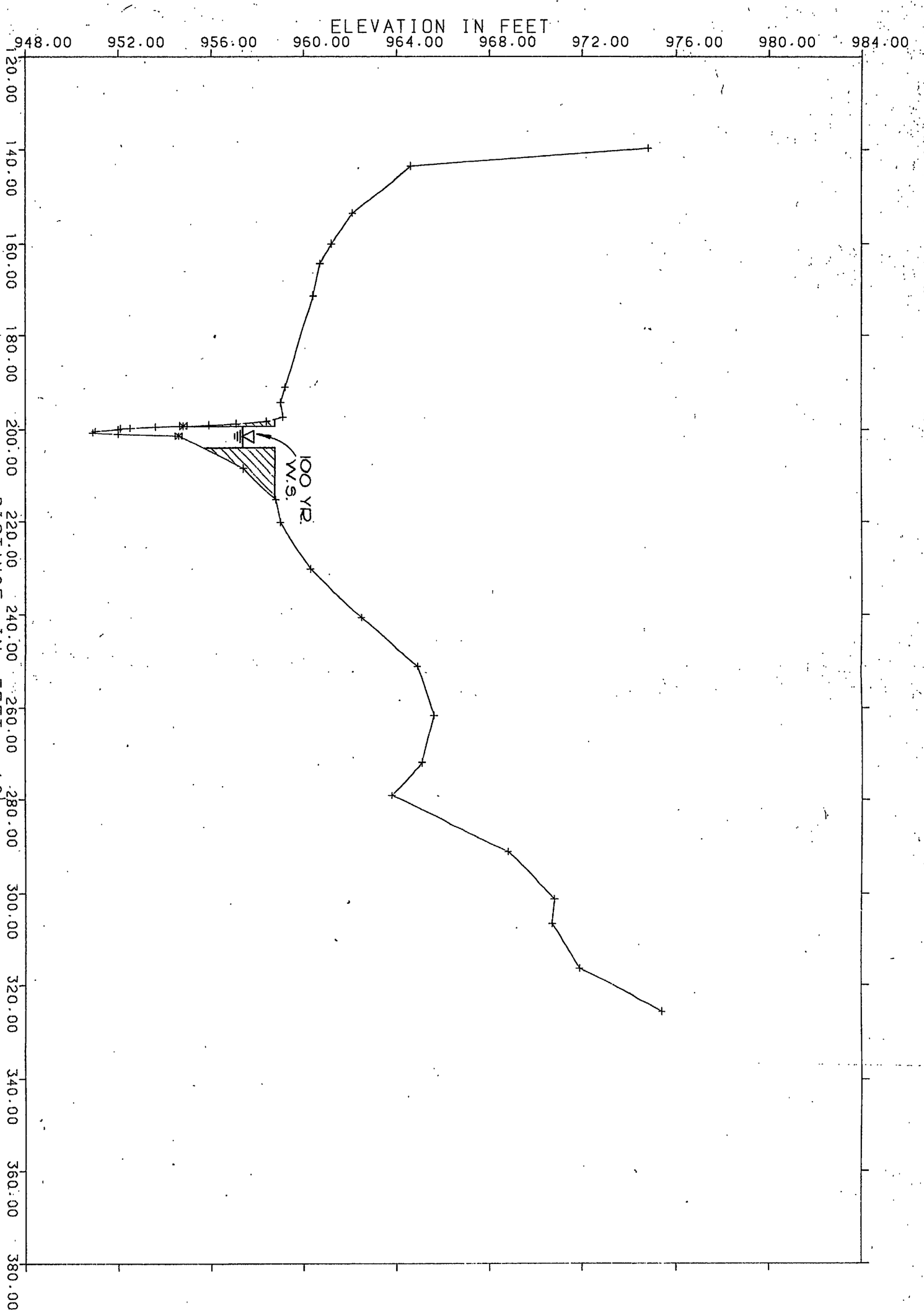
FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

ELEVATION IN FEET
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.0

100 YR WS

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00
DISTANCE IN FEET *10

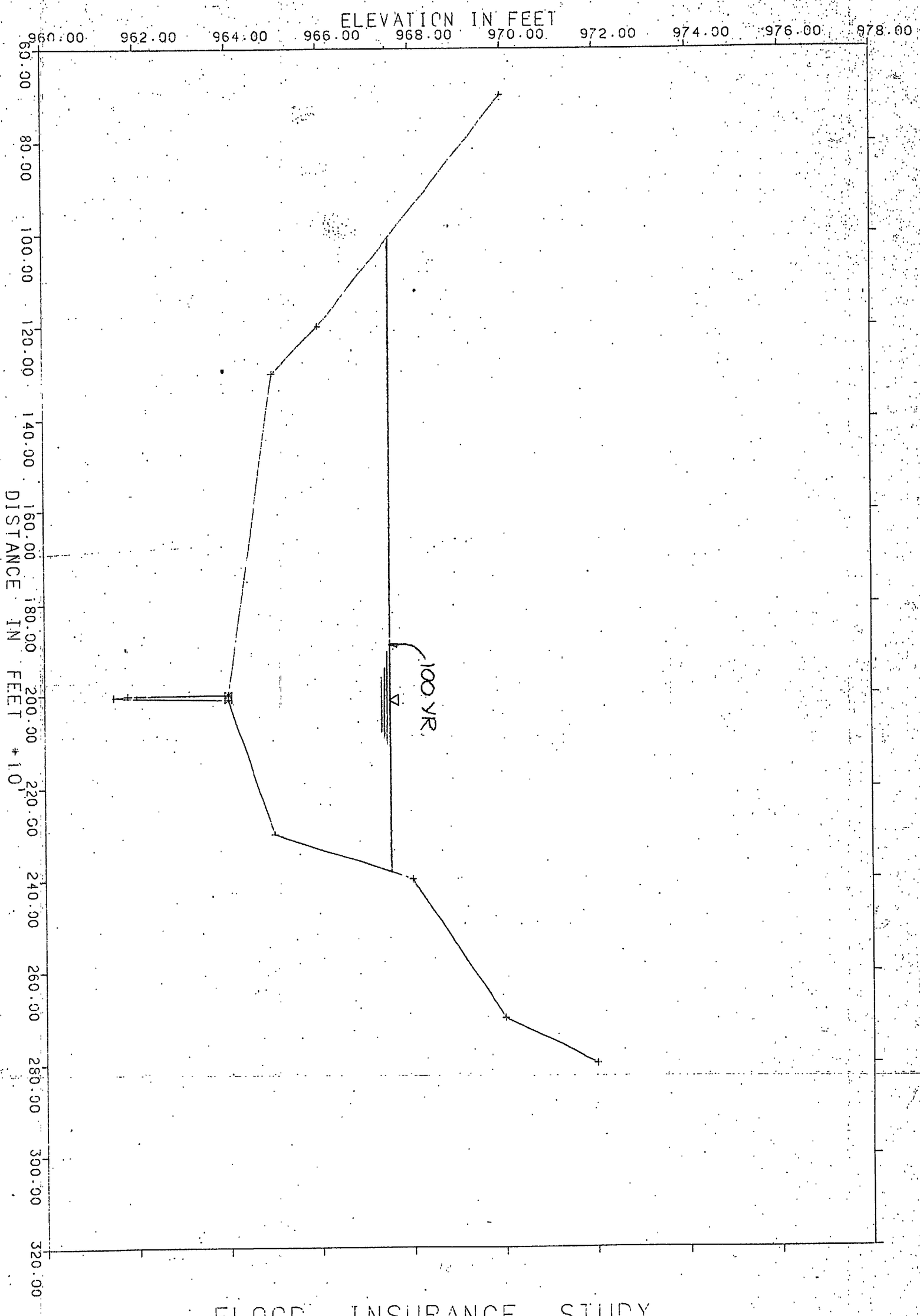
SECTION NO. 1.800



SECTION NO. 32.300

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT



SECTION NO. 42.000

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

100 YR. WS

ELEVATION IN FEET
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00
980.00

130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00
DISTANCE IN FEET *10

SECTION NO. 10.800

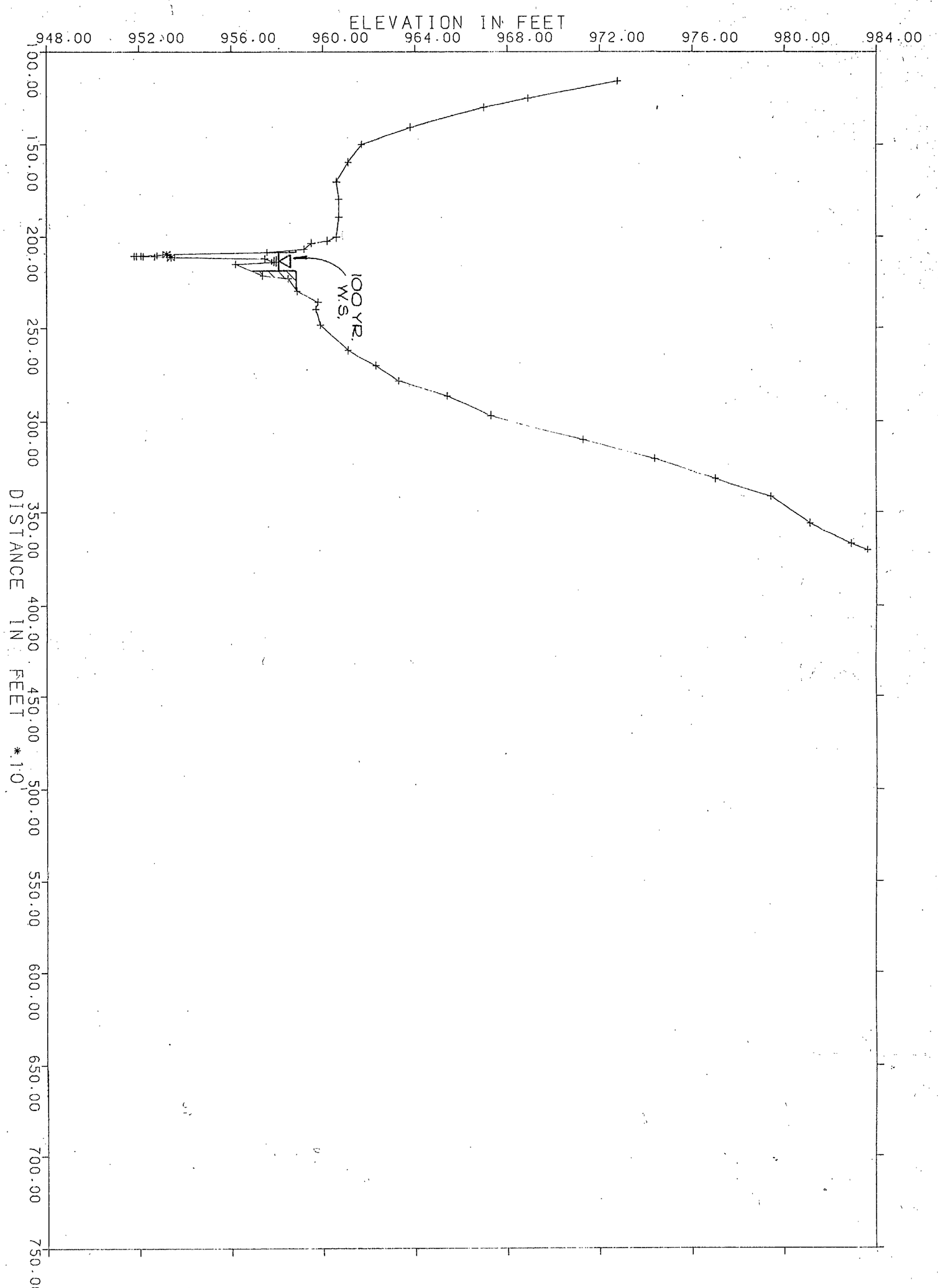
FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

ELEVATION IN FEET
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00

100 YR. W.S.

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00
DISTANCE IN FEET *10'

SECTION NO. 1.900



SECTION NO. 32.700

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

100 YR.

ELEVATION IN FEET

960.00 962.00 964.00 966.00 968.00 970.00 972.00 974.00 976.00 978.00

50.00 100.00 150.00 200.00 250.00 300.00 350.00 400.00 450.00 500.00 550.00 600.00 650.00 700.00

DISTANCE IN FEET *10

SECTION NO. 50.000

FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00

100 YR. WS

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00
DISTANCE IN FEET *10

SECTION NO. 10.900

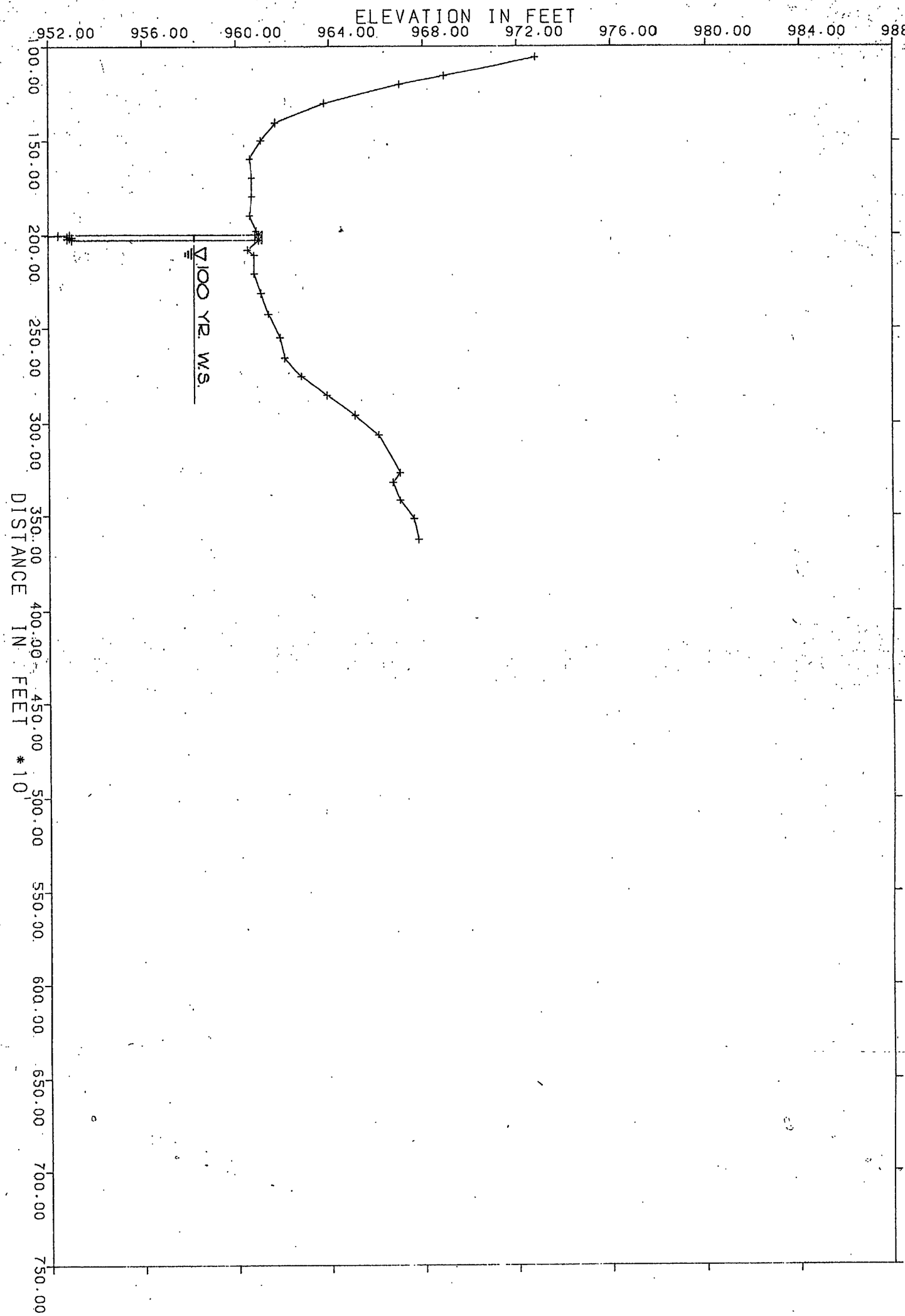
FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

100 YR. WS

ELEVATION IN FEET
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00
DISTANCE IN FEET *10

SECTION NO. 2.100



SECTION NO. 32.900

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY

100 YR.

ELEVATION IN FEET
964.00
965.00
966.00
967.00
968.00
969.00
970.00
971.00
972.00
973.00

150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00

DISTANCE IN FEET +10

SECTION NO. 50:800

FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

100 YR. W.S.

ELEVATION IN FEET
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00

DISTANCE IN FEET *10

SECTION NO. 11.100

FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

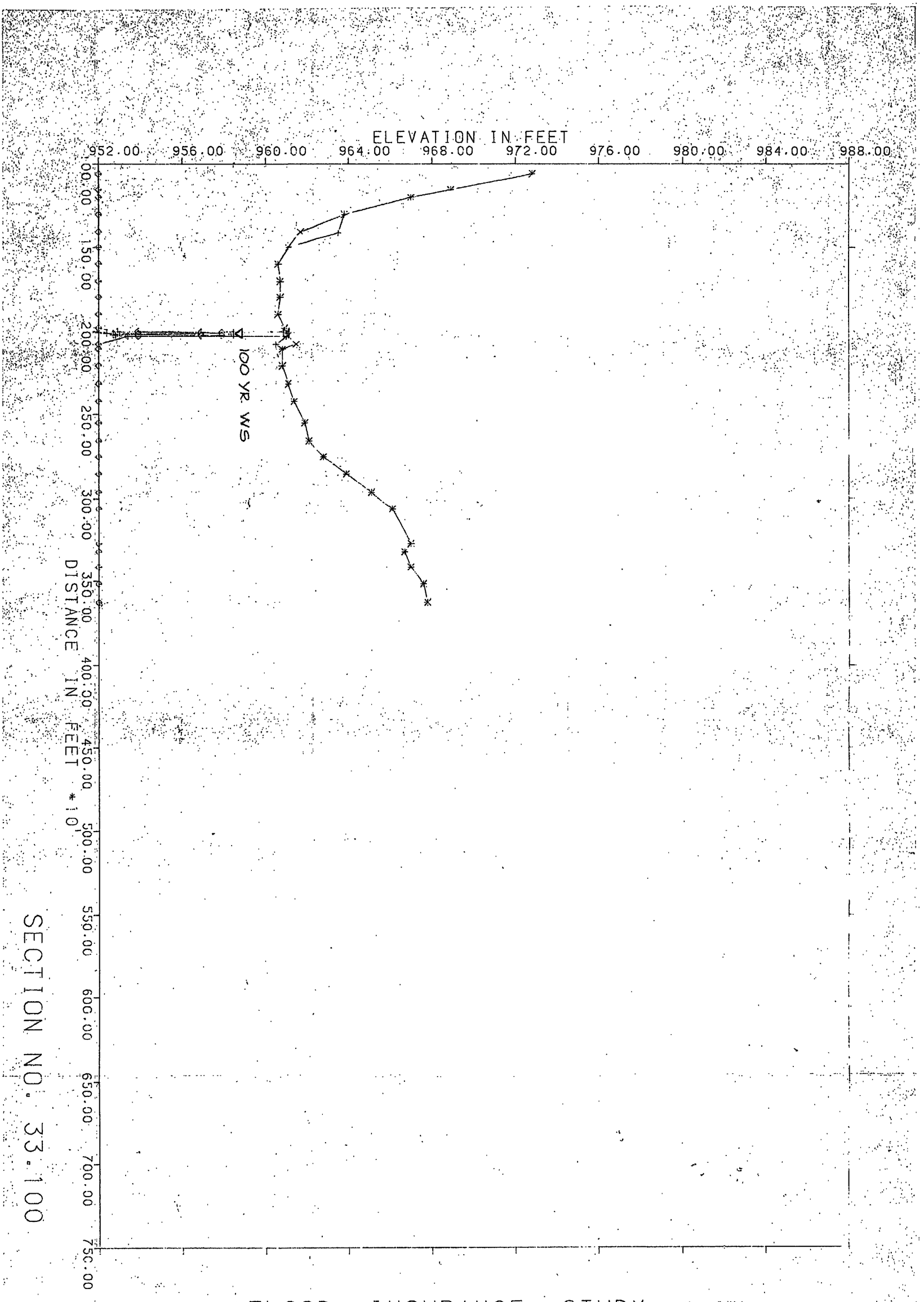
ELEVATION IN FEET
936.00
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00

100 YR. WS

140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00

DISTANCE IN FEET *10'

SECTION NO. 2.300



SECTION NO. 33.100

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN, SUMMIT CO.

ELEVATION IN FEET

982.00
980.00
978.00
976.00
974.00
972.00
970.00
968.00
966.00
964.00

100 YR.

140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00

DISTANCE IN FEET *10

SECTION NO. 50.900

FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00
980.00

100YR.WS

140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00

DISTANCE IN FEET *10

SECTION NO. 11.300

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT

ELEVATION IN FEET

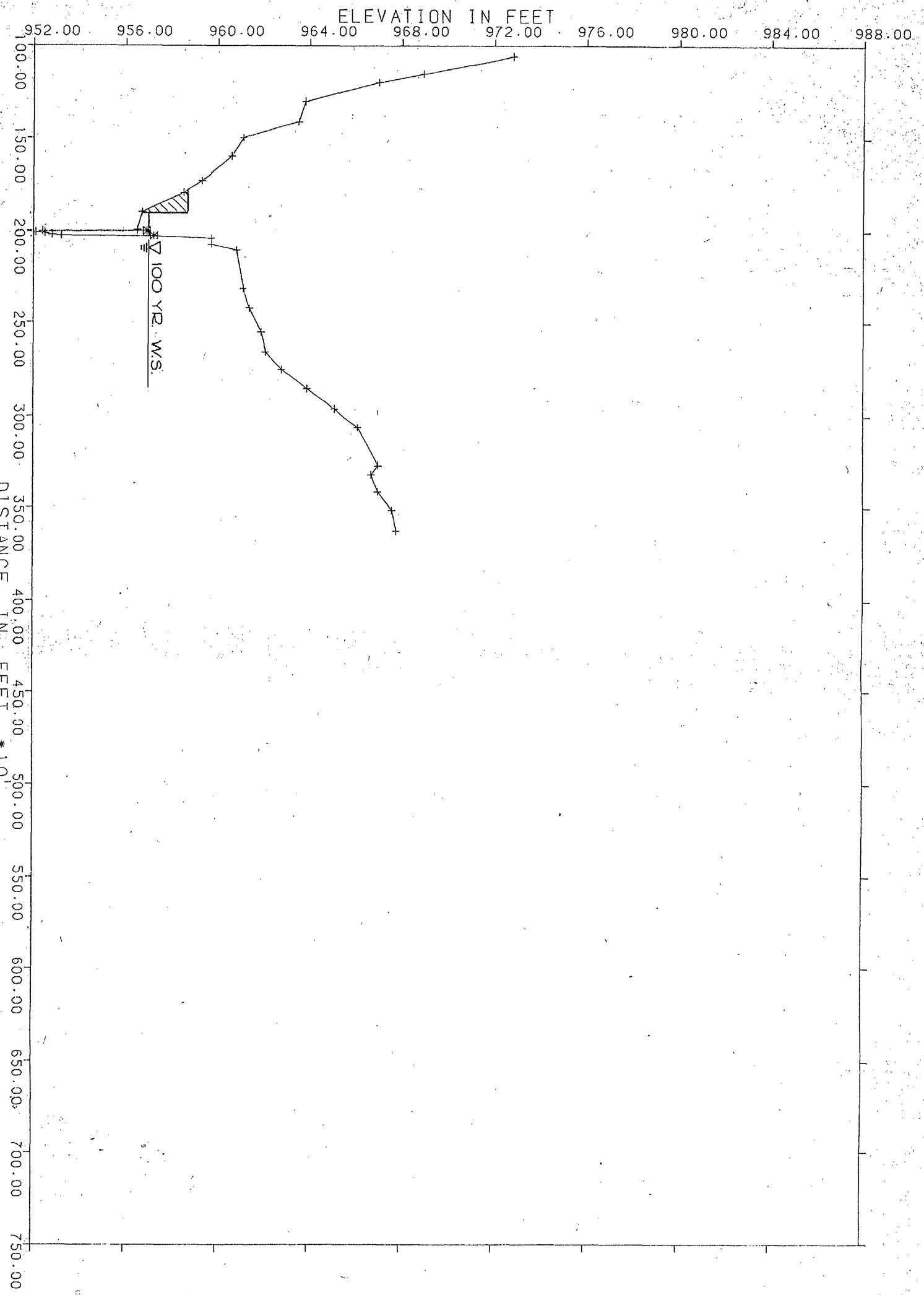
940.00 944.00 948.00 952.00 956.00 960.00 964.00 968.00 972.00 976.0

100 YR. WS

1650.00 1700.00 1750.00 1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00

DISTANCE IN FEET

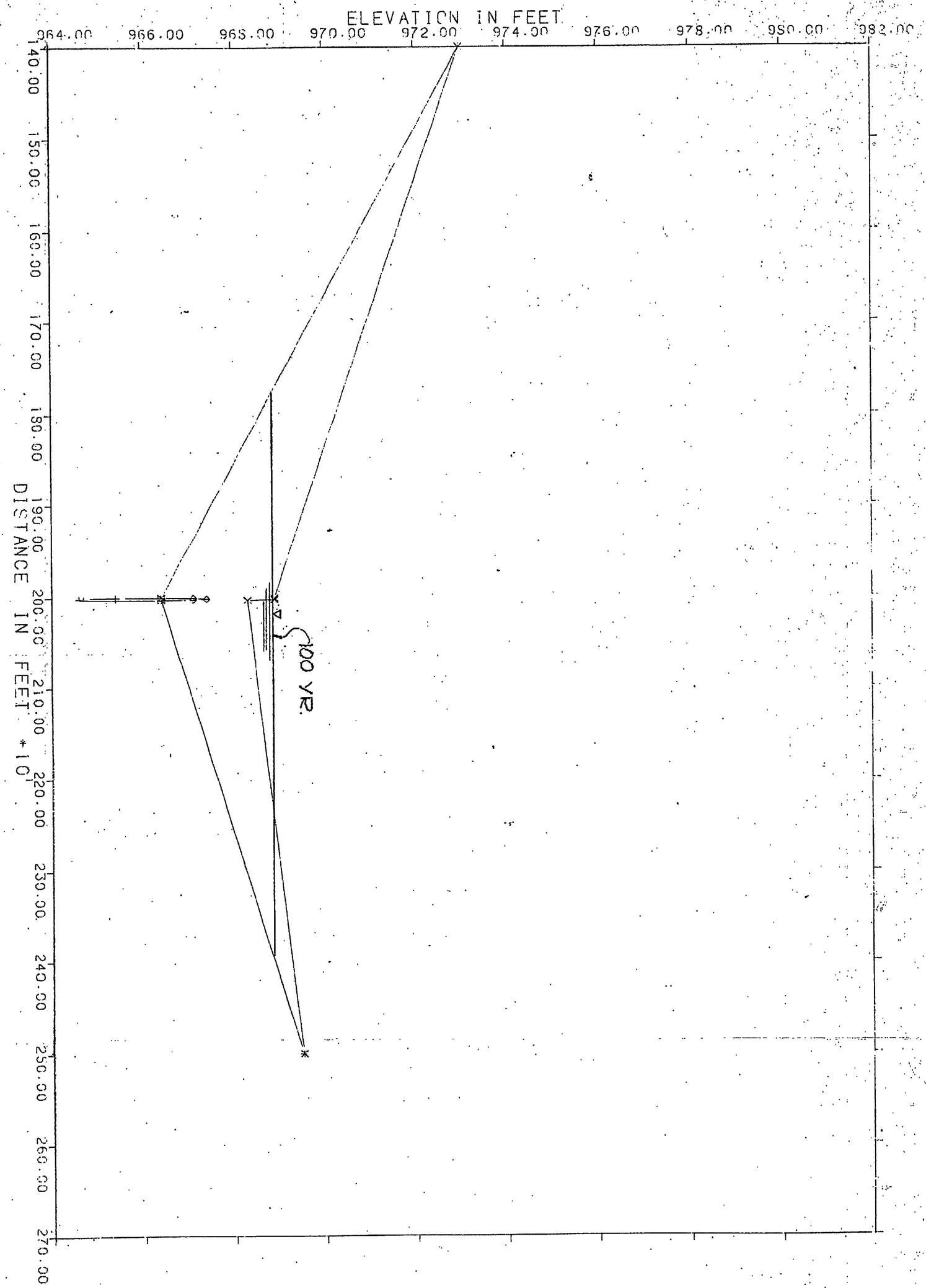
SECTION NO. 2.800



SECTION NO. 33.300

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT



SECTION NO. 51.100

FLOOD INSURANCE STUDY

PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

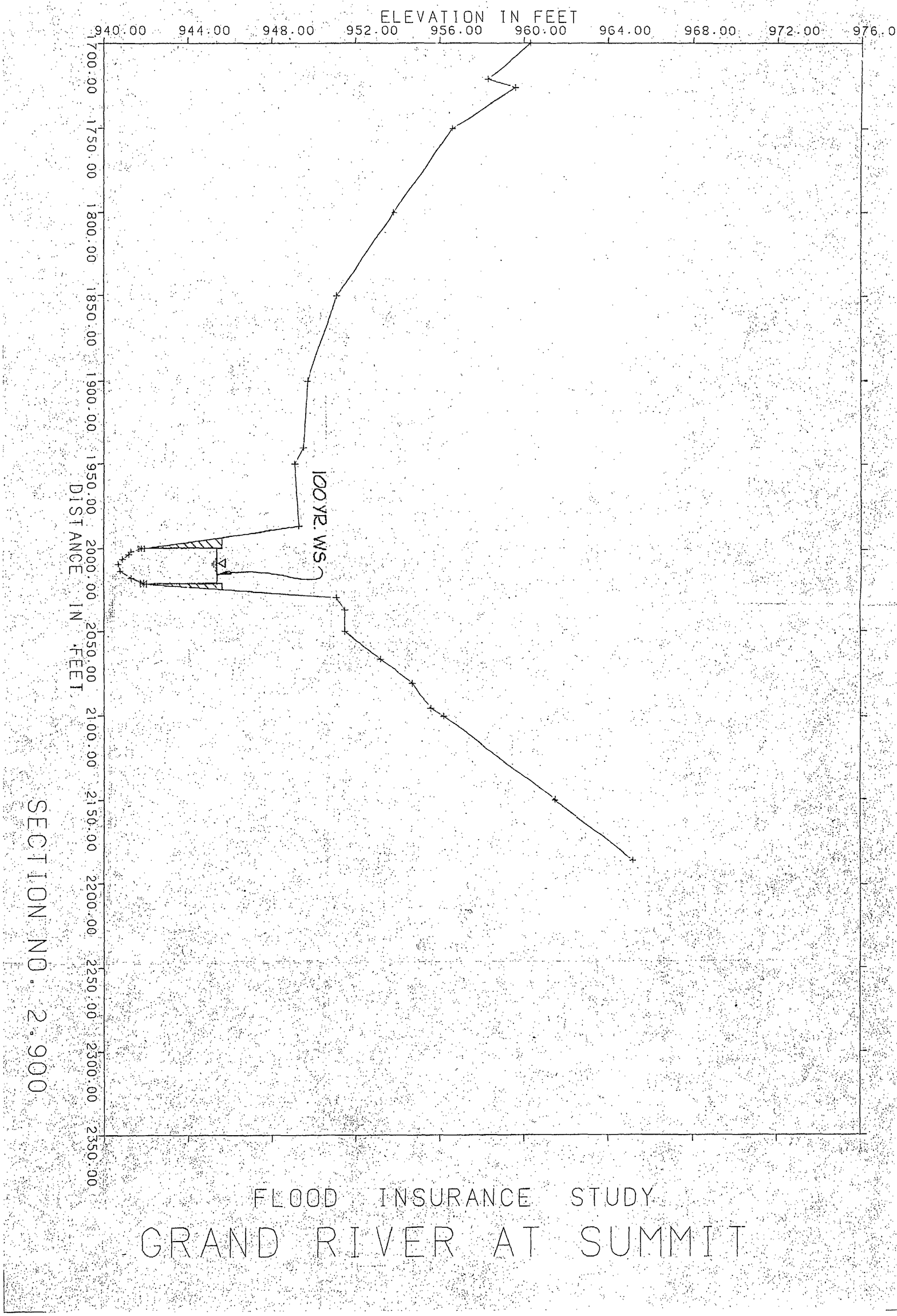
100YR. WS

ELEVATION IN FEET
946.00
948.00
950.00
952.00
954.00
956.00
958.00
960.00
962.00
964.00

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00

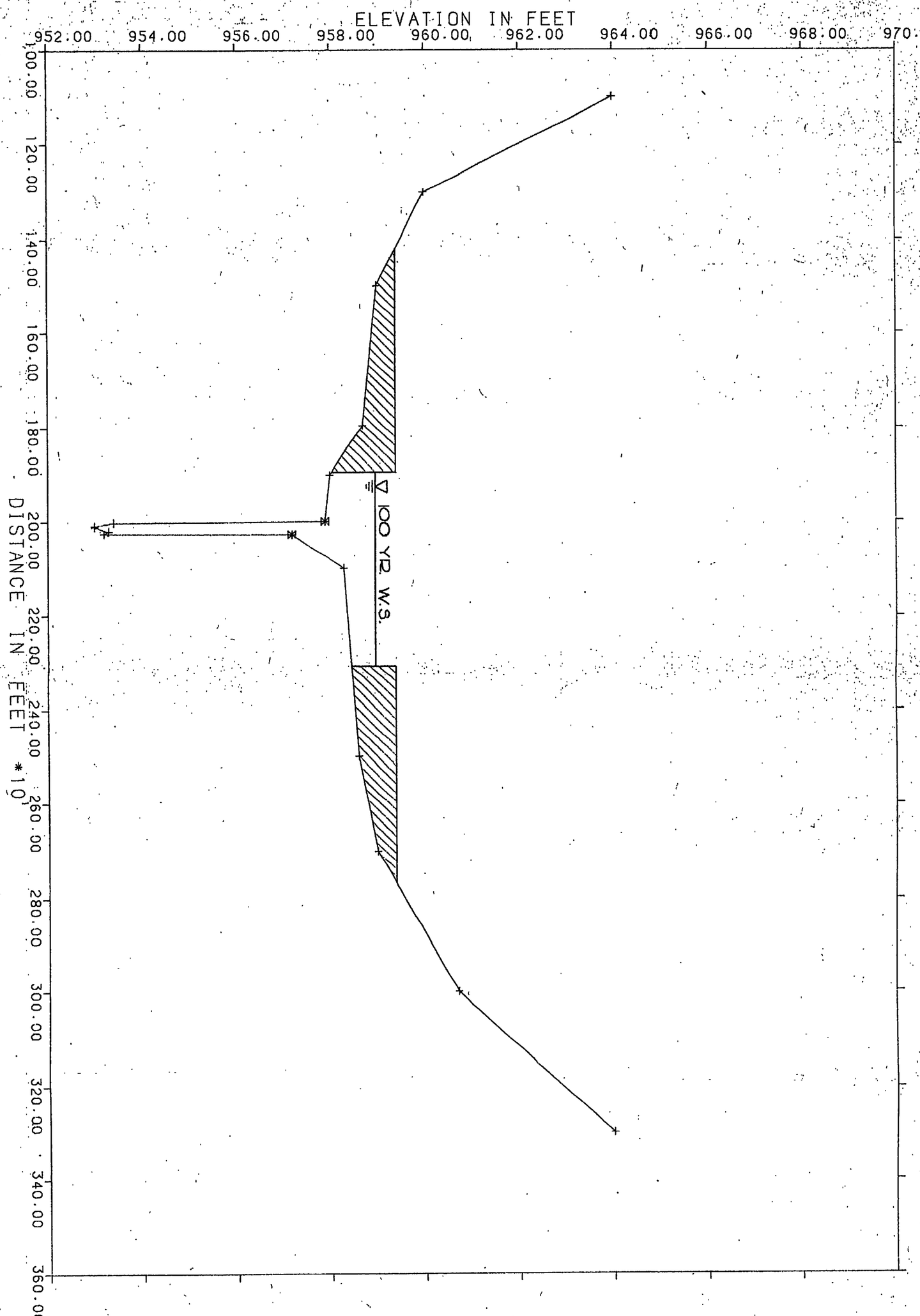
DISTANCE IN FEET *10

SECTION NO. 11.800



FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT



SECTION NO. 33.500

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

PETERSON LAKE DRAIN SUMMIT

FLOOD INSURANCE STUDY

100 YR.

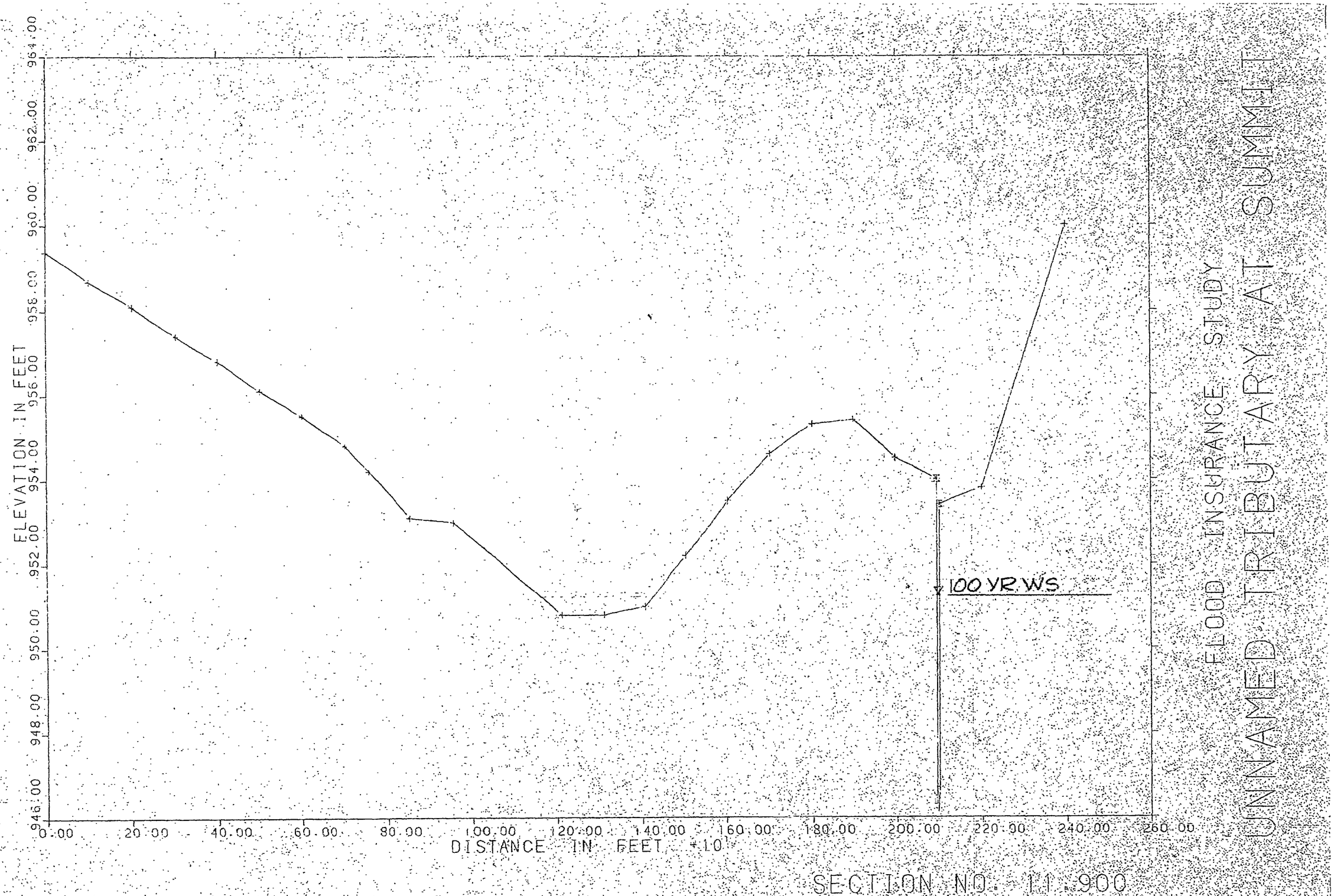
ELEVATION IN FEET

975.00
974.00
973.00
972.00
971.00
970.00
969.00
968.00
967.00
966.00

1750.00 1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00 2400.00

DISTANCE IN FEET

SECTION NO: 52.000



ELEVATION IN FEET
964.00
962.00
960.00
958.00
956.00
954.00
952.00
950.00
948.00
946.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
240.00
260.00
DISTANCE IN FEET *10
100 YR WS
SECTION NO. 11.900
FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

ELEVATION IN FEET
940.00
944.00
948.00
952.00
956.00
960.00
964.00
968.00
972.00
976.00

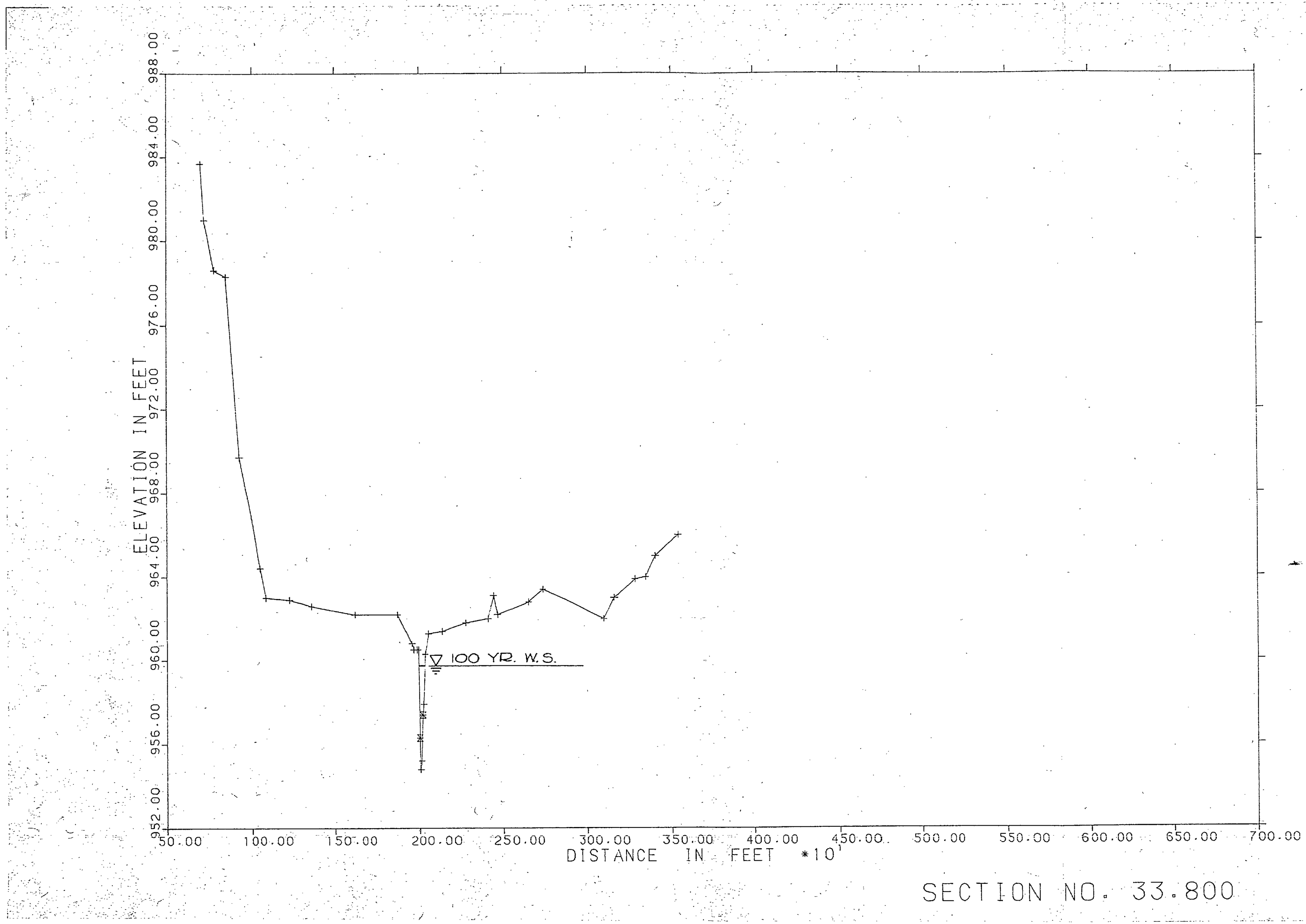
100 YR. WS

60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00
DISTANCE IN FEET *10

SECTION NO. 3.000

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY



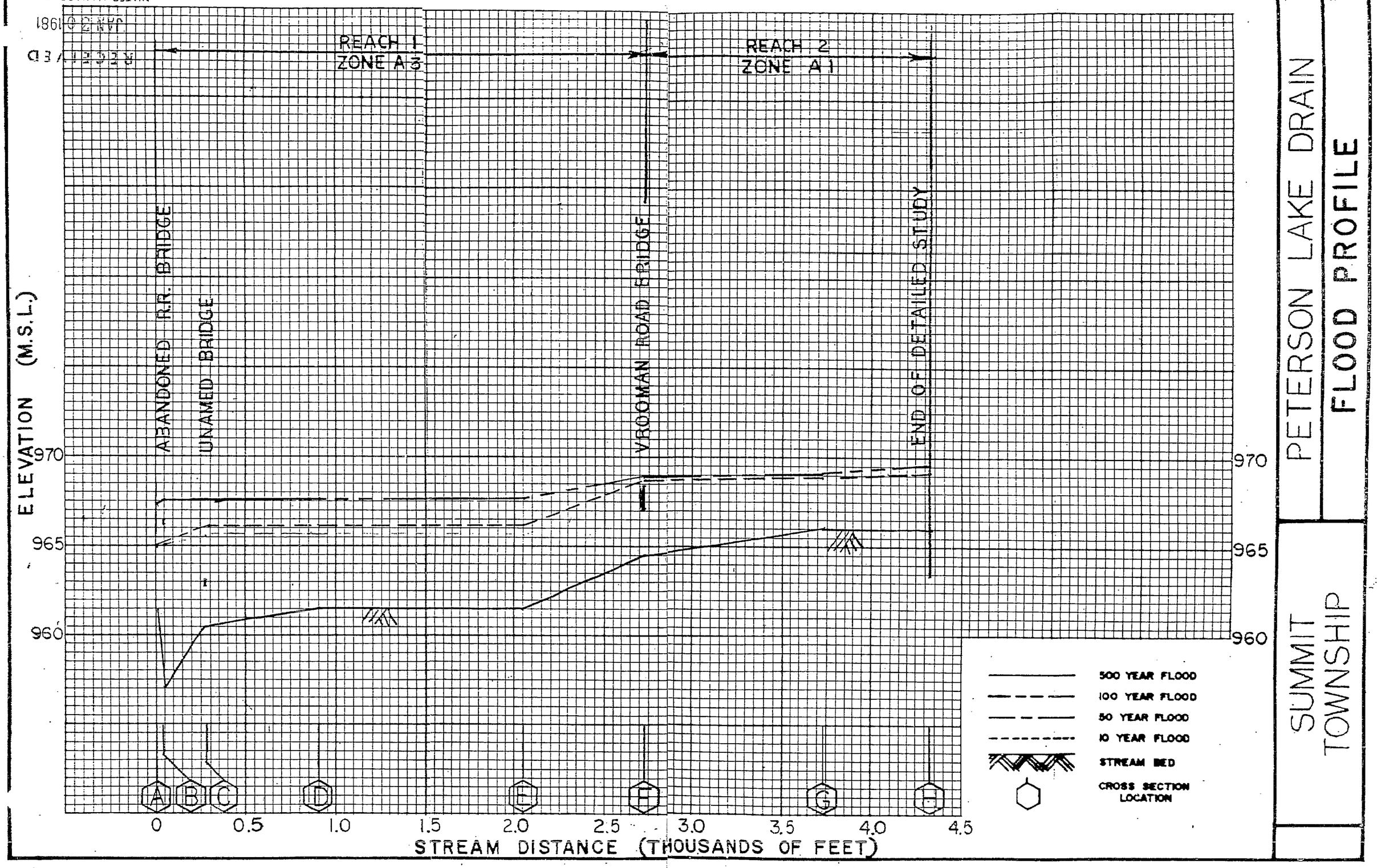
SECTION NO. 33.800

WATER MANAGEMENT
JAN 23 1981
RECEIVED

PETERSON LAKE DRAIN

FLOOD PROFILE

SUMMIT TOWNSHIP



FLOOD INSURANCE STUDY

UNNAMED TRIBUTARY AT SUMMIT

100 YR W.S.

ELEVATION IN FEET
946.00
948.00
950.00
952.00
954.00
956.00
958.00
960.00
962.00
964.00

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00

DISTANCE IN FEET *10'

SECTION NO. 12.000

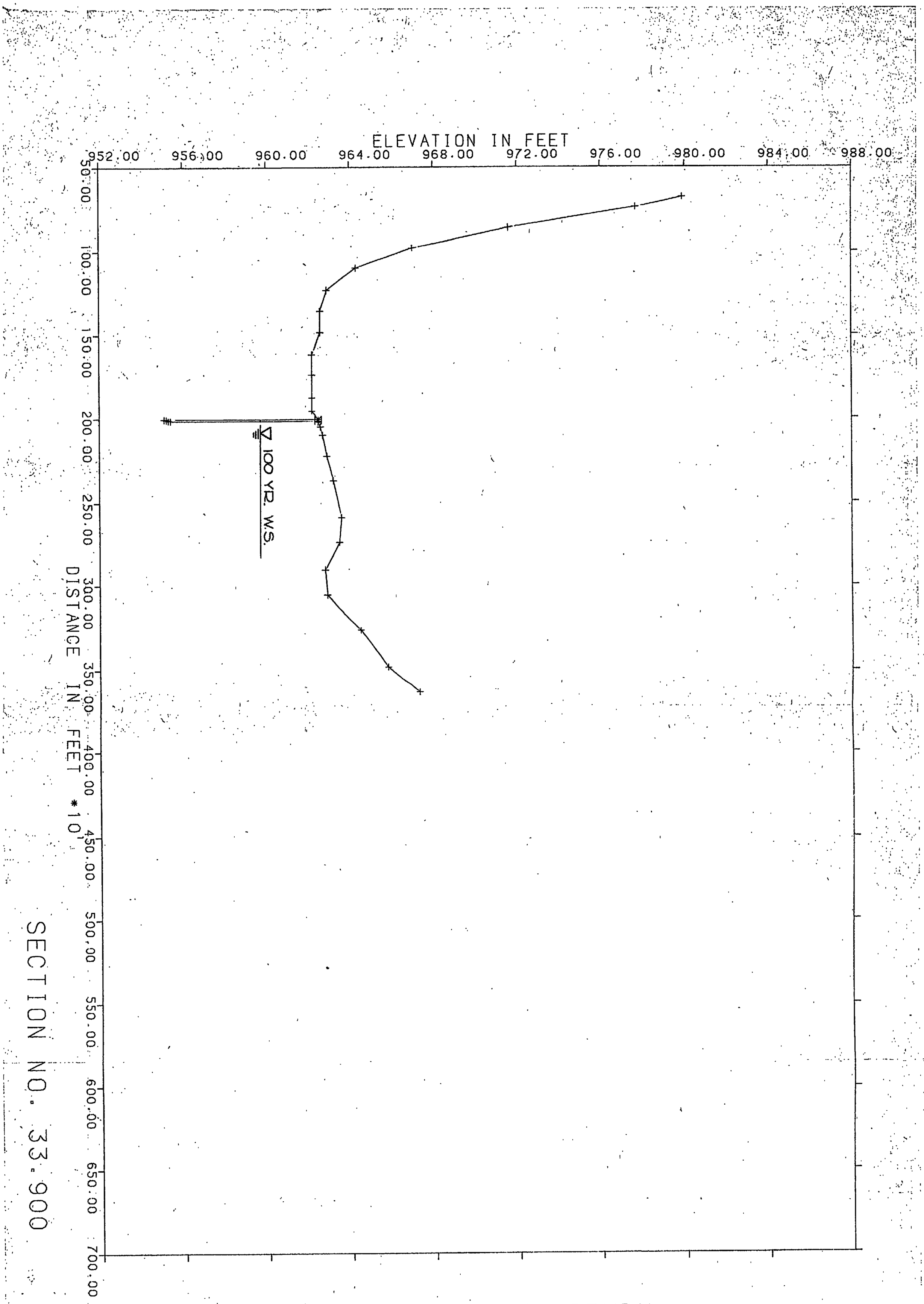
FLOOD INSURANCE STUDY
GRAND RIVER AT SUMMIT

ELEVATION IN FEET
976.00
972.00
968.00
964.00
960.00
956.00
952.00
948.00
944.00
940.00

100 YR WS

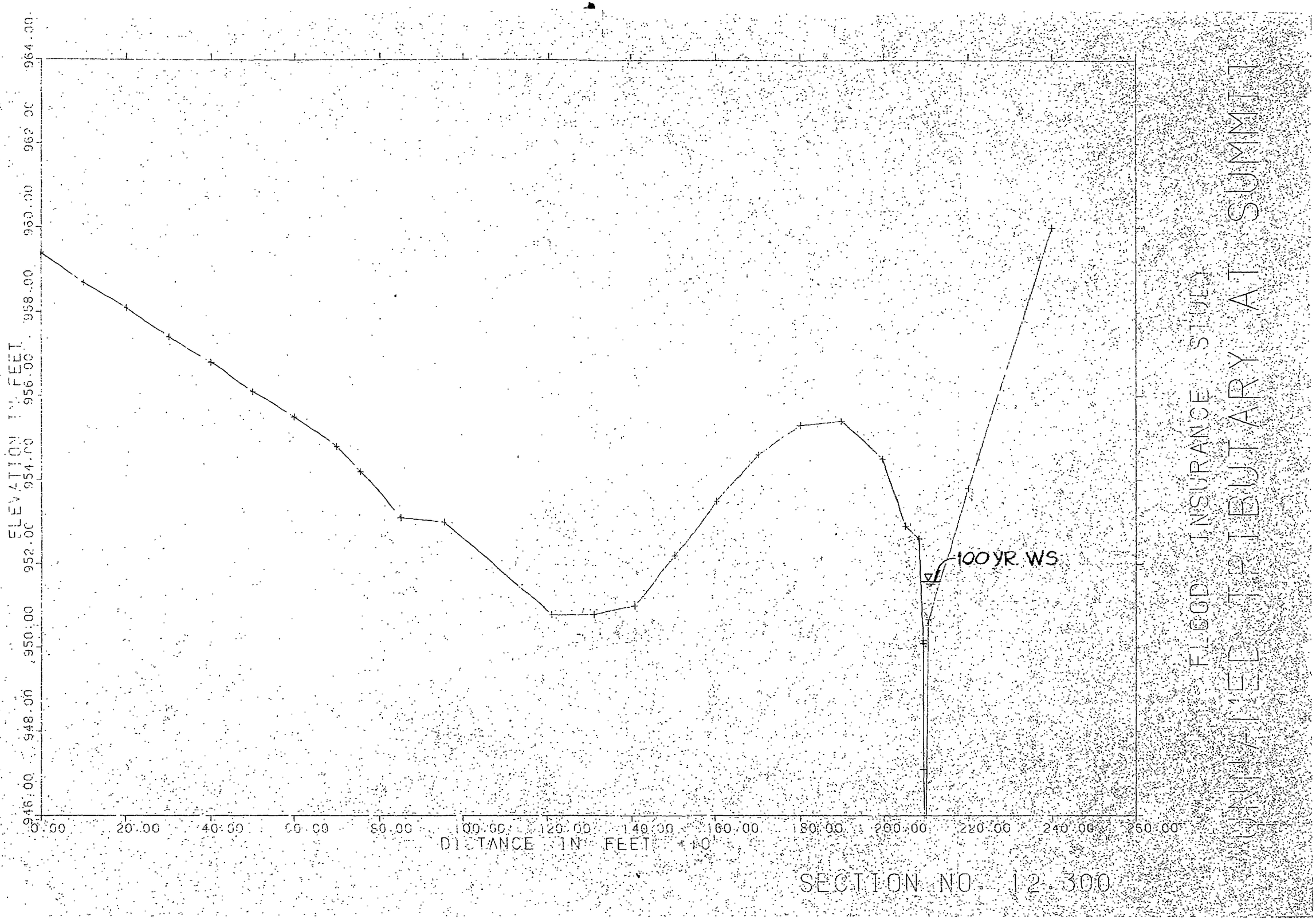
1700.00 1750.00 1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00
DISTANCE IN FEET

SECTION NO. 3.200



FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT


ELEVATION IN FEET
964.00
962.00
960.00
958.00
956.00
954.00
952.00
950.00
948.00
946.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
240.00
260.00
DISTANCE IN FEET
100 YR. WS
FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT
SECTION NO. 12.300

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT

100 YR. WS

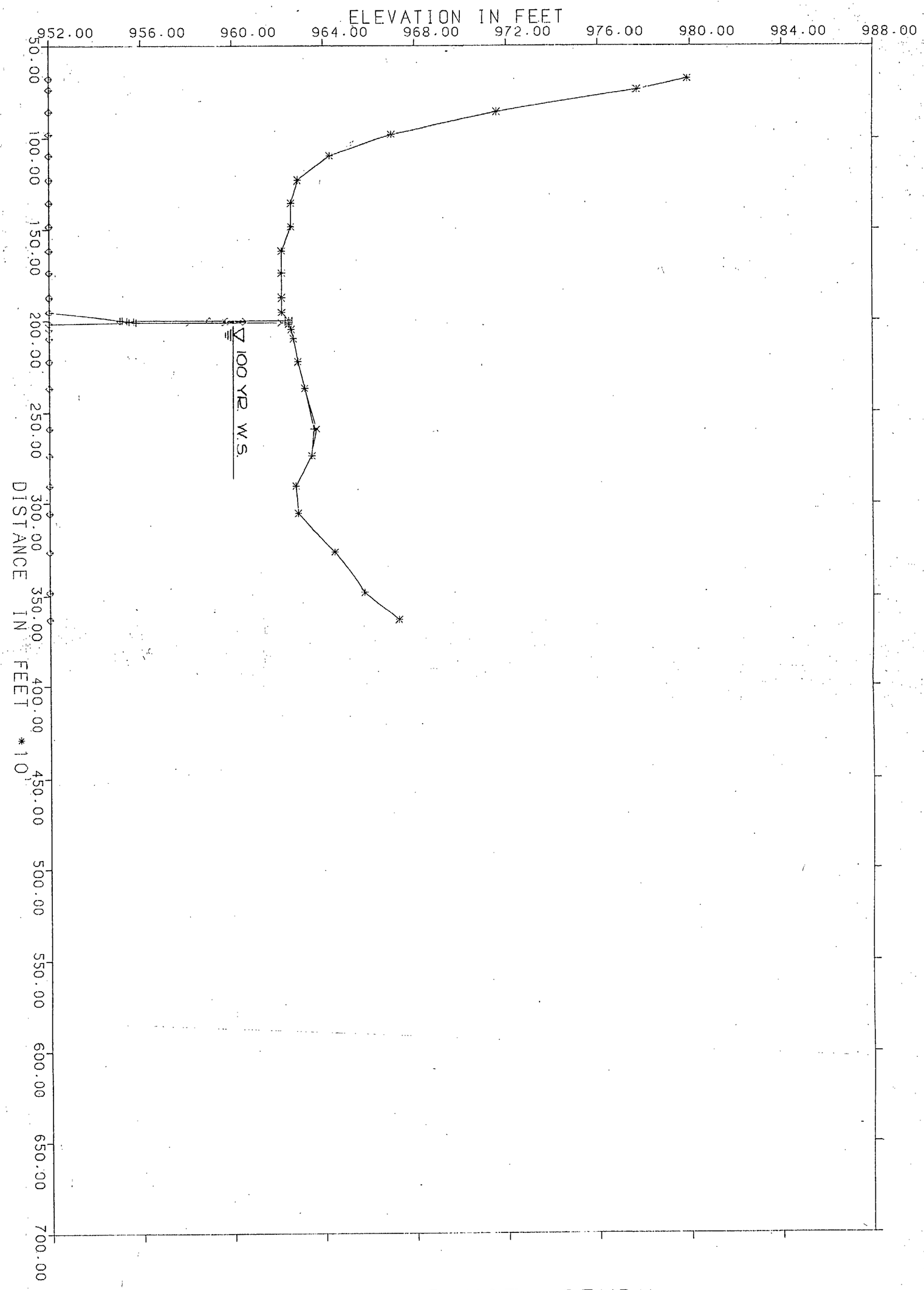
ELEVATION IN FEET

940.00 944.00 948.00 952.00 956.00 960.00 964.00 968.00 972.00 976.00

1800.00 1850.00 1900.00 1950.00 2000.00 2050.00 2100.00 2150.00 2200.00 2250.00 2300.00 2350.00 2400.00 2450.00

DISTANCE IN FEET

SECTION NO. 4.000



SECTION NO. 34.100

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

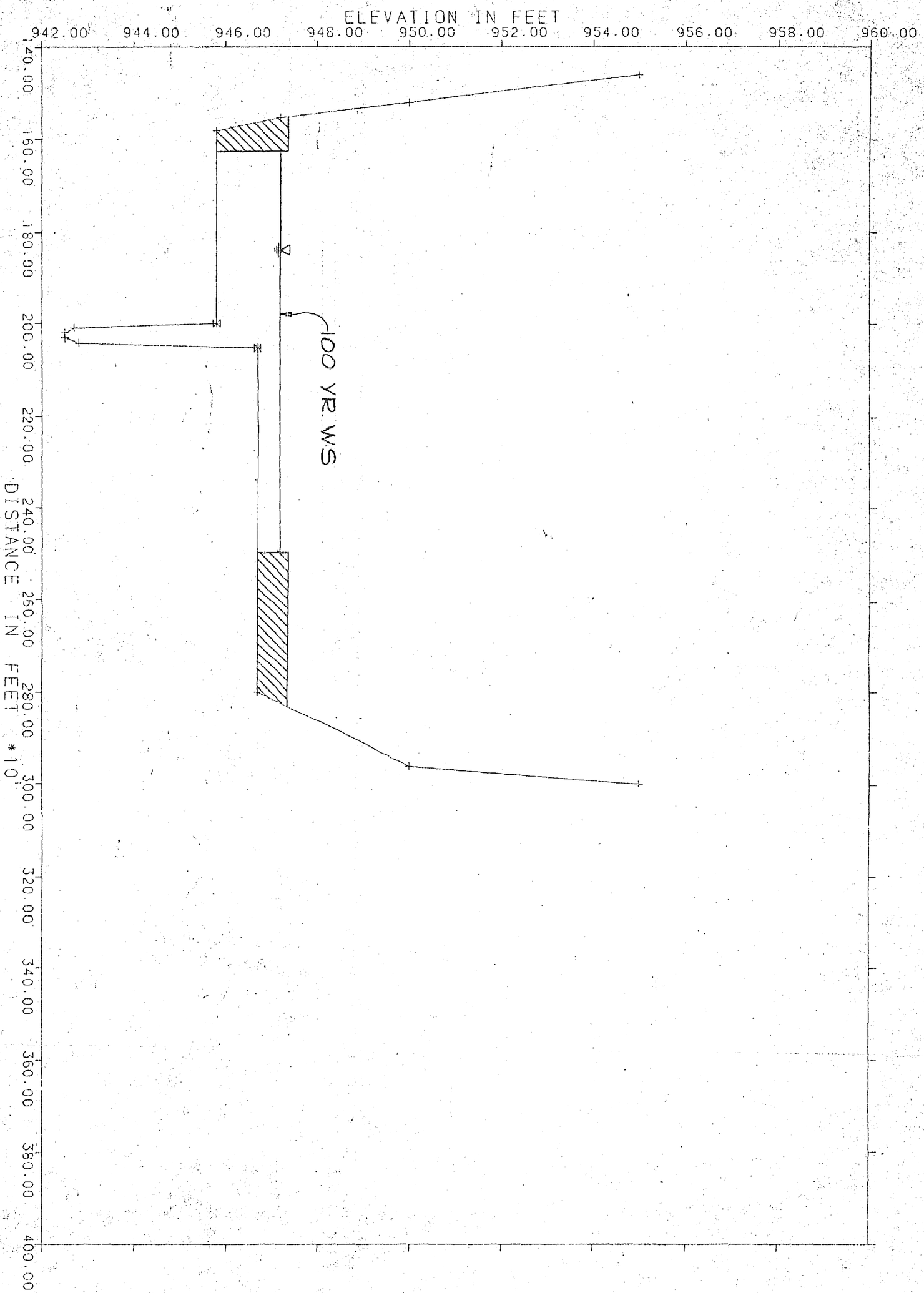
FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET
948.00
950.00
952.00
954.00
956.00
958.00
960.00
962.00
964.00
966.00

100 YR W.S.

80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00
DISTANCE IN FEET *10

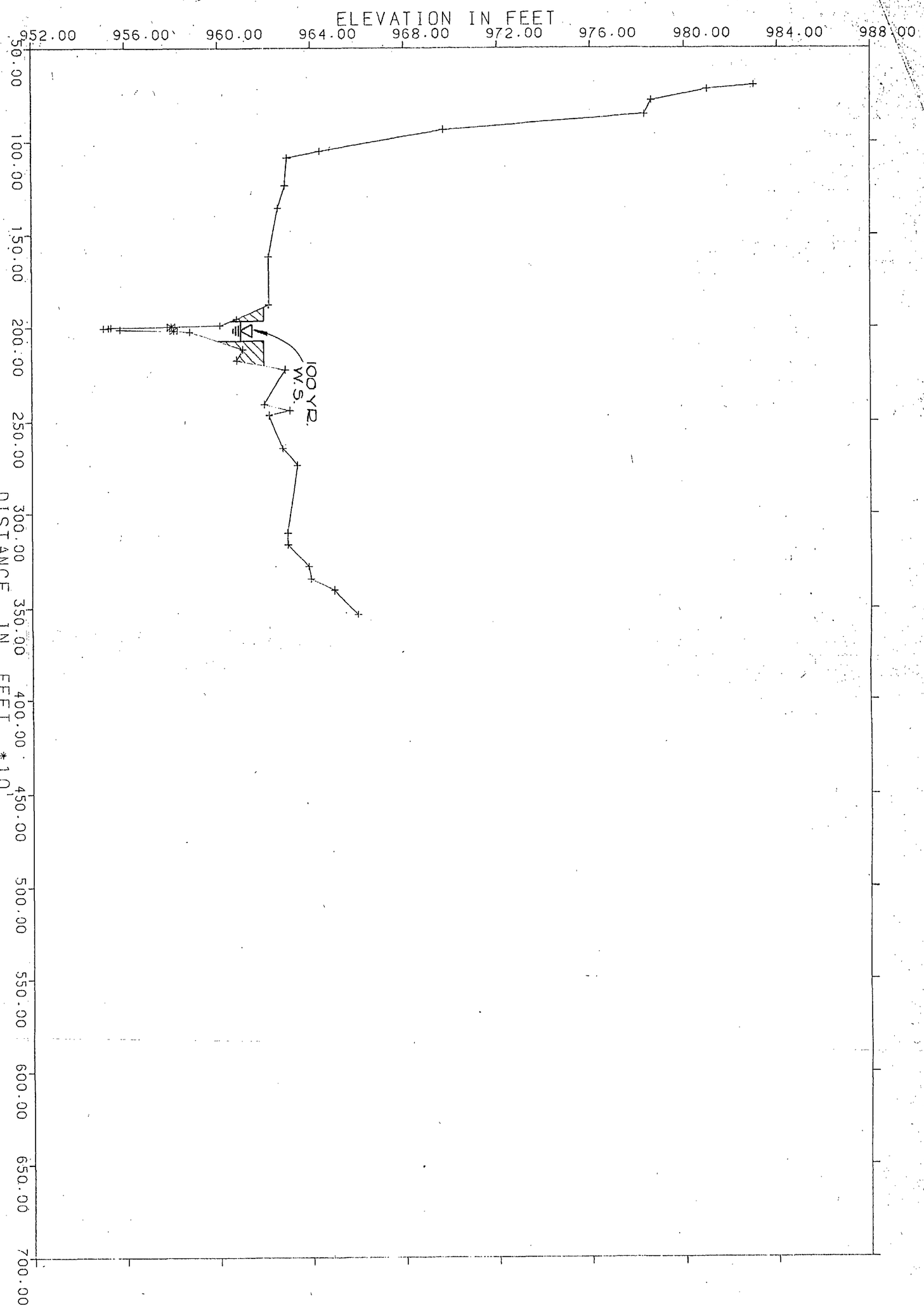
SECTION NO. 12.500



SECTION NO. 4.500

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT



SECTION NO. 34.300

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY
UNNAMED TRIBUTARY AT SUMMIT

ELEVATION IN FEET
948.00
950.00
952.00
954.00
956.00
958.00
960.00
962.00
964.00
966.00

100 YR WS

0.00 50.00 100.00 150.00 200.00 250.00 300.00 350.00 400.00 450.00 500.00 550.00 600.00 650.00

DISTANCE IN FEET *10

SECTION NO. 12,800

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT

ELEVATION IN FEET

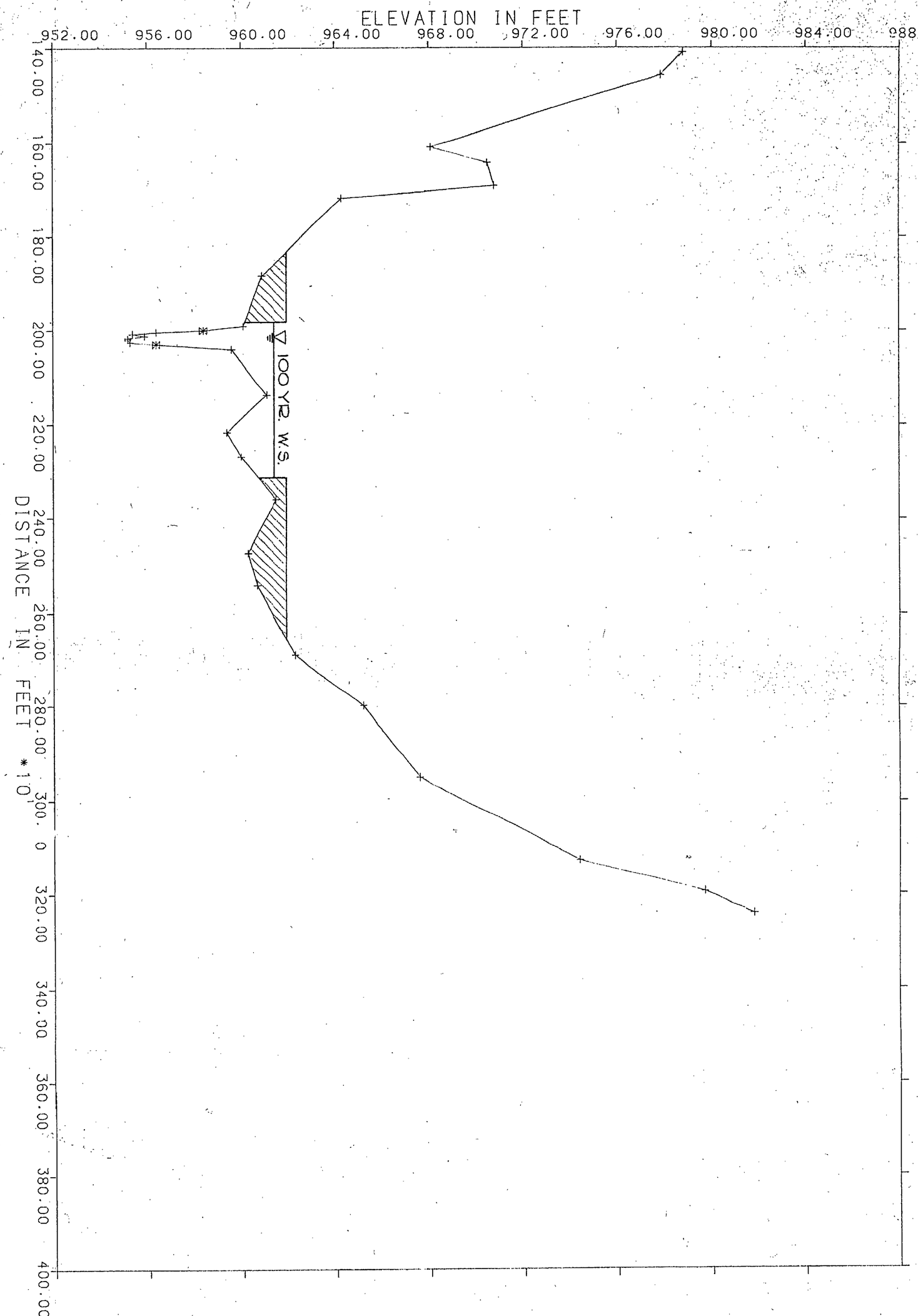
960.00
958.00
956.00
954.00
952.00
950.00
948.00
946.00
944.00
942.00

100 YR. WSE

120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00

DISTANCE IN FEET *10

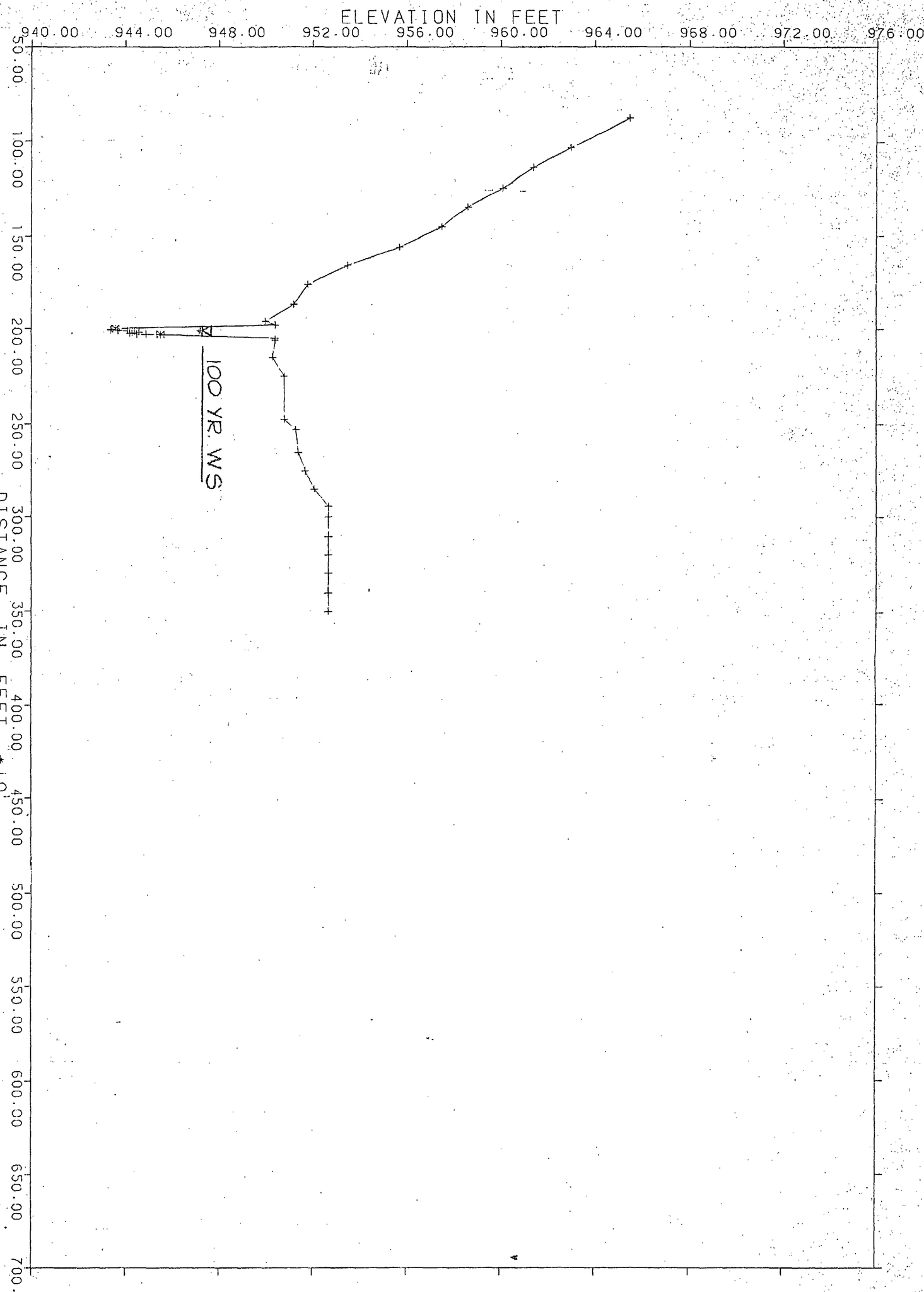
SECTION NO. 4.800



SECTION NO. 34.700

FLOOD INSURANCE STUDY

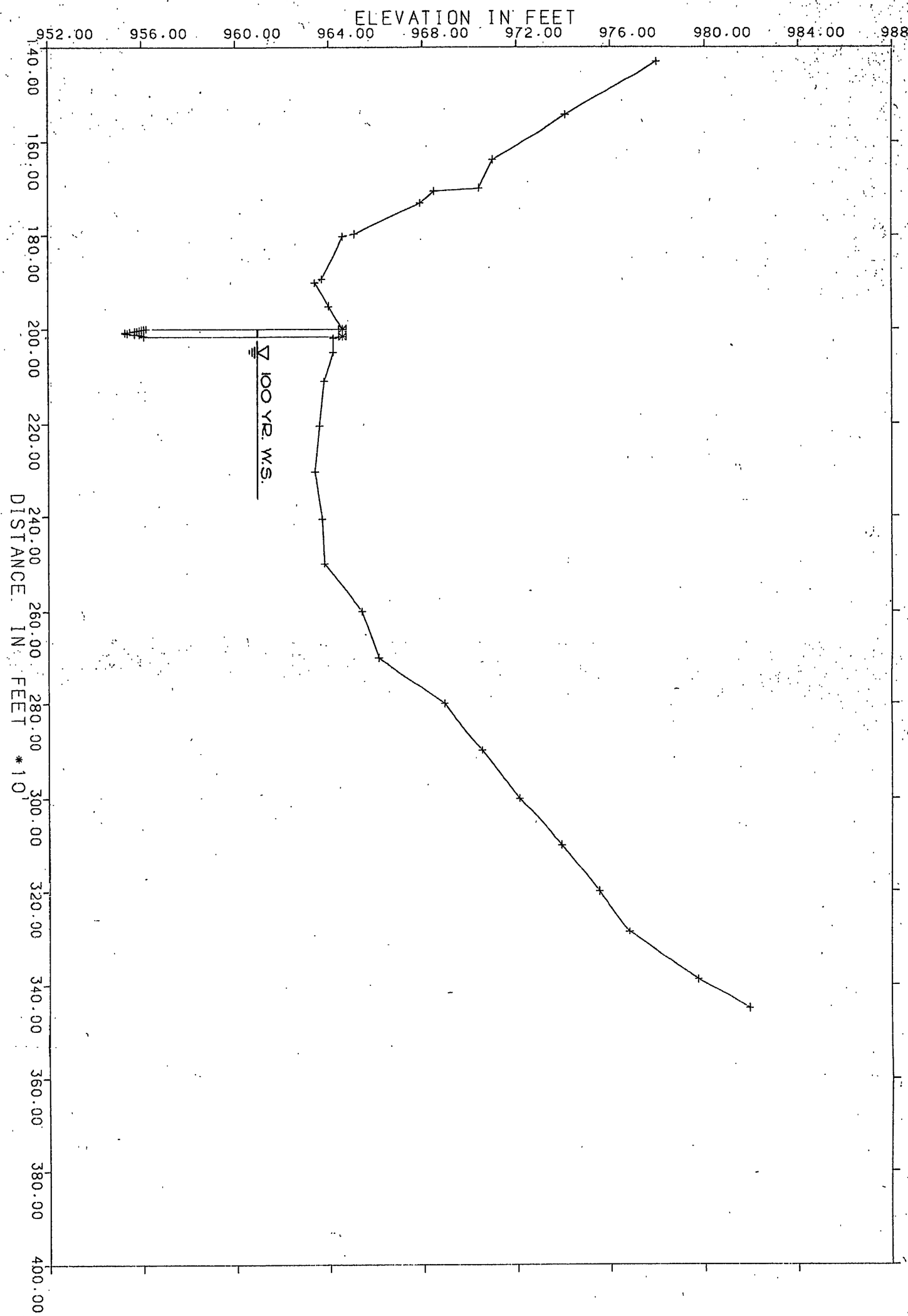
MCCAIN DRAIN AT SUMMIT



SECTION NO. 4.900

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT



SECTION NO. 34.900

FLOOD INSURANCE STUDY

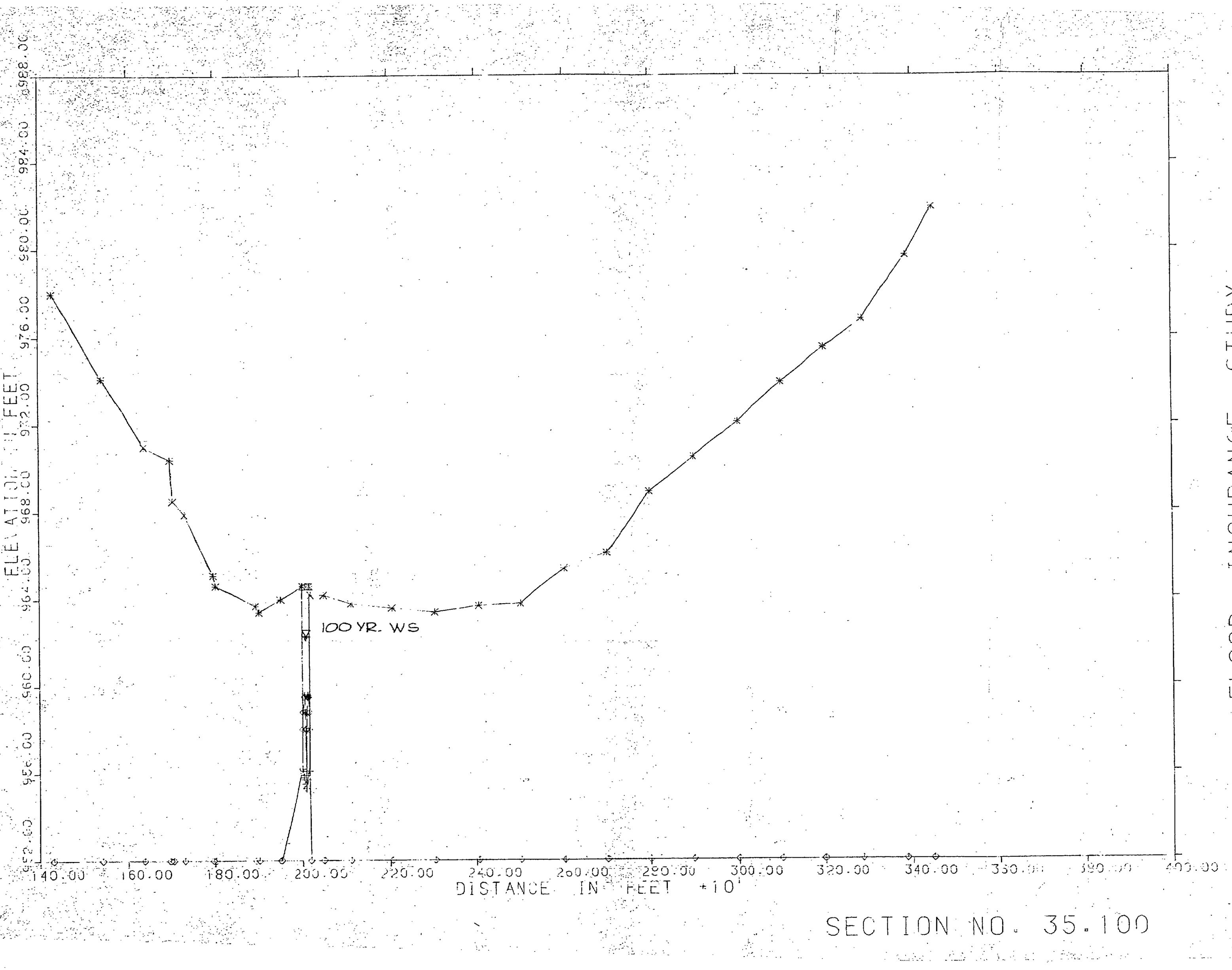
MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY

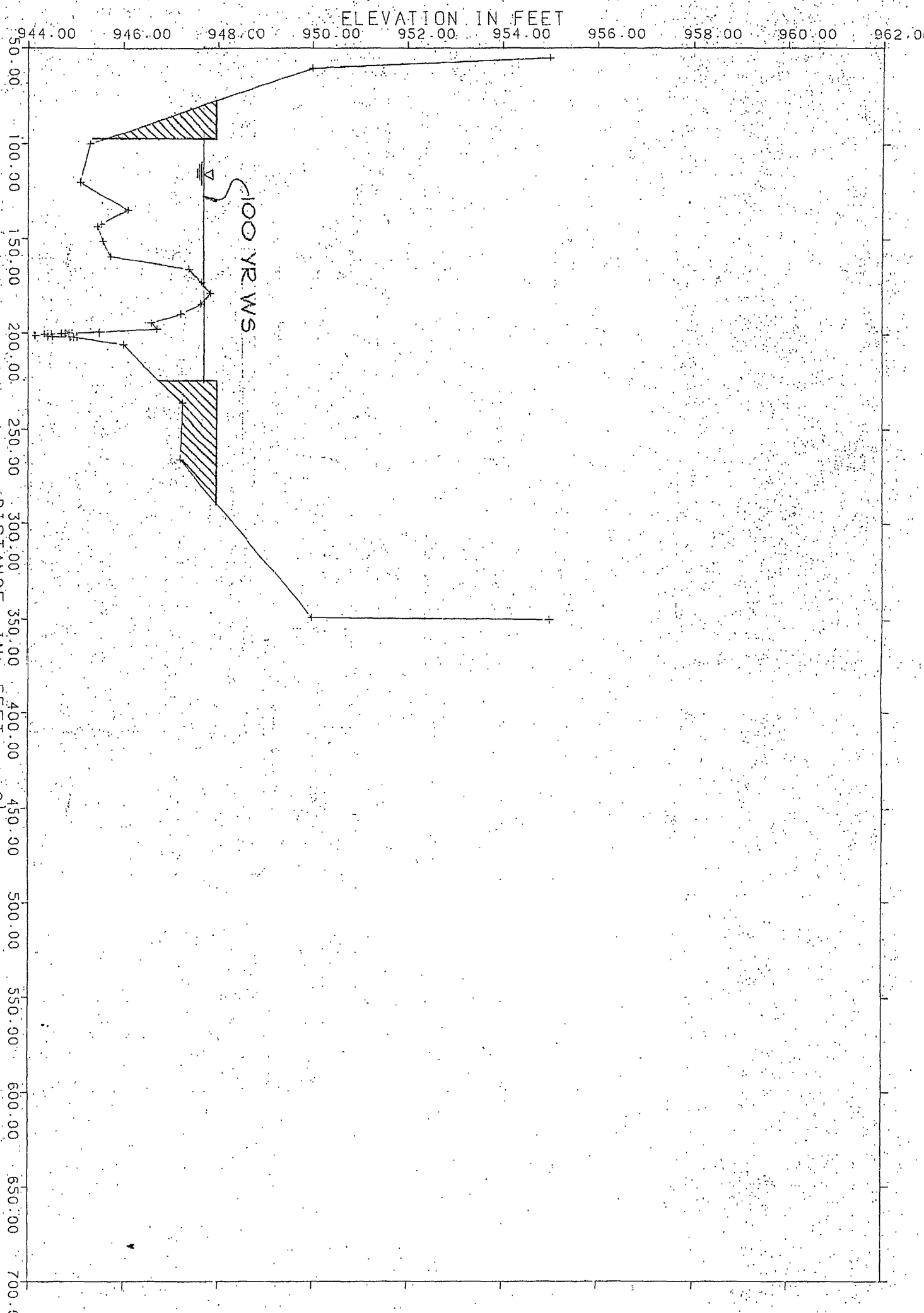
GRAND RIVER AT SUMMIT

FLOOD INSURANCE STUDY

MCCAIN PLAZA III AT SUMMIT



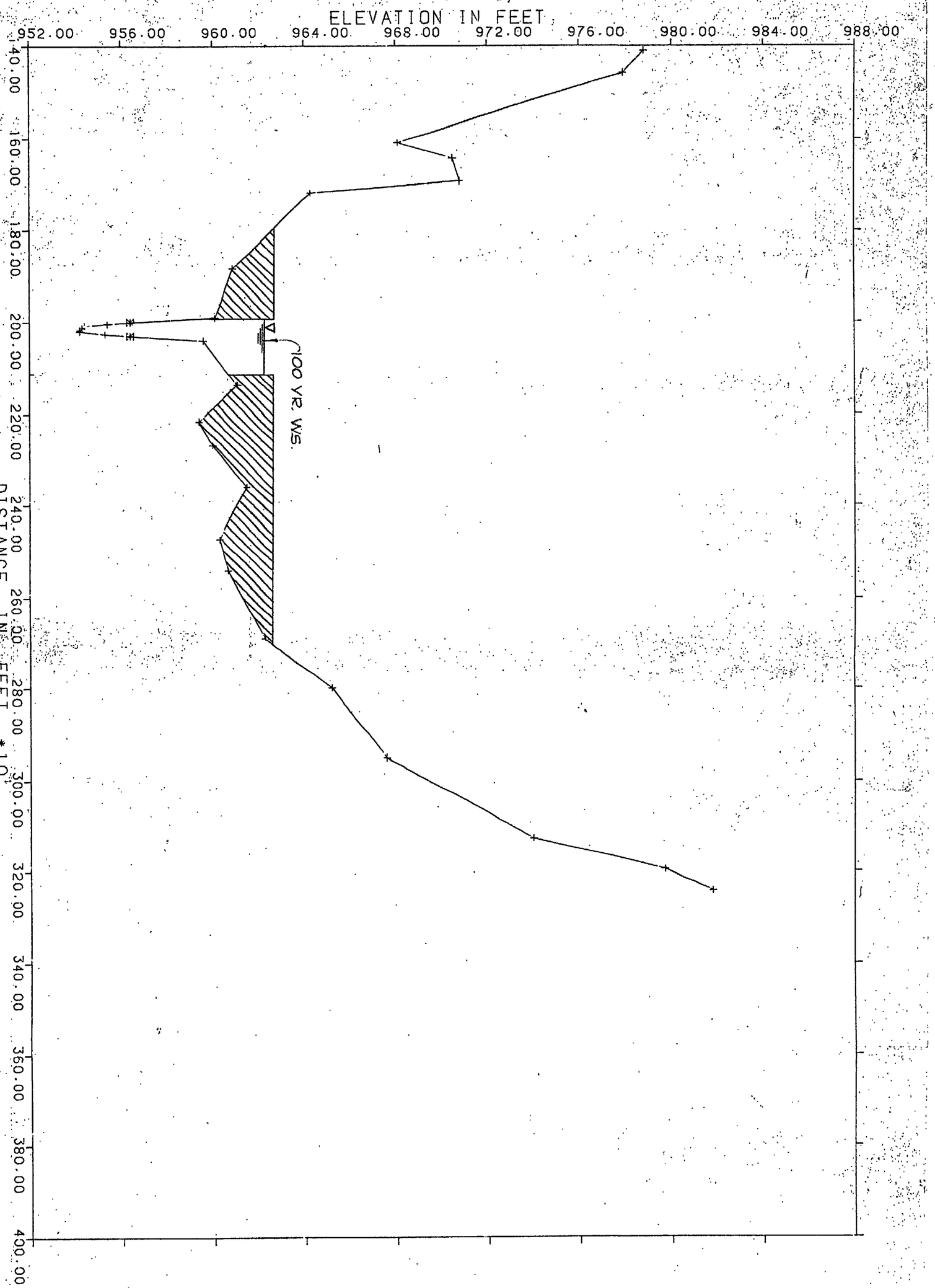
SECTION NO. 35.100



SECTION NO. 6.000

FLOOD INSURANCE STUDY

GRAND RIVER AT SUMMIT

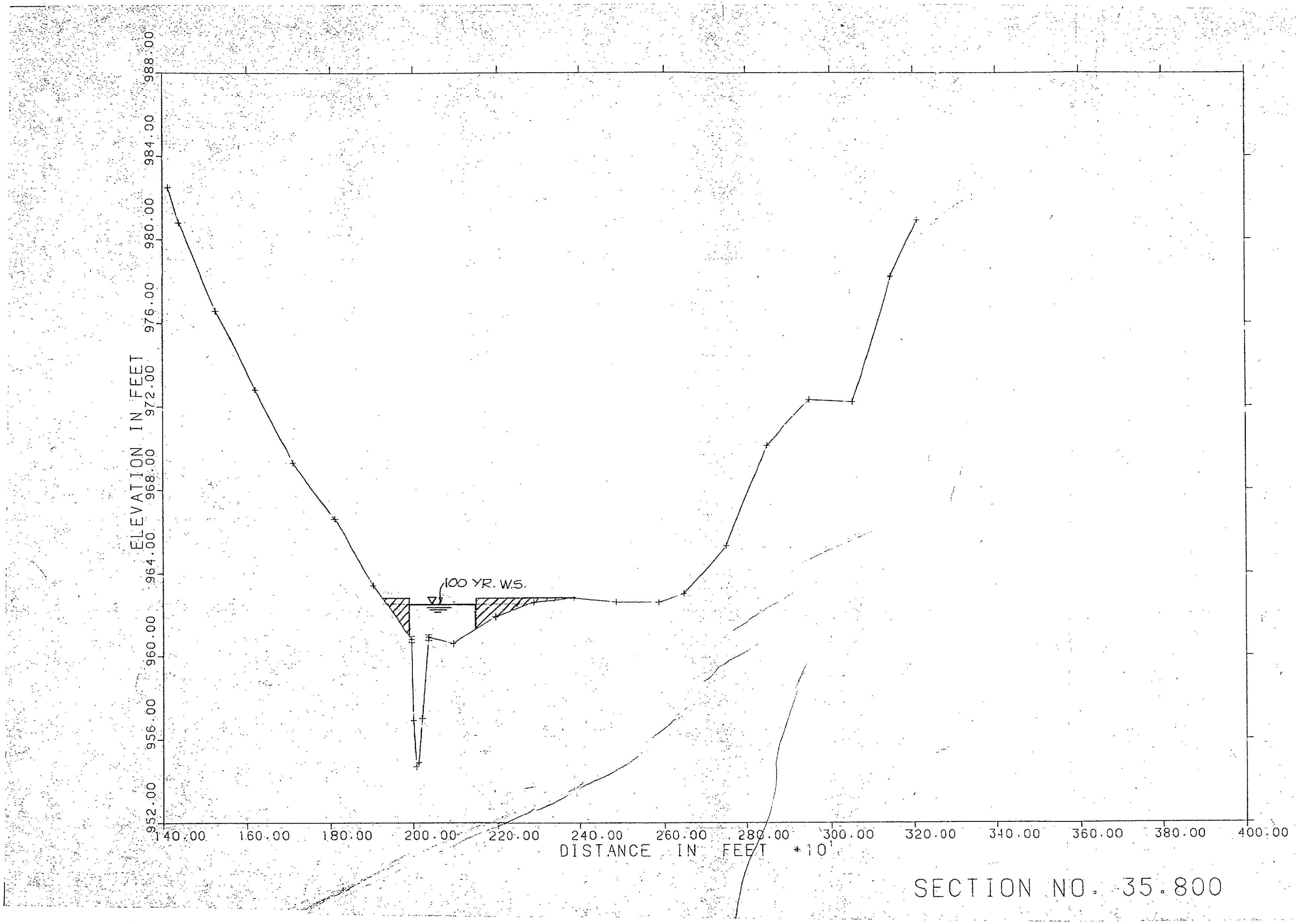


SECTION NO. 35.300

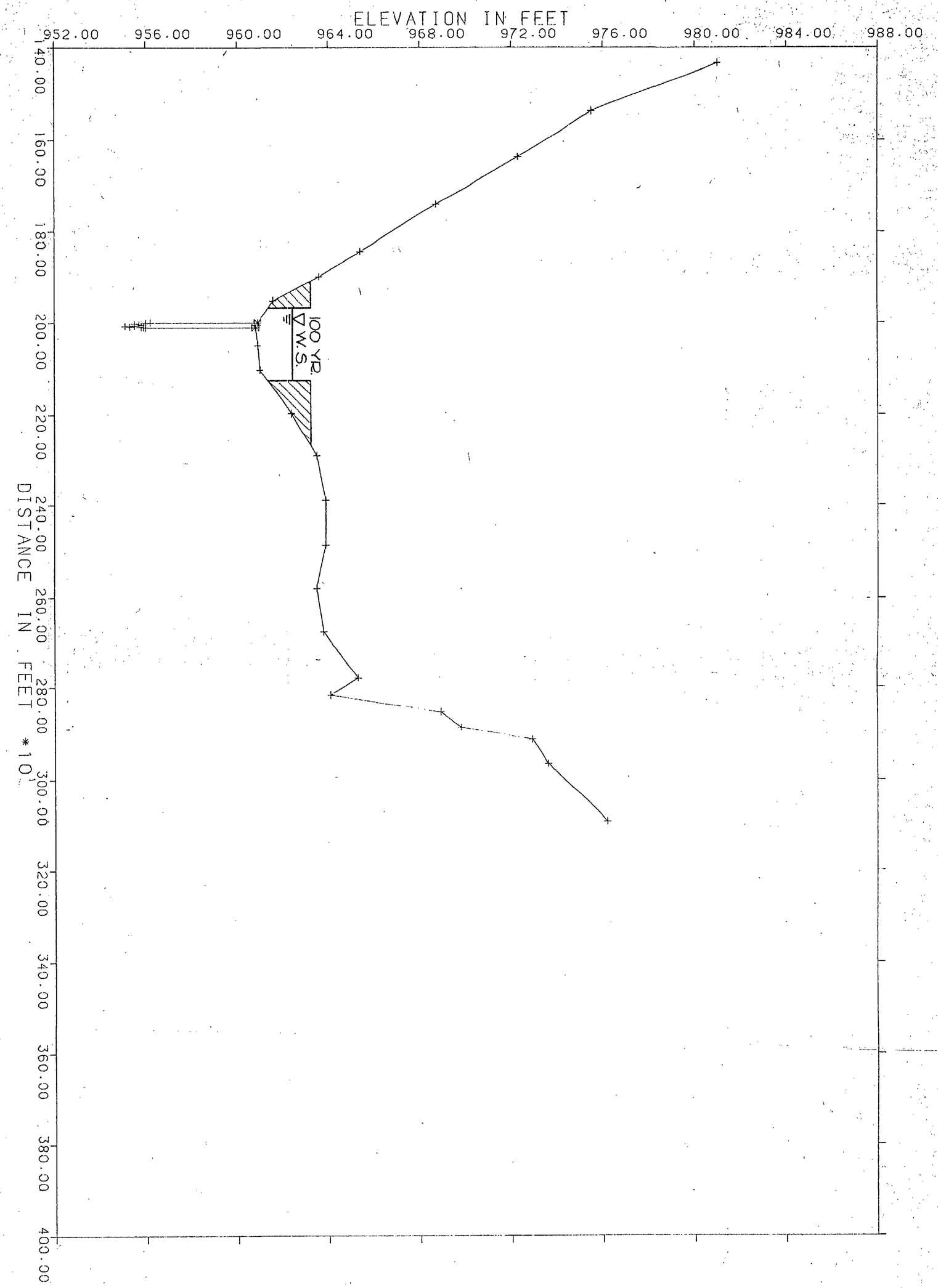
FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT

FLOOD INSURANCE STUDY
MCCAIN DRAIN AT SUMMIT



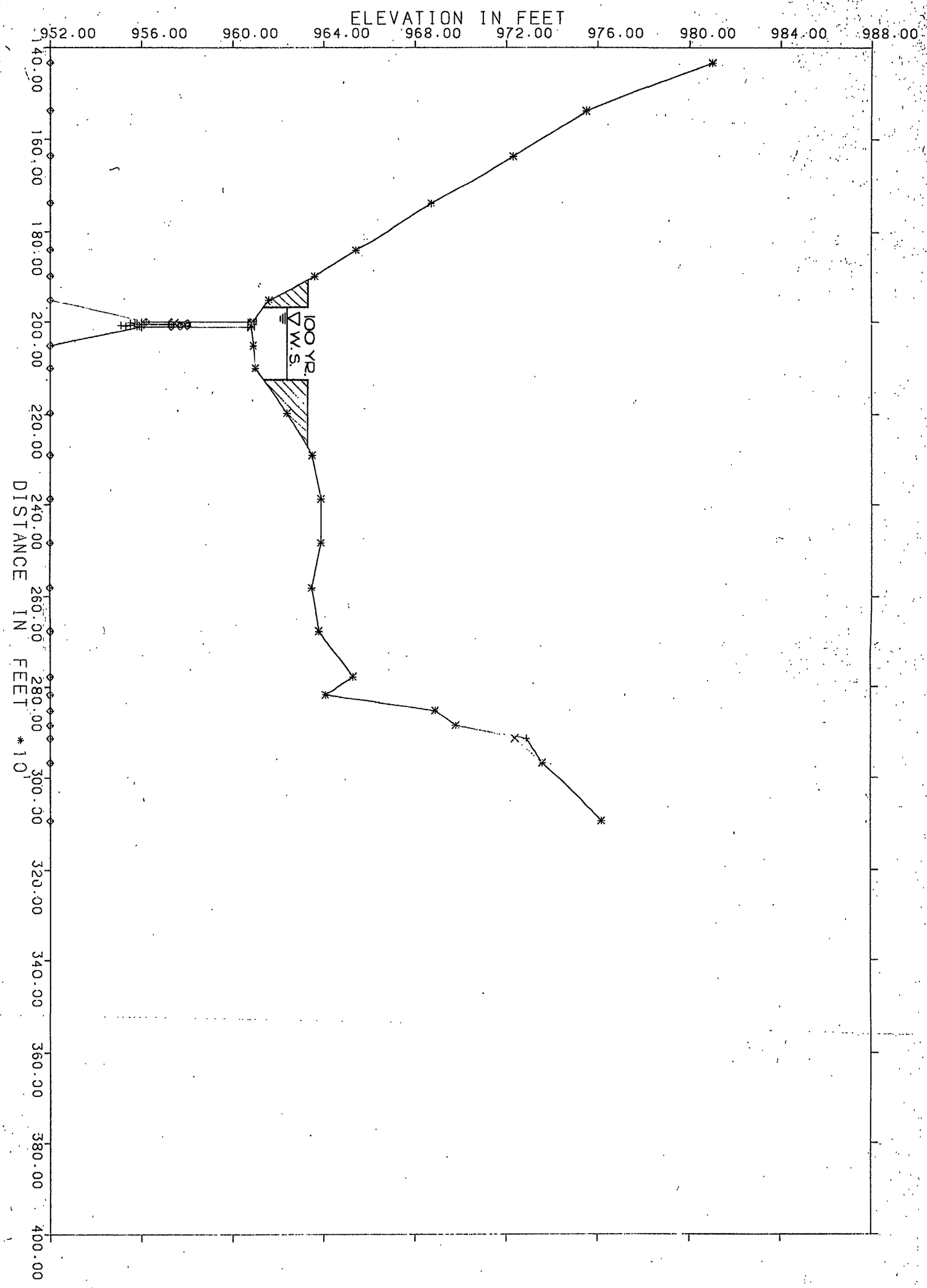
SECTION NO. 35.800



SECTION NO. 35.900

FLOOD INSURANCE STUDY

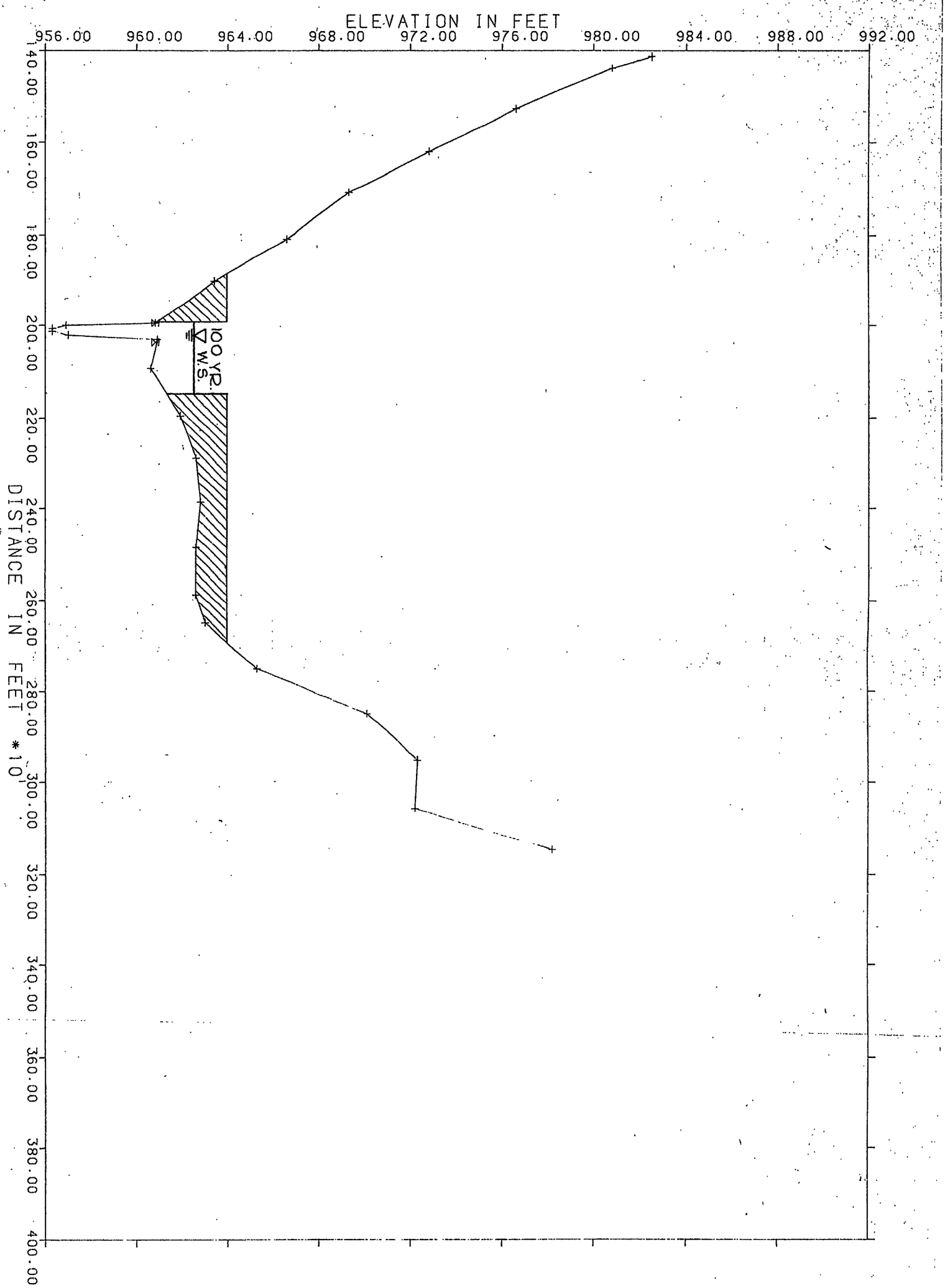
MCCAIN DRAIN AT SUMMIT



SECTION NO. 36.000

FLOOD INSURANCE STUDY

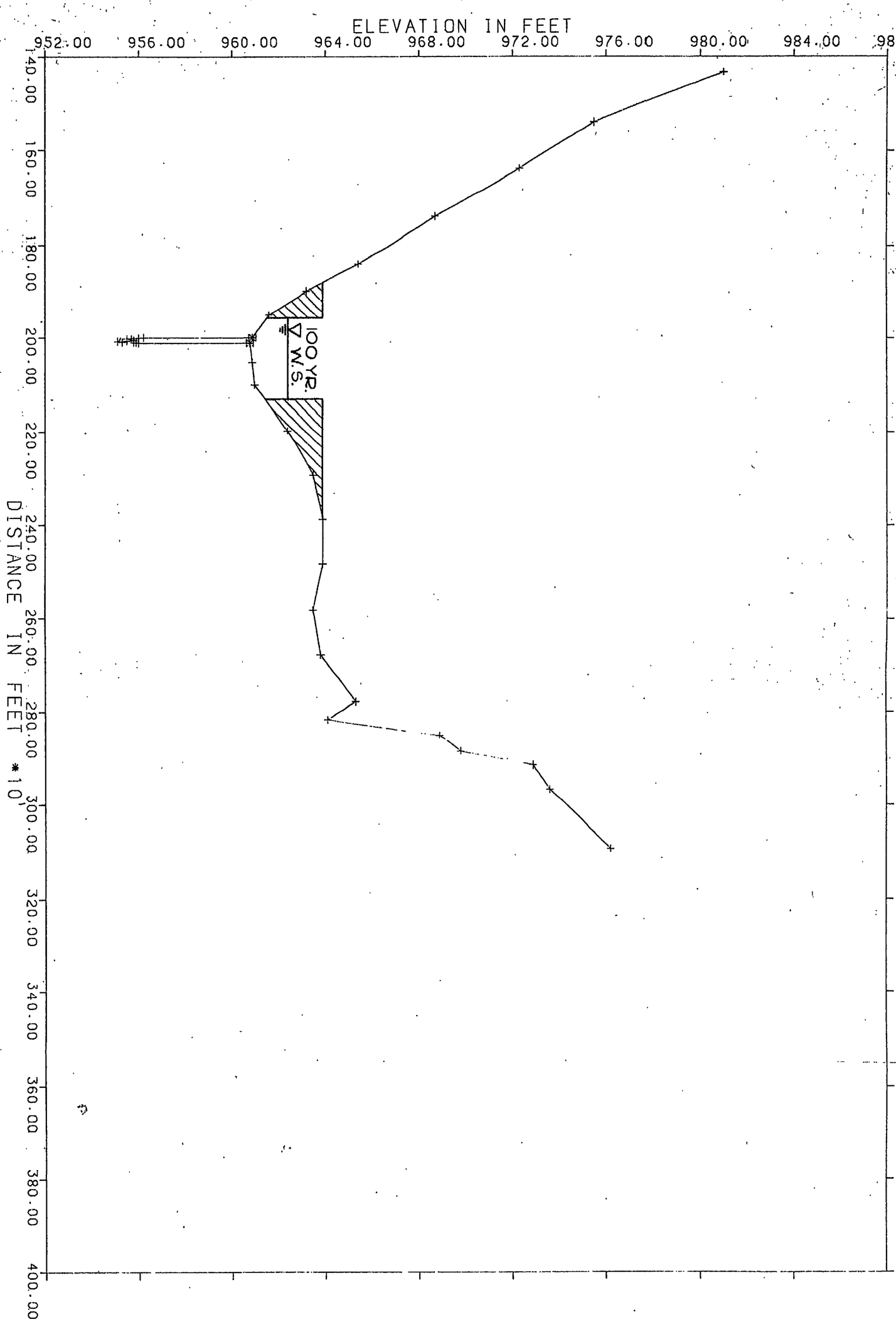
MCCAIN DRAIN AT SUMMIT



SECTION NO. 36.300

FLOOD INSURANCE STUDY

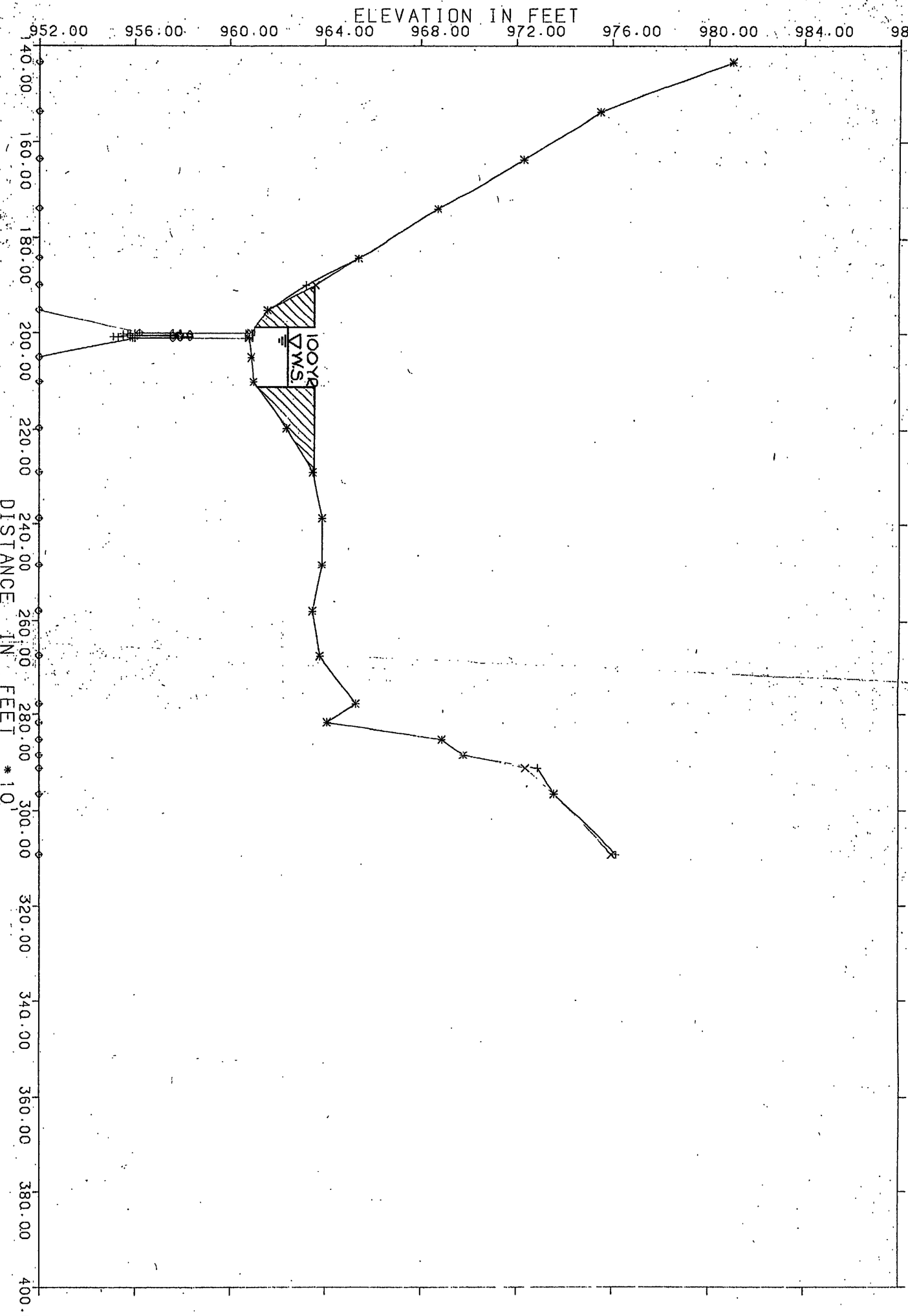
MCCAIN DRAIN AT SUMMIT



SECTION NO. 36.900

FLOOD INSURANCE STUDY

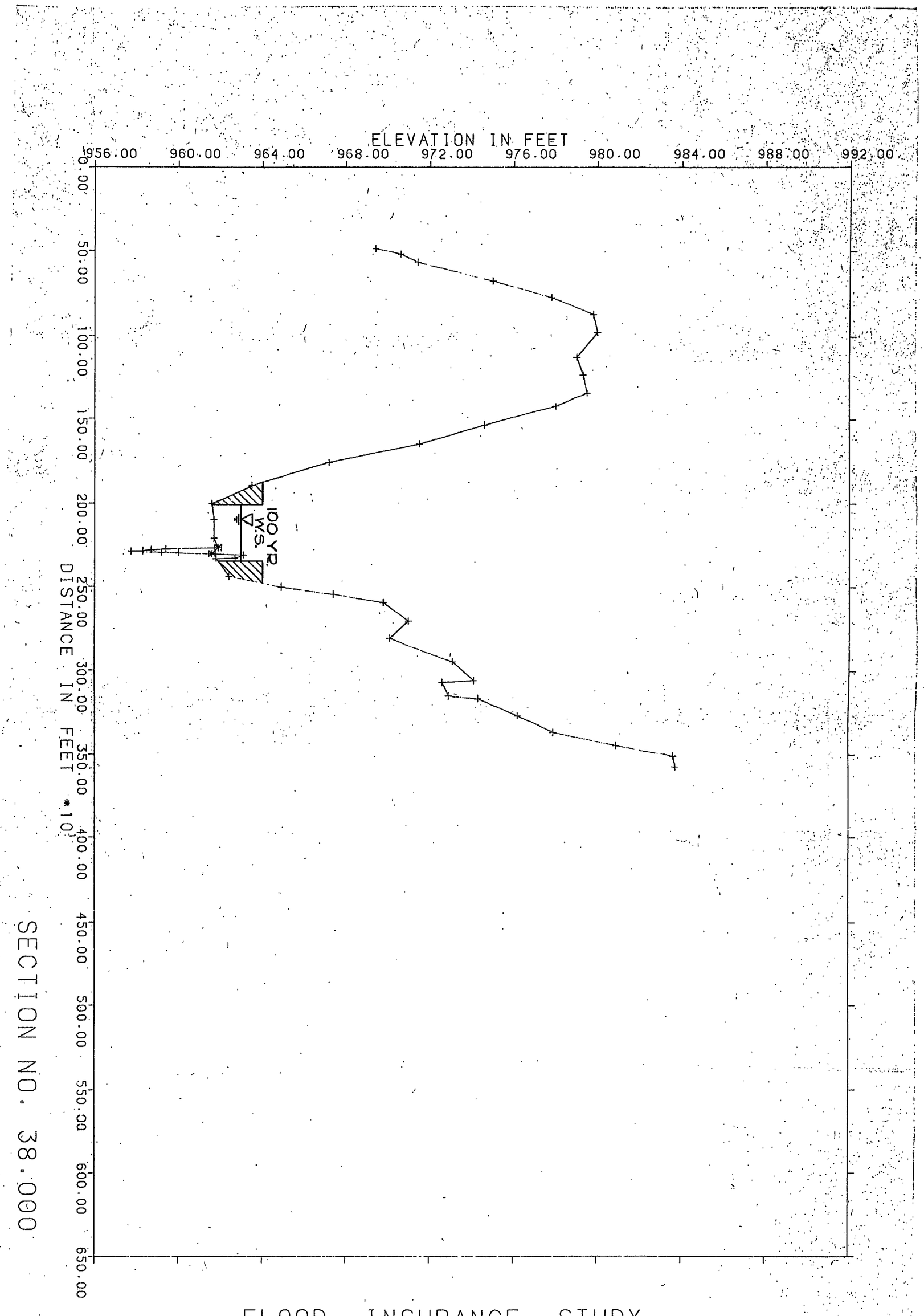
MCCAIN DRAIN AT SUMMIT



SECTION NO. 37.000

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT



SECTION NO. 38.000

FLOOD INSURANCE STUDY

MCCAIN DRAIN AT SUMMIT