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Hydrologic-Hydraulic Drainage Design Study for Carefree Hwy. Bridge over Skunk Ck. Wash
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HYDROLOGIC-HYDRAULIC DRAINAGE DESIGN STUDY
FOR CAREFREE HIGHWAY
BRIDGE OVER SKUNK CREEK WASH
PROJECT NO. RS-571(4)

June 17, 1981
Revised September 18, 1981

Prepared by
MARICOPA COUNTY HIGHWAY DEPARTMENT
ENGINEERING DIVISION
3325 West Durango Street
Phoenix, Arizona 85009

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AS APPROVED BY R. C. ESTERBROOKS, P.E. DIRECTOR OF PUBLIC WORKS
AND COUNTY ENGINEER

23.0-00-1-06/81

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I. INTRODUCTION

1.01 Purpose

This hydrologic-hydraulic drainage design study is a design analysis used to determine the maximum peak storm runoff down skunk Creek Wash across Carefree Highway (site of proposed new bridge structure) based on a minimum 50-year design frequency. Hydraulic aspects of flow through bridge structure will also be checked relative to the peak discharge from a maximum 100-year frequency. The storm runoff flows from drainage watershed area are computed using the Soil Conservation Service (S.C.S.) Computer Program TR-20. Water surface profiles will be computed using the United States Army Corps of Engineers Computer Program HEC-2

1.02 Scope

The report study consists of:

a. Delineation and description of the drainage area.

b. Computer Computations for determining capacities and hydraulic design criteria of new bridge structure.

c. Preparation of small and large scale general area maps showing drainage areas, cross-sections of existing channel, and various other plate drawings showing hydraulic elements of study.

d. Discussion and conclusions.

II. GENERAL DESCRIPTION OF DRAINAGE AREA

Skunk Creek Wash and its tributaries drain a mountainous area of 49.7 square miles. The stream length of Skunk Creek Wash is approximately 13 miles from its source flowing south-southwest to where it crosses Carefree Highway. The new proposed bridge site on Carefree Highway at the Skunk Creek channel crossing is located approximately 25 miles north of the center of Phoenix, and approximately 0.7 of a mile east of Interstate 17.

The natural terrain in Maricopa County Consists basically of scattered rugged mountain ranges which are encompassed by alluvial fans and desert valleys. Throughout the County there are many desert washes ranging from small through medium to fairly large draining a considerable area. Cave Creek Wash is one of the largest draining south of Carefree Highway to Adobe Dam presently under construction located approximately eight miles south-southwest of the Carefree Highway proposed bridge site.

Should be Skunk?

The alluvium soils comprising most of the desert valleys is predominantly sand and silty sand containing varying amounts of caliche. Recent alluvium is found along the streambed channels and consists of uncemented silts, sands, gravels, cobbles and boulders.

In general, vegetation is sparse. Cacti grow throughout the area along with other desert shrubs. The vegetation tends to be thicker along the stream courses and may include some small trees. Perennial grasses form a very small portion of the vegetation but a good cover of annual grasses occurs after the winter rains. Flooding is caused by general storms of long duration and/or be local thunderstorms of high intensity and short duration.

Referring to Map Plate 1 of Drainage Areas, the following main tributary washes to Skunk Creek and Skunk Creek Wash were studied in detail:

Roger Creek
Cline Creek

These stated wash areas are upstream from Carefree Highway and flow from the eastern portions of the drainage area west-southwest to Skunk Creek Wash. The total drainage area of Skunk Creek Wash above Carefree Highway is divided into eight (8) subdrainage areas as shown on Map Plate 1. There are no major flood control structures within the investigated drainage area. Skunk Creek Wash is the main wash, and it flows in a south-southwesterly direction over terrain sloping from 0.9 percent in lower reaches to approximately 2.7 percent in upper reaches. The overall average slope grade in the channel of Skunk Creek Wash is approximately 1.6 percent from Carefree Highway 13 miles north-northeast to its source. This average slope, however, is not representative and a time of concentration (Tc) based on this average slope would be erroneous. Therefore, the general drainage area was broken down into 8 subareas, each with its average slope to compute time of concentrations.

III. COMPUTATIONS

3.01 Hydrology

Hydrologic determinations of 10, 50 and 100-year discharges for the Skunk Creek drainage are were obtained by use of the Soil Conservation Service Computer Program TR-20. Drainage area size and peak discharges for selected concentration points along Skunk Creek are given in Table 1. At Carefree Highway, the Qp for a 50 year storm frequency is 21,400 c.f.s. and for a 100-year storm frequency it is 31,300 c.f.s.

Design criteria of Hydrologic elements are listed as follows:

Soil Group used = B.

Hydrologic Soil Cover Complex (Vegetative Cover Type) and Curve Number (CN) used - Desert Brush and CN = 82. Cover Density = 20 percent. Mannings "n" values for computing velocities in channels were determined to range from 0.035 to 0.050. "N" values for overbank flow ranged from 0.045 to 0.050.

3.02 Hydraulics

Detailed topographic maps were prepared for the study area. Cross-sections were selected at regular intervals along Skunk Creek. The Corps of Engineers Computer Program HEC-2 was used to compute the water surface profiles. There are no bridges or drainage structures located in the study area. Starting water surface elevations were computed by the slope area method. The "n" values vary from .035 to .050 for the channel and from .045 to .050 for the overbanks. The "n" values are relatively high in some areas because of the density of established vegetation consisting of Palo Verde Trees, Ironwood and Creosote Bushes and Cactus of various varieties. All "n" values were determined by field investigations.

IV. DISCUSSION

This hydrologic-hydraulic drainage design study is a design analysis prepared to determine the hydraulic characteristics relating to the flood flows under the new proposed bridge structure to be constructed on Carefree Highway over the existing Skunk Creek Wash channel.

All drainage areas were computed by the plainmeter method, all channel lengths measured from confluence point to source, high and low elevations determined, slope grades computed, and all subdrainage areas delineated around their respective watershed areas.

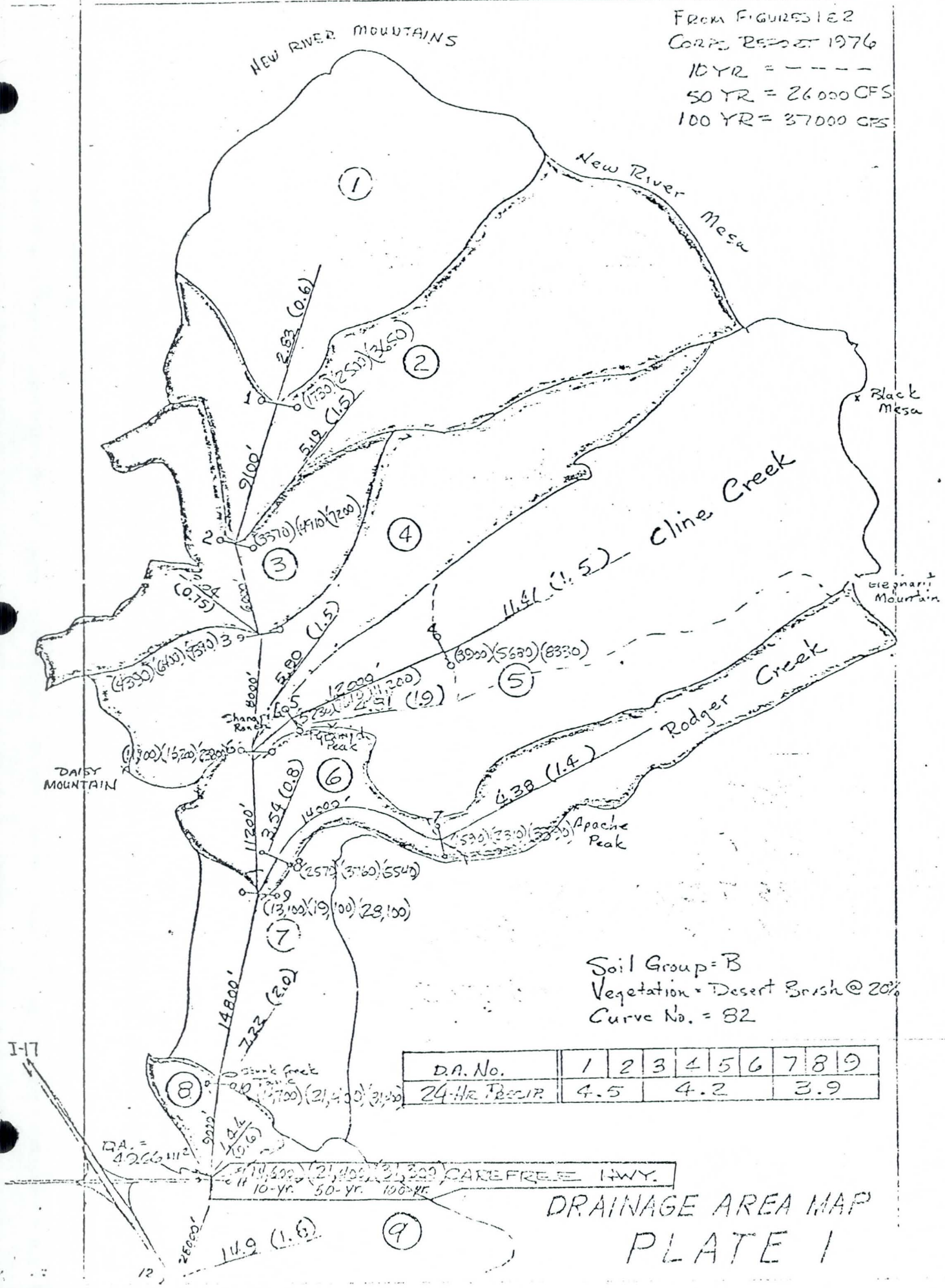
As seen from the computation results, the proposed bridge was sized to pass the peak flood discharge for a 50-year storm frequency, and also to pass a 100-year peak discharge with a backwater depth of not more than one foot. The 50 and 100-year peak flows, velocities, backwater elevations, backwater depths and freeboards are shown on Plate 3 in the section-elevation view of proposed bridge, and listed herein as follows:

why do they show both?

For 50-Year Storm Frequency (From HEC-2 Computer readout-Figure B).

High water El. (under bridge) = 1678.09
Bot. of Channel El. (under bridge) = 1672.00
Qp = 21,400 c.f.s.
v. = 15.97 ft./sec.
Natural water surface El. = 1690.10
Freeboard Depth = 3.65'

For 100-Year Storm Freq. (From HEC-2 Computer readout-Figure B).



D.A. No.	1	2	3	4	5	6	7	8	9
24-Hr. Precip.	4.5			4.2				3.9	

DRAINAGE AREA MAP

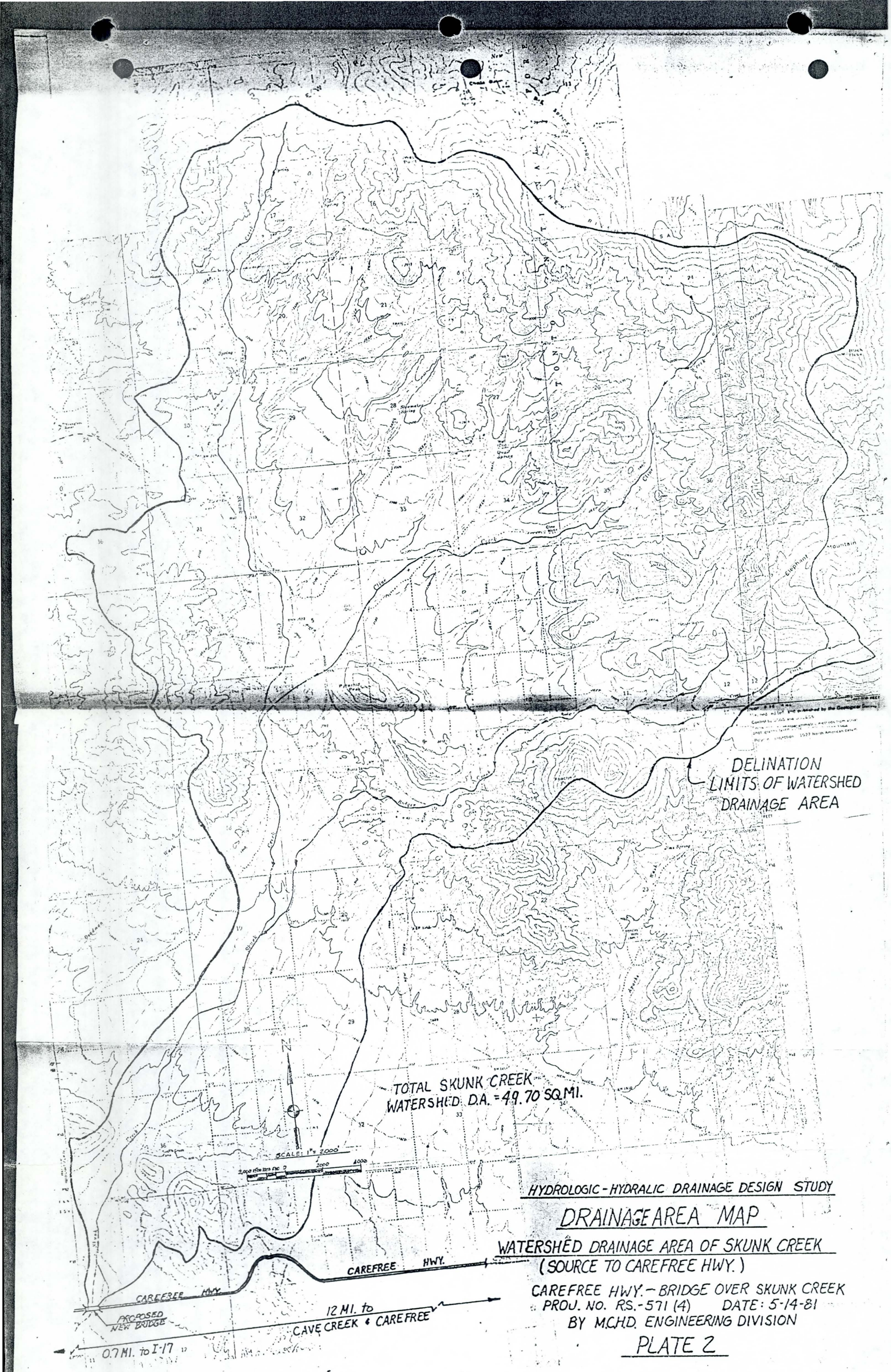
PLATE 1

High Water El. (under bridge) = 1679.87
Qp = 31,300 c.f.s.
v. = 17.49 ft./sec.
Backwater El. = 1690.05
Natural Water Surface El. = 1690.10
Backwater Depth = -0.05' < than 1'
Freeboard Depth = 1.87'

Finish roadway grade El. at centerline of bridge = 1687.97, and 1687.10 at both east and west ends of bridge. Bridge to be constructed on 450-foot vertical curve on a +1.0 percent entrance slope grade and a -1.0 percent exit slope grade.

V. CONCLUSION

The design parameters derived in this report study are felt to result in a conservative but economical design, capable of handling both the 50-year and 100-year peak design storm flood flows. The new proposed bridge height has been set well above the bottom of channel and also above the channel bank tops and overbank areas. The approach roadways will also be above the channel and floodplain and no overtopping will occur during flooding periods. This new bridge construction will increase the safety to the traveling public and will provide for all-weather access on Carefree Highway across the Skunk Creek Wash channel. This proposed bridge is urgently needed for the all-weather flow of traffic between the communities of Cave Creek and Carefree west to Interstate 10, and south to the metropolitan area of Phoenix.



HYDROLOGIC - HYDRALIC DRAINAGE DESIGN STUDY

DRAINAGE AREA MAP

WATERSHED DRAINAGE AREA OF SKUNK CREEK
(SOURCE TO CAREFREE HWY.)

CAREFREE HWY. – BRIDGE OVER SKUNK CREEK
PROJ. NO. RS.-571 (4) DATE: 5-14-81
BY M.C.H.D. ENGINEERING DIVISION

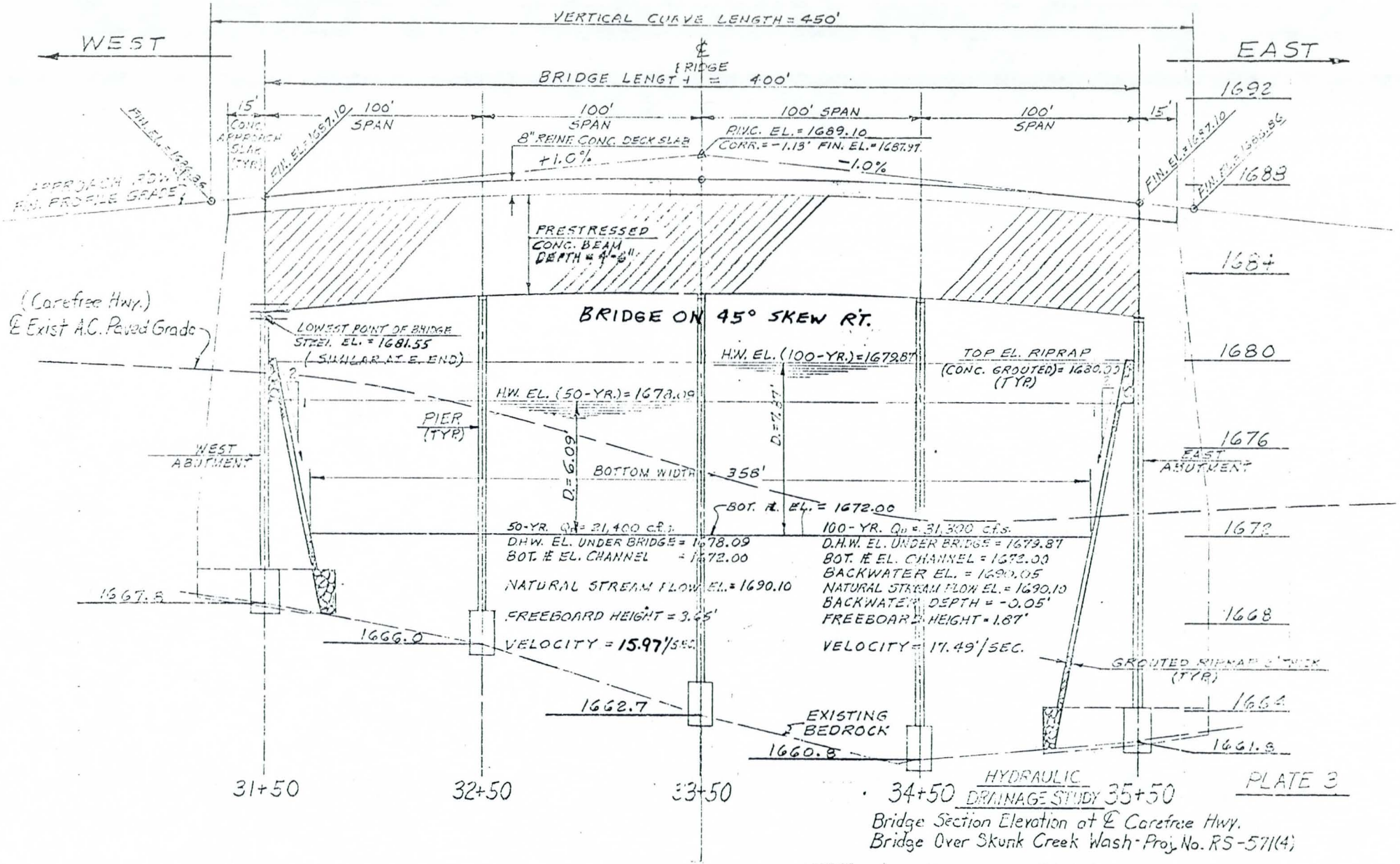
PLATE 2

SKUNK CREEK

TABLE 1. SUMMARY OF DISCHARGES

LOCATION	DRAINAGE AREA (Sq.Mi.)	PEAK DISCHARGE 10-Year	50-Year	100-Year	500-Year
SKUNK CREEK					
at Carefree Highway	49.7	14,600	21,400	31,300	40,800
at Rodger Creek	41.00	13,100	19,100	28,100	36,000
at Cline Creek	33.08	11,100	16,200	23,800	30,000
at Tejon Drive	16.86	5,870	8,590	12,600	16,000
at Zorrillo Drive	11.06	4,390	6,400	9,390	11,800
at New River Road	8.02	3,370	4,910	7,200	9,200
at Upper Study Limit	2.83	1,730	2,500	3,650	4,600

TABLE 1



HYDRAULIC DRAINAGE STUDY

Bridge Section Elevation at ℄ Carefree Hwy.
Bridge Over Skunk Creek Wash - Proj. No. RS-571(4)

N
Project
St.
CAREFREE
HWY.
SCALE: 1" = 600'
SKUNK
CREEK
I-17
INTERCHANGE

PLATE 6

```
*****************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CODE = 01
  MODIFICATION -  50,51,52
*****************************************

T1      SKUNK CREEK WASH                        HARRIS - TOURS ASSOC.
T2      50-YEAR FREQUENCY                       FLOOD INSURANCE STUDY
T3      SKUNK CREEK                             HUD CONTRACT H-4018

J1  ICHECK    INQ     NINV    IDTR    STRT    METRIC  HVINS   Q       WSEL    FQ
      -10.      3.      0.      0.  .010000    0.00     1.0     0.  1678.000  0.000

J2  NPROF     IPLOT   PRFVS   XSECV   XSECH   FN      ALLOC   IBW     CHNIM   ITRACE
      2.000   0.000  -1.000   0.000   0.000   0.000   1.000   0.000   0.000   0.000
```

FIGURE A

2

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 01
  MODIFICATION - 50,51,52
*************************************************
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T1      SKUNK CREEK WASH                        HARRIS - TOURS ASSOC.
T2      100 YEAR FREQUENCY                      FLOOD INSURANCE STUDY
T3      SKUNK CREEK                             HUD CONTRACT H-4106

J1   ICHECK     INQ     NINV     IDIR     STRT    METRIC    HVINS     Q      WSEL     FQ
      -10.       4.       0.       0.   .010000    0.00      0.0      0.   1679.000   0.000

J2   NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALDC     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 FEB 1977
 ERROR CODE - 01
 MODIFICATION -  50,51,52
*****************************************

T1      SKUNK CREEK WASH                        HARRIS - TOUPS ASSOC.
T2      500 YEAR FREQUENCY                      FLOOD INSURANCE STUDY
T3      SKUNK CREEK                             HUD CONTRACT H-4008

J1   ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q      WSEL     FQ

     -10.        5.       0.       0.   .010000     0.00      0.0      0.   1679.500   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
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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
 ERROR CODE - 01
 MODIFICATION -  50,51,52
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
	16.690	14600.00	1677.06	0.00	9.22	0.00	9770.00	10120.00	0.00	0.00	9738.21	10347.09
	16.690	21400.00	1677.85	1677.72	10.55	0.00	9770.00	10120.00	0.00	0.00	9714.64	10374.59
*	16.690	31300.00	1678.78	1678.78	12.10	0.00	9770.00	10120.00	0.00	0.00	9686.55	10407.36
	16.690	40800.00	1679.50	1679.47	13.43	0.00	9770.00	10120.00	0.00	0.00	9665.00	10432.50
*	16.870	14600.00	1688.55	1688.55	8.66	900.00	9550.00	10030.00	0.00	0.00	9537.63	12251.67
*	16.870	21400.00	1689.29	1689.29	9.14	900.00	9550.00	10030.00	0.00	0.00	9520.91	12276.43
*	16.870	31300.00	1690.08	1690.08	9.55	900.00	9550.00	10030.00	0.00	0.00	9503.30	12313.94
*	16.870	40800.00	1690.52	1690.52	10.24	900.00	9550.00	10030.00	0.00	0.00	9493.25	12396.57
	17.100	14600.00	1700.70	0.00	5.97	1214.00	9520.00	10460.00	0.00	0.00	9639.70	11980.92
	17.100	21400.00	1701.17	0.00	6.93	1214.00	9520.00	10460.00	0.00	0.00	9612.68	12048.60
	17.100	31300.00	1701.67	0.00	8.06	1214.00	9520.00	10460.00	0.00	0.00	9583.88	12120.72
	17.100	40800.00	1702.16	0.00	8.64	1214.00	9520.00	10460.00	0.00	0.00	9556.03	12190.47
*	17.300	14600.00	1710.14	1710.14	9.96	1056.00	9500.00	10150.00	0.00	0.00	9691.43	11400.66
*	17.300	21400.00	1711.17	1711.17	9.69	1056.00	9500.00	10150.00	0.00	0.00	9590.53	11517.08
*	17.300	31300.00	1711.84	1711.84	10.72	1056.00	9500.00	10150.00	0.00	0.00	9525.96	11591.59
*	17.300	40800.00	1712.30	1712.30	11.54	1056.00	9500.00	10150.00	0.00	0.00	9503.71	11651.46
	17.560	14600.00	1720.18	0.00	5.33	1373.00	9460.00	10490.00	0.00	0.00	9619.45	10753.33
	17.560	21400.00	1720.80	0.00	6.59	1373.00	9460.00	10490.00	0.00	0.00	9617.61	10797.85
	17.560	31300.00	1721.77	0.00	7.51	1373.00	9460.00	10490.00	0.00	0.00	9614.69	10868.31
	17.560	40800.00	1722.54	0.00	8.22	1373.00	9460.00	10490.00	0.00	0.00	9612.37	10924.32
	17.780	14600.00	1729.09	0.00	7.89	1162.00	9960.00	10790.00	0.00	0.00	9969.86	10760.97
	17.780	21400.00	1730.07	0.00	8.14	1162.00	9960.00	10790.00	0.00	0.00	9968.47	10770.74
	17.780	31300.00	1730.98	0.00	9.32	1162.00	9960.00	10790.00	0.00	0.00	9967.18	10779.77
	17.780	40800.00	1731.73	0.00	10.27	1162.00	9960.00	10790.00	0.00	0.00	9966.10	10787.27
	18.060	14600.00	1741.67	0.00	5.38	1478.00	9610.00	10220.00	0.00	0.00	9597.47	10353.66
	18.060	21400.00	1742.42	0.00	6.61	1478.00	9610.00	10220.00	0.00	0.00	9591.81	10465.05
	18.060	31300.00	1743.53	0.00	7.65	1478.00	9610.00	10220.00	0.00	0.00	9583.56	10685.19
	18.060	40800.00	1744.40	0.00	8.36	1478.00	9610.00	10220.00	0.00	0.00	9578.23	10806.33
	18.340	14600.00	1752.34	0.00	6.82	1478.00	9930.00	10840.00	0.00	0.00	9929.58	10855.18
	18.340	21400.00	1753.23	0.00	7.21	1478.00	9930.00	10840.00	0.00	0.00	9928.46	10895.53
	18.340	31300.00	1754.16	0.00	8.15	1478.00	9930.00	10840.00	0.00	0.00	9927.30	10937.15
	18.340	40800.00	1754.91	0.00	8.96	1478.00	9930.00	10840.00	0.00	0.00	9926.38	10970.39

	SECND	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
	18.720	13100.00	1768.12	0.00	4.65	2006.00	9450.00	10220.00	0.00	0.00	9449.57	10629.11
	18.720	19100.00	1768.69	0.00	5.63	2006.00	9450.00	10220.00	0.00	0.00	9447.46	10674.20
	18.720	28100.00	1769.51	0.00	6.55	2006.00	9450.00	10220.00	0.00	0.00	9444.35	10740.55
	18.720	36000.00	1770.18	0.00	7.12	2006.00	9450.00	10220.00	0.00	0.00	9441.83	10794.25
*	18.950	13100.00	1778.21	1778.21	9.71	1214.00	9260.00	10050.00	0.00	0.00	9300.30	10045.52
	18.950	19100.00	1779.24	0.00	10.22	1214.00	9260.00	10050.00	0.00	0.00	9276.82	10048.13
*	18.950	28100.00	1780.61	1780.61	10.12	1214.00	9260.00	10050.00	0.00	0.00	9247.81	10560.33
*	18.950	36000.00	1781.29	1781.29	10.73	1214.00	9260.00	10050.00	0.00	0.00	9234.25	10624.26
	19.160	13100.00	1788.44	0.00	4.79	1109.00	9900.00	10580.00	0.00	0.00	9593.77	10592.46
	19.160	19100.00	1789.32	0.00	5.53	1109.00	9900.00	10580.00	0.00	0.00	9581.82	10616.37
	19.160	28100.00	1790.41	0.00	6.34	1109.00	9900.00	10580.00	0.00	0.00	9566.98	10646.04
	19.160	36000.00	1791.13	0.00	7.03	1109.00	9900.00	10580.00	0.00	0.00	9557.10	10665.80
*	19.380	13100.00	1798.44	1798.44	8.76	1162.00	9960.00	10660.00	0.00	0.00	9963.69	10648.33
*	19.380	19100.00	1799.22	1799.22	9.43	1162.00	9960.00	10660.00	0.00	0.00	9961.94	10654.18
*	19.380	28100.00	1799.96	1799.96	11.08	1162.00	9960.00	10660.00	0.00	0.00	9960.10	10659.69
*	19.380	36000.00	1800.86	1800.86	11.24	1162.00	9960.00	10660.00	0.00	0.00	9552.20	10698.76
	19.580	13100.00	1811.15	0.00	6.17	1056.00	9650.00	10380.00	0.00	0.00	9675.50	10352.38
	19.580	19100.00	1811.89	0.00	7.22	1056.00	9650.00	10380.00	0.00	0.00	9653.24	10376.49
	19.580	28100.00	1812.89	0.00	8.30	1056.00	9650.00	10380.00	0.00	0.00	9578.45	10409.07
	19.580	36000.00	1813.33	0.00	9.67	1056.00	9650.00	10380.00	0.00	0.00	9128.46	10423.22
	19.920	13100.00	1824.71	0.00	4.98	1795.00	8920.00	10090.00	0.00	0.00	8793.33	10093.56
	19.920	19100.00	1825.35	0.00	5.53	1795.00	8920.00	10090.00	0.00	0.00	8769.25	10096.77
	19.920	28100.00	1826.08	0.00	6.39	1795.00	8920.00	10090.00	0.00	0.00	8742.12	10100.38
	19.920	36000.00	1826.82	0.00	6.69	1795.00	8920.00	10090.00	0.00	0.00	8714.10	10104.12
	20.230	13100.00	1840.32	0.00	6.22	1637.00	9310.00	10070.00	0.00	0.00	8955.24	10179.52
	20.230	19100.00	1840.71	1840.48	7.43	1637.00	9310.00	10070.00	0.00	0.00	8949.38	10191.24
	20.230	28100.00	1841.28	1841.10	8.63	1637.00	9310.00	10070.00	0.00	0.00	8940.76	10208.47
*	20.230	36000.00	1841.59	1841.59	9.94	1637.00	9310.00	10070.00	0.00	0.00	8936.20	10217.59
	20.390	13100.00	1848.33	0.00	5.11	845.00	9500.00	10340.00	0.00	0.00	9217.75	10435.20
	20.390	19100.00	1849.01	0.00	5.71	845.00	9500.00	10340.00	0.00	0.00	9213.29	10465.29
	20.390	28100.00	1849.77	0.00	6.60	845.00	9500.00	10340.00	0.00	0.00	9208.21	10499.57
	20.390	36000.00	1850.45	0.00	7.06	845.00	9500.00	10340.00	0.00	0.00	9203.63	10530.49
	20.730	13100.00	1863.95	0.00	7.12	1795.00	9440.00	10110.00	0.00	0.00	9235.45	10317.92
	20.730	19100.00	1864.49	0.00	8.35	1795.00	9440.00	10110.00	0.00	0.00	9202.51	10365.00
	20.730	28100.00	1865.23	1865.10	9.43	1795.00	9440.00	10110.00	0.00	0.00	8633.78	10392.33
*	20.730	36000.00	1865.76	1865.76	10.12	1795.00	9440.00	10110.00	0.00	0.00	8619.79	10397.58
	21.000	13100.00	1877.14	0.00	5.87	1426.00	9400.00	10070.00	0.00	0.00	9169.52	10342.39
	21.000	19100.00	1877.90	0.00	6.51	1426.00	9400.00	10070.00	0.00	0.00	9149.36	10407.90
	21.000	28100.00	1878.71	0.00	7.39	1426.00	9400.00	10070.00	0.00	0.00	8702.33	10477.93
	21.000	36000.00	1879.24	0.00	8.09	1426.00	9400.00	10070.00	0.00	0.00	8688.93	10524.36
	21.240	13100.00	1887.52	0.00	6.16	1267.00	9570.00	10230.00	0.00	0.00	9580.86	10222.76
	21.240	19100.00	1888.22	0.00	7.38	1267.00	9570.00	10230.00	0.00	0.00	9564.54	10242.02
	21.240	28100.00	1889.11	0.00	8.82	1267.00	9570.00	10230.00	0.00	0.00	9542.29	10290.97
	21.240	36000.00	1889.81	0.00	9.80	1267.00	9570.00	10230.00	0.00	0.00	9524.84	10329.36

SECNO	Q	CWSEL	CRTWS	VCH	XLCH	[illegible]CHL	STCHR	STENCL	STENCR	SSTA	ENDST
21.590	13100.00	1905.64	0.00	5.82	1848.00	8665.00	10080.00	0.00	0.00	8679.73	10153.97
21.590	19100.00	1906.52	0.00	5.85	1848.00	8665.00	10080.00	0.00	0.00	8674.26	10193.35
21.590	28100.00	1907.38	0.00	6.21	1848.00	8665.00	10080.00	0.00	0.00	8668.84	10232.33
21.590	36000.00	1907.95	0.00	6.70	1848.00	8665.00	10080.00	0.00	0.00	8665.34	10257.52
21.850	13100.00	1920.50	0.00	5.30	1373.00	8720.00	10050.00	0.00	0.00	8716.29	10346.39
21.850	19100.00	1921.01	0.00	6.05	1373.00	8720.00	10050.00	0.00	0.00	8712.41	10373.98
21.850	28100.00	1921.66	0.00	6.72	1373.00	8720.00	10050.00	0.00	0.00	8707.61	10408.09
21.850	36000.00	1922.02	0.00	7.53	1373.00	8720.00	10050.00	0.00	0.00	8704.85	10427.75
22.060	13100.00	1929.76	0.00	6.17	1109.00	8960.00	10070.00	0.00	0.00	8980.80	10351.91
22.060	19100.00	1930.84	0.00	6.46	1109.00	8960.00	10070.00	0.00	0.00	8977.22	10466.69
22.060	28100.00	1932.02	0.00	6.58	1109.00	8960.00	10070.00	0.00	0.00	8973.27	10562.07
22.060	36000.00	1932.71	0.00	6.88	1109.00	8960.00	10070.00	0.00	0.00	8970.97	10634.46
22.250	13100.00	1938.33	0.00	6.85	1003.00	9050.00	10250.00	0.00	0.00	9052.08	10245.83
22.250	19100.00	1939.22	0.00	7.83	1003.00	9050.00	10250.00	0.00	0.00	9050.98	10248.04
22.250	28100.00	1940.38	0.00	8.79	1003.00	9050.00	10250.00	0.00	0.00	9049.04	10271.98
22.250	36000.00	1941.28	0.00	9.19	1003.00	9050.00	10250.00	0.00	0.00	9046.80	10323.10
22.620	11100.00	1961.60	1961.32	7.43	1954.00	9700.00	10180.00	0.00	0.00	9387.83	10188.03
22.620	16200.00	1962.26	1962.07	8.31	1954.00	9700.00	10180.00	0.00	0.00	9366.38	10191.33
22.620	23800.00	1963.18	1962.79	9.07	1954.00	9700.00	10180.00	0.00	0.00	9336.65	10195.90
22.620	30000.00	1963.90	0.00	9.41	1954.00	9700.00	10180.00	0.00	0.00	9312.96	10199.55
22.810	11100.00	1971.32	0.00	5.30	1003.00	9450.00	10050.00	0.00	0.00	9153.07	10049.14
22.810	16200.00	1971.99	0.00	6.12	1003.00	9450.00	10050.00	0.00	0.00	9090.44	10049.99
22.810	23800.00	1972.75	0.00	7.17	1003.00	9450.00	10050.00	0.00	0.00	9039.19	10065.05
22.810	30000.00	1973.23	0.00	7.98	1003.00	9450.00	10050.00	0.00	0.00	9006.78	10074.66
23.090	11100.00	1982.56	0.00	6.90	1478.00	9900.00	10170.00	0.00	0.00	9699.53	10434.82
23.090	16200.00	1983.29	0.00	7.76	1478.00	9900.00	10170.00	0.00	0.00	9694.70	10436.18
23.090	23800.00	1984.24	0.00	8.70	1478.00	9900.00	10170.00	0.00	0.00	9688.16	10437.96
23.090	30000.00	1984.96	0.00	9.28	1478.00	9900.00	10170.00	0.00	0.00	9682.82	10439.29
23.420	11100.00	2000.48	2000.00	7.17	1742.00	9680.00	10100.00	0.00	0.00	9645.74	10253.67
23.420	16200.00	2001.18	2000.55	8.33	1742.00	9680.00	10100.00	0.00	0.00	9525.19	10258.65
23.420	23800.00	2001.97	2001.54	9.72	1742.00	9680.00	10100.00	0.00	0.00	9504.01	10264.61
23.420	30000.00	2002.50	2002.14	10.71	1742.00	9680.00	10100.00	0.00	0.00	9489.93	10268.77
23.720	5870.00	2015.18	0.00	4.77	1584.00	9670.00	10130.00	0.00	0.00	9676.16	10111.52
23.720	8590.00	2016.02	0.00	5.34	1584.00	9670.00	10130.00	0.00	0.00	9669.12	10130.82
23.720	12600.00	2017.03	0.00	6.06	1584.00	9670.00	10130.00	0.00	0.00	9631.38	10166.04
23.720	16000.00	2017.75	0.00	6.53	1584.00	9670.00	10130.00	0.00	0.00	9603.12	10192.42
23.980	5870.00	2025.13	0.00	7.16	1373.00	9960.00	10170.00	0.00	0.00	9877.46	10215.08
23.980	8590.00	2025.86	0.00	8.37	1373.00	9960.00	10170.00	0.00	0.00	9862.93	10244.13
23.980	12600.00	2026.65	0.00	9.82	1373.00	9960.00	10170.00	0.00	0.00	9807.71	10276.14
23.980	16000.00	2027.20	0.00	10.80	1373.00	9960.00	10170.00	0.00	0.00	9775.91	10298.18
24.310	5870.00	2041.68	2041.68	7.82	1742.00	9680.00	10060.00	0.00	0.00	9654.77	10102.04
24.310	8590.00	2043.02	2042.22	6.44	1742.00	9680.00	10060.00	0.00	0.00	9634.67	10135.55
24.310	12600.00	2043.92	0.00	7.20	1742.00	9680.00	10060.00	0.00	0.00	9621.20	10156.01
24.310	16000.00	2044.56	0.00	7.72	1742.00	9680.00	10060.00	0.00	0.00	9617.20	10167.70

FIGURE A

	SEC	Q	CWSEL	CRIWS	VCH	XLCH	CHL	STCHR	STENCL	STENCR	SSTA	ENDST
	24.550	5870.00	2053.96	0.00	7.15	1267.00	9970.00	10050.00	0.00	0.00	9653.15	10244.31
	24.550	8590.00	2054.09	2054.07	9.92	1267.00	9970.00	10050.00	0.00	0.00	9587.80	10246.54
	24.550	12600.00	2054.80	0.00	10.95	1267.00	9970.00	10050.00	0.00	0.00	9570.12	10258.92
	24.550	16000.00	2055.30	0.00	11.60	1267.00	9970.00	10050.00	0.00	0.00	9557.59	10267.69
*	24.780	4390.00	2063.22	2063.22	9.35	1214.00	9970.00	10040.00	0.00	0.00	9961.96	10276.08
	24.780	6400.00	2064.31	0.00	8.90	1214.00	9970.00	10040.00	0.00	0.00	9954.53	10280.78
	24.780	9390.00	2065.25	0.00	9.76	1214.00	9970.00	10040.00	0.00	0.00	9938.21	10283.11
	24.780	11800.00	2065.87	0.00	10.38	1214.00	9970.00	10040.00	0.00	0.00	9927.25	10284.68
	24.990	4390.00	2074.91	0.00	8.52	1109.00	9950.00	10060.00	0.00	0.00	9901.70	10059.43
*	24.990	6400.00	2075.77	2075.77	9.82	1109.00	9950.00	10060.00	0.00	0.00	9847.04	10204.17
*	24.990	9390.00	2076.73	2076.73	10.63	1109.00	9950.00	10060.00	0.00	0.00	9836.33	10235.50
*	24.990	11800.00	2077.30	2077.30	11.31	1109.00	9950.00	10060.00	0.00	0.00	9833.48	10239.78
	25.270	4390.00	2087.75	0.00	3.64	1478.00	9940.00	10190.00	0.00	0.00	9334.39	10659.37
	25.270	6400.00	2088.37	0.00	3.34	1478.00	9940.00	10190.00	0.00	0.00	9319.61	10667.56
	25.270	9390.00	2088.93	0.00	4.15	1478.00	9940.00	10190.00	0.00	0.00	9304.46	10678.57
	25.270	11800.00	2089.33	0.00	4.65	1478.00	9940.00	10190.00	0.00	0.00	9293.50	10686.54
	25.480	4390.00	2096.98	0.00	2.95	1109.00	9950.00	10050.00	0.00	0.00	9277.98	10734.89
	25.480	6400.00	2097.40	0.00	4.37	1109.00	9950.00	10050.00	0.00	0.00	9268.38	10737.03
	25.480	9390.00	2097.99	0.00	5.82	1109.00	9950.00	10050.00	0.00	0.00	9255.35	10739.92
	25.480	11800.00	2098.33	0.00	6.75	1109.00	9950.00	10050.00	0.00	0.00	9247.58	10741.65
*	25.770	3370.00	2119.22	2119.22	7.68	1531.00	9960.00	10140.00	0.00	0.00	9365.94	10399.25
*	25.770	4910.00	2119.59	2119.59	8.45	1531.00	9960.00	10140.00	0.00	0.00	9353.67	10409.06
*	25.770	7200.00	2120.08	2120.08	8.79	1531.00	9960.00	10140.00	0.00	0.00	9338.56	10505.49
*	25.770	9200.00	2120.35	2120.35	9.24	1531.00	9960.00	10140.00	0.00	0.00	9333.79	10523.66
*	25.920	3370.00	2130.00	2130.00	8.95	792.00	9980.00	10040.00	0.00	0.00	9982.50	10487.19
*	25.920	4910.00	2130.72	2130.72	9.68	792.00	9980.00	10040.00	0.00	0.00	9981.60	10507.66
*	25.920	7200.00	2131.47	2131.47	10.38	792.00	9980.00	10040.00	0.00	0.00	9980.66	10664.10
*	25.920	9200.00	2131.85	2131.85	11.33	792.00	9980.00	10040.00	0.00	0.00	9980.19	10675.35
*	26.140	3370.00	2142.67	2142.67	9.23	1162.00	9990.00	10025.00	0.00	0.00	9638.29	10249.06
*	26.140	4910.00	2143.16	2143.16	10.52	1162.00	9990.00	10025.00	0.00	0.00	9635.23	10260.48
*	26.140	7200.00	2143.71	2143.71	12.06	1162.00	9990.00	10025.00	0.00	0.00	9631.79	10273.33
*	26.140	9200.00	2144.25	2144.25	12.38	1162.00	9990.00	10025.00	0.00	0.00	9625.69	10280.31
*	26.300	3370.00	2152.51	2152.51	9.39	910.00	9980.00	10020.00	0.00	0.00	9324.36	10027.52
*	26.300	4910.00	2152.98	2152.98	10.98	910.00	9980.00	10020.00	0.00	0.00	9323.77	10028.31
*	26.300	7200.00	2153.61	2153.61	12.50	910.00	9980.00	10020.00	0.00	0.00	9322.98	10029.36
*	26.300	9200.00	2154.05	2154.05	13.68	910.00	9980.00	10020.00	0.00	0.00	9322.43	10030.09
*	26.480	3370.00	2163.13	2163.13	9.36	950.00	9970.00	10030.00	0.00	0.00	9294.36	10028.91
*	26.480	4910.00	2163.75	2163.75	10.09	950.00	9970.00	10030.00	0.00	0.00	9291.25	10029.69
*	26.480	7200.00	2164.41	2164.41	11.26	950.00	9970.00	10030.00	0.00	0.00	9286.95	10035.60
*	26.480	9200.00	2164.95	2164.95	11.65	950.00	9970.00	10030.00	0.00	0.00	9282.87	10043.07
*	26.720	3370.00	2177.72	2177.72	9.38	1267.00	9960.00	10035.00	0.00	0.00	9951.39	10214.30
*	26.720	4910.00	2178.35	2178.35	10.52	1267.00	9960.00	10035.00	0.00	0.00	9948.26	10215.87
*	26.720	7200.00	2179.06	2179.06	11.99	1267.00	9960.00	10035.00	0.00	0.00	9944.68	10217.66
*	26.720	9200.00	2179.63	2179.63	12.96	1267.00	9960.00	10035.00	0.00	0.00	9941.86	10295.10

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	[illegible]CHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	26.990	3370.00	2189.12	2189.12	8.81	898.00	9960.00	10040.00	0.00	0.00	9857.59	10220.42
*	26.990	4910.00	2189.74	2189.74	9.79	898.00	9960.00	10040.00	0.00	0.00	9845.23	10248.24
*	26.990	7200.00	2190.44	2190.44	10.86	898.00	9960.00	10040.00	0.00	0.00	9831.15	10279.91
*	26.890	9200.00	2190.90	2190.90	11.80	898.00	9960.00	10040.00	0.00	0.00	9822.02	10300.46
	27.000	3370.00	2194.73	2194.72	9.67	581.00	9960.00	10050.00	0.00	0.00	9862.25	10244.57
*	27.000	4910.00	2195.45	2195.46	10.57	581.00	9960.00	10050.00	0.00	0.00	9849.37	10259.29
*	27.000	7200.00	2196.44	2196.44	11.13	581.00	9960.00	10050.00	0.00	0.00	9800.17	10282.17
*	27.000	9200.00	2197.06	2197.06	11.72	581.00	9960.00	10050.00	0.00	0.00	9744.51	10299.18
*	27.320	1730.00	2219.19	2219.19	7.97	1690.00	9960.00	10040.00	0.00	0.00	9872.15	10033.92
*	27.320	2500.00	2219.69	2219.69	8.88	1690.00	9960.00	10040.00	0.00	0.00	9864.70	10037.65
*	27.320	3650.00	2220.28	2220.28	10.02	1690.00	9960.00	10040.00	0.00	0.00	9855.86	10048.96
*	27.320	4600.00	2220.73	2220.73	10.68	1690.00	9960.00	10040.00	0.00	0.00	9849.10	10063.61
*	27.510	1730.00	2234.38	2234.38	8.68	1003.00	9980.00	10025.00	0.00	0.00	9908.51	10135.75
*	27.510	2500.00	2235.11	2235.11	9.14	1003.00	9980.00	10025.00	0.00	0.00	9886.79	10146.60
*	27.510	3650.00	2235.73	2235.73	10.27	1003.00	9980.00	10025.00	0.00	0.00	9868.23	10155.89
*	27.510	4600.00	2236.20	2236.20	10.71	1003.00	9980.00	10025.00	0.00	0.00	9855.06	10161.48
*	27.640	1730.00	2243.43	2243.43	9.52	686.00	9980.00	10050.00	0.00	0.00	9981.42	10046.21
*	27.640	2500.00	2244.27	2244.27	10.44	686.00	9980.00	10050.00	0.00	0.00	9973.82	10056.18
*	27.640	3650.00	2245.50	2245.50	10.88	686.00	9980.00	10050.00	0.00	0.00	9946.32	10083.68
*	27.640	4600.00	2246.29	2246.29	11.22	686.00	9980.00	10050.00	0.00	0.00	9928.45	10101.55
*	27.760	1730.00	2252.71	2252.71	9.73	634.00	9980.00	10040.00	0.00	0.00	9978.23	10043.54
*	27.760	2500.00	2253.57	2253.57	10.79	634.00	9980.00	10040.00	0.00	0.00	9976.06	10047.87
*	27.760	3650.00	2254.65	2254.65	12.10	634.00	9980.00	10040.00	0.00	0.00	9973.37	10053.25
*	27.760	4600.00	2255.42	2255.42	13.00	634.00	9980.00	10040.00	0.00	0.00	9971.44	10057.11

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN	ALPHA
	16.690	44.67	10197.54	4357.79	2.65	9.22	7.87	1692.00	1677.06	.06	608.89	1672.50	1.03
	16.690	193.46	14571.80	6634.73	3.79	10.55	8.93	1692.00	1677.85	-.15	659.94	1672.50	1.04
*	16.690	575.07	20675.58	10049.35	4.95	12.10	10.09	1692.00	1678.78	-.22	720.81	1672.50	1.05
	16.690	1074.88	26329.96	13395.15	5.85	13.43	11.05	1692.00	1679.50	0.00	767.50	1672.50	1.07
*	16.870	5.71	12548.76	2045.53	1.68	8.66	4.36	1692.00	1688.55	0.00	1156.34	1682.00	1.16
*	16.870	50.85	16509.25	4839.90	2.70	9.14	4.14	1692.00	1689.29	0.00	1727.71	1682.00	1.34
*	16.870	165.45	20830.69	10303.86	3.41	9.55	4.39	1692.00	1690.08	0.00	2310.16	1682.00	1.44
*	16.870	280.28	24532.81	15986.91	3.92	10.24	5.00	1692.00	1690.52	0.00	2548.02	1682.00	1.41
	17.100	228.60	11936.40	2436.00	2.01	5.97	2.92	1702.50	1700.70	0.00	1877.70	1694.00	1.25
	17.100	591.98	15934.18	4873.85	2.91	6.93	3.50	1702.50	1701.17	0.00	2130.77	1694.00	1.29
	17.100	1207.60	21128.37	8964.03	3.84	8.06	4.34	1702.50	1701.67	0.00	2285.71	1694.00	1.27
	17.100	1929.11	25307.51	13563.38	4.43	8.64	4.88	1702.50	1702.16	0.00	2435.56	1694.00	1.25
*	17.300	846.42	10607.88	3145.70	3.79	9.56	4.66	1713.00	1710.14	0.00	983.24	1702.00	1.40
*	17.300	2038.90	12820.77	6540.33	4.15	9.69	4.57	1713.00	1711.17	0.00	1926.54	1702.00	1.48
*	17.300	3458.01	15965.45	11876.54	4.82	10.72	5.03	1713.00	1711.84	0.00	2065.63	1702.00	1.51
*	17.300	4984.71	18510.30	17304.99	5.56	11.54	5.70	1713.00	1712.30	0.00	2147.75	1702.00	1.44
	17.560	2064.54	12504.66	28.81	3.81	5.33	.61	1736.00	1720.18	0.00	1133.88	1711.00	1.07
	17.560	3411.47	17590.81	397.72	4.53	6.59	1.79	1736.00	1720.80	0.00	1180.25	1711.00	1.13
	17.560	5722.21	23930.84	1646.96	5.27	7.51	2.96	1736.00	1721.77	0.00	1253.62	1711.00	1.16
	17.560	8010.95	29562.47	3226.58	5.92	8.22	3.71	1736.00	1722.54	0.00	1311.95	1711.00	1.16
	17.780	0.00	14600.00	0.00	0.00	7.89	0.00	1760.00	1729.09	0.00	791.10	1722.00	1.00
	17.780	0.00	21400.00	0.00	0.00	8.14	0.00	1760.00	1730.07	0.00	802.27	1722.00	1.00
	17.780	0.00	31300.00	0.00	0.00	9.32	0.00	1760.00	1730.98	0.00	812.60	1722.00	1.00
	17.780	0.00	40800.00	0.00	0.00	10.27	0.00	1760.00	1731.73	0.00	821.17	1722.00	1.00
	18.060	17.83	14390.84	191.33	1.70	5.38	1.71	1760.00	1741.67	0.00	756.19	1733.00	1.05
	18.060	53.23	20716.58	630.20	2.41	6.61	2.56	1760.00	1742.42	0.00	873.24	1733.00	1.07
	18.060	146.78	29104.72	2048.50	3.15	7.65	3.22	1760.00	1743.53	0.00	1101.64	1733.00	1.13
	18.060	280.07	36304.40	4215.53	3.86	8.36	3.79	1760.00	1744.40	0.00	1228.11	1733.00	1.17
	18.340	.00	14597.10	2.90	.04	6.82	1.13	1780.00	1752.34	0.00	925.61	1746.00	1.00
	18.340	1.85	21319.65	78.50	1.94	7.21	2.29	1780.00	1753.23	0.00	967.08	1746.00	1.01
	18.340	7.86	30958.54	333.60	2.70	8.15	3.18	1780.00	1754.16	0.00	1009.85	1746.00	1.03
	18.340	16.99	40061.94	721.07	3.24	8.96	3.82	1780.00	1754.91	0.00	1044.01	1746.00	1.03
	18.720	.00	12441.72	658.28	.02	4.65	2.02	1780.00	1768.12	0.00	1179.54	1760.00	1.09
	18.720	.87	17531.34	1567.78	1.01	5.63	2.75	1780.00	1768.69	0.00	1226.74	1760.00	1.11
	18.720	7.55	24569.18	3523.27	1.77	6.55	3.62	1780.00	1769.51	0.00	1296.20	1760.00	1.11
	18.720	20.10	30379.71	5600.19	2.26	7.12	4.18	1780.00	1770.18	0.00	1352.42	1760.00	1.11
*	18.950	0.00	13100.00	0.00	0.00	9.71	0.00	1792.00	1778.21	0.00	460.14	1771.50	1.00
	18.950	0.00	19100.00	0.00	0.00	10.22	0.00	1792.00	1779.24	0.00	535.80	1771.50	1.00
*	18.950	7.09	28047.60	45.30	1.91	10.12	1.83	1792.00	1780.61	0.00	906.99	1771.50	1.02
*	18.950	49.06	35471.36	475.58	2.96	10.73	2.60	1792.00	1781.29	0.00	1182.23	1771.50	1.08
	19.160	422.22	12675.83	1.95	2.04	4.79	.69	1800.00	1788.44	0.00	907.97	1782.00	1.06
	19.160	1171.84	17893.87	34.28	2.71	5.53	1.43	1800.00	1789.32	0.00	1019.17	1782.00	1.09
	19.160	2769.52	25162.15	168.32	3.54	6.34	2.12	1800.00	1790.41	0.00	1079.06	1782.00	1.10
	19.160	4307.39	31345.33	347.28	4.20	7.03	2.59	1800.00	1791.13	0.00	1108.70	1782.00	1.10

	SECNO	QLOB	QCH	QROB	VLOB	VCH	V B	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN	ALPHA
*	19.380	0.00	13100.00	0.00	0.00	8.76	0.00	1816.50	1798.44	0.00	656.63	1792.00	1.00
*	19.380	0.00	19100.00	0.00	0.00	9.43	0.00	1816.50	1799.22	0.00	692.24	1792.00	1.00
*	19.380	0.00	28100.00	0.00	0.00	11.08	0.00	1816.50	1799.96	0.00	699.59	1792.00	1.00
*	19.380	351.72	35610.82	37.46	2.58	11.24	2.24	1816.50	1800.86	0.00	1015.61	1792.00	1.06
	19.580	0.00	13100.00	0.00	0.00	6.17	0.00	1824.00	1811.15	0.00	676.88	1804.50	1.00
	19.580	0.00	19100.00	0.00	0.00	7.22	0.00	1824.00	1811.89	0.00	723.25	1804.50	1.00
	19.580	53.51	28024.76	21.73	1.67	8.30	1.67	1824.00	1812.89	0.00	830.61	1804.50	1.02
	19.580	210.84	35720.50	68.66	1.83	9.67	2.39	1824.00	1813.33	0.00	1148.29	1804.50	1.05
	19.920	1349.87	11748.26	1.87	5.28	4.98	1.48	1840.00	1824.71	0.00	1300.23	1815.50	1.00
	19.920	1888.88	17201.51	9.60	5.48	5.53	2.10	1840.00	1825.35	0.00	1327.52	1815.50	1.00
	19.920	2762.24	25308.13	29.63	5.96	6.39	2.75	1840.00	1826.08	0.00	1358.26	1815.50	1.00
	19.920	3597.79	32340.59	61.62	5.93	6.69	3.09	1840.00	1826.82	0.00	1390.02	1815.50	1.01
	20.230	1950.03	10069.15	1080.82	4.22	6.22	5.59	1851.50	1840.32	0.00	1198.72	1834.00	1.05
	20.230	3289.87	14207.56	1602.57	5.47	7.43	6.72	1851.50	1840.71	0.00	1241.87	1834.00	1.04
	20.230	5430.40	20287.30	2382.29	6.69	8.63	7.61	1851.50	1841.28	0.00	1267.71	1834.00	1.03
*	20.230	7256.67	25660.97	3082.36	7.85	9.94	8.65	1851.50	1841.59	0.00	1281.39	1834.00	1.03
	20.390	1914.92	9387.60	1797.48	4.19	5.11	6.79	1860.00	1848.33	0.00	1217.46	1842.00	1.05
	20.390	3116.30	13703.39	2280.31	4.81	5.71	6.74	1860.00	1849.01	0.00	1252.00	1842.00	1.02
	20.390	4928.27	20070.01	3101.71	5.68	6.60	6.94	1860.00	1849.77	0.00	1291.36	1842.00	1.01
	20.390	6578.24	25552.14	3869.61	6.15	7.06	6.82	1860.00	1850.45	0.00	1326.86	1842.00	1.01
	20.730	654.80	12435.30	9.90	3.29	7.12	1.23	1876.00	1863.95	0.00	840.13	1855.00	1.08
	20.730	1503.81	17425.64	170.54	4.67	8.35	2.48	1876.00	1864.49	0.00	1007.48	1855.00	1.10
	20.730	3081.99	24231.70	786.32	5.83	9.43	3.73	1876.00	1865.23	0.00	1381.01	1855.00	1.12
*	20.730	4766.87	29567.73	1645.39	5.69	10.12	4.57	1876.00	1865.76	0.00	1682.17	1855.00	1.17
	21.000	3063.02	10035.15	1.83	5.61	5.87	.52	1884.00	1877.14	0.00	945.73	1865.50	1.00
	21.000	4446.70	14422.39	230.91	6.11	6.51	1.65	1884.00	1877.90	0.00	1231.75	1865.50	1.06
	21.000	6424.20	20360.87	1294.93	6.60	7.39	2.94	1884.00	1878.71	0.00	1445.53	1865.50	1.10
	21.000	8311.76	25207.60	2480.64	6.60	8.09	3.70	1884.00	1879.24	0.00	1835.43	1865.50	1.12
	21.240	0.00	13100.00	0.00	0.00	6.16	0.00	1900.00	1887.52	0.00	641.90	1879.50	1.00
	21.240	.39	19093.75	.86	.65	7.38	.65	1900.00	1888.22	0.00	677.49	1879.50	1.00
	21.240	30.86	28001.20	67.93	2.01	8.82	2.01	1900.00	1889.11	0.00	748.68	1879.50	1.02
	21.240	115.23	35631.14	253.62	2.82	9.80	2.83	1900.00	1889.81	0.00	804.52	1879.50	1.04
	21.590	0.00	12925.36	174.64	0.00	5.82	2.87	1920.00	1905.64	0.00	1067.59	1898.00	1.02
	21.590	0.00	18600.87	499.12	0.00	5.85	3.50	1920.00	1906.52	0.00	1352.35	1898.00	1.02
	21.590	0.00	27070.28	1029.71	0.00	6.21	3.99	1920.00	1907.38	0.00	1563.49	1898.00	1.02
	21.590	0.00	34502.39	1497.61	0.00	6.70	4.28	1920.00	1907.95	0.00	1592.18	1898.00	1.02
	21.850	1.05	12126.48	972.47	1.14	5.30	3.32	1940.00	1920.50	0.00	1286.44	1913.00	1.04
	21.850	7.57	17142.61	1949.82	1.97	6.05	4.30	1940.00	1921.01	0.00	1443.61	1913.00	1.03
	21.850	29.65	24400.54	3669.81	2.90	6.72	5.47	1940.00	1921.66	0.00	1700.48	1913.00	1.02
	21.850	52.20	31008.38	4939.42	3.41	7.53	6.12	1940.00	1922.02	0.00	1722.90	1913.00	1.02
	22.060	0.00	13024.58	75.42	0.00	6.17	1.45	1940.00	1929.76	0.00	741.10	1920.50	1.03
	22.060	0.00	18206.81	893.19	0.00	6.46	2.64	1940.00	1930.84	0.00	1121.18	1920.50	1.10
	22.060	0.00	24739.85	3360.15	0.00	6.58	3.89	1940.00	1932.02	0.00	1410.98	1920.50	1.08
	22.060	0.00	30394.67	5605.33	0.00	6.88	4.56	1940.00	1932.71	0.00	1561.49	1920.50	1.06

SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TFLMX	CWSEL	DIFKWS	TOPWID	ELMIN	ALPHA
22.250	0.00	13100.00	0.00	0.00	6.85	0.00	1960.00	1938.33	0.00	583.37	1931.00	1.00
22.250	0.00	19100.00	0.00	0.00	7.83	0.00	1960.00	1939.22	0.00	615.99	1931.00	1.00
22.250	.18	28095.41	4.40	.99	8.79	1.04	1960.00	1940.38	0.00	736.70	1931.00	1.00
22.250	4.72	35881.94	113.34	2.31	9.19	2.42	1960.00	1941.28	0.00	949.95	1931.00	1.02
22.620	951.15	10129.28	19.57	3.63	7.43	3.04	1984.00	1961.60	0.00	800.19	1954.00	1.11
22.620	2194.63	13957.67	47.70	4.62	8.31	3.72	1984.00	1962.26	0.00	824.95	1954.00	1.12
22.620	4479.04	19210.82	110.14	5.64	9.07	4.36	1984.00	1963.18	0.00	859.25	1954.00	1.10
22.620	6589.26	23231.72	179.03	6.17	9.41	4.69	1984.00	1963.90	0.00	886.59	1954.00	1.09
22.810	1069.67	10030.32	0.00	2.89	5.30	0.00	1996.00	1971.32	0.00	896.08	1962.00	1.09
22.810	2110.46	14089.54	0.00	3.56	6.12	0.00	1996.00	1971.99	0.00	959.56	1962.00	1.09
22.810	4021.67	19770.95	7.38	4.54	7.17	1.30	1996.00	1972.75	0.00	1025.86	1962.00	1.09
22.810	5684.63	24286.73	28.64	5.21	7.98	1.88	1996.00	1973.23	0.00	1067.87	1962.00	1.08
23.090	1058.20	6376.89	3664.91	3.72	6.90	5.69	2000.00	1982.56	0.00	735.29	1975.00	1.10
23.090	2068.55	8694.77	5436.68	4.80	7.76	6.50	2000.00	1983.29	0.00	741.48	1975.00	1.07
23.090	3735.16	11978.82	8086.02	5.94	8.70	7.41	2000.00	1984.24	0.00	749.80	1975.00	1.05
23.090	5193.19	14560.11	10246.70	6.64	9.28	7.99	2000.00	1984.96	0.00	756.47	1975.00	1.04
* 23.420	10.45	9581.77	1507.78	1.25	7.17	5.12	2020.00	2000.48	0.00	607.93	1994.00	1.05
23.420	134.81	13547.05	2518.13	2.16	8.53	6.26	2020.00	2001.18	0.00	733.66	1994.00	1.07
23.420	729.92	19050.39	4019.69	3.77	9.72	7.57	2020.00	2001.97	0.00	760.80	1994.00	1.09
23.420	1390.68	23361.70	5247.63	4.79	10.71	8.48	2020.00	2002.50	0.00	778.84	1994.00	1.09
23.720	0.00	5870.00	0.00	0.00	4.77	0.00	2020.00	2015.18	0.00	435.35	2008.50	1.00
23.720	.00	8590.00	.00	.02	5.34	.02	2020.00	2016.02	0.00	461.70	2008.50	1.00
23.720	27.31	12547.20	25.49	1.37	6.06	1.37	2020.00	2017.03	0.00	534.66	2008.50	1.02
23.720	114.79	15778.07	107.14	1.92	6.53	1.92	2020.00	2017.78	0.00	589.31	2008.50	1.05
23.980	258.89	5561.17	49.94	3.22	7.16	1.97	2040.00	2025.13	0.00	337.62	2020.00	1.11
23.980	618.44	7776.47	195.09	4.25	8.37	2.84	2040.00	2025.86	0.00	381.20	2020.00	1.15
23.980	1290.90	10775.45	533.66	5.32	9.82	3.79	2040.00	2026.65	0.00	468.43	2020.00	1.19
23.980	1992.01	13100.07	907.92	5.91	10.80	4.42	2040.00	2027.20	0.00	522.28	2020.00	1.22
* 24.310	92.68	5622.71	154.61	4.37	7.82	4.37	2064.00	2041.68	0.00	447.27	2038.00	1.04
24.310	254.88	7909.93	425.19	3.72	6.44	3.72	2064.00	2043.02	0.00	500.88	2038.00	1.06
24.310	484.64	11306.87	808.49	4.20	7.20	4.21	2064.00	2043.92	0.00	536.81	2038.00	1.07
24.310	752.08	13992.30	1255.62	4.87	7.72	4.86	2064.00	2044.56	0.00	550.50	2038.00	1.07
24.550	784.96	3660.00	1425.04	2.29	7.15	3.50	2080.00	2053.96	0.00	591.17	2046.00	1.64
24.550	1276.45	5178.37	2135.17	3.29	9.92	4.94	2080.00	2054.09	0.00	658.74	2046.00	1.64
24.550	2865.65	6335.66	3398.69	4.31	10.95	5.90	2080.00	2054.60	0.00	688.80	2046.00	1.54
24.550	4367.20	7179.15	4453.64	5.03	11.60	6.53	2080.00	2055.30	0.00	710.10	2046.00	1.46
* 24.780	54.12	3086.64	1249.23	4.19	9.35	4.33	2100.00	2063.22	0.00	314.12	2058.00	1.39
24.780	102.80	3620.78	2476.41	4.29	8.90	4.86	2100.00	2064.31	0.00	326.25	2058.00	1.29
24.780	204.46	4608.03	4577.51	4.44	9.76	5.90	2100.00	2065.25	0.00	344.90	2058.00	1.22
24.780	317.47	5357.08	6125.45	4.58	10.38	6.60	2100.00	2065.87	0.00	357.43	2058.00	1.19
24.990	36.68	4353.32	0.00	1.75	8.52	0.00	2100.00	2074.91	0.00	154.63	2067.50	1.06
* 24.990	299.24	5931.30	169.46	3.15	9.82	2.17	2100.00	2075.77	0.00	357.12	2067.50	1.33
* 24.990	919.11	7557.15	913.74	4.55	10.63	3.78	2100.00	2076.73	0.00	399.17	2067.50	1.43
* 24.990	1442.17	8744.01	1613.82	5.39	11.31	4.70	2100.00	2077.30	0.00	406.30	2067.50	1.39

FIGURE A

	SECNO	QLOR	QCH	QROR	VLOR	VCH	VROR	TFLMX	CWSEL	DIFKWS	TOPWID	ELMIN	ALPHA
	25.270	2221.25	374.78	1793.97	5.03	3.64	4.11	2108.00	2087.75	0.00	656.71	2082.00	1.04
	25.270	2901.63	670.60	2227.78	5.05	3.34	3.99	2108.00	2088.37	0.00	932.38	2082.00	1.06
	25.270	3822.42	1350.78	4216.80	5.23	4.15	4.32	2108.00	2088.93	0.00	1041.74	2082.00	1.03
	25.270	4533.26	1958.22	5308.52	5.22	4.65	4.53	2108.00	2089.33	0.00	1111.15	2082.00	1.01
	25.480	1774.51	62.58	2552.90	5.94	2.95	4.93	2107.00	2096.98	0.00	469.13	2091.50	1.04
	25.480	2468.35	161.64	3770.01	6.62	4.37	5.89	2107.00	2097.40	0.00	526.72	2091.50	1.02
	25.480	3491.88	353.60	5544.52	7.02	5.82	6.76	2107.00	2097.99	0.00	604.83	2091.50	1.00
	25.480	4344.18	514.54	6941.28	7.37	6.75	7.43	2107.00	2098.33	0.00	687.66	2091.50	1.00
*	25.770	1599.28	1750.44	20.28	3.86	7.68	1.67	2121.50	2119.22	0.00	609.84	2116.00	1.42
*	25.770	2571.90	2275.31	62.79	4.31	8.45	2.27	2121.50	2119.59	0.00	657.95	2116.00	1.42
*	25.770	4131.94	2892.87	175.18	4.75	8.79	2.61	2121.50	2120.08	0.00	855.52	2116.00	1.37
*	25.770	5471.55	3375.49	352.96	5.31	9.24	2.83	2121.50	2120.35	0.00	963.43	2116.00	1.32
*	25.920	0.00	2752.36	617.64	0.00	8.95	2.35	2138.00	2130.00	0.00	404.68	2123.00	1.90
*	25.920	0.00	3380.11	1529.89	0.00	9.68	2.81	2138.00	2130.72	0.00	497.86	2123.00	2.22
*	25.920	0.00	4084.36	3115.64	0.00	10.38	3.35	2138.00	2131.47	0.00	675.36	2123.00	2.23
*	25.920	0.00	4710.08	4489.92	0.00	11.33	3.85	2138.00	2131.85	0.00	695.16	2123.00	2.16
*	26.140	750.58	1693.86	925.56	2.91	9.23	2.96	2155.00	2142.67	0.00	436.74	2137.00	2.35
*	26.140	1221.79	2110.73	1577.48	3.47	10.52	3.71	2155.00	2143.16	0.00	476.57	2137.00	2.18
*	26.140	1974.44	2653.86	2571.70	4.17	12.06	4.61	2155.00	2143.71	0.00	518.34	2137.00	1.99
*	26.140	2756.27	2954.22	3489.51	4.51	12.38	5.04	2155.00	2144.25	0.00	598.84	2137.00	1.83
*	26.300	1611.59	1694.59	63.42	3.53	9.39	3.74	2160.00	2152.51	0.00	330.82	2148.00	1.91
*	26.300	2631.37	2188.22	90.42	4.42	10.98	4.37	2160.00	2152.98	0.00	352.96	2148.00	1.78
*	26.300	4263.59	2805.81	130.60	5.36	12.50	4.97	2160.00	2153.61	0.00	382.63	2148.00	1.66
*	26.300	5721.64	3312.14	166.21	6.04	13.68	5.45	2160.00	2154.05	0.00	403.29	2148.00	1.59
*	26.480	1480.80	1389.20	0.00	4.07	9.36	0.00	2171.00	2163.13	0.00	307.64	2159.50	1.59
*	26.480	2499.67	2410.33	0.00	4.68	10.09	0.00	2171.00	2163.75	0.00	355.67	2159.50	1.51
*	26.480	4065.84	3133.03	1.13	5.35	11.26	1.00	2171.00	2164.41	0.00	487.48	2159.50	1.49
*	26.480	5567.46	3622.09	10.45	5.48	11.65	1.68	2171.00	2164.95	0.00	583.52	2159.50	1.50
*	26.720	19.81	2289.37	1060.82	2.68	9.38	4.30	2186.00	2177.72	0.00	250.35	2174.00	1.43
*	26.720	45.19	3061.27	1803.54	3.28	10.52	5.04	2186.00	2178.35	0.00	267.60	2174.00	1.43
*	26.720	93.59	4133.14	2973.27	3.99	11.99	6.10	2186.00	2179.06	0.00	272.97	2174.00	1.39
*	26.720	146.99	5016.41	4036.59	4.47	12.96	6.62	2186.00	2179.63	0.00	287.40	2174.00	1.36
*	26.890	264.61	2551.30	554.09	2.72	8.81	3.48	2200.00	2189.12	0.00	327.64	2184.00	1.61
*	26.890	579.34	3319.82	1010.84	3.53	9.79	3.81	2200.00	2189.74	0.00	392.56	2184.00	1.70
*	26.890	1081.33	4295.75	1822.92	4.32	10.86	4.32	2200.00	2190.44	0.00	448.76	2184.00	1.71
*	26.890	1523.72	5095.87	2580.42	4.90	11.80	4.81	2200.00	2190.90	0.00	476.45	2184.00	1.69
	27.000	1032.74	2323.78	13.48	5.49	9.67	1.69	2220.00	2194.73	0.00	201.98	2191.00	1.24
*	27.000	1626.67	3199.05	84.28	6.14	10.57	2.62	2220.00	2195.46	0.00	241.35	2191.00	1.27
*	27.000	2527.85	4336.16	332.99	6.51	11.13	3.51	2220.00	2196.44	0.00	348.55	2191.00	1.33
*	27.000	3318.67	5222.54	658.78	6.58	11.72	3.81	2220.00	2197.06	0.00	458.32	2191.00	1.41
*	27.320	314.84	1415.16	0.00	3.35	7.97	0.00	2234.00	2219.19	0.00	161.77	2216.00	1.33
*	27.320	588.46	1911.54	0.00	4.22	8.88	0.00	2234.00	2219.69	0.00	172.95	2216.00	1.30
*	27.320	1023.00	2625.95	1.05	5.16	10.02	.85	2234.00	2220.28	0.00	193.09	2216.00	1.27
*	27.320	1401.10	3185.28	13.62	5.68	10.68	1.59	2234.00	2220.73	0.00	214.51	2216.00	1.29

	SECND	QLOB	QCH	QPOB	VLOB	VCH	[illegible]	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN	ALPHA
*	27.510	247.16	1418.46	64.38	2.90	8.68	1.96	2250.00	2234.38	0.00	185.65	2230.50	1.67
*	27.510	467.85	1791.83	240.32	3.23	9.14	2.45	2250.00	2235.11	0.00	259.81	2230.50	1.92
*	27.510	781.18	2299.82	569.00	3.75	10.27	3.23	2250.00	2235.73	0.00	287.66	2230.50	1.97
*	27.510	1084.45	2625.18	890.37	4.10	10.71	3.72	2250.00	2236.20	0.00	306.43	2230.50	1.91
*	27.640	0.00	1730.00	0.00	0.00	9.52	0.00	2264.00	2243.43	0.00	64.79	2239.50	1.00
*	27.640	.74	2498.53	.74	.87	10.44	.87	2264.00	2244.27	0.00	82.36	2239.50	1.01
*	27.640	57.48	3535.04	57.48	2.28	10.88	2.28	2264.00	2245.50	0.00	137.36	2239.50	1.21
*	27.640	165.93	4268.13	165.93	2.81	11.22	2.81	2264.00	2246.29	0.00	173.10	2239.50	1.38
*	27.760	1.00	1726.94	2.07	1.59	9.73	1.65	2274.00	2252.71	0.00	65.32	2249.00	1.02
*	27.760	7.82	2475.95	16.23	2.52	10.79	2.62	2274.00	2253.57	0.00	71.81	2249.00	1.05
*	27.760	29.82	3558.33	61.85	3.40	12.10	3.52	2274.00	2254.65	0.00	79.88	2249.00	1.10
*	27.760	57.45	4423.38	119.17	3.92	13.00	4.07	2274.00	2255.42	0.00	85.67	2249.00	1.14

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
	16.690	0.00	0.00	1678.27	1.21	0.00	0.00	101.72	0.00	4.56	37.00	35.00	37.00
	16.690	0.00	0.00	1679.41	1.56	0.00	0.00	99.09	0.00	5.35	37.00	35.00	37.00
*	16.690	0.00	0.00	1680.80	2.02	0.00	0.00	98.09	0.00	6.28	37.00	35.00	37.00
	16.690	0.00	0.00	1681.95	2.45	0.00	0.00	100.67	0.00	7.00	37.00	35.00	37.00
*	16.870	900.00	10.56	1689.59	1.04	10.83	.05	144.57	37.17	6.55	45.00	43.00	45.00
*	16.870	900.00	10.56	1690.35	1.06	9.60	.15	120.18	53.38	7.29	45.00	43.00	45.00
*	16.870	900.00	10.56	1691.12	1.04	9.00	.29	101.90	76.45	8.08	45.00	43.00	45.00
*	16.870	900.00	10.56	1691.66	1.13	9.18	.39	103.40	93.16	8.52	45.00	43.00	45.00
	17.100	1214.00	9.88	1701.17	.48	11.41	.17	65.46	105.49	6.70	45.00	43.00	45.00
	17.100	1214.00	9.88	1701.77	.60	11.28	.14	73.11	150.38	7.17	45.00	43.00	45.00
	17.100	1214.00	9.88	1702.45	.77	11.25	.08	83.20	211.73	7.67	45.00	43.00	45.00
	17.100	1214.00	9.88	1703.01	.86	11.27	.08	82.22	260.08	8.16	45.00	43.00	45.00
*	17.300	1056.00	7.58	1711.34	1.21	9.36	.36	120.69	166.92	8.14	45.00	43.00	45.00
*	17.300	1056.00	7.58	1712.17	1.00	8.57	.20	85.38	240.61	9.17	45.00	43.00	45.00
*	17.300	1056.00	7.58	1712.94	1.10	9.43	.16	89.38	333.46	9.84	45.00	43.00	45.00
*	17.300	1056.00	7.58	1713.51	1.21	9.64	.18	93.77	409.22	10.30	45.00	43.00	45.00
	17.560	1373.00	6.55	1720.59	.41	9.01	.24	41.17	243.86	9.18	50.00	48.00	50.00
	17.560	1373.00	6.55	1721.41	.61	9.12	.12	52.82	349.84	9.80	50.00	48.00	50.00
	17.560	1373.00	6.55	1722.53	.76	9.49	.10	54.30	483.49	10.77	50.00	48.00	50.00
	17.560	1373.00	6.55	1723.43	.88	9.82	.10	55.38	591.18	11.54	50.00	48.00	50.00
	17.760	1162.00	9.47	1730.06	.97	9.19	.28	210.22	307.61	7.09	50.00	48.00	50.00
	17.780	1162.00	9.47	1731.10	1.03	9.49	.21	142.90	433.35	8.07	50.00	48.00	50.00
	17.780	1162.00	9.47	1732.33	1.35	9.50	.30	137.55	592.33	8.98	50.00	48.00	50.00
	17.780	1162.00	9.47	1733.37	1.64	9.56	.38	135.66	721.26	9.73	50.00	48.00	50.00
	18.060	1478.00	7.44	1742.11	.44	11.90	.16	42.26	386.15	8.67	50.00	48.00	50.00
	18.060	1478.00	7.44	1743.08	.66	11.87	.11	51.58	535.02	9.42	50.00	48.00	50.00
	18.060	1478.00	7.44	1744.38	.86	11.91	.15	53.31	723.76	10.53	50.00	48.00	50.00
	18.060	1478.00	7.44	1745.39	.99	11.83	.19	53.45	879.41	11.40	50.00	48.00	50.00
	18.340	1478.00	8.80	1753.06	.72	10.81	.14	155.69	470.09	6.34	50.00	48.00	50.00
	18.340	1478.00	8.80	1754.04	.81	10.88	.07	113.13	643.88	7.23	50.00	48.00	50.00
	18.340	1478.00	8.80	1755.18	1.02	10.72	.08	103.47	867.23	8.16	50.00	48.00	50.00
	18.340	1478.00	8.80	1756.14	1.23	10.63	.12	100.65	1054.13	8.91	50.00	48.00	50.00
	18.720	2006.00	6.98	1768.44	.32	15.26	.12	42.83	587.81	8.12	50.00	48.00	50.00
	18.720	2006.00	6.98	1769.15	.46	15.01	.10	51.55	796.09	8.69	50.00	48.00	50.00
	18.720	2006.00	6.98	1770.11	.61	14.81	.12	54.34	1063.45	9.51	50.00	48.00	50.00
	18.720	2006.00	6.98	1770.88	.71	14.59	.16	54.02	1287.20	10.18	50.00	48.00	50.00
*	18.950	1214.00	9.47	1779.67	1.46	10.22	.57	235.55	648.42	6.71	50.00	48.00	50.00
	18.950	1214.00	9.47	1780.86	1.62	11.14	.58	207.08	873.35	7.74	50.00	48.00	50.00
*	18.950	1214.00	9.47	1782.20	1.59	11.42	.49	201.27	1168.19	9.11	50.00	48.00	50.00
*	18.950	1214.00	9.47	1783.05	1.76	10.91	.53	178.63	1414.11	9.79	50.00	48.00	50.00
	19.160	1109.00	9.47	1788.79	.35	8.78	.33	39.29	701.93	6.44	50.00	48.00	50.00
	19.160	1109.00	9.47	1789.77	.45	8.56	.35	39.97	944.10	7.32	50.00	48.00	50.00
	19.160	1109.00	9.47	1790.98	.58	8.48	.30	40.00	1265.19	8.41	50.00	48.00	50.00
	19.160	1109.00	9.47	1791.83	.70	8.46	.32	42.16	1529.93	9.13	50.00	48.00	50.00

	SEC	XLCH	K*CHSL	EG	HV	HL	LOSS	10K*S	VOL	DEPTH	K*XNL	K*XNC	K*XNR
*	19.380	1162.00	8.61	1799.64	1.19	8.97	.42	215.46	760.01	6.44	45.00	43.00	45.00
*	19.380	1162.00	8.61	1800.61	1.38	8.57	.46	178.97	1020.46	7.22	45.00	43.00	45.00
*	19.380	1162.00	8.61	1801.87	1.91	8.68	.66	185.59	1363.62	7.96	45.00	43.00	45.00
*	19.380	1162.00	8.61	1802.80	1.94	8.22	.62	142.12	1649.38	8.86	45.00	43.00	45.00
	19.580	1056.00	11.84	1811.74	.59	11.93	.18	69.35	803.89	6.65	45.00	43.00	45.00
	19.580	1056.00	11.84	1812.70	.81	11.93	.17	77.69	1077.05	7.39	45.00	43.00	45.00
	19.580	1056.00	11.84	1813.96	1.07	11.84	.25	75.03	1435.84	8.39	45.00	43.00	45.00
	19.580	1056.00	11.84	1814.77	1.44	11.82	.15	90.31	1736.32	8.83	45.00	43.00	45.00
	19.920	1795.00	6.13	1825.10	.39	13.30	.06	81.59	900.24	9.21	45.00	43.00	45.00
	19.920	1795.00	6.13	1825.83	.47	13.02	.10	69.63	1201.01	9.65	45.00	43.00	45.00
	19.920	1795.00	6.13	1826.70	.63	12.61	.13	67.60	1595.01	10.58	45.00	43.00	45.00
	19.920	1795.00	6.13	1827.50	.68	12.51	.23	56.76	1924.02	11.32	45.00	43.00	45.00
	20.230	1637.00	11.30	1840.86	.54	15.68	.08	113.50	992.40	6.32	45.00	43.00	45.00
	20.230	1637.00	11.30	1841.48	.78	15.50	.15	135.42	1318.13	6.71	45.00	43.00	45.00
	20.230	1637.00	11.30	1842.33	1.05	15.42	.21	139.21	1744.03	7.28	45.00	43.00	45.00
*	20.230	1637.00	11.30	1842.97	1.39	14.74	.35	162.90	2099.71	7.59	45.00	43.00	45.00
	20.390	845.00	9.47	1848.76	.43	7.87	.03	76.89	1040.44	6.33	45.00	43.00	45.00
	20.390	845.00	9.47	1849.51	.51	7.95	.08	67.39	1379.38	7.01	45.00	43.00	45.00
	20.390	845.00	9.47	1850.42	.65	7.97	.12	65.75	1822.31	7.77	45.00	43.00	45.00
	20.390	845.00	9.47	1851.19	.73	8.02	.20	59.70	2190.84	8.45	45.00	43.00	45.00
	20.730	1795.00	7.24	1864.70	.76	15.76	.16	102.60	1133.04	8.95	45.00	43.00	45.00
	20.730	1795.00	7.24	1865.51	1.02	15.74	.25	120.16	1499.56	9.49	45.00	43.00	45.00
	20.730	1795.00	7.24	1866.48	1.26	15.76	.30	124.70	1979.18	10.23	45.00	43.00	45.00
*	20.730	1795.00	7.24	1867.15	1.39	14.71	.33	121.08	2382.58	10.76	45.00	43.00	45.00
	21.000	1426.00	7.36	1877.67	.52	12.89	.07	82.38	1200.85	11.64	45.00	43.00	45.00
	21.000	1426.00	7.36	1878.53	.63	12.91	.11	72.41	1589.17	12.40	45.00	43.00	45.00
	21.000	1426.00	7.36	1879.48	.78	12.86	.14	69.83	2099.99	13.21	45.00	43.00	45.00
	21.000	1426.00	7.36	1880.12	.88	12.82	.15	71.03	2530.57	13.74	45.00	43.00	45.00
	21.240	1267.00	11.05	1888.10	.59	10.41	.03	80.34	1265.31	8.02	50.00	48.00	50.00
	21.240	1267.00	11.05	1889.06	.85	10.43	.11	92.48	1672.48	8.72	50.00	48.00	50.00
	21.240	1267.00	11.05	1890.32	1.20	10.62	.21	100.50	2208.57	9.61	50.00	48.00	50.00
	21.240	1267.00	11.05	1891.29	1.48	10.87	.30	103.58	2660.10	10.31	50.00	48.00	50.00
	21.590	1848.00	10.01	1906.16	.52	18.04	.02	121.42	1358.64	7.64	50.00	48.00	50.00
	21.590	1848.00	10.01	1907.04	.52	17.86	.10	101.76	1797.41	8.52	50.00	48.00	50.00
	21.590	1848.00	10.01	1907.97	.59	17.46	.19	89.55	2373.97	9.38	50.00	48.00	50.00
	21.590	1848.00	10.01	1908.62	.68	17.10	.24	83.74	2855.28	9.95	50.00	48.00	50.00
	21.850	1373.00	10.92	1920.91	.42	14.72	.03	95.72	1435.01	7.50	50.00	48.00	50.00
	21.850	1373.00	10.92	1921.55	.54	14.50	.01	110.47	1901.13	8.01	50.00	48.00	50.00
	21.850	1373.00	10.92	1922.33	.67	14.32	.04	124.15	2513.92	8.66	50.00	48.00	50.00
	21.850	1373.00	10.92	1922.86	.84	14.15	.08	131.42	3018.92	9.02	50.00	48.00	50.00
	22.060	1109.00	6.76	1930.35	.59	9.35	.09	73.88	1496.17	9.26	50.00	48.00	50.00
	22.060	1109.00	6.76	1931.46	.62	9.87	.04	71.56	1984.91	10.34	50.00	48.00	50.00
	22.060	1109.00	6.76	1932.64	.62	10.30	.02	69.45	2631.01	11.52	50.00	48.00	50.00
	22.060	1109.00	6.76	1933.38	.67	10.47	.05	68.13	3158.16	12.21	50.00	48.00	50.00

	SECND	XLCH	K*CHSL	FG	HV	HL	OL	S	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
	22.250	1003.00	10.47	1939.06	.73	8.64		.07	101.78	1543.04	7.33	50.00	48.00	50.00
	22.250	1003.00	10.47	1940.17	.95	8.54		.16	103.20	2049.19	8.22	50.00	48.00	50.00
	22.250	1003.00	10.47	1941.58	1.20	8.65		.29	110.58	2720.67	9.38	50.00	48.00	50.00
	22.250	1003.00	10.47	1942.58	1.31	8.88		.32	120.76	3268.11	10.28	50.00	48.00	50.00
	22.620	1954.00	11.77	1962.41	.80	23.31		.04	143.84	1623.51	7.60	50.00	48.00	50.00
	22.620	1954.00	11.77	1963.23	.97	23.06		.01	136.06	2154.40	8.26	50.00	48.00	50.00
	22.620	1954.00	11.77	1964.30	1.12	22.70		.02	118.87	2861.45	9.18	50.00	48.00	50.00
	22.620	1954.00	11.77	1965.10	1.20	22.48		.03	104.43	3441.08	9.90	50.00	48.00	50.00
	22.810	1003.00	7.98	1971.72	.41	9.20		.12	63.55	1668.33	9.32	50.00	48.00	50.00
	22.810	1003.00	7.98	1972.53	.53	9.16		.13	65.59	2212.65	9.99	50.00	48.00	50.00
	22.810	1003.00	7.98	1973.47	.72	9.05		.12	70.84	2937.21	10.75	50.00	48.00	50.00
	22.810	1003.00	7.98	1974.11	.88	8.92		.10	76.75	3529.93	11.23	50.00	48.00	50.00
	23.090	1478.00	8.80	1983.17	.61	11.35		.10	96.68	1737.22	7.56	50.00	48.00	50.00
	23.090	1478.00	8.80	1984.06	.77	11.42		.12	94.72	2300.87	8.29	50.00	48.00	50.00
	23.090	1478.00	8.80	1985.21	.97	11.62		.13	90.41	3049.56	9.24	50.00	48.00	50.00
	23.090	1478.00	8.80	1986.07	1.11	11.84		.11	86.40	3659.43	9.96	50.00	48.00	50.00
*	23.420	1742.00	10.91	2001.22	.75	17.98		.07	115.02	1804.92	6.48	50.00	48.00	50.00
	23.420	1742.00	10.91	2002.17	1.00	18.00		.11	119.38	2387.03	7.18	50.00	48.00	50.00
	23.420	1742.00	10.91	2003.30	1.33	17.91		.18	126.73	3159.71	7.97	50.00	48.00	50.00
	23.420	1742.00	10.91	2004.10	1.60	17.79		.25	133.29	3786.88	8.50	50.00	48.00	50.00
	23.720	1584.00	9.15	2015.53	.35	14.19		.12	59.88	1857.12	6.68	50.00	48.00	50.00
	23.720	1584.00	9.15	2016.46	.44	14.12		.17	56.40	2454.37	7.52	50.00	48.00	50.00
	23.720	1584.00	9.15	2017.60	.57	14.06		.23	51.79	3247.00	8.53	50.00	48.00	50.00
	23.720	1584.00	9.15	2018.44	.65	14.05		.28	48.88	3889.32	9.28	50.00	48.00	50.00
	23.980	1373.00	8.38	2025.89	.76	10.15		.20	94.01	1890.29	5.13	50.00	48.00	50.00
	23.980	1373.00	8.38	2026.86	1.01	10.12		.28	101.13	2497.50	5.86	50.00	48.00	50.00
	23.980	1373.00	8.38	2027.99	1.34	10.01		.38	111.55	3303.11	6.65	50.00	48.00	50.00
	23.980	1373.00	8.38	2028.76	1.57	9.87		.46	118.04	3956.18	7.20	50.00	48.00	50.00
*	24.310	1742.00	10.33	2042.60	.92	26.00		.08	273.06	1923.40	3.68	50.00	48.00	50.00
	24.310	1742.00	10.33	2043.63	.61	16.68		.12	90.70	2548.42	5.02	50.00	48.00	50.00
	24.310	1742.00	10.33	2044.67	.75	16.51		.18	81.83	3369.97	5.92	50.00	48.00	50.00
	24.310	1742.00	10.33	2045.42	.86	16.44		.21	77.54	4035.40	6.56	50.00	48.00	50.00
	24.550	1267.00	6.31	2054.51	.55	11.80		.11	46.13	1953.38	7.96	50.00	48.00	50.00
	24.550	1267.00	6.31	2055.13	1.04	11.28		.22	86.47	2588.92	8.09	50.00	48.00	50.00
	24.550	1267.00	6.31	2055.94	1.15	11.07		.20	91.85	3424.50	8.80	50.00	48.00	50.00
	24.550	1267.00	6.31	2056.53	1.23	10.93		.19	94.33	4100.33	9.30	50.00	48.00	50.00
*	24.780	1214.00	9.88	2064.26	1.04	7.81		.24	116.35	1979.40	5.22	50.00	48.00	50.00
	24.780	1214.00	9.88	2065.17	.85	9.48		.06	79.73	2620.75	6.31	50.00	48.00	50.00
	24.780	1214.00	9.88	2066.24	1.00	10.25		.05	78.64	3467.18	7.25	50.00	48.00	50.00
	24.780	1214.00	9.88	2066.99	1.12	10.43		.03	79.05	4150.87	7.87	50.00	48.00	50.00
	24.990	1109.00	8.57	2076.03	1.12	11.73		.04	98.64	1993.97	7.41	50.00	48.00	50.00
*	24.990	1109.00	8.57	2077.16	1.40	10.02		.27	106.02	2642.81	8.27	50.00	48.00	50.00
*	24.990	1109.00	8.57	2078.20	1.47	9.71		.24	100.17	3498.05	9.23	50.00	48.00	50.00
*	24.990	1109.00	8.57	2078.88	1.57	9.79		.23	101.15	4187.49	9.80	50.00	48.00	50.00

FIGURE A

	SECN	XLCH	K*CHSL	EG	HV	HL	JSS	10K*S	VOL	DEPTH	K*XNL	K*XNCR	K*XNR
	25.270	1478.00	9.81	2086.08	.32	11.61	.24	76.59	2017.43	5.75	50.00	35.00	50.00
	25.270	1478.00	9.81	2088.68	.31	11.19	.33	64.57	2678.29	6.37	50.00	35.00	50.00
	25.270	1478.00	9.81	2089.27	.34	10.73	.34	62.22	3548.30	6.93	50.00	35.00	50.00
	25.270	1478.00	9.81	2089.70	.36	10.46	.36	58.71	4248.16	7.33	50.00	35.00	50.00
	25.480	1109.00	8.57	2097.42	.44	9.28	.06	95.73	2040.21	5.48	50.00	35.00	50.00
	25.480	1109.00	8.57	2097.99	.59	9.16	.14	113.96	2710.09	5.90	50.00	35.00	50.00
	25.480	1109.00	8.57	2098.71	.72	9.25	.19	122.04	3591.10	6.49	50.00	35.00	50.00
	25.480	1109.00	8.57	2099.18	.84	9.24	.24	132.15	4299.13	6.83	50.00	35.00	50.00
*	25.770	1531.00	16.00	2119.81	.59	16.08	.07	122.66	2066.12	3.22	50.00	35.00	50.00
*	25.770	1531.00	16.00	2120.26	.67	18.29	.04	130.73	2743.82	3.59	50.00	35.00	50.00
*	25.770	1531.00	16.00	2120.77	.69	18.53	.01	122.99	3636.97	4.08	50.00	35.00	50.00
*	25.770	1531.00	16.00	2121.11	.75	19.85	.03	130.13	4353.26	4.35	50.00	35.00	50.00
*	25.920	792.00	8.84	2131.03	1.03	5.99	.22	50.46	2077.40	7.00	50.00	35.00	50.00
*	25.920	792.00	8.84	2131.76	1.04	6.20	.19	51.18	2760.25	7.72	50.00	35.00	50.00
*	25.920	792.00	8.84	2132.49	1.03	6.08	.17	51.52	3660.76	8.47	50.00	35.00	50.00
*	25.920	792.00	8.84	2132.98	1.13	6.66	.19	57.71	4381.74	8.85	50.00	35.00	50.00
*	26.140	1162.00	12.05	2143.41	.73	6.07	.09	55.11	2094.75	5.67	50.00	35.00	50.00
*	26.140	1162.00	12.05	2144.02	.85	6.52	.06	63.56	2784.69	6.16	50.00	35.00	50.00
*	26.140	1162.00	12.05	2144.74	1.02	7.01	.00	74.02	3694.32	6.71	50.00	35.00	50.00
*	26.140	1162.00	12.05	2145.25	1.01	7.24	.04	69.96	4422.43	7.25	50.00	35.00	50.00
*	26.300	910.00	12.09	2153.30	.78	5.48	.03	65.54	2109.54	4.51	50.00	35.00	50.00
*	26.300	910.00	12.09	2153.99	1.00	6.44	.07	78.54	2803.53	4.98	50.00	35.00	50.00
*	26.300	910.00	12.09	2154.83	1.22	7.32	.10	86.82	3718.48	5.61	50.00	35.00	50.00
*	26.300	910.00	12.09	2155.46	1.41	7.39	.20	94.14	4451.48	6.05	50.00	35.00	50.00
*	26.480	950.00	12.11	2164.00	.87	7.05	.05	96.40	2121.73	3.63	50.00	35.00	50.00
*	26.480	950.00	12.11	2164.70	.95	7.52	.02	91.71	2819.30	4.25	50.00	35.00	50.00
*	26.480	950.00	12.11	2165.52	1.11	7.95	.03	93.94	3739.10	4.91	50.00	35.00	50.00
*	26.480	950.00	12.11	2166.06	1.11	7.92	.09	86.77	4476.62	5.45	50.00	35.00	50.00
*	26.720	1267.00	11.44	2178.74	1.02	12.43	.07	101.62	2137.00	3.72	50.00	35.00	50.00
*	26.720	1267.00	11.44	2179.56	1.22	12.07	.13	101.07	2839.86	4.35	50.00	35.00	50.00
*	26.720	1267.00	11.44	2180.59	1.52	12.42	.21	104.75	3766.24	5.06	50.00	35.00	50.00
*	26.720	1267.00	11.44	2181.37	1.74	11.92	.32	104.91	4510.16	5.63	50.00	35.00	50.00
*	26.890	898.00	11.14	2190.07	.95	8.07	.02	78.20	2147.99	5.12	50.00	35.00	50.00
*	26.890	898.00	11.14	2190.81	1.08	8.08	.04	78.28	2854.95	5.74	50.00	35.00	50.00
*	26.890	898.00	11.14	2191.65	1.21	8.25	.09	78.54	3786.55	6.44	50.00	35.00	50.00
*	26.890	898.00	11.14	2192.26	1.36	8.47	.12	82.32	4534.38	6.90	50.00	35.00	50.00
	27.000	581.00	12.05	2195.87	1.14	5.70	.10	125.17	2154.60	3.73	50.00	35.00	50.00
*	27.000	581.00	12.05	2196.79	1.33	5.57	.13	118.13	2864.17	4.46	50.00	35.00	50.00
*	27.000	581.00	12.05	2197.84	1.40	5.12	.09	98.11	3799.63	5.44	50.00	35.00	50.00
*	27.000	581.00	12.05	2198.53	1.47	5.07	.06	91.13	4550.56	6.06	50.00	35.00	50.00
*	27.320	1690.00	14.79	2220.03	.84	20.25	.09	109.98	2168.36	3.19	50.00	35.00	50.00
*	27.320	1690.00	14.79	2220.69	1.00	19.68	.10	112.90	2882.69	3.69	50.00	35.00	50.00
*	27.320	1690.00	14.79	2221.51	1.24	17.49	.05	115.19	3825.49	4.28	50.00	35.00	50.00
*	27.320	1690.00	14.79	2222.11	1.38	16.38	.03	110.28	4582.98	4.73	50.00	35.00	50.00

	SECNO	XLCH	K*CHSL	EG	HV	HL	SS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
*	27.510	1003.00	14.46	2235.36	.98	9.21	.07	75.50	2174.92	3.88	50.00	35.00	50.00
*	27.510	1003.00	14.46	2236.08	.97	8.64	.01	65.75	2892.07	4.61	50.00	35.00	50.00
*	27.510	1003.00	14.46	2236.83	1.10	9.01	.04	69.57	3838.10	5.23	50.00	35.00	50.00
*	27.510	1003.00	14.46	2237.32	1.12	8.66	.08	67.01	4598.30	5.70	50.00	35.00	50.00
*	27.640	686.00	13.12	2244.84	1.41	6.67	.21	129.69	2178.57	3.93	50.00	35.00	50.00
*	27.640	686.00	13.12	2245.97	1.69	5.97	.36	120.05	2897.45	4.77	50.00	35.00	50.00
*	27.640	686.00	13.12	2247.28	1.78	5.33	.34	86.73	3845.90	6.00	50.00	35.00	50.00
*	27.640	686.00	13.12	2248.11	1.82	4.87	.35	74.66	4608.22	6.79	50.00	35.00	50.00
*	27.760	634.00	14.98	2254.18	1.47	8.08	.03	125.40	2181.20	3.71	50.00	35.00	50.00
*	27.760	634.00	14.98	2255.37	1.79	7.27	.05	109.56	2900.94	4.57	50.00	35.00	50.00
*	27.760	634.00	14.98	2256.87	2.22	5.87	.22	99.06	3850.96	5.65	50.00	35.00	50.00
*	27.760	634.00	14.98	2257.95	2.53	5.29	.35	93.96	4614.63	6.42	50.00	35.00	50.00

SUMMARY OF ERRORS

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CAUTION  SECNO=  20.780  PROFILE= 4  CRITICAL DEPTH ASSUMED
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CAUTION  SECNO=   27.320  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.320  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.320  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.320  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.320  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   27.510  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.510  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.510  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.510  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.510  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.510  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.510  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.510  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   27.640  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.640  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.640  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.640  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.640  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.640  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.640  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.640  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.640  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   27.760  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.760  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.760  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.760  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.760  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   27.760  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   27.760  PROFILE= 4  CRITICAL DEPTH ASSUMED
                          PROFILE= 4  MINIMUM SPECIFIC ENERGY
```

FIGURE A

FLOOD INSUR CE ZONE DATA FOR SKUNK CREEK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND[10[	2[	0.2[
16.690	0.	-1.7	-.9	.7
16.870	900.	-1.5	-.8	.4
17.100	2114.	-1.0	-.5	.5
17.300	3170.	-1.7	-.7	.5
17.560	4543.	-1.6	-1.0	.8
17.780	5705.	-1.9	-.9	.8
18.060	7183.	-1.9	-1.1	.9
18.340	8661.	-1.8	-.9	.7
18.720	10667.	-1.4	-.8	.7
18.950	11881.	-2.4	-1.4	.7
19.160	12990.	-2.0	-1.1	.7
19.380	14152.	-1.5	-.7	.9
19.580	15208.	-1.7	-1.0	.4
19.920	17003.	-1.4	-.7	.7
20.230	18640.	-1.0	-.6	.3
20.390	19485.	-1.4	-.8	.7
20.730	21280.	-1.3	-.7	.5
21.000	22706.	-1.6	-.8	.5
21.240	23973.	-1.6	-.9	.7
21.590	25821.	-1.7	-.9	.6
21.850	27194.	-1.2	-.6	.4
22.060	28303.	-2.3	-1.2	.7
22.250	29306.	-2.1	-1.2	.9
22.620	31260.	-1.6	-.9	.7
22.810	32263.	-1.4	-.8	.5
23.090	33741.	-1.7	-1.0	.7
23.420	35483.	-1.5	-.8	.5
23.720	37057.	-1.9	-1.0	.5
23.980	38440.	-1.5	-.8	.5
24.310	40192.	-2.2	-.9	.6
24.550	41449.	-.8	-.7	.5
24.780	42663.	-2.0	-.9	.6
24.990	43772.	-1.8	-1.0	.6
25.270	45250.	-1.2	-.6	.4
25.480	46360.	-1.0	-.6	.3
25.770	47890.	-.9	-.5	.3
25.920	48682.	-1.5	-.8	.4
26.140	49844.	-1.0	-.6	.5
26.300	50754.	-1.1	-.6	.4
26.480	51704.	-1.3	-.7	.5
26.720	52971.	-1.3	-.7	.6
26.890	53869.	-1.3	-.7	.5
27.000	54450.	-1.7	-1.0	.6
27.320	56140.	-1.1	-.6	.5
27.510	57143.	-1.3	-.6	.5
27.640	57829.	-2.1	-1.2	.8
27.760	58463.	-1.9	-1.1	.8
WEIGHTED AVG FOR REACH		-1.5	-.8	.6

FHF FOR THE REACH = .015 WITH 93.8% OF THE REACH WITHIN -5 FEET

FIGURE A

```
SNUMB = H7552              XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 X    X         XXXXXX         XXXXX          XXXXX          XXXX
 X    X              X         X              X            X    X
 XXXXXX             X          XXXXX          XXXXX             X
 X    X           X               X               X          XXX
 X    X         X              X   X          X    X        X
 X    X        X                XXXX           XXXX        XXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

$$    H7552 ENTERED MCISSD AT 13.594 FROM SYSTEM-0 REMOTE  0-08-10

0001 $      SNUMB   H7552
0002 $      IDENT   95999911,157
0003 $$     USERID  HIGHWAY$
0004 $$     SELECT  HIGHWAY/JCL/HEC2
0005 1$     IDENT   95205111,157HIGHWAY
0006 1$     OPTION  FORTRAN
0007 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-START
0008 2$     OBJECT  ******************************************Y10.588103180......00
0009 2$     DKEND                                                           ......08
0010 1$$    SELECT  HIGHWAY/HEC2/H2-UPDATE
0011 2$     OBJECT                                            Y07.767082680H2MAIN00
0012 2$     DKEND                                                          H2MAIN16
0013 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-ADPTS
0014 2$     OBJECT                                            Y14.442050577ADDPTS00
0015 2$     DKEND                                                          ADDPTS23
0016 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-BLFLO
0017 2$     OBJECT                                            Y15.799103080BLFLO000
0018 2$     DKEND                                                          BLFLO121
0019 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-BLOCK
0020 2$     OBJECT                                            Y15.807103080BLOCK000
0021 2$     DKEND                                                          BLOCK018
0022 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-BWEIR
0023 2$     OBJECT                                            Y15.814103080BWEIR000
0024 2$     DKEND                                                          BWEIR152
0025 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-CARD
0026 2$     OBJECT                                            Y15.824103080CARD0000
0027 2$     DKEND                                                          CARD0216
0028 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-CHIMP
0029 2$     OBJECT                                            Y15.835103080CHIMP000
0030 2$     DKEND                                                          CHIMP165
0031 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-DC
0032 2$     OBJECT                                            Y15.845103080DC000000
0033 2$     DKEND                                                          DC000109
0034 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-DONE
0035 2$     OBJECT                                            Y15.852103080DONE0000
0036 2$     DKEND                                                          DONE0010
0037 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-FLDHZ
0038 2$     OBJECT                                            Y15.858103080FLDHAZ00
0039 2$     DKEND                                                          FLDHAZ38
0040 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-FLDIS
0041 2$     OBJECT                                            Y10.496103180FLDIS00
0042 2$     DKEND                                                          FLDIS42
0043 1$$    SELECT  MCISSD/OBJECT/HIGHWAY/H2-BDATA
```

FIGURE E

```
0045 2$      DKEND                                                    00000010
0046 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-NEAR
0047 2$      OBJECT                                   Y10.513103180NEAR0000
0048 2$      DKEND                                                    NEAR0005
0049 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-PRIAH
0050 2$      OBJECT                                   Y12.891050977PRIAH000
0051 2$      DKEND                                                    PRIAH017
0052 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-PROF
0053 2$      OBJECT                                   Y10.553103180PROF0000
0054 2$      DKEND                                                    PROF0046
0055 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-SCALE
0056 2$      OBJECT                                   Y12.927050977SCALE000
0057 2$      DKEND                                                    SCALE019
0058 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-SLARA
0059 2$      OBJECT                                   Y10.570103180SLARA000
0060 2$      DKEND                                                    SLARA080
0061 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-SUMPO
0062 2$      OBJECT                                   Y15.868103080SUMPO000
0063 2$      DKEND                                                    SUMPO151
0064 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-XSEC
0065 2$      OBJECT                                   Y15.878103080XSEC0000
0066 2$      DKEND                                                    XSEC0079
0067 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-YCRIT
0068 2$      OBJECT                                   Y14.822021578YCRIT000
0069 2$      DKEND                                                    YCRIT014
0070 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-MAPIT
0071 2$      OBJECT                                   Y14.139050977MAPIT000
0072 2$      DKEND                                                    MAPIT010
0073 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-QVAR
0074 2$      OBJECT                                   Y11.454021578QVAR0000
0075 2$      DKEND                                                    QVAR0007
0076 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-SAVIT
0077 2$      OBJECT                                   Y14.246050977SAVEIT00
0078 2$      DKEND                                                    SAVEIT08
0079 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-PRINTS
0080 2$      OBJECT                                   Y10.539103180PRINTS00
0081 2$      DKEND                                                    PRINTS73
0082 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-PAGER
0083 2$      OBJECT                                   Y10.526103180PAGER000
0084 2$      DKEND                                                    PAGER016
0085 1$$     SELECT  MCISSD/OBJECT/HIGHWAY/H2-BANNER
0086 2$      OBJECT                                   Y10.481103180BANNER00
0087 2$      DKEND                                                    BANNER16
0088A1$      EXECUTE
0089 1$      LIMITS  10,50K,,25000
0090 1$      FILE    11,X1R,10L
0091 1$      FILE    12,X2S,10L
0092 1$      FILE    13,X3R,5L
0093 1$      FILE    14,X4R,7L
0094 1$      FILE    15,X5R,5L
0095 1$      FILE    16,X6R,5L
0096 1$      SYSOUT  07,ORG
0097 1$      SYSOUT  42,ORG
0098 1$      DATA    05
0099  $      ENDJOB
  TOTAL CARD COUNT THIS JOB = 002434

* ACTY-01  $CARD &0088  GELOAD   09/11/81   SW=000000000000
  * NORMAL TERMINATION     AT 035263 I=5000 SW=000000000000

      START 13.630      LINES    879      PROC  0.0024      I/O   0.004    IU  5   MEMORY   50K
      STOP  13.640      LIMIT  25000      LIMIT 0.1000     LIMIT            CU  5   M*T      2036
      SWAP   0.000
      LAPSE  0.010 FC D   TYPE     BUSY    IP/AT    FP/R1    IS/&C MS/&E    ADDRESS T&/PK&
```

FIGURE E

```
R* R MSU450 *   8067    0    0   207   207   1-08-07
11 R MSU450 *    417    0    0   120   120   0-12-04
12 R MSU450 *    267    0    0   120   120   0-12-05
13 R MSU450 *     55    0    0    60    60   0-12-15
14 R MSU450 *     40    0    0    84    84   1-08-06
15 R MSU450 *    789    0    7    60    60   1-08-07
16 R MSU450 *     37    0    0    60    60   1-12-08
07     SYOUT
42     SYOUT
P*     SYOUT
L* R MSU450 *   2205    0    0  1000  1000R  0-12-04
*L R MSU450 *     75    0    0   200   200R  1-12-22

LIST    193 LINES AT STA.  HI
RC-52   659 LINES AT STA.  HI
RC-06    27 LINES AT STA.  HI
```

JB = H7552, ACTIVITY & = 01, , REPORT CODE = 74, RE:O COUNT = 000193

5

```
ORIGIN   DATE MODULE ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION

                          SUBPROGRAMS INCLUDED IN DECK.

                         $       OPTION  FORTRAN
143736 10/31/80 .... ...... 143736
       BLOCK COMMON   .DATA. 143730     CONTRL 143710
117220 08/26/80 H2MA H2MAIN 117220
       BLOCK COMMON   .DATA. 115050     UNITS  115046     PRINTC 114652     NAMES  114450     CONTRL 143710
                      CICARD 114424     DOUBLE 114412
113752 05/05/77 ADDP ADDPTS 113752
                      .DATA. 113670
112076 10/30/80 BLFL BLFLO  112076
       BLOCK COMMON   .DATA. 111706     CONTRL 143710     DOUBLE 114412
111422 10/30/80 BLOC BLOCK  111422
                      .DATA. 111310
106752 10/30/80 BWEI BWEIR  106752
       BLOCK COMMON   .DATA. 106440     CONTRL 143710     DOUBLE 114412
102014 10/30/80 CARD CARD   102014
       BLOCK COMMON   .DATA. 101530     CICARD 114424     CONTRL 143710     DOUBLE 114412
076640 10/30/80 CHIM CHIMP  076640
       BLOCK COMMON   .DATA. 076400     CONTRL 143710     DOUBLE 114412
075130 10/30/80 DC00 DC     075130
       BLOCK COMMON   .DATA. 074770     CONTRL 143710     DOUBLE 114412
074656 10/30/80 DONE DONE   074656
       BLOCK COMMON   .DATA. 074646     CONTRL 143710
071256 10/30/80 FLDH FLDHAZ 071256
       BLOCK COMMON   .DATA. 070300     CONTRL 143710     UNITS  115046
067416 10/31/80 FLOD FLODIS 067416
       BLOCK COMMON   .DATA. 067270     CONTRL 143710
       BLOCK COMMON   NAMES  114450     CONTRL 143710
067236 10/31/80 NEAR NEAR   067236
                      .DATA. 067226
066752 05/09/77 PRIA PRIAH  066752
                      .DATA. 066676
065612 10/31/80 PROF PROF   065612
                      .DATA. 065050
064506 05/09/77 SCAL SCALE  064506
                      .DATA. 064440
064050 10/31/80 SLAR SLARA  064050
       BLOCK COMMON   .DATA. 064000     CONTRL 143710     DOUBLE 114412
060110 10/30/80 SUMP SUMPO  060110
       BLOCK COMMON   .DATA. 057140     CONTRL 143710     NAMES  114450
055334 10/30/80 XSEC XSEC   055334
       BLOCK COMMON   .DATA. 055070     UNITS  115046
054650 02/15/78 YCRI YCRIT  054650
                      .DATA. 054616
054504 05/09/77 MAPI MAPIT  054504
                      .DATA. 054450
054402 02/15/78 QVAR QVAR   054402
                      .DATA. 054360
054302 05/09/77 SAVE SAVEIT 054302
                      .DATA. 054260
051214 10/31/80 PRIN PRINTS 051214
       BLOCK COMMON   .DATA. 050630     NAMES  114450     CONTRL 143710     DOUBLE 114412     PRINTC 114652
050470 10/31/80 PAGE PAGER  050470
```

```
ORIGIN   DATE MODULE ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION

                     .DATA. 050332
050274 10/31/80 BANN BANNER 050274
       BLOCK COMMON  .DATA. 047774    CONTRL 143710

                     SUBPROGRAMS OBTAINED FROM SYSTEM LIBRARY      *L

                     SUBPROGRAMS OBTAINED FROM SYSTEM LIBRARY      L*
047606 76/06/11 FWRP .CE.L. 047667    .FEXIT 047606    .WLIST 047672    .WLEND 047704    .FDSLD 047705
                     .ABRT. 047665    EXIT   047606
047470 78/05/04 FALC .FDSGT 047470    .FDSRL 047542    .FDSCH 047577
047070 77/01/23 GSM3 .GCORE 047070    .GCORB 047111    .GSGGP 047433
       BLOCK COMMON  SS.SCW 047066
046516 77/01/23 GSM4 .GALLO 046516    .GALL8 046520    .GTSSB 047013
       BLOCK COMMON  SS.SCW 047066
046150 77/12/05 GSM5 .GFREE 046150    .GFRSS 046160
       BLOCK COMMON  SS.SCW 047066
046144 76/06/11 FSTP .FDSET 046144    FDUMP  046145    FDEBUG 046145
046040 75/09/10 FDTM DATIM  046043
045662 78/02/02 F1XP .FXP1  045662
045550 78/11/22 F3XP .FXP3  045550    POW    045550
045460 76/01/05 FSQR SQRT   045460    .SQRT  045462
045274 77/03/14 FALG ALOG   045274    ALOG2  045316    ALOG10 045305    .ALG10 045310    .FALOG 045277
                     .ALOG2 045322    .ALOG1 045274
045124 76/01/05 FEXP EXP    045124    EXP2   045136    EXP10  045131    .EXP2  045141    .EXP   045127
                     .EXP1  045124
045010 74/05/19 FSLO .FSLO. 045010    .FSDO. 045015    .FSLI. 045021    .FSDI. 045025    .FSII. 045031
                     .FSIO. 045035    .FSRI. 045041    .FSRO. 045045    .FS2I. 045051    .FS2O. 045055
                     .FSBI. 045065    .FSBO. 045071    .FSCI. 045075    .FSCO. 045075    .FX2I. 045061
                     .FX2O. 045063
043700 77/10/20 FRDB .FRDB. 044210    .FWRB. 043773    .FBLT. 044510    .FBDT. 044474    .FRLR. 044373
                     .FWLR. 044426    .FBBC. 044336    .FBBCA 044334    .FBLI. 044526    .FBSI. 044526
                     .FXDI. 044526    .FBDI. 044530    .FBLO. 044532    .FBSO. 044532    .FXDO. 044532
                     .FBDO. 044534
043332 78/06/01 FRDD .FRDD. 043520    .FWRD. 043521    .FPUN. 043522    .FENC. 043523    .FDEC. 043524
                     .FRCD. 043525    .FPRN. 043526    .FRTN. 043527    .FFIL. 043530    .DBCNV 043531
                     .BDCNV 043555    ..ABLK 043346    .QCOMP 043376    ..LNSZ 043406    ..A37R 043504
                     .PRNIT 043350    .ASTRK 043674    ..TC   043352    .POINT 043373    .SIGN  043374
                     .FRMTR 043574    .FRMTZ 043574    .PUINT 043351    .FILL  043404    ..A2   043336
                     ..A7   043402    ..A1   043336    ..A3   043347    ..A4   043400    ..A8   043404
                     ..A9   043407    ..A13  043410    ..A14  043411    ..A15  043412    ..A17  043413
                     ..A18  043336    ..A21  043416    ..A24  043336    ..A30  043573    ..A31  043427
                     ..A27  043424    ..A32  043452    ..A33  043454    ..A34  043455    ..A35  043456
                     ..A37  043500    ..A40  043505    ..A41  043517    .LPRCH 043340    .CMACH 043342
                     .ECHR  043343    .RPRCH 043341    .UPPRT 043344    .UPPRF 043345    .LWRT  043344
                     .LWRF  043345    .OCT60 043337    ..A52  043332    .FXMC. 043333    ..A51  043334
                     .RCW18 043426
037476 79/01/26 FDIO .FRD   042467    .FWRT  042366    .FPN   042361    .FNC   042620    .FDC   042652
                     .FCD   042467    .FPR   042366    .FFL   042601    .FRT   042560    .IO1   042201
                     .IO5   042320    .LBCTR 043237    .EFDBC 043322    .FCNVI 040315    .FCNVR 040324
                     .FCNV2 040416    .SKPB1 040274    .INCTR 043324    .CKSTA 040525    .FMSC1 037531
                     .FMSC2 037517    .FMSC4 037534    .FMSC5 037571    .FMSC6 037543    .EFFLG 043323
                     .SVRG  037502    .RETIN 037515    .GTARG 042376    .SXIT  037606    .INIT2 042443
                     .LNBGN 042700    .SKPB4 040303    .VLIST 040230    .CSCFP 037624    .CFFXD 037614
                     .FEFLT 037676    .FDFLT 037675    .CSLSH 042164    .CDCPT 040425    .CSCFM 037622
```

ORIGIN	DATE	MODULE	ENTRY	LOCATION	ENTRY	LOCATION	ENTRY	LOCATION	ENTRY	LOCATION	ENTRY	LOCATION
			.CCMMA	037640	.CRPAR	037734	.CLPAR	037700	.LBUFF	043240	.SKPB3	040311
			.CKSTP	040506	..CKST	040517	.DATUM	043216	..STOP	040755	.VCOMA	041414
			..CCR	041427	NASTRK	042770	YASTRK	042773	.CN1	040555	.FWSZ	043311
			.FCNV.	040374	.STP	040735	.FCNVD	040333	.FCNVL	040343	.FCNVC	040352
037422	74/01/11	FEOF	.FEOF.	037422								
037250	77/10/20	FSLW	.FSLEW	037250								
037054	78/05/04	FEFT	.FEFT.	037054	.FRWT.	037061	.FEFTS	037066				
036520	78/02/02	FXEM	FXEM	036531	.FXEM.	036530	.F.XE	036541	F.XMC	036671	.TAB1	037024
			.LSTMS	037034	.KIND	036644	.BUGG	036643	.MXERR	036532	..FX1	036534
			..FX2	036556	..FX3	036564	..FX10	036653	.LRG	036600	..FX8	036564
			..FX9	036555	.CLLR	037000	.EYDEE	037002	..FX4	036566	..FX5	036565
			..FX6	036631	..FX7	036660						
035300	78/09/20	FXER	.FXM.	035320	F.XM	035775	ANYERR	036146	FXOPT	036030	FXDVCK	036070
			.FGERR	036017	FXALT	036105	.FXALT	036117	S.REG.	035310	.FERTN	035774
			.FUFIN	036511	FXDV	036460	FXFDV	036456	FXCODE	035752	.ISMS	036121
			.MSX	036125	.FXPNT	035653	.FXTRC	035415	.FXSW1	035754	.FXSW2	035760
			.FXSW3	035764	ERRLK	036154	.FLTPR	036156				
035220	76/02/27	FXIT	.FTERM	035220	FTERM	035220	JEXIT	035220	.JEXIT	035220		
034470	78/05/04	FOPE	.FOPEN	034517	.FBAD.	034512	.FXOP.	034740	.FGTFB	034513	.FJOV.	034515
034232	07/04/65	FDPT	.FIDO.	034346								
034030	75/09/10	FSLI	.FSLII	034062	.FSLIO	034032	.FSLIB	034030	.FXFLG	034064		
033666	79/01/26	FSTU	.FSETU	033720	.SETU.	033720	.RCOV	033707	.FBFTB	033676	FPARAM	033666
			.FMDB.	033710	.FTL	033716	.FLTX1	033716	.LINSZ	033711		
033656	75/09/16	FBCD	.ASCB.	033656	.ASCB	033656						
033454	03/05/73	FTAB	.GTAB.	033454								
033450	75/09/16	FMXN	.MXNO	033450	.NMXNO	033451	.GFLG	033452	.FRENT	033453		
033366	01/03/66	GWAI	.GWAIT	033366	.GAWAI	033366	WAIT	033366				
033336	01/03/66	GSTI	.GSTIN	033336	SETIN	033336						
033224	76/02/12	GSTO	.GSTOT	033224	SETOUT	033224						
033154	07/07/69	GWRC	.GWTRC	033154	.GAWTR	033154	WTREC	033154				
032416	78/04/02	GGTB	.GGTBK	032416	GETBK	032416	.GGET	032420	GET	032420	.GAGTB	032416
			.GAGET	032420	.GRC01	032422						
032410	07/07/69	GRMT	.GOPNR	032410	.GCLSR	032410	.GGETR	032410	.GPUTR	032410		
031652	78/06/01	GPTB	.GCOPY	031652	COPY	031652	.GPTBK	031655	PUTBK	031655	.GPUT	031660
			PUT	031660	.GACOP	031652	.GAPTB	031655	.GAPUT	031660	.GFR67	032363
			.GPSAV	031663								
031554	01/03/66	GPSZ	.GPTSZ	031554	.GAPTS	031554	PUTSZ	031554				
030736	77/04/07	GOPE	.GOPEN	030736	.GACPE	030736	.GPSZ	031546	.GLPPP	031546	OPEN	030736
030730	04/29/72	GRNT	.GXREA	030730	.GXWRT	030730	.GXLAB	030730	.GXOPN	030731		
030214	78/12/07	GCLO	.GCLSE	030214	.GACLS	030214	.GR185	030340	.GR186	030447	.GR178	030345
			CLOSE	030214	.GBCLS	030214						
030114	07/07/69	GREL	.GRLSE	030114	.GARLS	030114	RELSE	030114				
027730	78/12/07	G20R	.GR200	027730								
027642	77/04/07	G25R	.GR225	027642								
027564	76/02/12	G50R	.GR250	027564								
027312	75/02/03	G27R	.GR275	027312								
027144	77/10/20	G37R	.GR377	027202	.GR375	027144	.GR37X	027221	.GR390	027241		
027122	74/12/03	G60R	.GR960	027127	.GABTB	027122						
026776	77/10/20	G80R	.GR980	026776	.GR979	027114	.GR99X	027002	.GR984	027062	.GR985	027114
			.GR999	027006								
026744	75/04/11	G90R	.GR990	026744	.GR991	026765						
026020	77/10/20	GLAB	.GINHD	026025	.GOUTH	026024	.GINTL	026023	.GOUTL	026022	.GUSWH	026021
			.GOVRL	026026	.GLREA	026126	.GRCVY	026020	.GRPRV	026060		
026016	03/07/66	GINI	.GINID	026016								

```
ORIGIN   DATE MODULE ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION    ENTRY LOCATION

025602 74/12/04 GCVT .GATOB 025700     .GBTOA 025605     BCDASC 025605     ASCBCD 025700     .GATB. 025755
                     .GBTA. 026000
                                              RANGE                SIZE
                     ALLOCATED CORE    000000 THRU 143777        144000
                        RELOCATABLE    025602 THRU 143777        116176
                        COMMON         000100 THRU 015144        015045
                     $       FILE     11,X1R,10L
                     $       FILE     12,X2S,10L
                     $       FILE     13,X3R,5L
                     $       FILE     14,X4R,7L
                     $       FILE     15,X5R,5L
                     $       FILE     16,X6R,5L
                     $       SYSOUT   07,ORG
                     $       SYSOUT   42,ORG
                     $       DATA     05

                     FCB AND BUFFER SPACE
                        AVAILABLE      015146 THRU 025601        010434
                        FILE CTRL BLKS 025144 THRU 025601        000436
                        MAXIMUM BUFFER SPACE REQUIRED            006713

                         50K, IS THE MINIMUM MEMORY NEEDED TO LOAD THIS ACTIVITY WITH ALL FILES OPEN     781110
                     001554 LOCATIONS REQUIRED FOR LOAD TABLE
                     EXECUTION PROGRAM ENTERED AT 143736 THROUGH .FSETU
```

SNUMB = H7552, ACTIVITY & = 01, , REPORT CODE = 52, RECORD COUNT = 000659

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*****************************************************
* WATER SURFACE PROFILES                            *
* VERSION OF NOVEMBER 1976                          *
* UPDATED APRIL 1980                                *
*                                                   *
* RUN DATE 09/11/81      TIME    13.637             *
*****************************************************
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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
```

FIGURE B

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1      SKUNK CREEK - CAREFREE HIGHWAY BRIDGE
T2
T3      400 - FOOT  BRIDGE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       2.        0.        0.  -1.000000     0.        0.        0.   1658.000    0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1.000     0.       -1.000     0.        0.        0.        0.        0.        0.        0.

NC    0.045     0.045     0.035     0.100     0.300     0.        0.        0.        0.        0.
QT    2.000 21400.000 31300.000     0.        0.        0.        0.        0.        0.        0.

X1   16.200    25.000  9630.000 10350.000   500.000   580.000   540.000     0.        0.        0.
X3   10.000     0.        0.        0.        0.        0.        0.        0.        0.        0.
GR 1670.000  8770.000 1666.000  8830.000 1664.000  8970.000 1663.500  9220.000 1664.000  9590.000
GR 1663.000  9630.000 1656.000  9680.000 1657.000  9780.000 1656.000  9870.000 1654.000  9950.000
GR 1652.000  9970.000 1652.000 10000.000 1654.000 10030.000 1656.000 10090.000 1656.000 10190.000
GR 1650.000 10220.000 1648.000 10240.000 1650.000 10290.000 1662.000 10350.000 1664.000 10440.000
GR 1662.000 11050.000 1660.000 11250.000 1658.000 11360.000 1660.000 11440.000 1661.000 11480.000

X1   16.300    25.000  9860.000 10500.000   500.000   580.000   530.000     0.        0.        0.
X3   10.000     0.        0.        0.        0.        0.        0.        0.        0.        0.
GR 1666.000  9680.000 1666.000  9800.000 1662.000  9860.000 1653.000  9900.000 1653.000  9970.000
GR 1660.000 10000.000 1656.000 10050.000 1658.000 10090.000 1654.000 10150.000 1658.000 10200.000
GR 1658.000 10220.000 1660.000 10270.000 1661.000 10330.000 1660.000 10420.000 1661.000 10460.000
GR 1666.000 10500.000 1667.000 10620.000 1667.000 11020.000 1666.000 11050.000 1664.000 11120.000
GR 1662.000 11140.000 1662.000 11200.000 1664.000 11230.000 1666.000 11340.000 1666.500 11580.000

X1   16.400    24.000  9780.000 10400.000   510.000   570.000   520.000     0.        0.        0.
X3   10.000     0.        0.        0.        0.        0.        0.        0.        0.        0.
GR 1678.000  9710.000 1670.000  9780.000 1660.000  9810.000 1659.000  9840.000 1662.000  9870.000
GR 1660.000  9900.000 1660.000  9970.000 1661.000 10000.000 1662.000 10040.000 1662.000 10080.000
GR 1660.000 10230.000 1662.000 10300.000 1664.000 10320.000 1666.000 10370.000 1670.000 10400.000
GR 1672.000 10470.000 1672.000 10800.000 1670.000 10990.000 1668.000 11010.000 1666.000 11050.000
GR 1666.000 11130.000 1670.000 11180.000 1672.000 11500.000 1673.000 11760.000     0.        0.
```

X1	16.500	25.000	9720.000	10500.000	510.000	570.000	530.000	0.	0.	0.
X3	10.000	0.	0.	0.	0.	0.	0.	0.	0.	0.
GR	1680.000	9680.000	1675.000	9720.000	1666.000	9760.000	1668.000	9790.000	1666.000	9820.000
GR	1666.000	10000.000	1664.000	10030.000	1666.000	10170.000	1664.000	10250.000	1662.000	10330.000
GR	1667.000	10350.000	1667.000	10440.000	1678.000	10500.000	1678.000	10570.000	1676.000	10600.000
GR	1676.000	10660.000	1677.000	10780.000	1676.000	10890.000	1674.000	11030.000	1672.000	11080.000
GR	1670.000	11110.000	1672.000	11190.000	1674.000	11260.000	1676.000	11360.000	1678.100	11450.000
NC	0.037	0.037	0.035	0.300	0.500	0.	0.	0.	0.	0.
X1	16.680	15.000	80.000	407.000	1031.000	821.000	977.000	0.	0.	0.
GR	1682.000	58.000	1672.000	80.000	1672.000	233.000	1671.000	240.000	1670.000	250.000
GR	1669.800	285.000	1670.000	320.000	1671.000	325.000	1672.000	355.000	1673.000	375.000
GR	1674.000	395.000	1675.000	407.000	1680.000	420.000	1685.000	450.000	1690.000	480.000
SB	1.050	1.560	2.900	0.	260.000	12.000	1920.000	2.000	1672.000	1672.000
X1	16.690	9.000	30.000	500.000	200.000	200.000	200.000	0.	0.	0.
X2	0.	0.	1.000	1681.740	1686.290	0.	0.	1.330	0.	0.
GR	1686.000	5.000	1674.000	30.000	1673.000	150.000	1672.000	235.000	1672.000	465.000
GR	1672.000	500.000	1680.000	525.000	1685.000	535.000	1690.000	545.000	0.	0.
X1	16.870	30.000	9550.000	10030.000	779.000	779.000	779.000	0.	0.	0.
GR	1716.000	8470.000	1712.000	8630.000	1708.000	8820.000	1704.000	8920.000	1700.000	9200.000
GR	1696.000	9420.000	1692.000	9460.000	1688.000	9550.000	1684.000	9580.000	1688.000	9620.000
GR	1684.000	9780.000	1687.500	9870.000	1684.000	9960.000	1682.000	10000.000	1684.000	10020.000
GR	1688.000	10030.000	1690.000	10130.000	1688.000	10470.000	1684.000	10500.000	1688.000	10530.000
GR	1690.500	11130.000	1691.000	11470.000	1688.000	11660.000	1690.000	11720.000	1687.000	11810.000
GR	1690.000	12000.000	1687.000	12200.000	1690.000	12300.000	1692.000	12670.000	1692.000	13000.000
X1	17.100	26.000	9820.000	10460.000	1200.000	1250.000	1214.000	0.	0.	0.
GR	1720.000	8730.000	1716.000	8900.000	1712.000	9060.000	1712.000	9190.000	1708.000	9220.000
GR	1704.000	9300.000	1704.000	9450.000	1700.000	9680.000	1700.000	9820.000	1696.000	9930.000
GR	1694.000	10000.000	1696.000	10020.000	1700.000	10460.000	1701.000	10700.000	1700.000	10820.000
GR	1699.000	10850.000	1699.000	10970.000	1700.000	11040.000	1698.000	11080.000	1700.000	11120.000
GR	1700.500	11430.000	1704.000	11720.000	1700.000	11820.000	1698.000	11840.000	1700.000	11880.000
GR	1702.500	12240.000	0.	0.	0.	0.	0.	0.	0.	0.
X1	17.300	19.000	9900.000	10150.000	1050.000	1170.000	1056.000	0.	0.	0.
GR	1720.000	9340.000	1712.000	9510.000	1708.000	9900.000	1704.000	9970.000	1702.000	10000.000
GR	1704.000	10050.000	1708.000	10080.000	1710.000	10150.000	1708.000	10200.000	1707.000	10215.000
GR	1708.000	10230.000	1711.000	10300.000	1711.000	10960.000	1708.000	11120.000	1707.000	11130.000
GR	1708.000	11160.000	1712.000	11610.000	1713.000	11750.000	1713.000	12010.000	0.	0.
NC	0.050	0.050	0.048	0.300	0.500	0.	0.	0.	0.	0.

X1	17.560	25.000	9960.000	10490.000	1180.000	1550.000	1373.000	0.	0.	0.
GR	1740.000	9560.000	1720.000	9620.000	1716.000	9660.000	1715.000	9680.000	1716.000	9700.000
GR	1720.000	9810.000	1720.000	9960.000	1716.000	9980.000	1712.000	9985.000	1711.000	10000.000
GR	1712.000	10030.000	1716.000	10190.000	1714.000	10220.000	1716.000	10260.000	1720.000	10340.000
GR	1720.000	10390.000	1716.000	10400.000	1715.000	10430.000	1716.000	10450.000	1720.000	10490.000
GR	1720.000	10740.000	1724.000	11030.000	1728.000	11460.000	1732.000	11600.000	1736.000	11660.000
X1	17.780	24.000	9960.000	10790.000	1150.000	1130.000	1162.000	0.	0.	0.
GR	1760.000	9880.000	1740.000	9950.000	1736.000	9960.000	1722.000	9980.000	1722.000	10015.000
GR	1724.000	10020.000	1726.000	10120.000	1728.000	10170.000	1728.000	10410.000	1727.000	10490.000
GR	1725.000	10520.000	1728.000	10540.000	1728.000	10670.000	1723.000	10710.000	1723.000	10730.000
GR	1728.000	10750.000	1732.000	10790.000	1732.000	11320.000	1736.000	11670.000	1740.000	11840.000
GR	1744.000	12010.000	1748.000	12200.000	1752.000	12330.000	1760.000	12460.000	0.	0.
X1	18.060	22.000	9610.000	10220.000	1370.000	1250.000	1478.000	0.	0.	0.
GR	1760.000	9510.000	1744.000	9580.000	1740.000	9610.000	1736.000	9670.000	1735.000	9675.000
GR	1736.000	9680.000	1739.000	9730.000	1738.000	9860.000	1739.000	9900.000	1736.000	9950.000
GR	1733.000	10000.000	1736.000	10060.000	1740.000	10120.000	1736.000	10150.000	1734.000	10160.000
GR	1736.000	10170.000	1740.000	10220.000	1742.000	10380.000	1744.000	10780.000	1748.000	11040.000
GR	1752.000	11370.000	1760.000	11550.000	0.	0.	0.	0.	0.	0.
EJ	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENST/
*PROF 1


CCHV=   0.100 CEHV=   0.300
*SECNO 16.200
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1663.00 ELREA=     1662.00
    16.20     9.81  1657.81  1657.81  1658.00  1659.33     1.52      0.        0.    1663.00
   21400.       0.   21400.       0.       0.    2166.       0.       0.        0.    1662.00
       0.       0.      9.88      0.    0.045    0.035    0.045      0.   1648.00    9667.05
 0.011195     500.     540.     580.        0        5        0      0.    662.02   10329.07


*SECNO 16.300

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1662.00 ELREA=     1666.00
    16.30     9.19  1662.19      0.       0.    1663.19     1.00      3.81      0.05   1662.00
   21400.       0.   21400.       0.       0.    2671.       0.       29.        8.    1666.00
    0.02     0.49      8.01      0.    0.045    0.035    0.045    0.035   1653.00    9857.13
 0.004995     500.     530.     580.        3        0        0      0.    612.41   10469.53


*SECNO 16.400

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1670.00 ELREA=     1670.00
    16.40     6.15  1665.15      0.       0.    1666.59     1.45      3.27      0.14   1670.00
   21400.       0.   21400.       0.       0.    2216.       0.       59.       15.    1670.00
    0.03       0.      9.66      0.    0.045    0.035    0.045    0.035   1659.00    9794.56
 0.008170     510.     520.     570.        3        0        0      0.    554.13   10348.68


*SECNO 16.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1675.00 ELREA=     1678.00
    16.50     7.34  1669.34      0.       0.    1670.33     0.99      3.69      0.05   1675.00
   21400.       0.   21400.       0.       0.    2681.       0.       88.       22.    1678.00
    0.05       0.      7.98      0.    0.045    0.035    0.045    0.035   1662.00    9745.16
 0.006000     510.     530.     570.        3        0        0      0.    707.61   10452.76
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENST/
CCHV=  0.300 CEHV=  0.500
*SECNO 16.680

3301 HV CHANGED MORE THAN HVINS
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    16.68     6.90   1676.70   1676.70      0.   1679.24      2.54      7.61      0.77   1672.00
   21400.      166.   21221.      13.      24.     1655.        4.      137.       34.   1675.00
     0.07     6.84     12.82      3.53   0.037     0.035     0.037     0.035   1669.80     69.66
 0.010511    1031.      977.      821.       3        11         0        0.    341.76    411.42


SPECIAL BRIDGE
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05     1.56      2.90      0.        260.00    12.00     1920.00   2.00      1672.00   1672.00

*SECNO 16.690
6110 EGLWC OF 1679.07 LESS THAN XEG OF 1679.24

3301 HV CHANGED MORE THAN HVINS
CLASS A LOW FLOW
3420 BRIDGE W.S.=   1677.19 BRIDGE VELOCITY=,     15.97     CALCULATED CHANNEL AREA=,     1340.

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA  ELLC      ELTRD
     0.    1679.07     1.39        0.    21400.     1920.     2605.     1681.74   1686.29

    16.69     6.09   1678.09      0.        0.   1679.24      0.98      0.        0.   1674.00
   21400.      63.   21056.     281.       17.     2640.       56.     147.       36.   1672.00
     0.08     3.59      7.98      4.86   0.037     0.035     0.037     0.035   1672.00     21.48
 0.003534     200.      200.     200.        0       .0         0        0.    497.55    519.03


*SECNO 16.870

3265 DIVIDED FLOW
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
```

FIGURE R

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENST/
3720 CRITICAL DEPTH ASSUMED
    16.87      7.29  1689.29   1689.29      0.   1690.36      1.07      3.99      0.05   1688.00
   21400.       50.  16565.      4785.     19.    1802.     1160.      198.       56.   1688.00
     0.11      2.69      9.19      4.12  0.037     0.035     0.037     0.035   1682.00   9521.06
 0.008063      779.      779.      779.     20        11         0        0.   1722.71  12276.21


*SECNO 17.100

3265 DIVIDED FLOW
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    17.10      6.83  1700.83   1700.83      0.   1701.72      0.88      9.64      0.06   1700.00
   21400.      405.  17089.      3907.    137.    2084.      980.      285.      108.   1700.00
     0.15      2.96      8.20      3.99  0.037     0.035     0.037     0.035   1694.00   9632.06
 0.007736     1200.      1214.     1250.      5        12         0        0.   1966.69  12000.07


*SECNO 17.300
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    17.30      9.19  1711.19   1711.19      0.   1712.18      0.99      7.08      0.05   1708.00
   21400.     2037.  12820.      6543.    497.    1328.     1457.      367.      159.   1710.00
     0.19      4.10      9.65      4.49  0.037     0.035     0.037     0.035   1702.00   9588.79
 0.005593     1050.      1056.     1170.      3        11         0        0.   1930.29  11519.09


CCHV=   0.300 CEHV=   0.500
*SECNO 17.560
    17.56      9.37  1720.37      0.        0.   1721.16      0.79      8.92      0.06   1720.00
   21400.     3141.  18136.       123.     603.    2439.       95.      469.      209.   1720.00
     0.25      5.21      7.44      1.29  0.050     0.048     0.050     0.037   1711.00   9618.91
 0.007593     1180.      1373.     1550.      3         0         0        0.   1147.32  10766.23


*SECNO 17.780
    17.78      8.45  1730.45      0.        0.   1731.27      0.83     10.09      0.02   1736.00
   21400.        0.  21400.         0.        0.    2929.        0.      550.      235.   1732.00
     0.29        0.      7.31      0.  0.050     0.048     0.050     0.039   1722.00   9967.94
 0.010052     1150.      1162.     1130.      4         0         0        0.    806.52  10774.45
```

FIGURE B

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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	ENST/
*SECNO 18.060									
18.06	9.14	1742.14	0.	0.	1742.90	0.76	11.60	0.02	1740.00
21400.	42.	20883.	474.	17.	2963.	185.	653.	262.	1740.00
0.35	2.46	7.05	2.56	0.050	0.048	0.050	0.040	1733.00	9593.92
0.006321	1370.	1478.	1250.	4	0	0	0.	815.01	10408.92

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
*************************************************

T1      100 YEAR PROFILE
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      -1.      3.       0.       0.  -1.000000   0.       0.       0.   1659.000   0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15.000    0.       -1.000   0.       0.       0.       0.       0.       0.       0.
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENST/
*PROF 2


CCHV=   0.100 CEHV=   0.300
*SECNO 16.200
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1663.00 ELREA=     1662.00
    16.20     10.79  1658.79  1658.79  1659.00  1660.71     1.91      0.        0.    1663.00
   31300.        0.  31300.        0.        0.     2819.     0.        0.        0.  1662.00
      0.        0.     11.10      0.     0.045     0.035    0.045     0.     1648.00  9660.06
 0.010189     500.     540.     580.        0         5        0     0.     673.90 10333.96

*SECNO 16.300

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1662.00 ELREA=     1666.00
    16.30     10.20  1663.20      0.        0.    1664.60     1.40      3.85      0.05  1662.00
   31300.       19.  31281.        0.       11.     3288.     0.       37.        8.   1666.00
      0.02      1.73     9.51     0.     0.045     0.035    0.045     0.035  1653.00  9842.03
 0.005428     500.     530.     580.        3         0        0     0.     635.56 10477.59

*SECNO 16.400

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1670.00 ELREA=     1670.00
    16.40      7.27  1666.27      0.        0.    1668.14     1.87      3.39      0.14  1670.00
   31300.        0.  31300.        0.        0.     2855.     0.       74.       15.   1670.00
      0.03      0.     10.96     0.     0.045     0.035    0.045     0.035  1659.00  9791.19
 0.008001     510.     520.     570.        3         0        0     0.     580.83 10372.02

*SECNO 16.500

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      ENST/

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     1675.00 ELREA=     1678.00
    16.50      8.44  1670.44      0.        0.    1671.71      1.27      3.51      0.06  1675.00
   31300.        0.  31300.        0.        0.     3463.        0.      112.       23.  1678.00
     0.04        0.      9.04      0.     0.045     0.035     0.045     0.035  1662.00  9740.28
 0.005581      510.      530.     570.         2         0         0        0.   718.47 10458.75

CCHV=   0.300 CEHV=   0.500
*SECNO 16.680

3301 HV CHANGED MORE THAN HVINS
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    16.68      8.35  1678.15  1678.15      0.    1681.39      3.24      7.03      0.99  1672.00
   31300.      326.   30908.     66.       42.     2130.       13.      176.       35.  1675.00
     0.06      7.83     14.51     5.09    0.037     0.035     0.037     0.035  1669.80    66.47
 0.009618     1031.      977.     821.         2         5         0        0.   348.73   415.20

SPECIAL BRIDGE
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90      0.      260.00     12.00   1920.00      2.00   1672.00   1672.00

*SECNO 16.690
6110 EGLWC OF 1681.06 LESS THAN XEG OF 1681.39

3301 HV CHANGED MORE THAN HVINS
CLASS A LOW FLOW
3420 BRIDGE W.S.=    1678.84 BRIDGE VELOCITY=,     17.49     CALCULATED CHANNEL AREA=,     1790.

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                                AREA
     0.  1681.06      1.72        0.    31300.     1920.      2605.    1681.74   1686.29

    16.69      7.87  1679.87      0.        0.    1681.39      1.19        0.        0.  1674.00
   31300.      151.   30637.    513.       36.     3476.       97.      189.       37.  1672.00
     0.07      4.20      8.81     5.30    0.037     0.035     0.037     0.035  1672.00    17.77
 0.002991      200.      200.     200.        0         0         0        0.   506.82   524.59
```

FIGURE 1

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       CROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENST/
*SECNO 16.870

3265 DIVIDED FLOW
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    16.87      8.05   1690.05   1690.05      0.   1691.13      1.07      3.40      0.03   1688.00
   31300.      162.    21007.    10131.     47.    2171.     2311.      262.       62.   1688.00
     0.10      3.41      9.68      4.38    0.037     0.035     0.037     0.035   1682.00   9503.79
 0.006976      779.      779.      779.     20         8         0        0.   2299.14  12309.95


*SECNO 17.100

3265 DIVIDED FLOW
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    17.10      7.45   1701.45   1701.45      0.   1702.42      0.97      8.71      0.03   1700.00
   31300.     1057.    22105.    8138.     263.    2478.     1761.      389.      126.   1700.00
     0.14      4.01      8.92      4.62    0.037     0.035     0.037     0.035   1694.00   9596.64
 0.007265     1200.     1214.     1250.      4        10         0        0.   2217.06  12088.76


*SECNO 17.300
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    17.30      9.79   1711.79   1711.79      0.   1712.95      1.16      7.35      0.10   1708.00
   31300.     3413.    16217.    11670.     701.    1478.     2298.      503.      182.   1710.00
     0.18      4.87     10.97      5.08    0.037     0.035     0.037     0.035   1702.00   9530.30
 0.006265     1050.     1056.     1170.      4        11         0        0.   2056.28  11586.58


CCHV=   0.300 CEHV=   0.500
*SECNO 17.560
    17.56     10.37   1721.37      0.        0.   1722.31      0.93      9.29      0.07   1720.00
   31300.     5452.    24641.    1206.     950.    2975.     412.      644.      235.   1720.00
     0.23      5.74      8.28      2.93    0.050     0.048     0.050     0.037   1711.00   9615.88
 0.007228     1180.     1373.     1550.      4         0         0        0.   1223.70  10839.58
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLCB      QCH       CROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENST/
*SECNO 17.780
    17.78     9.32   1731.32      0.        0.     1732.46      1.15     10.05      0.11   1736.00
   31300.       0.   31300.        0.        0.      3643.       0.       750.      263.    1732.00
     0.27       0.      8.59      0.      0.050     0.048    0.050     0.039   1722.00   9966.68
 0.010568    1150.    1162.    1130.        4         0        0        0.     816.58  10783.26


*SECNO 18.060
    18.06    10.28   1743.28      0.        0.     1744.23     0.95     11.71      0.06   1740.00
   31300.      131.   29400.    1769.      40.      3657.     530.      882.      293.    1740.00
     0.32     3.24      8.04     3.34    0.050     0.048    0.050     0.040   1733.00   9585.38
 0.006213    1370.    1478.    1250.        3         0        0        0.    1051.03  10636.42
```

FIGURE B

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

400 - FOOT BRIDGE
SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC (Elv. Low Cord)	ELMIN	Q	CWSEL	CRIWS	EG (Energy Gradient)	10K*S	VCH	AREA
*	16.200	540.00	0.	0.	1648.00	21400.00	1657.81	1657.81	1659.33	111.95	9.88	2165
*	16.200	540.00	0.	0.	1648.00	31300.00	1658.79	1658.79	1660.71	101.89	11.10	2818
	16.300	530.00	0.	0.	1653.00	21400.00	1662.19	0.	1663.19	49.95	8.01	2670
	16.300	530.00	0.	0.	1653.00	31300.00	1663.20	0.	1664.60	54.28	9.51	3299
	16.400	520.00	0.	0.	1659.00	21400.00	1665.15	0.	1666.59	81.70	9.66	2216
	16.400	520.00	0.	0.	1659.00	31300.00	1666.27	0.	1668.14	80.01	10.96	2855
	16.500	530.00	0.	0.	1662.00	21400.00	1669.34	0.	1670.33	60.00	7.98	2680
	16.500	530.00	0.	0.	1662.00	31300.00	1670.44	0.	1671.71	55.81	9.04	3463
*	16.680	977.00	0.	0.	1669.80	21400.00	1676.70	1676.70	1679.24	105.11	12.82	1682
*	16.680	977.00	0.	0.	1669.80	31300.00	1678.15	1678.15	1681.39	96.18	14.51	2184
	16.690	200.00	1686.29	1681.74	1672.00	21400.00	1678.09	0.	1679.24	35.34	7.98	2715
	16.690	200.00	1686.29	1681.74	1672.00	31300.00	1679.87	0.	1681.39	29.91	8.81	3608
*	16.870	779.00	0.	0.	1682.00	21400.00	1689.29	1689.29	1690.36	80.63	9.19	2981
*	16.870	779.00	0.	0.	1682.00	31300.00	1690.05	1690.05	1691.13	69.76	9.68	4529
*	17.100	1214.00	0.	0.	1694.00	21400.00	1700.83	1700.83	1701.72	77.36	8.20	3200
*	17.100	1214.00	0.	0.	1694.00	31300.00	1701.45	1701.45	1702.42	72.65	8.92	4501
*	17.300	1056.00	0.	0.	1702.00	21400.00	1711.19	1711.19	1712.18	55.93	9.65	3281
*	17.300	1056.00	0.	0.	1702.00	31300.00	1711.79	1711.79	1712.95	62.65	10.97	4477
	17.560	1373.00	0.	0.	1711.00	21400.00	1720.37	0.	1721.16	75.93	7.44	3137
	17.560	1373.00	0.	0.	1711.00	31300.00	1721.37	0.	1722.31	72.28	8.28	4337
	17.780	1162.00	0.	0.	1722.00	21400.00	1730.45	0.	1731.27	100.52	7.31	2928
	17.780	1162.00	0.	0.	1722.00	31300.00	1731.32	0.	1732.46	105.68	8.59	3643

SECNC	XLCH	ELTRC	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA
18.060	1478.00	0.	0.	1733.00	2.400.00	1742.14	0.	1742.90	63.21	7.05	3165
18.060	1478.00	0.	0.	1733.00	31300.00	1743.28	0.	1744.23	62.13	8.04	4226

400 - FOOT BRIDGE
SUMMARY PRINTOUT TABLE 150

DIFF CWSEL FOR EACH PROFILE

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	16.200	21400.00	1657.81	0.	0.	-0.19	662.02	540.00
*	16.200	31300.00	1658.79	0.98	0.	-0.21	673.90	540.00
	16.300	21400.00	1662.19	0.	4.38	0.	612.41	530.00
	16.300	31300.00	1663.20	1.01	4.41	0.	635.56	530.00
	16.400	21400.00	1665.15	0.	2.96	0.	554.13	520.00
	16.400	31300.00	1666.27	1.12	3.07	0.	580.83	520.00
	16.500	21400.00	1669.34	0.	4.19	0.	707.61	530.00
	16.500	31300.00	1670.44	1.10	4.17	0.	718.47	530.00
*	16.680	21400.00	1676.70	0.	7.36	0.	341.76	977.00
*	16.680	31300.00	1678.15	1.45	7.71	0.	348.73	977.00
	16.690	21400.00	1678.09	0.	1.39	0.	497.55	200.00
	16.690	31300.00	1679.87	1.78	1.72	0.	506.82	200.00
*	16.870	21400.00	1689.29	0.	11.20	0.	1722.71	779.00
*	16.870	31300.00	1690.05	0.77	10.19	0.	2299.14	779.00
*	17.100	21400.00	1700.83	0.	11.55	0.	1966.69	1214.00
*	17.100	31300.00	1701.45	0.62	11.40	0.	2217.06	1214.00
*	17.300	21400.00	1711.19	0.	10.36	0.	1930.29	1056.00
*	17.300	31300.00	1711.79	0.60	10.34	0.	2056.28	1056.00
	17.560	21400.00	1720.37	0.	9.18	0.	1147.32	1373.00
	17.560	31300.00	1721.37	1.00	9.58	0.	1223.70	1373.00
	17.780	21400.00	1730.45	0.	10.07	0.	806.52	1162.00
	17.780	31300.00	1731.32	0.87	9.94	0.	816.58	1162.00
	18.060	21400.00	1742.14	0.	11.70	0.	815.01	1478.00
	18.060	31300.00	1743.28	1.14	11.97	0.	1051.03	1478.00

SUMMARY OF ERRORS

```
CAUTION  SECNO=  16.200  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  16.200  PROFILE= 2  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=  16.680  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  16.680  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  16.680  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  16.680  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  16.870  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  16.870  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  16.870  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  16.870  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  16.870  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  16.870  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  17.100  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  17.100  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  17.100  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  17.100  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  17.300  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  17.300  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  17.300  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  17.300  PROFILE= 2  MINIMUM SPECIFIC ENERGY
```

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
*****************************************************
```

```
MB = H7552, ACTIVITY & = C1, , REPORT CODE = 06, REC. . COUNT = 000027
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        CVERFLO     AT LOCATION     120711
        CVERFLO     AT LOCATION     120711
        CVERFLO     AT LOCATION     120711
        CVERFLO     AT LOCATION     120711
        CVERFLO     AT LOCATION     120460
        CVERFLO     AT LOCATION     120714
        CVERFLO     AT LOCATION     120717
        CVERFLO     AT LOCATION     120722
        CVERFLO     AT LOCATION     120725
        CVERFLO     AT LOCATION     120730
        CVERFLO     AT LOCATION     120733
        CVERFLO     AT LOCATION     120460
        CVERFLO     AT LOCATION     120714
        CVERFLO     AT LOCATION     120717
        CVERFLO     AT LOCATION     120722
        CVERFLO     AT LOCATION     120725
        CVERFLO     AT LOCATION     120730
        CVERFLO     AT LOCATION     120733
        CVERFLO     AT LOCATION     120460
        CVERFLO     AT LOCATION     120714
        CVERFLO     AT LOCATION     120717
        CVERFLO     AT LOCATION     120722
        CVERFLO     AT LOCATION     120725
        CVERFLO     AT LOCATION     120730
        CVERFLO     AT LOCATION     120733
**THIS IS THE LAST TIME THE ABOVE MESSAGE WILL APPEAR*
```

FIGURE B

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*****************************************************************************
                    *    *   ******   *****    *****      ****
                    *    *        *   *        *        *    *
 ****     ****      ******        *   *****    *****        *    ****     ****
                    *    *       *          *        *     ***
                    *    *     *    *    *    *    *
                    *    *    *        ****     ****    ******

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-- 3 0 --          DATE  09-11-81    TIME  13.773       ID = HI   MCISSD
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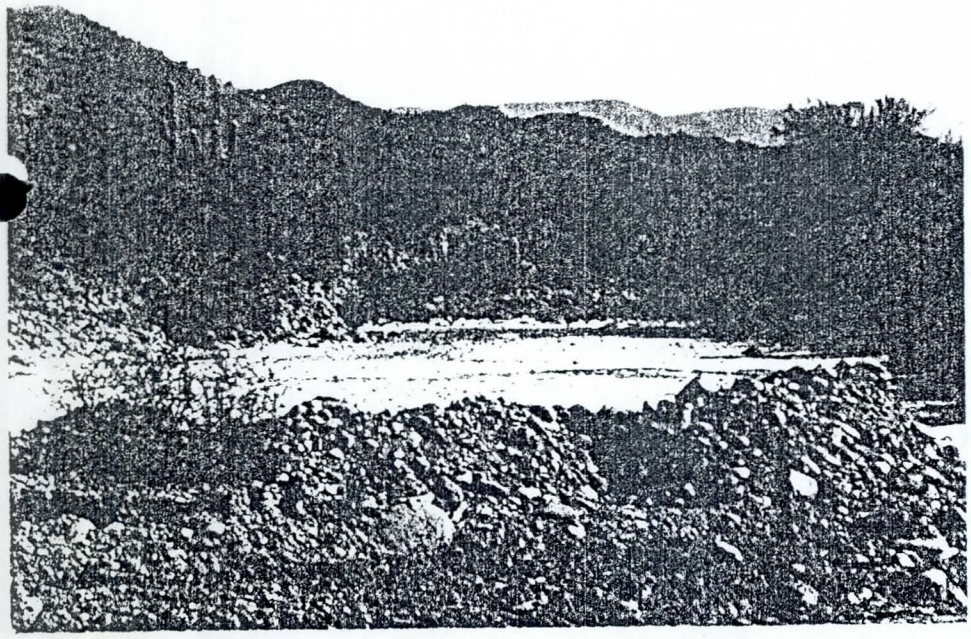
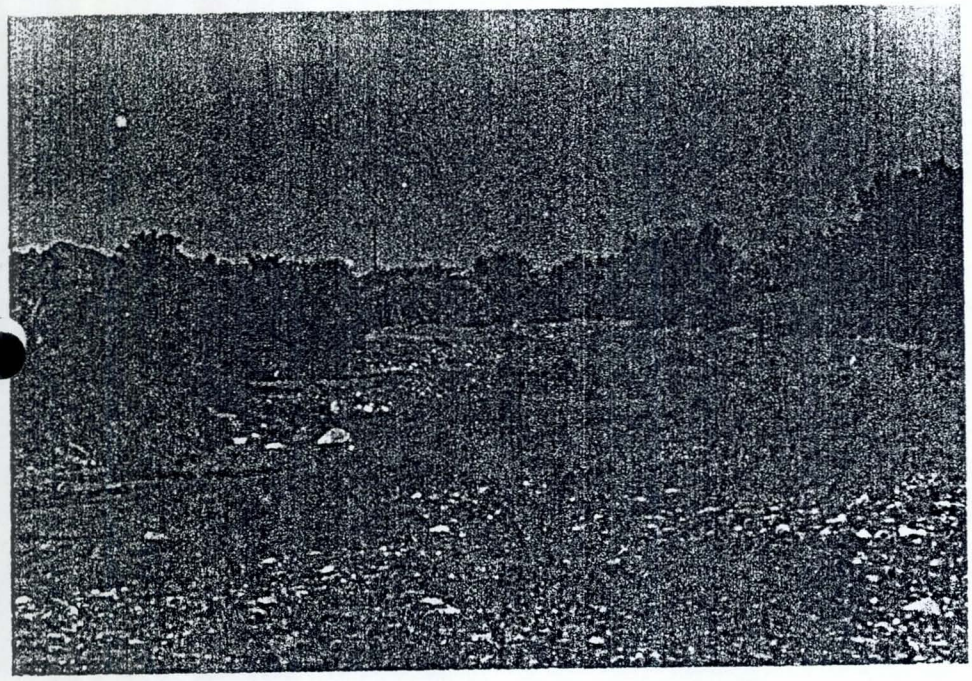
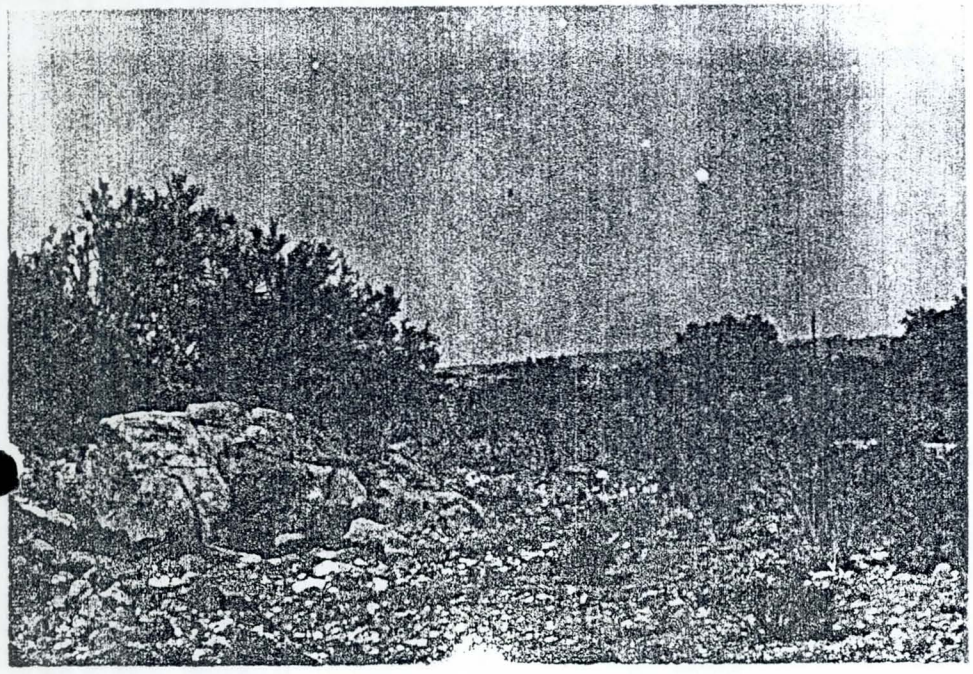


SKUNK CREEK CHANNEL UP-STREAM - LOOKING NORTH, APPROX. ℄ OF EXIST. UP CROSSING AT CAREFREE HWY.



SAME AS ABOVE, ONLY LOOKING DOWNSTREAM TO SOUTHWEST.



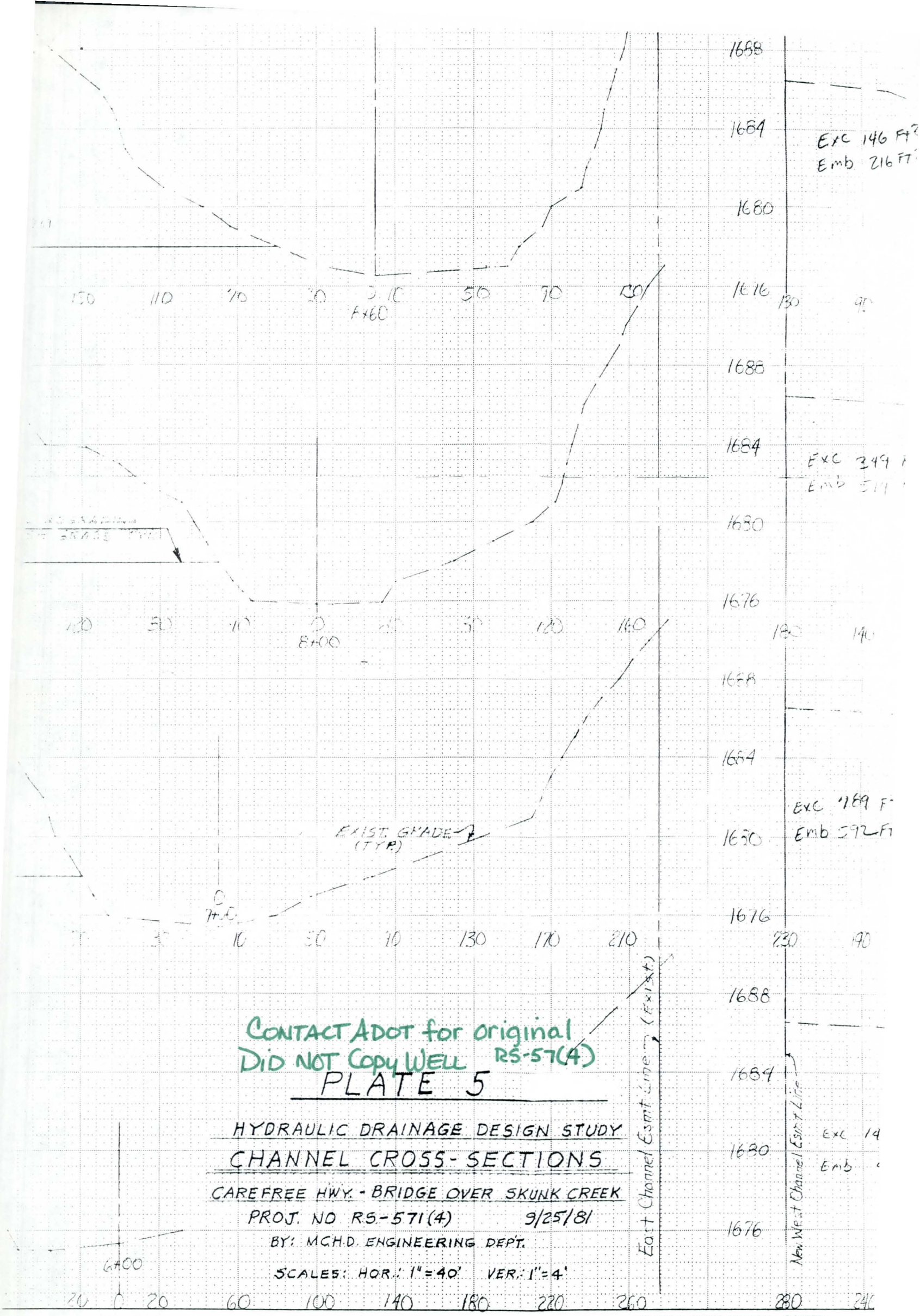
SAME AS ABOVE, BUT LOOKING DOWNSTREAM TO SOUTHEAST AT END OF ROCK EMBANKMENT SLOPE (EAST SIDE OF CHANNEL.)

PLATE 7, PAGE 1

SKUNK CREEK - DOWNSTREAM OF CAREFREE HWY. APPROX. 100' S. SHOWING S. & E. ROCK EMBANKMENT CHANNEL SLOPE. (STA. 36+00±)

SAME AS ABOVE, BUT TO THE WEST AT STA. 35+00±

SAME AS ABOVE, BUT SHOWING APPROX. TOP OF ROCK EMBANKMENT CHANNEL SLOPE, APPROX. 30 TO 35 FEET ABOVE TOE OF SLOPE.



CONTACT ADOT for original
DID NOT Copy WELL RS-57(4)

PLATE 5

HYDRAULIC DRAINAGE DESIGN STUDY

CHANNEL CROSS-SECTIONS

CAREFREE HWY. - BRIDGE OVER SKUNK CREEK

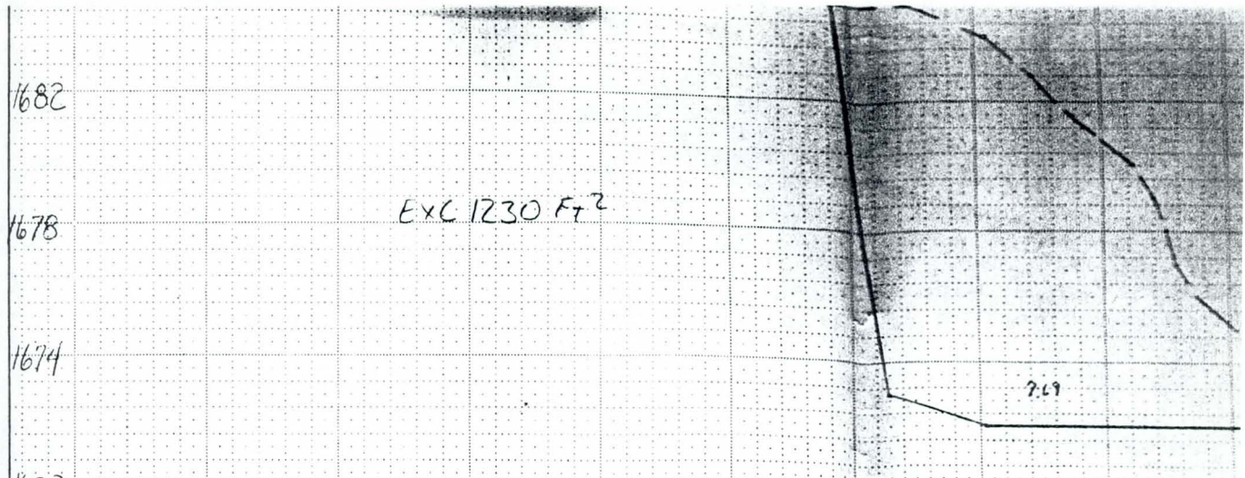
PROJ. NO RS-571(4) 9/25/81

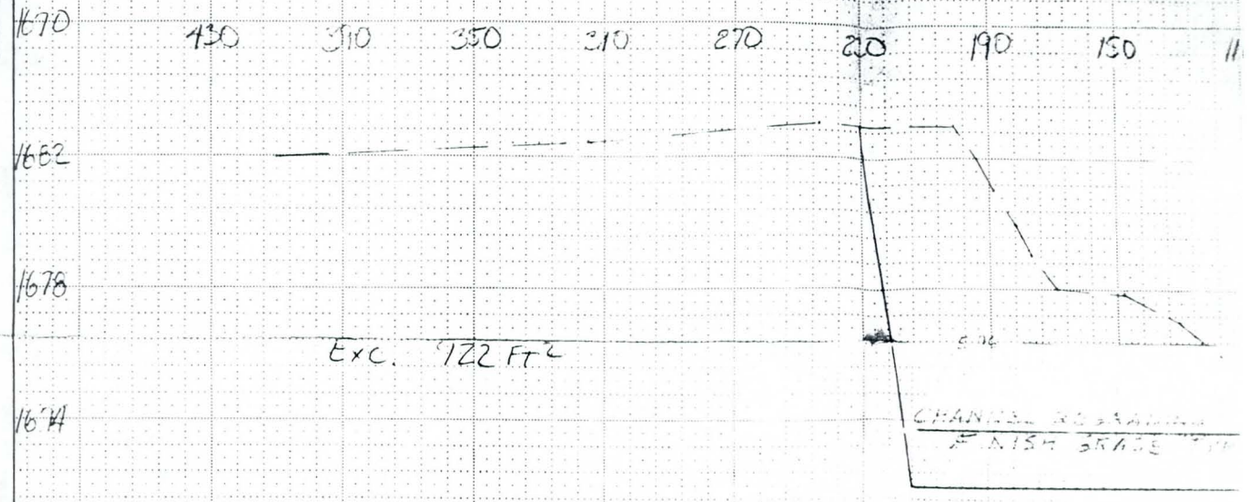
BY: MCHD ENGINEERING DEPT.

SCALES: HOR.: 1" = 40' VER.: 1" = 4'

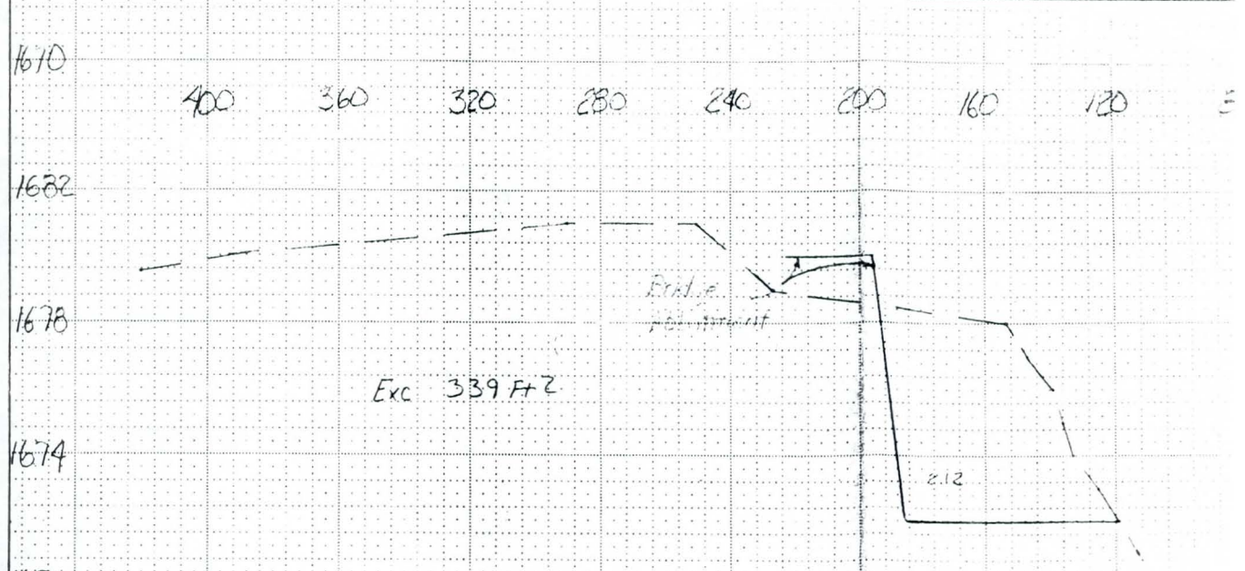
PLATE 3 CROSS SECTION - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.

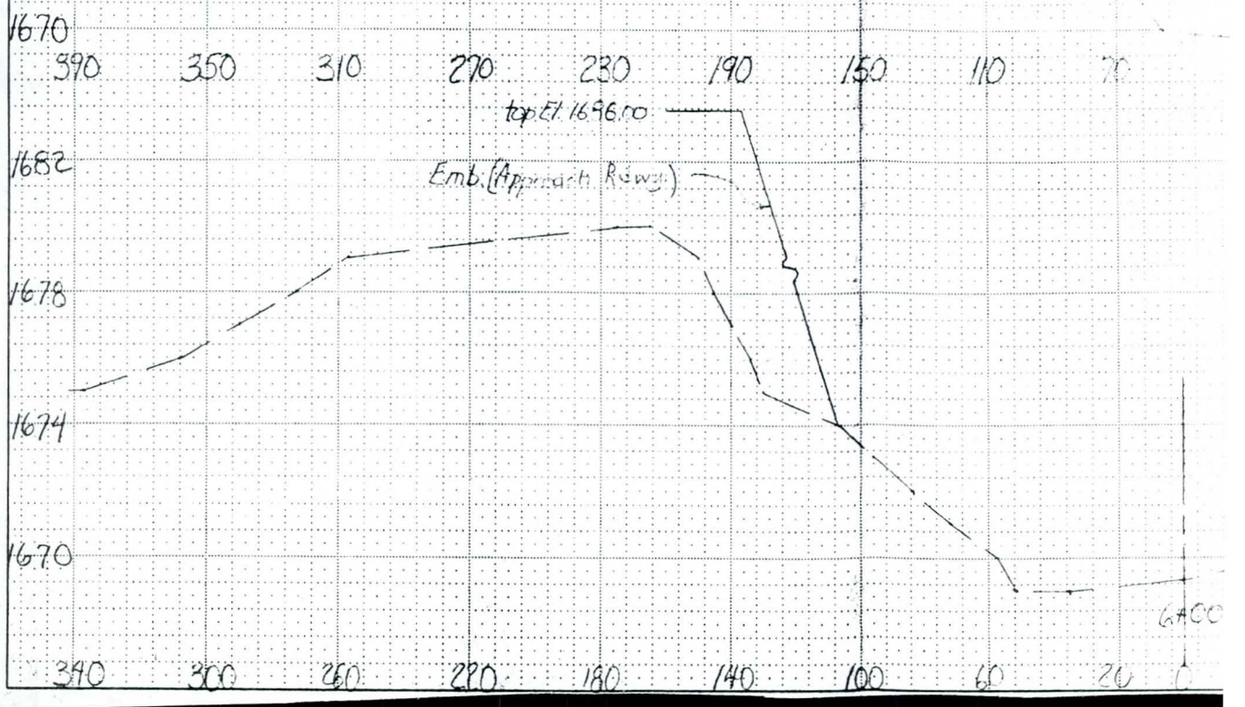
FINAL SURVEY		BY
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	





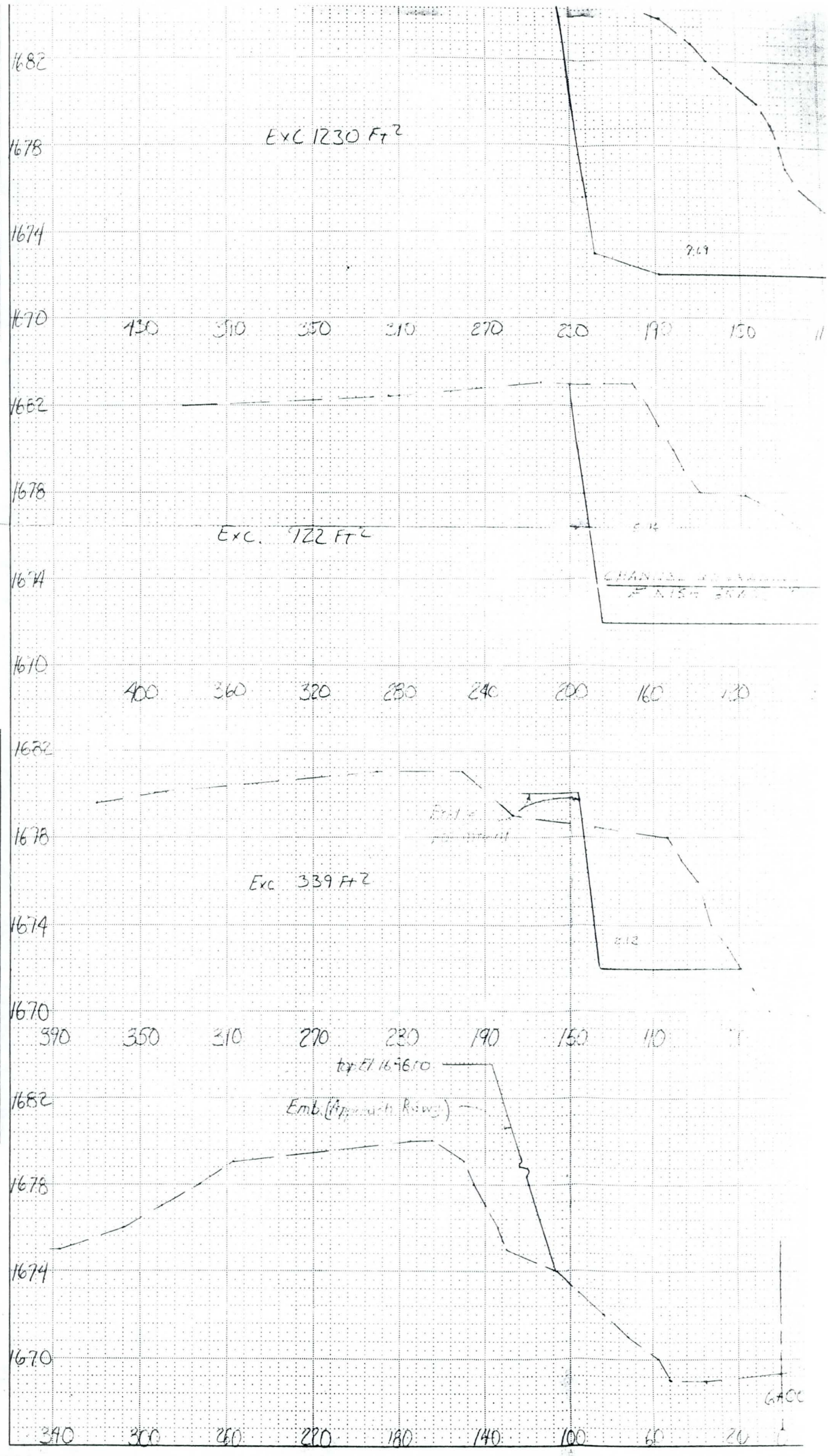
ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

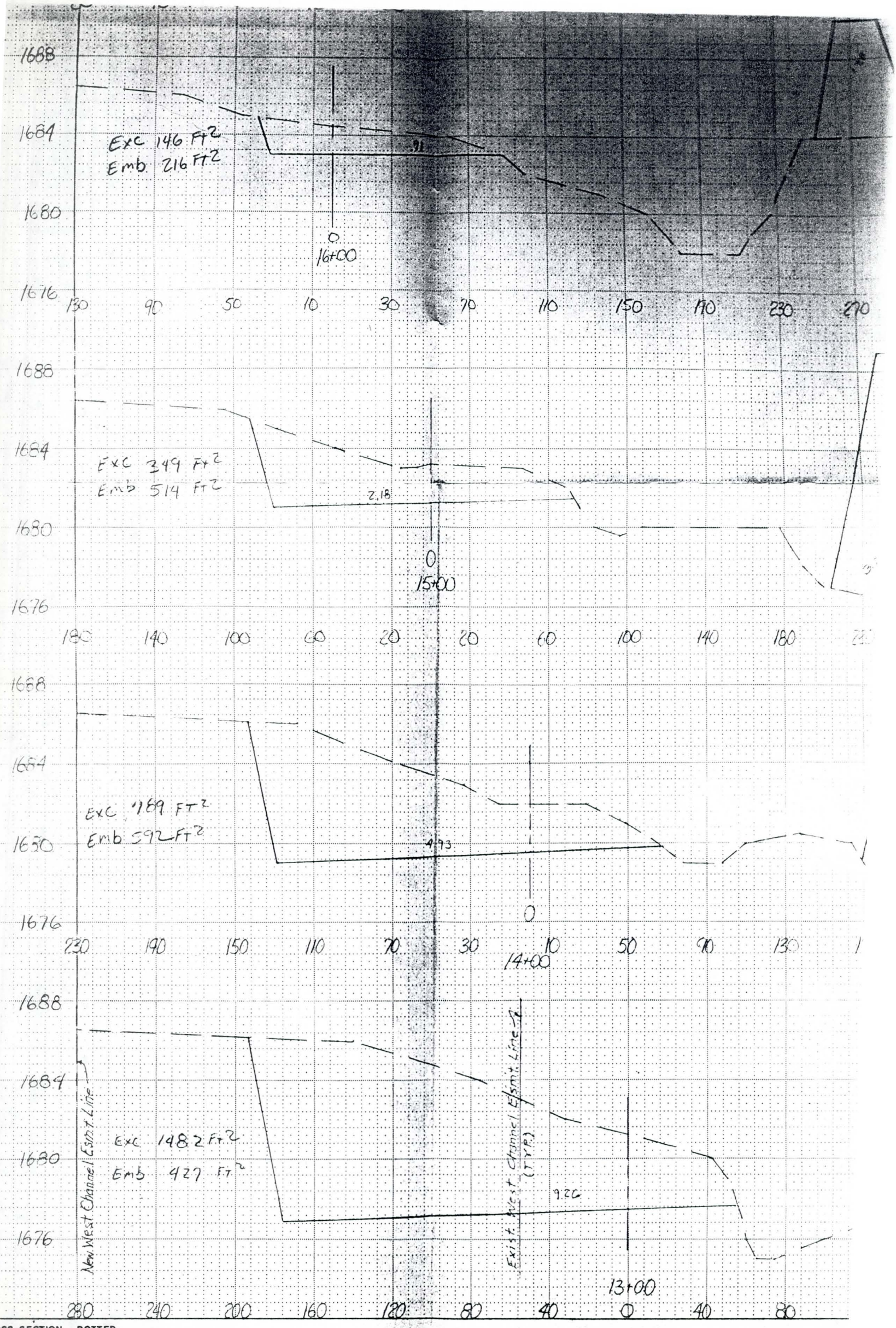




FINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	





3 CROSS SECTION - DOTTED

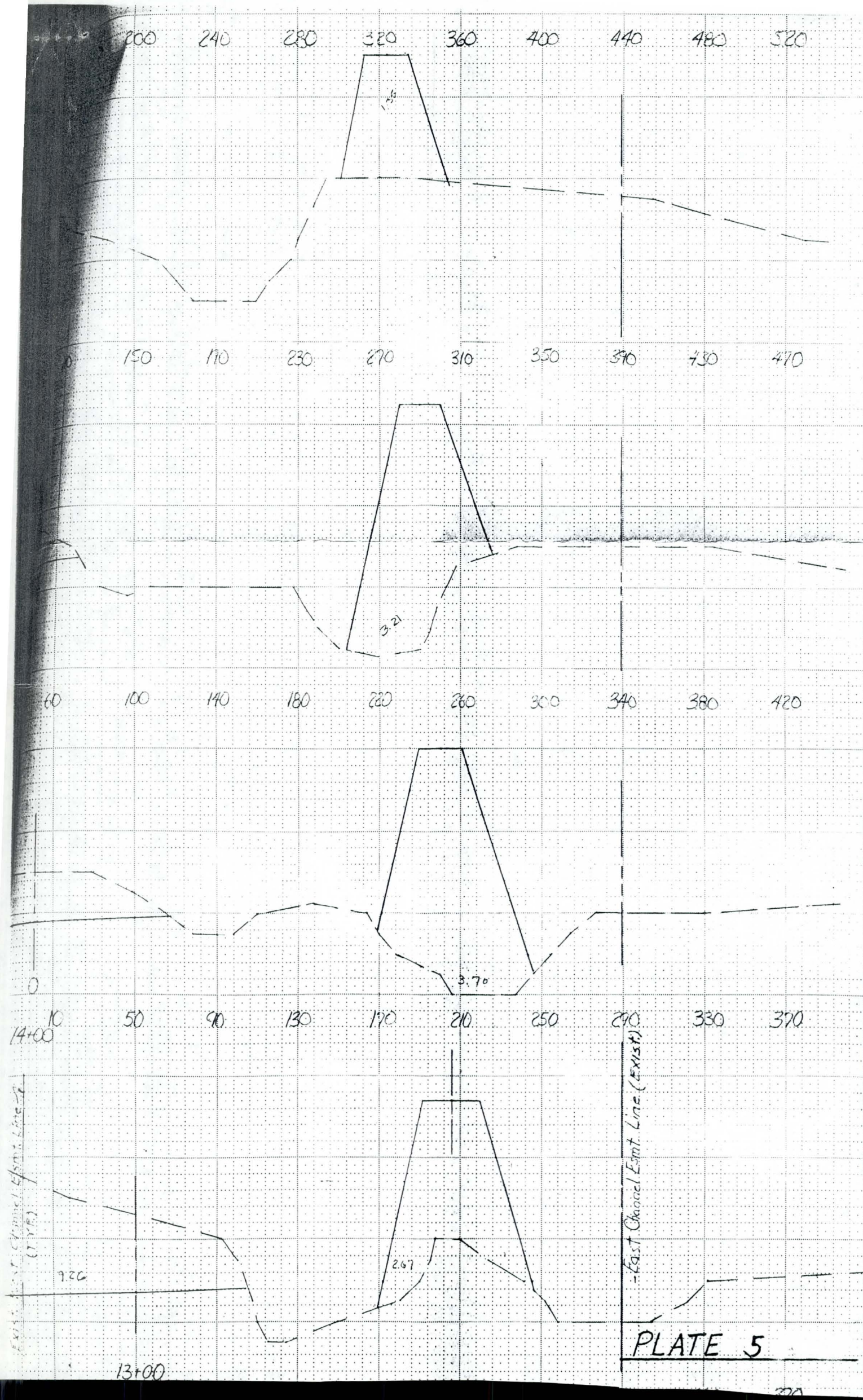
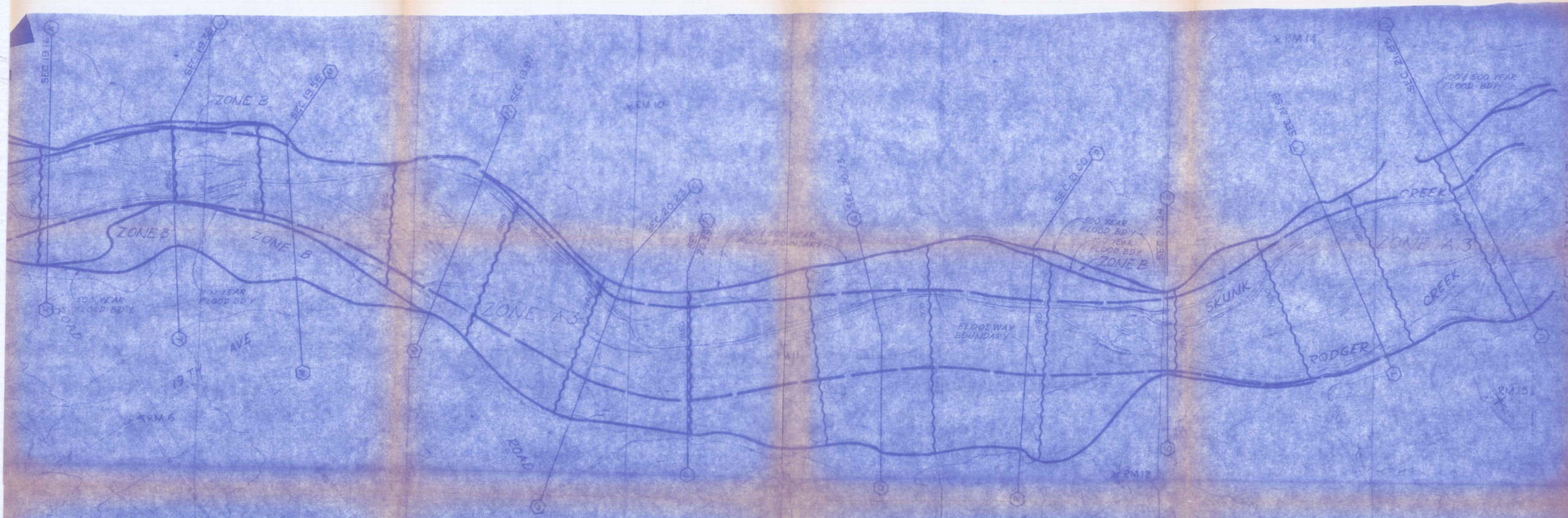

200
240
280
320
360
400
440
480
520
150
190
230
270
310
350
390
430
470
60
100
140
180
220
260
300
340
380
420
0
10
50
90
130
170
210
250
290
330
370
14+00
13+00
East Channel Esmt. Line (EXIST.)
3.70
2.67
9.26

PLATE 5

BEGIN DETAILED STUDY
CAREFREE
ZONE A3
SKUNK CREEK
ZONE B
500 YEAR FLOOD BDY
100 YEAR FLOOD BDY
FLOODWAY BOUNDARY
100 & 500 YEAR FLOOD BOUNDARY
SKUNK CREEK TANK
DELINEATION BY DAMES & MOORE IN PREVIOUS STUDY
SEC 15
SEC 16
RANCH



FLOOD BOUNDARY AND FLOODWAY MAPS
AND
FLOOD INSURANCE RATE MAPS
(WORK SHEETS)

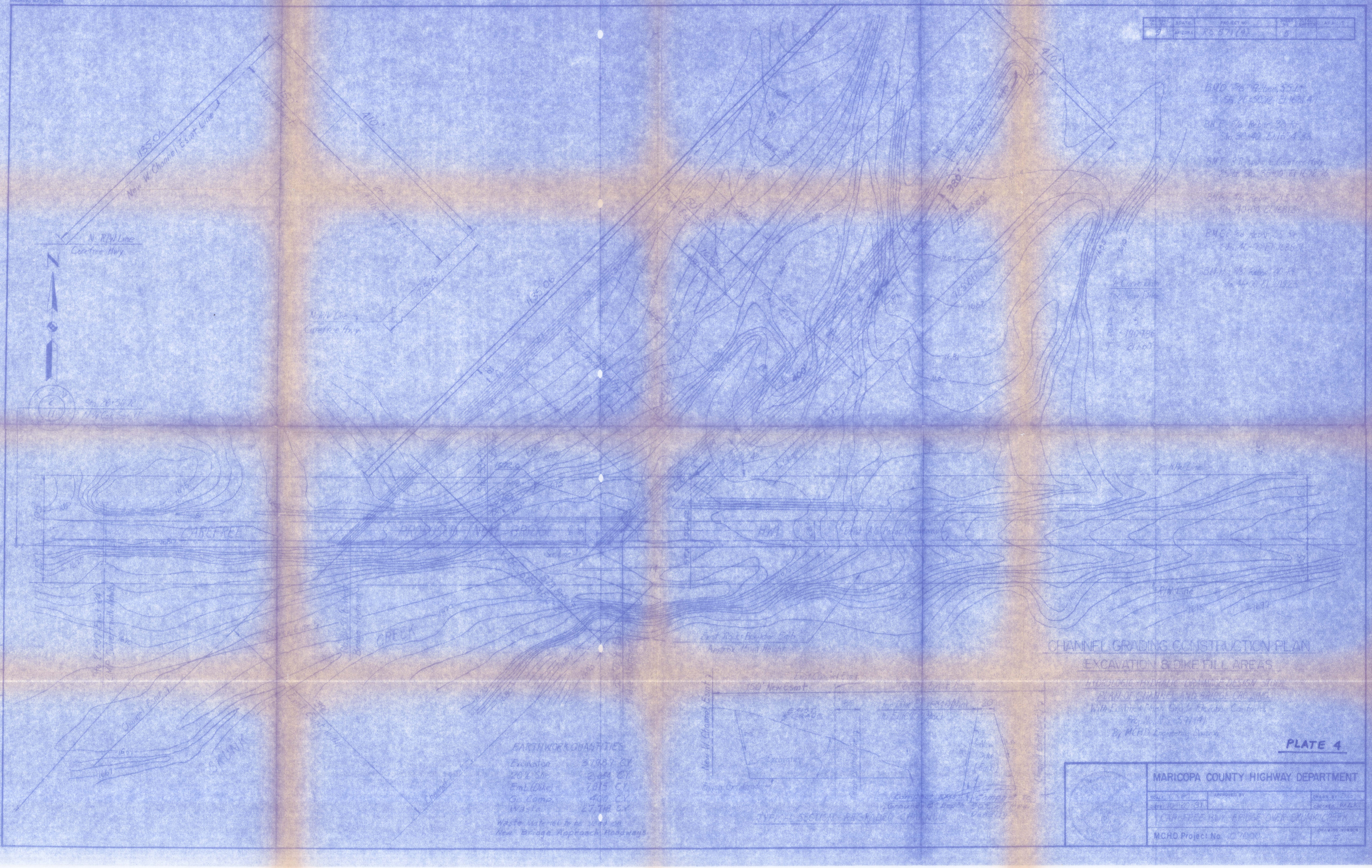
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA

ZONE B
ZONE A3

JUL 24 1981

MARICOPA COUNTY
SKUNK CREEK
(UNINCORPORATED AREA)

PREPARED FOR

U.S. DEPARTMENT OF
HOUSING & URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

STATE	COUNTY	PROJECT NO.	SHEET NO.	TOTAL SHEETS	REVISIONS
9	ARIZONA	RS 57(4)	8