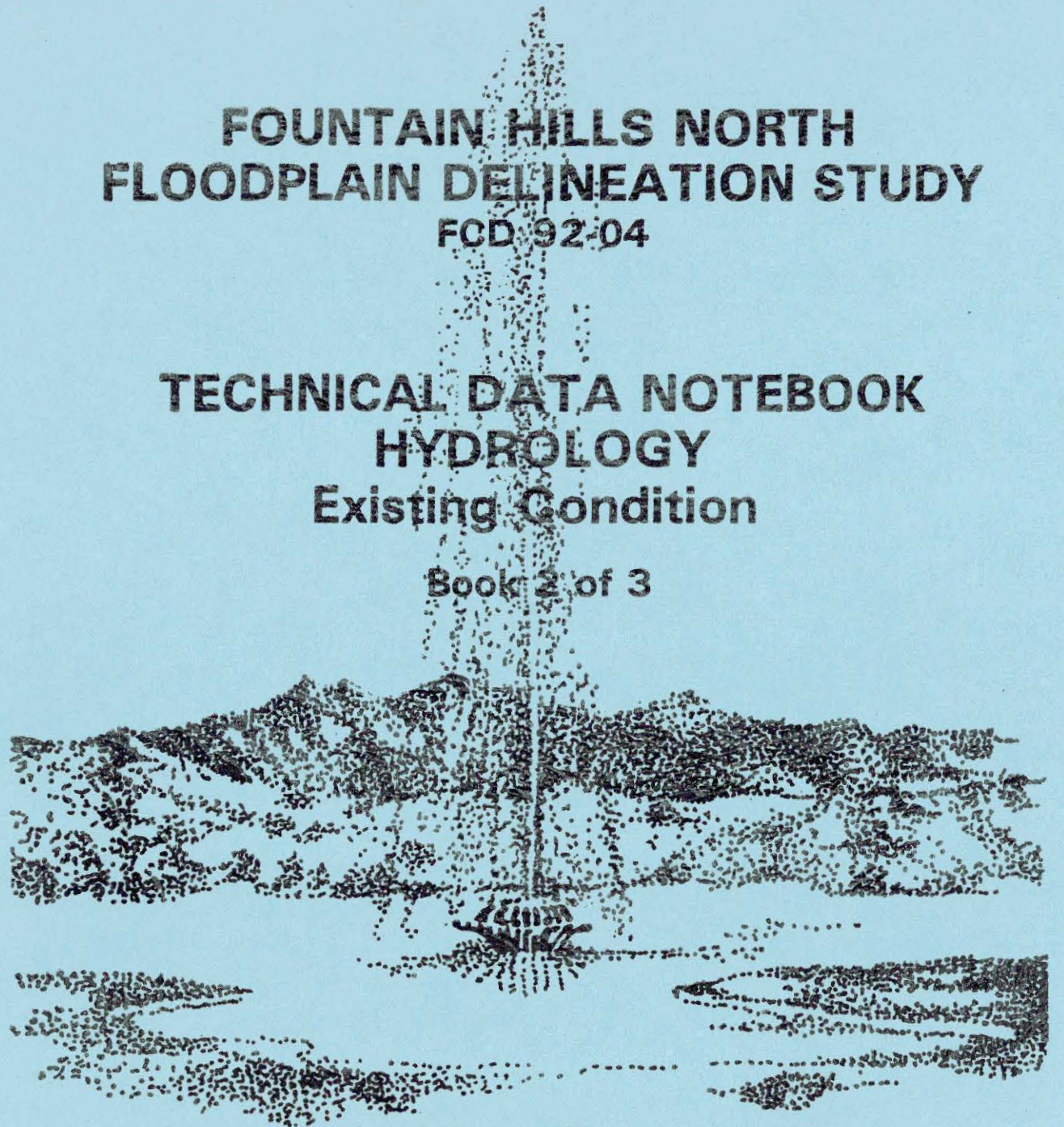
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PHOENIX, ARIZONA

FOUNTAIN HILLS NORTH FLOODPLAIN DELINEATION STUDY

FCD 92-04

TECHNICAL DATA NOTEBOOK
HYDROLOGY
Existing Condition

Book 2 of 3



George V. Sabol Consulting Engineers, Inc.

Scottsdale, Arizona

OCTOBER 1994

APPENDIX A

Reservoir Route Hydraulic Calculations

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

Hydraulic Calculations for Structure at C503
Hydraulic Calculations for Structure at C504
Hydraulic Calculations for Structure at C507
Hydraulic Calculations for Structure at C508
Hydraulic Calculations for Structure at C511 and M13
Hydraulic Calculations for Structure at C512 (Stock Tank)
Hydraulic Calculations for Structure at C513
Hydraulic Calculations for Structure at C523
Hydraulic Calculations for Structure at C536 (Dam 36)
Hydraulic Calculations for Structure at C538
Hydraulic Calculations for Structure at C560 (Dam 6)
Hydraulic Calculations for Structure at C578 (Dam 11)
Hydraulic Calculations for Structure at C584 (Dam 7)
Hydraulic Calculations for Structure at C586
Hydraulic Calculations for Structure at C599 (Dam 4)
Hydraulic Calculations for Structure at C600
Hydraulic Calculations for Structure at C605
Hydraulic Calculations for Structure at C609
Hydraulic Calculations for Structure at C611
Hydraulic Calculations for Structure at C618
Hydraulic Calculations for Structure at C619

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Hydraulic Calculations for Structure at C503

C503 Storage Volume

Calculated From Planimetered Contours

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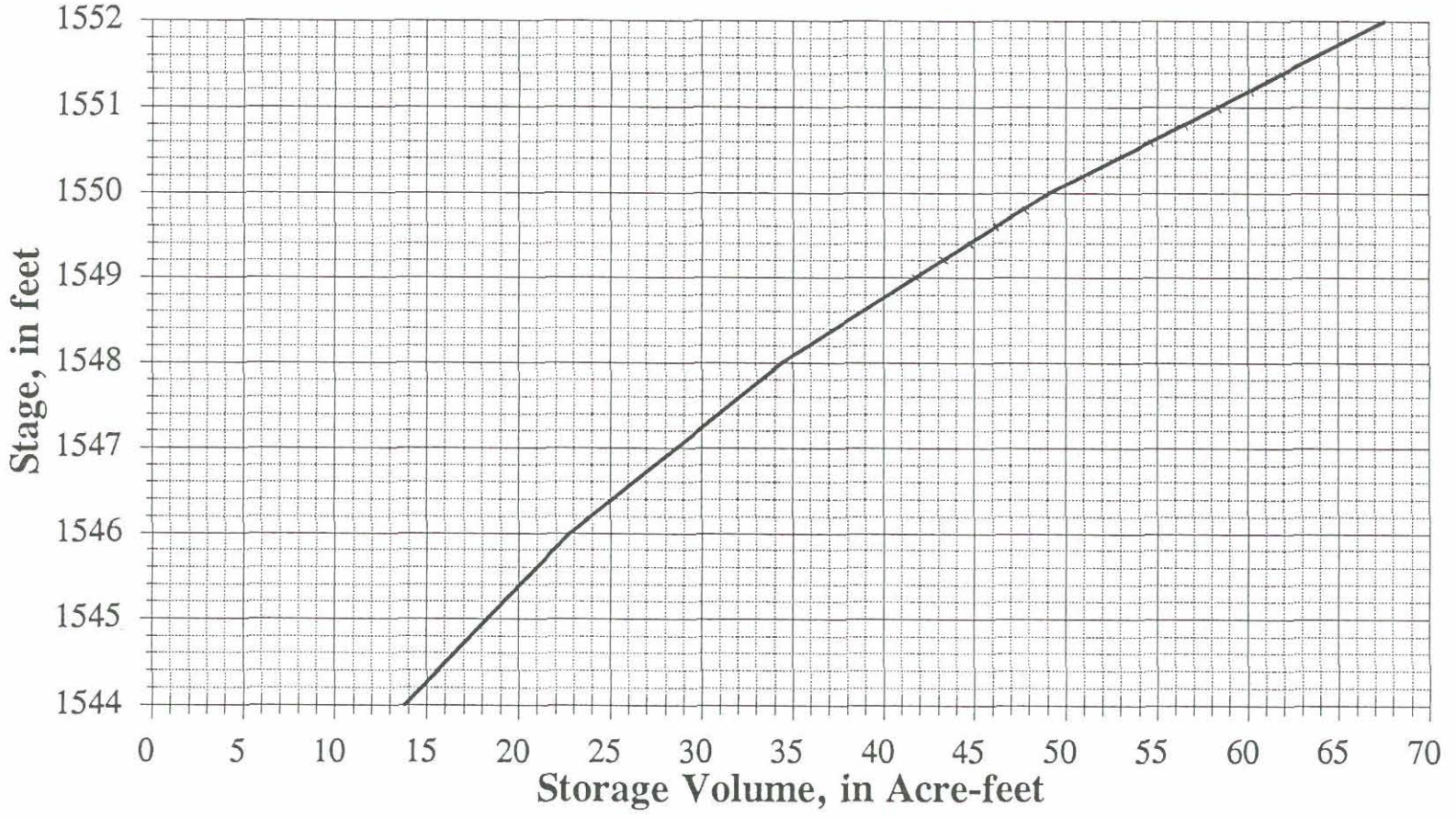
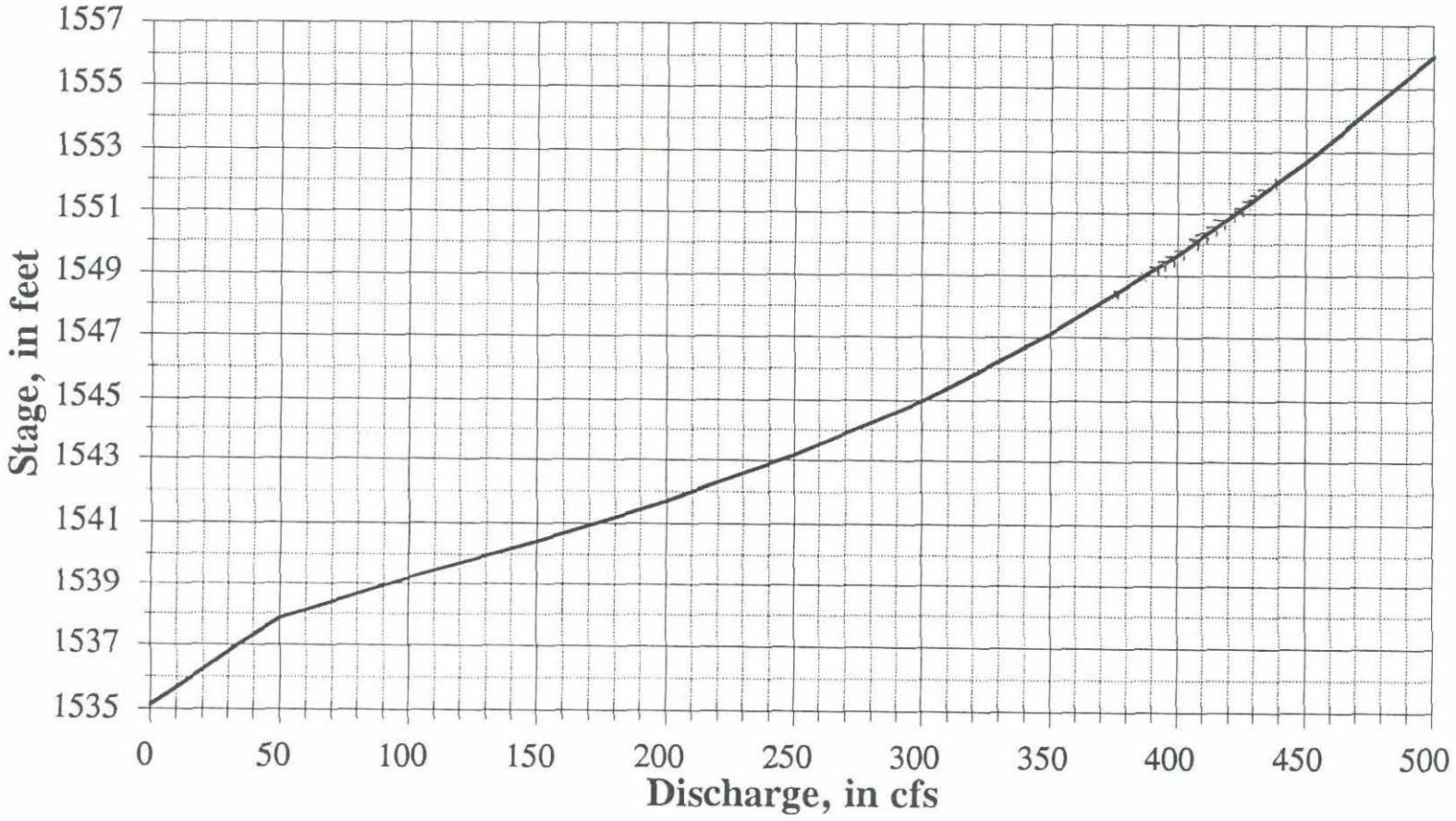
Phoenix, AZ 85009



C503 Stage vs. Discharge

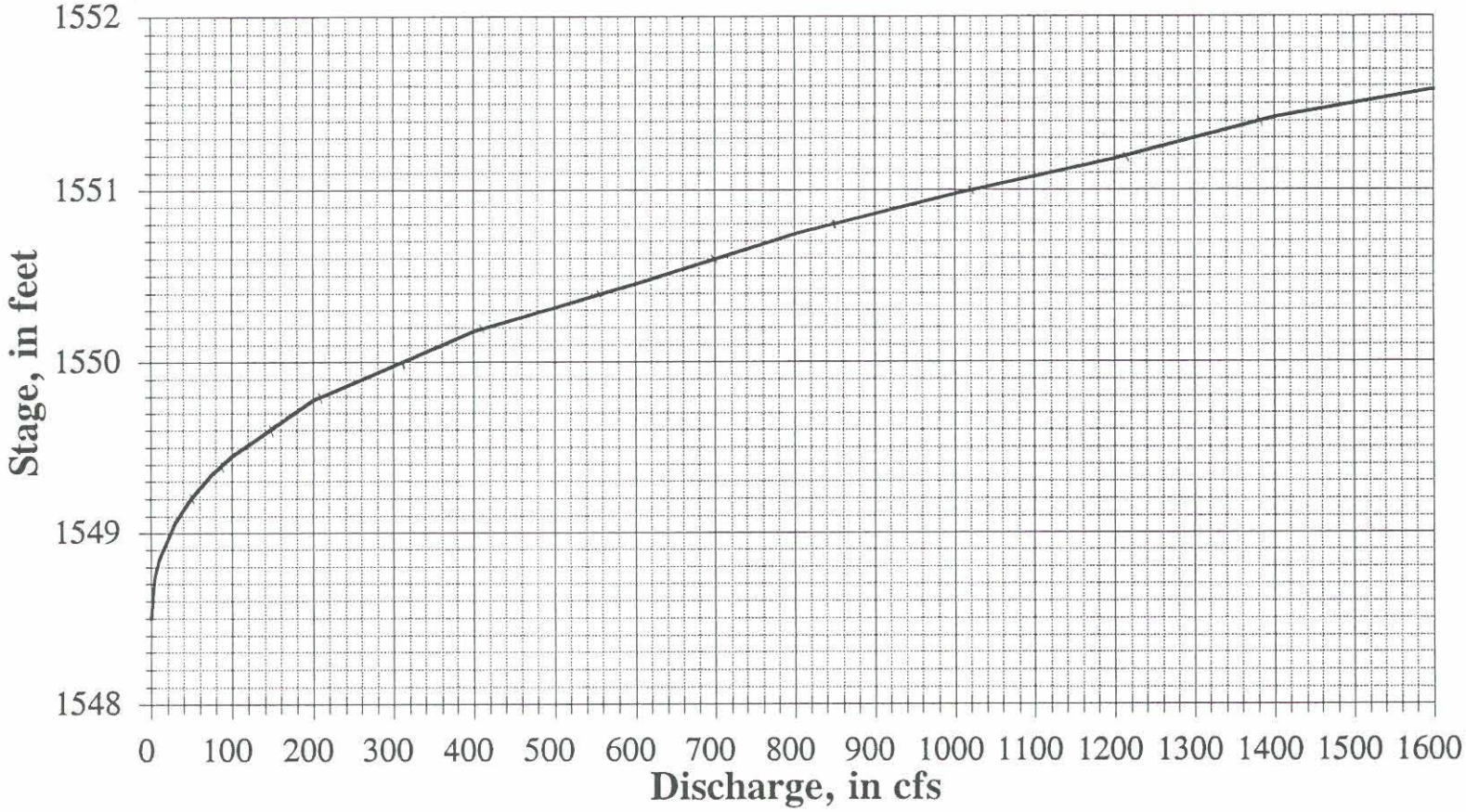
Culvert Flow from HY8

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009



C503 Stage vs. Discharge

Ditch Flow from HEC-2



Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

CURRENT DATE: 06-08-1993
CURRENT TIME: 13:00:05

FILE DATE: 06-08-1993
FILE NAME: C503

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1535.14	1530.94	190.05	1 CSP	6.00	6.00	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C503 DATE: 06-08-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1535.14	0	0	0	0	0	0	0	0	1
1537.87	50	50	0	0	0	0	0	0	1
1539.21	100	100	0	0	0	0	0	0	1
1540.43	150	150	0	0	0	0	0	0	1
1541.71	200	200	0	0	0	0	0	0	1
1543.18	250	250	0	0	0	0	0	0	1
1544.96	300	300	0	0	0	0	0	0	1
1547.11	350	350	0	0	0	0	0	0	1
1549.66	400	400	0	0	0	0	0	0	1
1552.65	450	450	0	0	0	0	0	0	1
1556.05	500	500	0	0	0	0	0	0	1
1560.00	552	552	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C503 DATE: 06-08-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1535.14	0.00	0	0	0.00
1537.87	0.00	50	0	0.00
1539.21	0.00	100	0	0.00
1540.43	0.00	150	0	0.00
1541.71	0.00	200	0	0.00
1543.18	0.00	250	0	0.00
1544.96	0.00	300	0	0.00
1547.11	0.00	350	0	0.00
1549.66	0.00	400	0	0.00

1552.65	0.00	450	0	0.00
1556.05	0.00	500	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 06-08-1993 FILE DATE: 06-08-1993
CURRENT TIME: 13:00:05 FILE NAME: C503

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (6 BY 6) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1535.14	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
50	1537.87	2.73	2.73	1-S2n	1.46	1.87	9.33	1.46	2.45	0.42
100	1539.21	4.07	4.07	1-S2n	2.11	2.68	11.25	2.11	2.93	0.57
150	1540.43	5.29	5.29	1-S2n	2.64	3.31	12.41	2.66	3.25	0.68
200	1541.71	6.57	6.57	5-S2n	3.13	3.85	13.43	3.13	3.49	0.77
250	1543.18	8.04	8.04	5-S2n	3.60	4.32	14.14	3.60	3.70	0.85
300	1544.96	9.82	9.82	5-S2n	4.08	4.72	14.66	4.08	3.87	0.91
350	1547.11	11.97	11.97	5-S2n	4.63	5.03	14.96	4.63	4.03	0.98
400	1549.66	14.52	12.19	6-FFn	6.00	5.31	14.15	6.00	4.16	1.03
450	1552.65	17.51	15.18	6-FFn	6.00	5.60	15.92	6.00	4.29	1.08
500	1556.05	20.91	18.51	6-FFn	6.00	5.88	17.68	6.00	4.40	1.13

El. inlet face invert 1535.14 ft El. outlet invert 1530.94 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1535.14
OUTLET STATION (FT)	190.00
OUTLET ELEVATION (FT)	1530.94
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0221
CULVERT LENGTH ALONG SLOPE (FT)	190.05

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	6.00 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 06-08-1993
CURRENT TIME: 13:00:05

FILE DATE: 06-08-1993
FILE NAME: C503

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION

FILE NAME: C503
FILE DATE: 06-08-1993

MAIN CHANNEL AND LT & RT OVER BANKS	
LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	8
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.035
MANNING N RIGHT OVER BAN	0.055
SLOPE OF CHANNEL (FT/FT)	0.0200

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1540.94
2	1008.00	1538.94
3	1017.00	1536.94
4	1037.00	1534.94
5	1057.00	1532.94
6	1232.00	1530.94
7	1252.00	1530.94
8	1362.00	1532.94
9	1392.00	1534.92
10	1422.00	1536.94
11	1447.00	1538.94
12	1467.00	1540.94

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1530.94	0.000	0.00	0.00	0.00
50.00	1531.36	0.846	0.42	2.45	0.33
100.00	1531.51	0.884	0.57	2.93	0.43
150.00	1531.62	0.908	0.68	3.25	0.50
200.00	1531.71	0.924	0.77	3.49	0.55
250.00	1531.79	0.937	0.85	3.70	0.60
300.00	1531.85	0.948	0.91	3.87	0.65
350.00	1531.92	0.957	0.98	4.03	0.68
400.00	1531.97	0.966	1.03	4.16	0.72
450.00	1532.02	0.973	1.08	4.29	0.75
500.00	1532.07	0.979	1.13	4.40	0.78

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE GRAVEL

EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1560.00

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    22JUN93    TIME   19:03:43 *
 *****************************************
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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   22JUN93      19:03:43                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 22JUN93    19:03:43
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
 T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE
 T3                                                        dtp
                                                      FILE:   CH503.IH2
 T4
 T5              This model is used to develop a rating curve for culvert 503
 T6              Ditch flow to south of culvert 503 is diverted to C504
 T7
 T8      Single X-Section Run
                 Ditch slope =   .01333        From 200 scale map

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .01333

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1                                       -1

    SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38         43          1          8         26          2          3         11          5         58


         Manning's n:          Min  Normal     Max
                   Earth      .015    .022     .030
               Pavement       .013    .016     .020
                  Desert      .040    .060     .080
               Veg Des.       .070    .100     .160

                  Earthy
    Earth  Desert Desert

 NC     .022       .055       .035        .1         .3
 QT       14          5         10        30         50          75        100        200        400        600
 QT      800       1000       1200      1400       1600


         X-Section 1
            this section needs to be input from 200 scale map
 X1        1          8       1008      1097
 GR     1552     999.99    1551.41      1000    1551.01       1008    1550.01       1012     1548.5       1042
 GR   1548.5       1052       1550      1097       1552       1187

1
   22JUN93      19:03:43                                                                                    PAGE    2


 X1        2                                                  .2         .2         .2

 X1        3                                                  .2         .2         .2

 X1        4                                                  .2         .2         .2

 X1        5                                                  .2         .2         .2

 X1        6                                                  .2         .2         .2

1
   22JUN93      19:03:43                                                                                    PAGE    3

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

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .22   1548.72   1548.67       .00   1548.75       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.4       .0        .0        .0   1550.00
       .00       .00      1.46       .00      .000      .035      .000      .000   1548.50   1037.62
   .013321        0.        0.        0.         0        24         9       .00     21.01   1058.62


*SECNO 2.000
     2.000       .22   1548.72   1548.67       .00   1548.76       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.5       .0        .0        .0   1550.00
       .00       .00      1.44       .00      .000      .035      .000      .000   1548.50   1037.56
   .012719        0.        0.        0.         0        15         0       .00     21.14   1058.70


*SECNO 3.000
     3.000       .23   1548.73   1548.67       .00   1548.76       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.6       .0        .0        .0   1550.00
       .00       .00      1.41       .00      .000      .035      .000      .000   1548.50   1037.49
   .011977        0.        0.        0.         0        15         0       .00     21.32   1058.81


*SECNO 4.000
     4.000       .23   1548.73   1548.67       .00   1548.76       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.6       .0        .0        .0   1550.00
       .00       .00      1.38       .00      .000      .035      .000      .000   1548.50   1037.42
   .011241        0.        0.        0.         0        15         0       .00     21.51   1058.92


*SECNO 5.000
     5.000       .24   1548.74   1548.67       .00   1548.76       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.7       .0        .0        .0   1550.00
       .00       .00      1.35       .00      .000      .035      .000      .000   1548.50   1037.34
   .010582        0.        0.        0.         0        15         0       .00     21.69   1059.03


*SECNO 6.000
     6.000       .24   1548.74   1548.67       .00   1548.77       .03       .00       .00   1551.01
       5.0        .0       5.0        .0        .0       3.8       .0        .0        .0   1550.00
       .00       .00      1.32       .00      .000      .035      .000      .000   1548.50   1037.27
   .009989        0.        0.        0.         0        15         0       .00     21.86   1059.14
```

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1
   22JUN93      19:03:43                                                                          PAGE    4

T3            Q2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .01333

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                  -1                                      -1

1
   22JUN93      19:03:43                                                                          PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .32   1548.82   1548.75       .00   1548.86       .05       .00       .00   1551.01
      10.0        .0      10.0        .0        .0       5.6       .0        .0        .0   1550.00
       .00       .00      1.78       .00      .000      .035      .000      .000   1548.50   1035.74
   .013302        0.        0.        0.         0        17         8       .00     25.71   1061.45


*SECNO 2.000
     2.000       .32   1548.82   1548.75       .00   1548.87       .05       .00       .00   1551.01
      10.0        .0      10.0        .0        .0       5.7       .0        .0        .0   1550.00
       .00       .00      1.76       .00      .000      .035      .000      .000   1548.50   1035.69
   .012860        0.        0.        0.         0        15         0       .00     25.85   1061.53


*SECNO 3.000
     3.000       .32   1548.82   1548.75       .00   1548.87       .05       .00       .00   1551.01
      10.0        .0      10.0        .0        .0       5.8       .0        .0        .0   1550.00
       .00       .00      1.73       .00      .000      .035      .000      .000   1548.50   1035.61
   .012266        0.        0.        0.         0        15         0       .00     26.03   1061.65


*SECNO 4.000
     4.000       .33   1548.83   1548.75       .00   1548.87       .04       .00       .00   1551.01
      10.0        .0      10.0        .0        .0       5.9       .0        .0        .0   1550.00
       .00       .00      1.69       .00      .000      .035      .000      .000   1548.50   1035.53
   .011635        0.        0.        0.         0        15         0       .00     26.25   1061.77


*SECNO 5.000
     5.000       .33   1548.83   1548.75       .00   1548.87       .04       .00       .00   1551.01
      10.0        .0      10.0        .0        .0       6.0       .0        .0        .0   1550.00
```

```
      .00        .00       1.66        .00       .000       .035       .000       .000   1548.50   1035.44
   .011060         0.         0.         0.          0         15          0        .00     26.45   1061.90

 *SECNO 6.000
     6.000        .34    1548.84    1548.75        .00    1548.88        .04        .00        .00   1551.01
      10.0         .0       10.0         .0         .0        6.1         .0         .0         .0   1550.00
       .00        .00       1.63        .00       .000       .035       .000       .000   1548.50   1035.37
   .010550         0.         0.         0.          0         15          0        .00     26.65   1062.02

1
   22JUN93      19:03:43                                                                                    PAGE    6

 T3            Q3

 J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                            .01333

 J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       3                  -1                                           -1

1
   22JUN93      19:03:43                                                                                    PAGE    7

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

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .54    1549.04    1548.95        .00    1549.13        .09        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       12.6         .0         .0         .0   1550.00
       .00        .00       2.38        .00       .000       .035       .000       .000   1548.50   1031.30
   .013104         0.         0.         0.          0         14          6        .00     36.86   1068.16

 *SECNO 2.000
     2.000        .54    1549.04    1548.95        .00    1549.13        .09        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       12.7         .0         .0         .0   1550.00
       .00        .00       2.36        .00       .000       .035       .000       .000   1548.50   1031.25
   .012841         0.         0.         0.          0         15          0        .00     36.99   1068.23

 *SECNO 3.000
     3.000        .55    1549.05    1548.95        .00    1549.13        .08        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       12.9         .0         .0         .0   1550.00
       .00        .00       2.33        .00       .000       .035       .000       .000   1548.50   1031.17
   .012440         0.         0.         0.          0         15          0        .00     37.19   1068.35

 *SECNO 4.000
     4.000        .55    1549.05    1548.95        .00    1549.13        .08        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       13.0         .0         .0         .0   1550.00
       .00        .00       2.30        .00       .000       .035       .000       .000   1548.50   1031.08
   .011997         0.         0.         0.          0         15          0        .00     37.42   1068.49

 *SECNO 5.000
     5.000        .56    1549.06    1548.95        .00    1549.14        .08        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       13.2         .0         .0         .0   1550.00
       .00        .00       2.27        .00       .000       .035       .000       .000   1548.50   1030.98
   .011562         0.         0.         0.          0         15          0        .00     37.65   1068.64

 *SECNO 6.000
     6.000        .56    1549.06    1548.95        .00    1549.14        .08        .00        .00   1551.01
      30.0         .0       30.0         .0         .0       13.4         .0         .0         .0   1550.00
       .00        .00       2.24        .00       .000       .035       .000       .000   1548.50   1030.89
   .011156         0.         0.         0.          0         15          0        .00     37.89   1068.78

1
   22JUN93      19:03:43                                                                                    PAGE    8

 T3            Q4

 J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 5                            .01333

 J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       4                  -1                                           -1

1
   22JUN93      19:03:43                                                                                    PAGE    9

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

 *PROF 4
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CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .68   1549.18   1549.09       .00   1549.30       .12       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      18.3        .0        .0        .0   1550.00
       .00       .00      2.73       .00      .000      .035      .000      .000   1548.50   1028.51
   .013313        0.        0.        0.         0        17         6       .00     43.87   1072.38

*SECNO 2.000
     2.000       .68   1549.18   1549.09       .00   1549.30       .11       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      18.4        .0        .0        .0   1550.00
       .00       .00      2.72       .00      .000      .035      .000      .000   1548.50   1028.45
   .013083        0.        0.        0.         0        15         0       .00     44.00   1072.46

*SECNO 3.000
     3.000       .69   1549.19   1549.09       .00   1549.30       .11       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      18.6        .0        .0        .0   1550.00
       .00       .00      2.69       .00      .000      .035      .000      .000   1548.50   1028.37
   .012728        0.        0.        0.         0        15         0       .00     44.22   1072.58

*SECNO 4.000
     4.000       .69   1549.19   1549.09       .00   1549.30       .11       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      18.8        .0        .0        .0   1550.00
       .00       .00      2.66       .00      .000      .035      .000      .000   1548.50   1028.27
   .012327        0.        0.        0.         0        15         0       .00     44.47   1072.73

*SECNO 5.000
     5.000       .70   1549.20   1549.09       .00   1549.31       .11       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      19.1        .0        .0        .0   1550.00
       .00       .00      2.62       .00      .000      .035      .000      .000   1548.50   1028.16
   .011913        0.        0.        0.         0        15         0       .00     44.73   1072.90

*SECNO 6.000
     6.000       .70   1549.20   1549.09       .00   1549.31       .10       .00       .00   1551.01
      50.0        .0      50.0        .0        .0      19.3        .0        .0        .0   1550.00
       .00       .00      2.59       .00      .000      .035      .000      .000   1548.50   1028.05
   .011516        0.        0.        0.         0        15         0       .00     45.00   1073.06

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   22JUN93      19:03:43                                                                          PAGE   10

T3            Q5
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 6                         .01333
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     5                   -1                                      -1

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   22JUN93      19:03:43                                                                          PAGE   11

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

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .82   1549.32   1549.21       .00   1549.46       .14       .00       .00   1551.01
      75.0        .0      75.0        .0        .0      24.7        .0        .0        .0   1550.00
       .00       .00      3.03       .00      .000      .035      .000      .000   1548.50   1025.79
   .013264        0.        0.        0.         0        18         5       .00     50.68   1076.47

*SECNO 2.000
     2.000       .82   1549.32   1549.21       .00   1549.46       .14       .00       .00   1551.01
      75.0        .0      75.0        .0        .0      24.9        .0        .0        .0   1550.00
       .00       .00      3.01       .00      .000      .035      .000      .000   1548.50   1025.74
   .013070        0.        0.        0.         0        15         0       .00     50.81   1076.55

*SECNO 3.000
     3.000       .83   1549.33   1549.21       .00   1549.46       .14       .00       .00   1551.01
      75.0        .0      75.0        .0        .0      25.1        .0        .0        .0   1550.00
       .00       .00      2.99       .00      .000      .035      .000      .000   1548.50   1025.66
   .012767        0.        0.        0.         0        15         0       .00     51.02   1076.68

*SECNO 4.000
     4.000       .83   1549.33   1549.21       .00   1549.47       .14       .00       .00   1551.01
      75.0        .0      75.0        .0        .0      25.4        .0        .0        .0   1550.00
       .00       .00      2.96       .00      .000      .035      .000      .000   1548.50   1025.55
   .012415        0.        0.        0.         0        15         0       .00     51.28   1076.83

*SECNO 5.000
     5.000       .84   1549.34   1549.21       .00   1549.47       .13       .00       .00   1551.01
      75.0        .0      75.0        .0        .0      25.7        .0        .0        .0   1550.00
       .00       .00      2.92       .00      .000      .035      .000      .000   1548.50   1025.44
   .012034        0.        0.        0.         0        15         0       .00     51.56   1077.00
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```
*SECNO 6.000
     6.000       .84   1549.34   1549.21       .00   1549.47       .13       .00       .00   1551.01
      75.0        .0      75.0       .0        .0      26.0        .0        .0        .0   1550.00
       .00       .00      2.89       .00      .000      .035      .000      .000   1548.50   1025.33
   .011667        0.        0.        0.         0        15         0       .00     51.85   1077.18

1
   22JUN93      19:03:43                                                                                PAGE   12

 T3            Q6

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 7                         .01333

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      6                  -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   13

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

 *PROF 6

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .93   1549.43   1549.32       .00   1549.59       .16       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      30.7        .0        .0        .0   1550.00
       .00       .00      3.26       .00      .000      .035      .000      .000   1548.50   1023.59
   .013215        0.        0.        0.         0        14         4       .00     56.22   1079.81

 *SECNO 2.000
     2.000       .93   1549.43   1549.32       .00   1549.59       .16       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      30.8        .0        .0        .0   1550.00
       .00       .00      3.24       .00      .000      .035      .000      .000   1548.50   1023.53
   .013042        0.        0.        0.         0        11         0       .00     56.36   1079.89

 *SECNO 3.000
     3.000       .94   1549.44   1549.32       .00   1549.60       .16       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      31.1        .0        .0        .0   1550.00
       .00       .00      3.22       .00      .000      .035      .000      .000   1548.50   1023.44
   .012756        0.        0.        0.         0        15         0       .00     56.58   1080.02

 *SECNO 4.000
     4.000       .94   1549.44   1549.32       .00   1549.60       .16       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      31.4        .0        .0        .0   1550.00
       .00       .00      3.18       .00      .000      .035      .000      .000   1548.50   1023.34
   .012426        0.        0.        0.         0        11         0       .00     56.85   1080.18

 *SECNO 5.000
     5.000       .95   1549.45   1549.32       .00   1549.60       .15       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      31.7        .0        .0        .0   1550.00
       .00       .00      3.15       .00      .000      .035      .000      .000   1548.50   1023.22
   .012078        0.        0.        0.         0        15         0       .00     57.14   1080.36

 *SECNO 6.000
     6.000       .95   1549.45   1549.32       .00   1549.61       .15       .00       .00   1551.01
     100.0        .0     100.0       .0        .0      32.1        .0        .0        .0   1550.00
       .00       .00      3.12       .00      .000      .035      .000      .000   1548.50   1023.10
   .011735        0.        0.        0.         0        15         0       .00     57.44   1080.54

1
   22JUN93      19:03:43                                                                                PAGE   14

 T3            Q7

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 8                         .01333

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      7                  -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   15

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

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
```

```
CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.25   1549.75   1549.63       .00   1549.98       .24       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      51.2        .0        .0        .0   1550.00
       .00       .00      3.90       .00      .000      .035      .000      .000   1548.50   1017.23
   .013361        0.        0.        0.         0        14         5       .00     72.18   1089.41

*SECNO 2.000
     2.000      1.25   1549.75   1549.63       .00   1549.99       .23       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      51.4        .0        .0        .0   1550.00
       .00       .00      3.89       .00      .000      .035      .000      .000   1548.50   1017.17
   .013226        0.        0.        0.         0        11         0       .00     72.32   1089.49

*SECNO 3.000
     3.000      1.26   1549.76   1549.63       .00   1549.99       .23       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      51.8        .0        .0        .0   1550.00
       .00       .00      3.86       .00      .000      .035      .000      .000   1548.50   1017.08
   .012998        0.        0.        0.         0        11         0       .00     72.55   1089.63

*SECNO 4.000
     4.000      1.26   1549.76   1549.63       .00   1549.99       .23       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      52.2        .0        .0        .0   1550.00
       .00       .00      3.83       .00      .000      .035      .000      .000   1548.50   1016.97
   .012721        0.        0.        0.         0        11         0       .00     72.83   1089.80

*SECNO 5.000
     5.000      1.27   1549.77   1549.63       .00   1550.00       .22       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      52.7        .0        .0        .0   1550.00
       .00       .00      3.80       .00      .000      .035      .000      .000   1548.50   1016.83
   .012406        0.        0.        0.         0        11         0       .00     73.17   1090.00

*SECNO 6.000
     6.000      1.28   1549.78   1549.63       .00   1550.00       .22       .00       .00   1551.01
     200.0        .0     200.0        .0        .0      53.2        .0        .0        .0   1550.00
       .00       .00      3.76       .00      .000      .035      .000      .000   1548.50   1016.69
   .012085        0.        0.        0.         0        11         0       .00     73.52   1090.21
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T3          Q8

J1  ICHECK  INQ     NINV    IDIR    STRT    METRIC  HVINS   Q       WSEL    FQ

            9                       .01333

J2  NPROF   IPLOT   PRFVS   XSECV   XSECH   FN      ALLDC   IBW     CHNIM   ITRACE

    8               -1                              -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.64   1550.14   1550.04       .00   1550.50       .36       .00       .00   1551.01
     400.0        .0     399.8        .2        .0      83.1        .4        .0        .0   1550.00
       .00       .00      4.81       .53      .000      .035      .055      .000   1548.50   1011.48
   .013357        0.        0.        0.         0        15         5       .00     91.86   1103.33

*SECNO 2.000
     2.000      1.65   1550.15   1550.04       .00   1550.50       .36       .00       .00   1551.01
     400.0        .0     399.8        .2        .0      83.3        .5        .0        .0   1550.00
       .00       .00      4.80       .54      .000      .035      .055      .000   1548.50   1011.47
   .013237        0.        0.        0.         0        11         0       .00     91.99   1103.45

*SECNO 3.000
     3.000      1.65   1550.15   1550.04       .00   1550.51       .35       .00       .00   1551.01
     400.0        .0     399.7        .3        .0      83.7        .5        .0        .0   1550.00
       .00       .00      4.77       .54      .000      .035      .055      .000   1548.50   1011.45
   .013026        0.        0.        0.         0        11         0       .00     92.22   1103.67

*SECNO 4.000
     4.000      1.66   1550.16   1550.04       .00   1550.51       .35       .00       .00   1551.01
     400.0        .0     399.7        .3        .0      84.3        .5        .0        .0   1550.00
       .00       .00      4.74       .55      .000      .035      .055      .000   1548.50   1011.42
   .012746        0.        0.        0.         0        11         0       .00     92.54   1103.96

*SECNO 5.000
     5.000      1.67   1550.17   1550.04       .00   1550.51       .34       .00       .00   1551.01
     400.0        .0     399.7        .3        .0      84.9        .6        .0        .0   1550.00
       .00       .00      4.70       .56      .000      .035      .055      .000   1548.50   1011.39
   .012424        0.        0.        0.         0        11         0       .00     92.92   1104.31
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*SECNO 6.000
     6.000      1.68   1550.18   1550.04       .00   1550.51       .34       .00       .00   1551.01
     400.0        .0     399.6        .4        .0      85.7        .7        .0        .0   1550.00
       .00       .00      4.66       .58      .000      .035      .055      .000   1548.50   1011.36
   .012078        0.        0.        0.         0        11         0       .00     93.33   1104.69

1
   22JUN93      19:03:43                                                                                PAGE   18

 T3            Q9

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               10                          .01333

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      9                  -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   19

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

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.91   1550.41   1550.33       .00   1550.90       .49       .00       .00   1551.01
     600.0        .0     595.9       4.1        .0     106.3       3.8        .0        .0   1550.00
       .00       .00      5.61      1.08      .000      .035      .055      .000   1548.50   1010.40
   .013303        0.        0.        0.         0         8         5       .00    105.05   1115.45

 *SECNO 2.000
     2.000      1.92   1550.42   1550.34       .00   1550.90       .48       .00       .00   1551.01
     600.0        .0     595.8       4.2        .0     106.5       3.8        .0        .0   1550.00
       .00       .00      5.60      1.08      .000      .035      .055      .000   1548.50   1010.39
   .013206        0.        0.        0.         0         8         0       .00    105.18   1115.57

 *SECNO 3.000
     3.000      1.92   1550.42   1550.33       .00   1550.90       .48       .00       .00   1551.01
     600.0        .0     595.7       4.3        .0     106.9       3.9        .0        .0   1550.00
       .00       .00      5.57      1.09      .000      .035      .055      .000   1548.50   1010.37
   .013024        0.        0.        0.         0        11         0       .00    105.43   1115.80

 *SECNO 4.000
     4.000      1.93   1550.43   1550.33       .00   1550.90       .47       .00       .00   1551.01
     600.0        .0     595.6       4.4        .0     107.6       4.1        .0        .0   1550.00
       .00       .00      5.54      1.09      .000      .035      .055      .000   1548.50   1010.34
   .012773        0.        0.        0.         0        11         0       .00    105.78   1116.12

 *SECNO 5.000
     5.000      1.94   1550.44   1550.33       .00   1550.91       .47       .00       .00   1551.01
     600.0        .0     595.4       4.6        .0     108.4       4.2        .0        .0   1550.00
       .00       .00      5.49      1.09      .000      .035      .055      .000   1548.50   1010.30
   .012462        0.        0.        0.         0        11         0       .00    106.23   1116.53

 *SECNO 6.000
     6.000      1.95   1550.45   1550.33       .00   1550.91       .46       .00       .00   1551.01
     600.0        .0     595.1       4.9        .0     109.3       4.4        .0        .0   1550.00
       .00       .00      5.45      1.09      .000      .035      .055      .000   1548.50   1010.26
   .012114        0.        0.        0.         0        11         0       .00    106.75   1117.01

1
   22JUN93      19:03:43                                                                                PAGE   20

 T3            Q10

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               11                          .01333

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      10                 -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   21

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

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
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```
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.14   1550.64   1550.58       .00   1551.23       .59       .00       .00   1551.01
     800.0       .0     786.6      13.4        .0     126.2       9.2        .0        .0   1550.00
       .00       .00     6.23      1.45      .000      .035      .055      .000   1548.50   1009.48
   .013244       0.       0.        0.         0        11         5       .00    116.29   1125.77

*SECNO 2.000
     2.000      2.14   1550.64   1550.59       .00   1551.24       .59       .00       .00   1551.01
     800.0       .0     786.5      13.5        .0     126.5       9.3        .0        .0   1550.00
       .00       .00     6.22      1.45      .000      .035      .055      .000   1548.50   1009.47
   .013160       0.       0.        0.         0         8         0       .00    116.42   1125.89

*SECNO 3.000
     3.000      2.15   1550.65   1550.59       .00   1551.24       .59       .00       .00   1551.01
     800.0       .0     786.3      13.7        .0     126.9       9.4        .0        .0   1550.00
       .00       .00     6.19      1.45      .000      .035      .055      .000   1548.50   1009.45
   .012996       0.       0.        0.         0         8         0       .00    116.69   1126.14

*SECNO 4.000
     4.000      2.16   1550.66   1550.59       .00   1551.24       .58       .00       .00   1551.01
     800.0       .0     786.0      14.0        .0     127.6       9.7        .0        .0   1550.00
       .00       .00     6.16      1.45      .000      .035      .055      .000   1548.50   1009.42
   .012761       0.       0.        0.         0         8         0       .00    117.07   1126.49

*SECNO 5.000
     5.000      2.18   1550.68   1550.59       .00   1551.25       .57       .00       .00   1551.01
     800.0       .0     785.6      14.4        .0     128.5      10.0        .0        .0   1550.00
       .00       .00     6.11      1.45      .000      .035      .055      .000   1548.50   1009.38
   .012461       0.       0.        0.         0         8         0       .00    117.57   1126.95

*SECNO 6.000
     6.000      2.24   1550.74   1550.59       .00   1551.25       .52       .00       .01   1551.01
     800.0       .0     782.7      17.3        .0     134.5      12.1        .0        .0   1550.00
       .00       .00     5.82      1.43      .000      .035      .055      .000   1548.50   1009.11
   .010681       0.       0.        0.         3         8         0       .00    120.90   1130.00
```

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1                                                                                          PAGE   22
  22JUN93      19:03:43

T3          Q11

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              12                            .01333

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11                  -1                                      -1

1                                                                                          PAGE   23
  22JUN93      19:03:43

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

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.34   1550.84   1550.82       .00   1551.53       .69       .00       .00   1551.01
    1000.0       .0     972.2      27.8        .0     144.0      15.9        .0        .0   1550.00
       .00       .00     6.75      1.74      .000      .035      .055      .000   1548.50   1008.67
   .013213       0.       0.        0.         0        11         5       .00    126.18   1134.86

*SECNO 2.000
     2.000      2.35   1550.85   1550.81       .00   1551.53       .69       .00       .00   1551.01
    1000.0       .0     972.1      27.9        .0     144.2      16.0        .0        .0   1550.00
       .00       .00     6.74      1.74      .000      .035      .055      .000   1548.50   1008.66
   .013139       0.       0.        0.         0         5         0       .00    126.32   1134.98

*SECNO 3.000
     3.000      2.36   1550.86   1550.81       .00   1551.54       .68       .00       .00   1551.01
    1000.0       .0     971.8      28.2        .0     144.7      16.2        .0        .0   1550.00
       .00       .00     6.71      1.74      .000      .035      .055      .000   1548.50   1008.64
   .012989       0.       0.        0.         0         5         0       .00    126.58   1135.23

*SECNO 4.000
     4.000      2.37   1550.87   1550.80       .00   1551.54       .67       .00       .00   1551.01
    1000.0       .0     971.3      28.7        .0     145.4      16.6        .0        .0   1550.00
       .00       .00     6.68      1.74      .000      .035      .055      .000   1548.50   1008.61
   .012765       0.       0.        0.         0         5         0       .00    126.99   1135.60

*SECNO 5.000
     5.000      2.47   1550.97   1550.82       .00   1551.55       .58       .00       .01   1551.01
    1000.0       .0     964.3      35.7        .0     155.5      21.2        .0        .0   1550.00
       .00       .00     6.20      1.68      .000      .035      .055      .000   1548.50   1008.15
   .010140       0.       0.        0.         4         8         0       .00    132.55   1140.71

*SECNO 6.000
```

```
     6.000      2.48   1550.98   1550.81       .00   1551.55       .57       .00       .00   1551.01
    1000.0        .0     963.9      36.1        .0     156.0      21.5        .0        .0   1550.00
       .00       .00      6.18      1.68      .000      .035      .055      .000   1548.50   1008.13
   .010021        0.        0.        0.         0        11         0       .00    132.85   1140.98

1
   22JUN93      19:03:43                                                                                PAGE   24

 T3           Q12

 J1  ICHECK   INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                13                          .01333

 J2  NPROF    IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      12                  -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   25

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

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.52   1551.02   1551.02       .00   1551.80       .78       .00       .00   1551.01
    1200.0        .0    1153.3      46.7        .0     160.1      23.5        .0        .0   1550.00
       .00       .08      7.20      1.98      .022      .035      .055      .000   1548.50   1007.75
   .013200        0.        0.        0.         0        14         5       .00    135.28   1143.02

 *SECNO 2.000
     2.000      2.53   1551.03   1551.02       .00   1551.80       .77       .00       .00   1551.01
    1200.0        .0    1153.1      46.9        .0     160.3      23.7        .0        .0   1550.00
       .00       .08      7.19      1.98      .022      .035      .055      .000   1548.50   1007.69
   .013130        0.        0.        0.         0         5         0       .00    135.45   1143.14

 *SECNO 3.000
     3.000      2.54   1551.04   1551.02       .00   1551.81       .77       .00       .00   1551.01
    1200.0        .0    1152.7      47.3        .0     160.8      23.9        .0        .0   1550.00
       .00       .08      7.17      1.98      .022      .035      .055      .000   1548.50   1007.58
   .012984        0.        0.        0.         0         5         0       .00    135.82   1143.40

 *SECNO 4.000
     4.000      2.55   1551.05   1551.01       .00   1551.81       .76       .00       .00   1551.01
    1200.0        .0    1152.0      48.0        .0     161.6      24.3        .0        .0   1550.00
       .00       .08      7.13      1.97      .022      .035      .055      .000   1548.50   1007.41
   .012764        0.        0.        0.         0         5         0       .00    136.38   1143.79

 *SECNO 5.000
     5.000      2.67   1551.17   1551.01       .00   1551.82       .65       .00       .01   1551.01
    1200.0        .3    1142.2      57.5        .2     172.6      30.4        .0        .0   1550.00
       .00      1.22      6.62      1.89      .022      .035      .055      .000   1548.50   1004.94
   .010076        0.        0.        0.        11         5         0       .00    144.41   1149.34

 *SECNO 6.000
     6.000      2.68   1551.18   1551.02       .00   1551.83       .64       .00       .00   1551.01
    1200.0        .3    1141.2      58.4        .3     173.6      31.1        .0        .0   1550.00
       .00      1.27      6.57      1.88      .022      .035      .055      .000   1548.50   1004.70
   .009861        0.        0.        0.         0        11         0       .00    145.16   1149.87

1
   22JUN93      19:03:43                                                                                PAGE   26

 T3           Q13

 J1  ICHECK   INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                14                          .01333

 J2  NPROF    IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      13                  -1                                      -1

1
   22JUN93      19:03:43                                                                                PAGE   27

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

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
```

```
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.71   1551.21   1551.21       .00   1552.05       .83       .00       .00   1551.01
    1400.0        .7    1327.9      71.4        .4     176.8      33.0        .0        .0   1550.00
       .00      1.63      7.51      2.17      .022      .035      .055      .000   1548.50   1004.00
   .012574        0.        0.        0.         0        14         5       .00    147.46   1151.46


*SECNO 2.000
     2.000      2.75   1551.25   1551.22       .00   1552.05       .80       .00       .00   1551.01
    1400.0       1.0    1324.6      74.5        .5     179.7      34.8        .0        .0   1550.00
       .00      1.75      7.37      2.14      .022      .035      .055      .000   1548.50   1003.33
   .011835        0.        0.        0.         0         5         0       .00    149.63   1152.96


*SECNO 3.000
     3.000      2.76   1551.26   1551.20       .00   1552.05       .79       .00       .00   1551.01
    1400.0       1.0    1323.7      75.2        .6     180.5      35.3        .0        .0   1550.00
       .00      1.78      7.34      2.13      .022      .035      .055      .000   1548.50   1003.17
   .011662        0.        0.        0.         0         5         0       .00    150.16   1153.33


*SECNO 4.000
     4.000      2.91   1551.41   1551.20       .00   1552.07       .66       .00       .01   1551.01
    1400.0       3.4    1307.0      89.6       1.6     194.2      44.5        .0        .0   1550.00
       .00      2.16      6.73      2.02      .022      .035      .055      .000   1548.50   1000.08
   .008903        0.        0.        0.         5         5         0       .00    160.19   1160.27


*SECNO 5.000
     5.000      2.91   1551.41   1551.21       .00   1552.07       .66       .00       .00   1551.01
    1400.0       3.5    1306.4      90.1       1.6     194.6      44.8        .0        .0   1550.00
       .00      2.17      6.71      2.01      .022      .035      .055      .000   1548.50   1000.00
   .008833        0.        0.        0.         0        11         0       .00    160.48   1160.48
```



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


*SECNO 6.000
     6.000      2.92   1551.42   1551.21       .00   1552.07       .65       .00       .00   1551.01
    1400.0       3.6    1305.8      90.6       1.6     195.1      45.1        .0        .0   1550.00
       .00      2.20      6.69      2.01      .022      .035      .055      .000   1548.50   1000.00
   .008751        0.        0.        0.         0        11         0       .00    160.73   1160.73
```



```
T3          Q14
J1  ICHECK  INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
            15                         .01333
J2  NPROF   IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    14               -1                                   -1
```



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


*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.91   1551.41   1551.41       .00   1552.27       .86       .00       .00   1551.01
    1600.0       3.9    1493.4     102.7       1.6     194.4      44.6        .0        .0   1550.00
       .00      2.48      7.68      2.30      .022      .035      .055      .000   1548.50   1000.04
   .011585        0.        0.        0.         0        14         5       .00    160.33   1160.37


*SECNO 2.000
     2.000      2.91   1551.41   1551.41       .00   1552.27       .86       .00       .00   1551.01
    1600.0       4.0    1493.1     102.9       1.6     194.6      44.8        .0        .0   1550.00
       .00      2.48      7.67      2.30      .022      .035      .055      .000   1548.50   1000.00
   .011540        0.        0.        0.         0         5         0       .00    160.47   1160.47


*SECNO 3.000
     3.000      2.92   1551.42   1551.41       .00   1552.27       .85       .00       .00   1551.01
    1600.0       4.1    1492.4     103.4       1.6     195.0      45.1        .0        .0   1550.00
       .00      2.51      7.65      2.29      .022      .035      .055      .000   1548.50   1000.00
   .011444        0.        0.        0.         0         5         0       .00    160.69   1160.69


*SECNO 4.000
     4.000      2.93   1551.43   1551.40       .00   1552.28       .85       .00       .00   1551.01
```

1600.0	4.4	1491.4	104.3	1.7	195.7	45.6	.0	.0	1550.00
.00	2.56	7.62	2.29	.022	.035	.055	.000	1548.50	1000.00
.011293	0.	0.	0.	0	5	0	.00	161.05	1161.04

*SECNO 5.000

5.000	3.07	1551.57	1551.40	.00	1552.29	.72	.00	.01	1551.01
1600.0	8.8	1472.1	119.1	2.8	208.0	54.9	.0	.0	1550.00
.00	3.14	7.08	2.17	.022	.035	.055	.000	1548.50	1000.00
.008980	0.	0.	0.	7	5	0	.00	167.27	1167.26

1

22JUN93 19:03:43

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

*SECNO 6.000

6.000	3.08	1551.58	1551.41	.00	1552.29	.71	.00	.00	1551.01
1600.0	9.2	1470.5	120.2	2.9	209.0	55.6	.0	.0	1550.00
.00	3.18	7.04	2.16	.022	.035	.055	.000	1548.50	1000.00
.008822	0.	0.	0.	0	11	0	.00	167.76	1167.76

1

22JUN93 19:03:43

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

THIS RUN EXECUTED 22JUN93 19:03:46

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	1.000	5.00	1548.72	.22	1.46	1548.67	1548.75	.00	133.21	.00
	1.000	10.00	1548.82	.32	1.78	1548.75	1548.86	.00	133.02	.00
	1.000	30.00	1549.04	.54	2.38	1548.95	1549.13	.00	131.04	.00
	1.000	50.00	1549.18	.68	2.73	1549.09	1549.30	.00	133.13	.00
	1.000	75.00	1549.32	.82	3.03	1549.21	1549.46	.00	132.64	.00
	1.000	100.00	1549.43	.93	3.26	1549.32	1549.59	.00	132.15	.00
	1.000	200.00	1549.75	1.25	3.90	1549.63	1549.98	.00	133.61	.00
	1.000	400.00	1550.14	1.64	4.81	1550.04	1550.50	.00	133.57	.00
	1.000	600.00	1550.41	1.91	5.61	1550.33	1550.90	.00	133.03	.00
	1.000	800.00	1550.64	2.14	6.23	1550.58	1551.23	.00	132.44	.00
	1.000	1000.00	1550.84	2.34	6.75	1550.82	1551.53	.00	132.13	.00
	1.000	1200.00	1551.02	2.52	7.20	1551.02	1551.80	.00	132.00	.00
*	1.000	1400.00	1551.21	2.71	7.51	1551.21	1552.05	.00	125.74	.00
*	1.000	1600.00	1551.41	2.91	7.68	1551.41	1552.27	.00	115.85	.00
	2.000	5.00	1548.72	.22	1.44	1548.67	1548.76	.00	127.19	1.02
	2.000	10.00	1548.82	.32	1.76	1548.75	1548.87	.00	128.60	1.02
	2.000	30.00	1549.04	.54	2.36	1548.95	1549.13	.00	128.41	1.01
	2.000	50.00	1549.18	.68	2.72	1549.09	1549.30	.00	130.83	1.01
	2.000	75.00	1549.32	.82	3.01	1549.21	1549.46	.00	130.70	1.01
	2.000	100.00	1549.43	.93	3.24	1549.32	1549.59	.00	130.42	1.01
	2.000	200.00	1549.75	1.25	3.89	1549.63	1549.99	.00	132.26	1.01
	2.000	400.00	1550.15	1.65	4.80	1550.04	1550.50	.00	132.37	1.00
	2.000	600.00	1550.42	1.92	5.60	1550.34	1550.90	.00	132.06	1.00
	2.000	800.00	1550.64	2.14	6.22	1550.59	1551.24	.00	131.60	1.00
	2.000	1000.00	1550.85	2.35	6.74	1550.81	1551.53	.00	131.39	1.00
	2.000	1200.00	1551.03	2.53	7.19	1551.02	1551.80	.00	131.30	1.00
	2.000	1400.00	1551.25	2.75	7.37	1551.22	1552.05	.00	118.35	1.03
	2.000	1600.00	1551.41	2.91	7.67	1551.41	1552.27	.00	115.40	1.00

1

22JUN93 19:03:43

SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
3.000	5.00	1548.73	.23	1.41	1548.67	1548.76	.00	119.77	1.03
3.000	10.00	1548.82	.32	1.73	1548.75	1548.87	.00	122.66	1.02
3.000	30.00	1549.05	.55	2.33	1548.95	1549.13	.00	124.40	1.02
3.000	50.00	1549.19	.69	2.69	1549.09	1549.30	.00	127.28	1.01
3.000	75.00	1549.33	.83	2.99	1549.21	1549.46	.00	127.67	1.01
3.000	100.00	1549.44	.94	3.22	1549.32	1549.60	.00	127.56	1.01
3.000	200.00	1549.76	1.26	3.86	1549.63	1549.99	.00	129.98	1.01
3.000	400.00	1550.15	1.65	4.77	1550.04	1550.51	.00	130.26	1.01
3.000	600.00	1550.42	1.92	5.57	1550.33	1550.90	.00	130.24	1.01
3.000	800.00	1550.65	2.15	6.19	1550.59	1551.24	.00	129.96	1.01
3.000	1000.00	1550.86	2.36	6.71	1550.81	1551.54	.00	129.89	1.01
3.000	1200.00	1551.04	2.54	7.17	1551.02	1551.81	.00	129.84	1.01
3.000	1400.00	1551.26	2.76	7.34	1551.20	1552.05	.00	116.62	1.01
3.000	1600.00	1551.42	2.92	7.65	1551.41	1552.27	.00	114.44	1.00
4.000	5.00	1548.73	.23	1.38	1548.67	1548.76	.00	112.41	1.03
4.000	10.00	1548.83	.33	1.69	1548.75	1548.87	.00	116.35	1.03
4.000	30.00	1549.05	.55	2.30	1548.95	1549.13	.00	119.97	1.02
4.000	50.00	1549.19	.69	2.66	1549.09	1549.30	.00	123.27	1.02
4.000	75.00	1549.33	.83	2.96	1549.21	1549.47	.00	124.15	1.01
4.000	100.00	1549.44	.94	3.18	1549.32	1549.60	.00	124.26	1.01

4.000	200.00	1549.76	1.26	3.83	1549.63	1549.99	.00	127.21	1.01
4.000	400.00	1550.16	1.66	4.74	1550.04	1550.51	.00	127.46	1.01
4.000	600.00	1550.43	1.93	5.54	1550.33	1550.90	.00	127.73	1.01
4.000	800.00	1550.66	2.16	6.16	1550.59	1551.24	.00	127.61	1.01
4.000	1000.00	1550.87	2.37	6.68	1550.80	1551.54	.00	127.65	1.01
4.000	1200.00	1551.05	2.55	7.13	1551.01	1551.81	.00	127.64	1.01
4.000	1400.00	1551.41	2.91	6.73	1551.20	1552.07	.00	89.03	1.14
4.000	1600.00	1551.43	2.93	7.62	1551.40	1552.28	.00	112.93	1.01
5.000	5.00	1548.74	.24	1.35	1548.67	1548.76	.00	105.82	1.03
5.000	10.00	1548.83	.33	1.66	1548.75	1548.87	.00	110.60	1.03
5.000	30.00	1549.06	.56	2.27	1548.95	1549.14	.00	115.62	1.02
5.000	50.00	1549.20	.70	2.62	1549.09	1549.31	.00	119.13	1.02
5.000	75.00	1549.34	.84	2.92	1549.21	1549.47	.00	120.34	1.02
5.000	100.00	1549.45	.95	3.15	1549.32	1549.60	.00	120.78	1.01
5.000	200.00	1549.77	1.27	3.80	1549.63	1550.00	.00	124.06	1.01
5.000	400.00	1550.17	1.67	4.70	1550.04	1550.51	.00	124.24	1.01
5.000	600.00	1550.44	1.94	5.49	1550.33	1550.91	.00	124.62	1.01
5.000	800.00	1550.68	2.18	6.11	1550.59	1551.25	.00	124.61	1.01
5.000	1000.00	1550.97	2.47	6.20	1550.82	1551.55	.00	101.40	1.12
5.000	1200.00	1551.17	2.67	6.62	1551.01	1551.82	.00	100.76	1.13
5.000	1400.00	1551.41	2.91	6.71	1551.21	1552.07	.00	88.33	1.00
5.000	1600.00	1551.57	3.07	7.08	1551.40	1552.29	.00	89.80	1.12

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1548.74	.24	1.32	1548.67	1548.77	.00	99.89	1.03
6.000	10.00	1548.84	.34	1.63	1548.75	1548.88	.00	105.50	1.02
6.000	30.00	1549.06	.56	2.24	1548.95	1549.14	.00	111.56	1.02
6.000	50.00	1549.20	.70	2.59	1549.09	1549.31	.00	115.16	1.02
6.000	75.00	1549.34	.84	2.89	1549.21	1549.47	.00	116.67	1.02
6.000	100.00	1549.45	.95	3.12	1549.32	1549.61	.00	117.35	1.01
6.000	200.00	1549.78	1.28	3.76	1549.63	1550.00	.00	120.85	1.01
6.000	400.00	1550.18	1.68	4.66	1550.04	1550.51	.00	120.78	1.01
6.000	600.00	1550.45	1.95	5.45	1550.33	1550.91	.00	121.14	1.01
6.000	800.00	1550.74	2.24	5.82	1550.59	1551.25	.00	106.81	1.08
6.000	1000.00	1550.98	2.48	6.18	1550.81	1551.55	.00	100.21	1.01
6.000	1200.00	1551.18	2.68	6.57	1551.02	1551.83	.00	98.61	1.01
6.000	1400.00	1551.42	2.92	6.69	1551.21	1552.07	.00	87.51	1.00
6.000	1600.00	1551.58	3.08	7.04	1551.41	1552.29	.00	88.22	1.01

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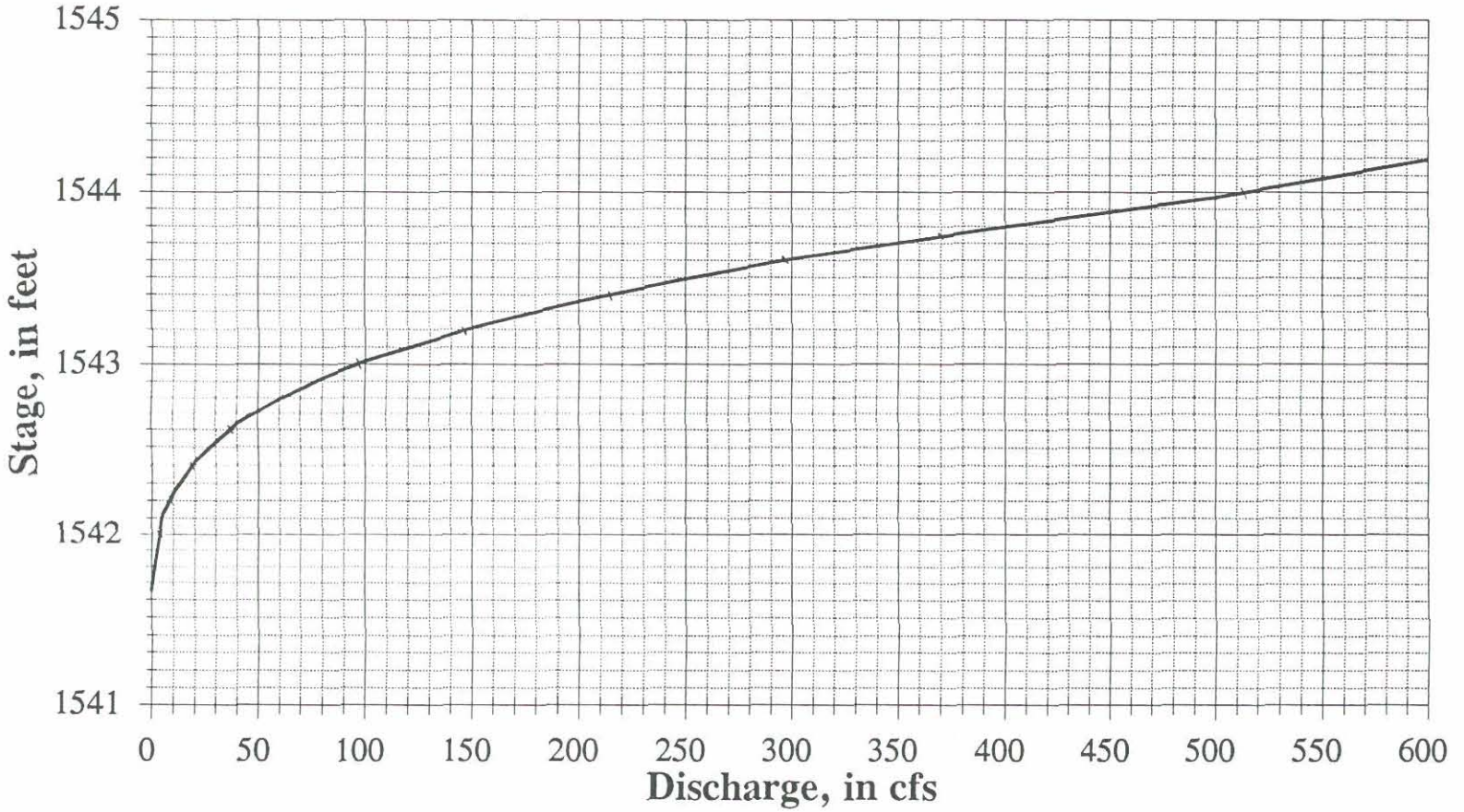
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 13 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 14 CRITICAL DEPTH ASSUMED

Hydraulic Calculations for Structure at C504

C504 Stage vs Discharge

Ditch Flow from HEC-2



CURRENT DATE: 06-15-1993
CURRENT TIME: 11:33:44

FILE DATE: 06-15-1993
FILE NAME: C504

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1538.14	1536.24	100.02	1 CSP	2.00	2.00	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C504 DATE: 06-15-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1538.14	0	0	0	0	0	0	0	0	1
1539.05	3	3	0	0	0	0	0	0	1
1539.50	6	6	0	0	0	0	0	0	1
1539.90	10	10	0	0	0	0	0	0	1
1540.33	13	13	0	0	0	0	0	0	1
1540.66	15	15	0	0	0	0	0	0	1
1541.41	19	19	0	0	0	0	0	0	1
1542.37	22	22	0	0	0	0	0	0	1
1543.73	26	26	0	0	0	0	0	0	1
1545.27	29	29	0	0	0	0	0	0	1
1546.45	32	31	0	0	0	0	0	1	4
1546.00	30	30	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C504 DATE: 06-15-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1538.14	0.00	0	0	0.00
1539.05	0.00	3	0	0.00
1539.50	0.00	6	0	0.00
1539.90	0.00	10	0	0.00
1540.33	0.00	13	0	0.00
1540.66	0.00	15	0	0.00
1541.41	0.00	19	0	0.00
1542.37	0.00	22	0	0.00
1543.73	0.00	26	0	0.00

1545.27	0.00	29	0	0.00
1546.45	-0.01	32	0	0.11

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 06-15-1993 FILE DATE: 06-15-1993
CURRENT TIME: 11:33:44 FILE NAME: C504

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (2 BY 2) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1538.14	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
3	1539.05	0.91	0.91	1-S2n	0.56	0.62	4.44	0.56	1.05	0.12
6	1539.50	1.36	1.36	1-S2n	0.81	0.89	5.35	0.81	1.31	0.17
10	1539.90	1.76	1.76	1-S2n	1.02	1.10	5.94	1.02	1.51	0.21
13	1540.33	2.19	2.19	5-S2n	1.23	1.28	6.34	1.23	1.67	0.24
15	1540.66	2.52	2.52	5-S2n	1.37	1.40	6.55	1.37	1.77	0.26
19	1541.41	3.27	3.06	2-M2c	1.74	1.57	7.25	1.57	1.94	0.30
22	1542.37	3.98	4.23	6-FFn	2.00	1.68	7.13	2.00	2.05	0.32
26	1543.73	4.83	5.59	6-FFn	2.00	1.77	8.15	2.00	2.15	0.35
29	1545.27	5.82	7.13	6-FFn	2.00	1.86	9.17	2.00	2.24	0.37
31	1546.45	6.59	8.31	6-FFn	2.00	1.93	9.88	2.00	2.33	0.40

El. inlet face invert 1538.14 ft El. outlet invert 1536.24 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1538.14
OUTLET STATION (FT)	100.00
OUTLET ELEVATION (FT)	1536.24
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0190
CULVERT LENGTH ALONG SLOPE (FT)	100.02

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	2.00 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 06-15-1993
CURRENT TIME: 11:33:44

FILE DATE: 06-15-1993
FILE NAME: C504

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION

FILE NAME: C504
FILE DATE: 06-15-1993

MAIN CHANNEL AND LT & RT OVER BANKS	
LEFT CHANNEL BOUNDARY	4
RIGHT CHANNEL BOUNDARY	5
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.035
MANNING N RIGHT OVER BAN	0.055
SLOPE OF CHANNEL (FT/FT)	0.0104

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1542.24
2	1012.00	1540.24
3	1022.00	1538.24
4	1089.00	1536.24
5	1121.00	1536.24
6	1153.00	1538.24
7	1187.00	1540.24
8	1223.00	1542.24

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1536.24	0.000	0.00	0.00	0.00
3.20	1536.36	0.536	0.12	1.05	0.08
6.40	1536.41	0.566	0.17	1.31	0.11
9.60	1536.45	0.586	0.21	1.51	0.13
12.80	1536.48	0.602	0.24	1.67	0.16
15.00	1536.50	0.610	0.26	1.77	0.17
19.20	1536.54	0.624	0.30	1.94	0.19
22.40	1536.56	0.633	0.32	2.05	0.21
25.60	1536.59	0.640	0.35	2.15	0.23
28.80	1536.61	0.647	0.37	2.24	0.24
32.00	1536.64	0.654	0.40	2.33	0.26

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1546.00

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    22JUN93    TIME   19:05:07 *
 *****************************************
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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
*************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X           XXXXX   XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX             XXXXXXX
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1
   22JUN93      19:05:07                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 22JUN93    19:05:07
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
 T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE
 T3                                                   FILE:    dtp
                                                                CH504.IH2
 T4
 T5            This model is used to develop a rating curve for culvert 504
 T6            Ditch flow to south of culvert 504 is diverted to C505
 T7
 T8      Single X-Section Run
               Ditch slope =     .010        From 200 scale map

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .010

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1                                      -1

    SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38         43          1          8         26          2          3         11          5         58

         Manning's n:          Min  Normal     Max
                   Earth      .015    .022    .030
               Pavement       .013    .016    .020
                  Desert      .040    .060    .080
               Veg Des.       .070    .100    .160

                  Earthy
    Earth  Desert Desert

 NC     .020       .055       .035        .1         .3
 QT       14          5         10        20         40         60         80        100        150        200
 QT      250        300        400       500        600

         X-Section 1
            this section needs to be input from 200 scale map
 X1        1          8       1022       1065
 GR     1546     999.99    1543.74       1000    1543.46       1014    1542.66       1022    1541.66       1026
 GR     1543       1065       1544       1120       1546       1170

1
   22JUN93      19:05:07                                                                                    PAGE    2


 X1        2                                                  .2         .2         .2

 X1        3                                                  .2         .2         .2

 X1        4                                                  .2         .2         .2

 X1        5                                                  .2         .2         .2

 X1        6                                                  .2         .2         .2

1
   22JUN93      19:05:07                                                                                    PAGE    3

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

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      .44   1542.10   1542.01      .00   1542.14      .04      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.2       .0       .0       .0   1543.00
       .00      .00     1.55      .00      .000      .035     .000     .000  1541.66   1024.23
   .010036       0.      0.        0.        0       20        9      .00    14.62   1038.85


*SECNO 2.000
     2.000      .44   1542.10   1542.01      .00   1542.14      .04      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.3       .0       .0       .0   1543.00
       .00      .00     1.54      .00      .000      .035     .000     .000  1541.66   1024.23
   .009802       0.      0.        0.        0       15        0      .00    14.68   1038.91


*SECNO 3.000
     3.000      .45   1542.11   1542.01      .00   1542.14      .04      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.3       .0       .0       .0   1543.00
       .00      .00     1.52      .00      .000      .035     .000     .000  1541.66   1024.22
   .009492       0.      0.        0.        0       15        0      .00    14.77   1038.99


*SECNO 4.000
     4.000      .45   1542.11   1542.01      .00   1542.14      .03      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.3       .0       .0       .0   1543.00
       .00      .00     1.50      .00      .000      .035     .000     .000  1541.66   1024.20
   .009166       0.      0.        0.        0       15        0      .00    14.87   1039.07


*SECNO 5.000
     5.000      .45   1542.11   1542.01      .00   1542.15      .03      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.4       .0       .0       .0   1543.00
       .00      .00     1.48      .00      .000      .035     .000     .000  1541.66   1024.19
   .008867       0.      0.        0.        0       15        0      .00    14.96   1039.15


*SECNO 6.000
     6.000      .46   1542.12   1542.01      .00   1542.15      .03      .00      .00   1542.66
      5.0       .0      5.0       .0        .0      3.4       .0       .0       .0   1543.00
       .00      .00     1.46      .00      .000      .035     .000     .000  1541.66   1024.18
   .008591       0.      0.        0.        0       19        0      .00    15.05   1039.23

1
   22JUN93      19:05:07                                                                    PAGE    4

T3            Q2
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 3                           .010
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                   -1                                      -1

1
   22JUN93      19:05:07                                                                    PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      .57   1542.23   1542.13      .00   1542.29      .05      .00      .00   1542.66
     10.0       .0     10.0       .0        .0      5.4       .0       .0       .0   1543.00
       .00      .00     1.84      .00      .000      .035     .000     .000  1541.66   1023.71
   .009954       0.      0.        0.        0       21       10      .00    18.99   1042.69


*SECNO 2.000
     2.000      .58   1542.24   1542.13      .00   1542.29      .05      .00      .00   1542.66
     10.0       .0     10.0       .0        .0      5.5       .0       .0       .0   1543.00
       .00      .00     1.82      .00      .000      .035     .000     .000  1541.66   1023.70
   .009776       0.      0.        0.        0       15        0      .00    19.05   1042.75


*SECNO 3.000
     3.000      .58   1542.24   1542.13      .00   1542.29      .05      .00      .00   1542.66
     10.0       .0     10.0       .0        .0      5.5       .0       .0       .0   1543.00
       .00      .00     1.81      .00      .000      .035     .000     .000  1541.66   1023.69
   .009525       0.      0.        0.        0       15        0      .00    19.14   1042.83


*SECNO 4.000
     4.000      .58   1542.24   1542.13      .00   1542.29      .05      .00      .00   1542.66
     10.0       .0     10.0       .0        .0      5.6       .0       .0       .0   1543.00
       .00      .00     1.79      .00      .000      .035     .000     .000  1541.66   1023.67
   .009261       0.      0.        0.        0       15        0      .00    19.24   1042.92


*SECNO 5.000
     5.000      .59   1542.25   1542.13      .00   1542.29      .05      .00      .00   1542.66
     10.0       .0     10.0       .0        .0      5.6       .0       .0       .0   1543.00
```

```
      .00       .00      1.77       .00      .000      .035      .000      .000   1541.66   1023.66
  .009016        0.        0.        0.         0        15         0       .00     19.34   1043.00

 *SECNO 6.000
     6.000       .59   1542.25   1542.13       .00   1542.30       .05       .00       .00   1542.66
      10.0        .0      10.0        .0        .0       5.7        .0        .0        .0   1543.00
       .00       .00      1.75       .00      .000      .035      .000      .000   1541.66   1023.65
  .008779        0.        0.        0.         0        15         0       .00     19.44   1043.09

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   22JUN93      19:05:07                                                                          PAGE    6

 T3            Q3

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .010

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3                  -1                                      -1

1
   22JUN93      19:05:07                                                                          PAGE    7

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

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .74   1542.40   1542.28       .00   1542.48       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.1        .0        .0        .0   1543.00
       .00       .00      2.19       .00      .000      .035      .000      .000   1541.66   1023.03
  .010048        0.        0.        0.         0        14        11       .00     24.58   1047.61

 *SECNO 2.000
     2.000       .75   1542.41   1542.28       .00   1542.48       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.2        .0        .0        .0   1543.00
       .00       .00      2.18       .00      .000      .035      .000      .000   1541.66   1023.02
  .009908        0.        0.        0.         0        15         0       .00     24.64   1047.67

 *SECNO 3.000
     3.000       .75   1542.41   1542.28       .00   1542.48       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.2        .0        .0        .0   1543.00
       .00       .00      2.16       .00      .000      .035      .000      .000   1541.66   1023.01
  .009711        0.        0.        0.         0        15         0       .00     24.74   1047.75

 *SECNO 4.000
     4.000       .75   1542.41   1542.28       .00   1542.48       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.3        .0        .0        .0   1543.00
       .00       .00      2.15       .00      .000      .035      .000      .000   1541.66   1023.00
  .009494        0.        0.        0.         0        15         0       .00     24.84   1047.84

 *SECNO 5.000
     5.000       .75   1542.41   1542.28       .00   1542.49       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.4        .0        .0        .0   1543.00
       .00       .00      2.13       .00      .000      .035      .000      .000   1541.66   1022.99
  .009274        0.        0.        0.         0        15         0       .00     24.95   1047.94

 *SECNO 6.000
     6.000       .76   1542.42   1542.28       .00   1542.49       .07       .00       .00   1542.66
      20.0        .0      20.0        .0        .0       9.5        .0        .0        .0   1543.00
       .00       .00      2.11       .00      .000      .035      .000      .000   1541.66   1022.97
  .009077        0.        0.        0.         0        15         0       .00     25.05   1048.02

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   22JUN93      19:05:07                                                                          PAGE    8

 T3            Q4

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .010

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                  -1                                      -1

1
   22JUN93      19:05:07                                                                          PAGE    9

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

 *PROF 4
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CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .96   1542.62   1542.47       .00   1542.73       .11       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.3        .0        .0        .0   1543.00
       .00       .00      2.62       .00      .000      .035      .000      .000   1541.66   1022.16
   .010160        0.        0.        0.         0        22        11       .00     31.81   1053.96


*SECNO 2.000
     2.000       .96   1542.62   1542.47       .00   1542.73       .11       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.3        .0        .0        .0   1543.00
       .00       .00      2.61       .00      .000      .035      .000      .000   1541.66   1022.15
   .010044        0.        0.        0.         0        15         0       .00     31.88   1054.03


*SECNO 3.000
     3.000       .97   1542.63   1542.47       .00   1542.73       .10       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.4        .0        .0        .0   1543.00
       .00       .00      2.59       .00      .000      .035      .000      .000   1541.66   1022.14
   .009876        0.        0.        0.         0        15         0       .00     31.98   1054.11


*SECNO 4.000
     4.000       .97   1542.63   1542.47       .00   1542.73       .10       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.5        .0        .0        .0   1543.00
       .00       .00      2.57       .00      .000      .035      .000      .000   1541.66   1022.12
   .009698        0.        0.        0.         0        15         0       .00     32.09   1054.21


*SECNO 5.000
     5.000       .97   1542.63   1542.47       .00   1542.74       .10       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.7        .0        .0        .0   1543.00
       .00       .00      2.55       .00      .000      .035      .000      .000   1541.66   1022.11
   .009518        0.        0.        0.         0        15         0       .00     32.20   1054.31


*SECNO 6.000
     6.000       .98   1542.64   1542.47       .00   1542.74       .10       .00       .00   1542.66
      40.0        .0      40.0        .0        .0      15.8        .0        .0        .0   1543.00
       .00       .00      2.54       .00      .000      .035      .000      .000   1541.66   1022.10
   .009335        0.        0.        0.         0        15         0       .00     32.32   1054.41

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   22JUN93      19:05:07                                                                                PAGE   10

T3            Q5

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                           .010

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5                  -1                                      -1

1
   22JUN93      19:05:07                                                                                PAGE   11

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

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.12   1542.78   1542.62       .00   1542.91       .13       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      20.6        .0        .0        .0   1543.00
       .00       .07      2.91       .00      .020      .035      .000      .000   1541.66   1020.83
   .010125        0.        0.        0.         0        15        11       .00     37.66   1058.50


*SECNO 2.000
     2.000      1.12   1542.78   1542.62       .00   1542.91       .13       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      20.7        .0        .0        .0   1543.00
       .00       .07      2.90       .00      .020      .035      .000      .000   1541.66   1020.81
   .010023        0.        0.        0.         0        15         0       .00     37.75   1058.56


*SECNO 3.000
     3.000      1.12   1542.78   1542.61       .00   1542.91       .13       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      20.8        .0        .0        .0   1543.00
       .00       .07      2.88       .00      .020      .035      .000      .000   1541.66   1020.78
   .009877        0.        0.        0.         0        15         0       .00     37.86   1058.65


*SECNO 4.000
     4.000      1.13   1542.79   1542.62       .00   1542.91       .13       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      20.9        .0        .0        .0   1543.00
       .00       .07      2.87       .00      .020      .035      .000      .000   1541.66   1020.75
   .009716        0.        0.        0.         0        15         0       .00     38.00   1058.75


*SECNO 5.000
     5.000      1.13   1542.79   1542.61       .00   1542.92       .13       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      21.1        .0        .0        .0   1543.00
       .00       .07      2.85       .00      .020      .035      .000      .000   1541.66   1020.71
   .009552        0.        0.        0.         0        15         0       .00     38.14   1058.85
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*SECNO 6.000
     6.000      1.13   1542.79   1542.61       .00   1542.92       .12       .00       .00   1542.66
      60.0        .0      60.0        .0        .1      21.2        .0        .0        .0   1543.00
       .00       .07      2.83       .00      .020      .035      .000      .000   1541.66   1020.68
   .009386        0.        0.        0.         0        15         0       .00     38.28   1058.96
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T3          Q6

J1  ICHECK   INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
             7                         .010

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     6                -1                                   -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.24   1542.90   1542.74       .00   1543.05       .15       .00       .00   1542.66
      80.0        .5      79.5        .0        .3      25.4        .0        .0        .0   1543.00
       .00       1.81      3.13       .00      .020      .035      .000      .000   1541.66   1019.58
   .010033        0.        0.        0.         0         9        11       .00     42.56   1062.14

*SECNO 2.000
     2.000      1.24   1542.90   1542.72       .00   1543.06       .15       .00       .00   1542.66
      80.0        .5      79.5        .0        .3      25.5        .0        .0        .0   1543.00
       .00       1.82      3.12       .00      .020      .035      .000      .000   1541.66   1019.56
   .009947        0.        0.        0.         0        15         0       .00     42.64   1062.20

*SECNO 3.000
     3.000      1.25   1542.91   1542.72       .00   1543.06       .15       .00       .00   1542.66
      80.0        .6      79.4        .0        .3      25.6        .0        .0        .0   1543.00
       .00       1.82      3.10       .00      .020      .035      .000      .000   1541.66   1019.53
   .009814        0.        0.        0.         0        15         0       .00     42.76   1062.29

*SECNO 4.000
     4.000      1.25   1542.91   1542.72       .00   1543.06       .15       .00       .00   1542.66
      80.0        .6      79.4        .0        .3      25.8        .0        .0        .0   1543.00
       .00       1.82      3.08       .00      .020      .035      .000      .000   1541.66   1019.49
   .009657        0.        0.        0.         0        15         0       .00     42.90   1062.40

*SECNO 5.000
     5.000      1.26   1542.92   1542.72       .00   1543.06       .15       .00       .00   1542.66
      80.0        .6      79.4        .0        .3      25.9        .0        .0        .0   1543.00
       .00       1.82      3.06       .00      .020      .035      .000      .000   1541.66   1019.46
   .009498        0.        0.        0.         0        15         0       .00     43.05   1062.51

*SECNO 6.000
     6.000      1.26   1542.92   1542.72       .00   1543.06       .14       .00       .00   1542.66
      80.0        .6      79.4        .0        .3      26.1        .0        .0        .0   1543.00
       .00       1.83      3.05       .00      .020      .035      .000      .000   1541.66   1019.42
   .009337        0.        0.        0.         0        15         0       .00     43.20   1062.62
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T3          Q7

J1  ICHECK   INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
             8                         .010

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     7                -1                                   -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
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```
CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.34   1543.00   1542.83       .00   1543.17       .17       .00       .00   1542.66
     100.0       1.4      98.6        .0        .6      29.7        .0        .0        .0   1543.00
       .00      2.30      3.32       .00      .020      .035      .000      .000   1541.66   1018.56
   .010092        0.        0.        0.         0        11        11       .00     46.69   1065.24

*SECNO 2.000
     2.000      1.35   1543.01   1542.83       .00   1543.18       .17       .00       .00   1542.66
     100.0       1.4      98.6        .0        .6      29.8        .0        .0        .0   1543.00
       .00      2.30      3.31       .03      .020      .035      .000      .000   1541.66   1018.54
   .009988        0.        0.        0.         0        15         0       .00     46.82   1065.36

*SECNO 3.000
     3.000      1.35   1543.01   1542.83       .00   1543.18       .17       .00       .00   1542.66
     100.0       1.4      98.6        .0        .6      29.9        .0        .0        .0   1543.00
       .00      2.30      3.30       .03      .020      .035      .000      .000   1541.66   1018.50
   .009838        0.        0.        0.         0        15         0       .00     47.02   1065.52

*SECNO 4.000
     4.000      1.36   1543.02   1542.83       .00   1543.18       .17       .00       .00   1542.66
     100.0       1.4      98.6        .0        .6      30.1        .0        .0        .0   1543.00
       .00      2.29      3.28       .03      .020      .035      .055      .000   1541.66   1018.47
   .009657        0.        0.        0.         0        15         0       .00     47.26   1065.73

*SECNO 5.000
     5.000      1.36   1543.02   1542.84       .00   1543.18       .16       .00       .00   1542.66
     100.0       1.5      98.5        .0        .6      30.2        .0        .0        .0   1543.00
       .00      2.29      3.26       .03      .020      .035      .055      .000   1541.66   1018.43
   .009468        0.        0.        0.         0        15         0       .00     47.53   1065.95

*SECNO 6.000
     6.000      1.36   1543.02   1542.84       .00   1543.19       .16       .00       .00   1542.66
     100.0       1.5      98.5        .0        .7      30.4        .0        .0        .0   1543.00
       .00      2.28      3.24       .03      .020      .035      .055      .000   1541.66   1018.39
   .009278        0.        0.        0.         0        15         0       .00     47.80   1066.18
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T3          Q8
J1  ICHECK   INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
             9                         .010
J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     8                -1                                   -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.53   1543.19   1543.03       .00   1543.42       .23       .00       .00   1542.66
     150.0       4.2     145.2        .5       1.4      37.6       1.0        .0        .0   1543.00
       .00      3.04      3.87       .56      .020      .035      .055      .000   1541.66   1016.72
   .009985        0.        0.        0.         0        14        10       .00     58.59   1075.31

*SECNO 2.000
     2.000      1.53   1543.19   1543.04       .00   1543.42       .23       .00       .00   1542.66
     150.0       4.3     145.2        .6       1.4      37.6       1.0        .0        .0   1543.00
       .00      3.04      3.86       .56      .020      .035      .055      .000   1541.66   1016.71
   .009906        0.        0.        0.         0        15         0       .00     58.71   1075.42

*SECNO 3.000
     3.000      1.53   1543.19   1543.03       .00   1543.42       .23       .00       .00   1542.66
     150.0       4.3     145.1        .6       1.4      37.8       1.0        .0        .0   1543.00
       .00      3.03      3.84       .56      .020      .035      .055      .000   1541.66   1016.67
   .009779        0.        0.        0.         0        15         0       .00     58.92   1075.59

*SECNO 4.000
     4.000      1.54   1543.20   1543.04       .00   1543.42       .22       .00       .00   1542.66
     150.0       4.4     145.0        .6       1.4      38.0       1.1        .0        .0   1543.00
       .00      3.02      3.82       .56      .020      .035      .055      .000   1541.66   1016.63
   .009615        0.        0.        0.         0        15         0       .00     59.19   1075.82

*SECNO 5.000
     5.000      1.54   1543.20   1543.03       .00   1543.43       .22       .00       .00   1542.66
     150.0       4.4     145.0        .6       1.5      38.1       1.1        .0        .0   1543.00
       .00      3.01      3.80       .57      .020      .035      .055      .000   1541.66   1016.59
   .009442        0.        0.        0.         0        15         0       .00     59.48   1076.07
```

```
*SECNO 6.000
     6.000      1.55   1543.21   1543.03       .00   1543.43       .22       .00       .00   1542.66
     150.0       4.5     144.9        .7       1.5      38.4       1.2        .0        .0   1543.00
       .00      3.00      3.78       .57      .020      .035      .055      .000   1541.66   1016.54
   .009258        0.        0.        0.         0        15         0       .00     59.80   1076.34
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```
T3          Q9

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              10                           .010

J2  NPROF     IPLOT    PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9                 -1                                      -1
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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.68   1543.34   1543.20       .00   1543.62       .28       .00       .00   1542.66
     200.0       8.2     189.2       2.6       2.3      44.0       3.1        .0        .0   1543.00
       .00      3.60      4.30       .82      .020      .035      .055      .000   1541.66   1015.24
   .010026        0.        0.        0.         0        19         9       .00     68.27   1083.50

*SECNO 2.000
     2.000      1.68   1543.34   1543.21       .00   1543.62       .28       .00       .00   1542.66
     200.0       8.3     189.1       2.6       2.3      44.0       3.1        .0        .0   1543.00
       .00      3.59      4.29       .82      .020      .035      .055      .000   1541.66   1015.22
   .009956        0.        0.        0.         0        12         0       .00     68.39   1083.61

*SECNO 3.000
     3.000      1.68   1543.34   1543.20       .00   1543.62       .28       .00       .00   1542.66
     200.0       8.3     189.0       2.6       2.3      44.2       3.2        .0        .0   1543.00
       .00      3.58      4.28       .82      .020      .035      .055      .000   1541.66   1015.18
   .009838        0.        0.        0.         0        15         0       .00     68.61   1083.79

*SECNO 4.000
     4.000      1.69   1543.35   1543.20       .00   1543.62       .27       .00       .00   1542.66
     200.0       8.4     188.9       2.7       2.4      44.4       3.3        .0        .0   1543.00
       .00      3.57      4.26       .83      .020      .035      .055      .000   1541.66   1015.14
   .009684        0.        0.        0.         0        15         0       .00     68.89   1084.03

*SECNO 5.000
     5.000      1.69   1543.35   1543.21       .00   1543.63       .27       .00       .00   1542.66
     200.0       8.5     188.7       2.8       2.4      44.6       3.4        .0        .0   1543.00
       .00      3.56      4.23       .83      .020      .035      .055      .000   1541.66   1015.09
   .009508        0.        0.        0.         0        12         0       .00     69.23   1084.32

*SECNO 6.000
     6.000      1.70   1543.36   1543.21       .00   1543.63       .27       .00       .00   1542.66
     200.0       8.6     188.5       2.9       2.4      44.8       3.5        .0        .0   1543.00
       .00      3.54      4.21       .83      .020      .035      .055      .000   1541.66   1015.03
   .009324        0.        0.        0.         0        12         0       .00     69.59   1084.62
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T3          Q10

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              11                           .010

J2  NPROF     IPLOT    PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     10                -1                                      -1
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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
```

```
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.80   1543.46   1543.34       .00   1543.79       .33       .00       .00   1542.66
     250.0      13.1     230.8       6.1       3.2      49.4       5.9        .0        .0   1543.00
       .00      4.06      4.67      1.02      .020      .035      .055      .000   1541.66   1013.81
   .010090        0.        0.        0.         0        15         8       .00     76.70   1090.51

*SECNO 2.000
     2.000      1.81   1543.47   1543.34       .00   1543.79       .32       .00       .00   1542.66
     250.0      13.2     230.7       6.1       3.2      49.5       6.0        .0        .0   1543.00
       .00      4.06      4.66      1.02      .020      .035      .055      .000   1541.66   1013.71
   .010020        0.        0.        0.         0        11         0       .00     76.91   1090.62

*SECNO 3.000
     3.000      1.81   1543.47   1543.34       .00   1543.79       .32       .00       .00   1542.66
     250.0      13.3     230.5       6.2       3.3      49.7       6.1        .0        .0   1543.00
       .00      4.06      4.64      1.02      .020      .035      .055      .000   1541.66   1013.53
   .009901        0.        0.        0.         0        11         0       .00     77.28   1090.81

*SECNO 4.000
     4.000      1.82   1543.48   1543.34       .00   1543.80       .32       .00       .00   1542.66
     250.0      13.5     230.2       6.3       3.3      49.9       6.2        .0        .0   1543.00
       .00      4.05      4.62      1.02      .020      .035      .055      .000   1541.66   1013.29
   .009739        0.        0.        0.         0        11         0       .00     77.80   1091.08

*SECNO 5.000
     5.000      1.82   1543.48   1543.34       .00   1543.80       .31       .00       .00   1542.66
     250.0      13.6     229.9       6.5       3.4      50.1       6.3        .0        .0   1543.00
       .00      4.05      4.59      1.02      .020      .035      .055      .000   1541.66   1012.99
   .009549        0.        0.        0.         0        11         0       .00     78.41   1091.41

*SECNO 6.000
     6.000      1.83   1543.49   1543.34       .00   1543.80       .31       .00       .00   1542.66
     250.0      13.8     229.5       6.6       3.4      50.4       6.5        .0        .0   1543.00
       .00      4.04      4.55      1.02      .020      .035      .055      .000   1541.66   1012.67
   .009345        0.        0.        0.         0        11         0       .00     79.09   1091.76
```



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T3          Q11

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              12                         .010

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    11                 -1                          -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.92   1543.58   1543.48       .00   1543.94       .36       .00       .00   1542.66
     300.0      20.2     269.0      10.8       4.5      54.3       9.2        .0        .0   1543.00
       .00      4.49      4.95      1.18      .020      .035      .055      .000   1541.66   1008.12
   .010007        0.        0.        0.         0        15         8       .00     88.64   1096.76

*SECNO 2.000
     2.000      1.92   1543.58   1543.49       .00   1543.94       .36       .00       .00   1542.66
     300.0      20.2     268.9      10.9       4.5      54.4       9.2        .0        .0   1543.00
       .00      4.48      4.94      1.18      .020      .035      .055      .000   1541.66   1008.03
   .009945        0.        0.        0.         0         8         0       .00     88.85   1096.87

*SECNO 3.000
     3.000      1.93   1543.59   1543.49       .00   1543.95       .36       .00       .00   1542.66
     300.0      20.4     268.6      11.0       4.6      54.6       9.4        .0        .0   1543.00
       .00      4.47      4.92      1.18      .020      .035      .055      .000   1541.66   1007.84
   .009826        0.        0.        0.         0         8         0       .00     89.24   1097.08

*SECNO 4.000
     4.000      1.93   1543.59   1543.49       .00   1543.95       .35       .00       .00   1542.66
     300.0      20.6     268.2      11.2       4.6      54.8       9.5        .0        .0   1543.00
       .00      4.44      4.89      1.17      .020      .035      .055      .000   1541.66   1007.57
   .009660        0.        0.        0.         0         8         0       .00     89.81   1097.37

*SECNO 5.000
     5.000      1.94   1543.60   1543.49       .00   1543.95       .35       .00       .00   1542.66
     300.0      20.9     267.7      11.4       4.7      55.1       9.7        .0        .0   1543.00
       .00      4.41      4.86      1.17      .020      .035      .055      .000   1541.66   1007.23
   .009457        0.        0.        0.         0         8         0       .00     90.51   1097.74

*SECNO 6.000
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     6.000      1.95   1543.61   1543.48       .00   1543.95       .34       .00       .00   1542.66
     300.0      21.2     267.1      11.7       4.9      55.4      10.0        .0        .0   1543.00
       .00      4.37      4.82      1.17      .020      .035      .055      .000   1541.66   1006.84
   .009227        0.        0.        0.         0        11         0       .00     91.33   1098.17

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 T3          Q12

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               13                          .010

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     12                  -1                                      -1

1
   22JUN93      19:05:07                                                                          PAGE   25

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

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.10   1543.76   1543.73       .00   1544.19       .43       .00       .00   1542.66
     400.0      38.2     339.0      22.9       7.9      62.3      16.0        .0        .0   1543.00
       .00      4.82      5.44      1.43      .020      .035      .055      .000   1541.66   1000.00
   .010049        0.        0.        0.         0        11         6       .00    107.00   1107.00

 *SECNO 2.000
     2.000      2.11   1543.77   1543.72       .00   1544.19       .42       .00       .00   1542.66
     400.0      38.3     338.7      22.9       8.0      62.4      16.1        .0        .0   1543.00
       .00      4.81      5.43      1.42      .020      .035      .055      .000   1541.66   1000.00
   .009990        0.        0.        0.         0         5         0       .00    107.11   1107.11

 *SECNO 3.000
     3.000      2.11   1543.77   1543.74       .00   1544.19       .42       .00       .00   1542.66
     400.0      38.6     338.3      23.1       8.1      62.6      16.3        .0        .0   1543.00
       .00      4.79      5.41      1.42      .020      .035      .055      .000   1541.66   1000.00
   .009870        0.        0.        0.         0         8         0       .00    107.33   1107.33

 *SECNO 4.000
     4.000      2.12   1543.78   1543.74       .00   1544.20       .41       .00       .00   1542.66
     400.0      39.0     337.6      23.4       8.2      62.8      16.5        .0        .0   1543.00
       .00      4.77      5.37      1.41      .020      .035      .055      .000   1541.66   1000.00
   .009695        0.        0.        0.         0         8         0       .00    107.66   1107.66

 *SECNO 5.000
     5.000      2.13   1543.79   1543.74       .00   1544.20       .41       .00       .00   1542.66
     400.0      39.6     336.6      23.8       8.4      63.2      16.9        .0        .0   1543.00
       .00      4.74      5.33      1.41      .020      .035      .055      .000   1541.66   1000.00
   .009466        0.        0.        0.         0         8         0       .00    108.10   1108.10

 *SECNO 6.000
     6.000      2.14   1543.80   1543.74       .00   1544.20       .40       .00       .00   1542.66
     400.0      40.3     335.4      24.2       8.6      63.6      17.3        .0        .0   1543.00
       .00      4.70      5.27      1.40      .020      .035      .055      .000   1541.66   1000.00
   .009192        0.        0.        0.         0         8         0       .00    108.65   1108.65

1
   22JUN93      19:05:07                                                                          PAGE   26

 T3          Q13

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               14                          .010

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     13                  -1                                      -1

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   22JUN93      19:05:07                                                                          PAGE   27

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

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
```

```
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.26   1543.92   1543.88       .00   1544.40       .48       .00       .00   1542.66
     500.0      61.5     401.0      37.5      11.4      69.1      23.3        .0        .0   1543.00
       .00      5.41      5.81      1.61      .020      .035      .055      .000   1541.66   1000.00
   .009992        0.        0.        0.         0         8         5       .00    115.61   1115.61

*SECNO 2.000
     2.000      2.26   1543.92   1543.88       .00   1544.40       .48       .00       .00   1542.66
     500.0      61.7     400.7      37.6      11.4      69.1      23.4        .0        .0   1543.00
       .00      5.41      5.80      1.61      .020      .035      .055      .000   1541.66   1000.00
   .009938        0.        0.        0.         0         5         0       .00    115.72   1115.72

*SECNO 3.000
     3.000      2.27   1543.93   1543.88       .00   1544.40       .47       .00       .00   1542.66
     500.0      62.0     400.2      37.8      11.5      69.3      23.6        .0        .0   1543.00
       .00      5.39      5.77      1.60      .020      .035      .055      .000   1541.66   1000.00
   .009824        0.        0.        0.         0         5         0       .00    115.95   1115.94

*SECNO 4.000
     4.000      2.28   1543.94   1543.88       .00   1544.41       .47       .00       .00   1542.66
     500.0      62.5     399.3      38.2      11.6      69.6      23.9        .0        .0   1543.00
       .00      5.38      5.74      1.60      .020      .035      .055      .000   1541.66   1000.00
   .009657        0.        0.        0.         0         5         0       .00    116.29   1116.29

*SECNO 5.000
     5.000      2.29   1543.95   1543.89       .00   1544.41       .46       .00       .00   1542.66
     500.0      63.2     398.1      38.6      11.8      69.9      24.3        .0        .0   1543.00
       .00      5.35      5.69      1.59      .020      .035      .055      .000   1541.66   1000.00
   .009439        0.        0.        0.         0         8         0       .00    116.74   1116.74

*SECNO 6.000
     6.000      2.31   1543.97   1543.89       .00   1544.41       .45       .00       .00   1542.66
     500.0      64.5     396.0      39.5      12.2      70.6      25.1        .0        .0   1543.00
       .00      5.30      5.61      1.57      .020      .035      .055      .000   1541.66   1000.00
   .009053        0.        0.        0.         1         8         0       .00    117.58   1117.58
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T3          Q14
J1  ICHECK   INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
             15                           .010
J2  NPROF    IPLOT    PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     14                -1                                      -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.40   1544.06   1544.06       .00   1544.58       .53       .00       .00   1542.66
     600.0      86.3     458.0      55.7      14.4      74.9      30.6        .0        .0   1543.00
       .00      6.01      6.11      1.82      .020      .035      .055      .000   1541.66   1000.00
   .009936        0.        0.        0.         0         8         5       .00    121.41   1121.41

*SECNO 2.000
     2.000      2.40   1544.06   1544.05       .00   1544.59       .53       .00       .00   1542.66
     600.0      86.5     457.6      55.9      14.4      75.0      30.7        .0        .0   1543.00
       .00      6.00      6.10      1.82      .020      .035      .055      .000   1541.66   1000.00
   .009884        0.        0.        0.         0         5         0       .00    121.46   1121.46

*SECNO 3.000
     3.000      2.41   1544.07   1544.05       .00   1544.59       .52       .00       .00   1542.66
     600.0      86.8     456.9      56.3      14.5      75.2      31.0        .0        .0   1543.00
       .00      5.99      6.08      1.82      .020      .035      .055      .000   1541.66   1000.00
   .009775        0.        0.        0.         0         5         0       .00    121.56   1121.56

*SECNO 4.000
     4.000      2.42   1544.08   1544.05       .00   1544.59       .52       .00       .00   1542.66
     600.0      87.4     455.7      56.9      14.6      75.5      31.4        .0        .0   1543.00
       .00      5.97      6.04      1.81      .020      .035      .055      .000   1541.66   1000.00
   .009602        0.        0.        0.         0         5         0       .00    121.73   1121.73

*SECNO 5.000
     5.000      2.43   1544.09   1544.04       .00   1544.59       .51       .00       .00   1542.66
     600.0      88.1     454.1      57.7      14.8      75.9      31.9        .0        .0   1543.00
       .00      5.94      5.99      1.81      .020      .035      .055      .000   1541.66   1000.00
   .009369        0.        0.        0.         0         5         0       .00    121.96   1121.96
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SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST
*SECNO 6.000									
6.000	2.53	1544.19	1544.04	.00	1544.61	.41	.00	.01	1542.66
600.0	96.5	436.1	67.5	17.3	80.7	38.4	.0	.0	1543.00
.00	5.57	5.40	1.75	.020	.035	.055	.000	1541.66	1000.00
.007030	0.	0.	0.	3	5	0	.00	124.77	1124.77

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****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

THIS RUN EXECUTED 22JUN93 19:05:10

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	1.000	5.00	1542.10	.44	1.55	1542.01	1542.14	.00	100.36	.00
	1.000	10.00	1542.23	.57	1.84	1542.13	1542.29	.00	99.54	.00
	1.000	20.00	1542.40	.74	2.19	1542.28	1542.48	.00	100.48	.00
	1.000	40.00	1542.62	.96	2.62	1542.47	1542.73	.00	101.60	.00
	1.000	60.00	1542.78	1.12	2.91	1542.62	1542.91	.00	101.25	.00
	1.000	80.00	1542.90	1.24	3.13	1542.74	1543.05	.00	100.33	.00
	1.000	100.00	1543.00	1.34	3.32	1542.83	1543.17	.00	100.92	.00
	1.000	150.00	1543.19	1.53	3.87	1543.03	1543.42	.00	99.85	.00
	1.000	200.00	1543.34	1.68	4.30	1543.20	1543.62	.00	100.26	.00
	1.000	250.00	1543.46	1.80	4.67	1543.34	1543.79	.00	100.90	.00
	1.000	300.00	1543.58	1.92	4.95	1543.48	1543.94	.00	100.07	.00
	1.000	400.00	1543.76	2.10	5.44	1543.73	1544.19	.00	100.49	.00
	1.000	500.00	1543.92	2.26	5.81	1543.88	1544.40	.00	99.92	.00
*	1.000	600.00	1544.06	2.40	6.11	1544.06	1544.58	.00	99.36	.00
	2.000	5.00	1542.10	.44	1.54	1542.01	1542.14	.00	98.02	1.01
	2.000	10.00	1542.24	.58	1.82	1542.13	1542.29	.00	97.76	1.01
	2.000	20.00	1542.41	.75	2.18	1542.28	1542.48	.00	99.08	1.01
	2.000	40.00	1542.62	.96	2.61	1542.47	1542.73	.00	100.44	1.01
	2.000	60.00	1542.78	1.12	2.90	1542.62	1542.91	.00	100.23	1.01
	2.000	80.00	1542.90	1.24	3.12	1542.72	1543.06	.00	99.47	1.00
	2.000	100.00	1543.01	1.35	3.31	1542.83	1543.18	.00	99.88	1.01
	2.000	150.00	1543.19	1.53	3.86	1543.04	1543.42	.00	99.06	1.00
	2.000	200.00	1543.34	1.68	4.29	1543.21	1543.62	.00	99.56	1.00
	2.000	250.00	1543.47	1.81	4.66	1543.34	1543.79	.00	100.20	1.00
	2.000	300.00	1543.58	1.92	4.94	1543.49	1543.94	.00	99.45	1.00
	2.000	400.00	1543.77	2.11	5.43	1543.72	1544.19	.00	99.90	1.00
	2.000	500.00	1543.92	2.26	5.80	1543.88	1544.40	.00	99.38	1.00
	2.000	600.00	1544.06	2.40	6.10	1544.05	1544.59	.00	98.84	1.00

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
3.000	5.00	1542.11	.45	1.52	1542.01	1542.14	.00	94.92	1.02
3.000	10.00	1542.24	.58	1.81	1542.13	1542.29	.00	95.25	1.01
3.000	20.00	1542.41	.75	2.16	1542.28	1542.48	.00	97.11	1.01
3.000	40.00	1542.63	.97	2.59	1542.47	1542.73	.00	98.76	1.01
3.000	60.00	1542.78	1.12	2.88	1542.61	1542.91	.00	98.77	1.01
3.000	80.00	1542.91	1.25	3.10	1542.72	1543.06	.00	98.14	1.01
3.000	100.00	1543.01	1.35	3.30	1542.83	1543.18	.00	98.38	1.01
3.000	150.00	1543.19	1.53	3.84	1543.03	1543.42	.00	97.79	1.01
3.000	200.00	1543.34	1.68	4.28	1543.20	1543.62	.00	98.38	1.01
3.000	250.00	1543.47	1.81	4.64	1543.34	1543.79	.00	99.01	1.01
3.000	300.00	1543.59	1.93	4.92	1543.49	1543.95	.00	98.26	1.01
3.000	400.00	1543.77	2.11	5.41	1543.74	1544.19	.00	98.70	1.01
3.000	500.00	1543.93	2.27	5.77	1543.88	1544.40	.00	98.24	1.01
3.000	600.00	1544.07	2.41	6.08	1544.05	1544.59	.00	97.75	1.01
4.000	5.00	1542.11	.45	1.50	1542.01	1542.14	.00	91.66	1.02
4.000	10.00	1542.24	.58	1.79	1542.13	1542.29	.00	92.61	1.01
4.000	20.00	1542.41	.75	2.15	1542.28	1542.48	.00	94.94	1.01
4.000	40.00	1542.63	.97	2.57	1542.47	1542.73	.00	96.98	1.01
4.000	60.00	1542.79	1.13	2.87	1542.62	1542.91	.00	97.16	1.01
4.000	80.00	1542.91	1.25	3.08	1542.72	1543.06	.00	96.57	1.01
4.000	100.00	1543.02	1.36	3.28	1542.83	1543.18	.00	96.57	1.01
4.000	150.00	1543.20	1.54	3.82	1543.04	1543.42	.00	96.15	1.01
4.000	200.00	1543.35	1.69	4.26	1543.20	1543.62	.00	96.84	1.01
4.000	250.00	1543.48	1.82	4.62	1543.34	1543.80	.00	97.39	1.01
4.000	300.00	1543.59	1.93	4.89	1543.49	1543.95	.00	96.60	1.01
4.000	400.00	1543.78	2.12	5.37	1543.74	1544.20	.00	96.95	1.01
4.000	500.00	1543.94	2.28	5.74	1543.88	1544.41	.00	96.57	1.01
4.000	600.00	1544.08	2.42	6.04	1544.05	1544.59	.00	96.02	1.01
5.000	5.00	1542.11	.45	1.48	1542.01	1542.15	.00	88.67	1.02
5.000	10.00	1542.25	.59	1.77	1542.13	1542.29	.00	90.16	1.01
5.000	20.00	1542.41	.75	2.13	1542.28	1542.49	.00	92.74	1.01

5.000	40.00	1542.63	.97	2.55	1542.47	1542.74	.00	95.18	1.01
5.000	60.00	1542.79	1.13	2.85	1542.61	1542.92	.00	95.52	1.01
5.000	80.00	1542.92	1.26	3.06	1542.72	1543.06	.00	94.98	1.01
5.000	100.00	1543.02	1.36	3.26	1542.84	1543.18	.00	94.68	1.01
5.000	150.00	1543.20	1.54	3.80	1543.03	1543.43	.00	94.42	1.01
5.000	200.00	1543.35	1.69	4.23	1543.21	1543.63	.00	95.08	1.01
5.000	250.00	1543.48	1.82	4.59	1543.34	1543.80	.00	95.49	1.01
5.000	300.00	1543.60	1.94	4.86	1543.49	1543.95	.00	94.57	1.01
5.000	400.00	1543.79	2.13	5.33	1543.74	1544.20	.00	94.66	1.01
5.000	500.00	1543.95	2.29	5.69	1543.89	1544.41	.00	94.39	1.01
5.000	600.00	1544.09	2.43	5.99	1544.04	1544.59	.00	93.69	1.01

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1542.12	.46	1.46	1542.01	1542.15	.00	85.91	1.02
6.000	10.00	1542.25	.59	1.75	1542.13	1542.30	.00	87.79	1.01
6.000	20.00	1542.42	.76	2.11	1542.28	1542.49	.00	90.77	1.01
6.000	40.00	1542.64	.98	2.54	1542.47	1542.74	.00	93.35	1.01
6.000	60.00	1542.79	1.13	2.83	1542.61	1542.92	.00	93.86	1.01
6.000	80.00	1542.92	1.26	3.05	1542.72	1543.06	.00	93.37	1.01
6.000	100.00	1543.02	1.36	3.24	1542.84	1543.19	.00	92.78	1.01
6.000	150.00	1543.21	1.55	3.78	1543.03	1543.43	.00	92.58	1.01
6.000	200.00	1543.36	1.70	4.21	1543.21	1543.63	.00	93.24	1.01
6.000	250.00	1543.49	1.83	4.55	1543.34	1543.80	.00	93.45	1.01
6.000	300.00	1543.61	1.95	4.82	1543.48	1543.95	.00	92.27	1.01
6.000	400.00	1543.80	2.14	5.27	1543.74	1544.20	.00	91.92	1.01
6.000	500.00	1543.97	2.31	5.61	1543.89	1544.41	.00	90.53	1.02
6.000	600.00	1544.19	2.53	5.40	1544.04	1544.61	.00	70.30	1.15

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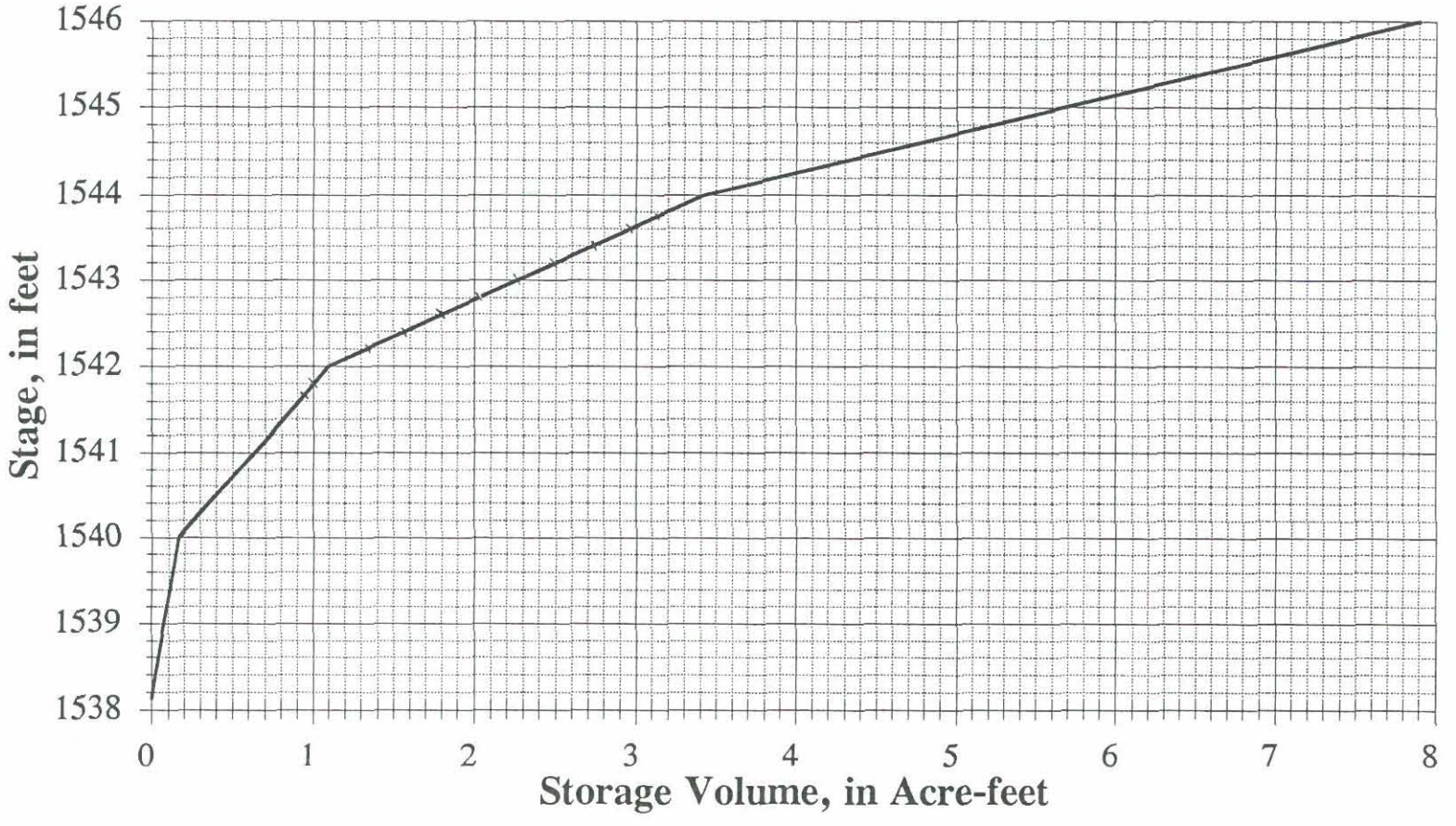
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 14 CRITICAL DEPTH ASSUMED

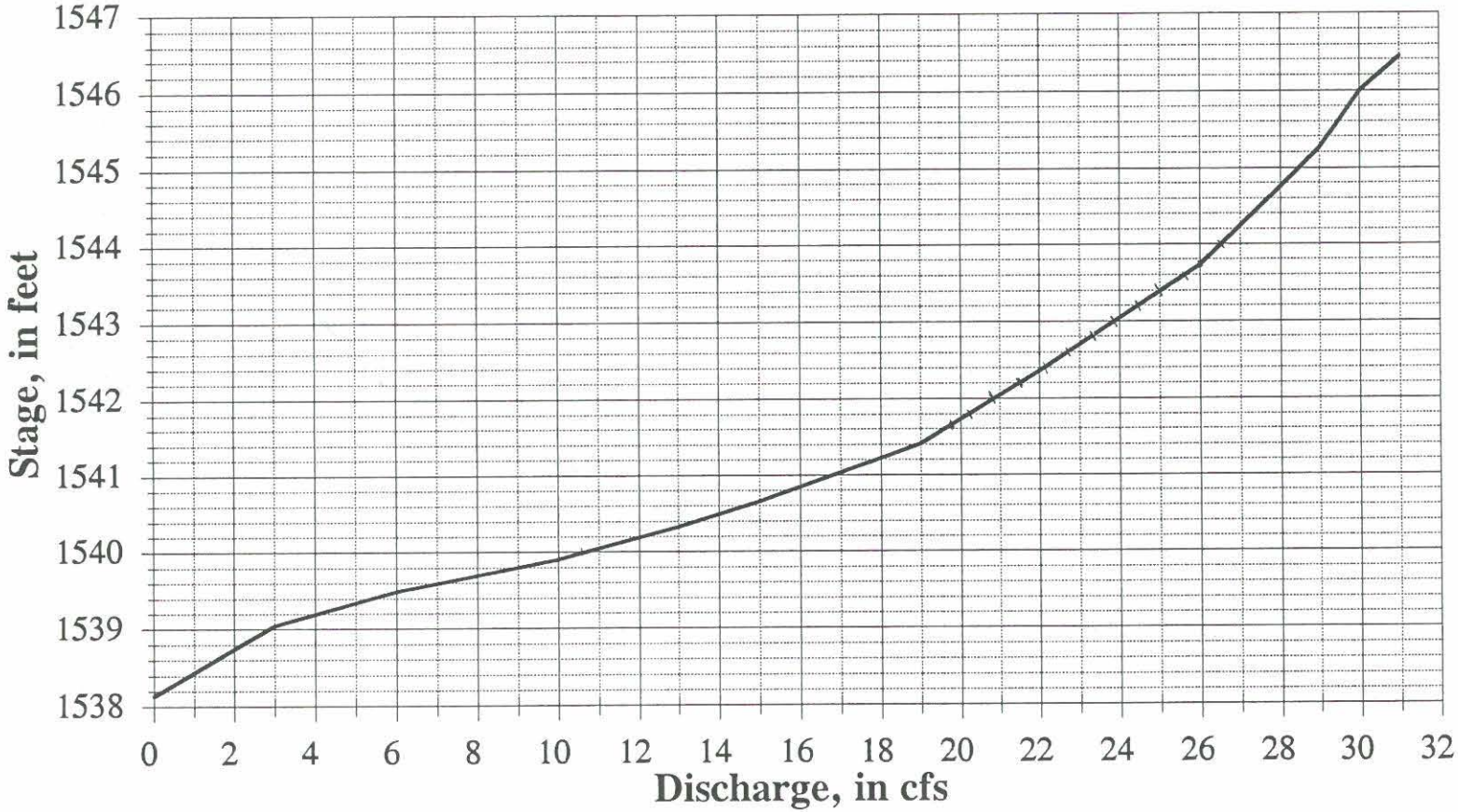
C504 Storage Volume

Calculated From Planimetered Contours



C504 Stage vs Discharge

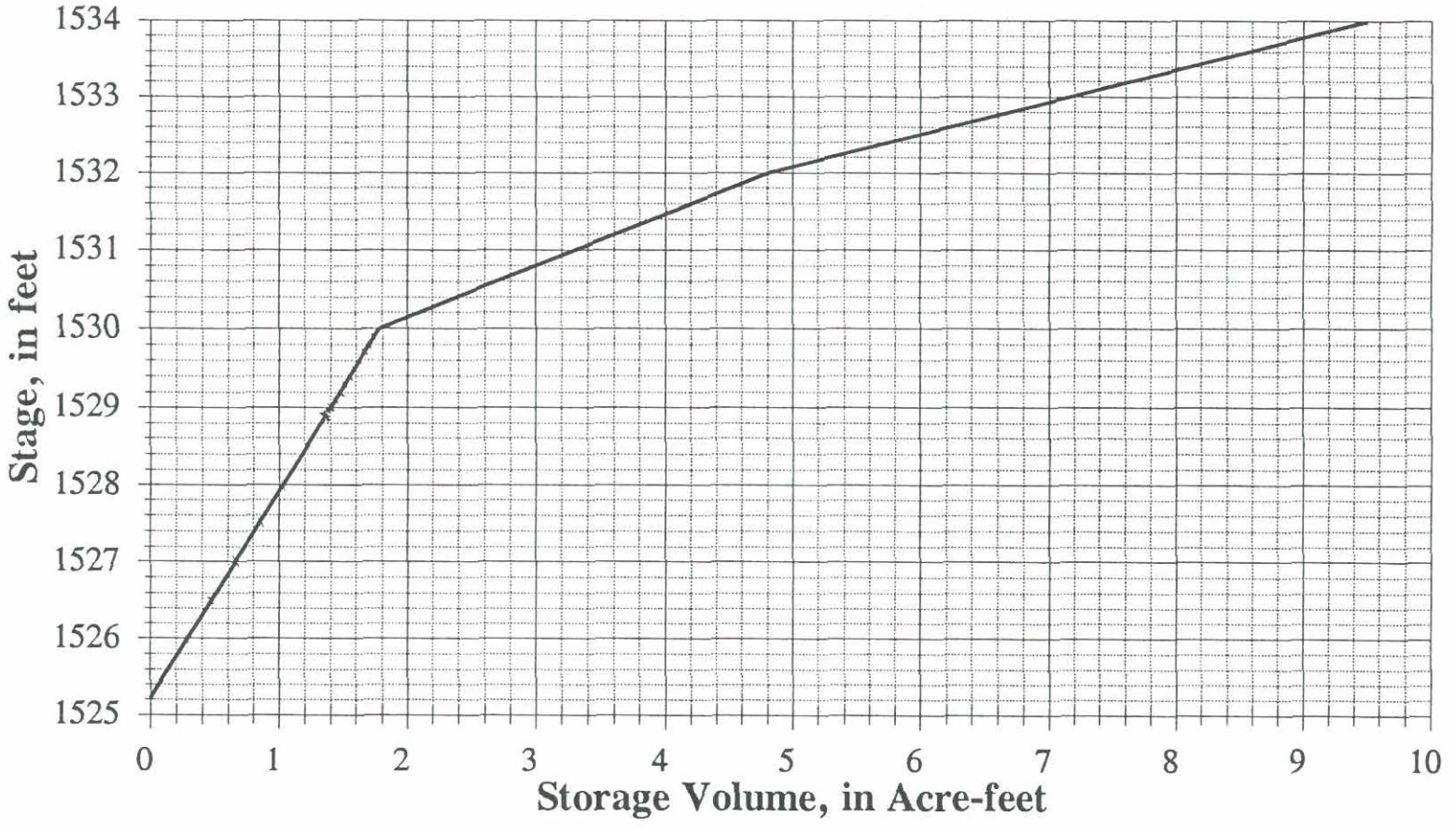
Culvert Flow from HY8



Hydraulic Calculations for Structure at C507

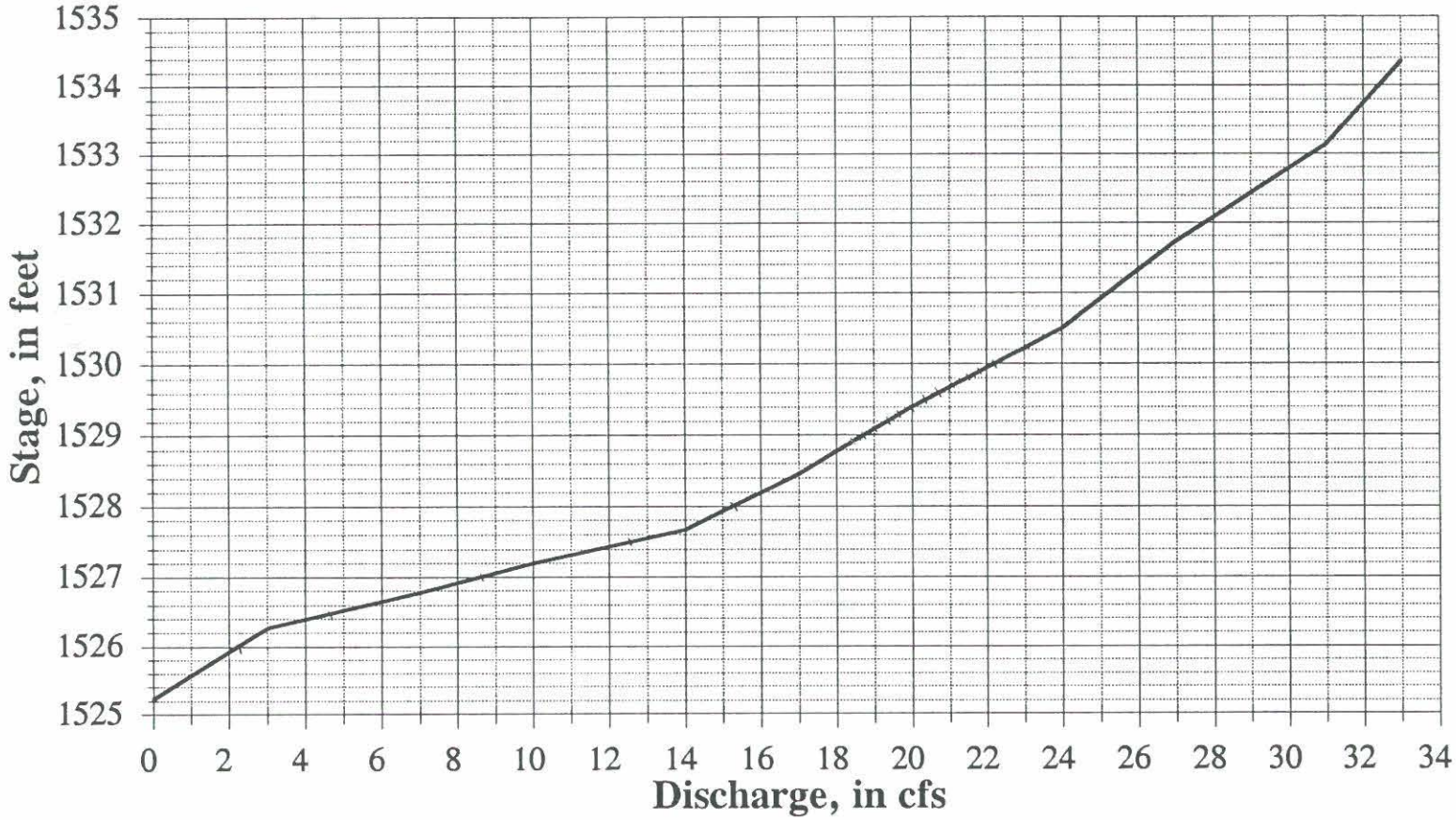
C507 Storage Volume

Calculated From Planimetered Contours



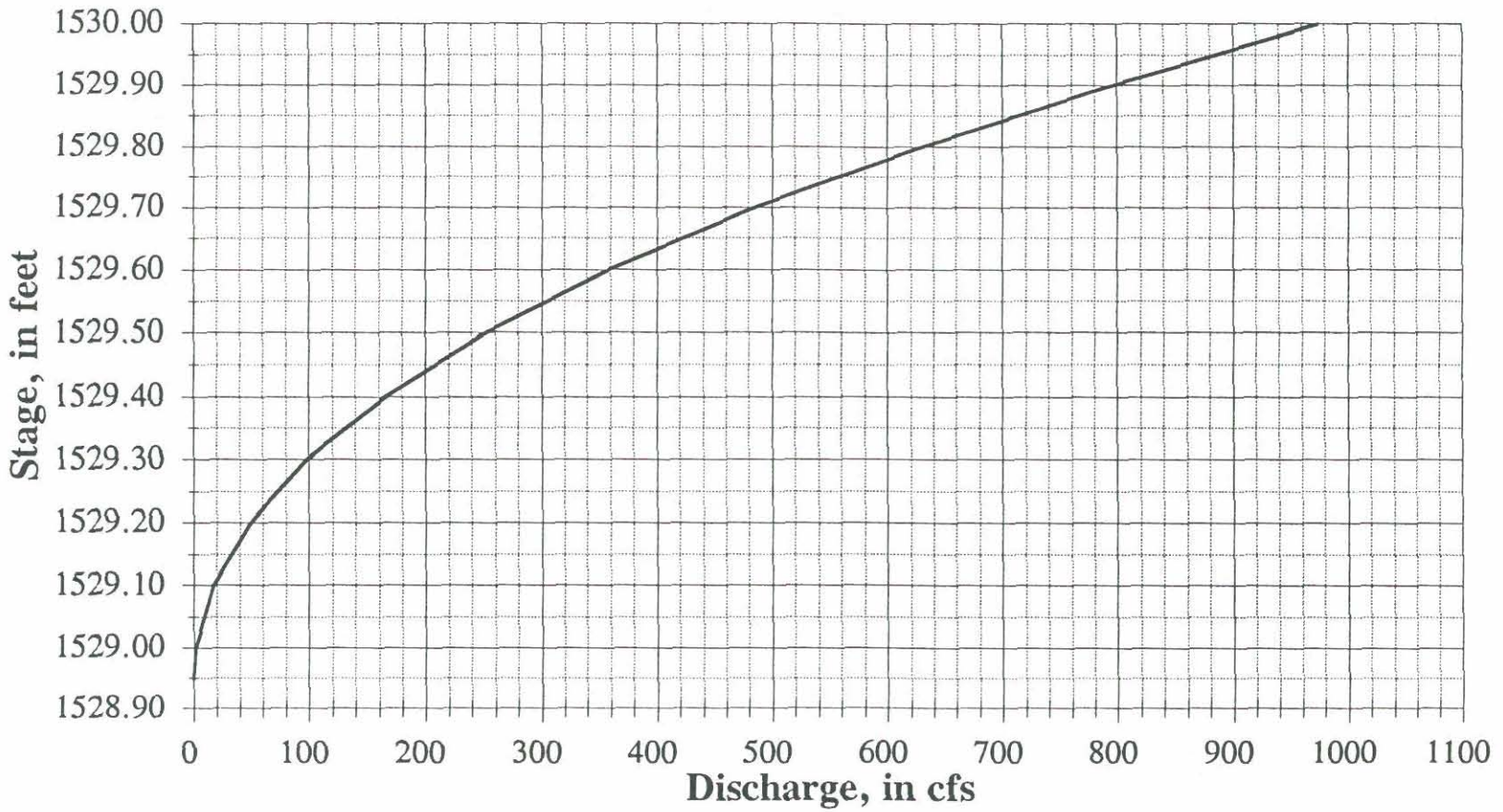
C507 Stage vs. Discharge

Culvert Flow from HY8



C507 Stage vs Discharge

Weir Flow from Uneven Weir



CURRENT DATE: 11-09-1993
CURRENT TIME: 16:09:28

FILE DATE: 06-16-1993
FILE NAME: C507

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1525.24	1524.74	70.00	1 CSP	2.00	2.00	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C507 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1525.24	0	0	0	0	0	0	0	0	1
1526.28	3	3	0	0	0	0	0	0	1
1526.78	7	7	0	0	0	0	0	0	1
1527.20	10	10	0	0	0	0	0	0	1
1527.68	14	14	0	0	0	0	0	0	1
1528.47	17	17	0	0	0	0	0	0	1
1529.41	20	20	0	0	0	0	0	0	1
1530.50	24	24	0	0	0	0	0	0	1
1531.74	27	27	0	0	0	0	0	0	1
1533.15	31	31	0	0	0	0	0	0	1
1534.36	34	33	0	0	0	0	0	1	4
1534.00	33	33	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C507 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1525.24	0.00	0	0	0.00
1526.28	0.00	3	0	0.00
1526.78	0.00	7	0	0.00
1527.20	0.00	10	0	0.00
1527.68	0.00	14	0	0.00
1528.47	0.00	17	0	0.00
1529.41	0.00	20	0	0.00
1530.50	0.00	24	0	0.00
1531.74	0.00	27	0	0.00

1533.15	0.00	31	0	0.00
1534.36	-0.01	34	0	0.14

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 11-09-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:09:28 FILE NAME: C507

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (2 BY 2) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1525.24	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
3	1526.28	0.96	1.04	2-M2c	0.75	0.64	3.94	0.64	1.06	0.20
7	1526.78	1.42	1.54	2-M2c	1.12	0.92	4.82	0.92	1.32	0.28
10	1527.20	1.85	1.96	2-M2c	1.49	1.14	5.52	1.14	1.50	0.34
14	1527.68	2.31	2.44	6-FFn	2.00	1.32	4.33	2.00	1.66	0.39
17	1528.47	2.86	3.23	6-FFn	2.00	1.48	5.41	2.00	1.79	0.44
20	1529.41	3.53	4.17	6-FFn	2.00	1.62	6.49	2.00	1.91	0.48
24	1530.50	4.34	5.26	6-FFn	2.00	1.72	7.58	2.00	2.01	0.52
27	1531.74	5.32	6.50	6-FFn	2.00	1.82	8.66	2.00	2.10	0.56
31	1533.15	6.45	7.91	6-FFn	2.00	1.92	9.74	2.00	2.19	0.59
33	1534.36	7.44	9.12	6-FFn	2.00	2.00	10.59	2.00	2.27	0.62

El. inlet face invert 1525.24 ft El. outlet invert 1524.74 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                      0.00
      INLET ELEVATION (FT)                 1525.24
      OUTLET STATION (FT)                    70.00
      OUTLET ELEVATION (FT)                1524.74
      NUMBER OF BARRELS                       1
      SLOPE (V-FT/H-FT)                       0.0071
      CULVERT LENGTH ALONG SLOPE (FT)        70.00

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         2.00 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.022
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
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CURRENT DATE: 11-09-1993
CURRENT TIME: 16:09:28

FILE DATE: 06-16-1993
FILE NAME: C507

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C507
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	4
RIGHT CHANNEL BOUNDARY	5
MANNING N LEFT OVER BANK	0.045
MANNING N MAIN CHANNEL	0.040
MANNING N RIGHT OVER BAN	0.045
SLOPE OF CHANNEL (FT/FT)	0.0070

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1530.74
2	1030.00	1528.74
3	1118.00	1526.74
4	1156.00	1524.74
5	1175.00	1524.74
6	1203.00	1526.74
7	1237.00	1528.74
8	1259.00	1530.74

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1524.74	0.000	0.00	0.00	0.00
3.40	1524.94	0.419	0.20	1.06	0.09
6.80	1525.02	0.442	0.28	1.32	0.12
10.20	1525.08	0.457	0.34	1.50	0.15
13.60	1525.13	0.468	0.39	1.66	0.17
17.00	1525.18	0.477	0.44	1.79	0.19
20.40	1525.22	0.485	0.48	1.91	0.21
23.80	1525.26	0.491	0.52	2.01	0.23
27.20	1525.30	0.497	0.56	2.10	0.24
30.60	1525.33	0.502	0.59	2.19	0.26
34.00	1525.36	0.506	0.62	2.27	0.27

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1534.00

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*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS                C507
    ENGINEER:  dtp
    DATE:   6/22/1993
    TIME:  12: 9.38




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1528.80
    MAXIMUM WSEL:        1530.01
    STEP SIZE:              0.10
    BREADTH OF WEIR:       28.00


*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C507
    DATE:   6/22/1993
    TIME:  12: 9.38
*********************************************
```

POINT	ELEVATION	STATION	POINT	ELEVATION	STATION
1	1530.01	1000.00	16	1528.96	1300.00
2	1529.87	1020.00	17	1528.97	1320.00
3	1529.73	1040.00	18	1529.00	1340.00
4	1529.61	1060.00	19	1529.04	1360.00
5	1529.49	1080.00	20	1529.09	1380.00
6	1529.39	1100.00	21	1529.11	1390.00
7	1529.30	1120.00	22	1529.26	1440.00
8	1529.22	1140.00	23	1529.55	1540.00
9	1529.15	1160.00	24	1529.64	1570.00
10	1529.09	1180.00	25	1534.00	1570.01
11	1529.04	1200.00			
12	1529.00	1220.00			
13	1528.98	1240.00			
14	1528.96	1260.00			
15	1528.95	1280.00			

```
*******************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C507
    DATE:   6/22/1993
    TIME:  12: 9.38
*******************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.10	2.5119
3	0.20	2.5238
4	0.30	2.5357
5	0.40	2.5476
6	0.50	2.5595
7	0.60	2.5714
8	0.70	2.5833
9	0.80	2.5952
10	0.90	2.6071
11	1.00	2.6190
12	1.10	2.6310
13	1.20	2.6429

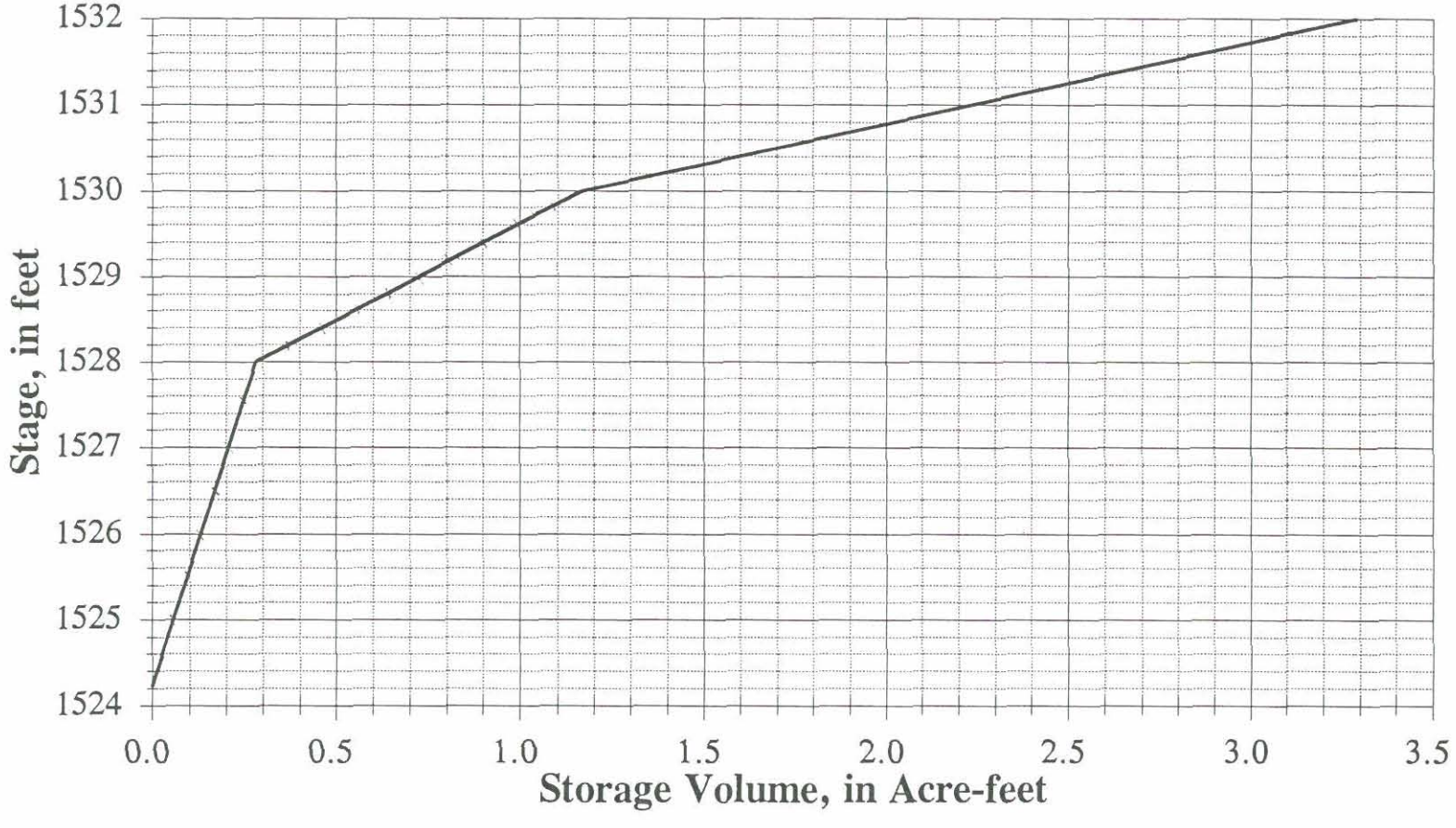
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C507
    DATE:   6/22/1993
    TIME:  12: 9.38
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1528.80	0.00
1528.90	0.00
1529.00	1.71
1529.10	17.21
1529.20	49.14
1529.30	98.17
1529.40	165.29
1529.50	251.54
1529.60	357.86
1529.70	484.81
1529.80	630.73
1529.90	794.23
1530.00	974.70

Hydraulic Calculations for Structure at C508

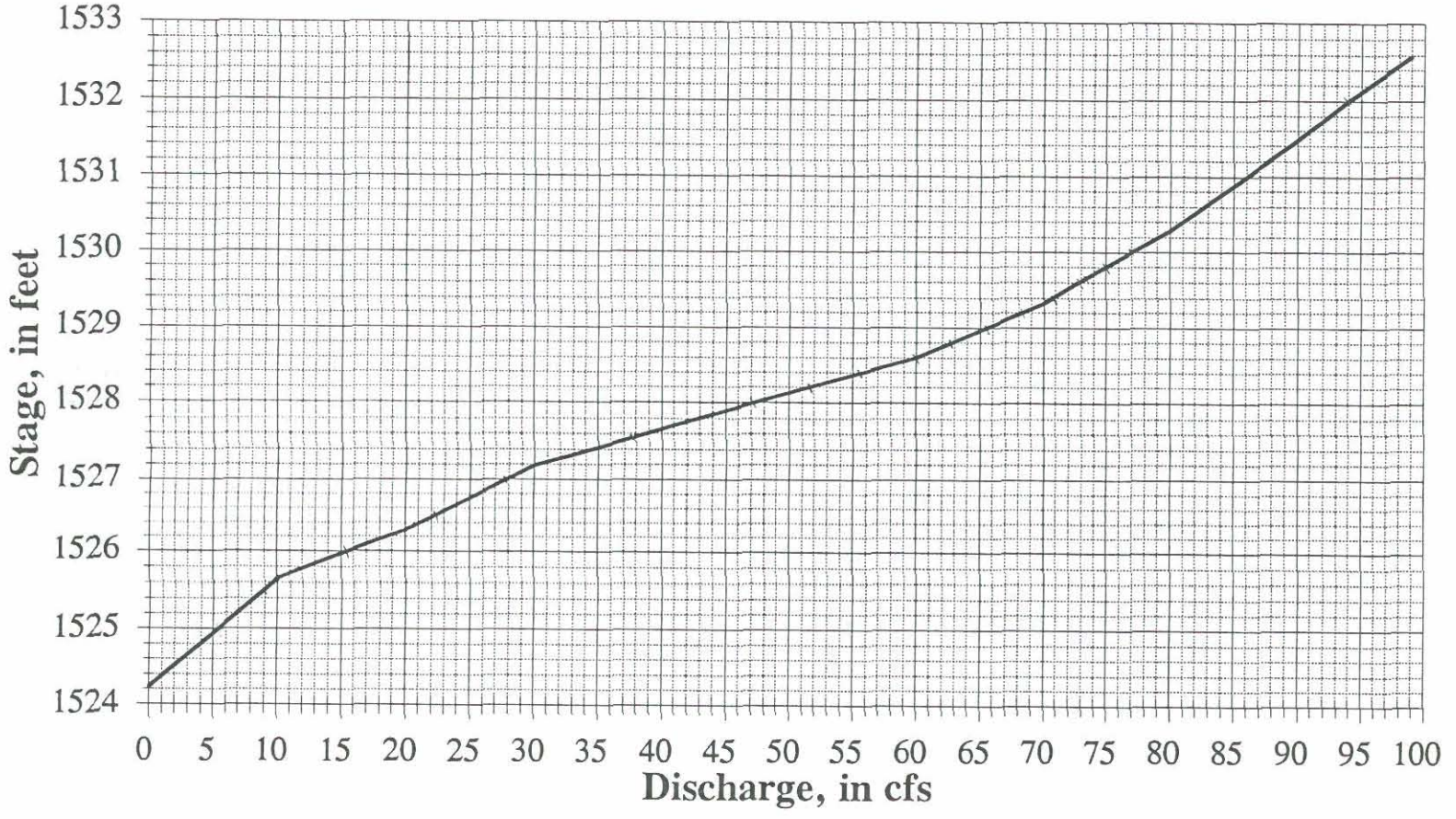
C508 Storage Volume

Calculated From Planimetered Contours



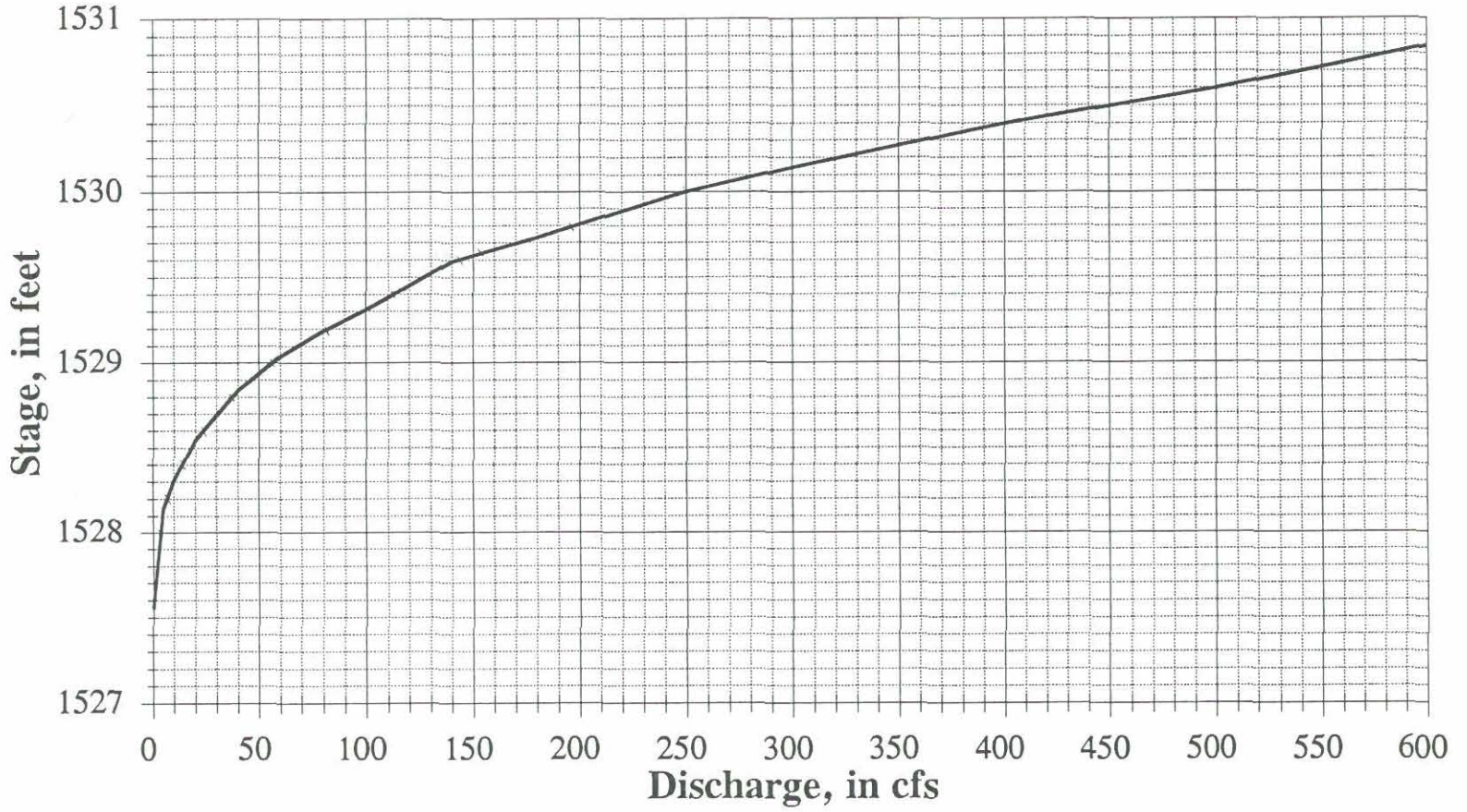
C508 Stage vs. Discharge

Culvert Flow from HY8



C508 Stage vs Discharge

Ditch Flow from HEC-2



CURRENT DATE: 11-09-1993
CURRENT TIME: 16:18:33

FILE DATE: 06-16-1993
FILE NAME: C508

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1524.24	1522.94	120.01	1 CSP	3.50	3.50	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C508 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1524.24	0	0	0	0	0	0	0	0	1
1525.65	10	10	0	0	0	0	0	0	1
1526.29	20	20	0	0	0	0	0	0	1
1527.19	30	30	0	0	0	0	0	0	1
1527.66	40	40	0	0	0	0	0	0	1
1528.13	50	50	0	0	0	0	0	0	1
1528.60	60	60	0	0	0	0	0	0	1
1529.33	70	70	0	0	0	0	0	0	1
1530.29	80	80	0	0	0	0	0	0	1
1531.47	90	90	0	0	0	0	0	0	1
1532.59	100	99	0	0	0	0	0	1	4
1532.00	94	94	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C508 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1524.24	0.00	0	0	0.00
1525.65	0.00	10	0	0.00
1526.29	0.00	20	0	0.00
1527.19	0.00	30	0	0.00
1527.66	0.00	40	0	0.00
1528.13	0.00	50	0	0.00
1528.60	0.00	60	0	0.00
1529.33	0.00	70	0	0.00
1530.29	0.00	80	0	0.00

1531.47	0.00	90	0	0.00
1532.59	-0.00	100	0	0.01

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 11-09-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:18:33 FILE NAME: C508

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (3.5 BY 3.5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1524.24	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
10	1525.65	1.41	1.41	1-S2n	0.94	0.94	4.78	0.94	0.94	0.15
20	1526.29	2.05	2.05	1-S2n	1.36	1.37	5.76	1.36	1.20	0.22
30	1527.19	2.62	2.95	2-M2c	1.72	1.69	6.53	1.69	1.40	0.28
40	1527.66	3.16	3.42	2-M2c	2.05	1.96	7.22	1.96	1.56	0.33
50	1528.13	3.73	3.89	2-M2c	2.38	2.20	7.85	2.20	1.70	0.37
60	1528.60	4.36	4.36	2-M2c	2.78	2.42	8.44	2.42	1.81	0.41
70	1529.33	5.09	4.97	6-FFn	3.50	2.61	7.28	3.50	1.92	0.45
80	1530.29	5.93	6.05	6-FFn	3.50	2.79	8.32	3.50	2.02	0.48
90	1531.47	6.90	7.23	6-FFn	3.50	2.92	9.35	3.50	2.11	0.51
99	1532.58	7.84	8.34	6-FFn	3.50	3.03	10.25	3.50	2.19	0.54

El. inlet face invert 1524.24 ft El. outlet invert 1522.94 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1524.24
      OUTLET STATION (FT)                     120.00
      OUTLET ELEVATION (FT)                  1522.94
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0108
      CULVERT LENGTH ALONG SLOPE (FT)         120.01

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         3.50 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.022
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
```

CURRENT DATE: 11-09-1993
CURRENT TIME: 16:18:33

FILE DATE: 06-16-1993
FILE NAME: C508

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION

FILE NAME: C508
FILE DATE: 06-16-1993

MAIN CHANNEL AND LT & RT OVER BANKS	
LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	6
MANNING N LEFT OVER BANK	0.040
MANNING N MAIN CHANNEL	0.035
MANNING N RIGHT OVER BAN	0.040
SLOPE OF CHANNEL (FT/FT)	0.0060

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1530.94
2	1010.00	1528.94
3	1020.00	1526.94
4	1050.00	1524.94
5	1150.00	1522.94
6	1225.00	1522.94
7	1254.00	1524.94
8	1283.00	1526.94
9	1299.00	1528.94
10	1311.00	1530.94

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1522.94	0.000	0.00	0.00	0.00
10.00	1523.09	0.423	0.15	0.94	0.06
20.00	1523.16	0.451	0.22	1.20	0.08
30.00	1523.22	0.468	0.28	1.40	0.10
40.00	1523.27	0.481	0.33	1.56	0.12
50.00	1523.31	0.491	0.37	1.70	0.14
60.00	1523.35	0.499	0.41	1.81	0.15
70.00	1523.39	0.507	0.45	1.92	0.17
80.00	1523.42	0.513	0.48	2.02	0.18
90.00	1523.45	0.519	0.51	2.11	0.19
100.00	1523.48	0.524	0.54	2.19	0.20

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00

OVERTOPPING CREST ELEVATION (FT) 1532.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS                C508
    ENGINEER:  dtp
    DATE:   2/17/1994
    TIME:  11:16.22




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1529.60
    MAXIMUM WSEL:        1530.20
    STEP SIZE:              0.20
    BREADTH OF WEIR:       28.00
```

1

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C508
    DATE:   2/17/1994
    TIME:  11:16.22
*********************************************
```

POINT	ELEVATION	STATION
1	1530.61	6940.00
2	1530.55	6960.00
3	1530.44	7000.00
4	1530.38	7020.00
5	1530.32	7040.00
6	1530.26	7060.00
7	1530.20	7080.00
8	1530.14	7100.00
9	1530.08	7120.00
10	1530.02	7140.00
11	1529.97	7160.00
12	1529.91	7180.00
13	1529.85	7200.00
14	1529.79	7220.00
15	1529.73	7240.00
16	1529.67	7260.00
17	1529.64	7270.00
18	1530.30	7271.00

1

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C508
    DATE:   2/17/1994
    TIME:  11:16.22
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5238
3	0.40	2.5476

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C508
    DATE:   2/17/1994
    TIME:  11:16.22
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1529.60	0.00
1529.80	3.44
1530.00	26.34

```
1*****************************************                                    ****************************************
 *  HEC-2 WATER SURFACE PROFILES            *                                  *  U.S. ARMY CORPS OF ENGINEERS
 *                                          *                                  *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991              *                                  *  609 SECOND STREET, SUITE D
 *                                          *                                  *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    22JUN93    TIME   19:07:43  *                                  *          (916) 756-1104
 *****************************************                                    ****************************************

                                          X     X  XXXXXXX   XXXXX              XXXXX
                                          X     X  X        X     X            X     X
                                          X     X  X        X                  X
                                          XXXXXXX  XXXX     X          XXXXX    XXXXX
                                          X     X  X        X                  X
                                          X     X  X        X     X            X
                                          X     X  XXXXXXX   XXXXX             XXXXXXX
1
   22JUN93      19:07:43                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 22JUN93    19:07:43
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
 T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE                 dtp
 T3                                                     FILE:     CH508.IH2
 T4
 T5              This model is used to develop a rating curve for culvert 508
 T6              Ditch flow to North of C508 is diverted to C507
 T7
 T8      Single X-Section Run
                 Ditch slope =     .030 ft/ft  From 200 scale map

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .030

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1                                      -1

    SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38         43          1          8         26          2          3         11          5         58

         Manning's n:          Min  Normal     Max
                  Earth      .015    .022    .030
               Pavement      .013    .016    .020
                 Desert      .040    .060    .080
               Veg Des.      .070    .100    .160

                 Earthy
    earth  desert  desert

 NC     .020       .055       .035        .1         .3
 QT       14          5         10        20         40          60          80         100         140         180
 QT      250        300        400       500        600

         X-Section 1
            this section needs to be input from 200 scale map
 X1        1          7       1022      1040
 GR     1532     999.99    1529.64      1000    1529.36       1014    1528.56       1022    1527.56       1026
 GR     1529       1040       1532      1066
1
   22JUN93      19:07:43                                                                                    PAGE    2


 X1        2                                                  .2         .2         .2

 X1        3                                                  .2         .2         .2

 X1        4                                                  .2         .2         .2

 X1        5                                                  .2         .2         .2

 X1        6                                                  .2         .2         .2
1
   22JUN93      19:07:43                                                                                    PAGE    3

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

```
*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       .51   1528.07   1528.07       .00   1528.19       .13       .00       .00   1528.56
       5.0        .0       5.0        .0        .0       1.8        .0        .0        .0   1529.00
       .00       .00      2.86       .00      .000      .035      .000      .000   1527.56   1023.98
   .028809        0.        0.        0.         0        18         8       .00      6.93   1030.91


*SECNO 2.000
     2.000       .52   1528.08   1528.06       .00   1528.20       .12       .01       .00   1528.56
       5.0        .0       5.0        .0        .0       1.8        .0        .0        .0   1529.00
       .00       .00      2.79       .00      .000      .035      .000      .000   1527.56   1023.96
   .027125        0.        0.        0.         0         5         0       .00      7.01   1030.97


*SECNO 3.000
     3.000       .56   1528.12   1528.06       .00   1528.21       .09       .00       .00   1528.56
       5.0        .0       5.0        .0        .0       2.1        .0        .0        .0   1529.00
       .00       .00      2.41       .00      .000      .035      .000      .000   1527.56   1023.80
   .018291        0.        0.        0.         3         8         0       .00      7.55   1031.35


*SECNO 4.000
     4.000       .57   1528.13   1528.06       .00   1528.21       .08       .00       .00   1528.56
       5.0        .0       5.0        .0        .0       2.2        .0        .0        .0   1529.00
       .00       .00      2.32       .00      .000      .035      .000      .000   1527.56   1023.76
   .016653        0.        0.        0.         0        11         0       .00      7.68   1031.44


*SECNO 5.000
     5.000       .57   1528.13   1528.06       .00   1528.21       .08       .00       .00   1528.56
       5.0        .0       5.0        .0        .0       2.2        .0        .0        .0   1529.00
       .00       .00      2.25       .00      .000      .035      .000      .000   1527.56   1023.72
   .015255        0.        0.        0.         0        15         0       .00      7.81   1031.53

1
   22JUN93      19:07:43                                                                          PAGE    4

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


*SECNO 6.000
     6.000       .58   1528.14   1528.06       .00   1528.22       .07       .00       .00   1528.56
       5.0        .0       5.0        .0        .0       2.3        .0        .0        .0   1529.00
       .00       .00      2.18       .00      .000      .035      .000      .000   1527.56   1023.69
   .014090        0.        0.        0.         0        15         0       .00      7.93   1031.62

1
   22JUN93      19:07:43                                                                          PAGE    5

T3            Q2

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                3                              .030

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2                   -1                                           -1

1
   22JUN93      19:07:43                                                                          PAGE    6

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       .66   1528.22   1528.22       .00   1528.39       .17       .00       .00   1528.56
      10.0        .0      10.0        .0        .0       3.0        .0        .0        .0   1529.00
       .00       .00      3.31       .00      .000      .035      .000      .000   1527.56   1023.35
   .026902        0.        0.        0.         0        17         9       .00      9.11   1032.45


*SECNO 2.000
     2.000       .67   1528.23   1528.22       .00   1528.40       .18       .01       .00   1528.56
      10.0        .0      10.0        .0        .0       3.1        .0        .0        .0   1529.00
       .00       .00      3.26       .00      .000      .035      .000      .000   1527.56   1023.32
   .025770        0.        0.        0.         0         5         9       .00      9.18   1032.50


*SECNO 3.000
     3.000       .71   1528.27   1528.22       .00   1528.41       .13       .00       .00   1528.56
      10.0        .0      10.0        .0        .0       3.4        .0        .0        .0   1529.00
       .00       .00      2.93       .00      .000      .035      .000      .000   1527.56   1023.18
   .019377        0.        0.        0.         3         5         9       .00      9.68   1032.86
```

```
*SECNO 4.000
     4.000       .73   1528.29   1528.22       .00   1528.41       .12       .00       .00   1528.56
      10.0        .0      10.0        .0        .0       3.5        .0        .0        .0   1529.00
       .00       .00      2.82       .00      .000      .035      .000      .000   1527.56   1023.13
   .017587        0.        0.        0.         0        11         0       .00      9.86   1032.99

*SECNO 5.000
     5.000       .74   1528.30   1528.22       .00   1528.42       .12       .00       .00   1528.56
      10.0        .0      10.0        .0        .0       3.7        .0        .0        .0   1529.00
       .00       .00      2.72       .00      .000      .035      .000      .000   1527.56   1023.07
   .015977        0.        0.        0.         0        11         0       .00     10.04   1033.11
```



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

*SECNO 6.000
     6.000       .75   1528.31   1528.22       .00   1528.42       .11       .00       .00   1528.56
      10.0        .0      10.0        .0        .0       3.8        .0        .0        .0   1529.00
       .00       .00      2.63       .00      .000      .035      .000      .000   1527.56   1023.02
   .014602        0.        0.        0.         0        15         0       .00     10.21   1033.23
```



```
T3          Q3
J1  ICHECK  INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
            4                          .030
J2  NPROF   IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     3                -1                                  -1
```



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

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       .88   1528.44   1528.44       .00   1528.66       .22       .00       .00   1528.56
      20.0        .0      20.0        .0        .0       5.3        .0        .0        .0   1529.00
       .00       .00      3.80       .00      .000      .035      .000      .000   1527.56   1022.50
   .024564        0.        0.        0.         0        18        11       .00     12.01   1034.51

*SECNO 2.000
     2.000       .89   1528.45   1528.44       .00   1528.67       .22       .00       .00   1528.56
      20.0        .0      20.0        .0        .0       5.3        .0        .0        .0   1529.00
       .00       .00      3.76       .00      .000      .035      .000      .000   1527.56   1022.48
   .023846        0.        0.        0.         0         5         0       .00     12.08   1034.56

*SECNO 3.000
     3.000       .92   1528.48   1528.43       .00   1528.67       .19       .00       .00   1528.56
      20.0        .0      20.0        .0        .0       5.7        .0        .0        .0   1529.00
       .00       .00      3.49       .00      .000      .035      .000      .000   1527.56   1022.35
   .019560        0.        0.        0.         3         5         0       .00     12.54   1034.88

*SECNO 4.000
     4.000       .99   1528.55   1528.43       .00   1528.68       .13       .00       .01   1528.56
      20.0        .0      20.0        .0        .0       6.8        .0        .0        .0   1529.00
       .00       .00      2.93       .00      .000      .035      .000      .000   1527.56   1022.01
   .012205        0.        0.        0.         2        11         0       .00     13.70   1035.70

*SECNO 5.000
     5.000       .99   1528.55   1528.43       .00   1528.68       .14       .00       .00   1528.56
      20.0        .0      20.0        .0        .0       6.7        .0        .0        .0   1529.00
       .00       .00      2.96       .00      .000      .035      .000      .000   1527.56   1022.03
   .012636        0.        0.        0.         0        15         0       .00     13.61   1035.64
```



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

*SECNO 6.000
```

```
     6.000       .99   1528.55   1528.43       .00   1528.69       .14       .00       .00   1528.56
      20.0        .0      20.0        .0        .0       6.7        .0        .0        .0   1529.00
       .00       .00      2.97       .00       .000      .035      .000      .000   1527.56   1022.04
   .012686        0.        0.        0.         0        15         0       .00     13.60   1035.63

1
   22JUN93      19:07:43                                                                                PAGE   11

 T3            Q4

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                           .030

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       4                 -1                                      -1

1
   22JUN93      19:07:43                                                                                PAGE   12

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

 *PROF 4

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.16   1528.72   1528.72       .00   1529.01       .29       .00       .00   1528.56
       40.0        .3      39.7        .0        .1       9.2        .0        .0        .0   1529.00
       .00       1.99      4.32       .00       .020      .035      .000      .000   1527.56   1020.39
   .020724        0.        0.        0.         0        11        11       .00     16.90   1037.29

 *SECNO 2.000
 3720 CRITICAL DEPTH ASSUMED
      2.000      1.17   1528.73   1528.73       .00   1529.01       .28       .00       .00   1528.56
       40.0        .3      39.7        .0        .1       9.3        .0        .0        .0   1529.00
       .00       2.00      4.29       .00       .020      .035      .000      .000   1527.56   1020.35
   .020309        0.        0.        0.         0         5         0       .00     16.98   1037.33

 *SECNO 3.000
      3.000      1.18   1528.74   1528.72       .00   1529.02       .28       .00       .00   1528.56
       40.0        .3      39.7        .0        .2       9.4        .0        .0        .0   1529.00
       .00       2.03      4.22       .00       .020      .035      .000      .000   1527.56   1020.26
   .019462        0.        0.        0.         0         5         0       .00     17.15   1037.41

 *SECNO 4.000
      4.000      1.26   1528.82   1528.72       .00   1529.03       .21       .00       .01   1528.56
       40.0        .7      39.3        .0        .3      10.6        .0        .0        .0   1529.00
       .00       2.16      3.72       .00       .020      .035      .000      .000   1527.56   1019.51
   .013698        0.        0.        0.         5         5         0       .00     18.63   1038.14

 *SECNO 5.000
      5.000      1.27   1528.83   1528.72       .00   1529.03       .20       .00       .00   1528.56
       40.0        .7      39.3        .0        .3      10.7        .0        .0        .0   1529.00
       .00       2.17      3.65       .00       .020      .035      .000      .000   1527.56   1019.41
   .013051        0.        0.        0.         0        11         0       .00     18.84   1038.24

1
   22JUN93      19:07:43                                                                                PAGE   13

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

 *SECNO 6.000
      6.000      1.28   1528.84   1528.72       .00   1529.04       .20       .00       .00   1528.56
       40.0        .8      39.2        .0        .4      10.9        .0        .0        .0   1529.00
       .00       2.17      3.59       .00       .020      .035      .000      .000   1527.56   1019.30
   .012459        0.        0.        0.         0        11         0       .00     19.04   1038.34

1
   22JUN93      19:07:43                                                                                PAGE   14

 T3            Q5

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                           .030

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       5                 -1                                      -1

1
   22JUN93      19:07:43                                                                                PAGE   15
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```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.37    1528.93    1528.93       .00    1529.25       .32       .00       .00    1528.56
      60.0       2.2       57.8         .0        .7       12.6        .0        .0        .0    1529.00
       .00      3.23       4.58        .00       .020       .035      .000      .000   1527.56    1018.29
   .018043        0.         0.         0.         0         14        11       .00     21.03    1039.32

*SECNO 2.000
     2.000      1.38    1528.94    1528.93       .00    1529.25       .32       .00       .00    1528.56
      60.0       2.3       57.7         .0        .7       12.7        .0        .0        .0    1529.00
       .00      3.23       4.55        .00       .020       .035      .000      .000   1527.56    1018.26
   .017766        0.         0.         0.         0          5         0       .00     21.10    1039.36

*SECNO 3.000
     3.000      1.39    1528.95    1528.93       .00    1529.26       .31       .00       .00    1528.56
      60.0       2.3       57.7         .0        .7       12.8        .0        .0        .0    1529.00
       .00      3.22       4.50        .00       .020       .035      .000      .000   1527.56    1018.18
   .017218        0.         0.         0.         0          5         0       .00     21.25    1039.43

*SECNO 4.000
     4.000      1.45    1529.01    1528.93       .00    1529.27       .25       .00       .01    1528.56
      60.0       3.1       56.9         .0       1.0       13.9        .0        .0        .0    1529.00
       .00      3.13       4.09        .00       .020       .035      .000      .000   1527.56    1017.56
   .013298        0.         0.         0.         5          5         0       .00     22.47    1040.03

*SECNO 5.000
     5.000      1.46    1529.02    1528.93       .00    1529.27       .25       .00       .00    1528.56
      60.0       3.2       56.8         .0       1.0       14.1        .0        .0        .0    1529.00
       .00      3.10       4.02        .03       .020       .035      .000      .000   1527.56    1017.45
   .012588        0.         0.         0.         0         11         0       .00     22.69    1040.13

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   22JUN93      19:07:43                                                                                    PAGE   16

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

*SECNO 6.000
     6.000      1.48    1529.04    1528.93       .00    1529.27       .24       .00       .00    1528.56
      60.0       3.3       56.7         .0       1.1       14.3        .0        .0        .0    1529.00
       .00      3.07       3.95        .03       .020       .035      .000      .000   1527.56    1017.33
   .011925        0.         0.         0.         0         11         0       .00     22.91    1040.24

1
   22JUN93      19:07:43                                                                                    PAGE   17

T3            Q6

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                7                                .030

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      6                   -1                                           -1

1
   22JUN93      19:07:43                                                                                    PAGE   18

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

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.52    1529.08    1529.08       .00    1529.44       .37       .00       .00    1528.56
      80.0       5.2       74.8         .0       1.3       15.2        .0        .0        .0    1529.00
       .00      3.91       4.91        .04       .020       .035      .055      .000   1527.56    1016.83
   .016957        0.         0.         0.         0         19        11       .00     23.84    1040.67

*SECNO 2.000
     2.000      1.52    1529.08    1529.08       .00    1529.45       .36       .00       .00    1528.56
      80.0       5.3       74.7         .0       1.4       15.3        .0        .0        .0    1529.00
       .00      3.90       4.89        .03       .020       .035      .055      .000   1527.56    1016.79
   .016707        0.         0.         0.         0          5         0       .00     23.90    1040.70
```

```
*SECNO 3.000
     3.000      1.54   1529.10   1529.08       .00   1529.45       .35       .00       .00   1528.56
      80.0       5.4      74.6        .0       1.4      15.4        .0        .0        .0   1529.00
       .00      3.88      4.84       .03      .020      .035      .055      .000   1527.56   1016.72
   .016203        0.        0.        0.         0         5         0       .00     24.04   1040.76

*SECNO 4.000
     4.000      1.60   1529.16   1529.07       .00   1529.46       .29       .00       .01   1528.56
      80.0       6.5      73.5        .1       1.8      16.6        .1        .0        .0   1529.00
       .00      3.64      4.41       .54      .020      .035      .055      .000   1527.56   1016.04
   .012179        0.        0.        0.         7         5         0       .00     25.31   1041.35

*SECNO 5.000
     5.000      1.62   1529.18   1529.08       .00   1529.46       .29       .00       .00   1528.56
      80.0       6.6      73.3        .1       1.8      16.8        .1        .0        .0   1529.00
       .00      3.61      4.35       .55      .020      .035      .055      .000   1527.56   1015.93
   .011633        0.        0.        0.         0        11         0       .00     25.52   1041.45

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   22JUN93      19:07:43                                                                          PAGE   19

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

*SECNO 6.000
     6.000      1.63   1529.19   1529.08       .00   1529.47       .28       .00       .00   1528.56
      80.0       6.8      73.1        .1       1.9      17.1        .1        .0        .0   1529.00
       .00      3.57      4.28       .57      .020      .035      .055      .000   1527.56   1015.81
   .011100        0.        0.        0.         0        11         0       .00     25.74   1041.55

1
   22JUN93      19:07:43                                                                          PAGE   20

T3            Q7

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              8                                .030

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    7                    -1                                           -1

1
   22JUN93      19:07:43                                                                          PAGE   21

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

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.67   1529.23   1529.23       .00   1529.61       .38       .00       .00   1528.56
     100.0       9.5      90.4        .2       2.2      17.9        .2        .0        .0   1529.00
       .00      4.27      5.05       .76      .020      .035      .055      .000   1527.56   1015.34
   .014425        0.        0.        0.         0        18        11       .00     26.62   1041.96

*SECNO 2.000
     2.000      1.67   1529.23   1529.20       .00   1529.61       .38       .00       .00   1528.56
     100.0       9.5      90.3        .2       2.2      18.0        .2        .0        .0   1529.00
       .00      4.26      5.03       .76      .020      .035      .055      .000   1527.56   1015.31
   .014264        0.        0.        0.         0         5         0       .00     26.67   1041.98

*SECNO 3.000
     3.000      1.68   1529.24   1529.19       .00   1529.62       .38       .00       .00   1528.56
     100.0       9.7      90.2        .2       2.3      18.1        .2        .0        .0   1529.00
       .00      4.24      4.99       .76      .020      .035      .055      .000   1527.56   1015.25
   .013950        0.        0.        0.         0         5         0       .00     26.78   1042.04

*SECNO 4.000
     4.000      1.69   1529.25   1529.22       .00   1529.62       .37       .00       .00   1528.56
     100.0       9.8      90.0        .2       2.3      18.2        .3        .0        .0   1529.00
       .00      4.20      4.94       .77      .020      .035      .055      .000   1527.56   1015.16
   .013481        0.        0.        0.         0         6         0       .00     26.95   1042.11

*SECNO 5.000
     5.000      1.74   1529.30   1529.23       .00   1529.63       .32       .00       .00   1528.56
     100.0      10.9      88.8        .3       2.7      19.2        .4        .0        .0   1529.00
       .00      4.01      4.63       .79      .020      .035      .055      .000   1527.56   1014.63
   .011079        0.        0.        0.         3         6         0       .00     27.94   1042.57

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   22JUN93      19:07:43                                                                          PAGE   22

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
```

```
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 6.000
      6.000      1.75    1529.31    1529.22        .00    1529.63        .32        .00        .00    1528.56
      100.0      11.1       88.6         .3        2.8       19.4         .4         .0         .0    1529.00
        .00      3.97       4.58        .80       .020       .035       .055       .000    1527.56    1014.53
    .010691        0.         0.         0.          0         10          0        .00      28.13    1042.66
```



```
T3            Q8

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              9                                .030

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     8                   -1                                           -1
```



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

 *PROF 8

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.92    1529.48    1529.48        .00    1529.89        .41        .00        .00    1528.56
      140.0      21.6      117.3        1.1        4.5       22.5        1.0         .0         .0    1529.00
        .00      4.81       5.22       1.11       .020       .035       .055       .000    1527.56    1008.07
    .011431        0.         0.         0.          0         12         10        .00      36.08    1044.15

 *SECNO 2.000
      2.000      1.92    1529.48    1529.48        .00    1529.89        .41        .00        .00    1528.56
      140.0      21.7      117.2        1.1        4.5       22.5        1.0         .0         .0    1529.00
        .00      4.79       5.21       1.11       .020       .035       .055       .000    1527.56    1007.95
    .011341        0.         0.         0.          0          5          0        .00      36.22    1044.17

 *SECNO 3.000
      3.000      1.93    1529.49    1529.48        .00    1529.89        .40        .00        .00    1528.56
      140.0      21.9      116.9        1.1        4.6       22.6        1.0         .0         .0    1529.00
        .00      4.76       5.18       1.11       .020       .035       .055       .000    1527.56    1007.71
    .011152        0.         0.         0.          0          5          0        .00      36.50    1044.21

 *SECNO 4.000
      4.000      1.94    1529.50    1529.48        .00    1529.90        .40        .00        .00    1528.56
      140.0      22.2      116.6        1.2        4.7       22.7        1.1         .0         .0    1529.00
        .00      4.72       5.13       1.10       .020       .035       .055       .000    1527.56    1007.34
    .010872        0.         0.         0.          0          5          0        .00      36.94    1044.28

 *SECNO 5.000
      5.000      2.01    1529.57    1529.48        .00    1529.91        .33        .00        .01    1528.56
      140.0      25.1      113.4        1.5        5.8       24.0        1.4         .0         .0    1529.00
        .00      4.31       4.73       1.07       .020       .035       .055       .000    1527.56    1003.91
    .008620        0.         0.         0.          7          5          0        .00      40.96    1044.87
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 6.000
      6.000      2.03    1529.59    1529.48        .00    1529.91        .32        .00        .00    1528.56
      140.0      25.8      112.6        1.5        6.1       24.3        1.4         .0         .0    1529.00
        .00      4.21       4.64       1.06       .020       .035       .055       .000    1527.56    1003.08
    .008158        0.         0.         0.          1          8          0        .00      41.93    1045.01
```



```
T3            Q9

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              10                               .030

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     9                   -1                                           -1
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1
   22JUN93      19:07:43                                                                                                PAGE   27

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

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      2.14   1529.70   1529.70       .00   1530.09       .40       .00       .00   1528.56
      180.0      40.5     136.9       2.7       8.6      26.4       2.1        .0        .0   1529.00
        .00      4.69      5.19      1.27      .020      .035      .055      .000   1527.56   1000.00
    .009120        0.        0.        0.         0        10         9       .00     46.03   1046.03

 *SECNO 2.000
      2.000      2.14   1529.70   1529.66       .00   1530.09       .39       .00       .00   1528.56
      180.0      40.6     136.7       2.7       8.7      26.4       2.1        .0        .0   1529.00
        .00      4.68      5.18      1.27      .020      .035      .055      .000   1527.56   1000.00
    .009065        0.        0.        0.         0         5         0       .00     46.05   1046.05

 *SECNO 3.000
      3.000      2.15   1529.71   1529.66       .00   1530.10       .39       .00       .00   1528.56
      180.0      40.8     136.5       2.7       8.7      26.5       2.1        .0        .0   1529.00
        .00      4.67      5.16      1.27      .020      .035      .055      .000   1527.56   1000.00
    .008956        0.        0.        0.         0         5         0       .00     46.08   1046.08

 *SECNO 4.000
      4.000      2.15   1529.71   1529.69       .00   1530.10       .39       .00       .00   1528.56
      180.0      41.2     136.1       2.7       8.9      26.6       2.2        .0        .0   1529.00
        .00      4.64      5.12      1.26      .020      .035      .055      .000   1527.56   1000.00
    .008791        0.        0.        0.         0         6         0       .00     46.13   1046.13

 *SECNO 5.000
      5.000      2.16   1529.72   1529.69       .00   1530.10       .38       .00       .00   1528.56
      180.0      41.7     135.5       2.8       9.0      26.7       2.2        .0        .0   1529.00
        .00      4.61      5.08      1.25      .020      .035      .055      .000   1527.56   1000.00
    .008575        0.        0.        0.         0         6         0       .00     46.19   1046.19

1
   22JUN93      19:07:43                                                                                                PAGE   28

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

 *SECNO 6.000
      6.000      2.17   1529.73   1529.70       .00   1530.10       .37       .00       .00   1528.56
      180.0      42.3     134.9       2.8       9.2      26.9       2.3        .0        .0   1529.00
        .00      4.57      5.02      1.25      .020      .035      .055      .000   1527.56   1000.00
    .008322        0.        0.        0.         0         6         0       .00     46.27   1046.27

1
   22JUN93      19:07:43                                                                                                PAGE   29

 T3          Q10

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 11                             .030

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      10                    -1                                          -1

1
   22JUN93      19:07:43                                                                                                PAGE   30

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

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      2.30   1529.86   1529.86       .00   1530.39       .53       .00       .00   1528.56
      250.0      70.3     174.6       5.1      12.3      29.4       3.2        .0        .0   1529.00
        .00      5.70      5.94      1.56      .020      .035      .055      .000   1527.56   1000.00
    .010337        0.        0.        0.         0         8         8       .00     47.49   1047.49

 *SECNO 2.000
```

```
     2.000      2.35   1529.91   1529.88       .00   1530.40       .49       .00       .00   1528.56
     250.0      73.1     171.6       5.4      13.1      30.1       3.5        .0        .0   1529.00
       .00      5.56      5.71      1.52      .020      .035      .055      .000   1527.56   1000.00
   .009259        0.        0.        0.         0         5         0       .00     47.81   1047.81

*SECNO 3.000
     3.000      2.36   1529.92   1529.86       .00   1530.40       .48       .00       .00   1528.56
     250.0      73.7     170.9       5.4      13.3      30.2       3.6        .0        .0   1529.00
       .00      5.53      5.66      1.51      .020      .035      .055      .000   1527.56   1000.00
   .009039        0.        0.        0.         0         5         0       .00     47.88   1047.88

*SECNO 4.000
     4.000      2.38   1529.94   1529.90       .00   1530.40       .46       .00       .00   1528.56
     250.0      75.1     169.3       5.6      13.8      30.6       3.7        .0        .0   1529.00
       .00      5.45      5.54      1.49      .020      .035      .055      .000   1527.56   1000.00
   .008523        0.        0.        0.         2         6         0       .00     48.06   1048.06

*SECNO 5.000
     5.000      2.43   1529.99   1529.91       .00   1530.41       .41       .00       .00   1528.56
     250.0      79.1     164.9       6.1      15.1      31.6       4.2        .0        .0   1529.00
       .00      5.24      5.21      1.43      .020      .035      .055      .000   1527.56   1000.00
   .007202        0.        0.        0.         3         6         0       .00     48.57   1048.57

1
  22JUN93      19:07:43                                                                          PAGE   31

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

*SECNO 6.000
     6.000      2.44   1530.00   1529.90       .00   1530.41       .41       .00       .00   1528.56
     250.0      79.5     164.4       6.1      15.2      31.8       4.3        .0        .0   1529.00
       .00      5.22      5.18      1.42      .020      .035      .055      .000   1527.56   1000.00
   .007072        0.        0.        0.         0        10         0       .00     48.63   1048.63

1
  22JUN93      19:07:43                                                                          PAGE   32

T3          Q11
J1  ICHECK    INQ       NINV      IDIR      STRT     METRIC    HVINS       Q       WSEL        FQ
              12                          .030
J2  NPROF    IPLOT      PRFVS     XSECV     XSECH       FN    ALLDC     IBW     CHNIM    ITRACE
     11                  -1                                     -1

1
  22JUN93      19:07:43                                                                          PAGE   33

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

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.45   1530.01   1530.01       .00   1530.58       .58       .00       .00   1528.56
     300.0      96.2     196.4       7.4      15.4      31.9       4.4        .0        .0   1529.00
       .00      6.23      6.15      1.69      .020      .035      .055      .000   1527.56   1000.00
   .009910        0.        0.        0.         0         8         7       .00     48.72   1048.71

*SECNO 2.000
     2.000      2.45   1530.01   1530.00       .00   1530.59       .58       .00       .00   1528.56
     300.0      96.3     196.3       7.4      15.5      32.0       4.4        .0        .0   1529.00
       .00      6.22      6.14      1.69      .020      .035      .055      .000   1527.56   1000.00
   .009857        0.        0.        0.         0         5         0       .00     48.73   1048.73

*SECNO 3.000
     3.000      2.46   1530.02   1530.00       .00   1530.59       .57       .00       .00   1528.56
     300.0      96.6     195.9       7.5      15.6      32.0       4.4        .0        .0   1529.00
       .00      6.20      6.11      1.69      .020      .035      .055      .000   1527.56   1000.00
   .009746        0.        0.        0.         0         5         0       .00     48.77   1048.77

*SECNO 4.000
     4.000      2.47   1530.03   1530.00       .00   1530.59       .57       .00       .00   1528.56
     300.0      97.1     195.3       7.5      15.7      32.2       4.5        .0        .0   1529.00
       .00      6.18      6.07      1.68      .020      .035      .055      .000   1527.56   1000.00
   .009569        0.        0.        0.         0         5         0       .00     48.83   1048.83

*SECNO 5.000
     5.000      2.48   1530.04   1529.99       .00   1530.59       .56       .00       .00   1528.56
     300.0      97.8     194.6       7.6      15.9      32.3       4.6        .0        .0   1529.00
       .00      6.14      6.02      1.67      .020      .035      .055      .000   1527.56   1000.00
   .009331        0.        0.        0.         0         5         0       .00     48.91   1048.91
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1
   22JUN93      19:07:43                                                                                                PAGE   34

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

 *SECNO 6.000
     6.000      2.58    1530.14    1529.99        .00    1530.61        .46        .00        .01    1528.56
     300.0     105.5      185.8        8.7      18.4       34.4        5.6         .0         .0    1529.00
       .00      5.72       5.40       1.54       .020       .035       .055       .000    1527.56    1000.00
   .006935        0.         0.         0.          3          5          0        .00      49.89    1049.89

1
   22JUN93      19:07:43                                                                                                PAGE   35

 T3           Q12

 J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              13                               .030

 J2  NPROF    IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     12                  -1                                           -1

1
   22JUN93      19:07:43                                                                                                PAGE   36

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

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000      2.67    1530.23    1530.23        .00    1530.95        .71        .00        .00    1528.56
     400.0     147.9      239.3       12.8      20.5       36.1        6.6         .0         .0    1529.00
       .00      7.22       6.63       1.93       .020       .035       .055       .000    1527.56    1000.00
   .009807        0.         0.         0.          0         11          5        .00      50.71    1050.70

 *SECNO 2.000
     2.000      2.72    1530.28    1530.25        .00    1530.95        .67        .00        .00    1528.56
     400.0     150.6      236.2       13.2      21.3       36.7        7.0         .0         .0    1529.00
       .00      7.06       6.43       1.89       .020       .035       .055       .000    1527.56    1000.00
   .008976        0.         0.         0.          0          5          0        .00      51.03    1051.03

 *SECNO 3.000
     3.000      2.73    1530.29    1530.23        .00    1530.95        .66        .00        .00    1528.56
     400.0     151.1      235.6       13.3      21.5       36.9        7.1         .0         .0    1529.00
       .00      7.03       6.39       1.88       .020       .035       .055       .000    1527.56    1000.00
   .008818        0.         0.         0.          0          5          0        .00      51.10    1051.10

 *SECNO 4.000
     4.000      2.77    1530.33    1530.27        .00    1530.96        .63        .00        .00    1528.56
     400.0     153.9      232.3       13.8      22.4       37.6        7.6         .0         .0    1529.00
       .00      6.87       6.17       1.83       .020       .035       .055       .000    1527.56    1000.00
   .008017        0.         0.         0.          3          6          0        .00      51.46    1051.46

 *SECNO 5.000
     5.000      2.83    1530.39    1530.26        .00    1530.97        .57        .00        .01    1528.56
     400.0     158.0      227.3       14.7      23.9       38.9        8.4         .0         .0    1529.00
       .00      6.61       5.85       1.75       .020       .035       .055       .000    1527.56    1000.00
   .006906        0.         0.         0.          3          8          0        .00      52.05    1052.04

1
   22JUN93      19:07:43                                                                                                PAGE   37

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

 *SECNO 6.000
     6.000      2.84    1530.40    1530.23        .00    1530.97        .57        .00        .00    1528.56
     400.0     158.3      226.9       14.7      24.0       39.0        8.4         .0         .0    1529.00
       .00      6.59       5.83       1.75       .020       .035       .055       .000    1527.56    1000.00
   .006824        0.         0.         0.          0         11          0        .00      52.09    1052.09

1
   22JUN93      19:07:43                                                                                                PAGE   38

 T3           Q13

 J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              14                               .030
```

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     13                  -1                                      -1

1
   22JUN93      19:07:43                                                                                          PAGE   39

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

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.92   1530.48   1530.48       .00   1531.28       .80       .00       .00   1528.56
     500.0     203.4     276.9      19.7      25.8      40.4       9.4        .0        .0   1529.00
       .00      7.89      6.86      2.08      .020      .035      .055      .000   1527.56   1000.00
   .009001        0.        0.        0.         0        11         5       .00     52.79   1052.79

*SECNO 2.000
     2.000      2.92   1530.48   1530.46       .00   1531.28       .80       .00       .00   1528.56
     500.0     203.6     276.8      19.7      25.8      40.4       9.5        .0        .0   1529.00
       .00      7.88      6.85      2.08      .020      .035      .055      .000   1527.56   1000.00
   .008967        0.        0.        0.         0         5         0       .00     52.81   1052.80

*SECNO 3.000
     3.000      2.93   1530.49   1530.46       .00   1531.28       .79       .00       .00   1528.56
     500.0     203.8     276.5      19.7      25.9      40.5       9.5        .0        .0   1529.00
       .00      7.87      6.83      2.08      .020      .035      .055      .000   1527.56   1000.00
   .008898        0.        0.        0.         0         5         0       .00     52.84   1052.83

*SECNO 4.000
     4.000      2.93   1530.49   1530.46       .00   1531.28       .79       .00       .00   1528.56
     500.0     204.2     276.0      19.8      26.0      40.6       9.6        .0        .0   1529.00
       .00      7.84      6.80      2.07      .020      .035      .055      .000   1527.56   1000.00
   .008789        0.        0.        0.         0         5         0       .00     52.89   1052.89

*SECNO 5.000
     5.000      2.94   1530.50   1530.45       .00   1531.28       .78       .00       .00   1528.56
     500.0     204.7     275.4      20.0      26.2      40.7       9.7        .0        .0   1529.00
       .00      7.81      6.76      2.06      .020      .035      .055      .000   1527.56   1000.00
   .008645        0.        0.        0.         0         5         0       .00     52.96   1052.96

1
   22JUN93      19:07:43                                                                                          PAGE   40

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

*SECNO 6.000
     6.000      3.04   1530.60   1530.45       .00   1531.29       .69       .00       .01   1528.56
     500.0     210.6     268.0      21.5      28.4      42.5      11.0        .0        .0   1529.00
       .00      7.42      6.30      1.95      .020      .035      .055      .000   1527.56   1000.00
   .007100        0.        0.        0.         3         5         0       .00     53.82   1053.81

1
   22JUN93      19:07:43                                                                                          PAGE   41

T3          Q14

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              15                            .030

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     14                  -1                                      -1

1
   22JUN93      19:07:43                                                                                          PAGE   42

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

*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
```

1.000	3.11	1530.67	1530.67	.00	1531.58	.91	.00	.00	1528.56
600.0	257.5	315.4	27.1	30.1	43.9	12.1	.0	.0	1529.00
.00	8.57	7.19	2.24	.020	.035	.055	.000	1527.56	1000.00
.008854	0.	0.	0.	0	14	5	.00	54.47	1054.47

*SECNO 2.000

2.000	3.16	1530.72	1530.68	.00	1531.59	.87	.00	.00	1528.56
600.0	259.8	312.3	27.8	30.9	44.6	12.7	.0	.0	1529.00
.00	8.40	7.00	2.20	.020	.035	.055	.000	1527.56	1000.00
.008224	0.	0.	0.	0	5	0	.00	54.82	1054.82

*SECNO 3.000

3.000	3.16	1530.72	1530.66	.00	1531.59	.87	.00	.00	1528.56
600.0	260.3	311.8	28.0	31.1	44.7	12.8	.0	.0	1529.00
.00	8.37	6.97	2.19	.020	.035	.055	.000	1527.56	1000.00
.008113	0.	0.	0.	0	5	0	.00	54.89	1054.88

*SECNO 4.000

4.000	3.18	1530.74	1530.66	.00	1531.59	.86	.00	.00	1528.56
600.0	260.8	311.1	28.1	31.3	44.9	12.9	.0	.0	1529.00
.00	8.33	6.93	2.18	.020	.035	.055	.000	1527.56	1000.00
.007976	0.	0.	0.	0	5	0	.00	54.97	1054.96

*SECNO 5.000

5.000	3.27	1530.83	1530.68	.00	1531.60	.77	.00	.01	1528.56
600.0	265.9	304.2	29.9	33.4	46.7	14.4	.0	.0	1529.00
.00	7.95	6.52	2.07	.020	.035	.055	.000	1527.56	999.99
.006715	0.	0.	0.	7	8	0	.00	55.81	1055.81

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

*SECNO 6.000

6.000	3.28	1530.84	1530.67	.00	1531.61	.77	.00	.00	1528.56
600.0	266.3	303.6	30.0	33.6	46.8	14.6	.0	.0	1529.00
.00	7.92	6.48	2.06	.020	.035	.055	.000	1527.56	999.99
.006611	0.	0.	0.	0	11	0	.00	55.89	1055.89

THIS RUN EXECUTED 22JUN93 19:07:46

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
*	1.000	5.00	1528.07	.51	2.86	1528.07	1528.19	.00	288.09	.00
*	1.000	10.00	1528.22	.66	3.31	1528.22	1528.39	.00	269.02	.00
*	1.000	20.00	1528.44	.88	3.80	1528.44	1528.66	.00	245.64	.00
*	1.000	40.00	1528.72	1.16	4.32	1528.72	1529.01	.00	207.24	.00
*	1.000	60.00	1528.93	1.37	4.58	1528.93	1529.25	.00	180.43	.00
*	1.000	80.00	1529.08	1.52	4.91	1529.08	1529.44	.00	169.57	.00
*	1.000	100.00	1529.23	1.67	5.05	1529.23	1529.61	.00	144.25	.00
*	1.000	140.00	1529.48	1.92	5.22	1529.48	1529.89	.00	114.31	.00
*	1.000	180.00	1529.70	2.14	5.19	1529.70	1530.09	.00	91.20	.00
*	1.000	250.00	1529.86	2.30	5.94	1529.86	1530.39	.00	103.37	.00
*	1.000	300.00	1530.01	2.45	6.15	1530.01	1530.58	.00	99.10	.00
*	1.000	400.00	1530.23	2.67	6.63	1530.23	1530.95	.00	98.07	.00
*	1.000	500.00	1530.48	2.92	6.86	1530.48	1531.28	.00	90.01	.00
*	1.000	600.00	1530.67	3.11	7.19	1530.67	1531.58	.00	88.54	.00
	2.000	5.00	1528.08	.52	2.79	1528.06	1528.20	.01	271.25	1.03
	2.000	10.00	1528.23	.67	3.26	1528.22	1528.40	.01	257.70	1.02
	2.000	20.00	1528.45	.89	3.76	1528.44	1528.67	.00	238.46	1.01
*	2.000	40.00	1528.73	1.17	4.29	1528.73	1529.01	.00	203.09	1.01
	2.000	60.00	1528.94	1.38	4.55	1528.93	1529.25	.00	177.66	1.01
	2.000	80.00	1529.08	1.52	4.89	1529.08	1529.45	.00	167.07	1.01
	2.000	100.00	1529.23	1.67	5.03	1529.20	1529.61	.00	142.64	1.01
	2.000	140.00	1529.48	1.92	5.21	1529.48	1529.89	.00	113.41	1.00
	2.000	180.00	1529.70	2.14	5.18	1529.66	1530.09	.00	90.65	1.00
	2.000	250.00	1529.91	2.35	5.71	1529.88	1530.40	.00	92.59	1.06
	2.000	300.00	1530.01	2.45	6.14	1530.00	1530.59	.00	98.57	1.00
	2.000	400.00	1530.28	2.72	6.43	1530.25	1530.95	.00	89.76	1.05
	2.000	500.00	1530.48	2.92	6.85	1530.46	1531.28	.00	89.67	1.00
	2.000	600.00	1530.72	3.16	7.00	1530.68	1531.59	.00	82.24	1.04

SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO

3.000	5.00	1528.12	.56	2.41	1528.06	1528.21	.00	182.91	1.22
3.000	10.00	1528.27	.71	2.93	1528.22	1528.41	.00	193.77	1.15
3.000	20.00	1528.48	.92	3.49	1528.43	1528.67	.00	195.60	1.10
3.000	40.00	1528.74	1.18	4.22	1528.72	1529.02	.00	194.62	1.02
3.000	60.00	1528.95	1.39	4.50	1528.93	1529.26	.00	172.18	1.02
3.000	80.00	1529.10	1.54	4.84	1529.08	1529.45	.00	162.03	1.02
3.000	100.00	1529.24	1.68	4.99	1529.19	1529.62	.00	139.50	1.01
3.000	140.00	1529.49	1.93	5.18	1529.48	1529.89	.00	111.52	1.01
3.000	180.00	1529.71	2.15	5.16	1529.66	1530.10	.00	89.56	1.01
3.000	250.00	1529.92	2.36	5.66	1529.86	1530.40	.00	90.39	1.01
3.000	300.00	1530.02	2.46	6.11	1530.00	1530.59	.00	97.46	1.01
3.000	400.00	1530.29	2.73	6.39	1530.23	1530.95	.00	88.18	1.01
3.000	500.00	1530.49	2.93	6.83	1530.46	1531.28	.00	88.98	1.00
3.000	600.00	1530.72	3.16	6.97	1530.66	1531.59	.00	81.13	1.01
4.000	5.00	1528.13	.57	2.32	1528.06	1528.21	.00	166.53	1.05
4.000	10.00	1528.29	.73	2.82	1528.22	1528.41	.00	175.87	1.05
4.000	20.00	1528.55	.99	2.93	1528.43	1528.68	.00	122.05	1.27
4.000	40.00	1528.82	1.26	3.72	1528.72	1529.03	.00	136.98	1.19
4.000	60.00	1529.01	1.45	4.09	1528.93	1529.27	.00	132.98	1.14
4.000	80.00	1529.16	1.60	4.41	1529.07	1529.46	.00	121.79	1.15
4.000	100.00	1529.25	1.69	4.94	1529.22	1529.62	.00	134.81	1.02
4.000	140.00	1529.50	1.94	5.13	1529.48	1529.90	.00	108.72	1.01
4.000	180.00	1529.71	2.15	5.12	1529.69	1530.10	.00	87.91	1.01
4.000	250.00	1529.94	2.38	5.54	1529.90	1530.40	.00	85.23	1.03
4.000	300.00	1530.03	2.47	6.07	1530.00	1530.59	.00	95.69	1.01
4.000	400.00	1530.33	2.77	6.17	1530.27	1530.96	.00	80.17	1.05
4.000	500.00	1530.49	2.93	6.80	1530.46	1531.28	.00	87.89	1.01
4.000	600.00	1530.74	3.18	6.93	1530.66	1531.59	.00	79.76	1.01
5.000	5.00	1528.13	.57	2.25	1528.06	1528.21	.00	152.55	1.04
5.000	10.00	1528.30	.74	2.72	1528.22	1528.42	.00	159.77	1.05
5.000	20.00	1528.55	.99	2.96	1528.43	1528.68	.00	126.36	.98
5.000	40.00	1528.83	1.27	3.65	1528.72	1529.03	.00	130.51	1.02
5.000	60.00	1529.02	1.46	4.02	1528.93	1529.27	.00	125.88	1.03
5.000	80.00	1529.18	1.62	4.35	1529.08	1529.46	.00	116.33	1.02
5.000	100.00	1529.30	1.74	4.63	1529.23	1529.63	.00	110.79	1.10
5.000	140.00	1529.57	2.01	4.73	1529.48	1529.91	.00	86.20	1.12
5.000	180.00	1529.72	2.16	5.08	1529.69	1530.10	.00	85.75	1.01
5.000	250.00	1529.99	2.43	5.21	1529.91	1530.41	.00	72.02	1.09
5.000	300.00	1530.04	2.48	6.02	1529.99	1530.59	.00	93.31	1.01
5.000	400.00	1530.39	2.83	5.85	1530.26	1530.97	.00	69.06	1.08
5.000	500.00	1530.50	2.94	6.76	1530.45	1531.28	.00	86.45	1.01
5.000	600.00	1530.83	3.27	6.52	1530.68	1531.60	.00	67.15	1.09

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1528.14	.58	2.18	1528.06	1528.22	.00	140.90	1.04
6.000	10.00	1528.31	.75	2.63	1528.22	1528.42	.00	146.02	1.05
6.000	20.00	1528.55	.99	2.97	1528.43	1528.69	.00	126.86	1.00
6.000	40.00	1528.84	1.28	3.59	1528.72	1529.04	.00	124.59	1.02
6.000	60.00	1529.04	1.48	3.95	1528.93	1529.27	.00	119.25	1.03
6.000	80.00	1529.19	1.63	4.28	1529.08	1529.47	.00	111.00	1.02
6.000	100.00	1529.31	1.75	4.58	1529.22	1529.63	.00	106.91	1.02
6.000	140.00	1529.59	2.03	4.64	1529.48	1529.91	.00	81.58	1.03
6.000	180.00	1529.73	2.17	5.02	1529.70	1530.10	.00	83.22	1.02
6.000	250.00	1530.00	2.44	5.18	1529.90	1530.41	.00	70.72	1.01
6.000	300.00	1530.14	2.58	5.40	1529.99	1530.61	.00	69.35	1.16
6.000	400.00	1530.40	2.84	5.83	1530.23	1530.97	.00	68.24	1.01
6.000	500.00	1530.60	3.04	6.30	1530.45	1531.29	.00	71.00	1.10
6.000	600.00	1530.84	3.28	6.48	1530.67	1531.61	.00	66.11	1.01

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 10  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 11  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 14  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
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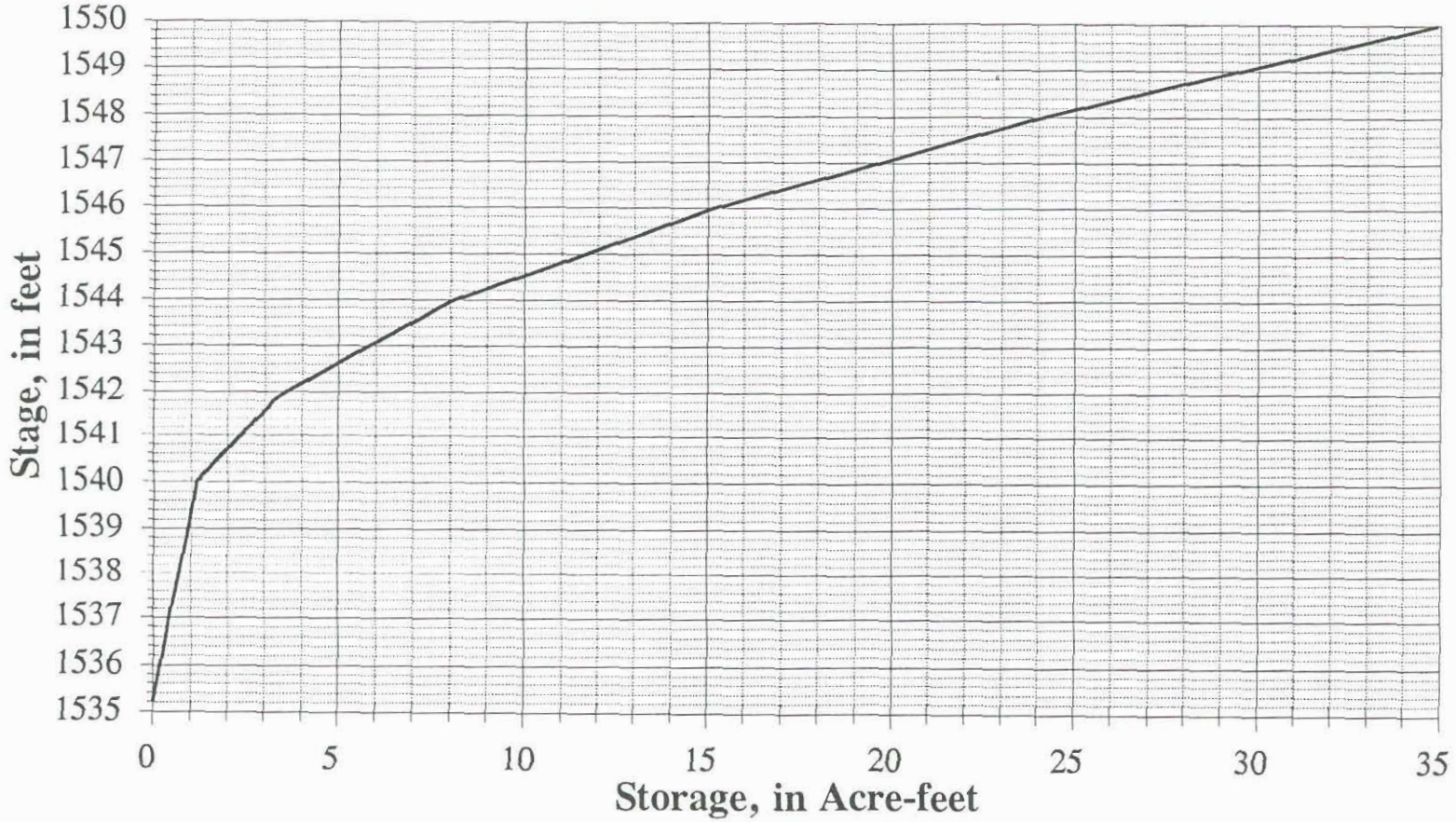
Hydraulic Calculations for Structure at C511 and M13

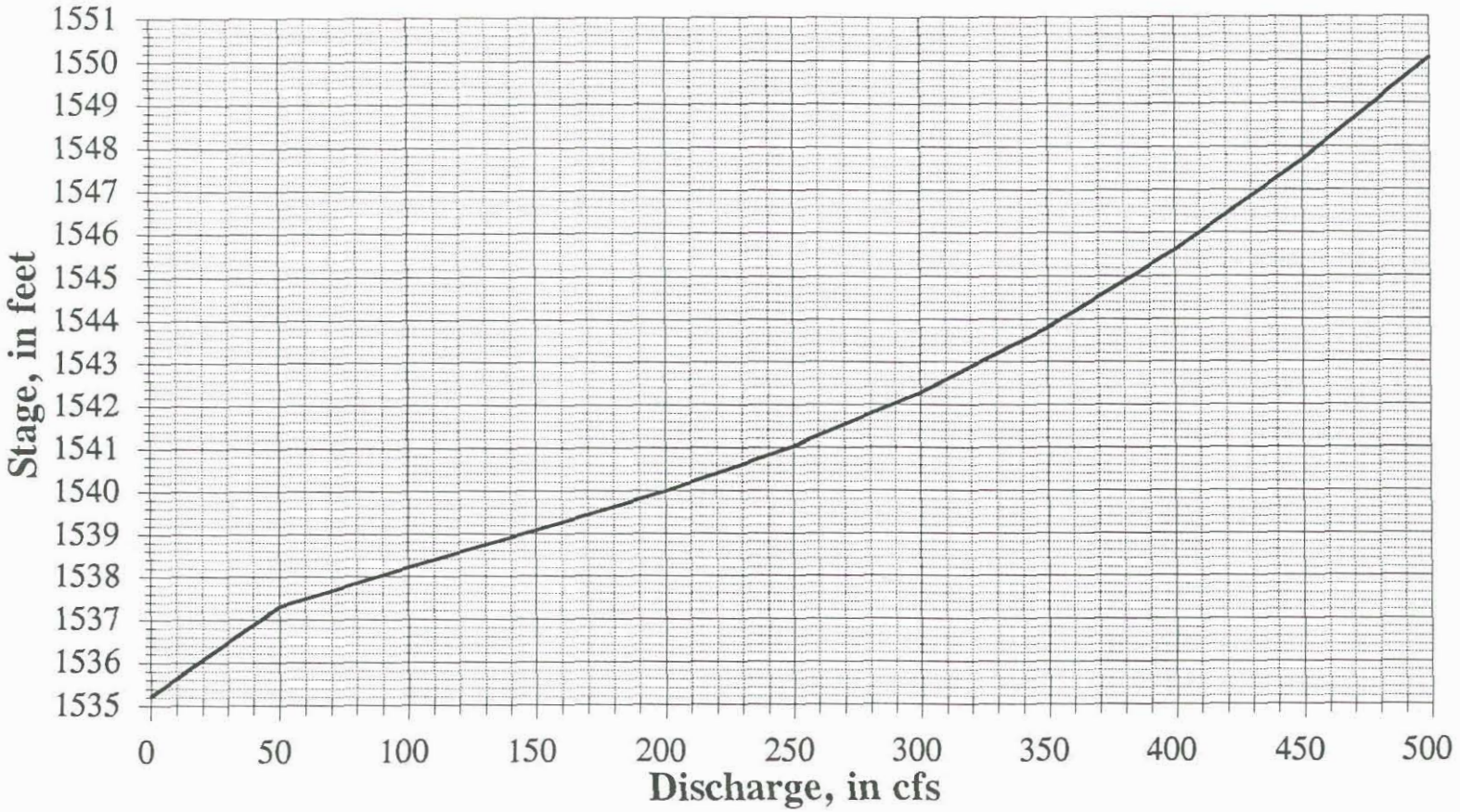
C511 Storage Volume

Calculated From Planimetered Contours



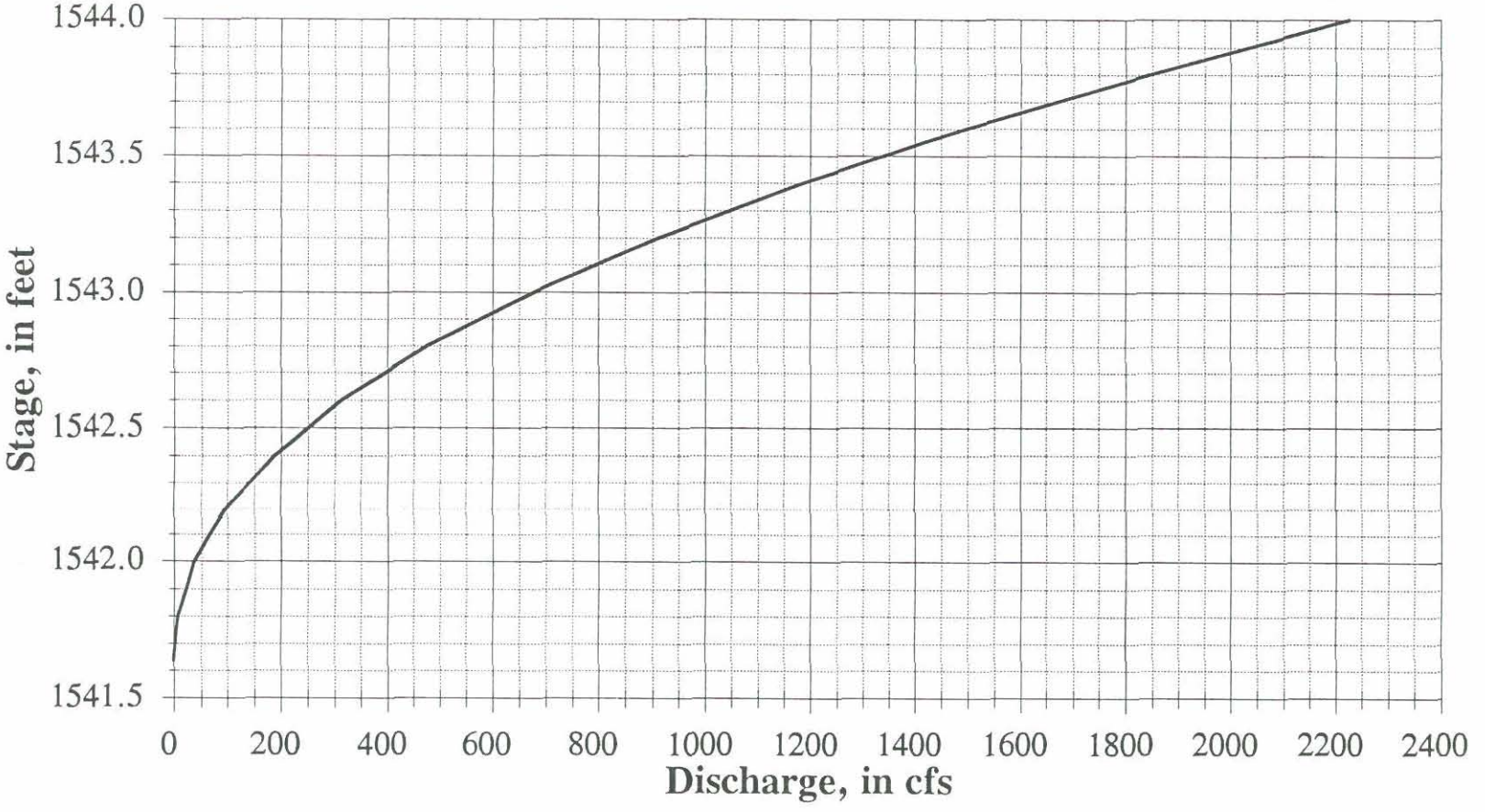
C511 Stage vs Discharge

Culvert Flow for 511 and M13 from HY8



C511 Stage vs Discharge

Weir Flow from Uneven Weir



CURRENT DATE: 06-16-1993
CURRENT TIME: 16:32:45

FILE DATE: 06-16-1993
FILE NAME: C511_M13

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1535.24	1533.74	90.01	2 CSP	4.50	4.50	.022	CONVENTIONAL
2	1536.84	1534.84	98.02	1 CSP	1.75	1.75	.022	CONVENTIONAL
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C511_M13 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1535.24	0	0	0	0	0	0	0	0	0
1536.78	27	27	0	0	0	0	0	0	4
1537.39	54	53	1	0	0	0	0	0	3
1537.90	81	77	4	0	0	0	0	0	3
1538.37	108	101	7	0	0	0	0	0	2
1538.83	135	125	10	0	0	0	0	0	2
1539.31	162	151	12	0	0	0	0	0	2
1539.78	189	175	14	0	0	0	0	0	3
1540.31	216	201	15	0	0	0	0	0	3
1540.88	243	227	17	0	0	0	0	0	3
1541.52	270	252	18	0	0	0	0	0	3
1550.00	299	270	29	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C511_M13 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1535.24	0.00	0	0	0.00
1536.78	-0.00	27	0	0.63
1537.39	-0.00	54	0	0.36
1537.90	-0.00	81	0	0.10
1538.37	-0.01	108	0	0.41
1538.83	-0.00	135	0	0.01
1539.31	0.01	162	-1	-0.33
1539.78	0.00	189	-0	-0.04
1540.31	0.00	216	-0	-0.02

1540.88	0.00	243	-0	-0.01
1541.52	0.00	270	-0	-0.01

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 06-16-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:32:45 FILE NAME: C511_M13

PERFORMANCE CURVE FOR CULVERT # 1 - 2 (4.5 BY 4.5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1535.24	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
27	1536.78	1.54	1.54	1-S2n	0.91	1.02	5.87	0.91	2.71	0.48
53	1537.39	2.15	2.15	1-S2n	1.26	1.46	7.16	1.26	3.49	0.70
77	1537.91	2.67	2.67	1-S2n	1.54	1.78	7.96	1.54	4.05	0.88
101	1538.37	3.13	3.13	1-S2n	1.79	2.04	8.52	1.79	4.51	1.03
125	1538.83	3.59	3.59	1-S2n	2.02	2.30	8.99	2.03	4.88	1.16
151	1539.30	4.06	4.06	1-S2n	2.25	2.53	9.46	2.25	5.22	1.28
175	1539.78	4.54	4.54	5-S2n	2.47	2.74	9.46	2.25	5.51	1.39
201	1540.30	5.06	5.06	5-S2n	2.69	2.93	10.12	2.69	5.78	1.49
227	1540.88	5.64	5.64	5-S2n	2.92	3.13	10.38	2.92	6.02	1.58
252	1541.51	6.27	6.27	5-S2n	3.16	3.30	10.58	3.16	6.25	1.68

El. inlet face invert 1535.24 ft El. outlet invert 1533.74 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1535.24
OUTLET STATION (FT)	90.00
OUTLET ELEVATION (FT)	1533.74
NUMBER OF BARRELS	2
SLOPE (V-FT/H-FT)	0.0167
CULVERT LENGTH ALONG SLOPE (FT)	90.01

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.50 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 06-16-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:32:45 FILE NAME: C511_M13

PERFORMANCE CURVE FOR CULVERT # 2 - 1 (1.75 BY 1.75) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1536.84	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	-1.10
0	1536.84	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	2.71	-0.62
1	1537.40	0.56	0.56	1-S2n	0.33	0.37	3.38	0.33	3.49	-0.40
4	1537.90	1.06	1.06	1-S2n	0.63	0.71	4.81	0.63	4.05	-0.22
7	1538.36	1.52	1.52	1-S2n	0.88	0.96	5.58	0.88	4.51	-0.07
10	1538.82	1.98	1.98	5-S2n	1.09	1.15	6.04	1.09	4.88	0.06
12	1539.30	2.43	2.46	2-M2c	1.29	1.28	6.32	1.28	5.22	0.18
14	1539.77	2.93	2.70	2-M2c	1.54	1.39	6.85	1.39	5.51	0.29
15	1540.30	3.30	3.46	6-FFn	1.75	1.44	6.42	1.75	5.78	0.39
17	1540.87	3.62	4.03	6-FFn	1.75	1.48	6.86	1.75	6.02	0.48
18	1541.51	3.98	4.67	6-FFn	1.75	1.52	7.33	1.75	6.25	0.58

El. inlet face invert 1536.84 ft El. outlet invert 1534.84 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1536.84
OUTLET STATION (FT)	98.00
OUTLET ELEVATION (FT)	1534.84
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0204
CULVERT LENGTH ALONG SLOPE (FT)	98.02

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	1.75 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 06-16-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:32:45 FILE NAME: C511_M13

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C511 M13
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	4
RIGHT CHANNEL BOUNDARY	5
MANNING N LEFT OVER BANK	0.040
MANNING N MAIN CHANNEL	0.030
MANNING N RIGHT OVER BAN	0.040
SLOPE OF CHANNEL (FT/FT)	0.0080

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1537.74
2	1060.00	1535.94
3	1070.00	1535.74
4	1090.00	1533.74
5	1110.00	1533.74
6	1120.00	1535.74
7	1190.00	1536.74
8	1230.00	1537.74

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1533.74	0.000	0.00	0.00	0.00
27.00	1534.22	0.690	0.48	2.71	0.24
54.00	1534.44	0.736	0.70	3.49	0.35
81.00	1534.62	0.764	0.88	4.05	0.44
108.00	1534.77	0.784	1.03	4.51	0.51
135.00	1534.90	0.800	1.16	4.88	0.58
162.00	1535.02	0.813	1.28	5.22	0.64
189.00	1535.13	0.825	1.39	5.51	0.69
216.00	1535.23	0.834	1.49	5.78	0.74
243.00	1535.32	0.843	1.58	6.02	0.79
270.00	1535.42	0.851	1.68	6.25	0.84

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1550.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS                C511
    ENGINEER:  dtp
    DATE:   7/ 9/1993
    TIME:  14:29.46




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1541.60
    MAXIMUM WSEL:        1544.03
    STEP SIZE:              0.20
    BREADTH OF WEIR:        9.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C511
    DATE:   7/ 9/1993
    TIME:  14:29.46
*********************************************
```

POINT	ELEVATION	STATION
1	1544.90	1000.00
2	1544.69	1010.00
3	1544.48	1020.00
4	1544.27	1030.00
5	1544.07	1040.00
6	1543.88	1050.00
7	1543.70	1060.00
8	1543.53	1070.00
9	1543.37	1080.00
10	1543.23	1090.00

11	1543.17	1100.00
12	1543.05	1110.00
13	1542.88	1120.00
14	1542.72	1130.00
15	1542.57	1140.00
16	1542.43	1150.00
17	1542.30	1160.00
18	1542.24	1165.00
19	1542.19	1170.00
20	1542.08	1180.00
21	1541.98	1190.00
22	1541.91	1200.00
23	1541.84	1210.00
24	1541.78	1220.00
25	1541.72	1230.00
26	1541.69	1240.00
27	1541.66	1250.00
28	1541.64	1260.00
29	1541.65	1270.00
30	1541.72	1280.00
31	1541.79	1290.00
32	1541.88	1300.00
33	1541.98	1310.00
34	1542.03	1315.00
35	1542.09	1320.00
36	1542.21	1330.00
37	1542.34	1340.00
38	1542.49	1350.00
39	1542.64	1360.00
40	1542.80	1370.00
41	1542.98	1380.00
42	1543.17	1390.00
43	1543.37	1400.00
44	1543.58	1410.00
45	1543.80	1420.00
46	1544.03	1430.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C511
    DATE:   7/ 9/1993
    TIME:  14:29.46
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5741
3	0.40	2.6481
4	0.60	2.7222
5	0.80	2.7963
6	1.00	2.8704
7	1.20	2.9444
8	1.40	3.0012
9	1.60	3.0062
10	1.80	3.0111
11	2.00	3.0160
12	2.20	3.0210
13	2.40	3.0259

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C511
    DATE:   7/ 9/1993
    TIME:  14:29.46
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1541.60	0.00
1541.80	6.48
1542.00	36.91
1542.20	96.21
1542.40	187.20
1542.60	312.41
1542.80	474.36
1543.00	675.50
1543.20	911.15
1543.40	1182.77
1543.60	1492.01
1543.80	1839.30
1544.00	2225.27

CURRENT DATE: 06-16-1993
CURRENT TIME: 16:32:45

FILE DATE: 06-16-1993
FILE NAME: C511_M13

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1535.24	1533.74	90.01	2 CSP	4.50	4.50	.022	CONVENTIONAL
2	1536.84	1534.84	98.02	1 CSP	1.75	1.75	.022	CONVENTIONAL
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C511_M13 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1535.24	0	0	0	0	0	0	0	0	0
1536.78	27	27	0	0	0	0	0	0	4
1537.39	54	53	1	0	0	0	0	0	3
1537.90	81	77	4	0	0	0	0	0	3
1538.37	108	101	7	0	0	0	0	0	2
1538.83	135	125	10	0	0	0	0	0	2
1539.31	162	151	12	0	0	0	0	0	2
1539.78	189	175	14	0	0	0	0	0	3
1540.31	216	201	15	0	0	0	0	0	3
1540.88	243	227	17	0	0	0	0	0	3
1541.52	270	252	18	0	0	0	0	0	3
1550.00	299	270	29	0	0	0	0	OVERTOPPING	

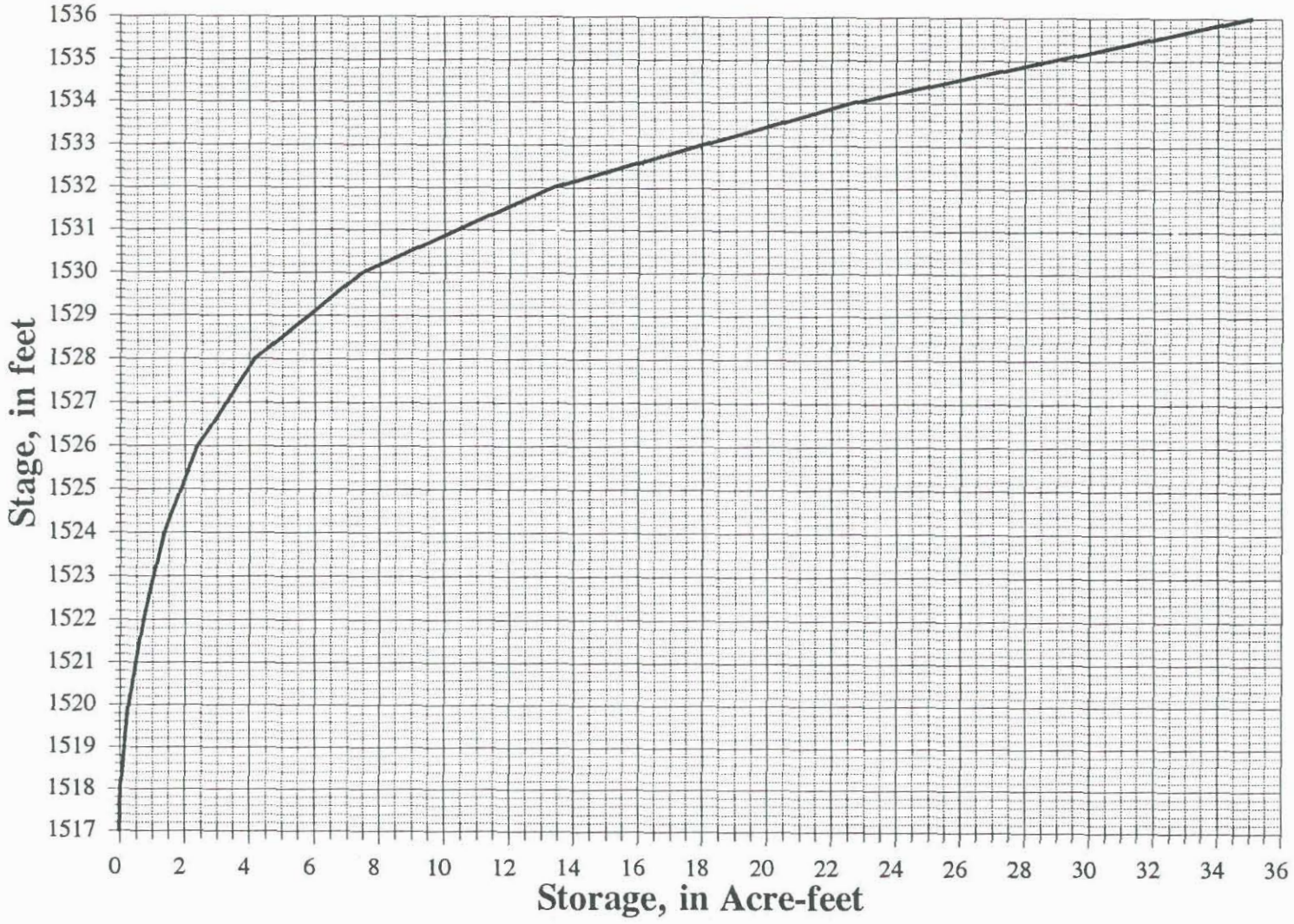
SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C511_M13 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1535.24	0.00	0	0	0.00
1536.78	-0.00	27	0	0.63
1537.39	-0.00	54	0	0.36
1537.90	-0.00	81	0	0.10
1538.37	-0.01	108	0	0.41
1538.83	-0.00	135	0	0.01
1539.31	0.01	162	-1	-0.33
1539.78	0.00	189	-0	-0.04
1540.31	0.00	216	-0	-0.02

Hydraulic Calculations for Structure at C512 (Stock Tank)

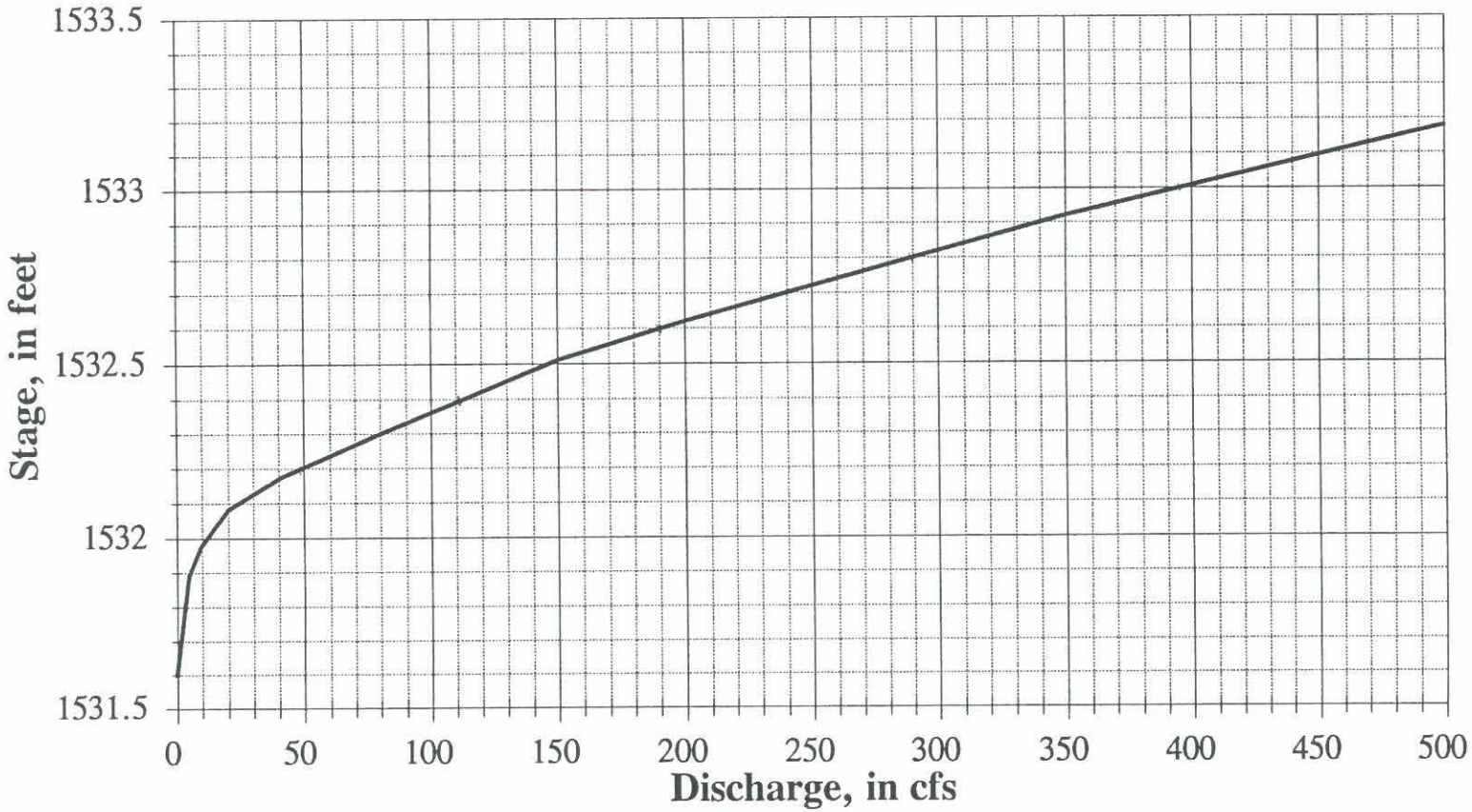
C512 Storage Volume

Calculated From Planimetered Contours



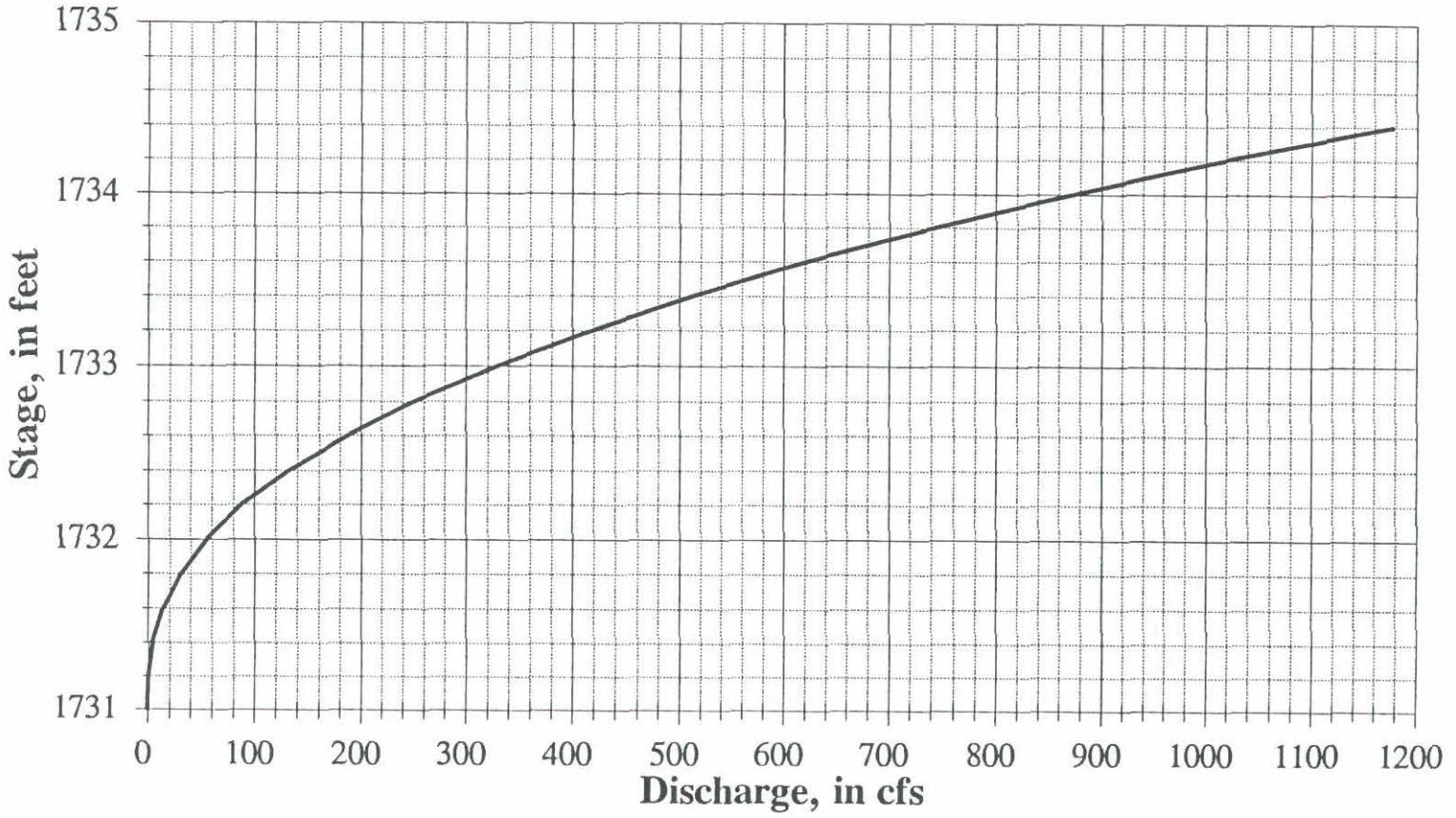
C512 Stage vs Discharge

Flow Down Bahia Dr. from HEC-2



C512 Stage vs Discharge

Weir Flow from Uneven Weir



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 2

CLIENT FCDMC

DATE 11/2/93

PROJECT Fountain Hills North FIS

BY TRL

SUBJECT CS12 (Stock Tank)

PROJECT NO. 35

Reference: Town of Fountain Hills Survey Field Notes dated 1/92 and transmittal letter dated 10/6/92.

Transposed Data Supplemented by Contour Map

Sta.	Elev.	Description	Sta.	Elev.	Desc.
9+50	1546.6	Shoulder McDowell Mtn. Rd.	18+50	35.9	
10+00	1536.0		18+80	36.6	
10+50	31.0		19+10	38.7	
11+00	32.2		20+30	38.7	
11+50	34.2		20+35	36.7	
12+00	38.5		20+43	34.6	
12+50	42.4	End weir	20+53	32.6	
13+00	38.0		20+73	30.6	
13+50	39.9		20+83	30.6	Edge Kirby Res. (≈)
14+00	39.7		20+83	33.0	FF Kirby Res.
14+50	36.0		21+53	33.0	FF Kirby Res
15+00	34.8		21+53	30.6	Grnd. @ Res. (≈)
			21+83	32.8	
15+50	35.9		21+98	32.0	Back of East Curb @ Bahia
16+00	36.1		21+99.2	31.6	Gutter
16+50	35.8		22+29.0	32.1	℄
17+00	35.9		22+58.8	31.9	Gutter
17+50	35.6		22+60.0	32.2	Back of West Curb
18+00	35.8		22+90	34.3	
			23+75	34.7	
			24+30	40.7	

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 2

CLIENT FCDMC

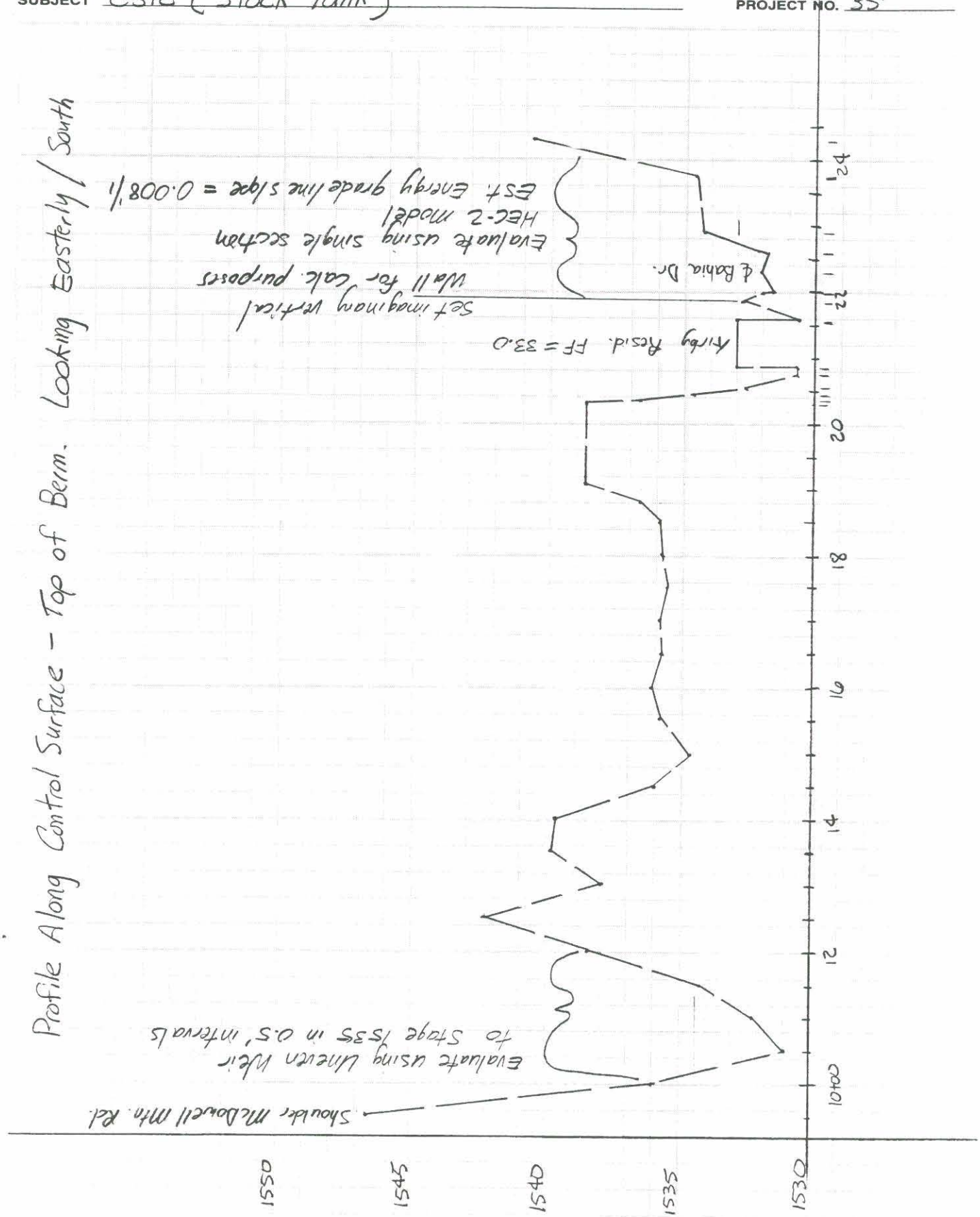
DATE 11/2/93

PROJECT Fountain Hills North FIS

BY TRL

SUBJECT CS12 (Stock Tank)

PROJECT NO. 35



```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS          C512  (stock tank)
    ENGINEER:  dtp
    DATE:  11/ 5/1993
    TIME:   9:41.32




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1531.00
    MAXIMUM WSEL:        1534.40
    STEP SIZE:              0.20
    BREADTH OF WEIR:       10.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS          C512  (stock tank)
    DATE:  11/ 5/1993
    TIME:   9:41.32
*********************************************
```

POINT	ELEVATION	STATION
1	1546.60	950.00
2	1536.00	1000.00
3	1531.00	1050.00
4	1532.20	1100.00
5	1534.20	1150.00
6	1538.50	1200.00
7	1542.40	1250.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS          C512  (stock tank)
    DATE:  11/ 5/1993
    TIME:   9:41.32
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5667
3	0.40	2.6333
4	0.60	2.7000
5	0.80	2.7667
6	1.00	2.8333
7	1.20	2.9000
8	1.40	2.9667
9	1.60	3.0022
10	1.80	3.0067
11	2.00	3.0111
12	2.20	3.0156
13	2.40	3.0200
14	2.60	3.0244
15	2.80	3.0289
16	3.00	3.0333
17	3.20	3.0378
18	3.40	3.0422

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS          C512  (stock tank)
    DATE:  11/ 5/1993
    TIME:   9:41.32
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1531.00	0.00
1531.20	0.94
1531.40	5.36
1531.60	14.98
1531.80	31.13
1532.00	55.08
1532.20	87.97
1532.40	131.84
1532.60	186.46
1532.80	252.41
1533.00	330.38
1533.20	417.92
1533.40	513.93
1533.60	621.58
1533.80	741.44
1534.00	874.11
1534.20	1017.90
1534.40	1177.02

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    09NOV93    TIME   17:50:21 *
 *****************************************
```

```
*************************************
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
*************************************
```

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

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1
   09NOV93      17:50:21                                                                    PAGE    1
```

```
                                                                THIS RUN EXECUTED 09NOV93    17:50:21
 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04   Project:  35
T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE                 dtp
T3                                                    FILE:     CH512.IH2
T4
T5              This model is used to develop a rating curve for C512.
T6              Storage routing and flow split at the stock tank.
T7
T8      Single X-Section Run
                     slope =    0.008 ft/ft  From 200 scale map

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2                             0.008

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1

   SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38         43          1          8         26          2          3         11          5         58

        Manning's n:          Min  Normal     Max
                 Earth       .015    .022    .030
              Pavement       .013    .016    .020
                Desert       .040    .060    .080
              Veg Des.       .070    .100    .160
  desert  desert  pavement

NC     0.04       0.06      0.016        .1         .3
QT        9          5         10        20         40         80        150        200        350        500

        X-Section 1
X1        1         10       2198      2260
GR     1541       2182     1532.8      2183       1532       2198     1531.6     2199.2     1532.1       2229
GR   1531.9     2258.8     1532.2      2260     1534.3       2290     1534.7       2375     1540.7       2430
```

```
1
   09NOV93      17:50:21                                                                    PAGE    2

X1        2                                          .2         .2         .2

X1        3                                          .2         .2         .2

X1        4                                          .2         .2         .2

X1        5                                          .2         .2         .2
```

```
1
   09NOV93      17:50:21                                                                    PAGE    3

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
```

```
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       .27   1531.87   1531.87       .00   1531.94       .07       .00       .00   1532.00
       5.0        .0       5.0        .0        .0       2.3        .0        .0        .0   1532.20
       .00       .00      2.14       .00      .000      .016      .000      .000   1531.60   2198.38
   .007612        0.        0.        0.         0        23        12       .00     17.09   2215.47

*SECNO 2.000
     2.000       .28   1531.88   1531.87       .00   1531.95       .07       .00       .00   1532.00
       5.0        .0       5.0        .0        .0       2.4        .0        .0        .0   1532.20
       .00       .00      2.07       .00      .000      .016      .000      .000   1531.60   2198.37
   .006957        0.        0.        0.         0         5         0       .00     17.38   2215.74

*SECNO 3.000
     3.000       .28   1531.88   1531.88       .00   1531.95       .06       .00       .00   1532.00
       5.0        .0       5.0        .0        .0       2.5        .0        .0        .0   1532.20
       .00       .00      2.02       .00      .000      .016      .000      .000   1531.60   2198.36
   .006503        0.        0.        0.         0         8         0       .00     17.60   2215.96

*SECNO 4.000
     4.000       .29   1531.89   1531.88       .00   1531.95       .06       .00       .00   1532.00
       5.0        .0       5.0        .0        .0       2.6        .0        .0        .0   1532.20
       .00       .00      1.95       .00      .000      .016      .000      .000   1531.60   2198.34
   .005932        0.        0.        0.         0         6         0       .00     17.90   2216.25

*SECNO 5.000
     5.000       .30   1531.90   1531.87       .00   1531.95       .05       .00       .00   1532.00
       5.0        .0       5.0        .0        .0       2.7        .0        .0        .0   1532.20
       .00       .00      1.88       .00      .000      .016      .000      .000   1531.60   2198.32
   .005336        0.        0.        0.         0         9         0       .00     18.26   2216.59

1
   09NOV93      17:50:21                                                                          PAGE    4

T3            Q2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           0.008

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                 -1                                      -1

1
   09NOV93      17:50:21                                                                          PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .37   1531.97   1531.97       .00   1532.04       .07       .00       .00   1532.00
      10.0        .0      10.0        .0        .0       4.7        .0        .0        .0   1532.20
       .00       .00      2.14       .00      .000      .016      .000      .000   1531.60   2198.09
   .007497        0.        0.        0.         0        23        11       .00     33.95   2259.08

*SECNO 2.000

3265 DIVIDED FLOW

     2.000       .37   1531.97   1531.97       .00   1532.04       .07       .00       .00   1532.00
      10.0        .0      10.0        .0        .0       4.7        .0        .0        .0   1532.20
       .00       .00      2.12       .00      .000      .016      .000      .000   1531.60   2198.08
   .007326        0.        0.        0.         0         5         0       .00     34.26   2259.09

*SECNO 3.000

3265 DIVIDED FLOW

     3.000       .38   1531.98   1531.97       .00   1532.04       .07       .00       .00   1532.00
      10.0        .0      10.0        .0        .0       4.8        .0        .0        .0   1532.20
       .00       .00      2.07       .00      .000      .016      .000      .000   1531.60   2198.07
   .006966        0.        0.        0.         0         5         0       .00     34.95   2259.10

*SECNO 4.000

3265 DIVIDED FLOW

     4.000       .38   1531.98   1531.97       .00   1532.05       .06       .00       .00   1532.00
      10.0        .0      10.0        .0        .0       5.0        .0        .0        .0   1532.20
       .00       .00      2.00       .00      .000      .016      .000      .000   1531.60   2198.06
   .006457        0.        0.        0.         0         8         0       .00     35.97   2259.12

1
```

```
09NOV93        17:50:21                                                                                                PAGE    6

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

 *SECNO 5.000

 3265 DIVIDED FLOW

      5.000       .39   1531.99    1531.97       .00    1532.05        .06        .00        .00    1532.00
       10.0        .0      10.0         .0        .0        5.2         .0        .0         .0    1532.20
        .00       .00      1.91        .00      .000       .016       .000       .000    1531.60    2198.04
    .005855        0.        0.         0.         0          8          0        .00      37.29    2259.14

1
    09NOV93        17:50:21                                                                                                PAGE    7

 T3            Q3

 J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                             0.008

 J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       3                  -1                                           -1

1
    09NOV93        17:50:21                                                                                                PAGE    8

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

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.000       .46   1532.06    1532.06       .00    1532.14        .08        .00        .00    1532.00
       20.0        .0      20.0         .0        .0        8.7         .0        .0         .0    1532.20
        .00       .03      2.29        .00      .040       .016       .000       .000    1531.60    2196.82
    .006862        0.        0.         0.         0         21         10        .00      54.92    2259.45

 *SECNO 2.000

 3265 DIVIDED FLOW

      2.000       .47   1532.07    1532.06       .00    1532.15        .08        .00        .00    1532.00
       20.0        .0      20.0         .0        .0        8.8         .0        .0         .0    1532.20
        .00       .03      2.27        .00      .040       .016       .000       .000    1531.60    2196.79
    .006723        0.        0.         0.         0          5          0        .00      55.23    2259.46

 *SECNO 3.000

 3265 DIVIDED FLOW

      3.000       .47   1532.07    1532.06       .00    1532.15        .08        .00        .00    1532.00
       20.0        .0      20.0         .0        .0        9.0         .0        .0         .0    1532.20
        .00       .03      2.23        .00      .040       .016       .000       .000    1531.60    2196.74
    .006455        0.        0.         0.         0          5          0        .00      55.85    2259.47

 *SECNO 4.000

 3265 DIVIDED FLOW

      4.000       .48   1532.08    1532.07       .00    1532.15        .07        .00        .00    1532.00
       20.0        .0      20.0         .0        .0        9.2         .0        .0         .0    1532.20
        .00       .03      2.18        .00      .040       .016       .000       .000    1531.60    2196.66
    .006052        0.        0.         0.         0          6          0        .00      56.84    2259.49

.1
    09NOV93        17:50:21                                                                                                PAGE    9

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

 *SECNO 5.000

 3265 DIVIDED FLOW

      5.000       .48   1532.08    1532.06       .00    1532.15        .07        .00        .00    1532.00
       20.0        .0      20.0         .0        .1        9.5         .0        .0         .0    1532.20
        .00       .03      2.11        .00      .040       .016       .000       .000    1531.60    2196.56
    .005585        0.        0.         0.         0          8          0        .00      58.08    2259.51
```

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   09NOV93      17:50:21                                                                                                PAGE   10

 T3            Q4

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                           0.008

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                  -1                                      -1

1
   09NOV93      17:50:21                                                                                                PAGE   11

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

 *PROF 4

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      .56   1532.16   1532.16      .00   1532.28      .11      .00      .00   1532.00
       40.0       .1      39.9       .0       .3      14.8       .0       .0       .0   1532.20
        .00      .53      2.71      .00     .040      .016     .000     .000  1531.60   2194.95
    .005760       0.        0.       0.        0        15        9      .00    64.90   2259.85

 *SECNO 2.000
      2.000      .56   1532.16   1532.15      .00   1532.28      .11      .00      .00   1532.00
       40.0       .1      39.9       .0       .3      14.8       .0       .0       .0   1532.20
        .00      .53      2.69      .00     .040      .016     .000     .000  1531.60   2194.93
    .005673       0.        0.       0.        0         5        0      .00    64.92   2259.85

 *SECNO 3.000
      3.000      .57   1532.17   1532.15      .00   1532.28      .11      .00      .00   1532.00
       40.0       .1      39.9       .0       .3      14.9       .0       .0       .0   1532.20
        .00      .52      2.67      .00     .040      .016     .000     .000  1531.60   2194.89
    .005503       0.        0.       0.        0         5        0      .00    64.97   2259.86

 *SECNO 4.000
      4.000      .57   1532.17   1532.16      .00   1532.28      .11      .00      .00   1532.00
       40.0       .1      39.9       .0       .3      15.1       .0       .0       .0   1532.20
        .00      .52      2.63      .00     .040      .016     .000     .000  1531.60   2194.83
    .005252       0.        0.       0.        0         8        0      .00    65.05   2259.88

 *SECNO 5.000
      5.000      .58   1532.18   1532.16      .00   1532.28      .10      .00      .00   1532.00
       40.0       .1      39.9       .0       .3      15.4       .0       .0       .0   1532.20
        .00      .51      2.58      .00     .040      .016     .000     .000  1531.60   2194.74
    .004950       0.        0.       0.        0         6        0      .00    65.15   2259.90

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   09NOV93      17:50:21                                                                                                PAGE   12

 T3            Q5

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                           0.008

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      5                  -1                                      -1

1
   09NOV93      17:50:21                                                                                                PAGE   13

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

 *PROF 5

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      .69   1532.29   1532.29      .00   1532.48      .19      .00      .00   1532.00
       80.0       .6      79.4       .0       .8      22.9       .1       .0       .0   1532.20
        .00      .75      3.47      .02     .040      .016     .060     .000  1531.60   2192.49
    .005295       0.        0.       0.        0        20        8      .00    68.85   2261.34

 *SECNO 2.000
      2.000      .70   1532.30   1532.29      .00   1532.48      .18      .00      .00   1532.00
       80.0       .6      79.4       .0       .8      22.9       .1       .0       .0   1532.20
        .00      .75      3.46      .02     .040      .016     .060     .000  1531.60   2192.47
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    .005242        0.        0.        0.        0        5        0      .00    68.89   2261.36

 *SECNO 3.000
     3.000       .70   1532.30   1532.29      .00  1532.48      .18      .00      .00   1532.00
      80.0        .6      79.4        .0       .8     23.1       .1       .0       .0   1532.20
       .00       .75      3.44       .02     .040     .016     .060     .000  1531.60   2192.43
    .005133        0.        0.        0.        0        5        0      .00    68.96   2261.39

 *SECNO 4.000
     4.000       .70   1532.30   1532.29      .00  1532.48      .18      .00      .00   1532.00
      80.0        .6      79.4        .0       .8     23.3       .1       .0       .0   1532.20
       .00       .74      3.41       .02     .040     .016     .060     .000  1531.60   2192.36
    .004978        0.        0.        0.        0        5        0      .00    69.08   2261.44

 *SECNO 5.000
     5.000       .71   1532.31   1532.29      .00  1532.48      .17      .00      .00   1532.00
      80.0        .6      79.4        .0       .9     23.6       .1       .0       .0   1532.20
       .00       .73      3.36       .02     .040     .016     .060     .000  1531.60   2192.27
    .004772        0.        0.        0.        0        5        0      .00    69.23   2261.51

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   09NOV93      17:50:21                                                                    PAGE   14

 T3            Q6
 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 7                           0.008
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       6                 -1                                        -1

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   09NOV93      17:50:21                                                                    PAGE   15

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

 *PROF 6

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000       .88   1532.48   1532.48      .00  1532.76      .28      .00      .00   1532.00
     150.0       2.1     147.6        .3      2.3     34.7       .6       .0       .0   1532.20
       .00       .97      4.25       .46     .040     .016     .060     .000  1531.60   2188.91
    .004556        0.        0.        0.        0       21        7      .00    75.16   2264.07

 *SECNO 2.000
     2.000       .90   1532.50   1532.49      .00  1532.76      .27      .00      .00   1532.00
     150.0       2.2     147.5        .3      2.3     35.3       .6       .0       .0   1532.20
       .00       .96      4.17       .45     .040     .016     .060     .000  1531.60   2188.72
    .004284        0.        0.        0.        0        5        0      .00    75.50   2264.21

 *SECNO 3.000
     3.000       .90   1532.50   1532.48      .00  1532.76      .26      .00      .00   1532.00
     150.0       2.2     147.5        .3      2.3     35.5       .6       .0       .0   1532.20
       .00       .95      4.15       .45     .040     .016     .060     .000  1531.60   2188.67
    .004216        0.        0.        0.        0        5        0      .00    75.58   2264.25

 *SECNO 4.000
     4.000       .91   1532.51   1532.48      .00  1532.77      .26      .00      .00   1532.00
     150.0       2.2     147.5        .3      2.4     35.7       .6       .0       .0   1532.20
       .00       .95      4.13       .45     .040     .016     .060     .000  1531.60   2188.60
    .004123        0.        0.        0.        0        5        0      .00    75.71   2264.31

 *SECNO 5.000
     5.000       .91   1532.51   1532.49      .00  1532.77      .26      .00      .00   1532.00
     150.0       2.3     147.4        .3      2.4     36.0       .7       .0       .0   1532.20
       .00       .94      4.09       .45     .040     .016     .060     .000  1531.60   2188.51
    .004010        0.        0.        0.        0        8        0      .00    75.87   2264.38

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   09NOV93      17:50:21                                                                    PAGE   16

 T3            Q7
 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 8                           0.008
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       7                 -1                                        -1

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   09NOV93      17:50:21                                                                    PAGE   17
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       1.00    1532.60    1532.60        .00    1532.93        .33        .00        .00    1532.00
     200.0        3.7      195.7         .6        3.4       42.0        1.2         .0         .0    1532.20
       .00       1.09       4.66        .55       .040       .016       .060       .000    1531.60    2186.71
   .004247         0.         0.         0.          0         21          7        .00      79.03    2265.74


*SECNO 2.000
     2.000       1.02    1532.62    1532.60        .00    1532.93        .32        .00        .00    1532.00
     200.0        3.8      195.6         .7        3.5       42.7        1.2         .0         .0    1532.20
       .00       1.07       4.58        .55       .040       .016       .060       .000    1531.60    2186.49
   .004006         0.         0.         0.          0          5          0        .00      79.42    2265.91


*SECNO 3.000
     3.000       1.02    1532.62    1532.60        .00    1532.94        .32        .00        .00    1532.00
     200.0        3.8      195.5         .7        3.6       42.9        1.2         .0         .0    1532.20
       .00       1.06       4.56        .55       .040       .016       .060       .000    1531.60    2186.44
   .003951         0.         0.         0.          0          5          0        .00      79.51    2265.95


*SECNO 4.000
     4.000       1.02    1532.62    1532.60        .00    1532.94        .31        .00        .00    1532.00
     200.0        3.8      195.5         .7        3.6       43.1        1.3         .0         .0    1532.20
       .00       1.06       4.53        .54       .040       .016       .060       .000    1531.60    2186.37
   .003878         0.         0.         0.          0          5          0        .00      79.64    2266.01


*SECNO 5.000
     5.000       1.03    1532.63    1532.61        .00    1532.94        .31        .00        .00    1532.00
     200.0        3.9      195.4         .7        3.7       43.4        1.3         .0         .0    1532.20
       .00       1.05       4.50        .54       .040       .016       .060       .000    1531.60    2186.28
   .003791         0.         0.         0.          0          8          0        .00      79.79    2266.07

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   09NOV93      17:50:21                                                                                    PAGE   18

T3            Q8

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                9                             0.008

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     8                    -1                                           -1

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   09NOV93      17:50:21                                                                                    PAGE   19

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

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000       1.31    1532.91    1532.91        .00    1533.36        .45        .00        .00    1532.00
     350.0       10.9      336.5        2.7        7.6       61.1        3.6         .0         .0    1532.20
       .00       1.42       5.51        .74       .040       .016       .060       .000    1531.60    2182.99
   .003603         0.         0.         0.          0         14          6        .00      87.15    2270.14


*SECNO 2.000
     2.000       1.31    1532.91    1532.91        .00    1533.36        .45        .00        .00    1532.00
     350.0       10.9      336.4        2.7        7.7       61.1        3.6         .0         .0    1532.20
       .00       1.42       5.51        .74       .040       .016       .060       .000    1531.60    2182.99
   .003593         0.         0.         0.          0          5          0        .00      87.16    2270.15


*SECNO 3.000
     3.000       1.31    1532.91    1532.91        .00    1533.37        .45        .00        .00    1532.00
     350.0       10.9      336.4        2.7        7.7       61.2        3.6         .0         .0    1532.20
       .00       1.42       5.50        .74       .040       .016       .060       .000    1531.60    2182.99
   .003575         0.         0.         0.          0          5          0        .00      87.18    2270.17


*SECNO 4.000
     4.000       1.32    1532.92    1532.91        .00    1533.37        .45        .00        .00    1532.00
     350.0       10.9      336.4        2.7        7.7       61.3        3.6         .0         .0    1532.20
       .00       1.42       5.48        .74       .040       .016       .060       .000    1531.60    2182.99
   .003546         0.         0.         0.          0          5          0        .00      87.22    2270.20


*SECNO 5.000
     5.000       1.32    1532.92    1532.91        .00    1533.37        .45        .00        .00    1532.00
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     350.0      11.0     336.3       2.7       7.8      61.5       3.7        .0        .0   1532.20
       .00      1.42      5.47       .74      .040      .016      .060      .000   1531.60   2182.99
   .003505        0.        0.        0.         0         5         0       .00     87.26   2270.25

1
   09NOV93      17:50:21                                                                          PAGE   20

 T3            Q9

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               10                          0.008

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      9                  -1                                      -1


1
   09NOV93      17:50:21                                                                          PAGE   21

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

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.55   1533.15   1533.15       .00   1533.73       .57       .00       .00   1532.00
      500.0      20.3     474.0       5.7      11.3      76.0       6.5        .0        .0   1532.20
        .00      1.80      6.23       .88      .040      .016      .060      .000   1531.60   2182.96
    .003440        0.        0.        0.         0        22         6       .00     90.63   2273.59

 *SECNO 2.000
      2.000      1.57   1533.17   1533.15       .00   1533.73       .56       .00       .00   1532.00
      500.0      20.6     473.6       5.9      11.6      77.2       6.7        .0        .0   1532.20
        .00      1.78      6.14       .87      .040      .016      .060      .000   1531.60   2182.95
    .003269        0.        0.        0.         0         5         0       .00     90.90   2273.85

 *SECNO 3.000
      3.000      1.58   1533.18   1533.15       .00   1533.73       .55       .00       .00   1532.00
      500.0      20.6     473.5       5.9      11.6      77.3       6.8        .0        .0   1532.20
        .00      1.78      6.12       .87      .040      .016      .060      .000   1531.60   2182.95
    .003243        0.        0.        0.         0         5         0       .00     90.94   2273.89

 *SECNO 4.000
      4.000      1.58   1533.18   1533.15       .00   1533.73       .55       .00       .00   1532.00
      500.0      20.7     473.4       5.9      11.7      77.6       6.8        .0        .0   1532.20
        .00      1.77      6.10       .87      .040      .016      .060      .000   1531.60   2182.95
    .003208        0.        0.        0.         0         5         0       .00     90.99   2273.95

 *SECNO 5.000
      5.000      1.59   1533.19   1533.15       .00   1533.73       .55       .00       .00   1532.00
      500.0      20.8     473.3       6.0      11.7      77.9       6.9        .0        .0   1532.20
        .00      1.77      6.08       .87      .040      .016      .060      .000   1531.60   2182.95
    .003167        0.        0.        0.         0         5         0       .00     91.06   2274.01

1
   09NOV93      17:50:21                                                                          PAGE   22


 ************************************                                THIS RUN EXECUTED 09NOV93     17:50:22
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

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


 SUMMARY PRINTOUT

        SECNO       Q       CWSEL     DEPTH      VCH     CRIWS      EG        HL      10*KS     KRATIO

 *      1.000    5.00    1531.87       .27     2.14   1531.87   1531.94       .00     76.12       .00
 *      1.000   10.00    1531.97       .37     2.14   1531.97   1532.04       .00     74.97       .00
 *      1.000   20.00    1532.06       .46     2.29   1532.06   1532.14       .00     68.62       .00
 *      1.000   40.00    1532.16       .56     2.71   1532.16   1532.28       .00     57.60       .00
 *      1.000   80.00    1532.29       .69     3.47   1532.29   1532.48       .00     52.95       .00
 *      1.000  150.00    1532.48       .88     4.25   1532.48   1532.76       .00     45.56       .00
 *      1.000  200.00    1532.60      1.00     4.66   1532.60   1532.93       .00     42.47       .00
 *      1.000  350.00    1532.91      1.31     5.51   1532.91   1533.36       .00     36.03       .00
 *      1.000  500.00    1533.15      1.55     6.23   1533.15   1533.73       .00     34.40       .00

        2.000    5.00    1531.88       .28     2.07   1531.87   1531.95       .00     69.57      1.05
        2.000   10.00    1531.97       .37     2.12   1531.97   1532.04       .00     73.26      1.01
```

2.000	20.00	1532.07	.47	2.27	1532.06	1532.15	.00	67.23	1.01
2.000	40.00	1532.16	.56	2.69	1532.15	1532.28	.00	56.73	1.01
2.000	80.00	1532.30	.70	3.46	1532.29	1532.48	.00	52.42	1.01
2.000	150.00	1532.50	.90	4.17	1532.49	1532.76	.00	42.84	1.03
2.000	200.00	1532.62	1.02	4.58	1532.60	1532.93	.00	40.06	1.03
2.000	350.00	1532.91	1.31	5.51	1532.91	1533.36	.00	35.93	1.00
2.000	500.00	1533.17	1.57	6.14	1533.15	1533.73	.00	32.69	1.03
3.000	5.00	1531.88	.28	2.02	1531.88	1531.95	.00	65.03	1.03
3.000	10.00	1531.98	.38	2.07	1531.97	1532.04	.00	69.66	1.03
3.000	20.00	1532.07	.47	2.23	1532.06	1532.15	.00	64.55	1.02
3.000	40.00	1532.17	.57	2.67	1532.15	1532.28	.00	55.03	1.02
3.000	80.00	1532.30	.70	3.44	1532.29	1532.48	.00	51.33	1.01
3.000	150.00	1532.50	.90	4.15	1532.48	1532.76	.00	42.16	1.01
3.000	200.00	1532.62	1.02	4.56	1532.60	1532.94	.00	39.51	1.01
3.000	350.00	1532.91	1.31	5.50	1532.91	1533.37	.00	35.75	1.00
3.000	500.00	1533.18	1.58	6.12	1533.15	1533.73	.00	32.43	1.00

1 09NOV93 17:50:21 PAGE 23

SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
4.000	5.00	1531.89	.29	1.95	1531.88	1531.95	.00	59.32	1.05
4.000	10.00	1531.98	.38	2.00	1531.97	1532.05	.00	64.57	1.04
4.000	20.00	1532.08	.48	2.18	1532.07	1532.15	.00	60.52	1.03
4.000	40.00	1532.17	.57	2.63	1532.16	1532.28	.00	52.52	1.02
4.000	80.00	1532.30	.70	3.41	1532.29	1532.48	.00	49.78	1.02
4.000	150.00	1532.51	.91	4.13	1532.48	1532.77	.00	41.23	1.01
4.000	200.00	1532.62	1.02	4.53	1532.60	1532.94	.00	38.78	1.01
4.000	350.00	1532.92	1.32	5.48	1532.91	1533.37	.00	35.46	1.00
4.000	500.00	1533.18	1.58	6.10	1533.15	1533.73	.00	32.08	1.01
5.000	5.00	1531.90	.30	1.88	1531.87	1531.95	.00	53.36	1.05
5.000	10.00	1531.99	.39	1.91	1531.97	1532.05	.00	58.55	1.05
5.000	20.00	1532.08	.48	2.11	1532.06	1532.15	.00	55.85	1.04
5.000	40.00	1532.18	.58	2.58	1532.16	1532.28	.00	49.50	1.03
5.000	80.00	1532.31	.71	3.36	1532.29	1532.48	.00	47.72	1.02
5.000	150.00	1532.51	.91	4.09	1532.49	1532.77	.00	40.10	1.01
5.000	200.00	1532.63	1.03	4.50	1532.61	1532.94	.00	37.91	1.01
5.000	350.00	1532.92	1.32	5.47	1532.91	1533.37	.00	35.05	1.01
5.000	500.00	1533.19	1.59	6.08	1533.15	1533.73	.00	31.67	1.01

1 09NOV93 17:50:21 PAGE 24

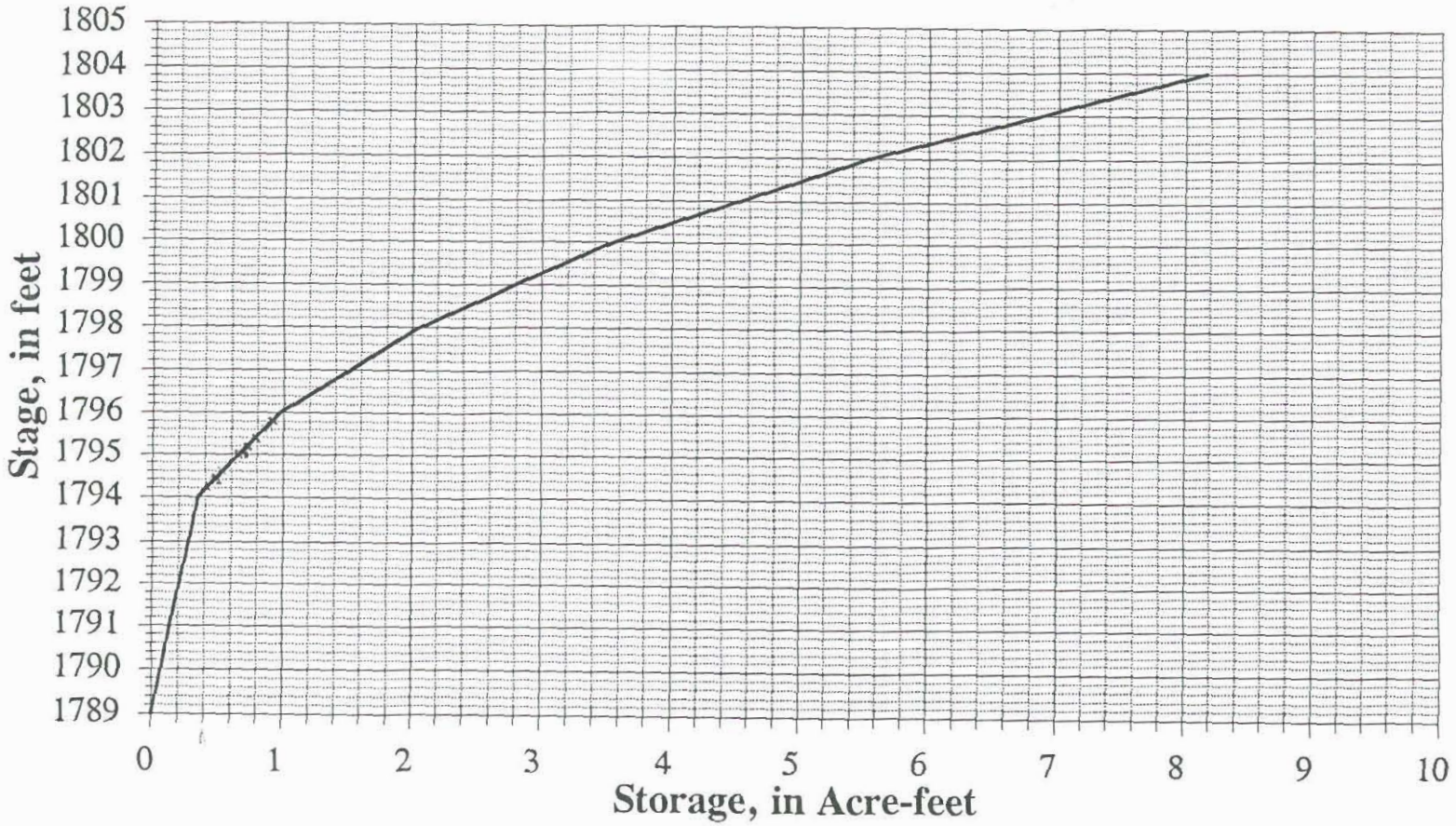
SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
```

Hydraulic Calculations for Structure at C513

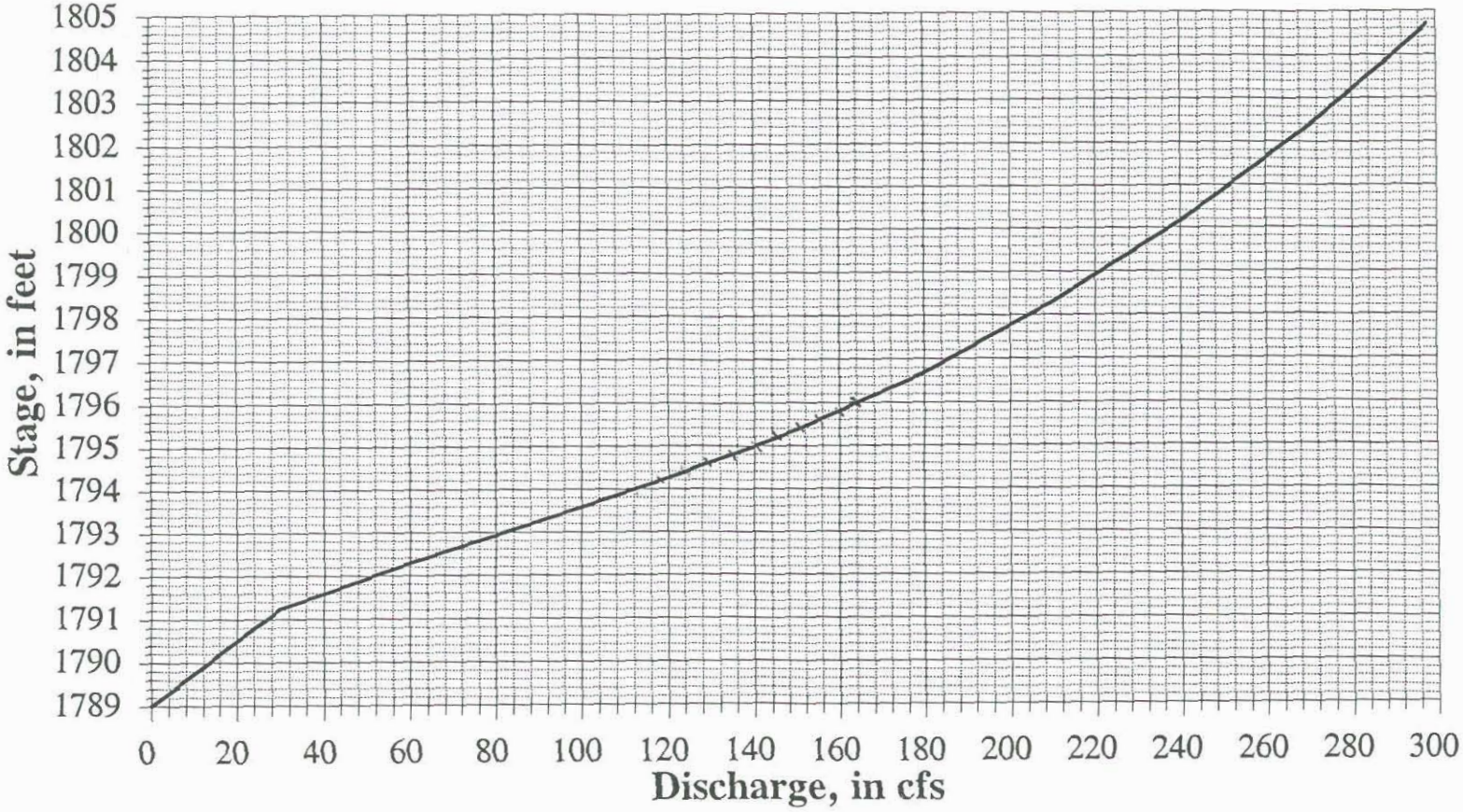
C513 Storage Volume

Calculated From Planimetered Contours



C513 Stage vs Discharge

Culvert Flow from HY8



CURRENT DATE: 11-09-1993
CURRENT TIME: 16:53:34

FILE DATE: 06-16-1993
FILE NAME: C513

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1789.00	1787.80	72.01	1 CSP	5.00	5.00	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C513 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1789.00	0	0	0	0	0	0	0	0	1
1791.23	30	30	0	0	0	0	0	0	1
1792.29	60	60	0	0	0	0	0	0	1
1793.26	90	90	0	0	0	0	0	0	1
1794.25	120	120	0	0	0	0	0	0	1
1795.37	150	150	0	0	0	0	0	0	1
1796.69	180	180	0	0	0	0	0	0	1
1798.28	210	210	0	0	0	0	0	0	1
1800.16	240	240	0	0	0	0	0	0	1
1802.36	270	270	0	0	0	0	0	0	1
1804.71	300	298	0	0	0	0	0	2	5
1804.00	290	290	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C513 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1789.00	0.00	0	0	0.00
1791.23	0.00	30	0	0.00
1792.29	0.00	60	0	0.00
1793.26	0.00	90	0	0.00
1794.25	0.00	120	0	0.00
1795.37	0.00	150	0	0.00
1796.69	0.00	180	0	0.00
1798.28	0.00	210	0	0.00
1800.16	0.00	240	0	0.00

1802.36	0.00	270	0	0.00
1804.71	-0.01	300	0	0.04

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 11-09-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:53:34 FILE NAME: C513

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5 BY 5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1789.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30	1791.23	2.23	2.23	1-S2n	1.35	1.52	6.93	1.35	3.02	0.58
60	1792.29	3.29	3.29	1-S2n	1.97	2.17	8.34	1.97	3.59	0.79
90	1793.26	4.26	4.26	1-S2n	2.48	2.68	9.27	2.48	3.97	0.95
120	1794.25	5.25	5.25	5-S2n	2.96	3.12	9.92	2.96	4.26	1.07
150	1795.37	6.37	6.37	5-S2n	3.45	3.51	10.37	3.45	4.50	1.18
180	1796.69	7.69	7.35	2-M2c	4.05	3.83	11.18	3.83	4.71	1.28
210	1798.28	9.28	8.31	6-FFn	5.00	4.10	10.70	5.00	4.89	1.36
240	1800.16	11.16	9.94	6-FFn	5.00	4.33	12.22	5.00	5.06	1.44
270	1802.36	13.36	11.78	6-FFn	5.00	4.55	13.75	5.00	5.20	1.52
298	1804.70	15.70	13.67	6-FFn	5.00	4.76	15.18	5.00	5.34	1.59

El. inlet face invert 1789.00 ft El. outlet invert 1787.80 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1789.00
OUTLET STATION (FT)	72.00
OUTLET ELEVATION (FT)	1787.80
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0167
CULVERT LENGTH ALONG SLOPE (FT)	72.01

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.00 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.024
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 11-09-1993
CURRENT TIME: 16:53:34

FILE DATE: 06-16-1993
FILE NAME: C513

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C513
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	7
MANNING N LEFT OVER BANK	0.050
MANNING N MAIN CHANNEL	0.045
MANNING N RIGHT OVER BAN	0.050
SLOPE OF CHANNEL (FT/FT)	0.0290

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1795.80
2	1002.00	1793.80
3	1021.00	1791.80
4	1051.00	1789.80
5	1075.00	1787.80
6	1083.00	1787.80
7	1133.00	1789.80
8	1140.00	1791.80
9	1148.00	1793.80
10	1157.00	1795.80

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1787.80	0.000	0.00	0.00	0.00
30.00	1788.38	0.848	0.58	3.02	0.71
60.00	1788.59	0.885	0.79	3.59	0.92
90.00	1788.75	0.908	0.95	3.97	1.07
120.00	1788.88	0.924	1.07	4.26	1.20
150.00	1788.98	0.937	1.18	4.50	1.30
180.00	1789.08	0.948	1.28	4.71	1.39
210.00	1789.17	0.957	1.36	4.89	1.47
240.00	1789.24	0.965	1.44	5.06	1.54
270.00	1789.32	0.972	1.52	5.20	1.61
300.00	1789.39	0.978	1.59	5.34	1.67

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00

OVERTOPPING CREST ELEVATION (FT) 1804.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills FIS North                    C513
    ENGINEER:  MG
    DATE:   8/26/1993
    TIME:  13:34.46




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1794.20
    MAXIMUM WSEL:        1796.00
    STEP SIZE:              0.20
    BREADTH OF WEIR:       30.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills FIS North                    C513
    DATE:   8/26/1993
    TIME:  13:34.46
*********************************************
```

POINT	ELEVATION	STATION
1	1798.04	1000.00
2	1796.21	1025.00
3	1794.83	1050.00
4	1794.24	1075.00
5	1794.20	1100.00
6	1794.65	1125.00
7	1795.31	1150.00
8	1796.17	1175.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills FIS North                    C513
    DATE:   8/26/1993
    TIME:  13:34.46
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5222
3	0.40	2.5444
4	0.60	2.5667
5	0.80	2.5889
6	1.00	2.6111
7	1.20	2.6333
8	1.40	2.6556
9	1.60	2.6778
10	1.80	2.7000

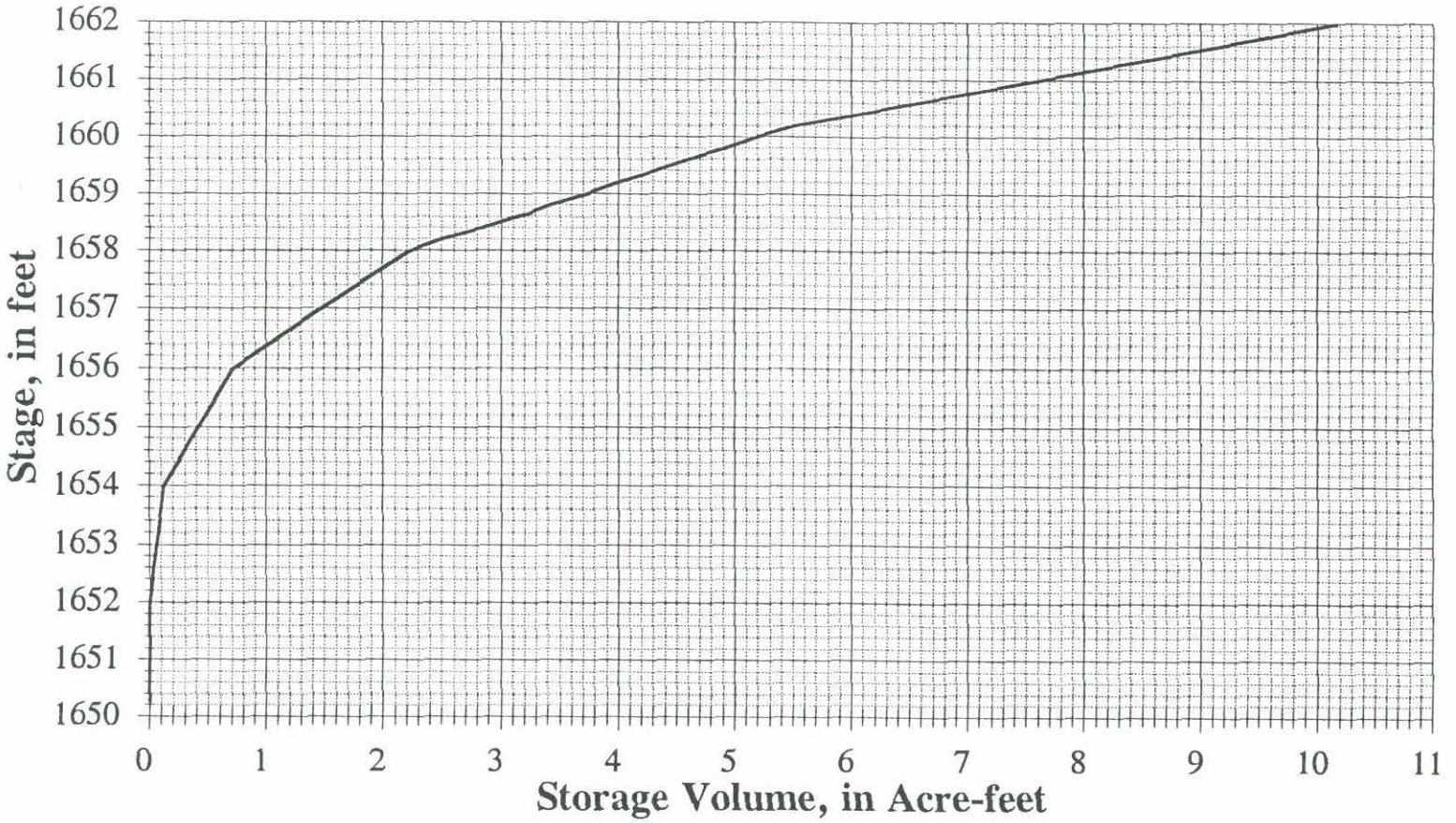
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills FIS North                    C513
    DATE:   8/26/1993
    TIME:  13:34.46
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1794.20	0.00
1794.40	6.25
1794.60	23.87
1794.80	53.95
1795.00	97.23
1795.20	153.65
1795.40	223.64
1795.60	307.53
1795.80	405.64
1796.00	518.43

Hydraulic Calculations for Structure at C523

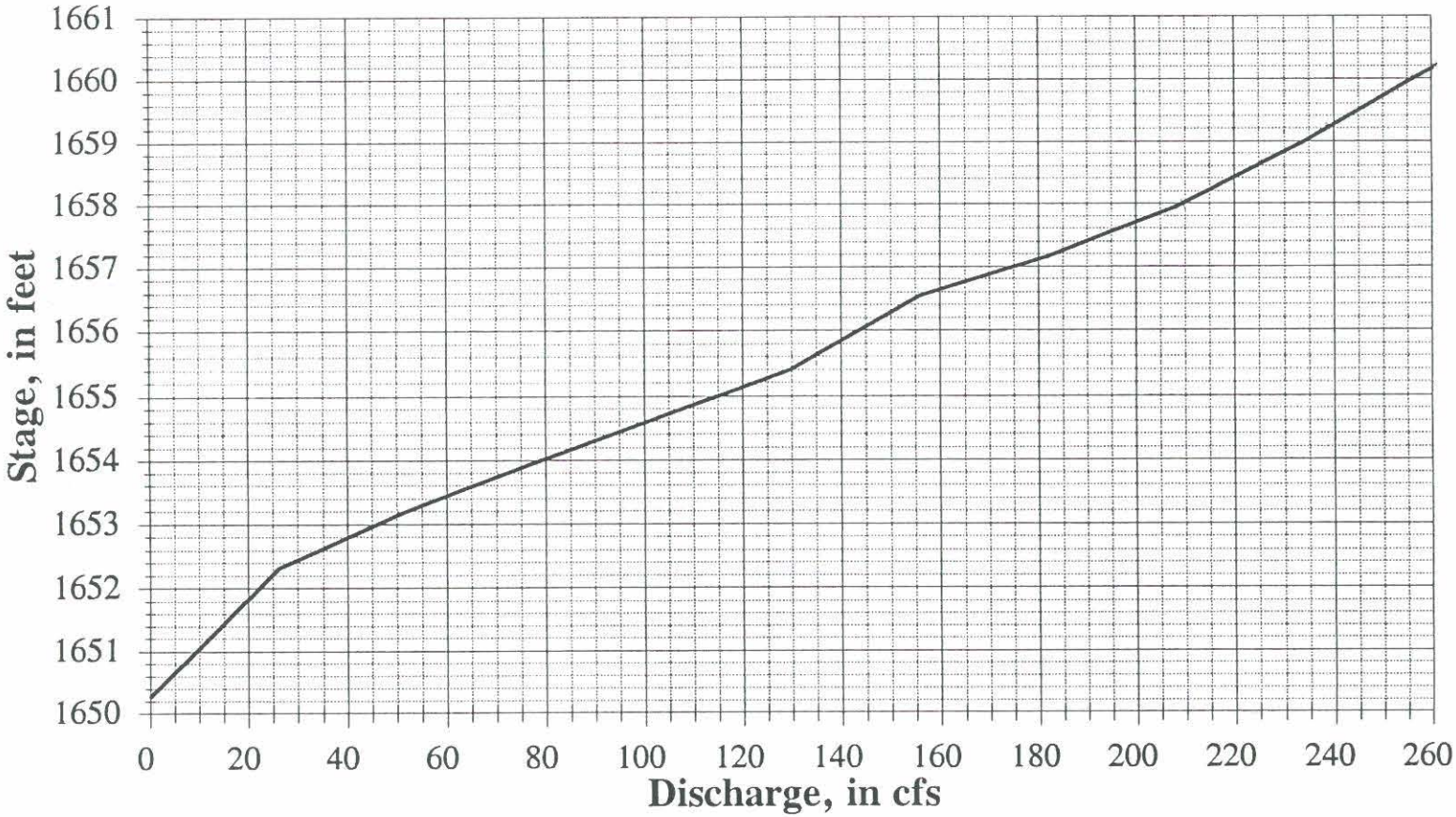
C523 Storage Volume

Calculated From Planimetered Contours



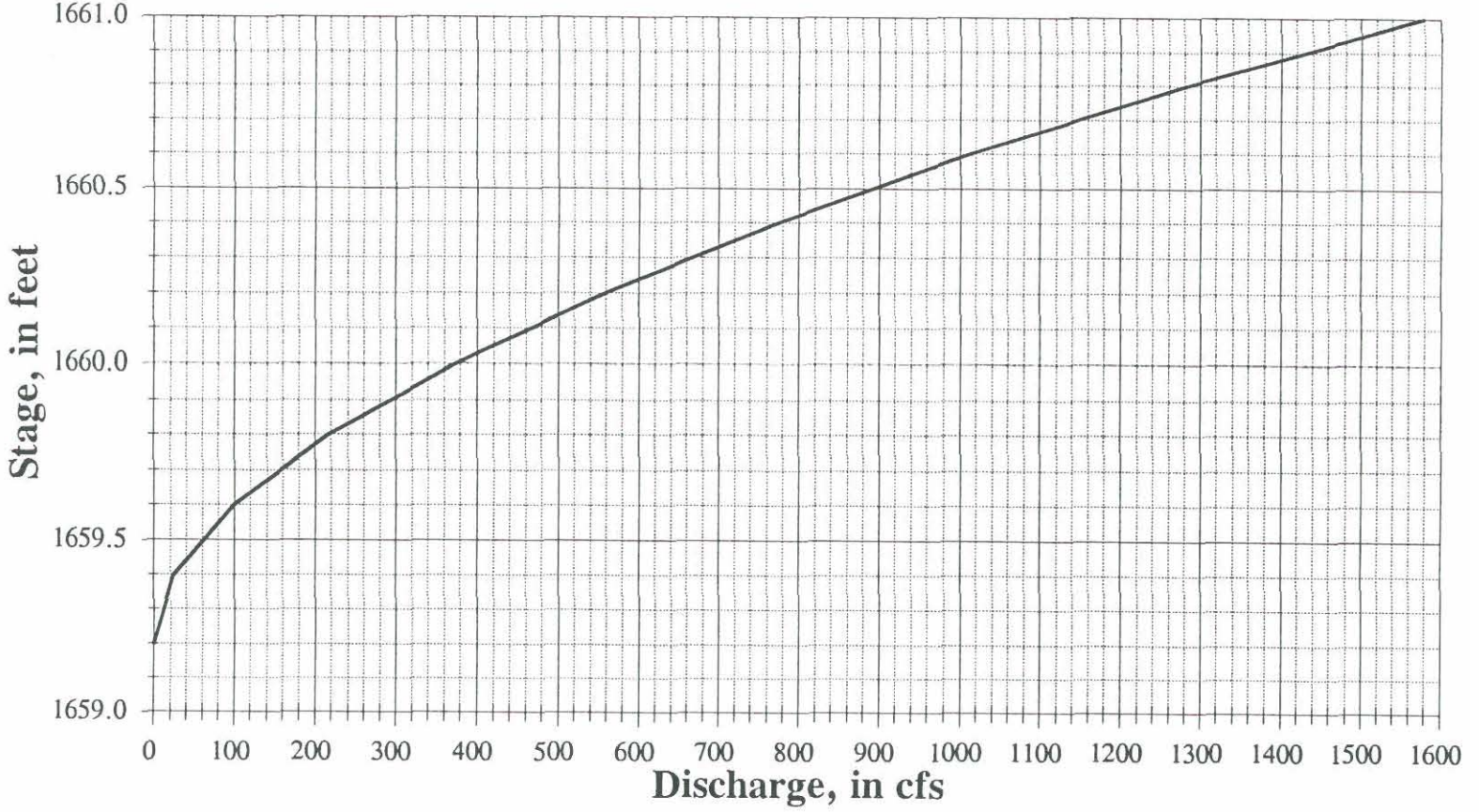
C523 Stage vs Discharge

Culvert Flow from HY8



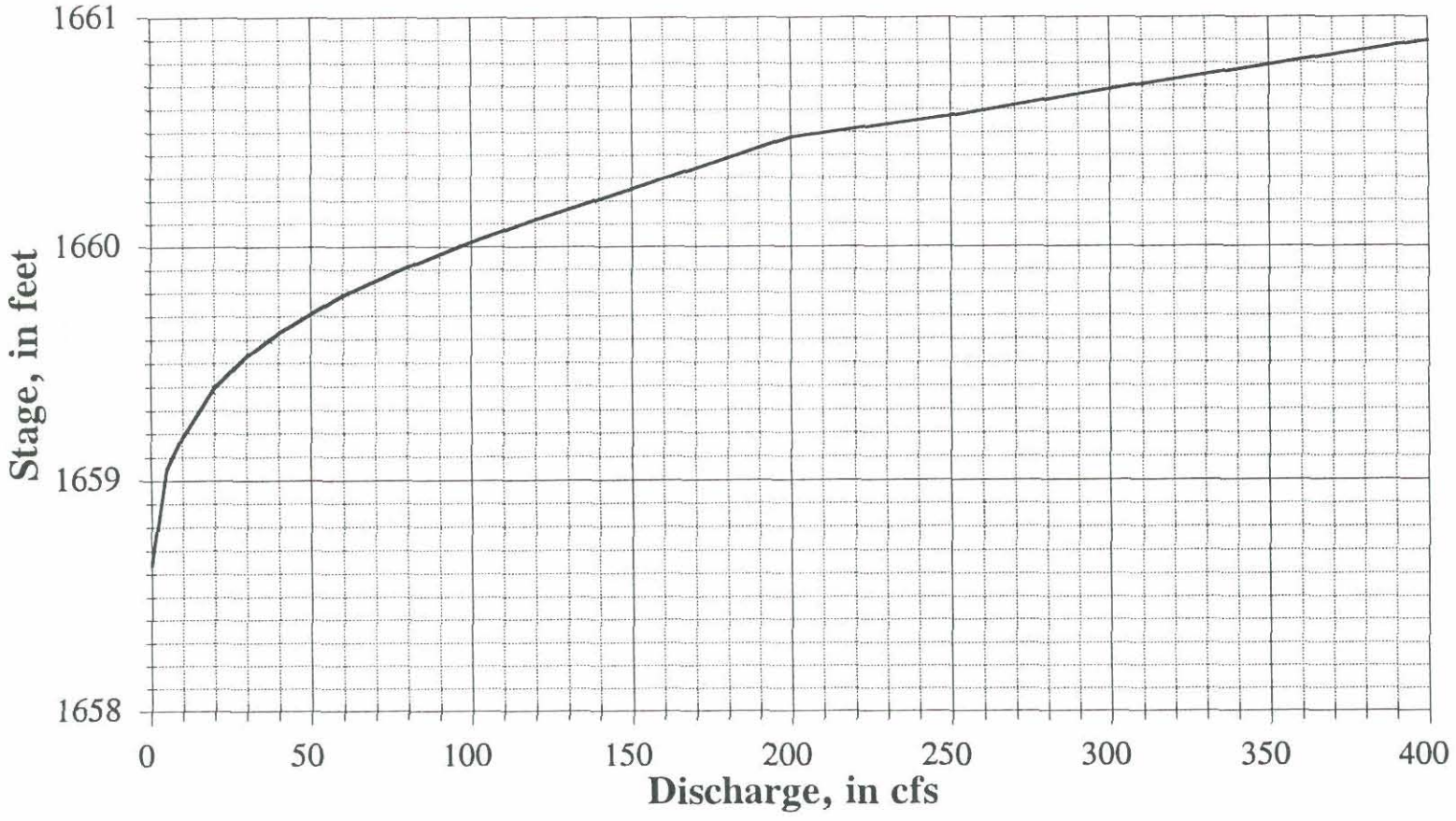
C523 Stage vs Discharge

Weir Flow from Uneven Weir



C523 Stage vs Discharge

Ditch Flow from HEC-2



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 3

CLIENT MC FCD

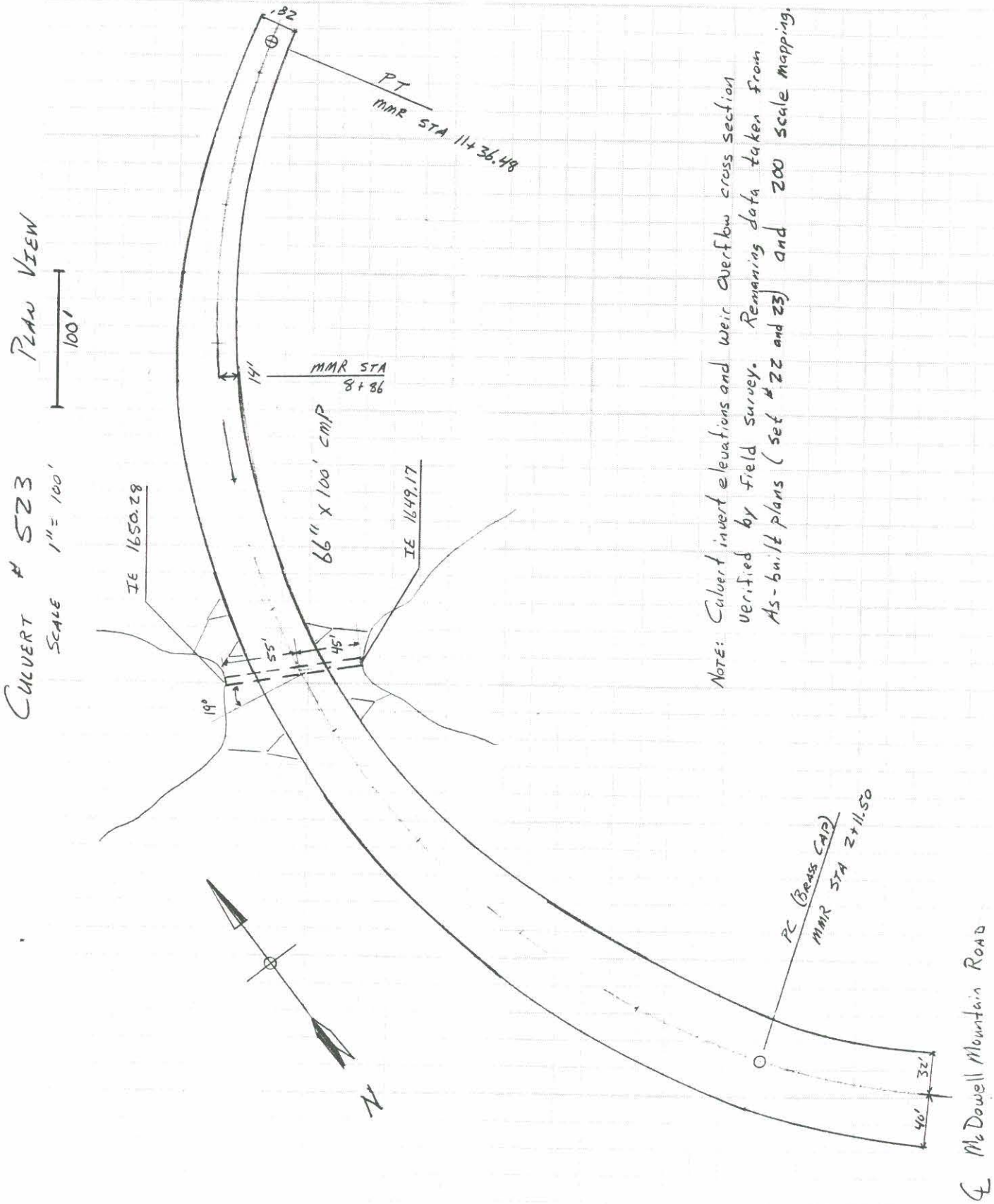
DATE 19 JULY 93

PROJECT FOUNTAIN HILLS NORTH FIS

BY DTP

SUBJECT CULVERT # 523 FIELD SURVEY

PROJECT NO. 35



NOTE: Culvert invert elevations and weir overflow cross section verified by field survey. Remaining data taken from As-built plans (set #22 and 23) and 200 scale mapping.

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 3

CLIENT F.C.D. M.C.

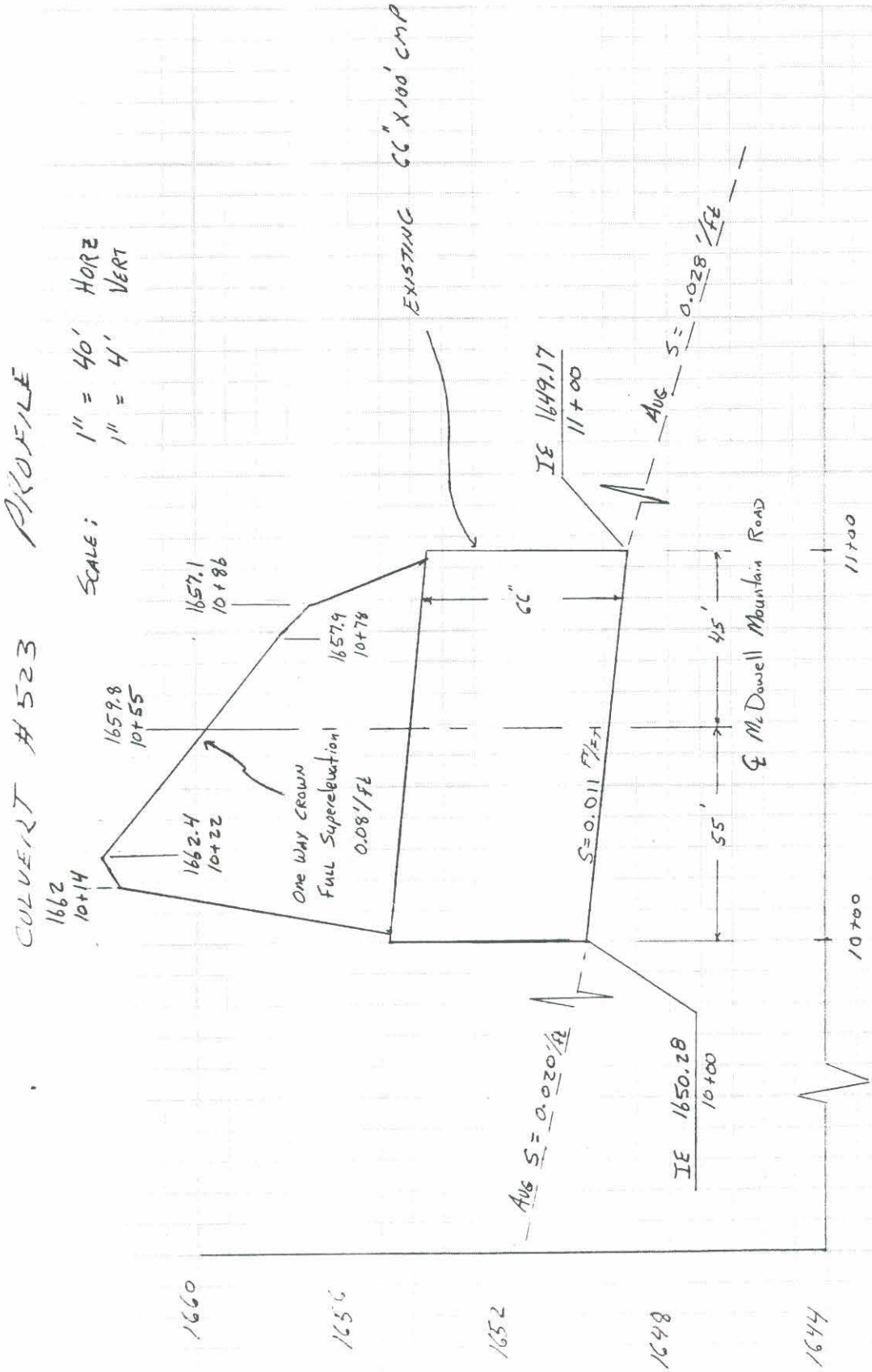
DATE 12-JUL-93

PROJECT F. HILLS F.I.S

BY R.C.

SUBJECT CULVERT #523 FIELD SURVEY.

PROJECT NO. 35



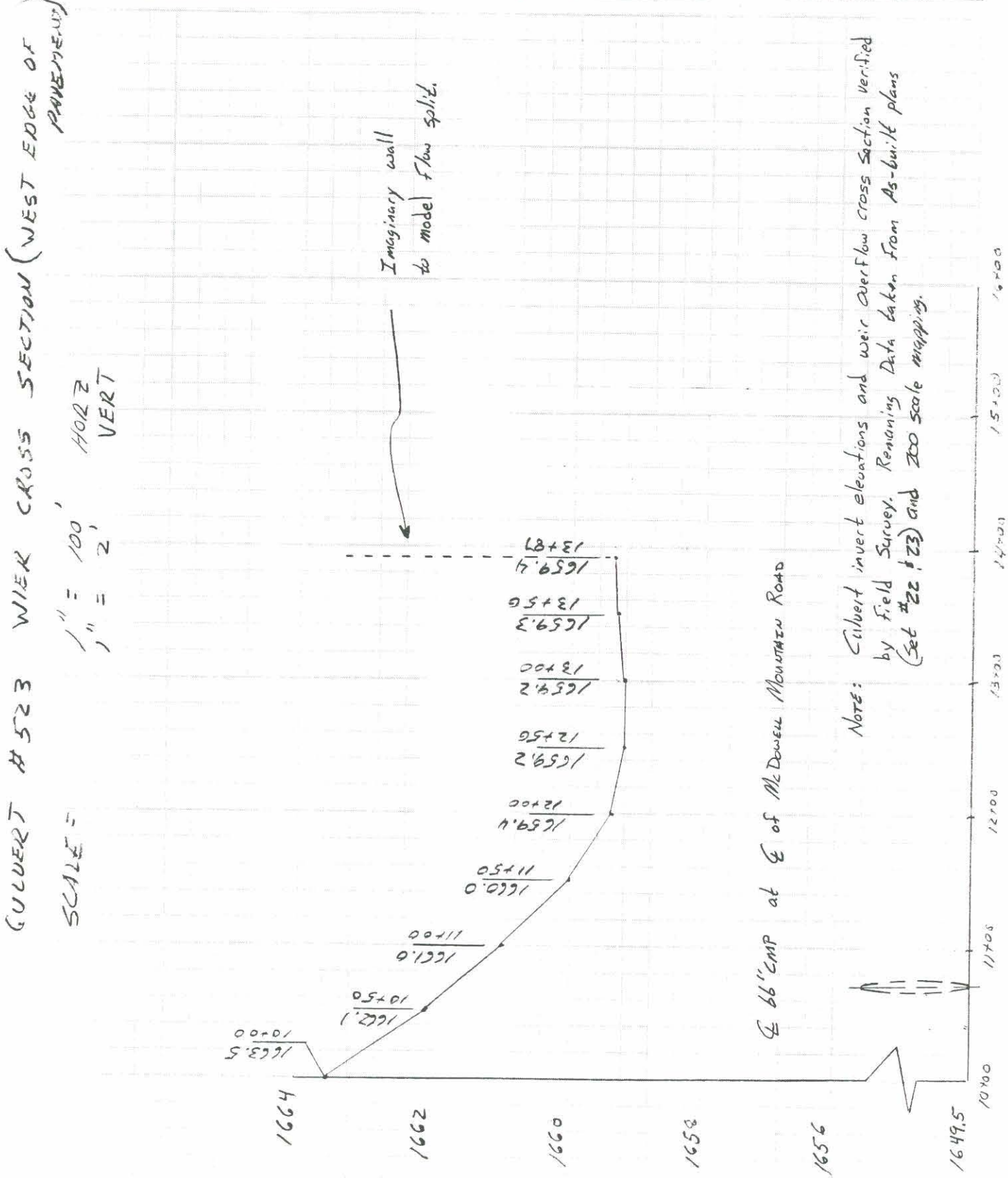
Note: Culvert invert elevations and Weir Overflow cross section verified by Field Survey. Remaining data taken from As-built plans (set #22 & 23) and 200 scale mappings.

Use weir breadth of 5 ft.

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 3
DATE 12-JUL-94
BY RC
PROJECT NO. 35

CLIENT MC.FCD.
PROJECT F. HILLS FIS
SUBJECT CULVERT #523 FIELD SURVEY



CURRENT DATE: 07-09-1993
CURRENT TIME: 15:23:47

FILE DATE: 06-16-1993
FILE NAME: C523

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1650.28	1649.17	100.01	1 CSP	5.50	5.50	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C523 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1650.28	0	0	0	0	0	0	0	0	1
1652.32	26	26	0	0	0	0	0	0	1
1653.20	52	52	0	0	0	0	0	0	1
1653.97	78	78	0	0	0	0	0	0	1
1654.70	104	104	0	0	0	0	0	0	1
1655.42	130	130	0	0	0	0	0	0	1
1656.55	156	156	0	0	0	0	0	0	1
1657.16	182	182	0	0	0	0	0	0	1
1657.94	208	208	0	0	0	0	0	0	1
1658.99	234	234	0	0	0	0	0	0	1
1660.17	260	260	0	0	0	0	0	0	3
1660.00	256	256	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C523 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1650.28	0.00	0	0	0.00
1652.32	0.00	26	0	0.00
1653.20	0.00	52	0	0.00
1653.97	0.00	78	0	0.00
1654.70	0.00	104	0	0.00
1655.42	0.00	130	0	0.00
1656.55	0.00	156	0	0.00
1657.16	0.00	182	0	0.00
1657.94	0.00	208	0	0.00

1658.99	0.00	234	0	0.00
1660.17	-0.00	260	0	0.01

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 07-09-1993
CURRENT TIME: 15:23:47

FILE DATE: 06-16-1993
FILE NAME: C523

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5.5 BY 5.5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1650.28	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
26	1652.32	2.04	2.04	1-S2n	1.29	1.35	6.10	1.29	1.68	0.44
52	1653.20	2.92	2.92	1-S2n	1.85	1.95	7.36	1.85	2.07	0.63
78	1653.97	3.69	3.69	1-S2n	2.32	2.41	8.19	2.32	2.33	0.78
104	1654.70	4.42	4.42	1-S2n	2.74	2.82	8.80	2.74	2.52	0.90
130	1655.42	5.14	5.14	1-S2n	3.14	3.16	9.29	3.14	2.69	1.01
156	1656.55	5.90	6.27	2-M2c	3.54	3.48	9.87	3.48	2.83	1.11
182	1657.16	6.73	6.88	2-M2c	3.97	3.77	10.50	3.77	2.95	1.20
208	1657.94	7.66	7.46	2-M2c	4.50	4.02	11.19	4.02	3.06	1.28
234	1658.99	8.71	8.02	6-FFn	5.50	4.26	9.85	5.50	3.15	1.35
260	1660.17	9.89	9.11	6-FFn	5.50	4.47	10.93	5.50	3.25	1.42

El. inlet face invert 1650.28 ft El. outlet invert 1649.17 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1650.28
OUTLET STATION (FT)	100.00
OUTLET ELEVATION (FT)	1649.17
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0111
CULVERT LENGTH ALONG SLOPE (FT)	100.01

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	5.50 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 07-09-1993
CURRENT TIME: 15:23:47

FILE DATE: 06-16-1993
FILE NAME: C523

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION

FILE NAME: C523
FILE DATE: 06-16-1993

MAIN CHANNEL AND LT & RT OVER BANKS

LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	13
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.045
MANNING N RIGHT OVER BAN	0.055
SLOPE OF CHANNEL (FT/FT)	0.0104

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1661.17
2	1024.00	1659.17
3	1065.00	1657.17
4	1102.00	1655.17
5	1141.00	1653.17
6	1187.00	1651.17
7	1242.00	1649.17
8	1270.00	1649.17
9	1295.00	1651.17
10	1340.00	1653.17
11	1369.00	1653.17
12	1388.00	1651.17
13	1448.00	1653.17
14	1470.00	1655.17
15	1504.00	1661.17

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1649.17	0.000	0.00	0.00	0.00
26.00	1649.61	0.499	0.44	1.68	0.23
52.00	1649.80	0.525	0.63	2.07	0.31
78.00	1649.95	0.541	0.78	2.33	0.37
104.00	1650.07	0.552	0.90	2.52	0.42
130.00	1650.18	0.561	1.01	2.69	0.46
156.00	1650.28	0.568	1.11	2.83	0.50
182.00	1650.37	0.574	1.20	2.95	0.53
208.00	1650.45	0.579	1.28	3.06	0.56
234.00	1650.52	0.584	1.35	3.15	0.59
260.00	1650.59	0.588	1.42	3.25	0.61

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1660.00

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************


    PROJECT:  Fountain Hills North FIS                    C523
    ENGINEER:  MG
    DATE:   9/14/1993
    TIME:  10:34.28




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1659.20
    MAXIMUM WSEL:        1660.60
    STEP SIZE:              0.20
    BREADTH OF WEIR:        5.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                    C523
    DATE:   9/14/1993
    TIME:  10:34.28
*********************************************
```

POINT	ELEVATION	STATION
1	1663.50	9933.00
2	1662.10	9983.00
3	1661.73	10000.00
4	1661.55	10008.00
5	1661.00	10033.00
6	1660.00	10083.00
7	1659.40	10133.00
8	1659.20	10183.00
9	1659.20	10233.00
10	1659.30	10283.00
11	1659.40	10320.00
12	1664.00	10320.10

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                    C523
    DATE:   9/14/1993
    TIME:  10:34.28
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.6333
3	0.40	2.7667
4	0.60	2.9000
5	0.80	3.0022
6	1.00	3.0111
7	1.20	3.0200
8	1.40	3.0289

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                    C523
    DATE:   9/14/1993
    TIME:  10:34.28
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1659.20	0.00
1659.40	25.19
1659.60	99.72
1659.80	216.33
1660.00	373.80
1660.20	558.64
1660.40	772.59
1660.60	1013.66

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    09JUL93    TIME   13:17:57 *
 *****************************************
```

```
*************************************
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
*************************************
```

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

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1
   09JUL93      13:17:57                                                                                PAGE    1
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```
*************************************                                  THIS RUN EXECUTED 09JUL93    13:17:57
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE
T3                                                  FILE:     dtp CH523.IH2
T4
T5              This model is used to develop a rating curve for culvert 523
T6              Ditch flow to south of C523 is diverted to C548
T7
T8      Single X-Section Run
                Ditch slope =     .006 ft/ft  From 200 scale map

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           .006

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1

   SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38         43         1         8        26         2         3        11         5        58

        Manning's n:          Min  Normal     Max
                 Earth       .015    .022    .030
             Pavement        .013    .016    .020
               Desert        .040    .060    .080
             Veg Des.        .070    .100    .160

                Earthy
   earth  desert desert

NC     .020       .055       .035        .1        .3
QT       14          5         10        20        30        40        60        80       100       120
QT      150        200        250       300       400

        X-Section 1
          this section needs to be input from 200 scale map
X1        1          8       1009      1067
GR     1663      999.9    1659.34      1000   1658.64      1009   1658.73      1014   1659.23      1017
GR   1660.4       1067       1662      1177      1664      1257
```

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1
   09JUL93      13:17:57                                                                                PAGE    2
```

```
X1        2                                          .2        .2        .2
X1        3                                          .2        .2        .2
X1        4                                          .2        .2        .2
X1        5                                          .2        .2        .2
X1        6                                          .2        .2        .2
```

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1
   09JUL93      13:17:57                                                                                PAGE    3
```

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

```
*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .40   1659.04   1658.94       .00   1659.08       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.0       2.1        .0        .0        .0   1660.40
       .00      1.95      1.46       .00      .020      .035      .000      .000   1658.64   1003.87
   .005947        0.        0.        0.         0        17         7       .00     11.98   1015.85


*SECNO 2.000
     2.000       .40   1659.04   1658.94       .00   1659.08       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.0       2.1        .0        .0        .0   1660.40
       .00      1.94      1.46       .00      .020      .035      .000      .000   1658.64   1003.86
   .005866        0.        0.        0.         0        15         0       .00     12.00   1015.86


*SECNO 3.000
     3.000       .40   1659.04   1658.94       .00   1659.08       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.0       2.1        .0        .0        .0   1660.40
       .00      1.93      1.45       .00      .020      .035      .000      .000   1658.64   1003.84
   .005754        0.        0.        0.         0        15         0       .00     12.03   1015.87


*SECNO 4.000
     4.000       .40   1659.04   1658.94       .00   1659.09       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.0       2.1        .0        .0        .0   1660.40
       .00      1.92      1.44       .00      .020      .035      .000      .000   1658.64   1003.81
   .005645        0.        0.        0.         0        15         0       .00     12.07   1015.88


*SECNO 5.000
     5.000       .41   1659.05   1658.94       .00   1659.09       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.1       2.1        .0        .0        .0   1660.40
       .00      1.90      1.43       .00      .020      .035      .000      .000   1658.64   1003.79
   .005538        0.        0.        0.         0        15         0       .00     12.10   1015.89


*SECNO 6.000
     6.000       .41   1659.05   1658.94       .00   1659.09       .04       .00       .00   1658.64
       5.0       2.0       3.0        .0       1.1       2.1        .0        .0        .0   1660.40
       .00      1.89      1.42       .00      .020      .035      .000      .000   1658.64   1003.77
   .005434        0.        0.        0.         0        19         0       .00     12.13   1015.90

1
   09JUL93      13:17:57                                                                          PAGE    4

T3            Q2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .006

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                  -1                                      -1

1
   09JUL93      13:17:57                                                                          PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .54   1659.18   1659.07       .00   1659.25       .07       .00       .00   1658.64
      10.0       4.5       5.5        .0       1.9       3.1        .0        .0        .0   1660.40
       .00      2.40      1.78       .00      .020      .035      .000      .000   1658.64   1002.06
   .006026        0.        0.        0.         0        21         8       .00     14.64   1016.70


*SECNO 2.000
     2.000       .54   1659.18   1659.07       .00   1659.25       .07       .00       .00   1658.64
      10.0       4.5       5.5        .0       1.9       3.1        .0        .0        .0   1660.40
       .00      2.40      1.78       .00      .020      .035      .000      .000   1658.64   1002.04
   .005964        0.        0.        0.         0        15         0       .00     14.66   1016.71


*SECNO 3.000
     3.000       .54   1659.18   1659.07       .00   1659.25       .07       .00       .00   1658.64
      10.0       4.5       5.5        .0       1.9       3.1        .0        .0        .0   1660.40
       .00      2.38      1.77       .00      .020      .035      .000      .000   1658.64   1002.02
   .005885        0.        0.        0.         0        15         0       .00     14.69   1016.72


*SECNO 4.000
     4.000       .55   1659.19   1659.07       .00   1659.25       .07       .00       .00   1658.64
      10.0       4.5       5.5        .0       1.9       3.1        .0        .0        .0   1660.40
       .00      2.37      1.76       .00      .020      .035      .000      .000   1658.64   1002.00
   .005789        0.        0.        0.         0        15         0       .00     14.73   1016.73


*SECNO 5.000
     5.000       .55   1659.19   1659.07       .00   1659.25       .06       .00       .00   1658.64
      10.0       4.5       5.5        .0       1.9       3.1        .0        .0        .0   1660.40
```

```
      .00       2.36       1.75        .00       .020       .035       .000       .000   1658.64   1001.97
  .005695         0.         0.         0.          0         15          0        .00     14.77   1016.74

 *SECNO 6.000
     6.000        .55   1659.19    1659.07        .00    1659.25        .06        .00        .00   1658.64
      10.0        4.5        5.5         .0        1.9        3.1         .0         .0         .0   1660.40
       .00       2.34       1.74        .00       .020       .035       .000       .000   1658.64   1001.95
  .005609         0.         0.         0.          0         19          0        .00     14.80   1016.75

1
   09JUL93      13:17:57                                                                                PAGE    6

 T3            Q3

 J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                            .006

 J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3                   -1                                           -1

1
   09JUL93      13:17:57                                                                                PAGE    7

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

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .75   1659.39    1659.22        .00    1659.49        .10        .00        .00   1658.64
      20.0       11.2        8.8         .0        3.6        5.3         .0         .0         .0   1660.40
       .00       3.12       1.66        .00       .020       .035       .000       .000   1658.64   1000.00
  .006036         0.         0.         0.          0         16          9        .00     23.83   1023.83

 *SECNO 2.000
     2.000        .75   1659.39    1659.23        .00    1659.49        .10        .00        .00   1658.64
      20.0       11.2        8.8         .0        3.6        5.3         .0         .0         .0   1660.40
       .00       3.11       1.65        .00       .020       .035       .000       .000   1658.64   1000.00
  .005984         0.         0.         0.          0         15          0        .00     23.89   1023.89

 *SECNO 3.000
     3.000        .75   1659.39    1659.23        .00    1659.50        .10        .00        .00   1658.64
      20.0       11.2        8.8         .0        3.6        5.3         .0         .0         .0   1660.40
       .00       3.10       1.64        .00       .020       .035       .000       .000   1658.64   1000.00
  .005913         0.         0.         0.          0         15          0        .00     23.96   1023.96

 *SECNO 4.000
     4.000        .76   1659.40    1659.22        .00    1659.50        .10        .00        .00   1658.64
      20.0       11.2        8.8         .0        3.6        5.4         .0         .0         .0   1660.40
       .00       3.09       1.63        .00       .020       .035       .000       .000   1658.64   1000.00
  .005833         0.         0.         0.          0         22          0        .00     24.04   1024.04

 *SECNO 5.000
     5.000        .76   1659.40    1659.22        .00    1659.50        .10        .00        .00   1658.64
      20.0       11.3        8.7         .0        3.7        5.4         .0         .0         .0   1660.40
       .00       3.07       1.62        .00       .020       .035       .000       .000   1658.64   1000.00
  .005749         0.         0.         0.          0         17          0        .00     24.13   1024.13

 *SECNO 6.000
     6.000        .76   1659.40    1659.23        .00    1659.50        .10        .00        .00   1658.64
      20.0       11.3        8.7         .0        3.7        5.4         .0         .0         .0   1660.40
       .00       3.06       1.61        .00       .020       .035       .000       .000   1658.64   1000.00
  .005672         0.         0.         0.          0         17          0        .00     24.22   1024.21

1
   09JUL93      13:17:57                                                                                PAGE    8

 T3            Q4

 J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 5                            .006

 J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      4                   -1                                           -1

1
   09JUL93      13:17:57                                                                                PAGE    9

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

 *PROF 4
```

```
CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .87   1659.51   1659.38       .00   1659.65       .14       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.7       7.5        .0        .0        .0   1660.40
       .00      3.68      1.69       .00      .020      .035      .000      .000   1658.64   1000.00
   .005983        0.        0.        0.         0        20        10       .00     29.14   1029.13

*SECNO 2.000
     2.000       .88   1659.52   1659.38       .00   1659.66       .14       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.7       7.5        .0        .0        .0   1660.40
       .00      3.67      1.69       .00      .020      .035      .000      .000   1658.64   1000.00
   .005938        0.        0.        0.         0        11         0       .00     29.19   1029.19

*SECNO 3.000
     3.000       .88   1659.52   1659.37       .00   1659.66       .14       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.7       7.5        .0        .0        .0   1660.40
       .00      3.66      1.68       .00      .020      .035      .000      .000   1658.64   1000.00
   .005872        0.        0.        0.         0        11         0       .00     29.27   1029.26

*SECNO 4.000
     4.000       .88   1659.52   1659.37       .00   1659.66       .14       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.8       7.6        .0        .0        .0   1660.40
       .00      3.64      1.67       .00      .020      .035      .000      .000   1658.64   1000.00
   .005784        0.        0.        0.         0        11         0       .00     29.37   1029.37

*SECNO 5.000
     5.000       .88   1659.52   1659.37       .00   1659.66       .14       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.8       7.6        .0        .0        .0   1660.40
       .00      3.62      1.66       .00      .020      .035      .000      .000   1658.64    999.99
   .005689        0.        0.        0.         0        11         0       .00     29.49   1029.48

*SECNO 6.000
     6.000       .89   1659.53   1659.37       .00   1659.66       .13       .00       .00   1658.64
      30.0      17.4      12.6        .0       4.8       7.7        .0        .0        .0   1660.40
       .00      3.61      1.64       .00      .020      .035      .000      .000   1658.64    999.99
   .005596        0.        0.        0.         0        11         0       .00     29.60   1029.60

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   09JUL93      13:17:57                                                                          PAGE   10

T3            Q5

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                           .006

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5                   -1                                      -1

1
   09JUL93      13:17:57                                                                          PAGE   11

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

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .97   1659.61   1659.51       .00   1659.78       .17       .00       .00   1658.64
      40.0      22.9      17.1        .0       5.6       9.7        .0        .0        .0   1660.40
       .00      4.09      1.77       .00      .020      .035      .000      .000   1658.64    999.99
   .005954        0.        0.        0.         0        18        10       .00     33.36   1033.35

*SECNO 2.000
     2.000       .97   1659.61   1659.51       .00   1659.78       .17       .00       .00   1658.64
      40.0      22.9      17.1        .0       5.6       9.7        .0        .0        .0   1660.40
       .00      4.08      1.76       .00      .020      .035      .000      .000   1658.64    999.99
   .005913        0.        0.        0.         0        11         0       .00     33.41   1033.41

*SECNO 3.000
     3.000       .98   1659.62   1659.51       .00   1659.78       .17       .00       .00   1658.64
      40.0      22.9      17.1        .0       5.6       9.7        .0        .0        .0   1660.40
       .00      4.07      1.75       .00      .020      .035      .000      .000   1658.64    999.99
   .005849        0.        0.        0.         0        11         0       .00     33.50   1033.49

*SECNO 4.000
     4.000       .98   1659.62   1659.51       .00   1659.79       .17       .00       .00   1658.64
      40.0      22.9      17.1        .0       5.7       9.8        .0        .0        .0   1660.40
       .00      4.05      1.74       .00      .020      .035      .000      .000   1658.64    999.99
   .005767        0.        0.        0.         0        11         0       .00     33.61   1033.60

*SECNO 5.000
     5.000       .98   1659.62   1659.51       .00   1659.79       .16       .00       .00   1658.64
      40.0      22.9      17.1        .0       5.7       9.9        .0        .0        .0   1660.40
       .00      4.03      1.73       .00      .020      .035      .000      .000   1658.64    999.99
   .005670        0.        0.        0.         0        11         0       .00     33.74   1033.73
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*SECNO 6.000
     6.000      .99   1659.63   1659.51      .00   1659.79      .16      .00      .00   1658.64
      40.0     22.9      17.1        .0      5.7      10.0       .0       .0       .0   1660.40
       .00     4.00      1.72       .00     .020      .035     .000     .000   1658.64    999.99
   .005576       0.        0.        0.        0        11        0      .00    33.87   1033.86

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   09JUL93      13:17:57                                                                          PAGE   12

T3            Q6

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                7                           .006

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     6                  -1                                      -1

1
   09JUL93      13:17:57                                                                          PAGE   13

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

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.13   1659.77   1659.70      .00   1659.98      .22      .00      .00   1658.64
      60.0      33.0      27.0        .0      7.0      14.0       .0       .0       .0   1660.40
       .00      4.71      1.93       .00     .020      .035     .000     .000   1658.64    999.99
   .005991        0.        0.        0.        0        11       10      .00    40.03   1040.02

*SECNO 2.000
     2.000      1.13   1659.77   1659.70      .00   1659.99      .21      .00      .00   1658.64
      60.0      33.0      27.0        .0      7.0      14.0       .0       .0       .0   1660.40
       .00      4.70      1.93       .00     .020      .035     .000     .000   1658.64    999.99
   .005956        0.        0.        0.        0        11        0      .00    40.08   1040.07

*SECNO 3.000
     3.000      1.13   1659.77   1659.70      .00   1659.99      .21      .00      .00   1658.64
      60.0      33.0      27.0        .0      7.0      14.1       .0       .0       .0   1660.40
       .00      4.68      1.92       .00     .020      .035     .000     .000   1658.64    999.99
   .005894        0.        0.        0.        0        11        0      .00    40.18   1040.17

*SECNO 4.000
     4.000      1.14   1659.78   1659.70      .00   1659.99      .21      .00      .00   1658.64
      60.0      32.9      27.1        .0      7.1      14.2       .0       .0       .0   1660.40
       .00      4.66      1.91       .00     .020      .035     .000     .000   1658.64    999.99
   .005809        0.        0.        0.        0        11        0      .00    40.31   1040.30

*SECNO 5.000
     5.000      1.14   1659.78   1659.70      .00   1659.99      .21      .00      .00   1658.64
      60.0      32.9      27.1        .0      7.1      14.3       .0       .0       .0   1660.40
       .00      4.63      1.90       .00     .020      .035     .000     .000   1658.64    999.99
   .005712        0.        0.        0.        0        11        0      .00    40.46   1040.45

*SECNO 6.000
     6.000      1.15   1659.79   1659.70      .00   1659.99      .21      .00      .00   1658.64
      60.0      32.9      27.1        .0      7.1      14.4       .0       .0       .0   1660.40
       .00      4.60      1.88       .00     .020      .035     .000     .000   1658.64    999.99
   .005608        0.        0.        0.        0        11        0      .00    40.63   1040.61

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   09JUL93      13:17:57                                                                          PAGE   14

T3            Q7

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                8                           .006

*   J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7                  -1                                      -1

1
   09JUL93      13:17:57                                                                          PAGE   15

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

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
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CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.25   1659.89   1659.84       .00   1660.14       .25       .00       .00   1658.64
      80.0      42.2      37.8        .0       8.1      18.1        .0        .0        .0   1660.40
       .00      5.19      2.09       .00      .020      .035      .000      .000   1658.64    999.98
   .006097        0.        0.        0.         0        11         9       .00     45.30   1045.29

*SECNO 2.000
     2.000      1.25   1659.89   1659.84       .00   1660.15       .25       .00       .00   1658.64
      80.0      42.2      37.8        .0       8.1      18.2        .0        .0        .0   1660.40
       .00      5.18      2.08       .00      .020      .035      .000      .000   1658.64    999.98
   .006065        0.        0.        0.         0         8         0       .00     45.36   1045.34

*SECNO 3.000
     3.000      1.26   1659.90   1659.84       .00   1660.15       .25       .00       .00   1658.64
      80.0      42.1      37.9        .0       8.2      18.3        .0        .0        .0   1660.40
       .00      5.17      2.07       .00      .020      .035      .000      .000   1658.64    999.98
   .006005        0.        0.        0.         0        11         0       .00     45.46   1045.44

*SECNO 4.000
     4.000      1.26   1659.90   1659.83       .00   1660.15       .25       .00       .00   1658.64
      80.0      42.1      37.9        .0       8.2      18.4        .0        .0        .0   1660.40
       .00      5.14      2.06       .00      .020      .035      .000      .000   1658.64    999.98
   .005922        0.        0.        0.         0        11         0       .00     45.60   1045.58

*SECNO 5.000
     5.000      1.27   1659.91   1659.83       .00   1660.15       .24       .00       .00   1658.64
      80.0      42.0      38.0        .0       8.2      18.5        .0        .0        .0   1660.40
       .00      5.11      2.05       .00      .020      .035      .000      .000   1658.64    999.98
   .005821        0.        0.        0.         0        11         0       .00     45.77   1045.75

*SECNO 6.000
     6.000      1.27   1659.91   1659.84       .00   1660.15       .24       .00       .00   1658.64
      80.0      41.9      38.1        .0       8.3      18.7        .0        .0        .0   1660.40
       .00      5.08      2.03       .00      .020      .035      .000      .000   1658.64    999.98
   .005705        0.        0.        0.         0        11         0       .00     45.97   1045.96
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1                                                                                                  PAGE   16
   09JUL93      13:17:57

T3            Q8
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 9                           .006
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     8                   -1                                      -1

1                                                                                                  PAGE   17
   09JUL93      13:17:57

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

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.36   1660.00   1659.95       .00   1660.28       .28       .00       .00   1658.64
     100.0      50.6      49.4        .0       9.1      22.4        .0        .0        .0   1660.40
       .00      5.55      2.21       .00      .020      .035      .000      .000   1658.64    999.98
   .006056        0.        0.        0.         0        14         9       .00     50.03   1050.01

*SECNO 2.000
     2.000      1.36   1660.00   1659.96       .00   1660.28       .28       .00       .00   1658.64
     100.0      50.5      49.5        .0       9.1      22.5        .0        .0        .0   1660.40
       .00      5.54      2.20       .00      .020      .035      .000      .000   1658.64    999.98
   .006027        0.        0.        0.         0         8         0       .00     50.08   1050.06

*SECNO 3.000
     3.000      1.37   1660.01   1659.96       .00   1660.28       .28       .00       .00   1658.64
     100.0      50.5      49.5        .0       9.2      22.6        .0        .0        .0   1660.40
       .00      5.52      2.19       .00      .020      .035      .000      .000   1658.64    999.98
   .005970        0.        0.        0.         0         8         0       .00     50.18   1050.17

*SECNO 4.000
     4.000      1.37   1660.01   1659.96       .00   1660.29       .27       .00       .00   1658.64
     100.0      50.4      49.6        .0       9.2      22.7        .0        .0        .0   1660.40
       .00      5.49      2.18       .00      .020      .035      .000      .000   1658.64    999.98
   .005891        0.        0.        0.         0         8         0       .00     50.33   1050.31

*SECNO 5.000
     5.000      1.38   1660.02   1659.95       .00   1660.29       .27       .00       .00   1658.64
     100.0      50.3      49.7        .0       9.2      22.9        .0        .0        .0   1660.40
       .00      5.46      2.17       .00      .020      .035      .000      .000   1658.64    999.98
   .005791        0.        0.        0.         0        11         0       .00     50.52   1050.50
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*SECNO 6.000
     6.000      1.38   1660.02   1659.95      .00   1660.29      .27      .00      .00   1658.64
     100.0      50.2      49.8        .0      9.3      23.1       .0       .0       .0   1660.40
       .00      5.42      2.15       .00     .020      .035     .000     .000  1658.64    999.98
   .005676        0.        0.        0.        0        11        0      .00    50.74   1050.72

1
   09JUL93      13:17:57                                                                    PAGE   18

 T3          Q9

 J1  ICHECK   INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
             10                         .006

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
      9                -1                                   -1

1
   09JUL93      13:17:57                                                                    PAGE   19

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

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.46   1660.10   1660.05      .00   1660.40      .30      .00      .00   1658.64
     120.0      58.4      61.6        .0     10.0      26.6       .0       .0       .0   1660.40
       .00      5.84      2.31       .00     .020      .035     .000     .000  1658.64    999.98
   .006017        0.        0.        0.        0        14        9      .00    54.22   1054.20

 *SECNO 2.000
     2.000      1.46   1660.10   1660.06      .00   1660.40      .30      .00      .00   1658.64
     120.0      58.4      61.6        .0     10.0      26.7       .0       .0       .0   1660.40
       .00      5.83      2.31       .00     .020      .035     .000     .000  1658.64    999.98
   .005991        0.        0.        0.        0         8        0      .00    54.27   1054.25

 *SECNO 3.000
     3.000      1.47   1660.11   1660.06      .00   1660.40      .30      .00      .00   1658.64
     120.0      58.3      61.7        .0     10.0      26.8       .0       .0       .0   1660.40
       .00      5.81      2.30       .00     .020      .035     .000     .000  1658.64    999.98
   .005938        0.        0.        0.        0         8        0      .00    54.38   1054.36

 *SECNO 4.000
     4.000      1.47   1660.11   1660.06      .00   1660.41      .29      .00      .00   1658.64
     120.0      58.2      61.8        .0     10.1      27.0       .0       .0       .0   1660.40
       .00      5.79      2.29       .00     .020      .035     .000     .000  1658.64    999.98
   .005864        0.        0.        0.        0         8        0      .00    54.52   1054.50

 *SECNO 5.000
     5.000      1.48   1660.12   1660.06      .00   1660.41      .29      .00      .00   1658.64
     120.0      58.1      61.9        .0     10.1      27.2       .0       .0       .0   1660.40
       .00      5.75      2.28       .00     .020      .035     .000     .000  1658.64    999.98
   .005771        0.        0.        0.        0         8        0      .00    54.71   1054.69

 *SECNO 6.000
     6.000      1.48   1660.12   1660.05      .00   1660.41      .29      .00      .00   1658.64
     120.0      58.0      62.0        .0     10.2      27.4       .0       .0       .0   1660.40
       .00      5.72      2.26       .00     .020      .035     .000     .000  1658.64    999.98
   .005663        0.        0.        0.        0        11        0      .00    54.93   1054.91

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   09JUL93      13:17:57                                                                    PAGE   20

 T3          Q10

 J1  ICHECK   INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
             11                         .006

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
      10               -1                                   -1

1
   09JUL93      13:17:57                                                                    PAGE   21

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

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
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*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      1.58   1660.22   1660.19      .00   1660.56      .33      .00      .00   1658.64
     150.0      69.6      80.4        .0     11.1      32.5       .0       .0       .0   1660.40
       .00      6.26      2.47       .00     .020      .035     .000     .000   1658.64    999.98
   .006113        0.        0.        0.        0        20        8      .00    59.48   1059.45

*SECNO 2.000
     2.000      1.59   1660.23   1660.19      .00   1660.56      .33      .00      .00   1658.64
     150.0      69.5      80.5        .0     11.1      32.6       .0       .0       .0   1660.40
       .00      6.25      2.47       .00     .020      .035     .000     .000   1658.64    999.98
   .006088        0.        0.        0.        0         8        0      .00    59.53   1059.50

*SECNO 3.000
     3.000      1.59   1660.23   1660.19      .00   1660.56      .33      .00      .00   1658.64
     150.0      69.5      80.5        .0     11.1      32.7       .0       .0       .0   1660.40
       .00      6.23      2.46       .00     .020      .035     .000     .000   1658.64    999.98
   .006039        0.        0.        0.        0         8        0      .00    59.63   1059.61

*SECNO 4.000
     4.000      1.59   1660.23   1660.19      .00   1660.56      .33      .00      .00   1658.64
     150.0      69.4      80.6        .0     11.2      32.9       .0       .0       .0   1660.40
       .00      6.20      2.45       .00     .020      .035     .000     .000   1658.64    999.98
   .005965        0.        0.        0.        0         8        0      .00    59.79   1059.76

*SECNO 5.000
     5.000      1.60   1660.24   1660.19      .00   1660.56      .32      .00      .00   1658.64
     150.0      69.2      80.8        .0     11.2      33.1       .0       .0       .0   1660.40
       .00      6.17      2.44       .00     .020      .035     .000     .000   1658.64    999.98
   .005873        0.        0.        0.        0         8        0      .00    59.99   1059.96

*SECNO 6.000
     6.000      1.61   1660.25   1660.19      .00   1660.56      .32      .00      .00   1658.64
     150.0      69.1      80.9        .0     11.3      33.4       .0       .0       .0   1660.40
       .00      6.13      2.42       .00     .020      .035     .000     .000   1658.64    999.98
   .005762        0.        0.        0.        0         8        0      .00    60.23   1060.21
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T3          Q11
J1  ICHECK  INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
            12                         .006
J2  NPROF   IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    11               -1                                   -1
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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.78   1660.42   1660.42      .00   1660.77      .36      .00      .00   1658.64
     200.0      85.6     114.4        .0     12.8      43.0       .0       .0       .0   1660.40
       .00      6.67      2.66       .02     .020      .035     .055     .000   1658.64    999.97
   .005867        0.        0.        0.        0        12        8      .00    68.09   1068.06

*SECNO 2.000
     2.000      1.81   1660.45   1660.43      .00   1660.78      .33      .00      .00   1658.64
     200.0      84.0     115.9        .0     13.1      44.6       .1       .0       .0   1660.40
       .00      6.41      2.60       .02     .020      .035     .055     .000   1658.64    999.97
   .005309        0.        0.        0.        0         5        0      .00    70.07   1070.04

*SECNO 3.000
     3.000      1.82   1660.46   1660.41      .00   1660.78      .32      .00      .00   1658.64
     200.0      83.8     116.2        .0     13.2      45.0       .1       .0       .0   1660.40
       .00      6.37      2.58       .02     .020      .035     .055     .000   1658.64    999.97
   .005211        0.        0.        0.        0         5        0      .00    70.45   1070.42

*SECNO 4.000
     4.000      1.82   1660.46   1660.44      .00   1660.78      .32      .00      .00   1658.64
     200.0      83.4     116.6        .0     13.2      45.4       .1       .0       .0   1660.40
       .00      6.31      2.57       .18     .020      .035     .055     .000   1658.64    999.97
   .005093        0.        0.        0.        0         6        0      .00    70.91   1070.88

*SECNO 5.000
     5.000      1.83   1660.47   1660.44      .00   1660.78      .31      .00      .00   1658.64
     200.0      83.0     117.0        .0     13.3      45.8       .1       .0       .0   1660.40
       .00      6.25      2.55       .19     .020      .035     .055     .000   1658.64    999.97
   .004960        0.        0.        0.        0         6        0      .00    71.45   1071.41
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    09JUL93        13:17:57
                                                                                                            PAGE   24

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

 *SECNO 6.000
      6.000       1.84    1660.48    1660.43        .00    1660.78        .30        .00        .00    1658.64
      200.0       82.6      117.4         .0       13.4       46.3         .2         .0         .0    1660.40
        .00       6.18       2.53        .21       .020       .035       .055       .000    1658.64     999.97
    .004818         0.         0.         0.          0          8          0        .00      72.04    1072.01

1
    09JUL93        13:17:57
                                                                                                            PAGE   25

 T3              Q12

 J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
                   13                             .006

 J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
        12                    -1                                          -1

1
    09JUL93        13:17:57
                                                                                                            PAGE   26

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

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=       .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       1.90    1660.54    1660.54        .00    1660.93        .39        .00        .00    1658.64
      250.0       98.9      150.8         .3       14.0       50.5         .7         .0         .0    1660.40
        .00       7.06       2.99        .36       .020       .035       .055       .000    1658.64     999.97
    .005969         0.         0.         0.          0         15          7        .00      76.97    1076.94

 *SECNO 2.000
      2.000       1.91    1660.55    1660.54        .00    1660.94        .39        .00        .00    1658.64
      250.0       98.9      150.9         .3       14.0       50.5         .7         .0         .0    1660.40
        .00       7.05       2.98        .36       .020       .035       .055       .000    1658.64     999.97
    .005946         0.         0.         0.          0          5          0        .00      77.05    1077.02

 *SECNO 3.000
      3.000       1.91    1660.55    1660.54        .00    1660.94        .39        .00        .00    1658.64
      250.0       98.7      151.0         .3       14.0       50.7         .8         .0         .0    1660.40
        .00       7.03       2.98        .37       .020       .035       .055       .000    1658.64     999.97
    .005898         0.         0.         0.          0          5          0        .00      77.23    1077.20

 *SECNO 4.000
      4.000       1.92    1660.56    1660.54        .00    1660.94        .38        .00        .00    1658.64
      250.0       98.5      151.2         .3       14.1       50.9         .8         .0         .0    1660.40
        .00       6.99       2.97        .37       .020       .035       .055       .000    1658.64     999.97
    .005822         0.         0.         0.          0          5          0        .00      77.52    1077.48

 *SECNO 5.000
      5.000       1.92    1660.56    1660.53        .00    1660.94        .38        .00        .00    1658.64
      250.0       98.2      151.5         .3       14.1       51.3         .9         .0         .0    1660.40
        .00       6.95       2.96        .38       .020       .035       .055       .000    1658.64     999.97
    .005719         0.         0.         0.          0          5          0        .00      77.91    1077.88

 *SECNO 6.000
      6.000       1.93    1660.57    1660.53        .00    1660.94        .37        .00        .00    1658.64
      250.0       97.8      151.8         .4       14.2       51.7         .9         .0         .0    1660.40
        .00       6.89       2.94        .38       .020       .035       .055       .000    1658.64     999.97
    .005593         0.         0.         0.          0          5          0        .00      78.41    1078.37
1
    09JUL93        13:17:57
                                                                                                            PAGE   27

 T3              Q13

 J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
                   14                             .006

 J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
        13                    -1                                          -1

1
    09JUL93        13:17:57
                                                                                                            PAGE   28

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

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.02    1660.66    1660.65        .00    1661.08        .42        .00        .00    1658.64
     300.0     111.7      187.1        1.2       15.0       57.0        2.3         .0         .0    1660.40
       .00      7.43       3.28        .54       .020       .035       .055       .000    1658.64     999.96
   .006108        0.         0.         0.          0         15          6        .00      84.76    1084.72

*SECNO 2.000
     2.000      2.02    1660.66    1660.65        .00    1661.08        .42        .00        .00    1658.64
     300.0     111.6      187.1        1.2       15.0       57.1        2.3         .0         .0    1660.40
       .00      7.42       3.28        .54       .020       .035       .055       .000    1658.64     999.96
   .006086        0.         0.         0.          0          5          0        .00      84.84    1084.81

*SECNO 3.000
     3.000      2.02    1660.66    1660.65        .00    1661.08        .42        .00        .00    1658.64
     300.0     111.5      187.2        1.3       15.1       57.3        2.4         .0         .0    1660.40
       .00      7.40       3.27        .54       .020       .035       .055       .000    1658.64     999.96
   .006041        0.         0.         0.          0          5          0        .00      85.02    1084.98

*SECNO 4.000
     4.000      2.03    1660.67    1660.64        .00    1661.09        .42        .00        .00    1658.64
     300.0     111.3      187.4        1.3       15.1       57.5        2.4         .0         .0    1660.40
       .00      7.37       3.26        .54       .020       .035       .055       .000    1658.64     999.96
   .005972        0.         0.         0.          0          5          0        .00      85.30    1085.26

*SECNO 5.000
     5.000      2.04    1660.68    1660.64        .00    1661.09        .41        .00        .00    1658.64
     300.0     111.0      187.7        1.4       15.2       57.8        2.5         .0         .0    1660.40
       .00      7.32       3.25        .55       .020       .035       .055       .000    1658.64     999.96
   .005876        0.         0.         0.          0          5          0        .00      85.68    1085.65

*SECNO 6.000
     6.000      2.05    1660.69    1660.64        .00    1661.09        .40        .00        .00    1658.64
     300.0     110.6      188.0        1.5       15.2       58.2        2.7         .0         .0    1660.40
       .00      7.26       3.23        .55       .020       .035       .055       .000    1658.64     999.96
   .005756        0.         0.         0.          0          5          0        .00      86.18    1086.14
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T3          Q14
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
              15                            .006
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     14                 -1                                      -1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      2.24    1660.88    1660.86        .00    1661.34        .46        .00        .00    1658.64
     400.0     134.2      259.5        6.3       17.0       69.8        7.8         .0         .0    1660.40
       .00      7.88       3.72        .81       .020       .035       .055       .000    1658.64     999.96
   .005997        0.         0.         0.          0          5          5        .00      99.89    1099.85

*SECNO 2.000
     2.000      2.24    1660.88    1660.84        .00    1661.34        .46        .00        .00    1658.64
     400.0     134.1      259.5        6.4       17.0       69.9        7.9         .0         .0    1660.40
       .00      7.87       3.71        .81       .020       .035       .055       .000    1658.64     999.96
   .005979        0.         0.         0.          0          5          0        .00      99.97    1099.93

*SECNO 3.000
     3.000      2.24    1660.88    1660.84        .00    1661.34        .46        .00        .00    1658.64
     400.0     134.0      259.6        6.4       17.1       70.0        8.0         .0         .0    1660.40
       .00      7.85       3.71        .81       .020       .035       .055       .000    1658.64     999.96
   .005940        0.         0.         0.          0          5          0        .00     100.15    1100.11

*SECNO 4.000
     4.000      2.25    1660.89    1660.83        .00    1661.35        .46        .00        .00    1658.64
     400.0     133.7      259.7        6.5       17.1       70.2        8.1         .0         .0    1660.40
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.00	7.83	3.70	.81	.020	.035	.055	.000	1658.64	999.96
.005884	0.	0.	0.	0	5	0	.00	100.41	1100.37
*SECNO 5.000									
5.000	2.26	1660.90	1660.85	.00	1661.35	.45	.00	.00	1658.64
400.0	133.4	259.9	6.7	17.1	70.5	8.3	.0	.0	1660.40
.00	7.79	3.68	.81	.020	.035	.055	.000	1658.64	999.96
.005809	0.	0.	0.	0	8	0	.00	100.76	1100.72
*SECNO 6.000									
6.000	2.26	1660.90	1660.86	.00	1661.35	.45	.00	.00	1658.64
400.0	133.1	260.1	6.8	17.2	70.9	8.5	.0	.0	1660.40
.00	7.74	3.67	.81	.020	.035	.055	.000	1658.64	999.96
.005718	0.	0.	0.	0	8	0	.00	101.20	1101.16

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09JUL93 13:17:57

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

THIS RUN EXECUTED 09JUL93 13:18:29

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	1.000	5.00	1659.04	.40	1.46	1658.94	1659.08	.00	59.47	.00
	1.000	10.00	1659.18	.54	1.78	1659.07	1659.25	.00	60.26	.00
	1.000	20.00	1659.39	.75	1.66	1659.22	1659.49	.00	60.36	.00
	1.000	30.00	1659.51	.87	1.69	1659.38	1659.65	.00	59.83	.00
	1.000	40.00	1659.61	.97	1.77	1659.51	1659.78	.00	59.54	.00
	1.000	60.00	1659.77	1.13	1.93	1659.70	1659.98	.00	59.91	.00
	1.000	80.00	1659.89	1.25	2.09	1659.84	1660.14	.00	60.97	.00
	1.000	100.00	1660.00	1.36	2.21	1659.95	1660.28	.00	60.56	.00
	1.000	120.00	1660.10	1.46	2.31	1660.05	1660.40	.00	60.17	.00
	1.000	150.00	1660.22	1.58	2.47	1660.19	1660.56	.00	61.13	.00
*	1.000	200.00	1660.42	1.78	2.66	1660.42	1660.77	.00	58.67	.00
	1.000	250.00	1660.54	1.90	2.99	1660.54	1660.93	.00	59.69	.00
	1.000	300.00	1660.66	2.02	3.28	1660.65	1661.08	.00	61.08	.00
	1.000	400.00	1660.88	2.24	3.72	1660.86	1661.34	.00	59.97	.00
	2.000	5.00	1659.04	.40	1.46	1658.94	1659.08	.00	58.66	1.01
	2.000	10.00	1659.18	.54	1.78	1659.07	1659.25	.00	59.64	1.01
	2.000	20.00	1659.39	.75	1.65	1659.23	1659.49	.00	59.84	1.00
	2.000	30.00	1659.52	.88	1.69	1659.38	1659.66	.00	59.38	1.00
	2.000	40.00	1659.61	.97	1.76	1659.51	1659.78	.00	59.13	1.00
	2.000	60.00	1659.77	1.13	1.93	1659.70	1659.99	.00	59.56	1.00
	2.000	80.00	1659.89	1.25	2.08	1659.84	1660.15	.00	60.65	1.00
	2.000	100.00	1660.00	1.36	2.20	1659.96	1660.28	.00	60.27	1.00
	2.000	120.00	1660.10	1.46	2.31	1660.06	1660.40	.00	59.91	1.00
	2.000	150.00	1660.23	1.59	2.47	1660.19	1660.56	.00	60.88	1.00
	2.000	200.00	1660.45	1.81	2.60	1660.43	1660.78	.00	53.09	1.05
	2.000	250.00	1660.55	1.91	2.98	1660.54	1660.94	.00	59.46	1.00
	2.000	300.00	1660.66	2.02	3.28	1660.65	1661.08	.00	60.86	1.00
	2.000	400.00	1660.88	2.24	3.71	1660.84	1661.34	.00	59.79	1.00

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	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	3.000	5.00	1659.04	.40	1.45	1658.94	1659.08	.00	57.54	1.01
	3.000	10.00	1659.18	.54	1.77	1659.07	1659.25	.00	58.85	1.01
	3.000	20.00	1659.39	.75	1.64	1659.23	1659.50	.00	59.13	1.01
	3.000	30.00	1659.52	.88	1.68	1659.37	1659.66	.00	58.72	1.01
	3.000	40.00	1659.62	.98	1.75	1659.51	1659.78	.00	58.49	1.01
	3.000	60.00	1659.77	1.13	1.92	1659.70	1659.99	.00	58.94	1.01
	3.000	80.00	1659.90	1.26	2.07	1659.84	1660.15	.00	60.05	1.00
	3.000	100.00	1660.01	1.37	2.19	1659.96	1660.28	.00	59.70	1.00
	3.000	120.00	1660.11	1.47	2.30	1660.06	1660.40	.00	59.38	1.00
	3.000	150.00	1660.23	1.59	2.46	1660.19	1660.56	.00	60.39	1.00
	3.000	200.00	1660.46	1.82	2.58	1660.41	1660.78	.00	52.11	1.01
	3.000	250.00	1660.55	1.91	2.98	1660.54	1660.94	.00	58.98	1.00
	3.000	300.00	1660.66	2.02	3.27	1660.65	1661.08	.00	60.41	1.00
	3.000	400.00	1660.88	2.24	3.71	1660.84	1661.34	.00	59.40	1.00
*	4.000	5.00	1659.04	.40	1.44	1658.94	1659.09	.00	56.45	1.01
	4.000	10.00	1659.19	.55	1.76	1659.07	1659.25	.00	57.89	1.01
	4.000	20.00	1659.40	.76	1.63	1659.22	1659.50	.00	58.33	1.01
	4.000	30.00	1659.52	.88	1.67	1659.37	1659.66	.00	57.84	1.01
	4.000	40.00	1659.62	.98	1.74	1659.51	1659.79	.00	57.67	1.01
	4.000	60.00	1659.78	1.14	1.91	1659.70	1659.99	.00	58.09	1.01
	4.000	80.00	1659.90	1.26	2.06	1659.83	1660.15	.00	59.22	1.01
	4.000	100.00	1660.01	1.37	2.18	1659.96	1660.29	.00	58.91	1.01
	4.000	120.00	1660.11	1.47	2.29	1660.06	1660.41	.00	58.64	1.01
	4.000	150.00	1660.23	1.59	2.45	1660.19	1660.56	.00	59.65	1.01
	4.000	200.00	1660.46	1.82	2.57	1660.44	1660.78	.00	50.93	1.01
	4.000	250.00	1660.56	1.92	2.97	1660.54	1660.94	.00	58.22	1.01
	4.000	300.00	1660.67	2.03	3.26	1660.64	1661.09	.00	59.72	1.01
	4.000	400.00	1660.89	2.25	3.70	1660.83	1661.35	.00	58.84	1.00
	5.000	5.00	1659.05	.41	1.43	1658.94	1659.09	.00	55.38	1.01
	5.000	10.00	1659.19	.55	1.75	1659.07	1659.25	.00	56.95	1.01

5.000	20.00	1659.40	.76	1.62	1659.22	1659.50	.00	57.49	1.01
5.000	30.00	1659.52	.88	1.66	1659.37	1659.66	.00	56.89	1.01
5.000	40.00	1659.62	.98	1.73	1659.51	1659.79	.00	56.70	1.01
5.000	60.00	1659.78	1.14	1.90	1659.70	1659.99	.00	57.12	1.01
5.000	80.00	1659.91	1.27	2.05	1659.83	1660.15	.00	58.21	1.01
5.000	100.00	1660.02	1.38	2.17	1659.95	1660.29	.00	57.91	1.01
5.000	120.00	1660.12	1.48	2.28	1660.06	1660.41	.00	57.71	1.01
5.000	150.00	1660.24	1.60	2.44	1660.19	1660.56	.00	58.73	1.01
5.000	200.00	1660.47	1.83	2.55	1660.44	1660.78	.00	49.60	1.01
5.000	250.00	1660.56	1.92	2.96	1660.53	1660.94	.00	57.19	1.01
5.000	300.00	1660.68	2.04	3.25	1660.64	1661.09	.00	58.76	1.01
5.000	400.00	1660.90	2.26	3.68	1660.85	1661.35	.00	58.09	1.01

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1659.05	.41	1.42	1658.94	1659.09	.00	54.34	1.01
6.000	10.00	1659.19	.55	1.74	1659.07	1659.25	.00	56.09	1.01
6.000	20.00	1659.40	.76	1.61	1659.23	1659.50	.00	56.72	1.01
6.000	30.00	1659.53	.89	1.64	1659.37	1659.66	.00	55.96	1.01
6.000	40.00	1659.63	.99	1.72	1659.51	1659.79	.00	55.76	1.01
6.000	60.00	1659.79	1.15	1.88	1659.70	1659.99	.00	56.08	1.01
6.000	80.00	1659.91	1.27	2.03	1659.84	1660.15	.00	57.05	1.01
6.000	100.00	1660.02	1.38	2.15	1659.95	1660.29	.00	56.76	1.01
6.000	120.00	1660.12	1.48	2.26	1660.05	1660.41	.00	56.63	1.01
6.000	150.00	1660.25	1.61	2.42	1660.19	1660.56	.00	57.62	1.01
6.000	200.00	1660.48	1.84	2.53	1660.43	1660.78	.00	48.18	1.01
6.000	250.00	1660.57	1.93	2.94	1660.53	1660.94	.00	55.93	1.01
6.000	300.00	1660.69	2.05	3.23	1660.64	1661.09	.00	57.56	1.01
6.000	400.00	1660.90	2.26	3.67	1660.86	1661.35	.00	57.18	1.01

1 09JUL93 13:17:57 PAGE 34

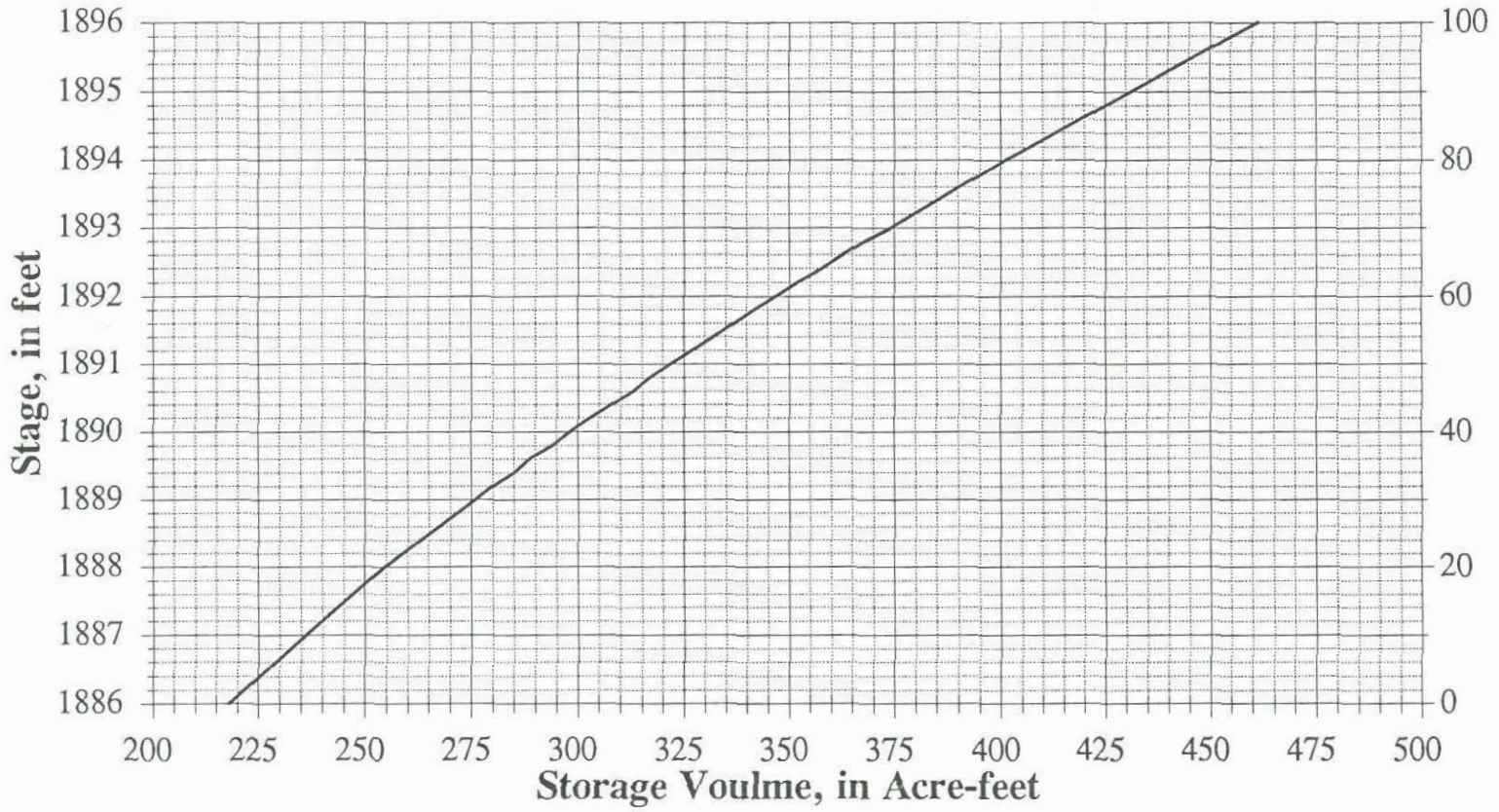
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 11 CRITICAL DEPTH ASSUMED

Hydraulic Calculations for Structure at C536 (Dam36)

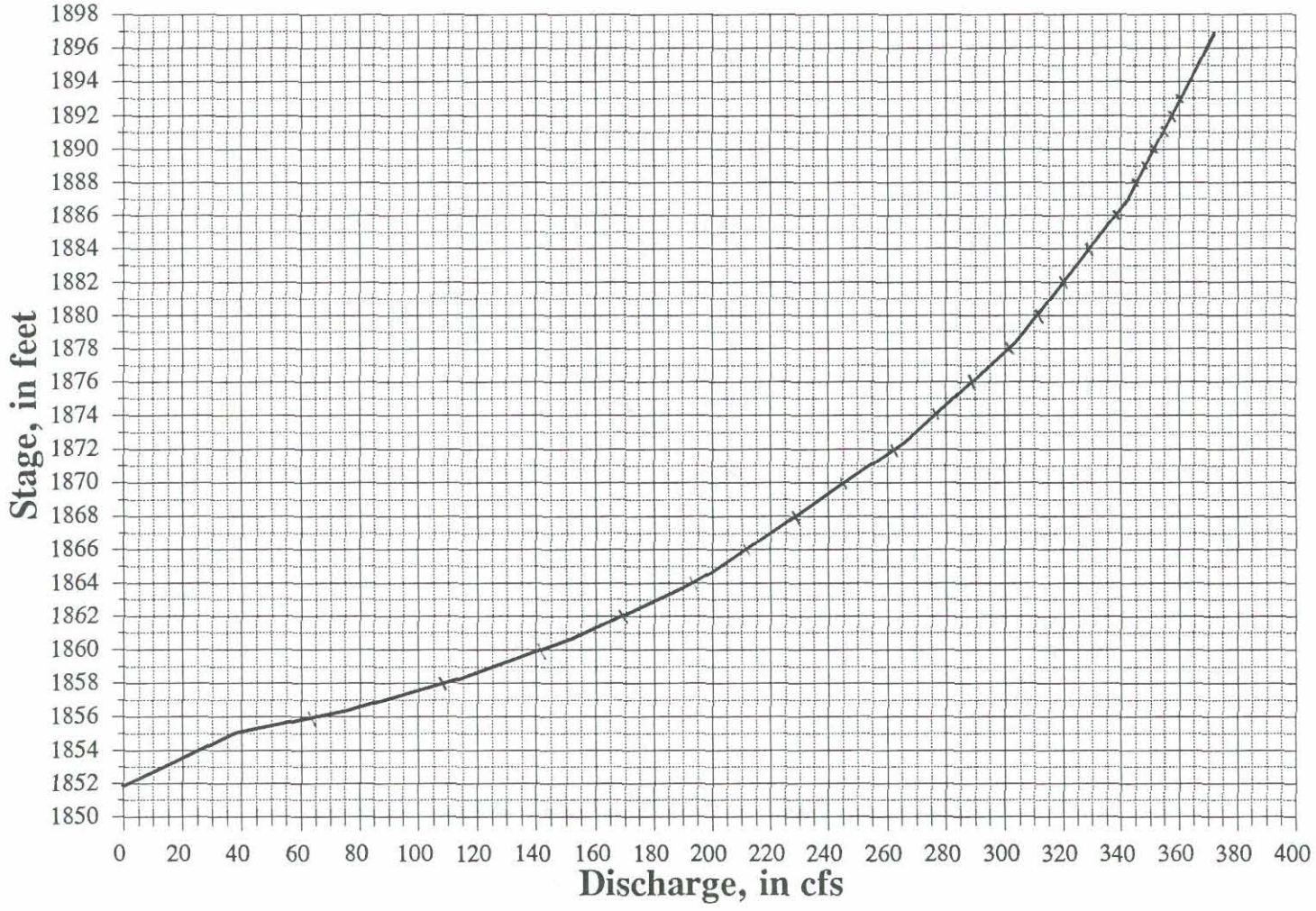
Dam 36 Storage Volume

Calculated from planimetered contours



Dam 36 Stage vs. Discharge

Principal Spillway from HY8



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

DATE 4/6/93

PROJECT FOUNTAIN HILLS

BY MG

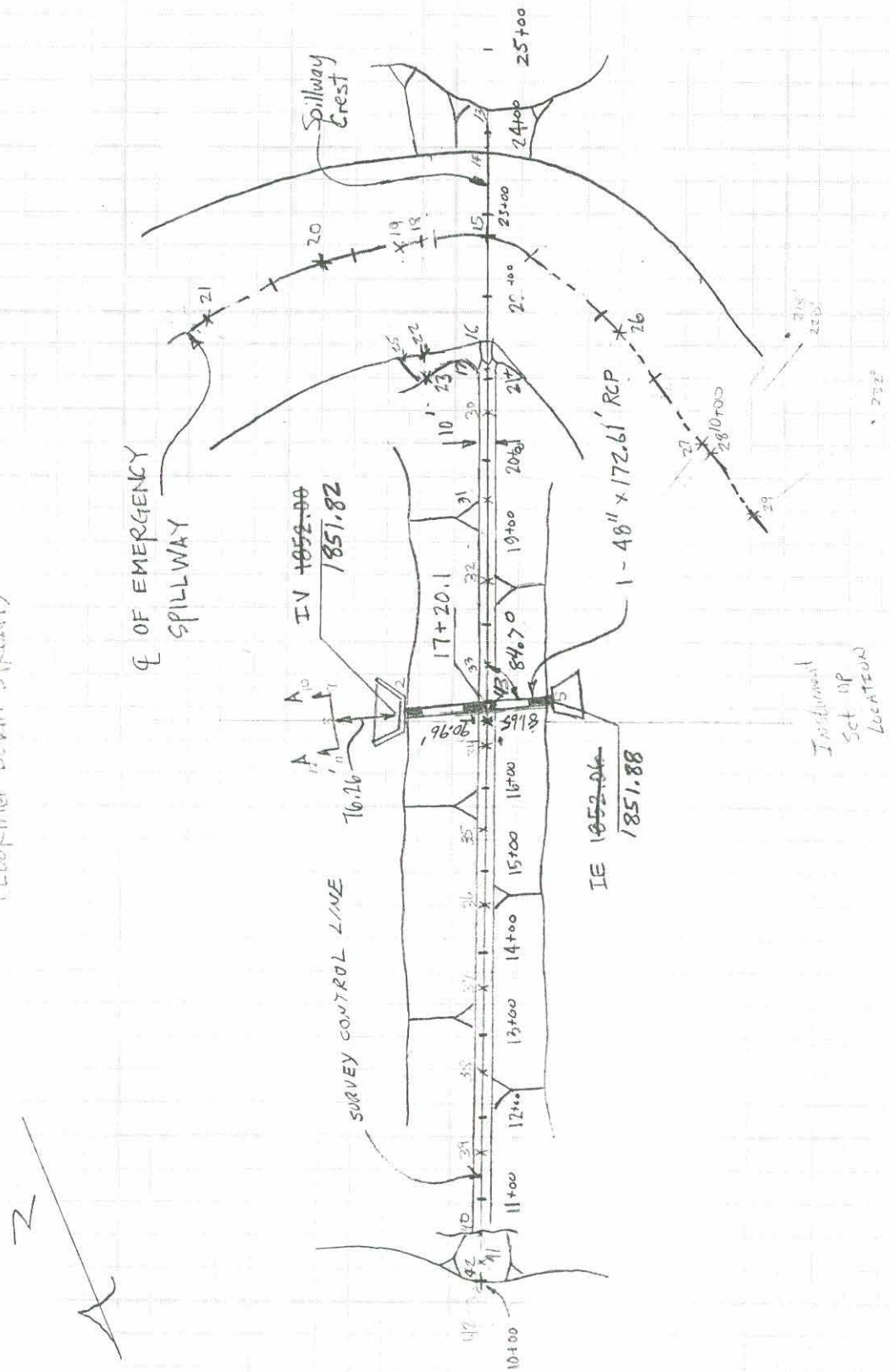
SUBJECT DAM 36 FIELD SURVEY CS36

PROJECT NO. 35

DAM 36 PLAN VIEW

(LOOKING DOWN STREAM)

SCALE 1:200



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET _____ OF _____

CLIENT _____ DATE _____

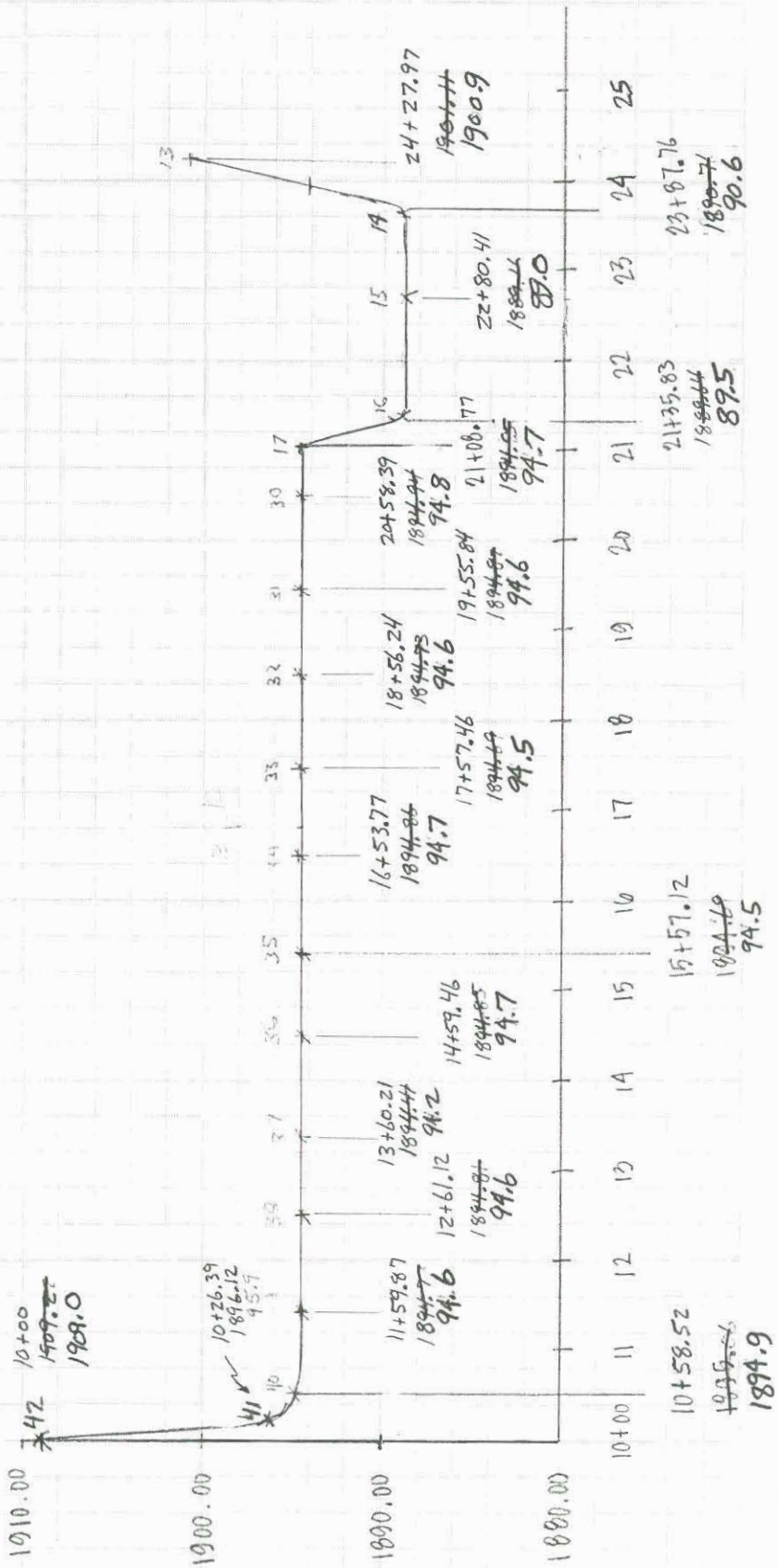
PROJECT _____ BY _____

SUBJECT _____ PROJECT NO. _____

DAM 36 PROFILE

SCALE 1:200 HORIZONTAL
1:10 VERTICLE

Weir breadth = 75 feet
Crest = ~~1889.98~~ 1888.98



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

DATE 4/12/93

PROJECT FOUNTAIN HILLS

BY MG

SUBJECT DAM 36 FIELD SURVEY

PROJECT NO. 35

DAM 36

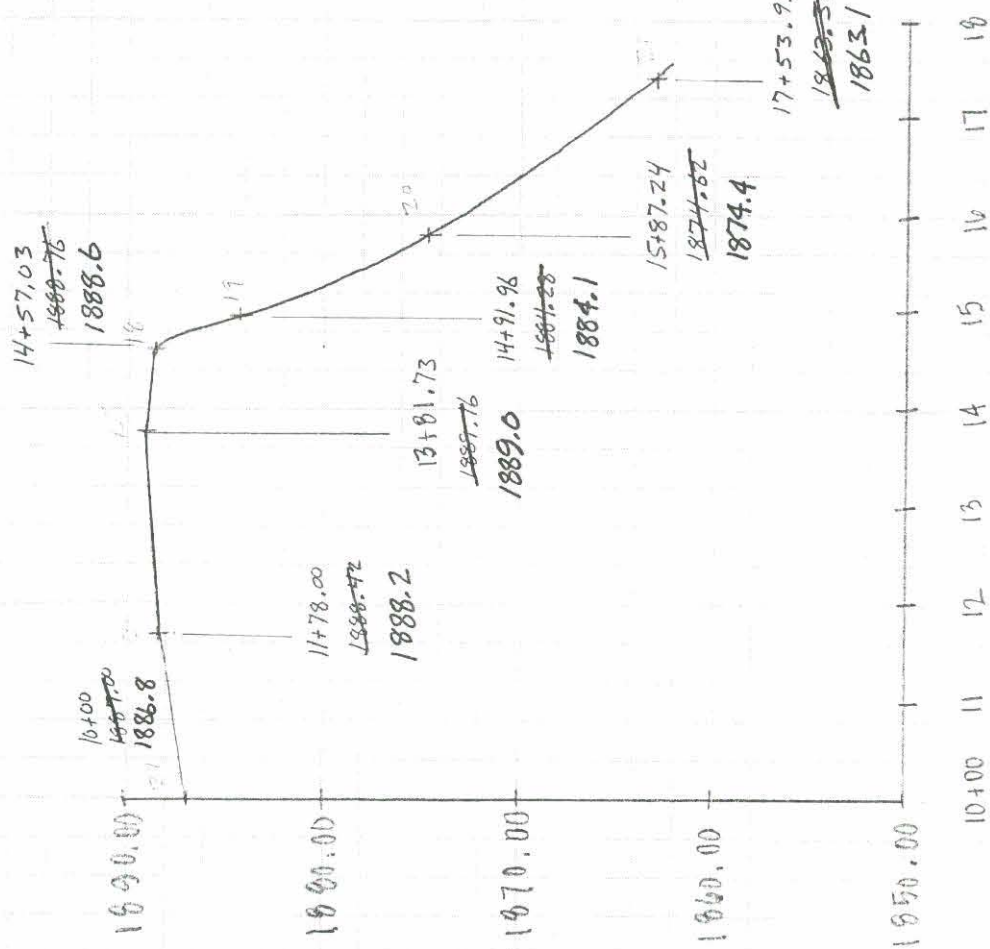
EMERGENCY SPILLWAY PROFILE

ALONG ℄

SCALE 1" = 200 HORIZONTAL

1" = 10 VERTICLE

Weir Breadth = 14+57.03 − 13+81.73 = 75 feet



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

DATE 4/12/93

PROJECT FOUNTAIN HILLS

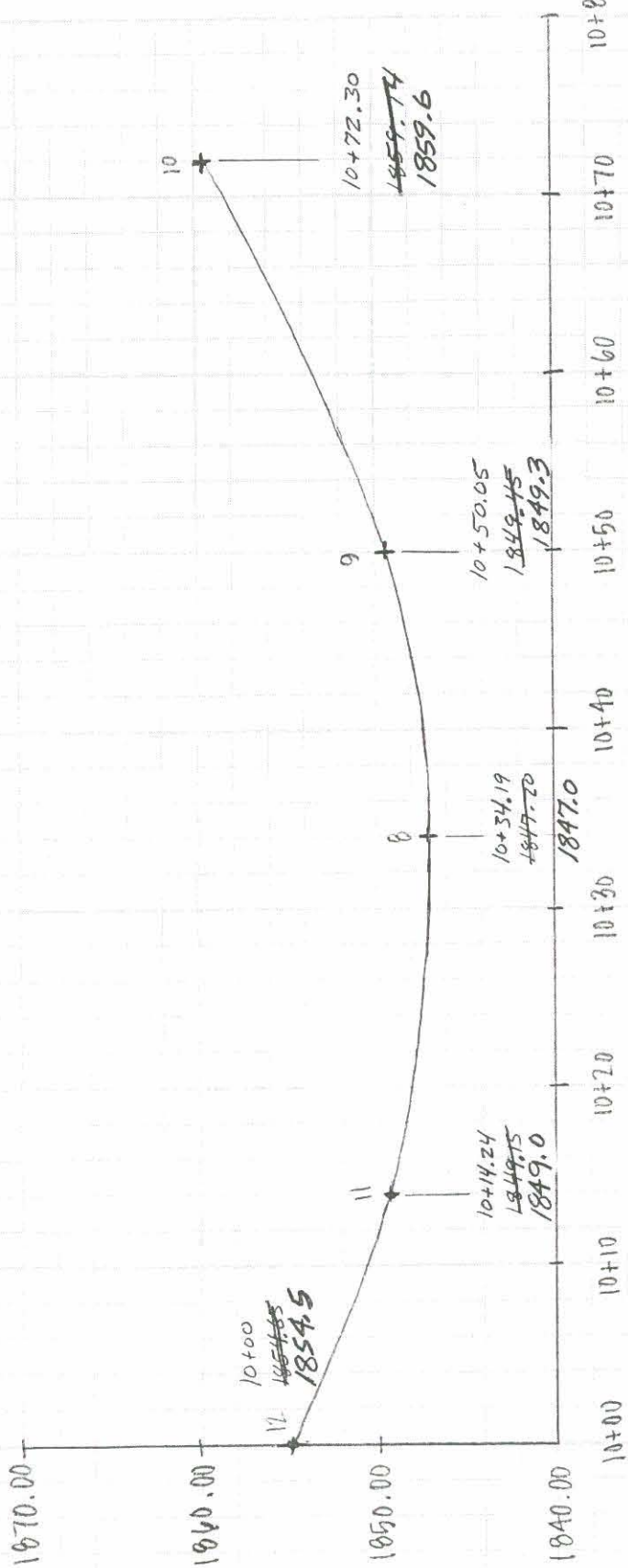
BY MG

SUBJECT DAM 36 FIELD SURVEY

PROJECT NO. 35

CHANNEL CROSS SECTION A-A (DOWN STREAM)

SCALE 1" = 10 HORIZONTAL
1" = 10 VERTICLE



Start At Point Number ..... Top of Dam Profile

File = DAM36.DAT Page No. 2

****

Start At Point Number ..... 42 STA = 10+ 0.00 EL 1909.22 1900.04

Inverse	42	SW	0- 0- 0.00	26.39000	41	STA =	10+26.39	EL 1896.12 1895.04
Inverse	41	SW	0- 0- 0.00	32.13000	40	STA =	10+58.52	
Inverse	40	SW	0- 0- 0.00	101.35000	39	STA =	11+59.87	
Inverse	39	SW	0- 0- 0.00	101.25000	38	STA =	12+61.12	
Inverse	38	SW	0- 0- 0.00	99.09000	37	STA =	13+60.21	
Inverse	37	SW	0- 0- 0.00	99.25000	36	STA =	14+59.46	
Inverse	36	SW	0- 0- 0.00	97.66000	35	STA =	15+57.12	
Inverse	35	SW	0- 0- 0.00	96.65000	34	STA =	16+53.77	
Inverse	34	SW	0- 0- 0.00	103.69000	33	STA =	17+57.46	
Inverse	33	SW	0- 0- 0.00	98.78000	32	STA =	18+56.24	
Inverse	32	SW	0- 0- 0.00	99.60000	31	STA =	19+55.84	
Inverse	31	SW	0- 0- 0.00	102.55000	30	STA =	20+58.39	
Inverse	30	SW	0- 0- 0.00	50.38000	17	STA =	21+ 8.77	EL 1894.87 1894.47
Inverse	17	SE	0- 0- 0.00	27.06000	16	STA =	21+35.83	EL 1889.64 1889.46
Inverse	16	SW	0- 0- 0.00	144.58000	15	STA =	22+80.41	EL 1889.16 1885.13
Inverse	15	SW	0- 0- 0.00	107.35000	14	STA =	23+87.76	EL 1890.76 1890.28
Inverse	14	SW	0- 0- 0.00	40.21000	13	STA =	24+27.97	EL 1901.11 1900.13

Spillway X-Section

DAm 36

File = DAM36.DAT DISCHARGE CHANNEL X - Section

****

Start At Point Number					12	STA =	10+ 0.00	EL	~~1854.63~~	1854.45
Inverse	12	SE	7-25- 5.45	14.24344	11	STA =	10+14.24	EL	~~1849.15~~	1848.37
Inverse	11	SE	4-41-33.57	19.94569	8	STA =	10+34.19	EL	~~1847.70~~	1847.02
Inverse	8	SE	4-46-46.37	15.85720	9	STA =	10+50.05	EL	~~1849.45~~	1849.27
Inverse	9	SE	13-41-24.71	22.25084	10	STA =	10+72.30	EL	~~1859.74~~	1859.56

SPILLWAY Profile DAm 36

Start At Point Number					27	STA =	10+ 0.00	EL	~~1887.00~~	1886.82	
Inverse	27	SE	31-36-30.12	178.00127	26	STA =	11+78.00	EL	~~1888.42~~	1888.24	
Inverse	26	SE	50- 4-40.98	203.72775	15	STA =	13+81.73	EL	~~1889.16~~	1889.18	GEST
Inverse	15	NE	71-46-42.17	75.30300	18	STA =	14+57.03	EL	~~1888.76~~	1888.58	
Inverse	18	NE	72-20-16.01	34.92685	19	STA =	14+91.96	EL	~~1884.28~~	1884.10	
Inverse	19	SE	86-25-25.52	95.27660	20	STA =	15+87.24	EL	~~1874.62~~	1874.44	
Inverse	20	NE	78-34- 7.34	166.71784	21	STA =	17+53.95	EL	~~1863.32~~	1863.14	

DAM 36 RCP

****

Dam 36 RCP angle right from CL of dam.

Inverse	33 NE	0- 0- 0.00	36.74451	43	9964.40451	20000.00000

RADIAL INVERSE FROM LINE - Base Pt. # 43 TO 33

Rad Inv	43 AR	84-42-33.31	81.64863	5	9956.87571	19918.69922
Rad Inv	43 SW	84-42-33.31	81.64863	5	9956.87571	19918.69922
Inverse	43 SW	84-42-33.31	81.64863	5	9956.87571	19918.69922
Inverse	5 NE	84-42-33.31	81.64863	43	9964.40451	20000.00000
Inverse	43 NE	84-42-33.31	90.95904	2	9972.79182	20090.57152
Inverse	2 SW	84-42-33.31	172.60767	5	9956.87571	19918.69922

CURRENT DATE: 08-01-1994
CURRENT TIME: 08:45:03

FILE DATE: 8-1-94
FILE NAME: C536

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1851.88	1851.82	172.61	1 RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C536 DATE: 8-1-94

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1851.88	0	0	0	0	0	0	0	0	1
1855.05	38	38	0	0	0	0	0	0	1
1856.40	76	76	0	0	0	0	0	0	1
1858.27	114	114	0	0	0	0	0	0	1
1860.67	152	152	0	0	0	0	0	0	1
1863.70	190	190	0	0	0	0	0	0	1
1867.64	228	228	0	0	0	0	0	0	1
1872.38	266	266	0	0	0	0	0	0	1
1878.39	304	304	0	0	0	0	0	0	1
1886.89	342	342	0	0	0	0	0	0	1
1896.85	380	372	0	0	0	0	0	8	11
1895.00	367	367	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C536 DATE: 8-1-94

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1851.88	0.00	0	0	0.00
1855.05	0.00	38	0	0.00
1856.40	0.00	76	0	0.00
1858.27	0.00	114	0	0.00
1860.67	0.00	152	0	0.00
1863.70	0.00	190	0	0.00
1867.64	0.00	228	0	0.00
1872.38	0.00	266	0	0.00
1878.39	0.00	304	0	0.00
1886.89	0.00	342	0	0.00
1896.85	-0.00	380	0	0.01

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 08-01-1994
CURRENT TIME: 08:45:03

FILE DATE: 8-1-94
FILE NAME: C536

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (4 BY 4) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1851.88	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
38	1855.05	2.67	3.17	6-FFn	4.00	1.83	3.02	4.00	4.64	0.99
76	1856.40	4.15	4.52	6-FFn	4.00	2.63	6.05	4.00	5.49	1.27
114	1858.27	5.93	6.39	6-FFn	4.00	3.22	9.07	4.00	6.08	1.48
152	1860.67	8.46	8.79	6-FFn	4.00	3.61	12.10	4.00	6.53	1.65
190	1863.70	11.76	11.82	6-FFn	4.00	4.00	15.12	4.00	6.90	1.79
228	1867.64	15.76	15.29	6-FFn	4.00	4.00	18.14	4.00	7.22	1.92
266	1872.38	20.50	19.39	6-FFn	4.00	4.00	21.17	4.00	7.58	2.02
304	1878.39	26.51	24.12	6-FFn	4.00	4.00	24.19	4.00	7.94	2.12
342	1886.89	35.01	29.48	6-FFn	4.00	4.00	27.22	4.00	8.25	2.20
372	1896.85	44.97	34.18	6-FFn	4.00	4.00	29.61	4.00	8.57	2.28

El. inlet face invert 1851.88 ft El. outlet invert 1851.82 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1851.88
      OUTLET STATION (FT)                     172.61
      OUTLET ELEVATION (FT)                  1851.82
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0003
      CULVERT LENGTH ALONG SLOPE (FT)         172.61

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         4.00 FT
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S N    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

3

CURRENT DATE: 08-01-1994 FILE DATE: 8-1-94
CURRENT TIME: 08:45:03 FILE NAME: C536

TAILWATER

```
***** USER DEFINED CHANNEL CROSS-SECTION              FILE NAME: C536
      MAIN CHANNEL AND LT & RT OVER BANKS             FILE DATE: 04-26-1993
      LEFT CHANNEL BOUNDARY            2
      RIGHT CHANNEL BOUNDARY           4
      MANNING N LEFT OVER BANK         0.075
      MANNING N MAIN CHANNEL           0.050
      MANNING N RIGHT OVER BAN         0.075
      SLOPE OF CHANNEL (FT/FT)         0.0630

      CROSS-SECTION    X          Y
        COORD. NO.    (FT)       (FT)
            1        1000.00    1859.25
            2        1014.24    1853.77
```

3	1034.19	1851.82
4	1050.05	1854.07
5	1072.30	1864.36

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1851.82	0.000	0.00	0.00	0.00
38.00	1852.81	1.163	0.99	4.64	1.93
76.00	1853.09	1.213	1.27	5.49	2.48
114.00	1853.30	1.245	1.48	6.08	2.89
152.00	1853.47	1.267	1.65	6.53	3.22
190.00	1853.61	1.285	1.79	6.90	3.50
228.00	1853.74	1.299	1.92	7.22	3.74
266.00	1853.84	1.315	2.02	7.58	4.02
304.00	1853.94	1.330	2.12	7.94	4.31
342.00	1854.02	1.343	2.20	8.25	4.57
380.00	1854.10	1.356	2.28	8.57	4.84

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1895.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS              C536 (Dam 36)
    ENGINEER:  MG
    DATE:   8/24/1993
    TIME:  10:16.34




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1888.80
    MAXIMUM WSEL:        1893.40
    STEP SIZE:              0.20
    BREADTH OF WEIR:       75.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS              C536 (Dam 36)
    DATE:   8/24/1993
    TIME:  10:16.34
*********************************************


    POINT    ELEVATION    STATION
    -----    ---------    -------
        1      1894.67    2108.77
        2      1889.46    2135.83
        3      1888.98    2280.41
        4      1890.58    2387.76
```

5 1900.93 2427.97

****
WEIR COEFFICIENT TABLE
PROJECT: Fountain Hills North FIS C536 (Dam 36)
DATE: 8/24/1993
TIME: 10:16.34
****

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5089
3	0.40	2.5178
4	0.60	2.5267
5	0.80	2.5356
6	1.00	2.5444
7	1.20	2.5533
8	1.40	2.5622
9	1.60	2.5711
10	1.80	2.5800
11	2.00	2.5889
12	2.20	2.5978
13	2.40	2.6067
14	2.60	2.6156
15	2.80	2.6244
16	3.00	2.6333
17	3.20	2.6422
18	3.40	2.6511
19	3.60	2.6600
20	3.80	2.6689
21	4.00	2.6778
22	4.20	2.6867
23	4.40	2.6956

****
UNEVEN WEIR FLOW PROGRAM

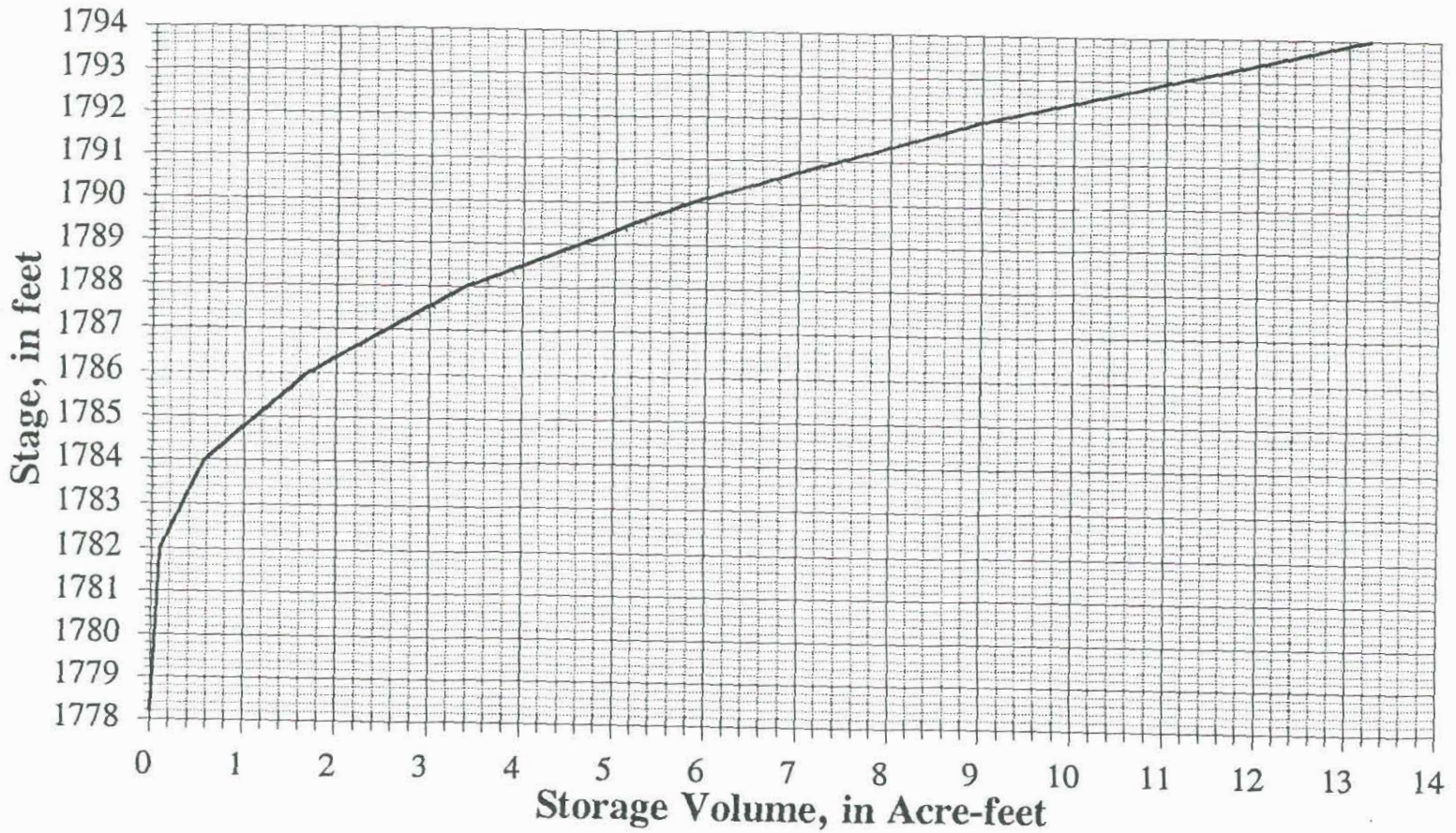
FORTRAN VERSION 1.0
PROJECT: Fountain Hills North FIS C536 (Dam 36)
DATE: 8/24/1993
TIME: 10:16.34
****

ELEVATION	DISCHARGE (CFS)
1888.80	0.00
1889.00	0.02
1889.20	8.37
1889.40	42.24
1889.60	109.97
1889.80	206.19
1890.00	327.56
1890.20	473.20
1890.40	642.93
1890.60	836.89
1890.80	1054.39
1891.00	1292.63
1891.20	1550.27
1891.40	1826.44
1891.60	2120.52
1891.80	2432.01
1892.00	2760.50
1892.20	3105.70
1892.40	3467.34
1892.60	3845.20
1892.80	4239.11
1893.00	4648.92
1893.20	5074.51

Hydraulic Calculations for Structure at C538

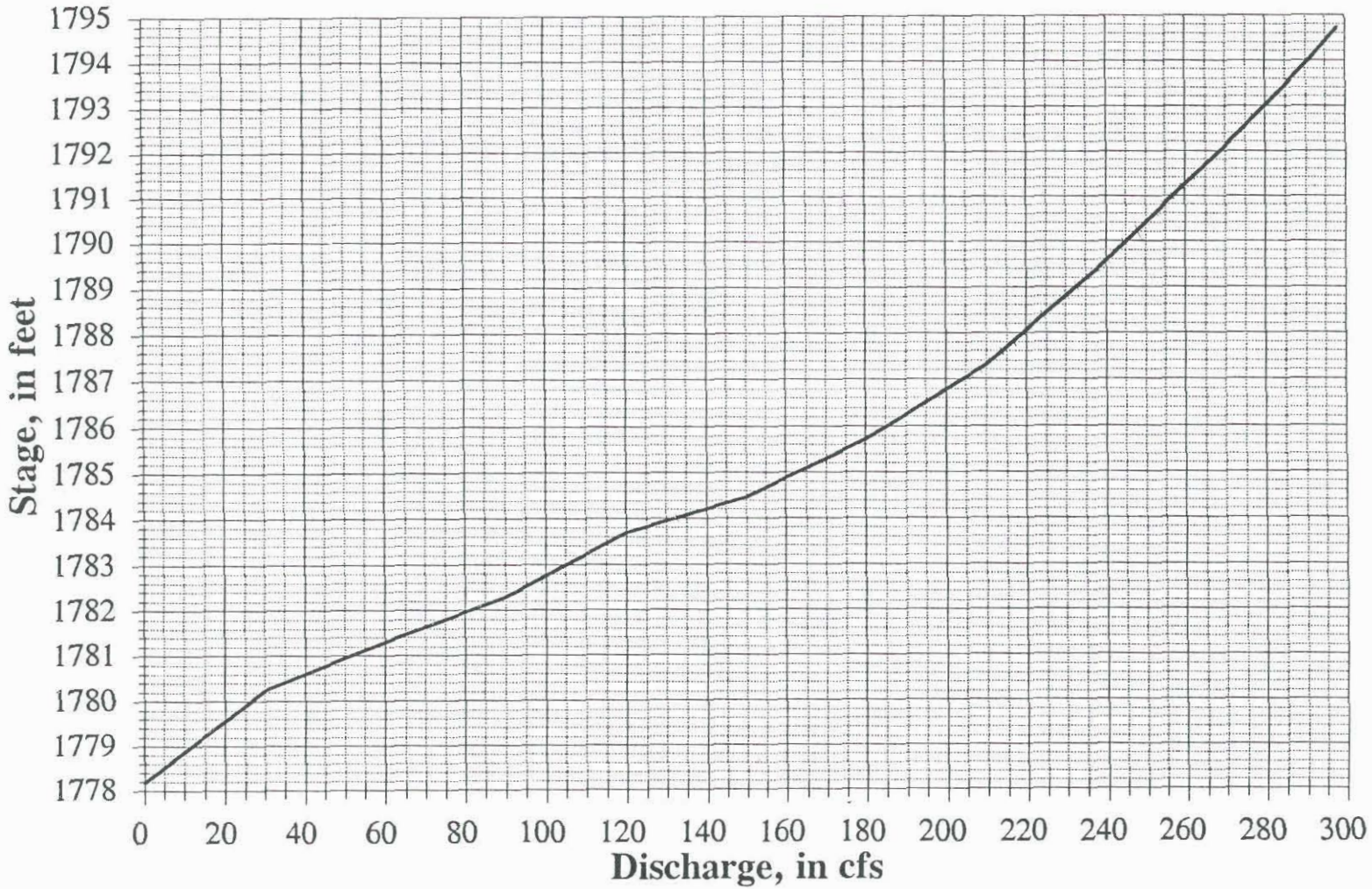
C538 Storage Volume

Calculated From Planimetered Contours



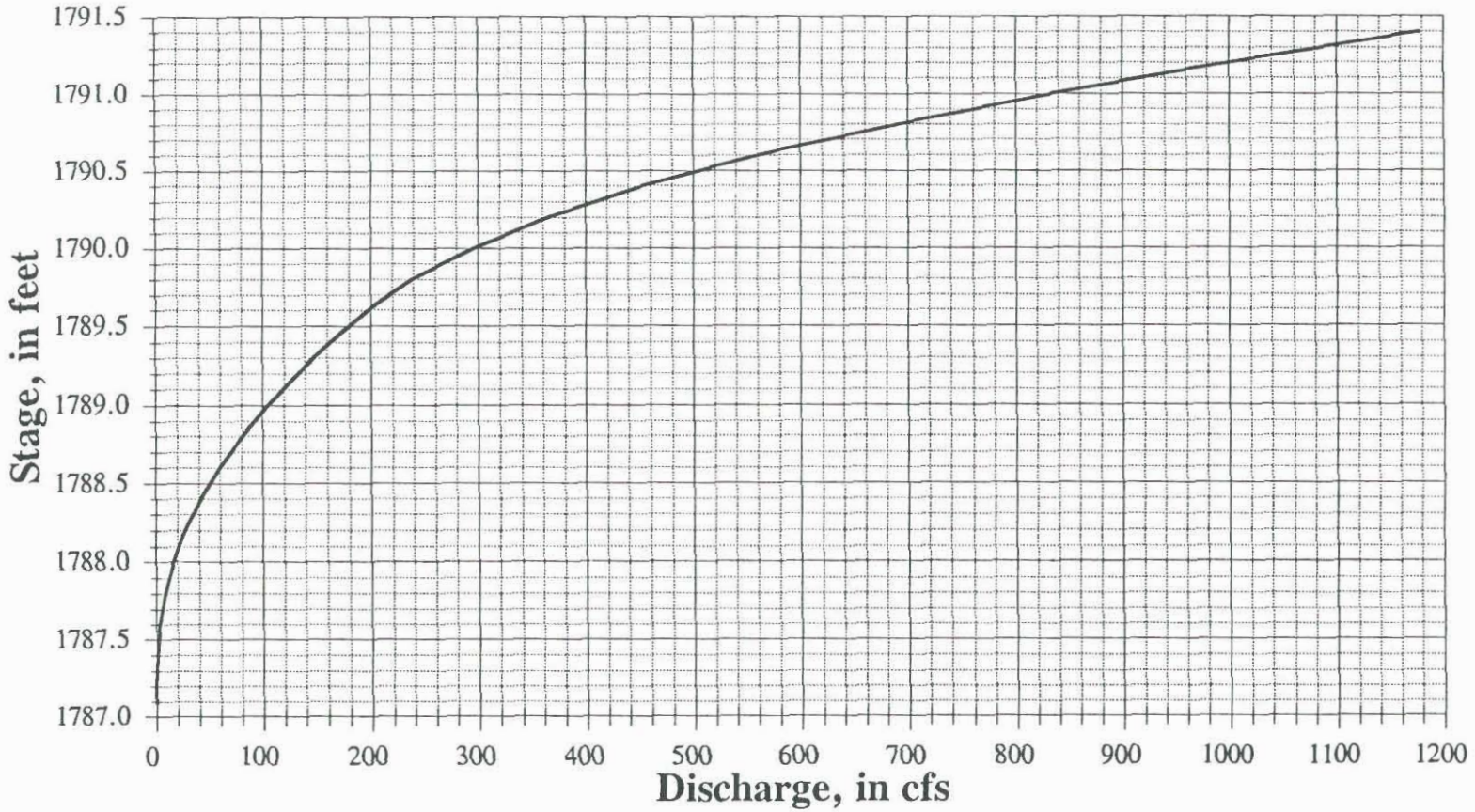
C538 Stage vs Discharge

Culvert Flow from HY8



C538 Stage vs Discharge

Weir Flow from Uneven Weir



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 3

CLIENT MC FCD

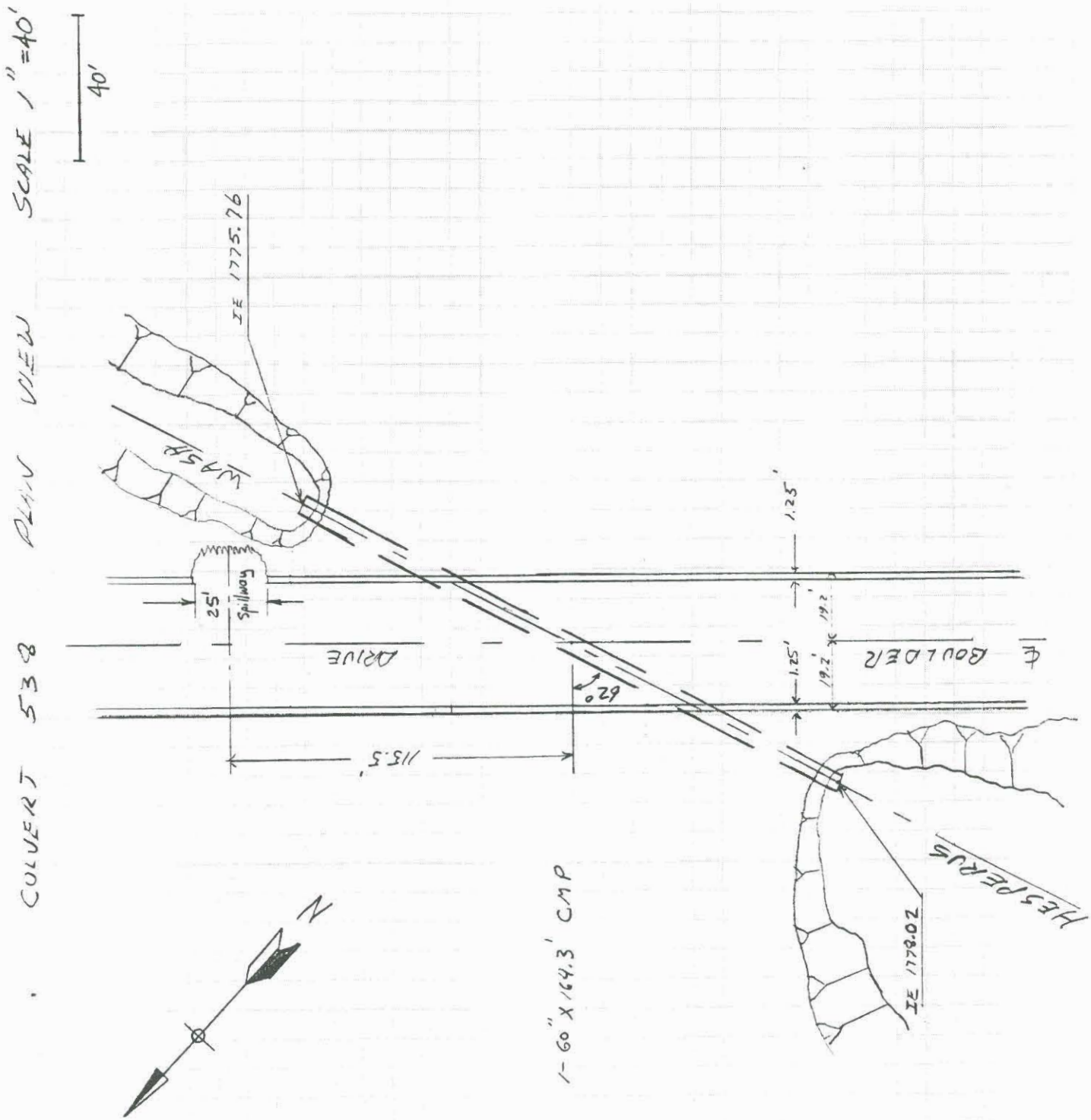
DATE 26-MAY-93

PROJECT FOUNTAIN HILLS F.I.S.

BY R.C.

SUBJECT CULVERT 538 FIELD SURVEY

PROJECT NO. 35



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 3

CLIENT MCFCD

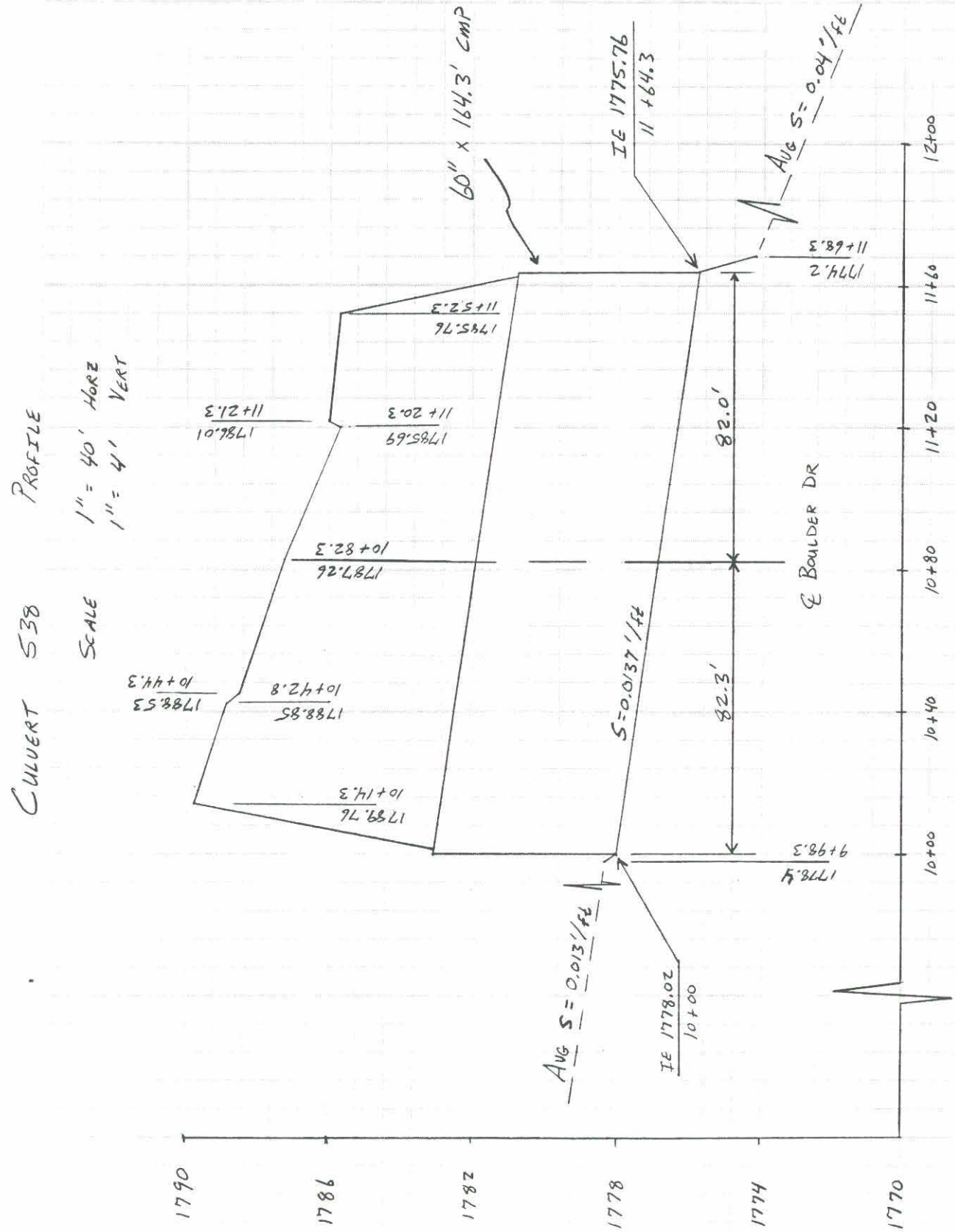
DATE 22 JULY 93

PROJECT F. HILLS NORTH FIS

BY DTP

SUBJECT CULVERT 538 AS-BUILT

PROJECT NO. 35



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 3

CLIENT MCFCD

DATE 16-JUN-95

PROJECT F. HILLS

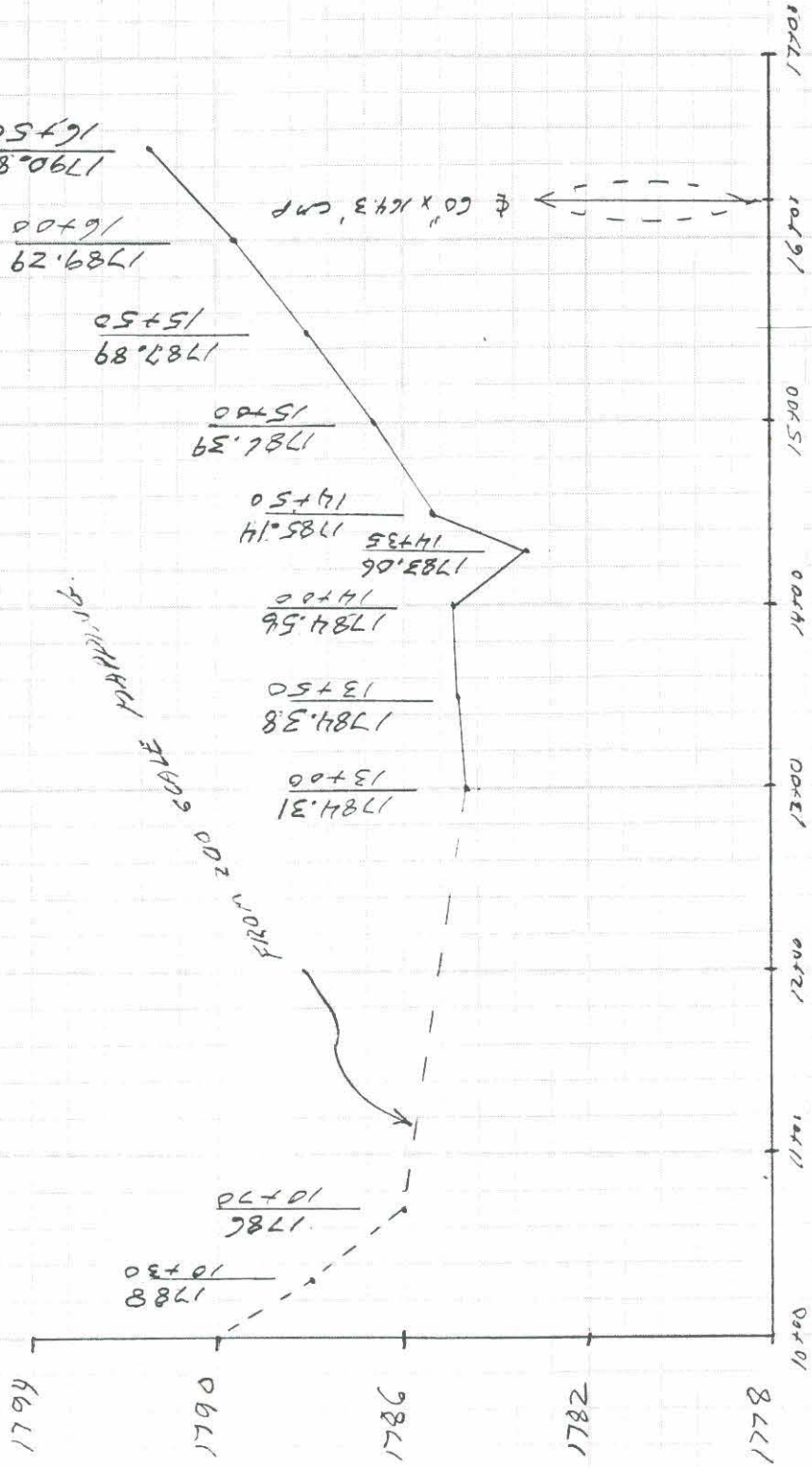
BY R.C.

SUBJECT CULVERT 538 FIELD SURVEY

PROJECT NO. 35

CULVERT 538 WEIR CROSS SECTION WEST TOP WIDE

SCALE: HORZ. 1" = 100'
VERT. 1" = 4'



NOTE: PHOTO-DIGITIZED SECTION HE 8 (HESPERUS WASH 2.228 river Miles) WAS USED FOR Hydraulic Calculations as it controls.

CURRENT DATE: 07-13-1993
CURRENT TIME: 09:22:00

FILE DATE: 06-16-1993
FILE NAME: C538

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1778.02	1775.76	164.32	1 CSP	5.00	5.00	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C538 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1778.02	0	0	0	0	0	0	0	0	1
1780.25	30	30	0	0	0	0	0	0	1
1781.32	60	60	0	0	0	0	0	0	1
1782.29	90	90	0	0	0	0	0	0	1
1783.70	120	120	0	0	0	0	0	0	1
1784.46	150	150	0	0	0	0	0	0	1
1785.72	180	180	0	0	0	0	0	0	1
1787.31	210	210	0	0	0	0	0	0	1
1789.56	240	240	0	0	0	0	0	0	1
1792.10	270	270	0	0	0	0	0	0	1
1794.74	300	298	0	0	0	0	0	2	5
1794.00	291	291	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C538 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1778.02	0.00	0	0	0.00
1780.25	0.00	30	0	0.00
1781.32	0.00	60	0	0.00
1782.29	0.00	90	0	0.00
1783.70	0.00	120	0	0.00
1784.46	0.00	150	0	0.00
1785.72	0.00	180	0	0.00
1787.31	0.00	210	0	0.00
1789.56	0.00	240	0	0.00

1792.10	0.00	270	0	0.00
1794.74	0.00	300	-0	-0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 07-13-1993 FILE DATE: 06-16-1993
CURRENT TIME: 09:22:00 FILE NAME: C538

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5 BY 5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1778.02	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30	1780.25	2.23	2.23	1-S2n	1.43	1.52	6.44	1.43	2.58	0.29
60	1781.32	3.30	3.30	1-S2n	2.08	2.17	7.78	2.08	3.37	0.43
90	1782.29	4.27	4.27	1-S2n	2.62	2.68	8.62	2.62	3.95	0.54
120	1783.70	5.26	5.68	2-M2c	3.16	3.12	9.32	3.12	4.43	0.64
150	1784.46	6.37	6.44	2-M2c	3.74	3.51	10.19	3.51	4.84	0.73
180	1785.72	7.70	7.29	6-FFn	5.00	3.83	9.17	5.00	5.20	0.82
210	1787.31	9.28	9.29	6-FFn	5.00	4.10	10.70	5.00	5.52	0.90
240	1789.56	11.17	11.54	6-FFn	5.00	4.33	12.22	5.00	5.83	0.97
270	1792.10	13.37	14.08	6-FFn	5.00	4.55	13.75	5.00	6.11	1.04
298	1794.73	15.71	16.71	6-FFn	5.00	4.76	15.18	5.00	6.35	1.11

El. inlet face invert 1778.02 ft El. outlet invert 1775.76 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1778.02
      OUTLET STATION (FT)                     164.30
      OUTLET ELEVATION (FT)                  1775.76
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0138
      CULVERT LENGTH ALONG SLOPE (FT)         164.32

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         5.00 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
```

CURRENT DATE: 07-13-1993
CURRENT TIME: 09:22:00

FILE DATE: 06-16-1993
FILE NAME: C538

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C538
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	6
MANNING N LEFT OVER BANK	0.075
MANNING N MAIN CHANNEL	0.050
MANNING N RIGHT OVER BAN	0.075
SLOPE OF CHANNEL (FT/FT)	0.0400

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1783.76
2	1006.00	1781.76
3	1011.00	1779.76
4	1017.00	1777.76
5	1022.00	1775.76
6	1064.00	1775.76
7	1067.00	1777.76
8	1071.00	1779.76
9	1076.00	1781.76
10	1078.00	1783.76

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1775.76	0.000	0.00	0.00	0.00
30.00	1776.05	0.850	0.29	2.58	0.71
60.00	1776.19	0.909	0.43	3.37	1.07
90.00	1776.30	0.946	0.54	3.95	1.35
120.00	1776.40	0.973	0.64	4.43	1.61
150.00	1776.49	0.995	0.73	4.84	1.83
180.00	1776.58	1.013	0.82	5.20	2.04
210.00	1776.66	1.029	0.90	5.52	2.24
240.00	1776.73	1.042	0.97	5.83	2.42
270.00	1776.80	1.055	1.04	6.11	2.60
300.00	1776.87	1.065	1.11	6.35	2.76

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00

OVERTOPPING CREST ELEVATION (FT) 1794.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS        C538
    ENGINEER:  MG
    DATE:   9/14/1993
    TIME:  11: 1.34




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:      1787.00
    MAXIMUM WSEL:       1791.40
    STEP SIZE:             0.20
    BREADTH OF WEIR:      77.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS        C538
    DATE:   9/14/1993
    TIME:  11: 1.34
*********************************************
```

POINT	ELEVATION	STATION
1	1797.10	9803.20
2	1796.70	9811.70
3	1797.20	9815.50
4	1797.20	9815.60
5	1797.00	9835.50
6	1795.00	9846.00
7	1793.40	9881.50
8	1792.60	9898.50
9	1792.20	9921.60
10	1791.70	9929.10
11	1788.40	9937.30
12	1787.10	9956.80
13	1788.20	9963.70
14	1789.80	9974.00
15	1789.50	9994.00
16	1789.70	10000.00
17	1790.20	10016.80
18	1790.40	10028.10
19	1789.70	10030.60
20	1790.30	10040.30
21	1790.50	10055.40
22	1789.90	10070.40
23	1790.60	10072.50
24	1791.40	10088.00
25	1790.60	10102.80
26	1789.60	10128.70
27	1796.50	10138.70

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS        C538
    DATE:   9/14/1993
    TIME:  11: 1.34
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5087
3	0.40	2.5173
4	0.60	2.5260
5	0.80	2.5346
6	1.00	2.5433
7	1.20	2.5519
8	1.40	2.5606
9	1.60	2.5693
10	1.80	2.5779
11	2.00	2.5866
12	2.20	2.5952
13	2.40	2.6039
14	2.60	2.6126
15	2.80	2.6212
16	3.00	2.6299
17	3.20	2.6385
18	3.40	2.6472
19	3.60	2.6558
20	3.80	2.6645
21	4.00	2.6732
22	4.20	2.6818
23	4.40	2.6905

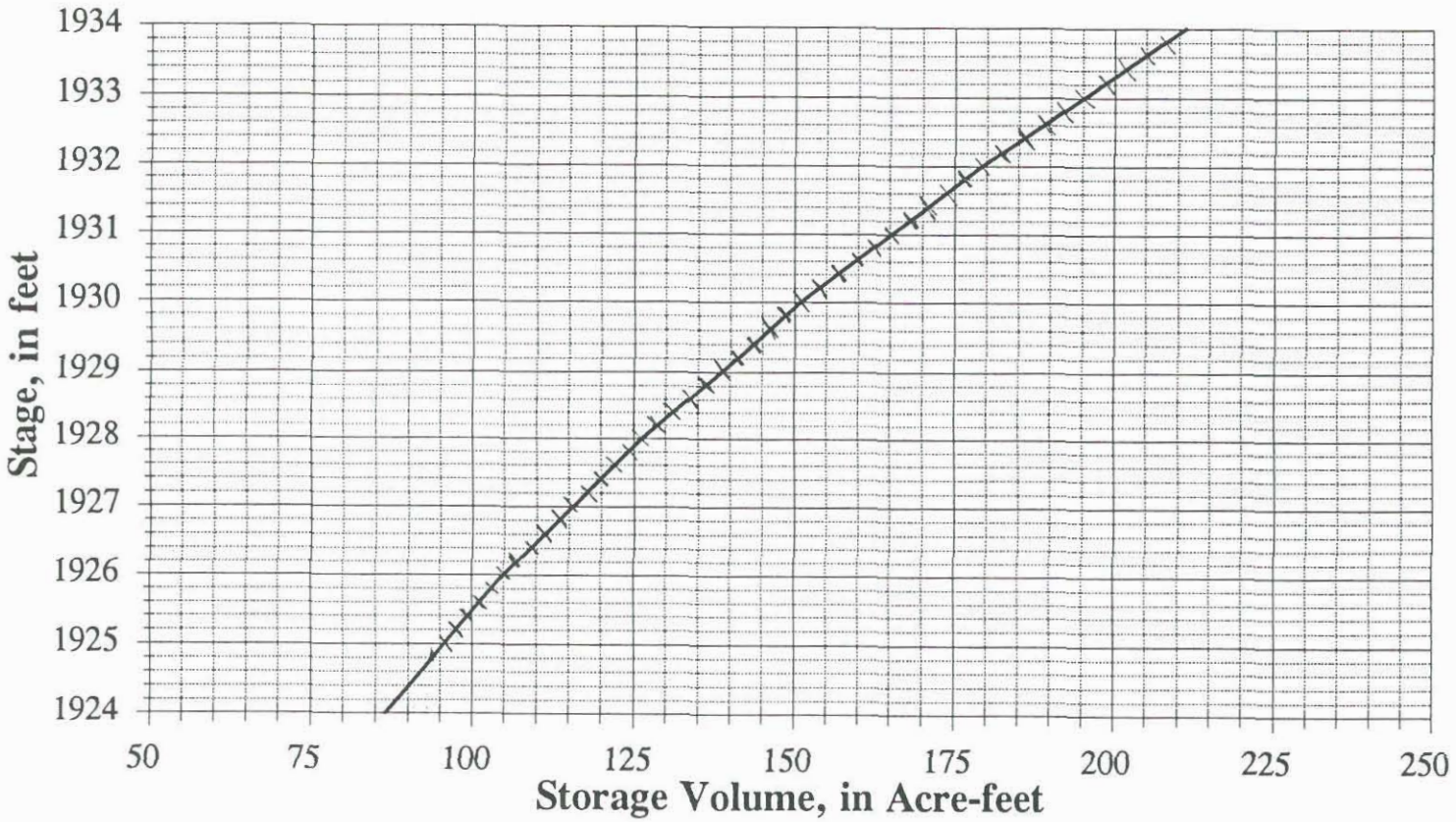
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS        C538
    DATE:   9/14/1993
    TIME:  11: 1.34
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1787.00	0.00
1787.20	0.07
1787.40	1.05
1787.60	3.77
1787.80	8.77
1788.00	16.46
1788.20	27.24
1788.40	41.45
1788.60	59.26
1788.80	80.34
1789.00	104.60
1789.20	132.04
1789.40	162.68
1789.60	196.87
1789.80	239.05
1790.00	294.14
1790.20	363.92
1790.40	451.16
1790.60	559.81
1790.80	687.94
1791.00	833.83
1791.20	997.05
1791.40	1177.45

Hydraulic Calculations for Structure at C584 (Dam 7)

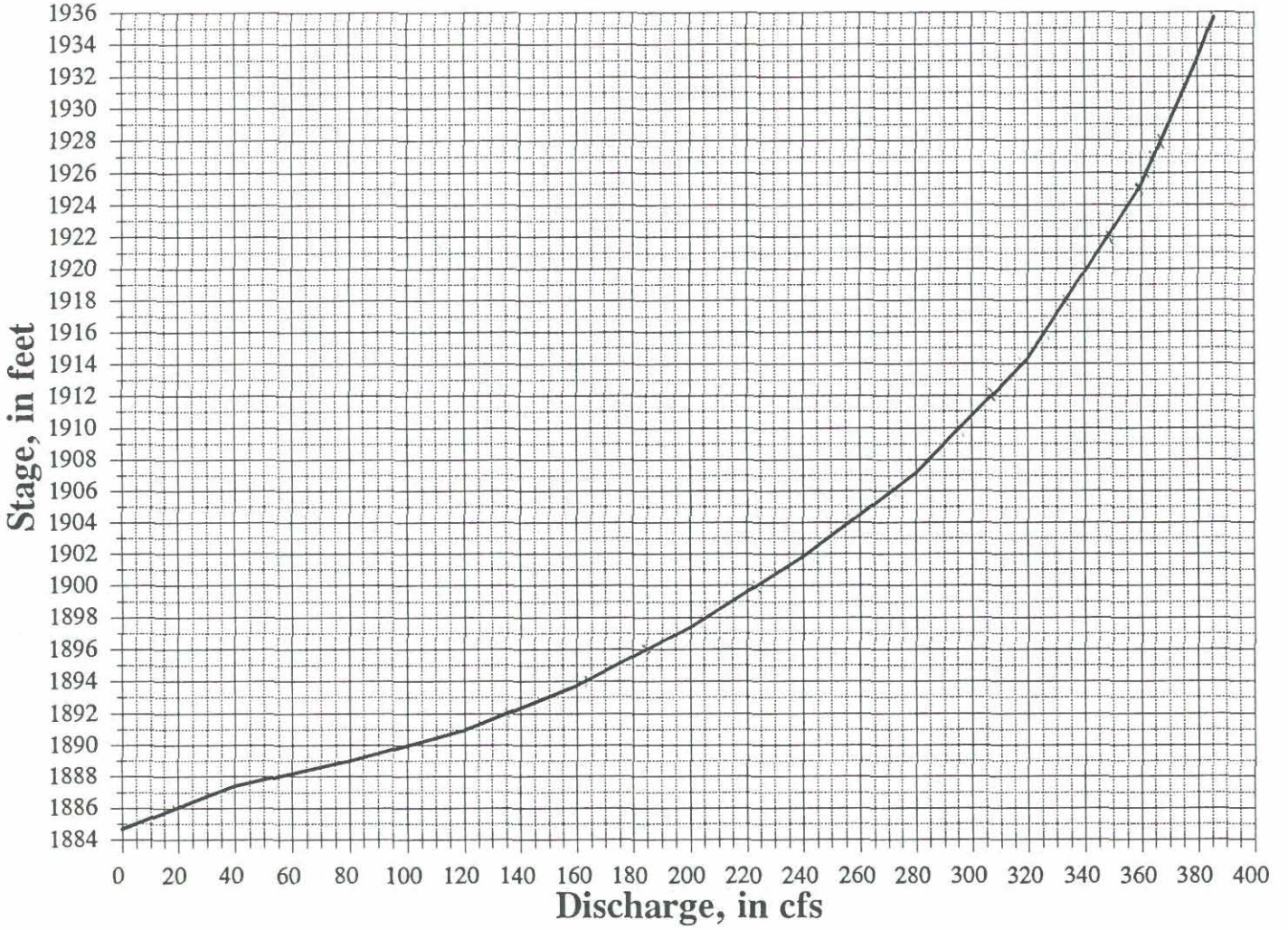
Dam 7 Storage Volume

Calculated from planimetered contours



Dam 7 Stage vs. Discharge

Principal Spillway from HY8

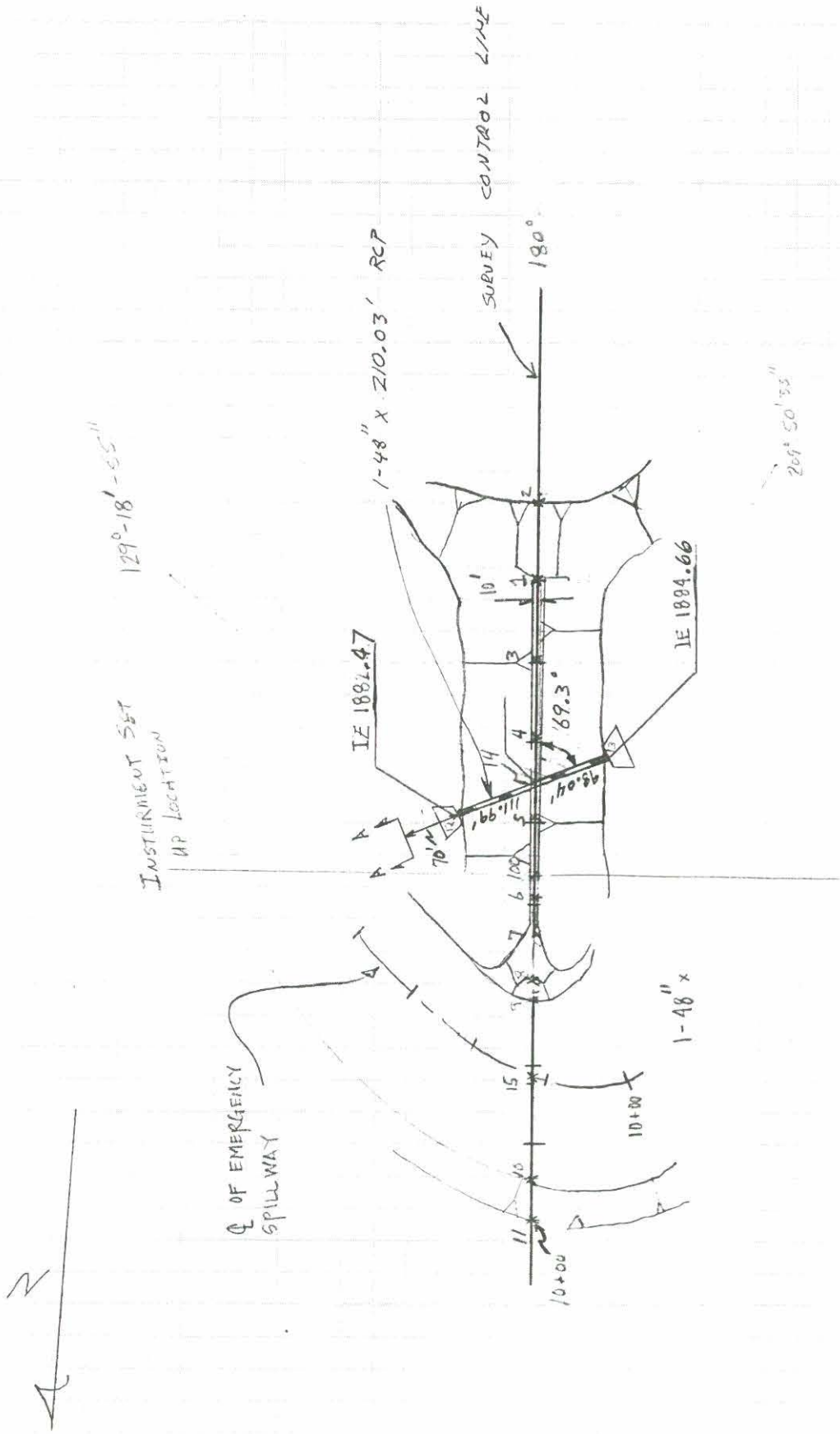


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

CLIENT FCD MG
PROJECT FOUNTAIN HILLS
SUBJECT DAM 7 FIELD SURVEY C584

SHEET ____ OF ____
DATE 4/13/93
BY MG
PROJECT NO. 35

DAM 7 PLAN VIEW SCALE 1" 200



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

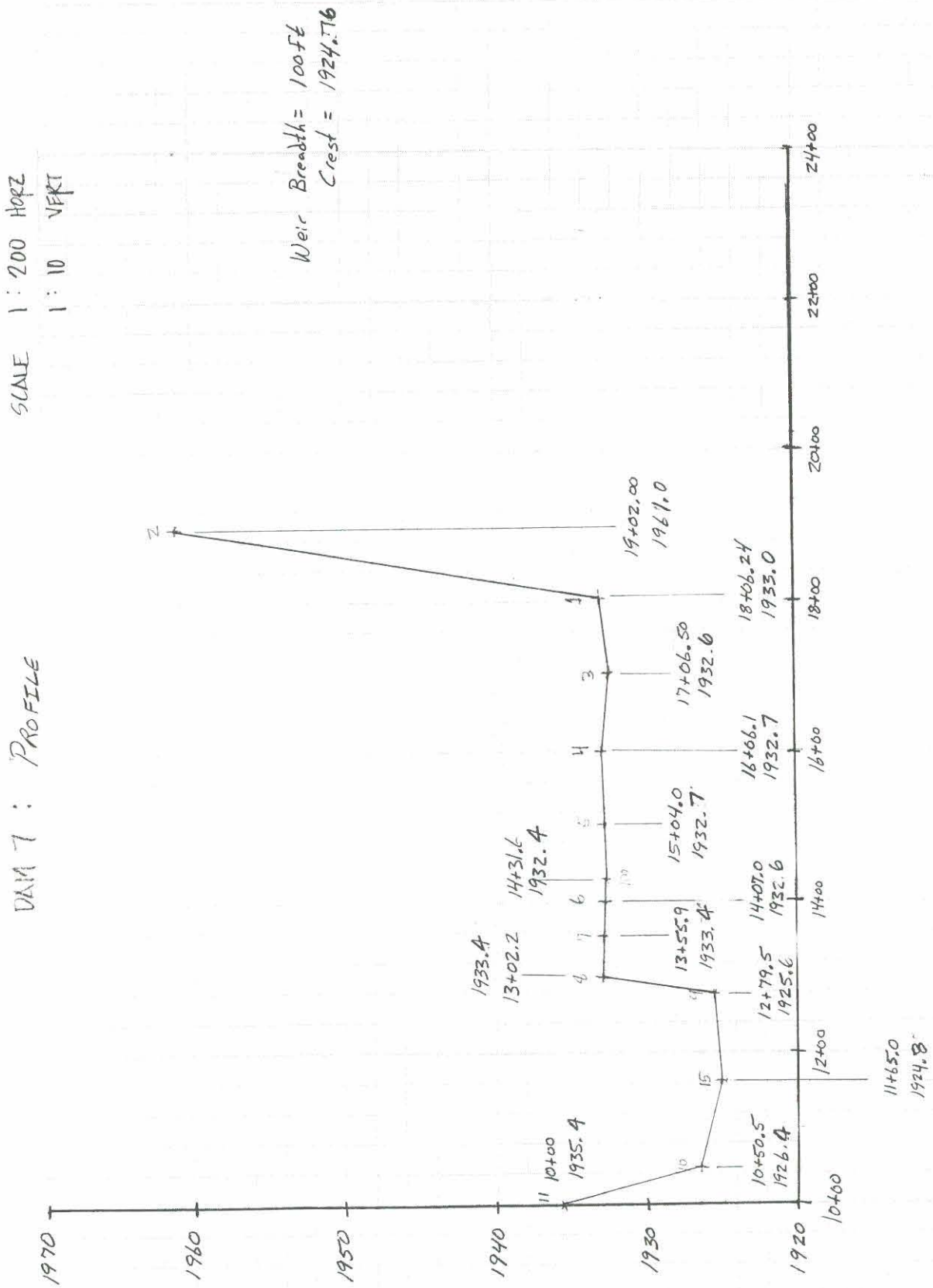
DATE 4/13/93

PROJECT FOUNTAIN HILLS

BY MG

SUBJECT DAM 7 FIELD SURVEY

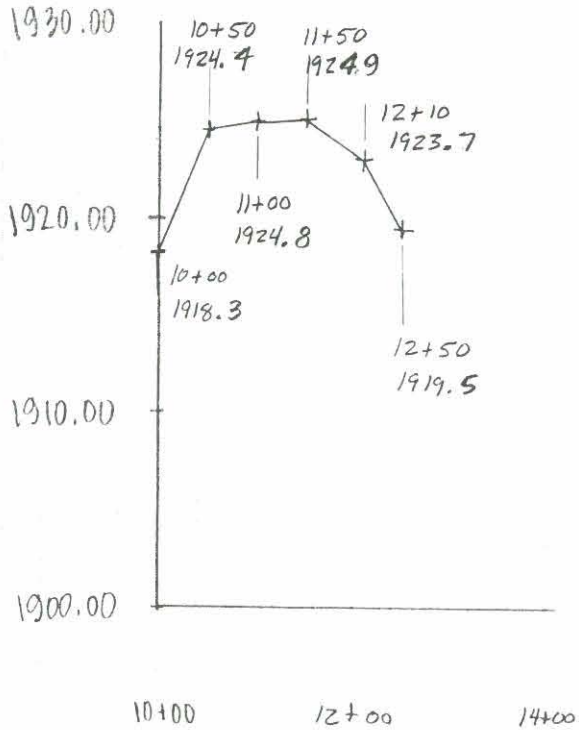
PROJECT NO. 35



DAM 7 : EMERGENCY SPILLWAY PROFILE

SCALE 1:200 HORZ
1:10 VERT

Weir Breadth = 11+50 − 10+50 = 100 ft



NOTE : STATIONING is from SURVEY NOTES
(Distances were chained)

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

CLIENT FCD MC
PROJECT FOUNTAIN HILLS
SUBJECT DAM 7 FIELD SURVEY

SHEET ___ OF ___
DATE 4/13/93
BY MG
PROJECT NO. 35

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

DATE 4/13/93

PROJECT FOUNTAIN HILLS

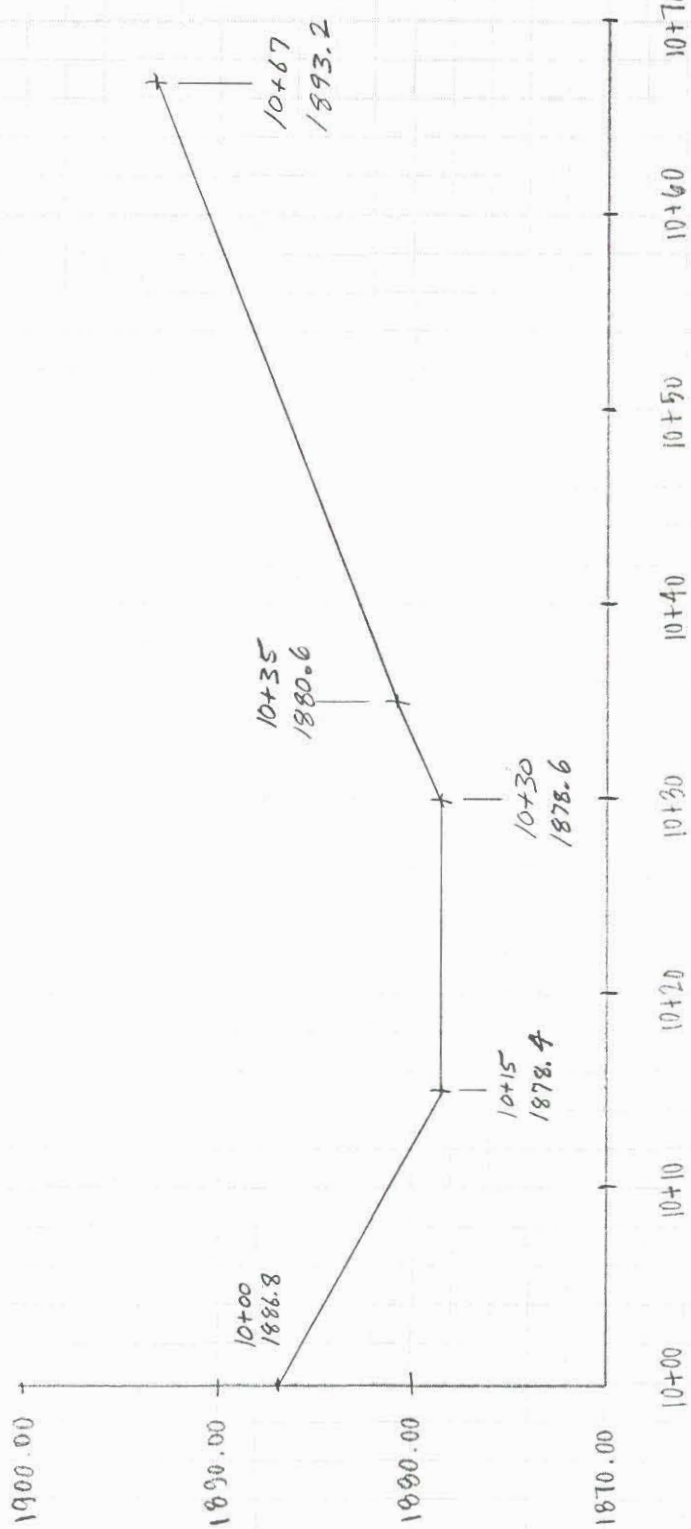
BY MG

SUBJECT DAM 7 FIELD SURVEY

PROJECT NO. 35

DAM 7 CHANNEL CROSS SECTION

SCALE 1" = 10'



NOTES: ELEV. and STATIONING FROM SURVEY NOTES.

DAM 7 PROFILE

File = DAM7.DAT

****

Start At Point Number					11	STA =	10+ 0.00	EL	1935.55
Inverse	11	SW	0- 0- 0.00	50.50000	10	STA =	10+50.50	EL	1926.54
Inverse	10	SW	0- 0- 0.00	114.50000	15	STA =	11+65.00	EL	1924.97
Inverse	15	SW	0- 0- 0.00	114.50000	9	STA =	12+79.50	EL	1925.80
Inverse	9	SW	0- 0- 0.00	22.70000	8	STA =	13+ 2.20	EL	1933.57
Inverse	8	SW	0- 0- 0.00	53.70000	7	STA =	13+55.90	EL	1933.54
Inverse	7	SW	0- 0- 0.00	51.10000	6	STA =	14+ 7.00	EL	1932.77
Inverse	6	SW	0- 0- 0.00	24.60000	100	STA =	14+31.60	EL	1932.56
Inverse	100	SW	0- 0- 0.00	72.40000	5	STA =	15+ 4.00	EL	1932.84
Inverse	5	SW	0- 0- 0.00	102.10000	4	STA =	16+ 6.10	EL	1932.84
Inverse	4	SW	0- 0- 0.00	100.40000	3	STA =	17+ 6.50	EL	1932.76
·se	3	SW	0- 0- 0.00	99.74000	1	STA =	18+ 6.24	EL	1933.20
Inverse	1	SW	0- 0- 0.00	95.76000	2	STA =	19+ 2.00	EL	1961.14

See Survey Notes for Spillway Profile Stationing.

Pt	Desc.	STA	EL
17	100' LT	10+00	1918.44
16	50' LT	10+50	1924.54
15	℄ Spillway	11+00	1924.94
19	50' RT	11+50	1925.04
18	110' RT	12+10	1923.84
20	150' RT	12+50	1919.64

DAm 7 48" RCP

****

Dam 7 Angle Right to RCP from dam CL.

RADIAL INVERSE FROM LINE - Base Pt. # 13 TO 2

Rad Inv	14 AR	69-20-28.00	98.04533	13	-159.91323	-91.74076
Rad Inv	14 SW	69-20-28.00	98.04533	13	-159.91323	-91.74076
Inverse	14 SW	69-20-28.00	98.04533	13	-159.91323	-91.74076
Inverse	13 NE	69-20-28.00	98.04533	14	-125.32249	-0.00000
Inverse	14 NE	69-20-28.01	111.98710	12	-85.81305	104.78604
Inverse	12 SW	69-20-28.00	210.03243	13	-159.91323	-91.74076

CURRENT DATE: 07-29-1994
CURRENT TIME: 16:29:17

FILE DATE: 7-29-94
FILE NAME: C584

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1884.66	1882.47	210.04	1 RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C584 DATE: 7-29-94

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1884.66	0	0	0	0	0	0	0	0	1
1887.40	40	40	0	0	0	0	0	0	1
1888.96	80	80	0	0	0	0	0	0	1
1890.92	120	120	0	0	0	0	0	0	1
1893.73	160	160	0	0	0	0	0	0	1
1897.39	200	200	0	0	0	0	0	0	1
1901.80	240	240	0	0	0	0	0	0	1
1907.16	280	280	0	0	0	0	0	0	1
1914.32	320	320	0	0	0	0	0	0	1
1925.15	360	360	0	0	0	0	0	0	1
1935.71	400	386	0	0	0	0	0	14	13
1933.00	380	380	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C584 DATE: 7-29-94

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1884.66	0.00	0	0	0.00
1887.40	0.00	40	0	0.00
1888.96	0.00	80	0	0.00
1890.92	0.00	120	0	0.00
1893.73	0.00	160	0	0.00
1897.39	0.00	200	0	0.00
1901.80	0.00	240	0	0.00
1907.16	0.00	280	0	0.00
1914.32	0.00	320	0	0.00
1925.15	0.00	360	0	0.00
1935.71	-0.00	400	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 07-29-1994
CURRENT TIME: 16:29:17

FILE DATE: 7-29-94
FILE NAME: C584

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (4 BY 4) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1884.66	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
40	1887.40	2.74	2.74	1-S2n	1.36	1.88	10.61	1.36	4.68	0.65
80	1888.96	4.30	4.30	5-S2n	2.01	2.70	12.30	2.05	6.01	0.93
120	1890.92	6.26	6.26	5-S2n	2.60	3.28	13.52	2.66	6.96	1.15
160	1893.73	9.07	9.07	5-S2n	3.32	3.70	14.24	3.36	7.71	1.34
200	1897.39	12.73	11.16	6-FFn	4.00	4.00	15.92	4.00	8.31	1.50
240	1901.80	17.14	15.27	6-FFn	4.00	4.00	19.10	4.00	8.85	1.66
280	1907.16	22.50	20.14	6-FFn	4.00	4.00	22.28	4.00	9.32	1.80
320	1914.32	29.66	25.75	6-FFn	4.00	4.00	25.46	4.00	9.76	1.94
360	1925.15	40.49	32.10	6-FFn	4.00	4.00	28.65	4.00	10.14	2.06
386	1935.70	51.04	36.67	6-FFn	4.00	4.00	30.73	4.00	10.49	2.18

El. inlet face invert 1884.66 ft El. outlet invert 1882.47 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1884.66
      OUTLET STATION (FT)                     210.03
      OUTLET ELEVATION (FT)                  1882.47
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0104
      CULVERT LENGTH ALONG SLOPE (FT)         210.04

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         4.00 FT
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S N    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

3

CURRENT DATE: 07-29-1994 FILE DATE: 7-29-94
CURRENT TIME: 16:29:17 FILE NAME: C584

TAILWATER

```
***** USER DEFINED CHANNEL CROSS-SECTION          FILE NAME: C584
      MAIN CHANNEL AND LT & RT OVER BANKS         FILE DATE: 04-27-1993
      LEFT CHANNEL BOUNDARY            2
      RIGHT CHANNEL BOUNDARY           4
      MANNING N LEFT OVER BANK         0.065
      MANNING N MAIN CHANNEL           0.050
      MANNING N RIGHT OVER BAN         0.065
      SLOPE OF CHANNEL (FT/FT)         0.0580

      CROSS-SECTION    X          Y
        COORD. NO.    (FT)       (FT)
            1       1000.00    1890.87
            2       1015.00    1882.47
```

3	1030.00	1882.67
4	1035.00	1884.67
5	1067.00	1897.27

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1882.47	0.000	0.00	0.00	0.00
40.00	1883.12	1.131	0.65	4.68	1.91
80.00	1883.40	1.203	0.93	6.01	2.79
120.00	1883.62	1.246	1.15	6.96	3.47
160.00	1883.81	1.277	1.34	7.71	4.04
200.00	1883.97	1.301	1.50	8.31	4.53
240.00	1884.13	1.320	1.66	8.85	4.97
280.00	1884.27	1.337	1.80	9.32	5.38
320.00	1884.41	1.351	1.94	9.76	5.76
360.00	1884.53	1.364	2.06	10.14	6.10
400.00	1884.65	1.375	2.18	10.49	6.42

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1933.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS              C584 (Dam 7)
    ENGINEER:  MG
    DATE:   8/24/1993
    TIME:  10: 5.59




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1924.60
    MAXIMUM WSEL:        1930.00
    STEP SIZE:              0.20
    BREADTH OF WEIR:      100.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS              C584 (Dam 7)
    DATE:   8/24/1993
    TIME:  10: 5.59
*********************************************
```

POINT	ELEVATION	STATION
1	1935.37	1000.00
2	1926.36	1050.50
3	1924.76	1165.00
4	1925.62	1279.50

5 1933.39 1302.20

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C584 (Dam 7)
    DATE:   8/24/1993
    TIME:  10: 5.59
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5067
3	0.40	2.5133
4	0.60	2.5200
5	0.80	2.5267
6	1.00	2.5333
7	1.20	2.5400
8	1.40	2.5467
9	1.60	2.5533
10	1.80	2.5600
11	2.00	2.5667
12	2.20	2.5733
13	2.40	2.5800
14	2.60	2.5867
15	2.80	2.5933
16	3.00	2.6000
17	3.20	2.6067
18	3.40	2.6133
19	3.60	2.6200
20	3.80	2.6267
21	4.00	2.6333
22	4.20	2.6400
23	4.40	2.6467
24	4.60	2.6533
25	4.80	2.6600
26	5.00	2.6667
27	5.20	2.6733
28	5.40	2.6800

^L

****

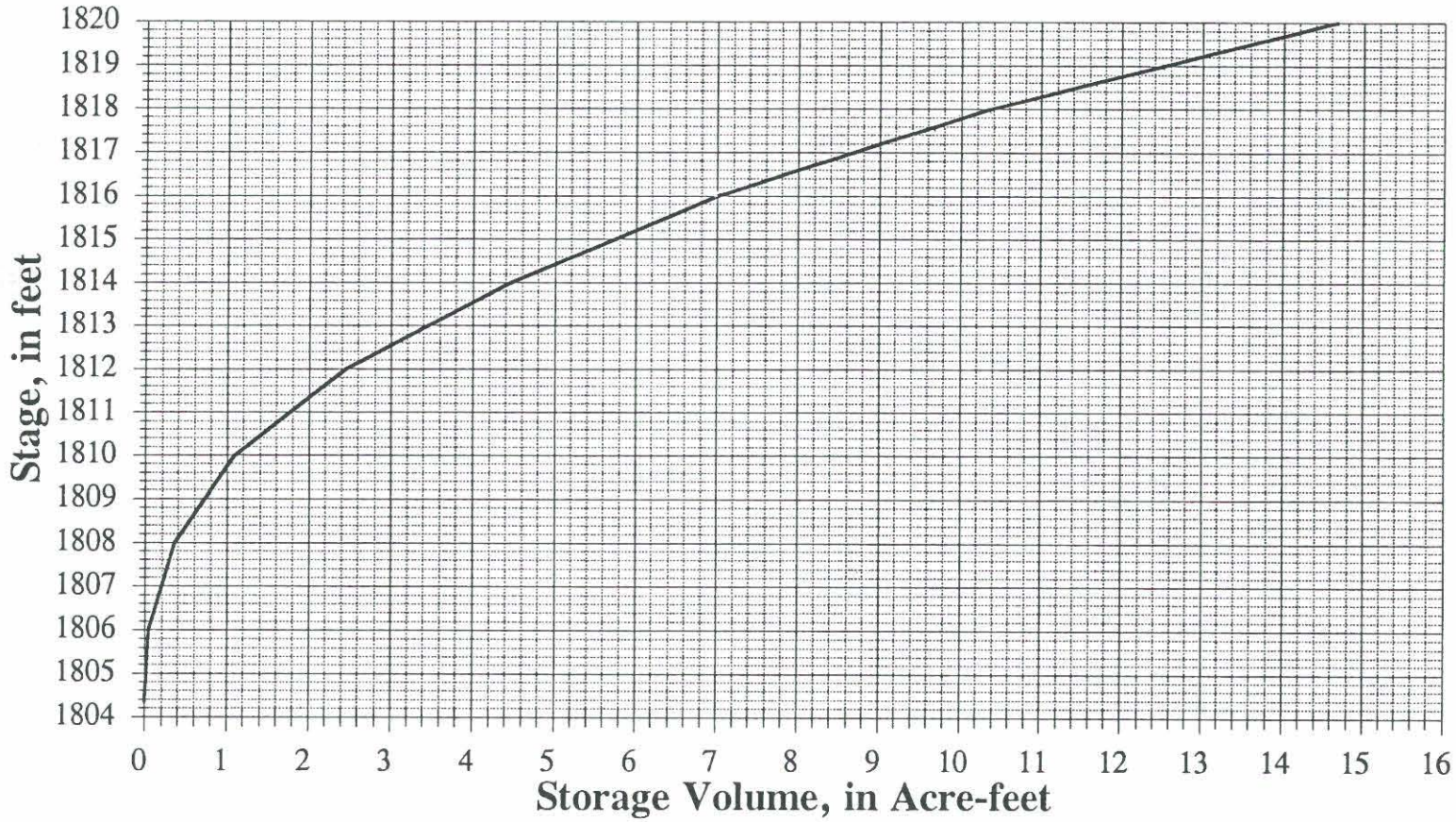
UNEVEN WEIR FLOW PROGRAM
FORTRAN VERSION 1.0
PROJECT: Fountain Hills North FIS C584 (Dam 7)
DATE: 8/24/1993
TIME: 10: 5.59
****

ELEVATION	DISCHARGE (CFS)
1924.60	0.00
1924.80	0.07
1925.00	5.78
1925.20	26.34
1925.40	67.30
1925.60	133.01
1925.80	225.56
1926.00	342.01
1926.20	481.40
1926.40	643.69
1926.60	827.58
1926.80	1030.30
1927.00	1250.49
1927.20	1487.26
1927.40	1739.95
1927.60	2008.03
1927.80	2291.11
1928.00	2588.83
1928.20	2900.92
1928.40	3227.15
1928.60	3567.31
1928.80	3921.25
1929.00	4288.83
1929.20	4669.91
1929.40	5064.41
1929.60	5472.23
1929.80	5893.31
1930.00	6327.58

Hydraulic Calculations for Structure at C586

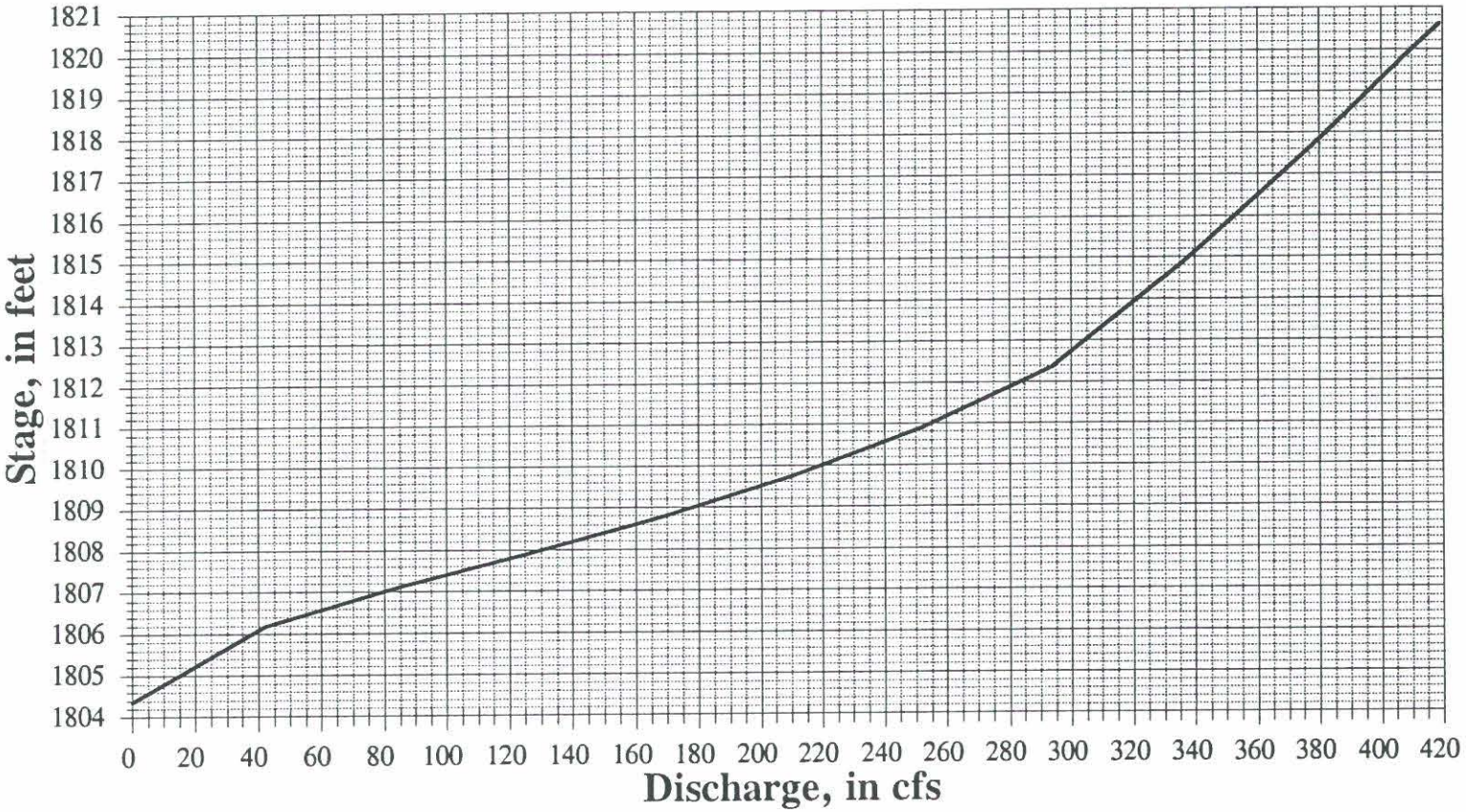
C586 Storage Volume

Calculated From Planimetered Contours



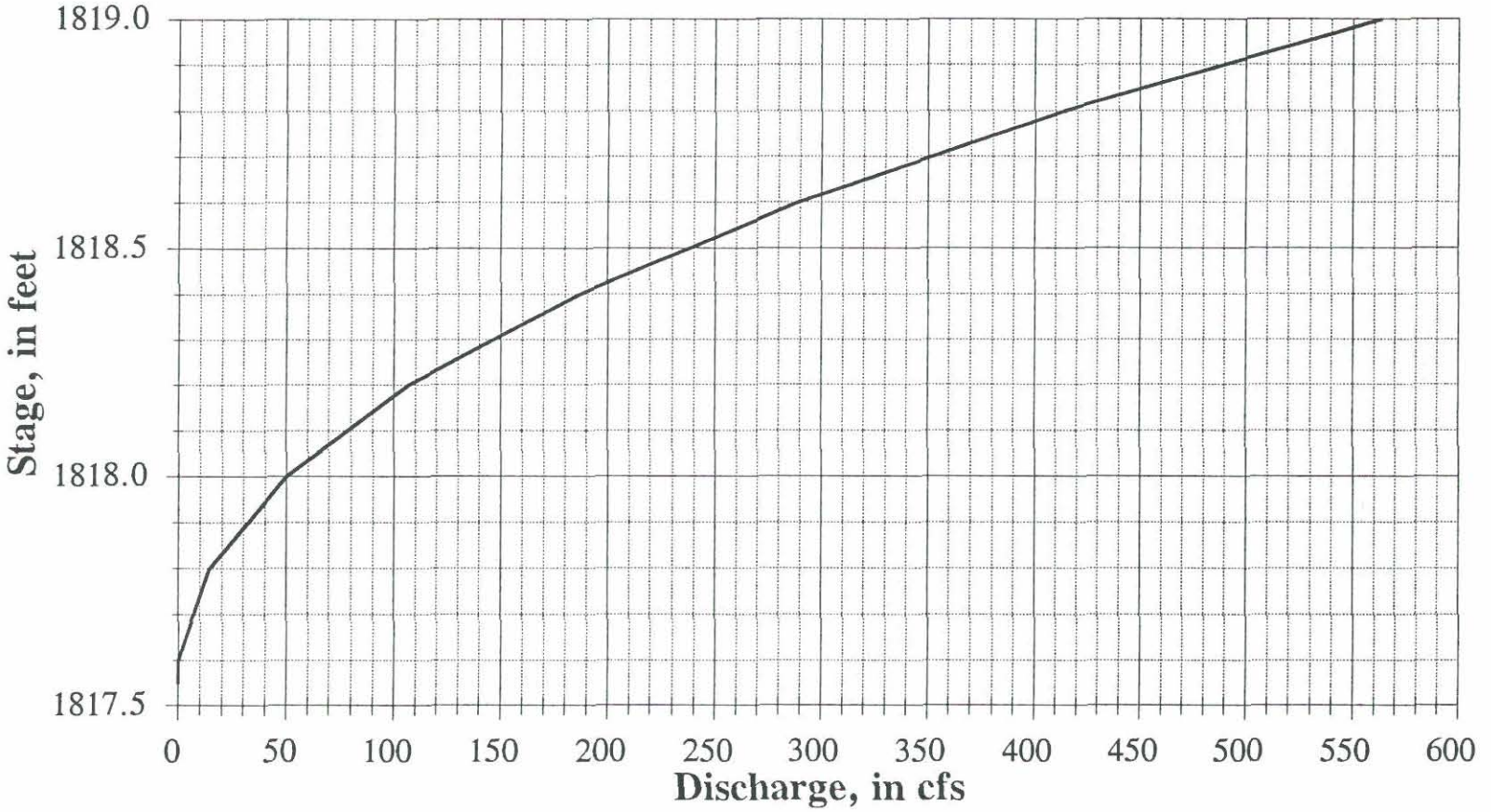
C586 Stage vs. Discharge

Culvert Flow from HY8



C586 Stage vs Discharge

Weir Flow from Uneven Weir



CURRENT DATE: 07-13-1993
CURRENT TIME: 09:22:00

FILE DATE: 06-16-1993
FILE NAME: C538

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1778.02	1775.76	164.32	1 CSP	5.00	5.00	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C538 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1778.02	0	0	0	0	0	0	0	0	1
1780.25	30	30	0	0	0	0	0	0	1
1781.32	60	60	0	0	0	0	0	0	1
1782.29	90	90	0	0	0	0	0	0	1
1783.70	120	120	0	0	0	0	0	0	1
1784.46	150	150	0	0	0	0	0	0	1
1785.72	180	180	0	0	0	0	0	0	1
1787.31	210	210	0	0	0	0	0	0	1
1789.56	240	240	0	0	0	0	0	0	1
1792.10	270	270	0	0	0	0	0	0	1
1794.74	300	298	0	0	0	0	0	2	5
1794.00	291	291	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C538 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1778.02	0.00	0	0	0.00
1780.25	0.00	30	0	0.00
1781.32	0.00	60	0	0.00
1782.29	0.00	90	0	0.00
1783.70	0.00	120	0	0.00
1784.46	0.00	150	0	0.00
1785.72	0.00	180	0	0.00
1787.31	0.00	210	0	0.00
1789.56	0.00	240	0	0.00

1792.10	0.00	270	0	0.00
1794.74	0.00	300	-0	-0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 07-13-1993 FILE DATE: 06-16-1993
CURRENT TIME: 09:22:00 FILE NAME: C538

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5 BY 5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1778.02	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30	1780.25	2.23	2.23	1-S2n	1.43	1.52	6.44	1.43	2.58	0.29
60	1781.32	3.30	3.30	1-S2n	2.08	2.17	7.78	2.08	3.37	0.43
90	1782.29	4.27	4.27	1-S2n	2.62	2.68	8.62	2.62	3.95	0.54
120	1783.70	5.26	5.68	2-M2c	3.16	3.12	9.32	3.12	4.43	0.64
150	1784.46	6.37	6.44	2-M2c	3.74	3.51	10.19	3.51	4.84	0.73
180	1785.72	7.70	7.29	6-FFn	5.00	3.83	9.17	5.00	5.20	0.82
210	1787.31	9.28	9.29	6-FFn	5.00	4.10	10.70	5.00	5.52	0.90
240	1789.56	11.17	11.54	6-FFn	5.00	4.33	12.22	5.00	5.83	0.97
270	1792.10	13.37	14.08	6-FFn	5.00	4.55	13.75	5.00	6.11	1.04
298	1794.73	15.71	16.71	6-FFn	5.00	4.76	15.18	5.00	6.35	1.11

El. inlet face invert 1778.02 ft El. outlet invert 1775.76 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1778.02
      OUTLET STATION (FT)                     164.30
      OUTLET ELEVATION (FT)                  1775.76
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0138
      CULVERT LENGTH ALONG SLOPE (FT)         164.32

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         5.00 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
```

CURRENT DATE: 07-13-1993
CURRENT TIME: 09:22:00

FILE DATE: 06-16-1993
FILE NAME: C538

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C538
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	5
RIGHT CHANNEL BOUNDARY	6
MANNING N LEFT OVER BANK	0.075
MANNING N MAIN CHANNEL	0.050
MANNING N RIGHT OVER BAN	0.075
SLOPE OF CHANNEL (FT/FT)	0.0400

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1783.76
2	1006.00	1781.76
3	1011.00	1779.76
4	1017.00	1777.76
5	1022.00	1775.76
6	1064.00	1775.76
7	1067.00	1777.76
8	1071.00	1779.76
9	1076.00	1781.76
10	1078.00	1783.76

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1775.76	0.000	0.00	0.00	0.00
30.00	1776.05	0.850	0.29	2.58	0.71
60.00	1776.19	0.909	0.43	3.37	1.07
90.00	1776.30	0.946	0.54	3.95	1.35
120.00	1776.40	0.973	0.64	4.43	1.61
150.00	1776.49	0.995	0.73	4.84	1.83
180.00	1776.58	1.013	0.82	5.20	2.04
210.00	1776.66	1.029	0.90	5.52	2.24
240.00	1776.73	1.042	0.97	5.83	2.42
270.00	1776.80	1.055	1.04	6.11	2.60
300.00	1776.87	1.065	1.11	6.35	2.76

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00

OVERTOPPING CREST ELEVATION (FT) 1794.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS                C586
    ENGINEER:  dtp
    DATE:  10/29/1993
    TIME:   3:49.56




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:      1817.40
    MAXIMUM WSEL:       1819.20
    STEP SIZE:             0.20
    BREADTH OF WEIR:      42.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C586
    DATE:  10/29/1993
    TIME:   3:49.56
*********************************************
```

POINT	ELEVATION	STATION
1	1820.00	1000.00
2	1818.38	1065.00
3	1817.67	1115.00
4	1817.55	1140.00
5	1817.62	1165.00
6	1817.76	1190.00
7	1818.09	1215.00
8	1818.60	1240.00
9	1819.26	1265.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C586
    DATE:  10/29/1993
    TIME:   3:49.56
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5159
3	0.40	2.5317
4	0.60	2.5476
5	0.80	2.5635
6	1.00	2.5794
7	1.20	2.5952
8	1.40	2.6111
9	1.60	2.6270

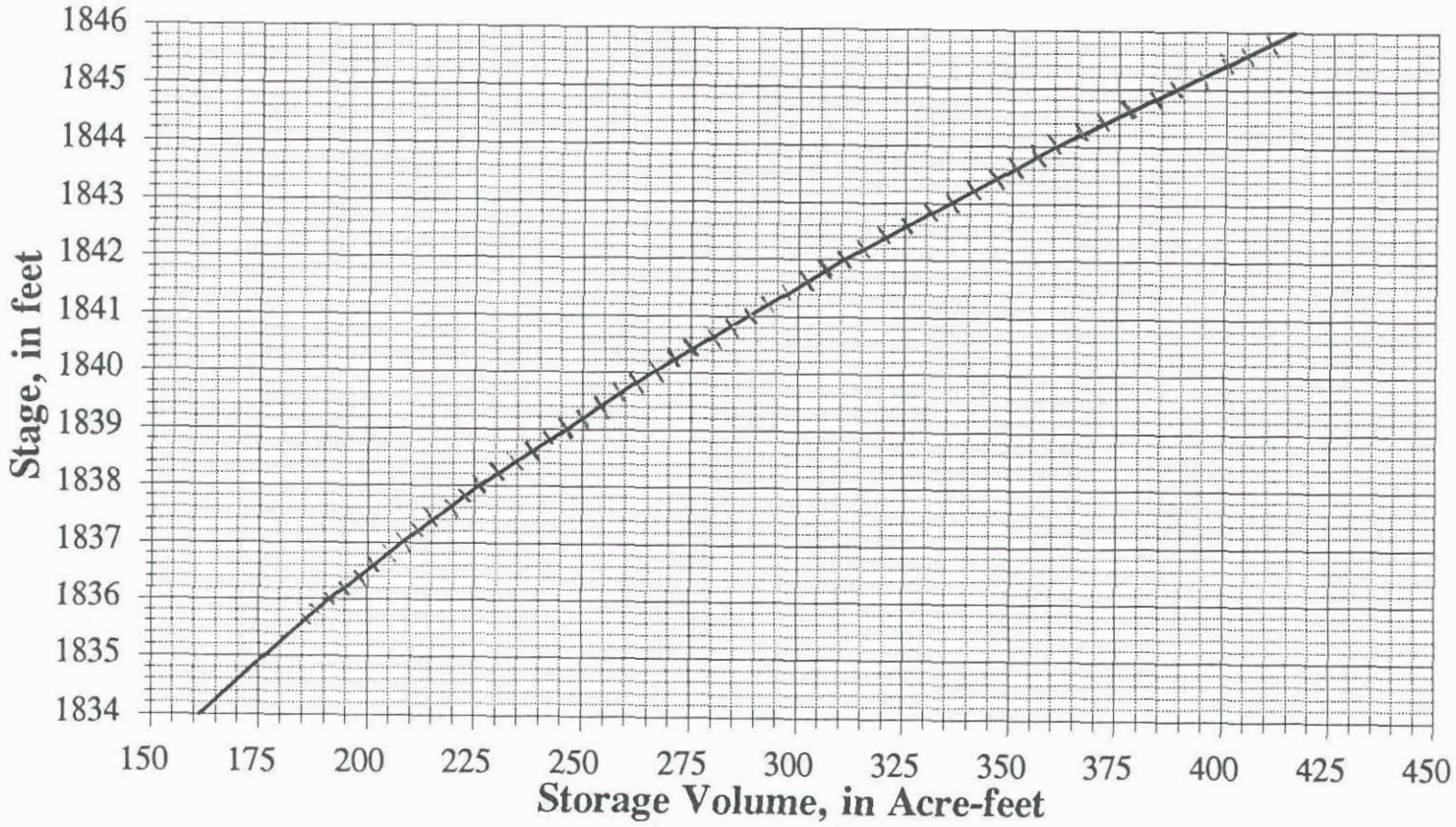
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C586
    DATE:  10/29/1993
    TIME:   3:49.56
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1817.40	0.00
1817.60	0.32
1817.80	14.41
1818.00	49.90
1818.20	106.98
1818.40	186.54
1818.60	289.16
1818.80	414.68
1819.00	563.21

Hydraulic Calculations for Structure at C560 (Dam 6)

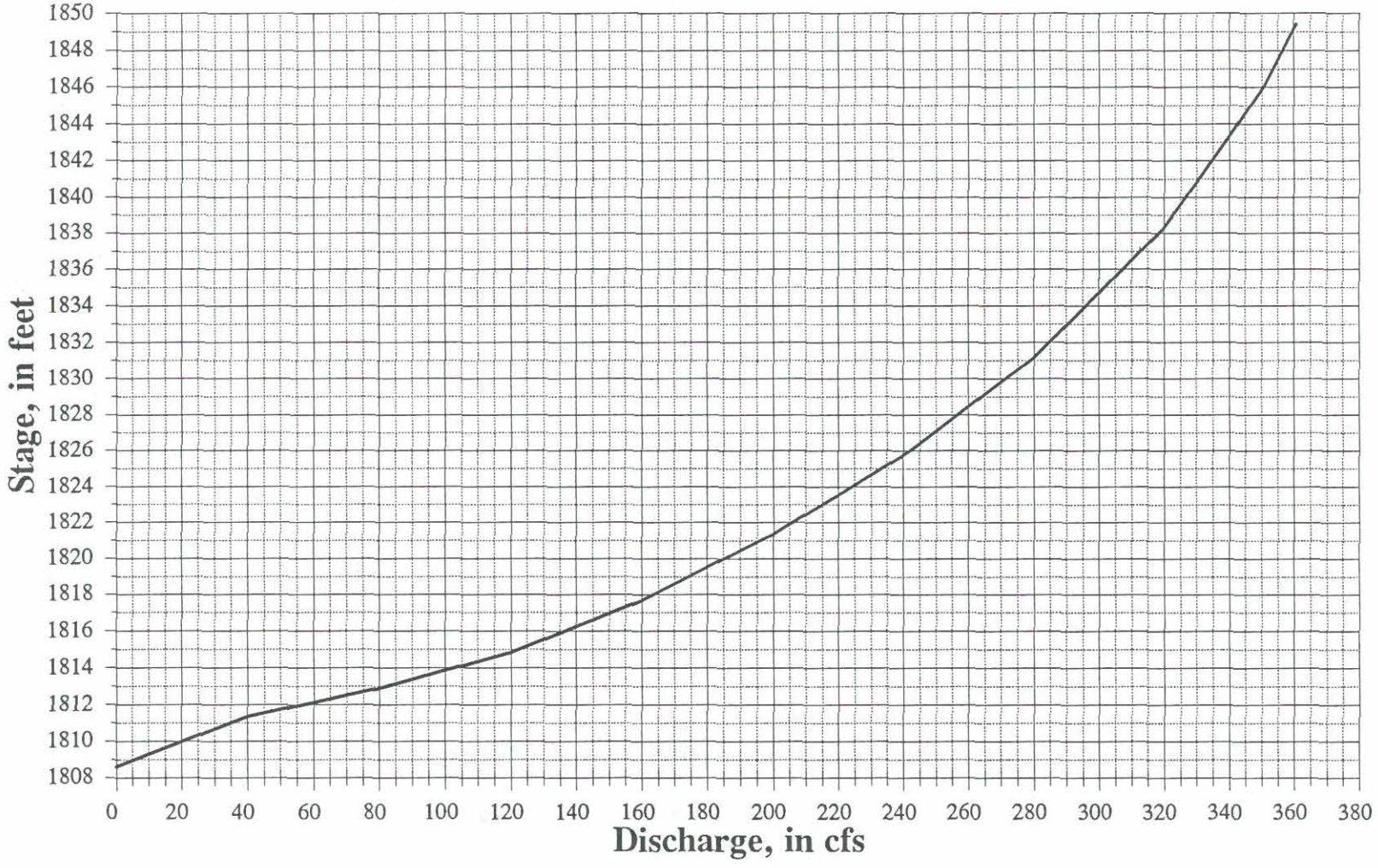
Dam 6 Storage Volume

Calculated from planimetered contours



Dam 6 Stage vs. Discharge

Principal Spillway from HY8



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 2

CLIENT FCD M.C.

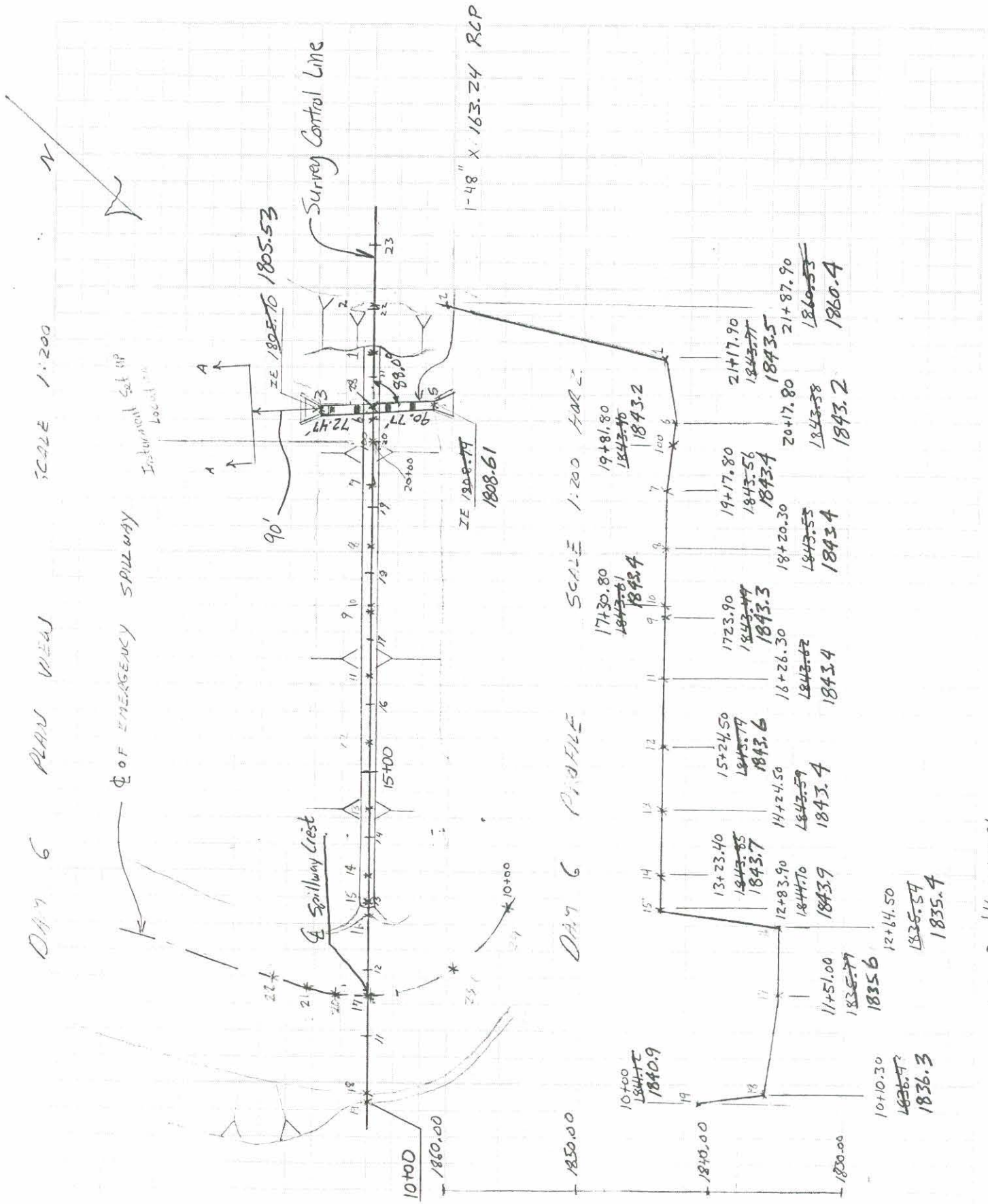
DATE 4-7-93

PROJECT FOUNTAIN HILLS F.I.S.

BY R.C.

SUBJECT DAM #6 FIELD SURVEY C560

PROJECT NO. 35



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 2

CLIENT F.C.D.M.C.

DATE 4-7-93

PROJECT FOUNTAIN HILLS F.I.S.

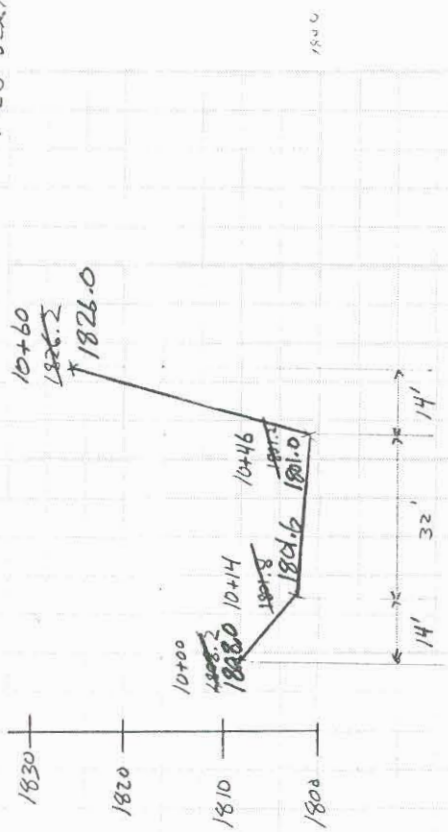
BY R.C.

SUBJECT DAM #6 FIELD SURVEY

PROJECT NO. 35

DAM 6

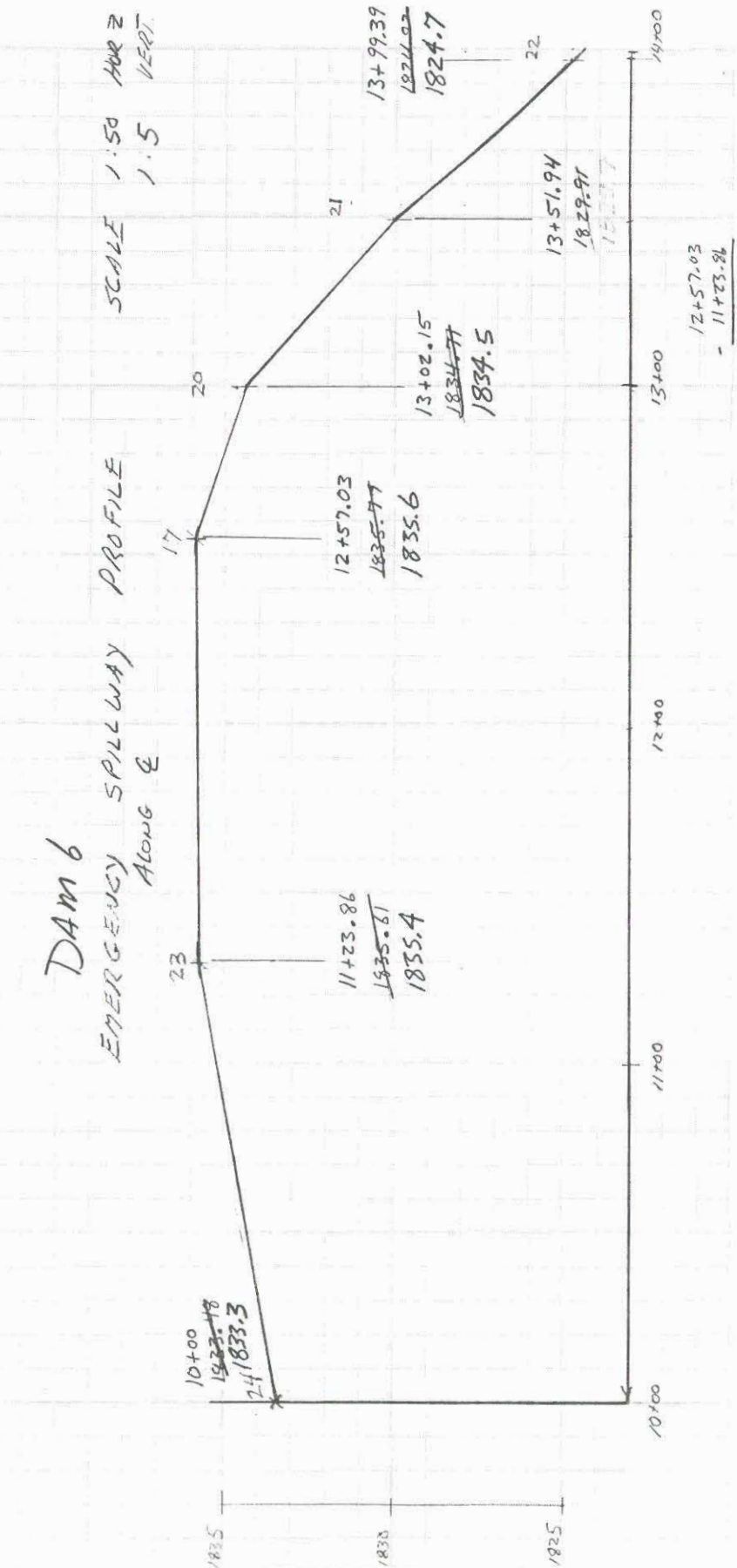
DISCHARGE CHANNEL CROSS SECTION A/A SCALE 1:40 HORZ 1:20 VERT.



DAM 6

EMERGENCY SPILLWAY ALONG ℄

SCALE 1:50 HORZ 1:5 VERT.



12+57.03
- 11+23.86

Weir Breadth: 133 feet

Weir Crest = 1835.36

DAM 6 Profile

****

Start At Point Number ..... 19 STA = 10+ 0.00

Inverse	19	SW	0- 0- 0.00	10.30000	18	STA =	10+10.30
Inverse	18	SW	0- 0- 0.00	140.70000	17	STA =	11+51.00
Inverse	17	SW	0- 0- 0.00	113.50000	16	STA =	12+64.50
Inverse	16	SW	0- 0- 0.00	19.40000	15	STA =	12+83.90
Inverse	15	SW	0- 0- 0.00	39.50000	14	STA =	13+23.40
Inverse	14	SW	0- 0- 0.00	101.10000	13	STA =	14+24.50
Inverse	13	SW	0- 0- 0.00	100.00000	12	STA =	15+24.50
Inverse	12	SW	0- 0- 0.00	101.80000	11	STA =	16+26.30
Inverse	11	SW	0- 0- 0.00	97.60000	9	STA =	17+23.90
Inverse	9	SW	0- 0- 0.00	6.90000	10	STA =	17+30.80
rse	10	SW	0- 0- 0.00	89.50000	8	STA =	18+20.30
Inverse	8	SW	0- 0- 0.00	97.50000	7	STA =	19+17.80
Inverse	7	SW	0- 0- 0.00	64.00000	100	STA =	19+81.80
Inverse	100	SW	0- 0- 0.00	36.00000	6	STA =	20+17.80
Inverse	6	SW	0- 0- 0.00	100.10000	1	STA =	21+17.90
Inverse	1	SW	0- 0- 0.00	70.00000	2	STA =	21+87.90

Start At Point Number ..... 24 STA = 10+ 0.00

Inverse	24	NE	40-17-52.46	123.85914	23	STA =	11+23.86
Inverse	23	NE	73-59-20.46	133.16857	17	STA =	12+57.03
Inverse	17	SE	83-37- 1.43	45.12703	20	STA =	13+ 2.15
Inverse	20	SE	77-33-35.57	49.78223	21	STA =	13+51.94
Inverse	21	SE	77-41-42.23	47.45159	22	STA =	13+99.39

EMERGENCY Spillway

****

48" RCP

Dam 6 Angle Right to RCP from dam CL.

Inverse	0 NE	63-44-51.78	22300.14626	1	9863.90000	20000.00000
Inverse	1 NE	0- 0- 0.00	87.85226	28	9951.75226	20000.00000

RADIAL INVERSE FROM LINE - Base Pt. # 28 TO 1

==========

Rad Inv	28 AR	87-57-47.84	90.77088	5	9948.52628	19909.28646
Rad Inv	28 SW	87-57-47.84	90.77088	5	9948.52628	19909.28646
Inverse	28 SW	87-57-47.84	90.77088	5	9948.52628	19909.28646
Inverse	5 NE	87-57-47.84	90.77088	28	9951.75226	20000.00000
Inverse	28 NE	87-57-47.84	72.46696	3	9954.32772	20072.42118
Inverse	3 SW	87-57-47.84	163.23784	5	9948.52628	19909.28646

CURRENT DATE: 08-01-1994
CURRENT TIME: 08:29:28

FILE DATE: 8-1-94
FILE NAME: C560

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1808.61	1805.53	163.27	1 RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C560 DATE: 8-1-94

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1808.61	0	0	0	0	0	0	0	0	1
1811.33	40	40	0	0	0	0	0	0	1
1812.89	80	80	0	0	0	0	0	0	1
1814.85	120	120	0	0	0	0	0	0	1
1817.67	160	160	0	0	0	0	0	0	1
1821.32	200	200	0	0	0	0	0	0	1
1825.73	240	240	0	0	0	0	0	0	1
1831.10	280	280	0	0	0	0	0	0	1
1838.25	320	320	0	0	0	0	0	0	1
1846.09	360	351	0	0	0	0	0	9	10
1849.41	400	361	0	0	0	0	0	39	5
1844.00	343	343	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C560 DATE: 8-1-94

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1808.61	0.00	0	0	0.00
1811.33	0.00	40	0	0.00
1812.89	0.00	80	0	0.00
1814.85	0.00	120	0	0.00
1817.67	0.00	160	0	0.00
1821.32	0.00	200	0	0.00
1825.73	0.00	240	0	0.00
1831.10	0.00	280	0	0.00
1838.25	0.00	320	0	0.00
1846.09	-0.00	360	0	0.00
1849.41	-0.01	400	0	0.03

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 08-01-1994
CURRENT TIME: 08:29:28

FILE DATE: 8-1-94
FILE NAME: C560

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (4 BY 4) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1808.61	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
40	1811.33	2.72	2.72	1-S2n	1.17	1.88	12.53	1.21	3.66	0.65
80	1812.89	4.28	4.28	5-S2n	1.69	2.70	14.65	1.79	4.80	0.82
120	1814.85	6.24	6.24	5-S2n	2.14	3.28	16.01	2.30	5.64	0.97
160	1817.67	9.06	9.06	5-S2n	2.58	3.70	17.19	2.78	6.31	1.09
200	1821.32	12.71	12.71	5-S2n	3.08	4.00	18.26	3.26	6.90	1.20
240	1825.73	17.12	13.28	6-FFn	4.00	4.00	19.10	4.00	7.42	1.31
280	1831.10	22.49	17.74	6-FFn	4.00	4.00	22.28	4.00	7.89	1.40
320	1838.25	29.64	22.89	6-FFn	4.00	4.00	25.46	4.00	8.30	1.49
351	1846.08	37.47	27.30	6-FFn	4.00	4.00	27.91	4.00	8.69	1.58
361	1849.41	40.80	28.87	6-FFn	4.00	4.00	28.72	4.00	9.06	1.66

El. inlet face invert 1808.61 ft El. outlet invert 1805.53 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1808.61
      OUTLET STATION (FT)                     163.24
      OUTLET ELEVATION (FT)                  1805.53
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0189
      CULVERT LENGTH ALONG SLOPE (FT)         163.27

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         4.00 FT
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S N    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

3

CURRENT DATE: 08-01-1994 FILE DATE: 8-1-94
CURRENT TIME: 08:29:28 FILE NAME: C560

TAILWATER

```
***** USER DEFINED CHANNEL CROSS-SECTION          FILE NAME: C560
      MAIN CHANNEL AND LT & RT OVER BANKS         FILE DATE: 04-27-1993
      LEFT CHANNEL BOUNDARY            2
      RIGHT CHANNEL BOUNDARY           3
      MANNING N LEFT OVER BANK         0.055
      MANNING N MAIN CHANNEL           0.045
      MANNING N RIGHT OVER BAN         0.060
      SLOPE OF CHANNEL (FT/FT)         0.0500

      CROSS-SECTION    X          Y
        COORD. NO.    (FT)       (FT)
            1       1000.00    1812.53
            2       1014.00    1806.13
```

3	1046.00	1805.53
4	1060.00	1830.53

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1805.53	0.000	0.00	0.00	0.00
40.00	1806.18	1.092	0.65	3.66	1.09
80.00	1806.35	1.168	0.82	4.80	1.64
120.00	1806.50	1.216	0.97	5.64	2.08
160.00	1806.62	1.251	1.09	6.31	2.47
200.00	1806.73	1.279	1.20	6.90	2.82
240.00	1806.84	1.303	1.31	7.42	3.14
280.00	1806.93	1.323	1.40	7.89	3.44
320.00	1807.02	1.340	1.49	8.30	3.72
360.00	1807.11	1.355	1.58	8.69	3.99
400.00	1807.19	1.369	1.66	9.06	4.24

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1844.00

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************

    PROJECT:  Fountain Hills North FIS                C560 (Dam 6)
    ENGINEER:  MG
    DATE:   8/24/1993
    TIME:  10:11.22

---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------

    STARTING WSEL:       1835.20
    MAXIMUM WSEL:        1839.60
    STEP SIZE:              0.20
    BREADTH OF WEIR:      133.00

*******************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C560 (Dam 6)
    DATE:   8/24/1993
    TIME:  10:11.22
*******************************************

    POINT    ELEVATION    STATION
    -----    ---------    -------
        1      1840.94    1000.00
        2      1836.25    1010.30
        3      1835.59    1151.00
        4      1835.36    1264.50
```

5 1843.92 1283.90

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C560 (Dam 6)
    DATE:   8/24/1993
    TIME:  10:11.22
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5050
3	0.40	2.5100
4	0.60	2.5150
5	0.80	2.5201
6	1.00	2.5251
7	1.20	2.5301
8	1.40	2.5351
9	1.60	2.5401
10	1.80	2.5451
11	2.00	2.5501
12	2.20	2.5551
13	2.40	2.5602
14	2.60	2.5652
15	2.80	2.5702
16	3.00	2.5752
17	3.20	2.5802
18	3.40	2.5852
19	3.60	2.5902
20	3.80	2.5952
21	4.00	2.6003
22	4.20	2.6053
23	4.40	2.6103

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
```

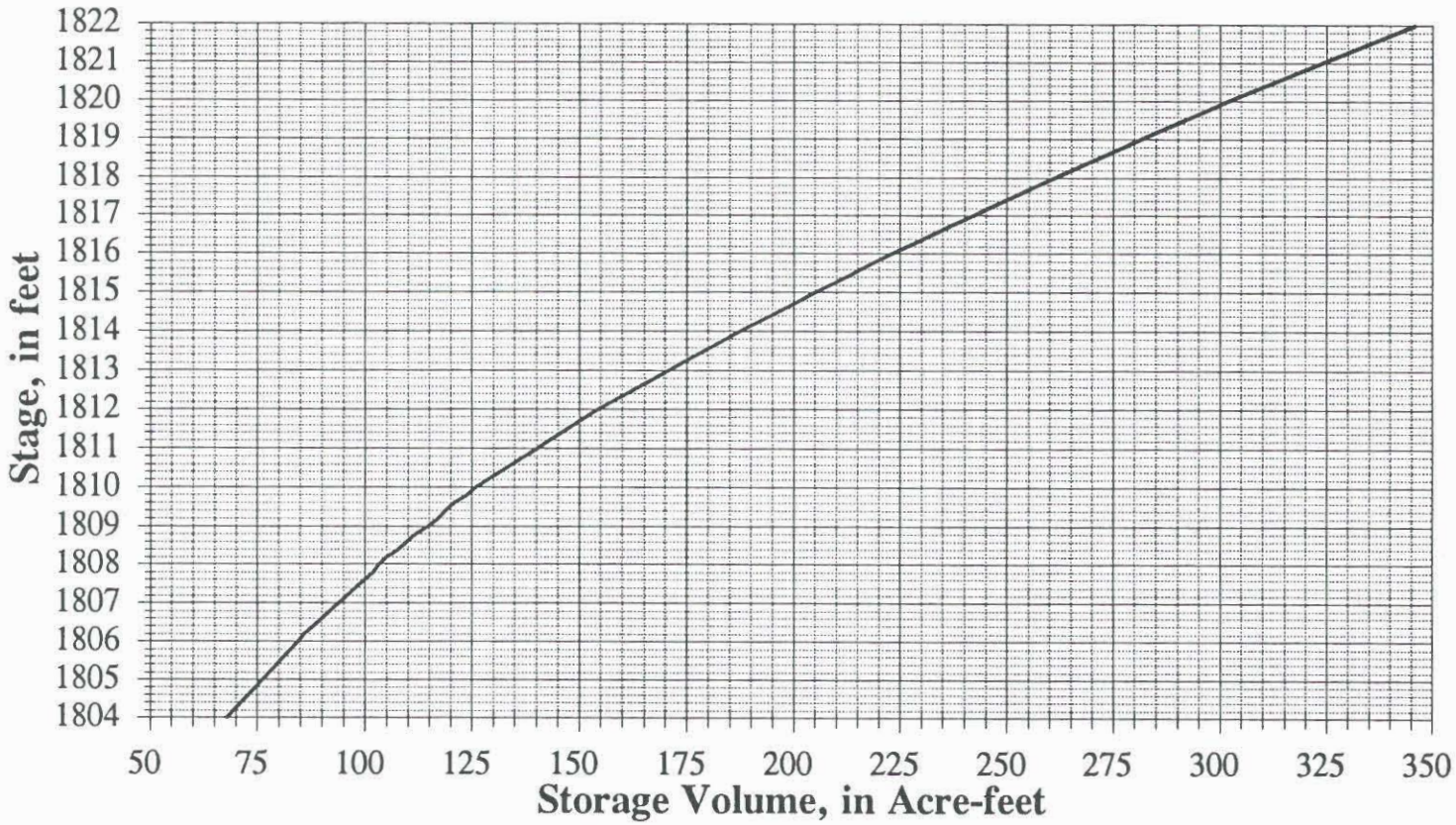
PROJECT: Fountain Hills North FIS C560 (Dam 6)
DATE: 8/24/1993
TIME: 10:11.22
****

ELEVATION	DISCHARGE (CFS)
1835.20	0.00
1835.40	0.16
1835.60	13.99
1835.80	58.13
1836.00	132.80
1836.20	240.44
1836.40	382.17
1836.60	551.07
1836.80	742.80
1837.00	955.09
1837.20	1186.39
1837.40	1435.55
1837.60	1701.68
1837.80	1984.06
1838.00	2282.08
1838.20	2595.26
1838.40	2923.17
1838.60	3265.44
1838.80	3621.76
1839.00	3991.85
1839.20	4375.46
1839.40	4772.37
1839.60	5182.40

Hydraulic Calculations for Structure at C578 (Dam 11)

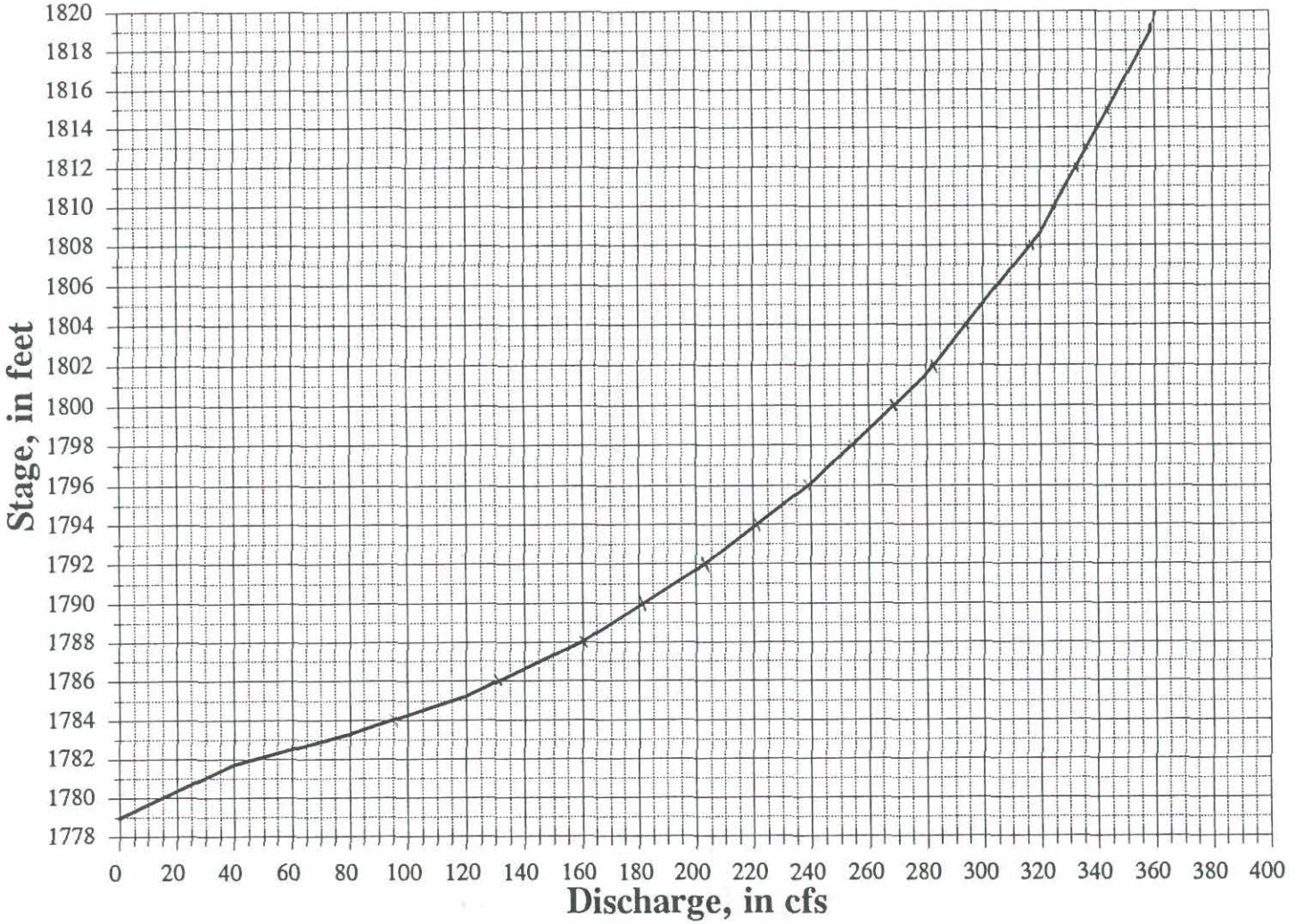
Dam 11 Storage Volume

Calculated from planimetered contours



Dam 11 Stage vs. Discharge

Principal Spillway from HY8

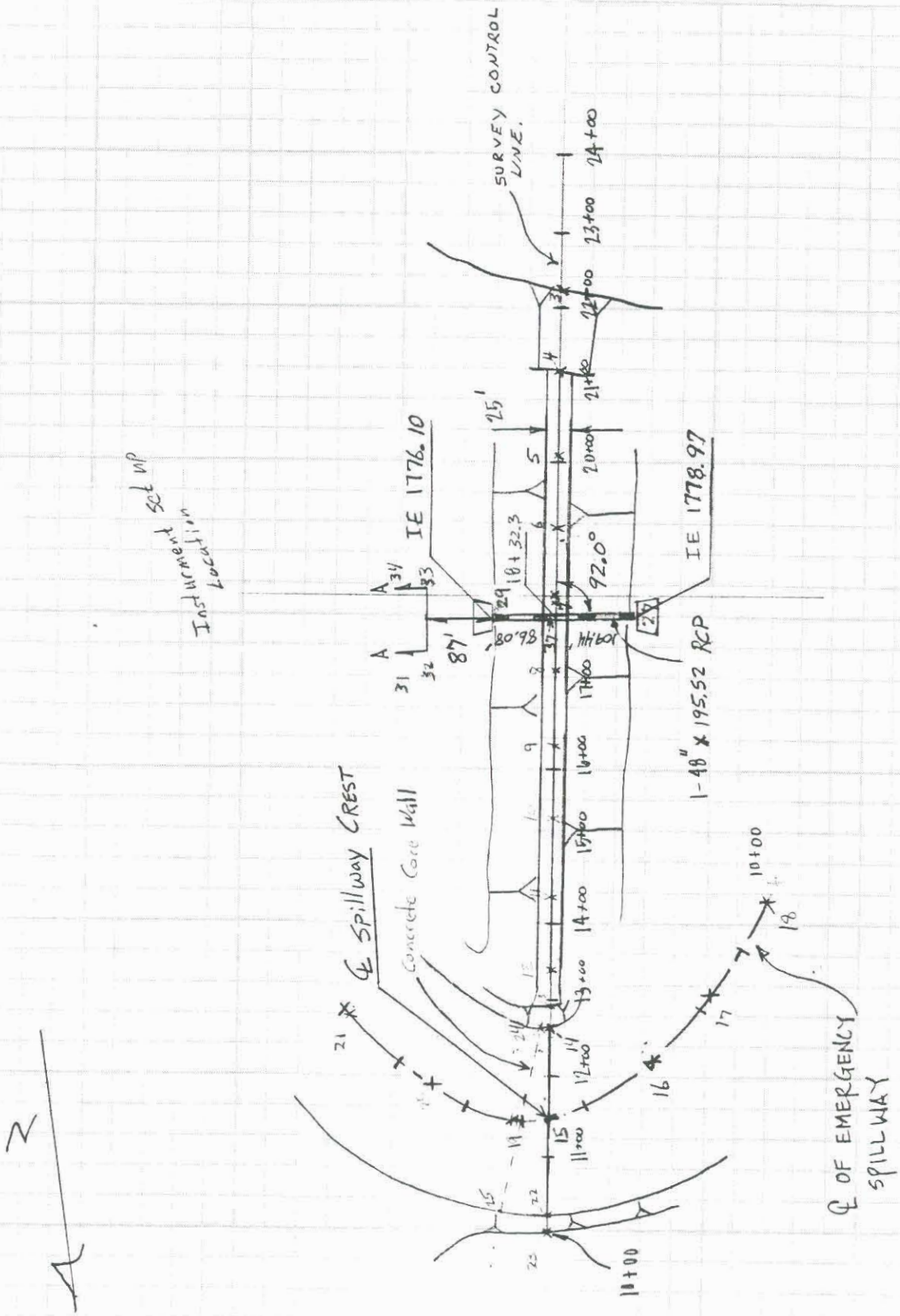


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

CLIENT FCD MC
PROJECT FOUNTAIN HILLS
SUBJECT DAM 11 FIELD SURVEY C578

SHEET ____ OF ____
DATE 4/12/93
BY MG
PROJECT NO. 35

DAM 11 PLAN VIEW SCALE 1:200



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD ML

DATE 4/12/93

PROJECT FOUNTAIN HILLS

BY MG

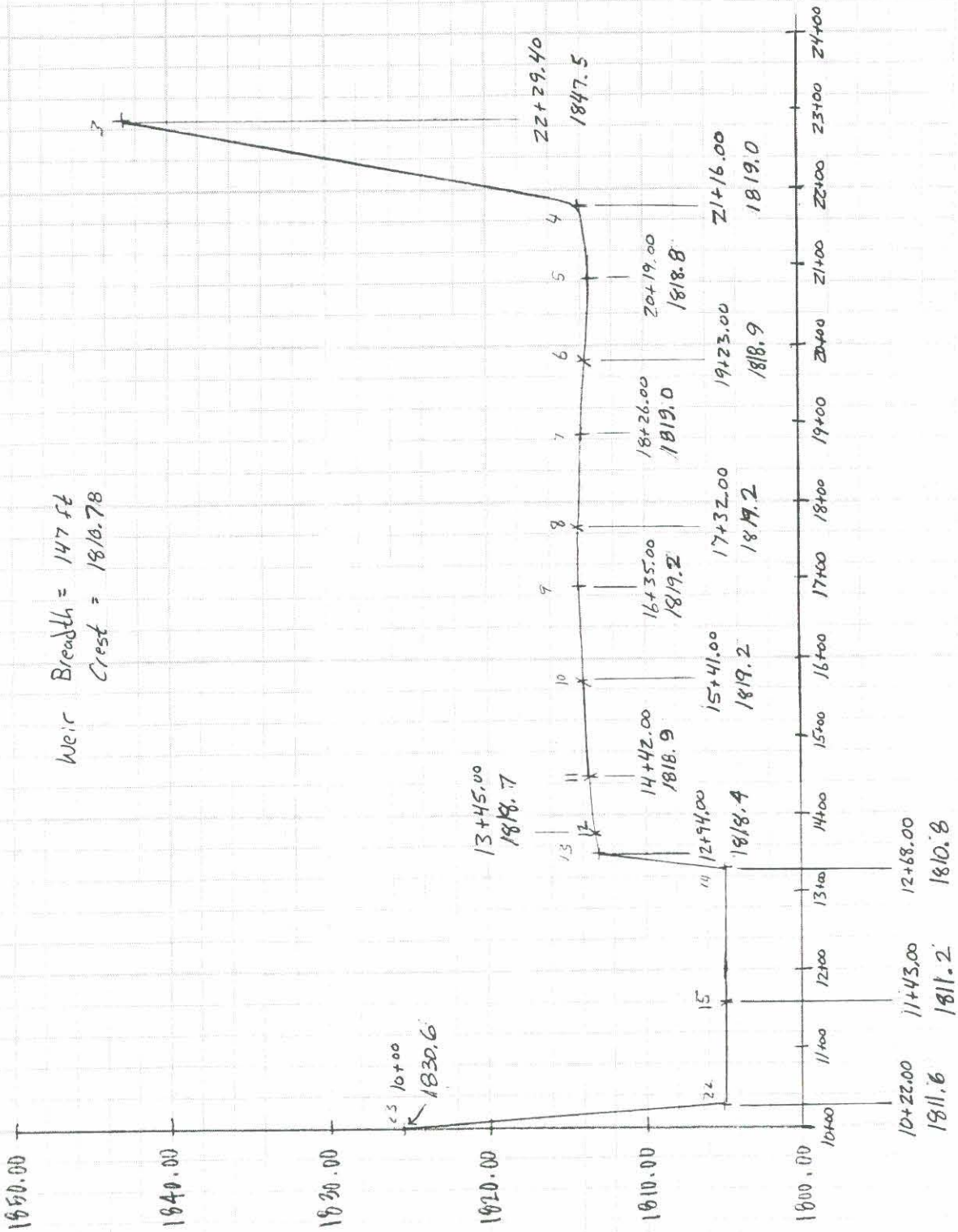
SUBJECT DAM 11 FIELD SURVEY

PROJECT NO. 35

DAM 11 PROFILE

SCALE 1:200 HORZ.
1:10 VERT

Weir Breadth = 147 ft
Crest = 1810.78



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

CLIENT FLD MC

PROJECT FOUNTAIN HILLS

SUBJECT DAM 11 FIELD SURVEY

SHEET ____ OF ____

DATE 4/12/93

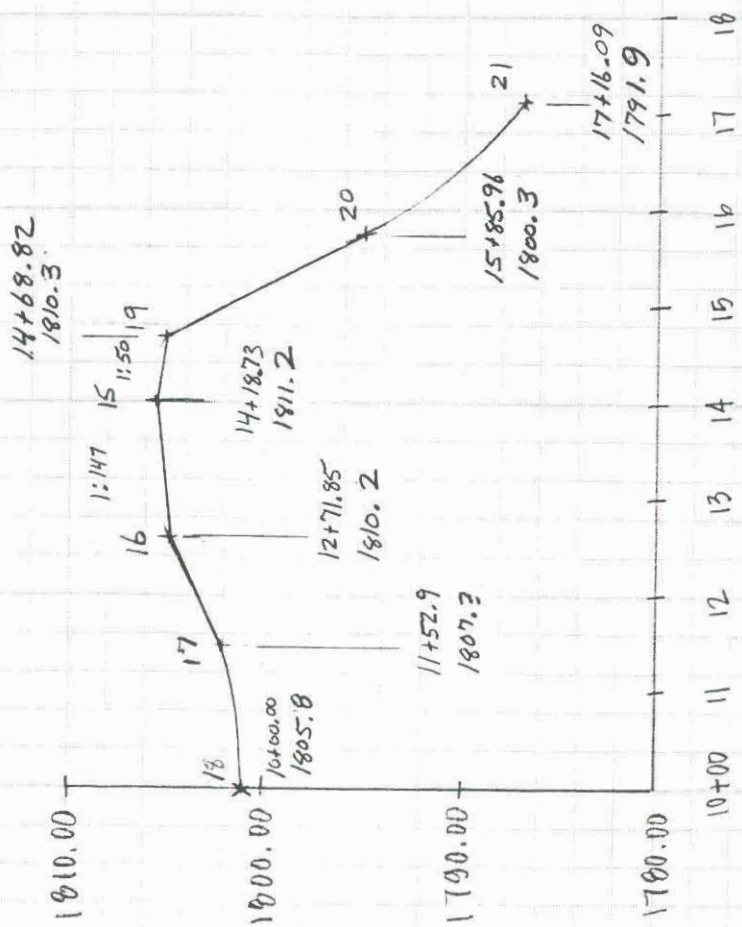
BY MG

PROJECT NO. 35

SCALE 1:200 HORZ
1:10 VERT

14+18.73
−12+71.85
Breadth = 147 feet

EMERGENCY SPILLWAY PROFILE
ALONG ℄



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET ____ OF ____

CLIENT FCD MC

DATE 4/12/93

PROJECT FOUNTAIN HILLS

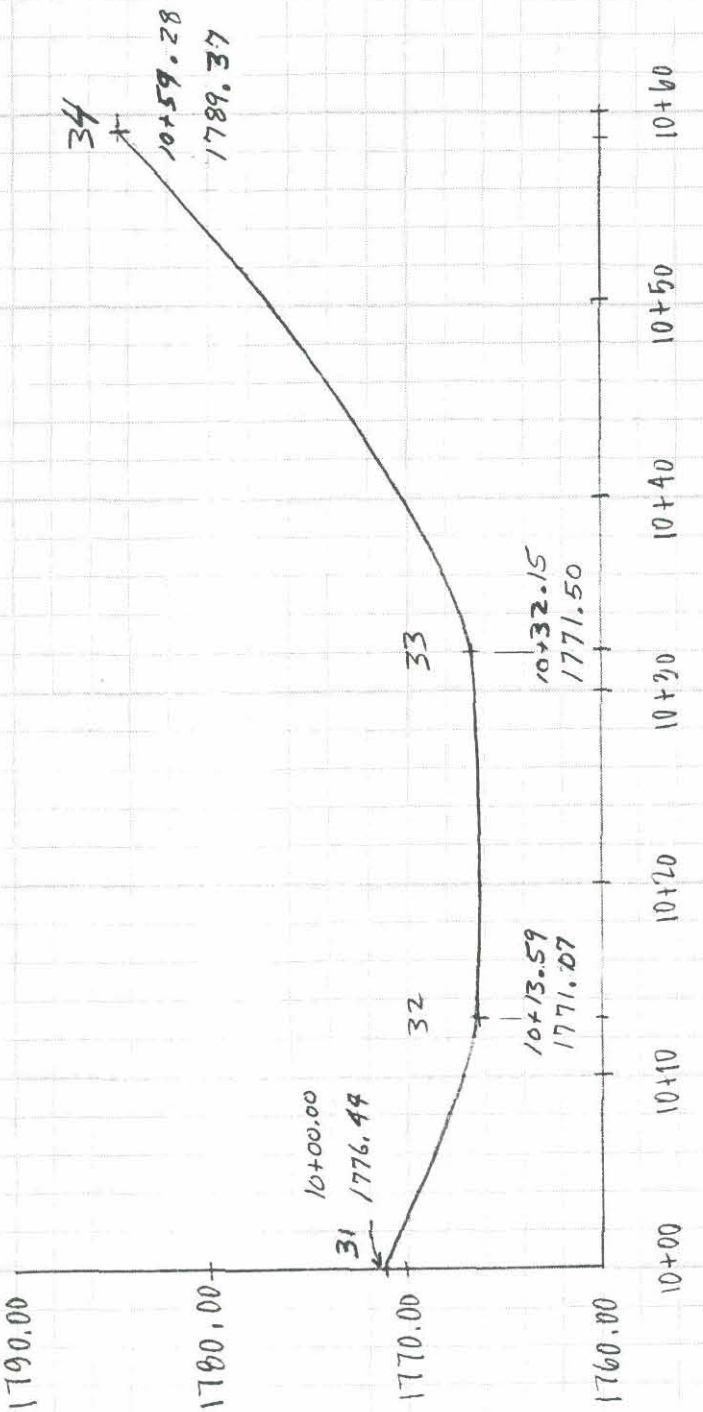
BY MG

SUBJECT DAM 11 FIELD SURVEY

PROJECT NO. 35

CHANNEL CROSS SECTION A-A

SCALE 1:10 HORZ
1:10 VERT



DAM 11 Profile

= DAM11.DAT

****

Start At Point Number ..... 23 STA = 10+ 0.00

Inverse	23	SW	0- 0- 0.00	22.00000	22	STA =	10+22.00
Inverse	22	SW	0- 0- 0.00	121.00000	15	STA =	11+43.00
Inverse	15	SW	0- 0- 0.00	125.00000	14	STA =	12+68.00
Inverse	14	SW	0- 0- 0.00	26.00000	13	STA =	12+94.00
Inverse	13	SW	0- 0- 0.00	51.00000	12	STA =	13+45.00
Inverse	12	SW	0- 0- 0.00	97.00000	11	STA =	14+42.00
Inverse	11	SW	0- 0- 0.00	99.00000	10	STA =	15+41.00
Inverse	10	SW	0- 0- 0.00	94.00000	9	STA =	16+35.00
Inverse	9	SW	0- 0- 0.00	97.00000	8	STA =	17+32.00
Inverse	8	SW	0- 0- 0.00	94.00000	7	STA =	18+26.00
In	7	SW	0- 0- 0.00	97.00000	6	STA =	19+23.00
Inverse	6	SW	0- 0- 0.00	96.00000	5	STA =	20+19.00
Inverse	5	SW	0- 0- 0.00	97.00000	4	STA =	21+16.00
Inverse	4	SW	0- 0- 0.00	113.40000	3	STA =	22+29.40

Dam 11 Emergency Spillway Profile

Start At Point Number ..... 18 STA = 10+ 0.00 EL =

Inverse	18	NE	25-38-22.64	152.89562	17	STA = 11+52.90	EL =
Inverse	17	NE	42-58- 9.00	118.95717	16	STA = 12+71.85	EL =
Inverse	16	NE	56-27-13.26	146.87419	15	STA = 14+18.73	EL =
Inverse	15	SE	82-12- 2.75	50.09112	19	STA = 14+68.82	EL =
Inverse	19	SE	67-13- 1.16	117.14220	20	STA = 15+85.96	EL =
Inverse	20	SE	55-53-21.16	130.12612	21	STA = 17+16.09	EL =

48" RCP

Dam 11 Angle Right from RCP to dam CL.

Inverse	21	SW	22- 3-32.68	706.59052	6	9911.00000	20000.00000
Inverse	6	NE	0- 0- 0.00	90.66645	37	10001.66645	20000.00000

RADIAL INVERSE FROM LINE - Base Pt. # 37 TO 6

Rad Inv	37	AR	91-57-48.91	109.44023	27	10005.41635	19890.62403
Rad Inv	37	NW	88- 2-11.09	109.44023	27	10005.41635	19890.62403
Inverse	37	NW	88- 2-11.09	109.44023	27	10005.41635	19890.62403
Inverse	27	SE	88- 2-11.09	109.44023	37	10001.66645	20000.00000
Inverse	37	SE	88- 2-11.09	86.08098	29	9998.71694	20086.03043
Inverse	29	NW	88- 2-11.09	195.52121	27	10005.41635	19890.62403

File = DAM11.DAT Page No. 1

****

Inverse	27 SE	88- 2-11.09	195.52121	29	9998.71694	20086.03043
Inverse	29 NE	84-42- 6.20	89.41275	32	10006.97338	20175.06117
Inverse	32 SW	84-42- 6.20	89.41275	29	9998.71694	20086.03043
Inverse	29 SE	83-26- 9.43	84.87210	33	9989.01489	20170.34617

Avg dist to X-section = 87 ft

Start At Point Number ..... 31 STA = 10+ 0.00

Inverse	31 SE	5-46- 8.02	13.58620	32	STA =	10+13.59
Inverse	32 SW	14-42-39.51	18.56713	33	STA =	10+32.15
Inverse	33 SE	1-10-38.71	27.12554	34	STA =	10+59.28

Downstream X-Section

CURRENT DATE: 07-29-1994
CURRENT TIME: 16:46:44

FILE DATE: 7-29-94
FILE NAME: C578

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1778.97	1776.10	195.54	1 RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C578 DATE: 7-29-94

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1778.97	0	0	0	0	0	0	0	0	1
1781.70	40	40	0	0	0	0	0	0	1
1783.26	80	80	0	0	0	0	0	0	1
1785.22	120	120	0	0	0	0	0	0	1
1788.03	160	160	0	0	0	0	0	0	1
1791.69	200	200	0	0	0	0	0	0	1
1796.10	240	240	0	0	0	0	0	0	1
1801.46	280	280	0	0	0	0	0	0	1
1808.62	320	320	0	0	0	0	0	0	1
1819.28	360	359	0	0	0	0	0	0	13
1823.44	400	371	0	0	0	0	0	29	6
1819.00	359	359	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C578 DATE: 7-29-94

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1778.97	0.00	0	0	0.00
1781.70	0.00	40	0	0.00
1783.26	0.00	80	0	0.00
1785.22	0.00	120	0	0.00
1788.03	0.00	160	0	0.00
1791.69	0.00	200	0	0.00
1796.10	0.00	240	0	0.00
1801.46	0.00	280	0	0.00
1808.62	0.00	320	0	0.00
1819.28	-0.01	360	0	0.02
1823.44	-0.01	400	0	0.02

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 07-29-1994 FILE DATE: 7-29-94

CURRENT TIME: 16:46:44 FILE NAME: C578

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (4 BY 4) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1778.97	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
40	1781.70	2.73	2.73	1-S2n	1.25	1.88	12.03	1.25	4.68	0.67
80	1783.26	4.29	4.29	5-S2n	1.81	2.70	13.73	1.89	6.13	0.89
120	1785.22	6.25	6.25	5-S2n	2.31	3.28	15.05	2.43	7.18	1.07
160	1788.03	9.06	9.06	5-S2n	2.83	3.70	16.09	2.96	8.02	1.23
200	1791.69	12.72	12.72	5-S2n	3.57	4.00	16.92	3.57	8.75	1.37
240	1796.10	17.13	14.25	6-FFn	4.00	4.00	19.10	4.00	9.38	1.50
280	1801.46	22.49	18.99	6-FFn	4.00	4.00	22.28	4.00	9.96	1.62
320	1808.62	29.65	24.46	6-FFn	4.00	4.00	25.46	4.00	10.48	1.73
359	1819.28	40.31	30.57	6-FFn	4.00	4.00	28.61	4.00	10.96	1.83
371	1823.44	44.47	32.47	6-FFn	4.00	4.00	29.52	4.00	11.41	1.93

El. inlet face invert 1778.97 ft El. outlet invert 1776.10 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1778.97
OUTLET STATION (FT)	195.52
OUTLET ELEVATION (FT)	1776.10
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0147
CULVERT LENGTH ALONG SLOPE (FT)	195.54

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.00 FT
BARREL MATERIAL	CONCRETE
BARREL MANNING'S N	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

3

CURRENT DATE: 07-29-1994 FILE DATE: 7-29-94
CURRENT TIME: 16:46:44 FILE NAME: C578

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION FILE NAME: C578
MAIN CHANNEL AND LT & RT OVER BANKS FILE DATE: 04-27-1993

LEFT CHANNEL BOUNDARY	2
RIGHT CHANNEL BOUNDARY	3
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.045
MANNING N RIGHT OVER BAN	0.055
SLOPE OF CHANNEL (FT/FT)	0.0580

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)

1	1000.00	1781.47
2	1013.59	1776.10
3	1032.15	1776.53
4	1059.28	1794.40

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1776.10	0.000	0.00	0.00	0.00
40.00	1776.77	1.228	0.67	4.68	1.64
80.00	1776.99	1.313	0.89	6.13	2.45
120.00	1777.17	1.366	1.07	7.18	3.11
160.00	1777.33	1.404	1.23	8.02	3.67
200.00	1777.47	1.435	1.37	8.75	4.18
240.00	1777.60	1.460	1.50	9.38	4.64
280.00	1777.72	1.482	1.62	9.96	5.07
320.00	1777.83	1.501	1.73	10.48	5.48
360.00	1777.93	1.518	1.83	10.96	5.86
400.00	1778.03	1.534	1.93	11.41	6.22

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1819.00

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************


    PROJECT:  Fountain Hills North FIS                C578 (Dam 11)
    ENGINEER:  MG
    DATE:   8/24/1993
    TIME:  10:14.10




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1810.60
    MAXIMUM WSEL:        1816.00
    STEP SIZE:              0.20
    BREADTH OF WEIR:      147.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C578 (Dam 11)
    DATE:   8/24/1993
    TIME:  10:14.10
*********************************************

    POINT    ELEVATION    STATION
    -----    ---------    -------
        1      1830.59    1000.00
        2      1811.60    1022.00
        3      1811.18    1143.00
        4      1810.78    1268.00
```

5 1818.35 1294.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C578 (Dam 11)
    DATE:   8/24/1993
    TIME:  10:14.10
*********************************************
```

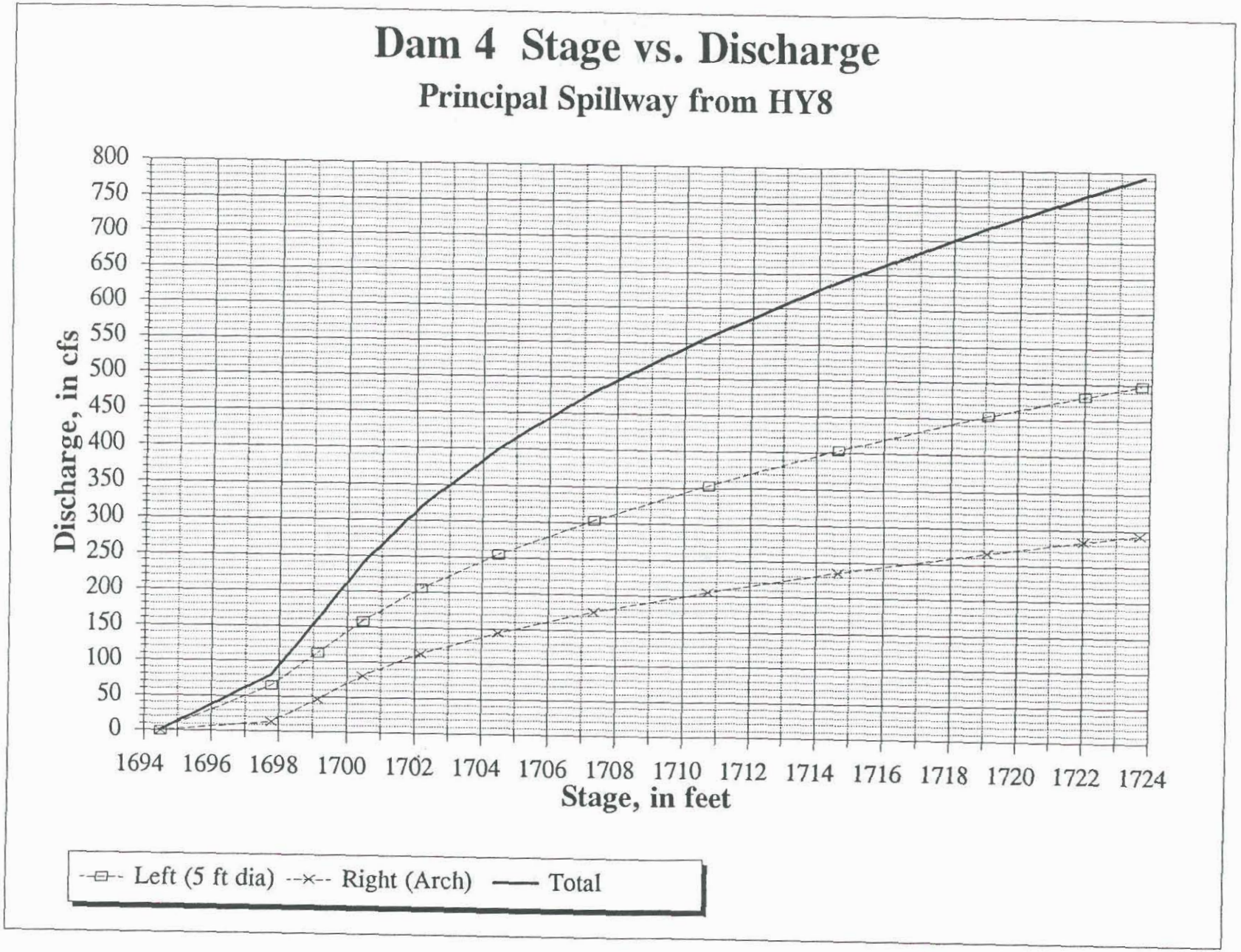
REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5045
3	0.40	2.5091
4	0.60	2.5136
5	0.80	2.5181
6	1.00	2.5227
7	1.20	2.5272
8	1.40	2.5317
9	1.60	2.5363
10	1.80	2.5408
11	2.00	2.5454
12	2.20	2.5499
13	2.40	2.5544
14	2.60	2.5590
15	2.80	2.5635
16	3.00	2.5680
17	3.20	2.5726
18	3.40	2.5771
19	3.60	2.5816
20	3.80	2.5862
21	4.00	2.5907
22	4.20	2.5952
23	4.40	2.5998
24	4.60	2.6043
25	4.80	2.6088
26	5.00	2.6134
27	5.20	2.6179
28	5.40	2.6224

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C578 (Dam 11)
    DATE:   8/24/1993
    TIME:  10:14.10
*******************************************
```

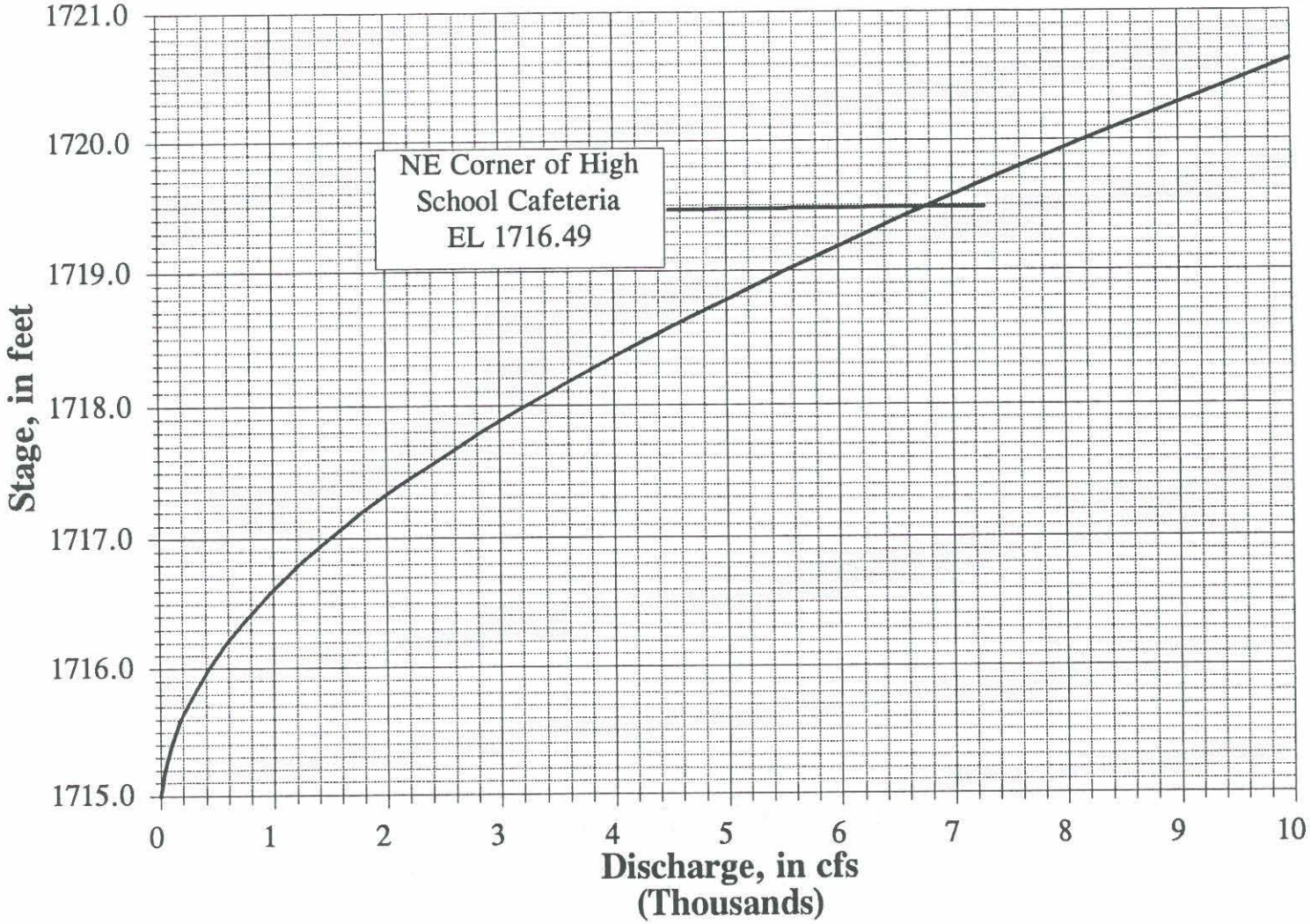
ELEVATION	DISCHARGE (CFS)
1810.60	0.00
1810.80	0.02
1811.00	7.17
1811.20	36.14
1811.40	95.32
1811.60	190.34
1811.80	321.26
1812.00	478.99
1812.20	659.41
1812.40	860.17
1812.60	1079.67
1812.80	1316.71
1813.00	1570.40
1813.20	1839.98
1813.40	2124.85
1813.60	2424.51
1813.80	2738.51
1814.00	3066.49
1814.20	3408.12
1814.40	3763.12
1814.60	4131.25
1814.80	4512.27
1815.00	4905.99
1815.20	5312.23
1815.40	5730.85
1815.60	6161.68
1815.80	6604.60
1816.00	7059.50

Hydraulic Calculations for Structure at C599 (Dam 4)


Dam 4 Stage vs. Discharge
Principal Spillway from HY8
Discharge, in cfs
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
1694 1696 1698 1700 1702 1704 1706 1708 1710 1712 1714 1716 1718 1720 1722 1724
Stage, in feet
Left (5 ft dia)
Right (Arch)
Total

Dam 4 Stage vs. Discharge

Emergency Spillway From Uneven Weir



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 4

CLIENT F.C.D.M.C.

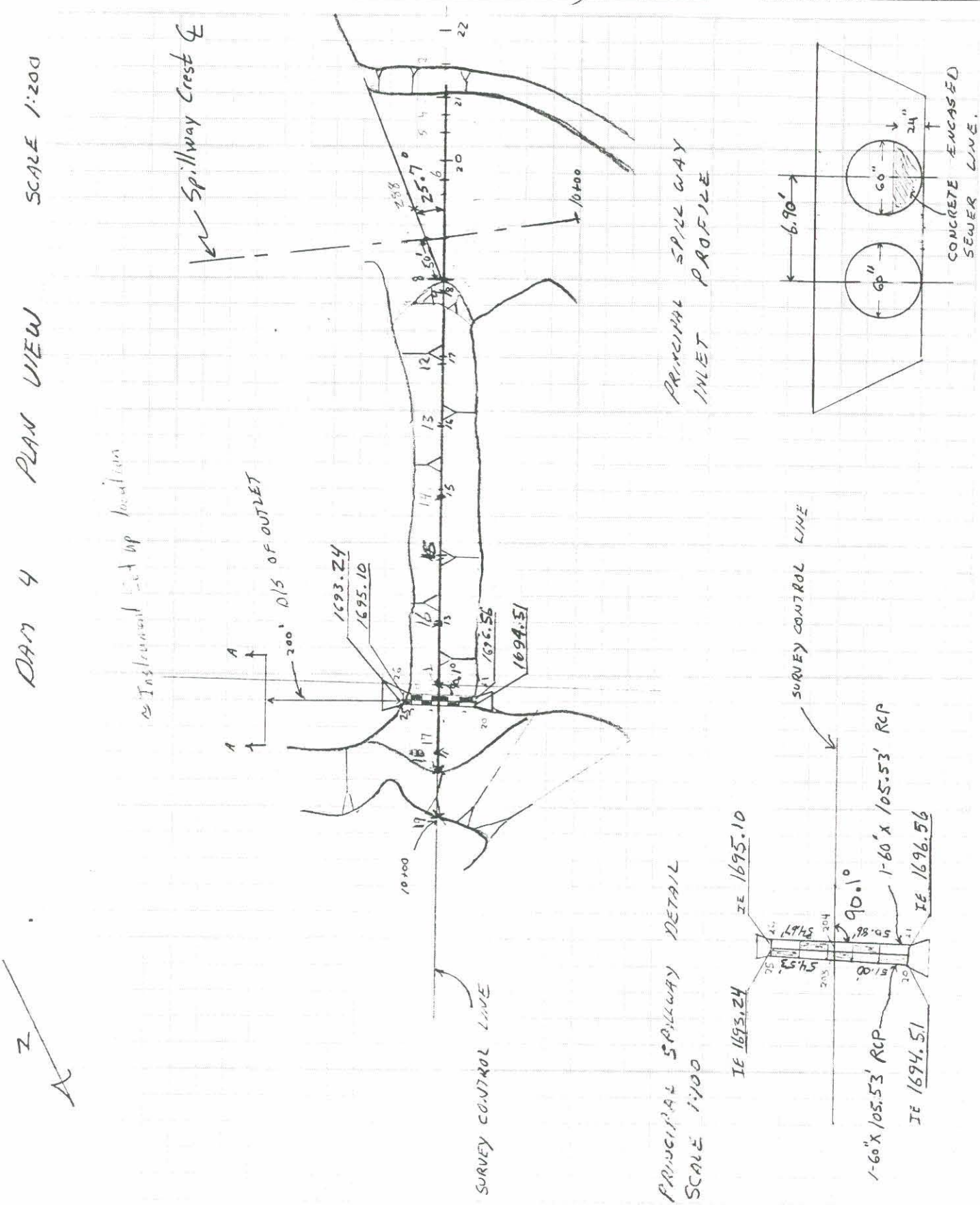
DATE 4-14-93

PROJECT FOUNTAIN HILLS F.I.S

BY R.C.

SUBJECT DAM 4 FIELD SURVEY C599

PROJECT NO. 35



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 4

CLIENT F.C.D. M.C.

DATE 5-5-93

PROJECT FOUNTAIN HILLS F.I.S.

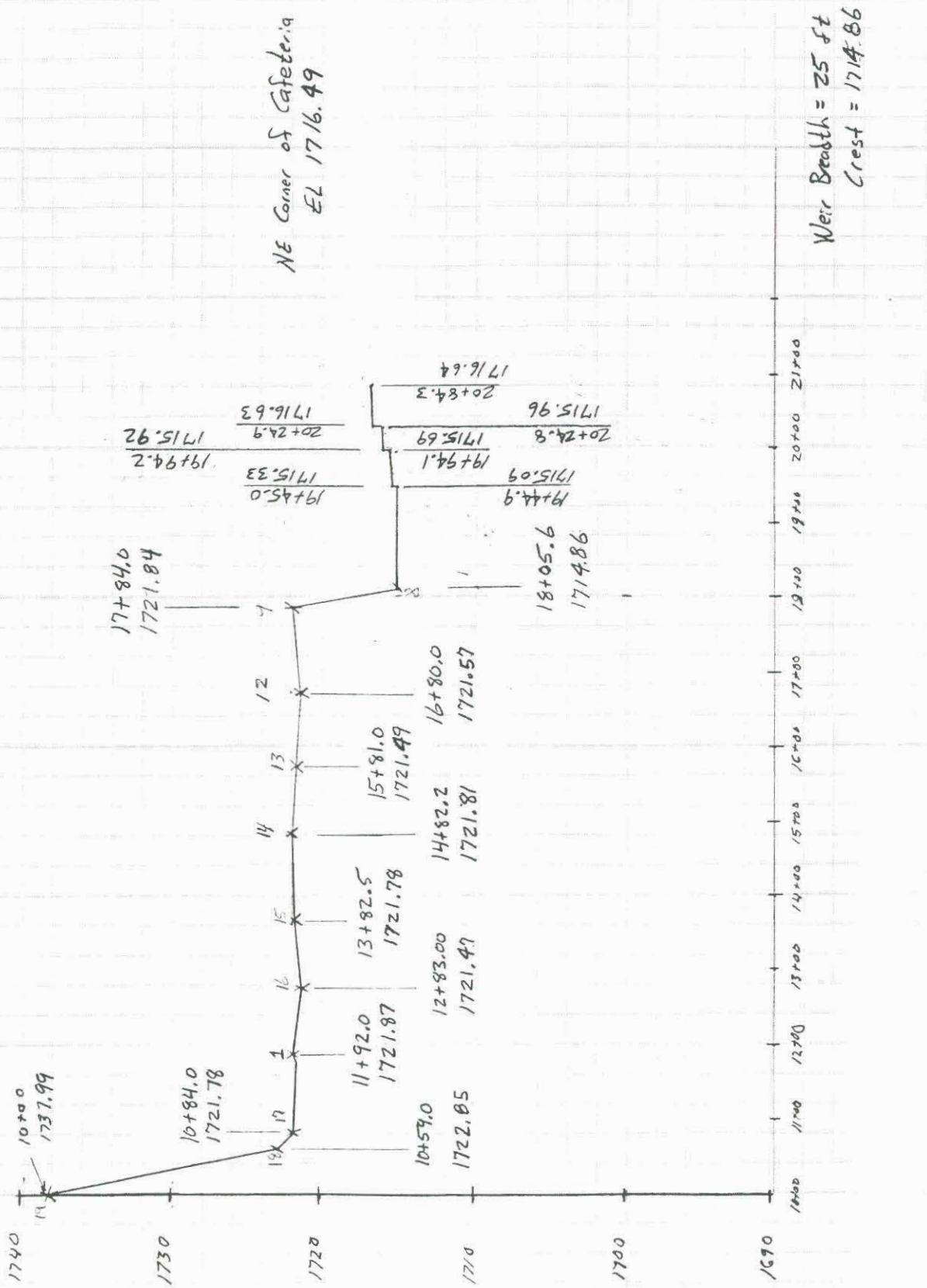
BY R.C.

SUBJECT DAM 4 FIELD SURVEY

PROJECT NO. 35

DAM 4 PROFILE

SCALE 1:200 HORZ
1:10 VERT



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 4

CLIENT FCDMC

DATE 4-26-93

PROJECT FOUNTAIN HILLS F.I.S.

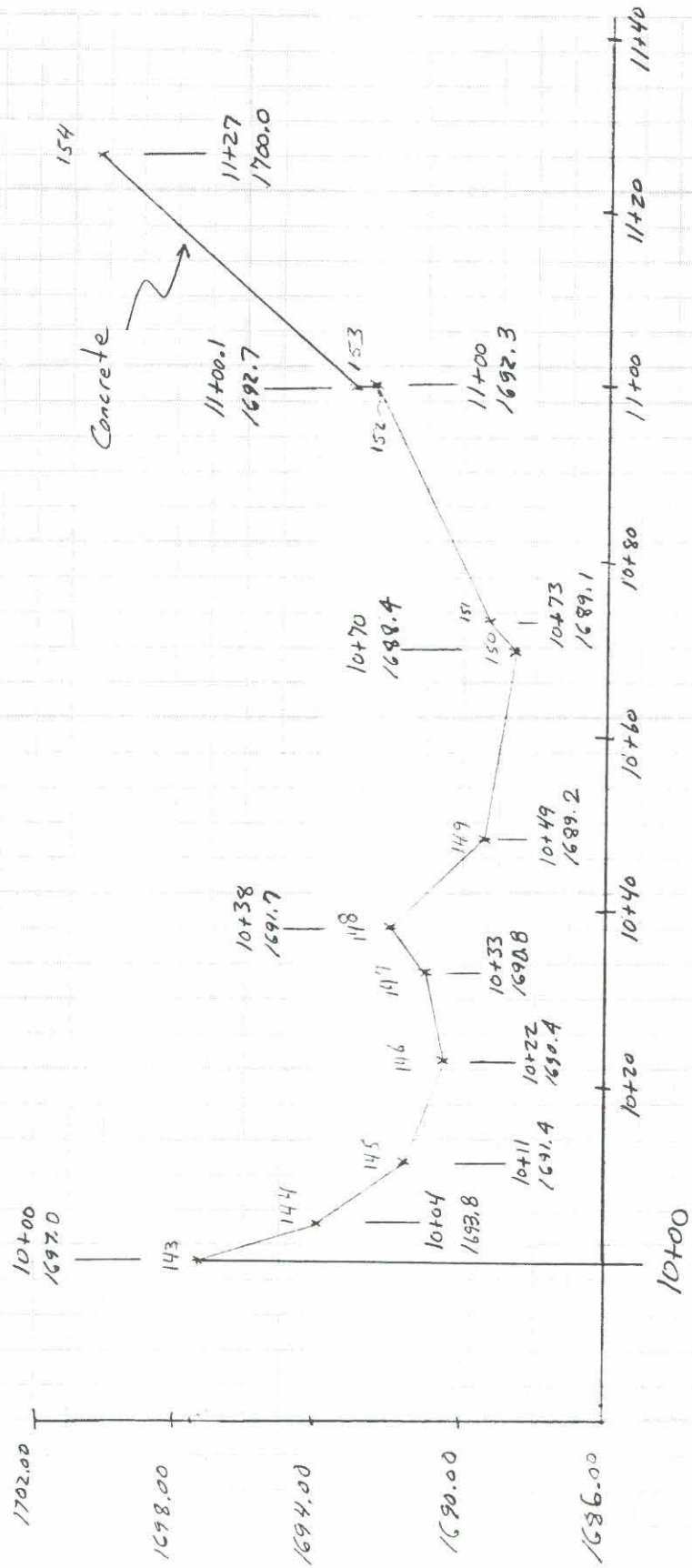
BY R.C.

SUBJECT DAM 4 FIELD SURVEY

PROJECT NO. 35

CHANNEL CROSS SECTION A-A

SCALE 1:20 HORZ.
1:5 VERT.



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 4 OF 4

CLIENT MC FCD

DATE 10 May 93

PROJECT F. Hills

BY DTP

SUBJECT DAM 4 Field Survey

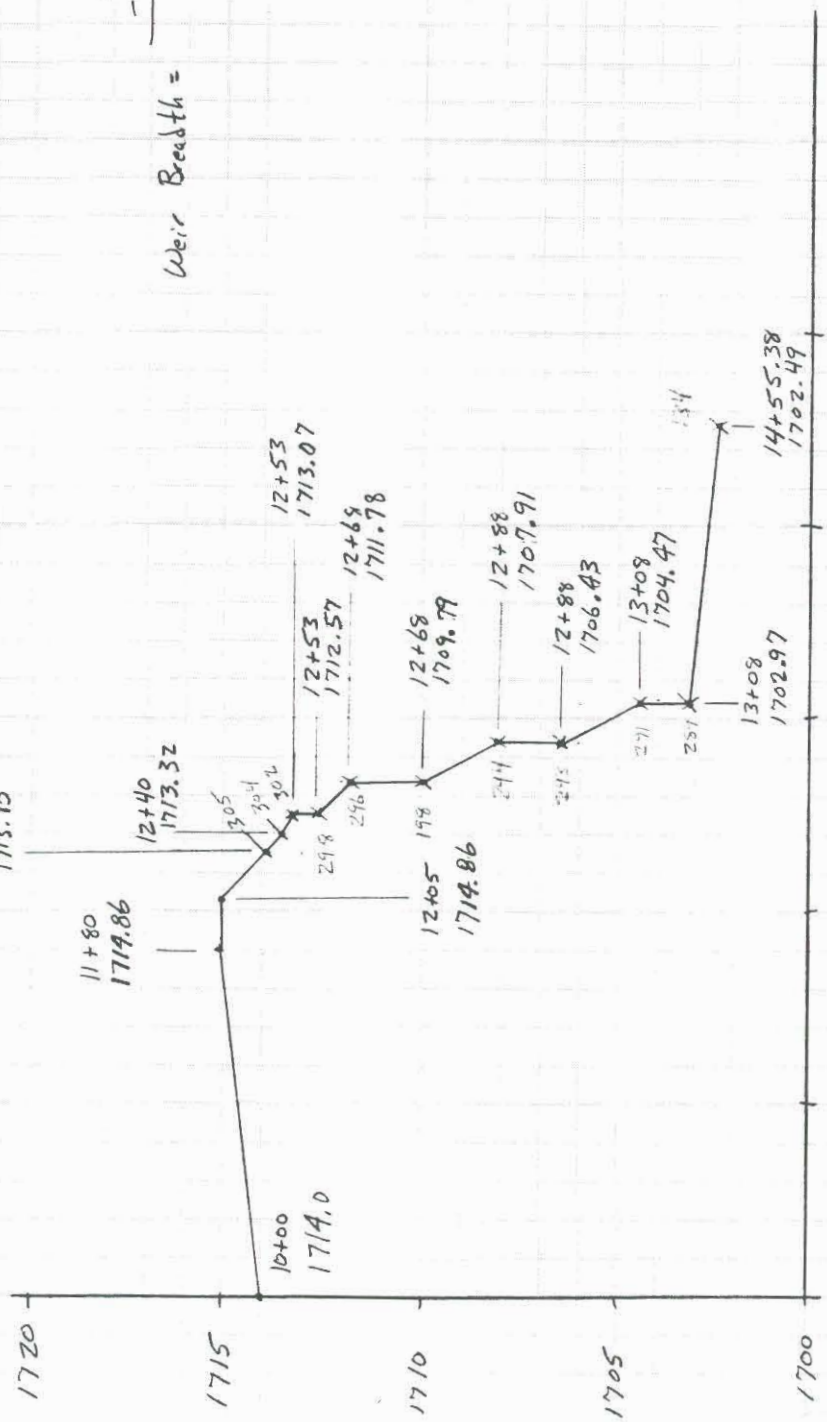
PROJECT NO. 35

DAM 4 EMERGENCY SPILLWAY PROFILE

(ALONG Crest ℄)

Scale 1" = 5' VERT
1" = 100' HORZ

Weir Breadth = 12 05 − 11 80 = 25 feet



DAM 4 SPILLWAY

File = DAM4.DAT

****

Start At Point Number ..... 600 STA = 18+ 5.60

Inverse	600	SW	10-41-33.88	139.39989	609	STA =	19+45.00
Inverse	609	SE	16-29-14.25	49.23773	613	STA =	19+94.24
Inverse	613	SE	30-31-51.96	30.65746	617	STA =	20+24.90
Inverse	617	SE	43-27- 5.18	59.36088	620	STA =	20+84.26

STA	EL	(cogo pt)
17+84.0	1721.84	9
18+05.6	1714.86	8
19+44.9	1715.09	611
19+45.0	15.33	609
19+94.1	15.69	615
19+94.2	15.92	613
20+24.8	15.96	619
20+24.9	16.63	617
20+84.3	16.64	620

DAM 4 Spillway

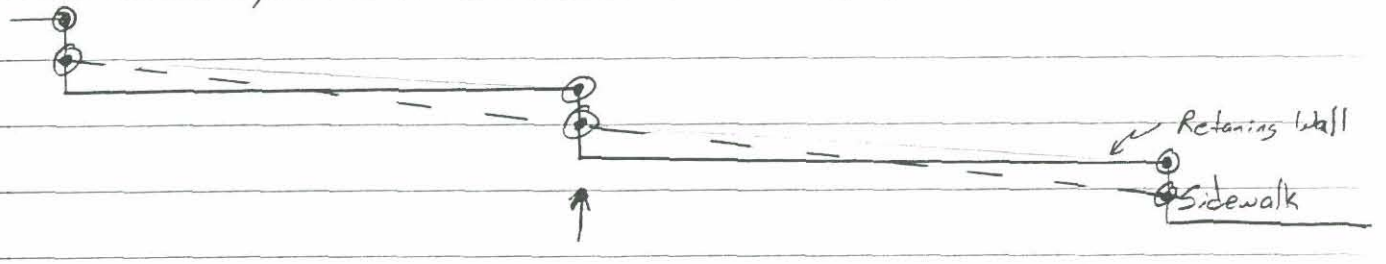
Horizontal Distances

Based on radial distance along 1st retaning wall
. point 600 sta = pt 8 sta (Toe of spillway)

Controling elevations were chosen with respect to the general flow direction. Point #s and elevations are highlited on drawing.

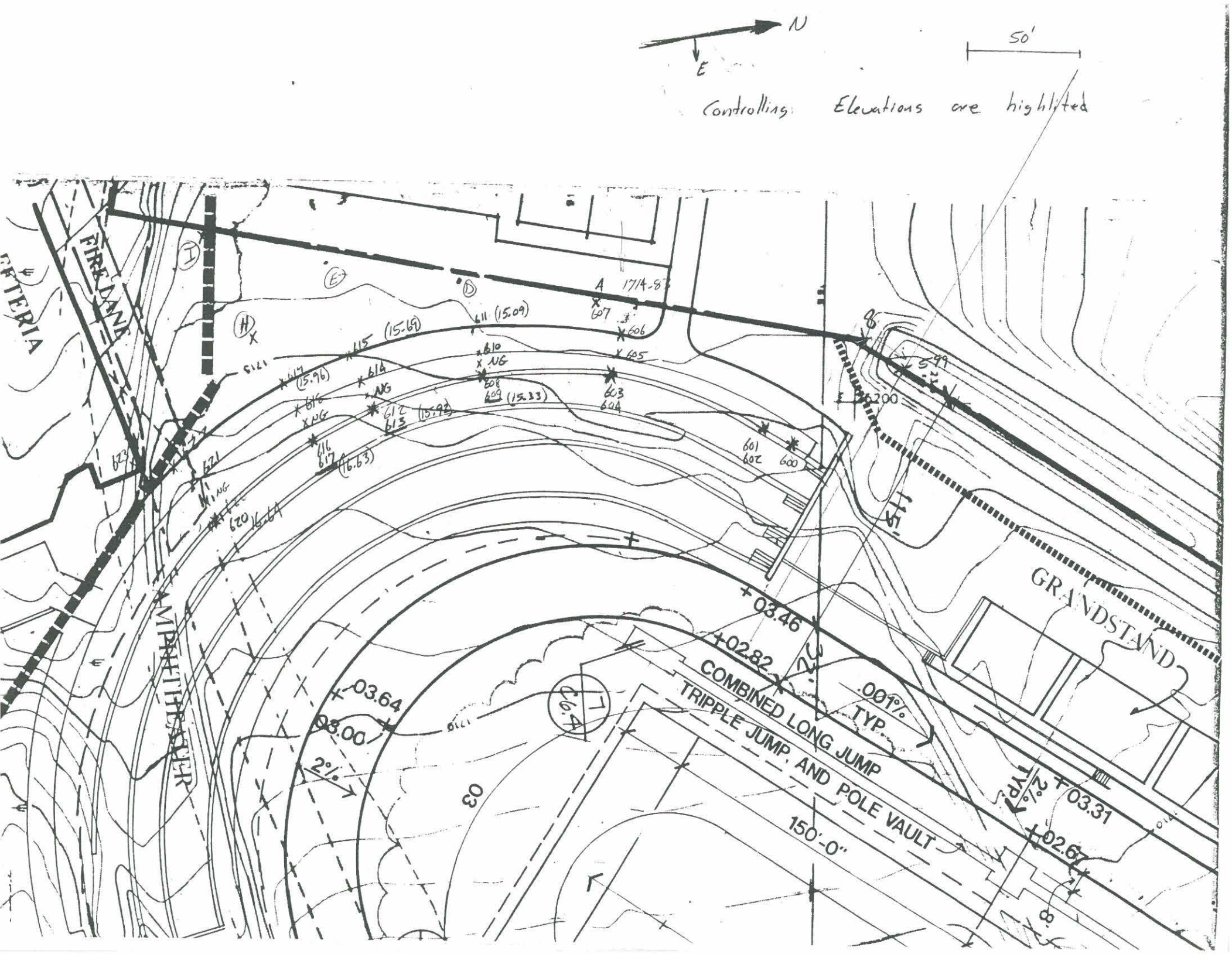
The complexity is due to the west edge of sidewalk elevations increasing along a constant slope while the top of retaning wall increases in steps.

So before the wall steps up vertically, the sidewalk controls, but once the wall "steps up", it controls.



Survey info is only taken at each step in retaning wall.

Thus location (STA) when sidewalk starts controling weir flow is unknown. To be consiverative elevations of side walk are used as bottom step of wall. [⊙ points on figure (above)]


N
E
50'
Controlling Elevations are highlited
CAFETERIA
FIRE LANE
MPRATTHEATER
GRANDSTAND
COMBINED LONG JUMP
TRIPPLE JUMP, AND POLE VAULT
150'-0"
+03.46
+02.82
.001%
TYP.
+03.64
03.00
2%
+03.31
+02.67
2%
TYP.
(15.69)
(15.96)
(15.09)
(15.33)
(15.93)
(16.63)
(16.64)
NG
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
620
621
623
599
A
17/4-8
7
C6.4
03

ELEV ADJ. -0.18' DTP 9 July 93

DAM 4

Profile Stationing

File = DAM4.DAT Page No. 1

****

Start At Point Number				19	STA =	10+ 0.00	EL	~~1738.17~~	1737.99
Inverse	19	SW	29-47-32.91	59.00000	18	STA =	10+59.00	EL	~~1723.03~~ 1722.85
Inverse	18	SW	29-47-32.91	25.00000	17	STA =	10+84.00	EL	~~1721.96~~ 1721.78
Inverse	17	SW	29-47-32.91	108.00000	1	STA =	11+92.00	EL	~~1722.05~~ 1721.87
Inverse	1	SW	29-47-32.91	91.00000	16	STA =	12+83.00	EL	~~1721.65~~ 21.47
Inverse	16	SW	29-47-32.91	99.50000	15	STA =	13+82.50	EL	~~1721.96~~ 21.78
Inverse	15	SW	29-47-32.91	99.70000	14	STA =	14+82.20	EL	~~1721.99~~ 21.81
Inverse	14	SW	29-47-32.91	98.80000	13	STA =	15+81.00	EL	~~1721.67~~ 21.49
Inverse	13	SW	29-47-32.91	99.00000	12	STA =	16+80.00	EL	~~1721.75~~ 21.57
Inverse	12	SW	29-47-32.91	104.00000	9	STA =	17+84.00	EL	~~1722.02~~ 21.84
Inverse	9	SW	29-47-32.91	21.60000	8	STA =	18+ 5.60	EL	~~1715.04~~ 14.86
Inverse	8	SW	4- 4-49.48	112.14647	288	STA =	19+17.75	EL	~~1714.63~~ 14.45

See Toms Survey notes pg (4) for rest of spillway.

File = DAM4.DAT Page No. 2

****

Down Stream X-Section

Start At Point Number				155	STA =	10+ 0.00	EL	1697.4	
Inverse	155	SW	29-47-32.91	17.00000	143	STA =	10+17.00	EL	1697.2
Inverse	143	SW	29-47-32.91	4.00000	144	STA =	10+21.00	EL	1694.0
Inverse	144	SW	29-47-32.91	7.00000	145	STA =	10+28.00	EL	1691.6
Inverse	145	SW	29-47-32.91	11.00000	146	STA =	10+39.00	EL	1690.6
Inverse	146	SW	29-47-32.91	11.00000	147	STA =	10+50.00	EL	1691.0
Inverse	147	SW	29-47-32.91	5.00000	148	STA =	10+55.00	EL	1691.9
Inverse	148	SW	29-47-32.91	11.00000	149	STA =	10+66.00	EL	1689.4
Inverse	149	SW	29-47-32.91	21.00000	150	STA =	10+87.00	EL	1688.6
Inverse	150	SW	29-47-32.91	3.00000	151	STA =	10+90.00	EL	1689.3
Inverse	151	SW	29-47-32.91	27.00000	152	STA =	11+17.00	EL	1692.5
Inverse	152	NE	0- 0- 0.00	0.00000	153	STA =	11+17.00	EL	1692.9
153	SW	29-47-32.91	27.000	154	STA	11+44.00	EL	1700.18	

File = DAM4.DAT

Page No. 1

Down Stream
X-Section

****

Start At Point Number				143	STA =	10+ 0.00	EL	1697.2	97.02
Inverse	143	SW	29-47-32.91	4.00000	144	STA =	10+ 4.00	EL	1694.0	93.82
Inverse	144	SW	29-47-32.91	7.00000	145	STA =	10+11.00	EL	1691.6	91.42
Inverse	145	SW	29-47-32.91	11.00000	146	STA =	10+22.00	EL	1690.6	90.42
Inverse	146	SW	29-47-32.91	11.00000	147	STA =	10+33.00	EL	1691.0	90.82
Inverse	147	SW	29-47-32.91	5.00000	148	STA =	10+38.00	EL	1692.9	91.72
Inverse	148	SW	29-47-32.91	11.00000	149	STA =	10+49.00	EL	1689.9	89.22
Inverse	149	SW	29-47-32.91	21.00000	150	STA =	10+70.00	EL	1688.6	88.42
Inverse	150	SW	29-47-32.91	3.00000	151	STA =	10+73.00	EL	1689.3	89.12
Inverse	151	SW	29-47-32.91	27.00000	152	STA =	11+ 0.00	EL	1692.5	92.32
Inverse	152	NE	0- 0- 0.00	0.00000	153	STA =	11+ 0.00	EL	1692.9	92.72
Inverse	153	SW	29-47-32.91	27.00000	154	STA =	11+27.00	EL	1700.18	1700.00

DAm 4 Emergency Spillway Profile

File = DAM4.DAT

Page No. 1

****

							D/S portion	Station distance
Start At Point Number				305 STA =	0+ 0.00	EL	1713.93	13.75
Inverse	305	SE	66-13- 7.25	10.00000	304 STA =	0+10.00	1713.50	13.32
Inverse	304	SE	66-13- 7.25	13.00000	302 STA =	0+23.00	1713.25	13.07
Inverse	302	NE	0- 0- 0.00	0.00000	298 STA =	0+23.00	1712.75	12.57
Inverse	298	SE	66-13- 7.25	14.99999	296 STA =	0+38.00	1711.96	11.78
Inverse	296	NE	0- 0- 0.00	0.00000	198 STA =	0+38.00	1709.97	09.79
Inverse	198	SE	66-13- 7.25	20.00000	294 STA =	0+58.00	1708.09	07.91
Inverse	294	NE	0- 0- 0.00	0.00000	293 STA =	0+58.00	1706.61	06.43
Inverse	293	SE	66-13- 7.25	20.00000	291 STA =	0+78.00	1704.65	04.47
Inverse	291	NE	0- 0- 0.00	0.00000	289 STA =	0+78.00	1703.15	02.97
~~Inverse~~	~~289~~	~~SE~~	~~66-13- 7.25~~	~~116.48014~~	~~184 STA =~~	~~1+94.48~~		
Inverse	289	SE	72-36- 1.48	147.38178	134		1702.67	02.49

from 200 Scale maping

			Cogo Pt
	10+00	1714	N/A
Crest ℄ intersects Dam Survey Control line	11+80	1715.04 (14.86)	N/A
	25' 12+05	1715.04 (14.86)	N/A
	25' 12+30	1713.93 (.75)	305
	12+40	1713.50 (.32)	304
	12+53	13.25 (.07)	302
	12+53	12.75 (.57)	298
	12+68	11.96 (.78)	296
	12+68	09.97 (.79)	198
	12+88	08.09 (07.91)	294
	12+88	06.61 (.43)	293
	13+08	04.65 (.47)	291
	13+08	03.15 (02.77)	289
	14+55.38	1702.67 (.49)	134

Inverse 153 SW 29-47-32.91 27.00000 154 STA = 11+44.00

****

Dam 4 Angle Right to RCP from dam CL.

Inverse	16 NE	29-47-32.91	114.32952	204	33754.03299	25487.97186

RADIAL INVERSE FROM LINE - Base Pt. # 204 TO 16

Rad Inv	204 AR	90- 6-36.08	50.86429	21	33779.39014	25443.87887
Rad Inv	204 NW	60- 5-51.01	50.86429	21	33779.39014	25443.87887
Inverse	204 SW	29-47-32.91	23.32952	1	33733.78692	25476.38035
Inverse	1 NE	29-47-32.91	30.22511	203	33760.01720	25491.39800

IAL INVERSE FROM LINE - Base Pt. # 203 TO 1

Rad Inv	203 AR	90- 6-36.08	51.00099	20	33785.44250	25447.18651
Rad Inv	203 NW	60- 5-51.01	51.00099	20	33785.44250	25447.18651
Inverse	203 NW	60- 5-51.01	51.00099	20	33785.44250	25447.18651
Inverse	20 SE	60- 5-51.01	51.00099	203	33760.01720	25491.39800
Inverse	203 SE	60- 5-51.01	54.53497	25	33732.83012	25538.67300
Inverse	25 NW	60- 5-51.01	105.53597	20	33785.44250	25447.18651
Inverse	20 SW	28-39-24.48	6.89721	21	33779.39014	25443.87887
Inverse	21 SE	60- 5-51.01	50.86429	204	33754.03299	25487.97186
Inverse	204 SE	60- 5-51.01	54.67167	26	33726.77777	25535.36537
Inverse	26 NW	60- 5-51.01	105.53597	21	33779.39014	25443.87887

Left 60" RCP

Dist from ℄ to ℄

Right Arch RCP
60" RCP with sewer line

****

Dam 4 Spillway Angle Right from Spillway to Dam CL.

Inverse	288 NE	4- 4-49.48	112.14647	8	33201.28599	25171.50706

RADIAL INVERSE FROM LINE - Base Pt. # 8 TO 288

Rad Inv	8 AR	25-42-43.43	155.20000	6	33066.59867	25094.39439
Rad Inv	8 SW	29-47-32.91	155.20000	6	33066.59867	25094.39439

CURRENT DATE: 07-29-1994
CURRENT TIME: 14:49:38

FILE DATE: 7-29-94
FILE NAME: C599

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1694.51	1693.24	105.54	1 RCP	5.00	5.00	.012	CONVENTIONAL
2	1696.56	1695.10	105.54	1 CMPA	4.75	3.17	.012	CONVENTIONAL
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C599 DATE: 7-29-94

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1694.51	0	0	0	0	0	0	0	0	0
1697.79	80	66	14	0	0	0	0	0	6
1699.13	160	113	47	0	0	0	0	0	3
1700.46	240	159	81	0	0	0	0	0	4
1702.20	320	206	114	0	0	0	0	0	4
1704.48	400	255	145	0	0	0	0	0	5
1707.34	480	304	176	0	0	0	0	0	4
1710.74	560	354	206	0	0	0	0	0	5
1714.64	640	404	236	0	0	0	0	0	5
1719.08	720	454	266	0	0	0	0	0	6
1723.72	800	499	294	0	0	0	0	7	6
1722.00	767	483	284	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C599 DATE: 7-29-94

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1694.51	0.00	0	0	0.00
1697.79	-0.00	80	0	0.13
1699.13	0.01	160	-0	-0.22
1700.46	-0.00	240	0	0.01
1702.20	0.00	320	-0	-0.01
1704.48	0.00	400	-0	-0.00
1707.34	0.00	480	-0	-0.02
1710.74	0.00	560	-0	-0.02
1714.64	0.00	640	-0	-0.01
1719.08	0.00	720	-0	-0.00
1723.72	-0.01	800	0	0.02

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 07-29-1994
CURRENT TIME: 14:49:38

FILE DATE: 7-29-94
FILE NAME: C599

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5 BY 5) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1694.51	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
66	1697.80	3.29	3.29	1-S2n	1.55	2.27	11.39	1.67	3.96	1.19
113	1699.13	4.62	4.62	1-S2n	2.08	3.03	12.86	2.29	4.90	1.57
159	1700.46	5.95	5.95	5-S2n	2.54	3.60	13.95	2.82	5.53	1.87
206	1702.20	7.69	7.69	5-S2n	2.98	4.08	14.98	3.31	6.01	2.12
255	1704.48	9.97	9.97	5-S2n	3.45	4.44	15.99	3.79	6.40	2.33
304	1707.33	12.82	12.82	5-S2n	4.01	4.80	17.16	4.25	6.73	2.52
354	1710.74	16.23	12.94	6-FFn	5.00	5.00	18.02	5.00	7.03	2.69
404	1714.64	20.13	15.74	6-FFn	5.00	5.00	20.57	5.00	7.29	2.85
454	1719.08	24.57	18.90	6-FFn	5.00	5.00	23.12	5.00	7.54	3.01
499	1723.71	29.20	22.05	6-FFn	5.00	5.00	25.41	5.00	7.75	3.15

El. inlet face invert 1694.51 ft El. outlet invert 1693.24 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                          0.00
      INLET ELEVATION (FT)                     1694.51
      OUTLET STATION (FT)                       105.53
      OUTLET ELEVATION (FT)                    1693.24
      NUMBER OF BARRELS                           1
      SLOPE (V-FT/H-FT)                           0.0120
      CULVERT LENGTH ALONG SLOPE (FT)          105.54

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         5.00 FT
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S N    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

3

CURRENT DATE: 07-29-1994 FILE DATE: 7-29-94
CURRENT TIME: 14:49:38 FILE NAME: C599

PERFORMANCE CURVE FOR CULVERT # 2 - 1 (4.75 BY 3.166667) CMPA

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1696.56	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	-1.86
14	1697.79	1.23	1.23	1-S2n	0.52	0.81	7.70	0.55	3.96	-0.67
47	1699.14	2.58	2.58	1-S2n	1.02	1.61	10.89	1.09	4.90	-0.29
81	1700.46	3.90	3.90	5-S2n	1.42	2.19	12.46	1.55	5.53	0.01
114	1702.19	5.63	5.63	5-S2n	1.80	2.60	13.64	1.97	6.01	0.26
145	1704.48	7.92	7.92	5-S2n	2.20	2.89	14.63	2.39	6.40	0.47
176	1707.33	10.77	10.77	5-S2n	2.82	3.17	15.66	2.82	6.73	0.66
206	1710.74	14.18	11.45	6-FFn	3.17	3.17	17.42	3.17	7.03	0.83
236	1714.64	18.08	14.47	6-FFn	3.17	3.17	19.94	3.17	7.29	0.99
266	1719.08	22.52	17.90	6-FFn	3.17	3.17	22.46	3.17	7.54	1.15

294	1723.72	27.16	21.49	6-FFn	3.17	3.17	24.83	3.17	7.75	1.29

El. inlet face invert	1696.56 ft	El. outlet invert	1695.10 ft
El. inlet throat invert	0.00 ft	El. inlet crest	0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                          0.00
      INLET ELEVATION (FT)                     1696.56
      OUTLET STATION (FT)                       105.53
      OUTLET ELEVATION (FT)                    1695.10
      NUMBER OF BARRELS                           1
      SLOPE (V-FT/H-FT)                           0.0138
      CULVERT LENGTH ALONG SLOPE (FT)          105.54

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          PIPE ARCH
      BARREL SPAN             4.75 FT
      BARREL RISE             3.17 FT
      BARREL MATERIAL       STEEL OR ALUMINUM
      BARREL MANNING'S N    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   HEADWALL
      INLET DEPRESSION      NONE
```

4

CURRENT DATE: 07-29-1994
CURRENT TIME: 14:49:38

FILE DATE: 7-29-94
FILE NAME: C599

TAILWATER

```
***** USER DEFINED CHANNEL CROSS-SECTION
      MAIN CHANNEL AND LT & RT OVER BANKS
      LEFT CHANNEL BOUNDARY            6
      RIGHT CHANNEL BOUNDARY          11
      MANNING N LEFT OVER BANK         0.055
      MANNING N MAIN CHANNEL           0.045
      MANNING N RIGHT OVER BAN         0.025
      SLOPE OF CHANNEL (FT/FT)         0.0240
```

FILE NAME: C599
FILE DATE: 04-27-1993

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1701.84
2	1004.00	1698.64
3	1011.00	1696.24
4	1022.00	1695.24
5	1033.00	1695.64
6	1038.00	1696.54
7	1049.00	1694.04
8	1070.00	1693.24
9	1073.00	1693.94
10	1100.00	1697.14
11	1100.10	1697.54
12	1127.00	1704.82

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1693.24	0.000	0.00	0.00	0.00

80.00	1694.43	0.843	1.19	3.96	1.02
160.00	1694.81	0.889	1.57	4.90	1.40
240.00	1695.11	0.916	1.87	5.53	1.68
320.00	1695.36	0.935	2.12	6.01	1.91
400.00	1695.57	0.950	2.33	6.40	2.10
480.00	1695.76	0.962	2.52	6.73	2.26
560.00	1695.93	0.972	2.69	7.03	2.41
640.00	1696.09	0.981	2.85	7.29	2.55
720.00	1696.25	0.989	3.01	7.54	2.68
800.00	1696.39	0.996	3.15	7.75	2.79

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1722.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************

    PROJECT:  Fountain Hills North FIS                    C599 (Dam 4)
    ENGINEER:  MG
    DATE:   9/16/1994
    TIME:  14:28.49


---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------

    STARTING WSEL:       1714.80
    MAXIMUM WSEL:        1721.00
    STEP SIZE:              0.20
    BREADTH OF WEIR:       25.00


*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                    C599 (Dam 4)
    DATE:   9/16/1994
    TIME:  14:28.49
*********************************************
```

POINT	ELEVATION	STATION
1	1721.84	1784.00
2	1714.86	1805.60
3	1715.09	1944.90
4	1715.33	1945.00
5	1715.69	1994.10
6	1715.92	1994.20
7	1715.96	2024.80
8	1716.63	2024.90
9	1716.64	2084.30
10	1721.00	2084.31

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                    C599 (Dam 4)
    DATE:   9/16/1994
    TIME:  14:28.49
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5267
3	0.40	2.5533
4	0.60	2.5800
5	0.80	2.6067
6	1.00	2.6333
7	1.20	2.6600
8	1.40	2.6867
9	1.60	2.7133
10	1.80	2.7400
11	2.00	2.7667
12	2.20	2.7933
13	2.40	2.8200
14	2.60	2.8467
15	2.80	2.8733
16	3.00	2.9000
17	3.20	2.9267
18	3.40	2.9533
19	3.60	2.9800
20	3.80	3.0004
21	4.00	3.0022
22	4.20	3.0040
23	4.40	3.0058
24	4.60	3.0076
25	4.80	3.0093
26	5.00	3.0111
27	5.20	3.0129
28	5.40	3.0147
29	5.60	3.0164
30	5.80	3.0182
31	6.00	3.0200

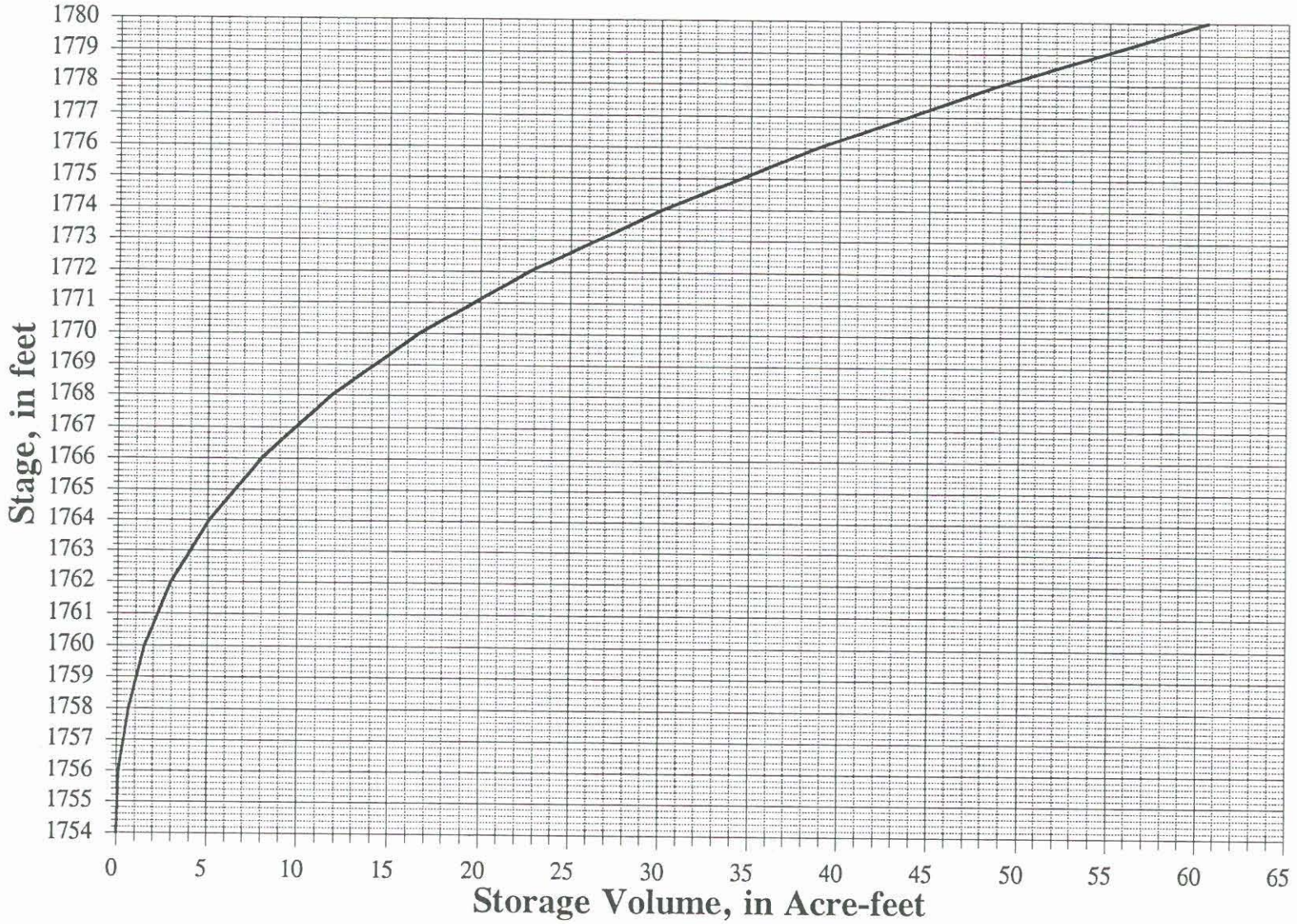
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                    C599 (Dam 4)
    DATE:   9/16/1994
    TIME:  14:28.49
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1714.80	0.00
1715.00	4.48
1715.20	39.05
1715.40	100.41
1715.60	185.23
1715.80	296.22
1716.00	431.25
1716.20	594.13
1716.40	780.51
1716.60	988.34
1716.80	1226.54
1717.00	1497.73
1717.20	1796.36
1717.40	2120.69
1717.60	2469.78
1717.80	2843.00
1718.00	3239.93
1718.20	3660.29
1718.40	4103.87
1718.60	4570.52
1718.80	5050.55
1719.00	5534.38
1719.20	6036.86
1719.40	6551.34
1719.60	7080.12
1719.80	7622.53
1720.00	8178.26
1720.20	8749.56
1720.40	9335.57
1720.60	9925.93
1720.80	10529.72

Hydraulic Calculations for Structure at C600

C600 Storage Volume

Calculated From Planimetered Contours

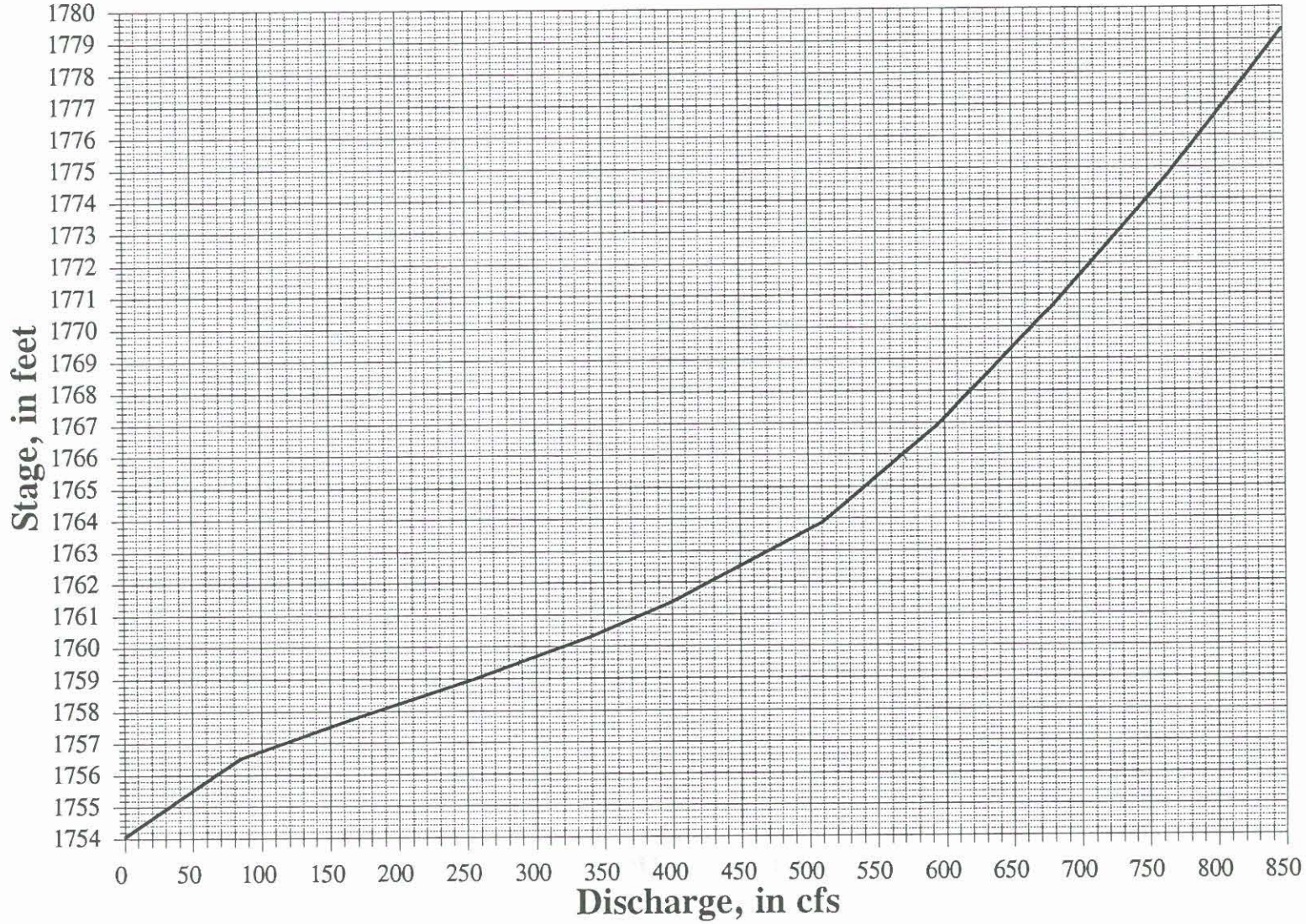


storrout.wb1

29-Oct-93

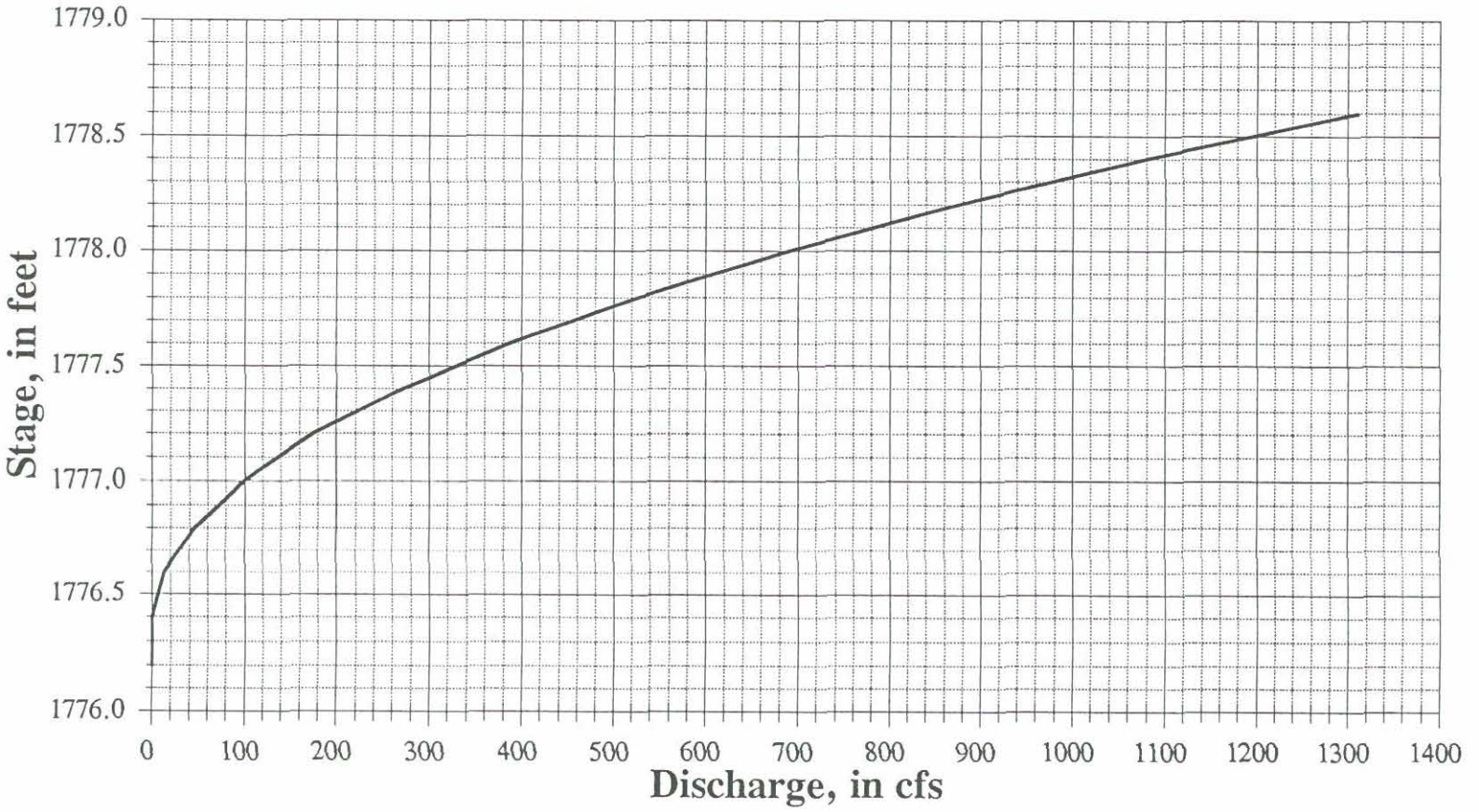
C600 Stage vs Discharge

Culvert Flow from HY8



C600 Stage vs Discharge

Weir Flow from Uneven Weir



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 3

CLIENT MC FCD

DATE 16 July 93

PROJECT FOUNTAIN HILLS NORTH FIS

BY DTP

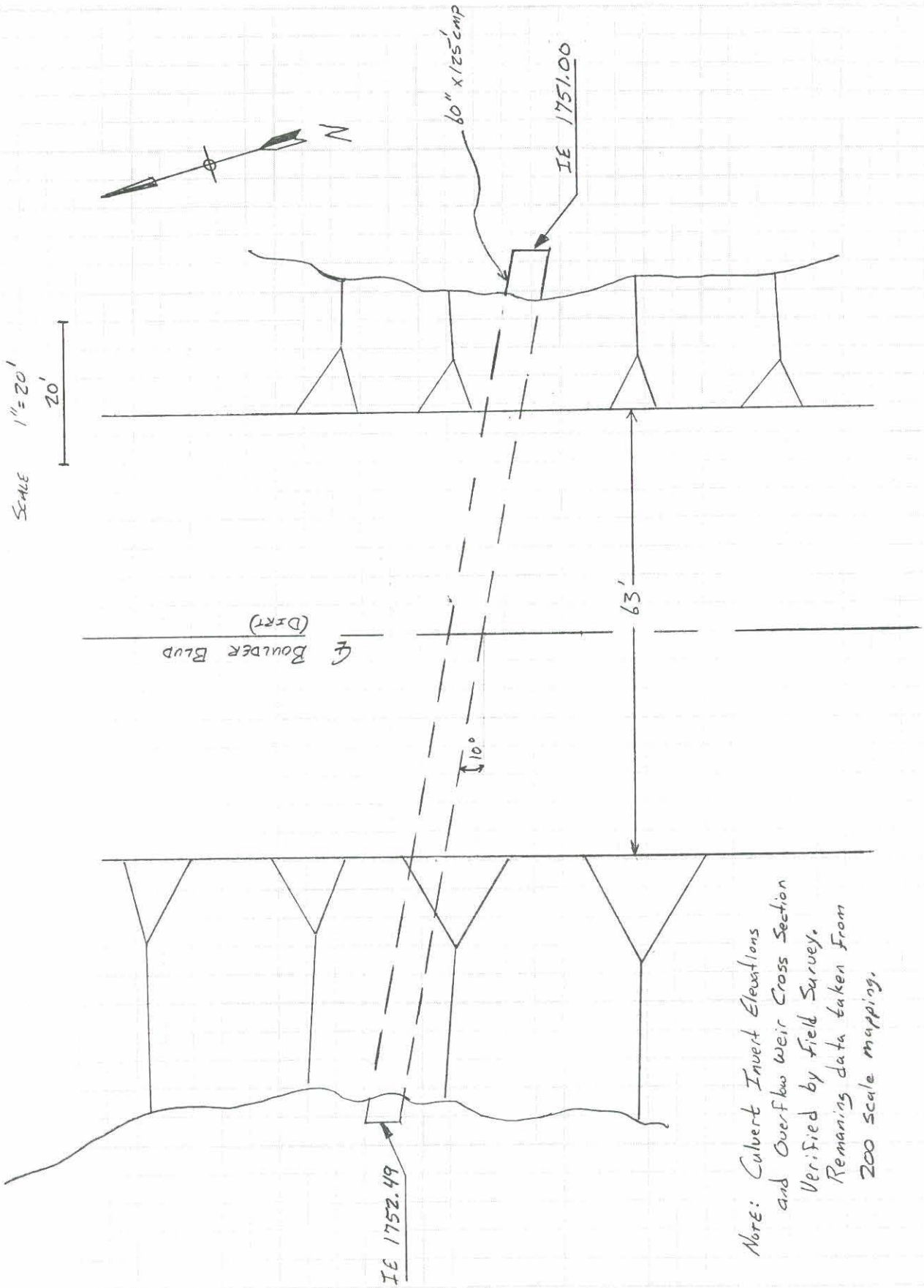
SUBJECT CULVERT 600 Field Survey

PROJECT NO. 35

CULVERT 600

PLAN VIEW

SCALE 1" = 20'



Note: Culvert Invert Elevations and Overflow Weir Cross Section Verified by Field Survey. Remaining data taken from 200 scale mapping.

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 3

CLIENT M. C. F. C. D.

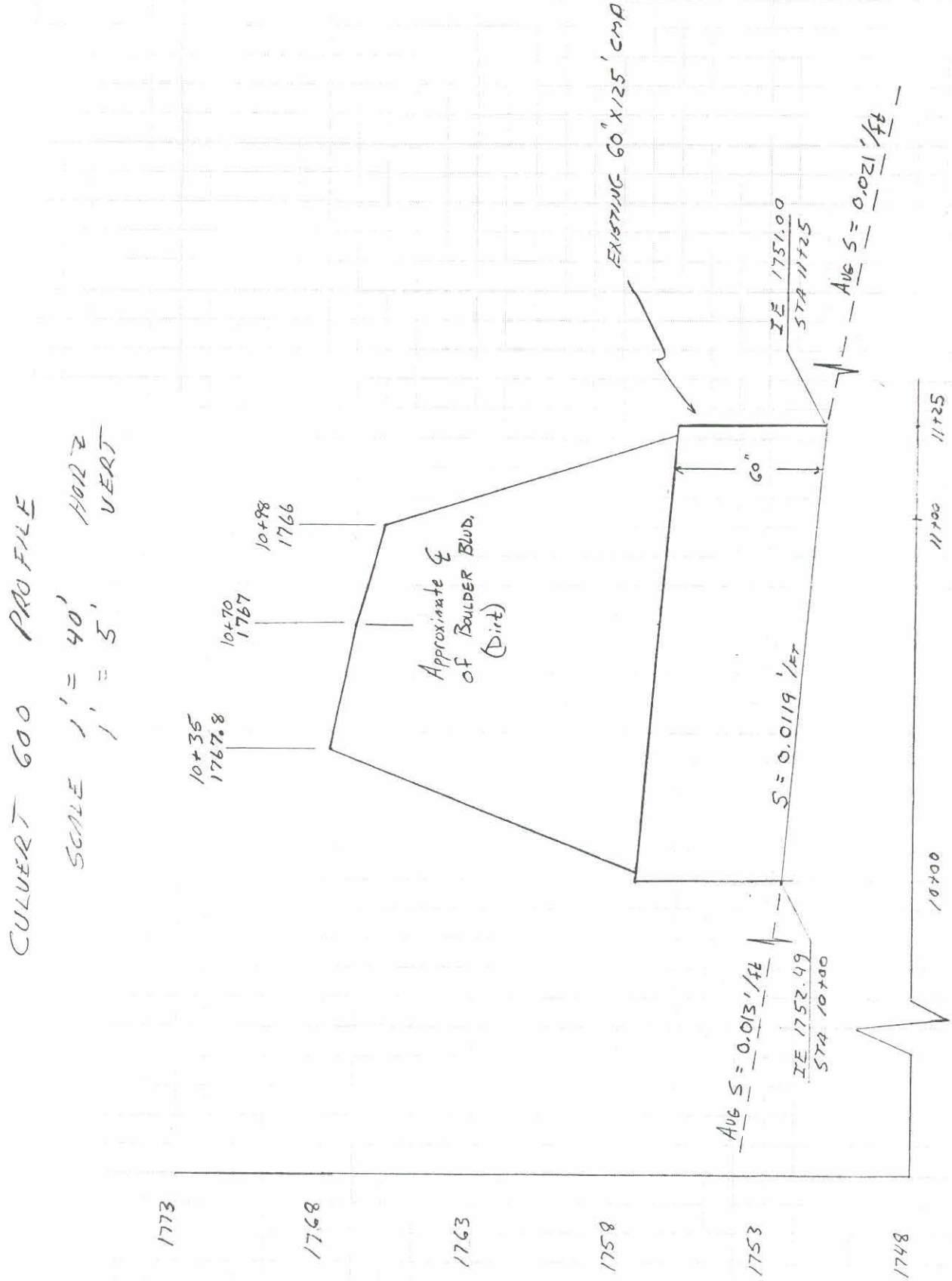
DATE 12-JUL-93

PROJECT F. HILLS

BY R. C.

SUBJECT CULVERT #600 FIELD SURVEY

PROJECT NO. 35



NOTE: CULVERT Invert elevations and Overflow Weir cross section verified by Field Survey. Remaining data taken from 200 scale mapping.

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 3

CLIENT MC FCD

DATE 12-JUL-93

PROJECT F. HILLS F.I.S.

BY R.C.

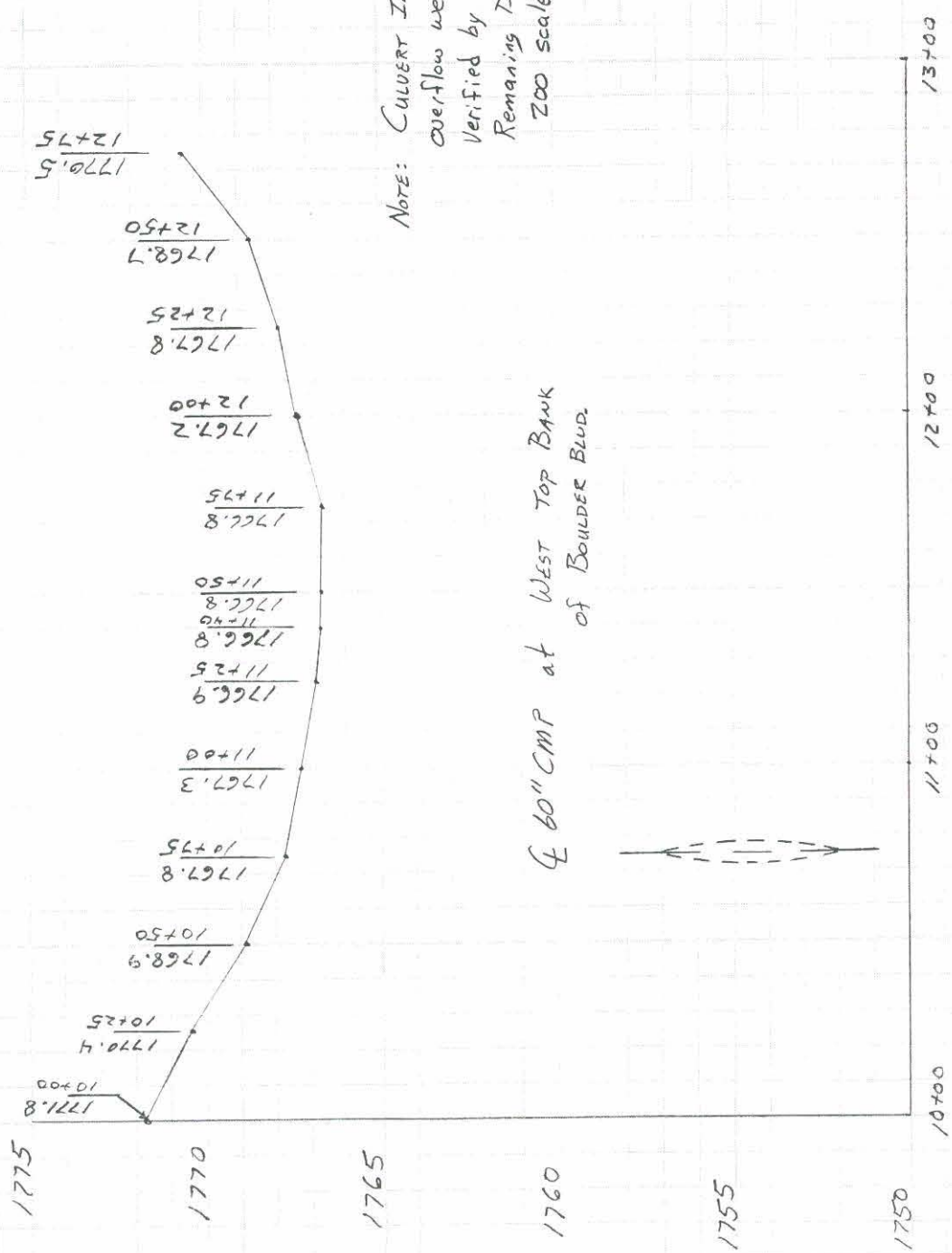
SUBJECT CULVERT #600 FIELD SURVEY

PROJECT NO. 35

CULVERT #600 WIER CROSS SECTION WEST TOP BANK

SCALE: 1" = 50' HOR
1" = 5' VERT

NOTE: CULVERT Invert elevations and overflow weir cross section verified by field survey. Remaining Data taken from 200 scale mapping.



CURRENT DATE: 10-29-1993
CURRENT TIME: 16:31:29

FILE DATE: 06-16-1993
FILE NAME: C600

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1754.07	1750.24	146.05	2 CSP	5.00	5.00	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C600 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1754.07	0	0	0	0	0	0	0	0	1
1756.54	85	85	0	0	0	0	0	0	1
1757.81	170	170	0	0	0	0	0	0	1
1758.99	255	255	0	0	0	0	0	0	1
1760.31	340	340	0	0	0	0	0	0	1
1761.40	400	400	0	0	0	0	0	0	1
1763.86	510	510	0	0	0	0	0	0	1
1766.92	595	595	0	0	0	0	0	0	1
1770.66	680	680	0	0	0	0	0	0	1
1774.76	765	765	0	0	0	0	0	0	1
1779.31	850	849	0	0	0	0	0	1	7
1779.00	844	844	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C600 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1754.07	0.00	0	0	0.00
1756.54	0.00	85	0	0.00
1757.81	0.00	170	0	0.00
1758.99	0.00	255	0	0.00
1760.31	0.00	340	0	0.00
1761.40	0.00	400	0	0.00
1763.86	0.00	510	0	0.00
1766.92	0.00	595	0	0.00
1770.66	0.00	680	0	0.00

1774.76	0.00	765	0	0.00
1779.31	0.00	850	-0	-0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 10-29-1993 FILE DATE: 06-16-1993
CURRENT TIME: 16:31:29 FILE NAME: C600

PERFORMANCE CURVE FOR CULVERT # 1 - 2 (5 BY 5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1754.07	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
85	1756.54	2.47	2.47	1-S2n	1.45	1.81	8.95	1.45	4.01	0.98
170	1757.81	3.74	3.74	1-S2n	2.11	2.61	10.82	2.11	5.15	1.42
255	1758.99	4.92	4.92	1-S2n	2.67	3.22	11.98	2.67	5.94	1.76
340	1760.31	6.24	6.24	5-S2n	3.21	3.72	12.76	3.21	6.57	2.05
400	1761.40	7.33	7.33	5-S2n	3.63	4.03	13.12	3.63	6.96	2.24
510	1763.86	9.79	9.56	6-FFn	5.00	4.44	12.99	5.00	7.56	2.53
595	1766.92	12.14	12.85	6-FFn	5.00	4.76	15.15	5.00	7.97	2.74
680	1770.66	14.86	16.59	6-FFn	5.00	5.00	17.32	5.00	8.33	2.93
765	1774.76	17.94	20.69	6-FFn	5.00	5.00	19.48	5.00	8.66	3.10
849	1779.30	21.34	25.23	6-FFn	5.00	5.00	21.63	5.00	8.97	3.27

El. inlet face invert 1754.07 ft El. outlet invert 1750.24 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                      0.00
      INLET ELEVATION (FT)                 1754.07
      OUTLET STATION (FT)                   146.00
      OUTLET ELEVATION (FT)                1750.24
      NUMBER OF BARRELS                       2
      SLOPE (V-FT/H-FT)                       0.0262
      CULVERT LENGTH ALONG SLOPE (FT)       146.05

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         5.00 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

CURRENT DATE: 10-29-1993
CURRENT TIME: 16:31:29

FILE DATE: 06-16-1993
FILE NAME: C600

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C600
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	6
RIGHT CHANNEL BOUNDARY	7
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.040
MANNING N RIGHT OVER BAN	0.055
SLOPE OF CHANNEL (FT/FT)	0.0120

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1760.24
2	1003.00	1758.24
3	1007.00	1756.24
4	1018.00	1754.24
5	1029.00	1752.24
6	1039.00	1750.24
7	1058.00	1750.24
8	1075.00	1752.24
9	1095.00	1754.24
10	1123.00	1756.24
11	1133.00	1758.24
12	1149.00	1760.24

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1750.24	0.000	0.00	0.00	0.00
85.00	1751.22	0.714	0.98	4.01	0.73
170.00	1751.66	0.760	1.42	5.15	1.06
255.00	1752.00	0.788	1.76	5.94	1.32
340.00	1752.29	0.808	2.05	6.57	1.54
400.00	1752.48	0.820	2.24	6.96	1.67
510.00	1752.77	0.837	2.53	7.56	1.90
595.00	1752.98	0.848	2.74	7.97	2.05
680.00	1753.17	0.858	2.93	8.33	2.19
765.00	1753.34	0.866	3.10	8.66	2.32
850.00	1753.51	0.874	3.27	8.97	2.45

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE GRAVEL

EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1779.00

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************


    PROJECT:  Fountain Hills North FIS          C600
    ENGINEER:  dtp
    DATE:  10/29/1993
    TIME:   3:43.43




-----------------------------------------------
    INPUT PARAMETERS
-----------------------------------------------


    STARTING WSEL:       1776.20
    MAXIMUM WSEL:        1778.60
    STEP SIZE:              0.20
    BREADTH OF WEIR:       36.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS            C600
    DATE:  10/29/1993
    TIME:   3:43.43
*********************************************
```

POINT	ELEVATION	STATION
1	1779.46	0.00
2	1778.50	25.00
3	1777.72	50.00
4	1777.11	75.00
5	1776.68	100.00
6	1776.43	125.00
7	1776.36	150.00
8	1776.46	175.00
9	1776.74	200.00
10	1777.20	225.00
11	1777.84	250.00
12	1778.65	275.00

```
*******************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS          C600
    DATE:  10/29/1993
    TIME:   3:43.43
*******************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5185
3	0.40	2.5370
4	0.60	2.5556
5	0.80	2.5741
6	1.00	2.5926
7	1.20	2.6111
8	1.40	2.6296
9	1.60	2.6481
10	1.80	2.6667
11	2.00	2.6852
12	2.20	2.7037
13	2.40	2.7222

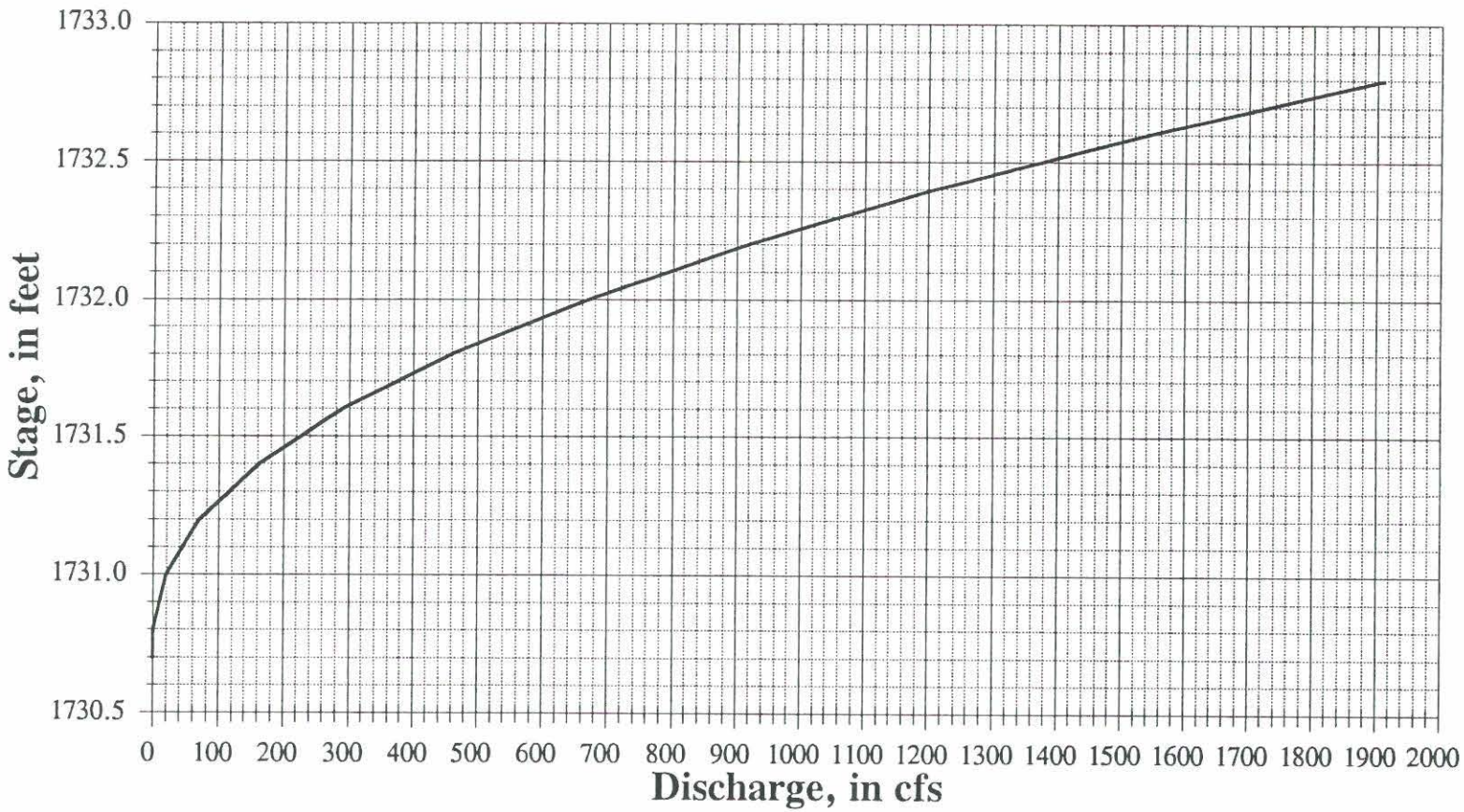
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS          C600
    DATE:  10/29/1993
    TIME:   3:43.43
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1776.20	0.00
1776.40	0.19
1776.60	12.96
1776.80	46.02
1777.00	99.58
1777.20	174.05
1777.40	269.90
1777.60	387.15
1777.80	526.42
1778.00	688.18
1778.20	872.55
1778.40	1079.92
1778.60	1310.84

Hydraulic Calculations for Structure at C605

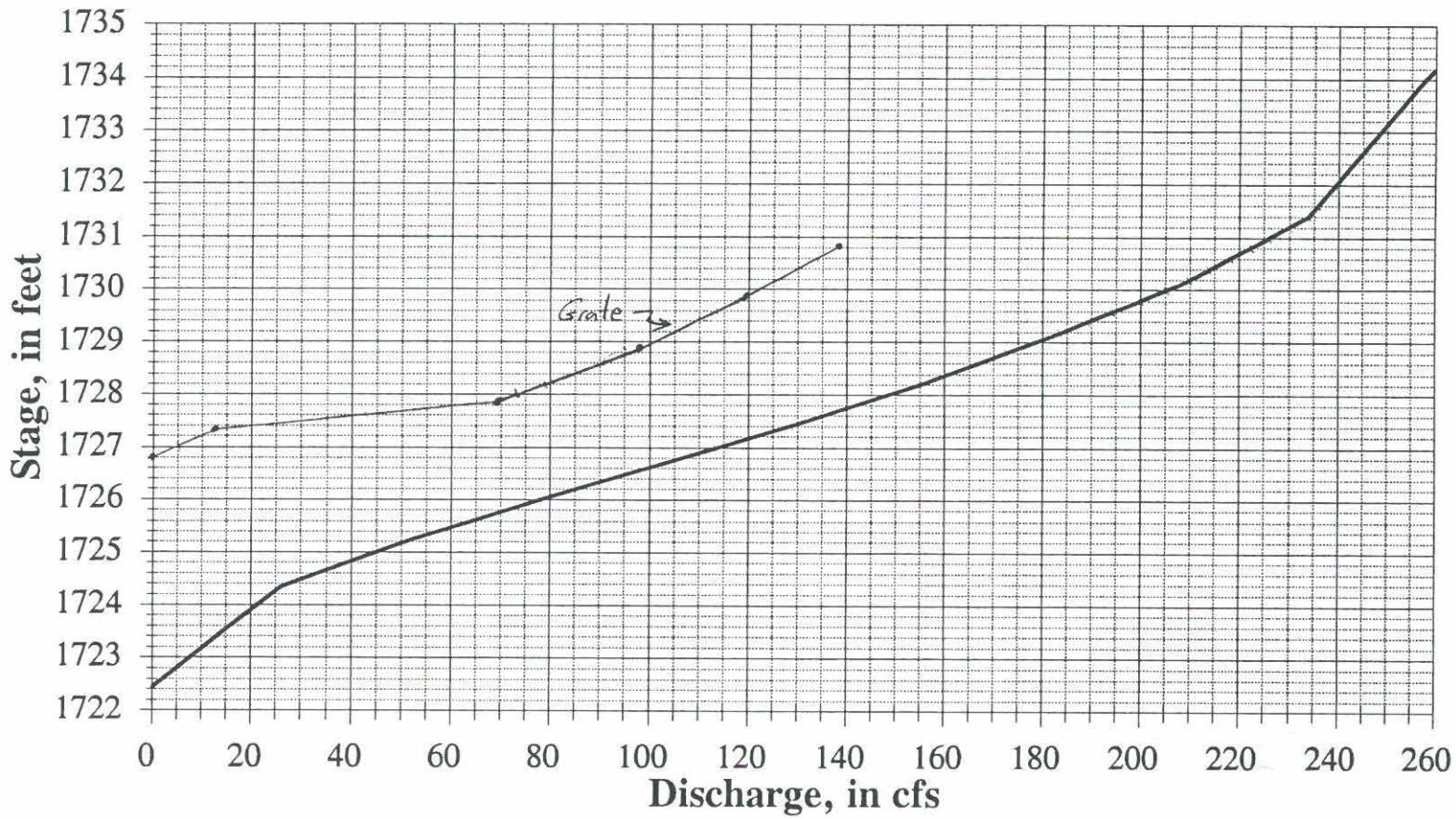
C605 Stage vs Discharge

Weir Flow from Uneven Weir



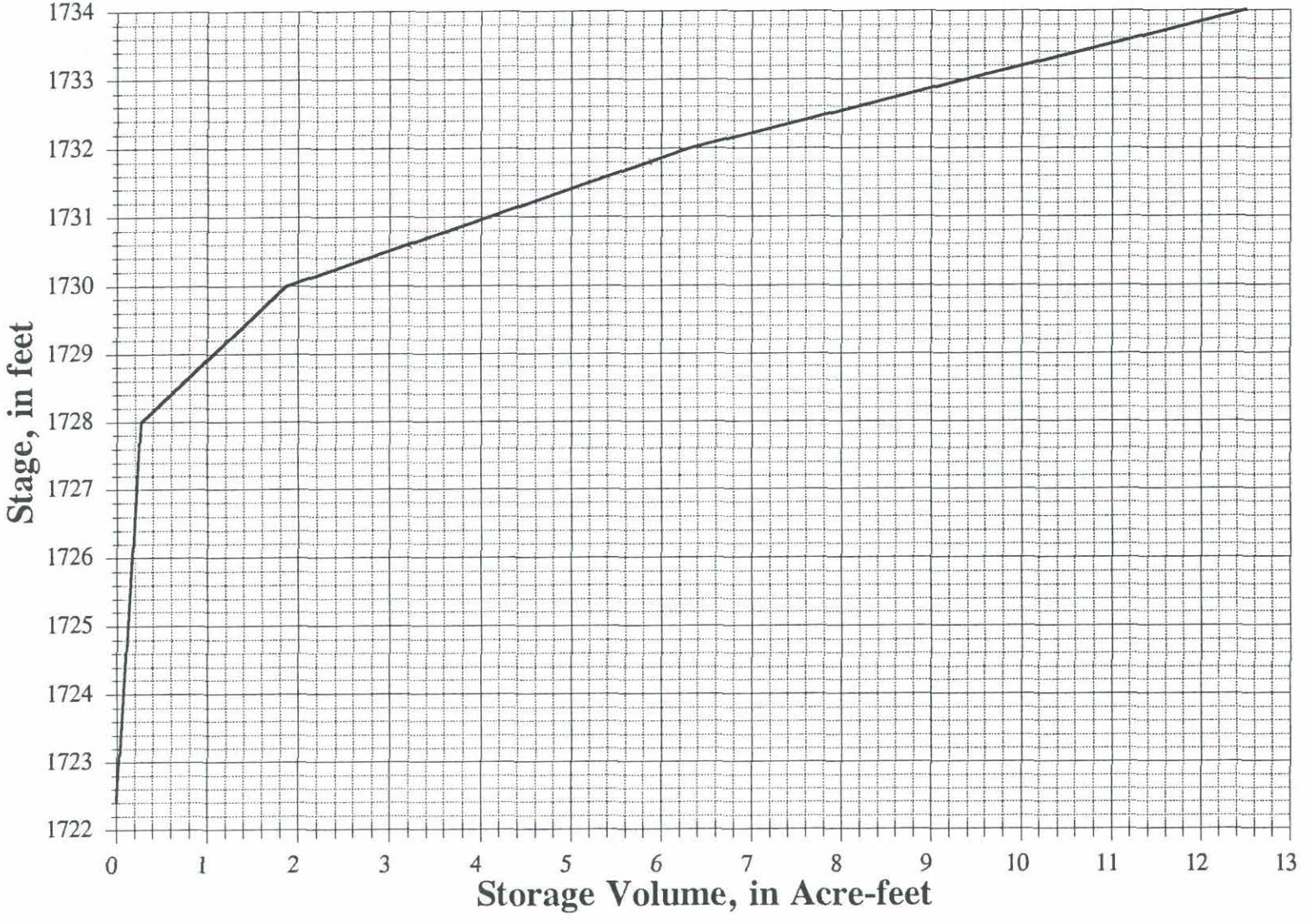
C605 Stage vs. Discharge

Culvert Flow from HY8



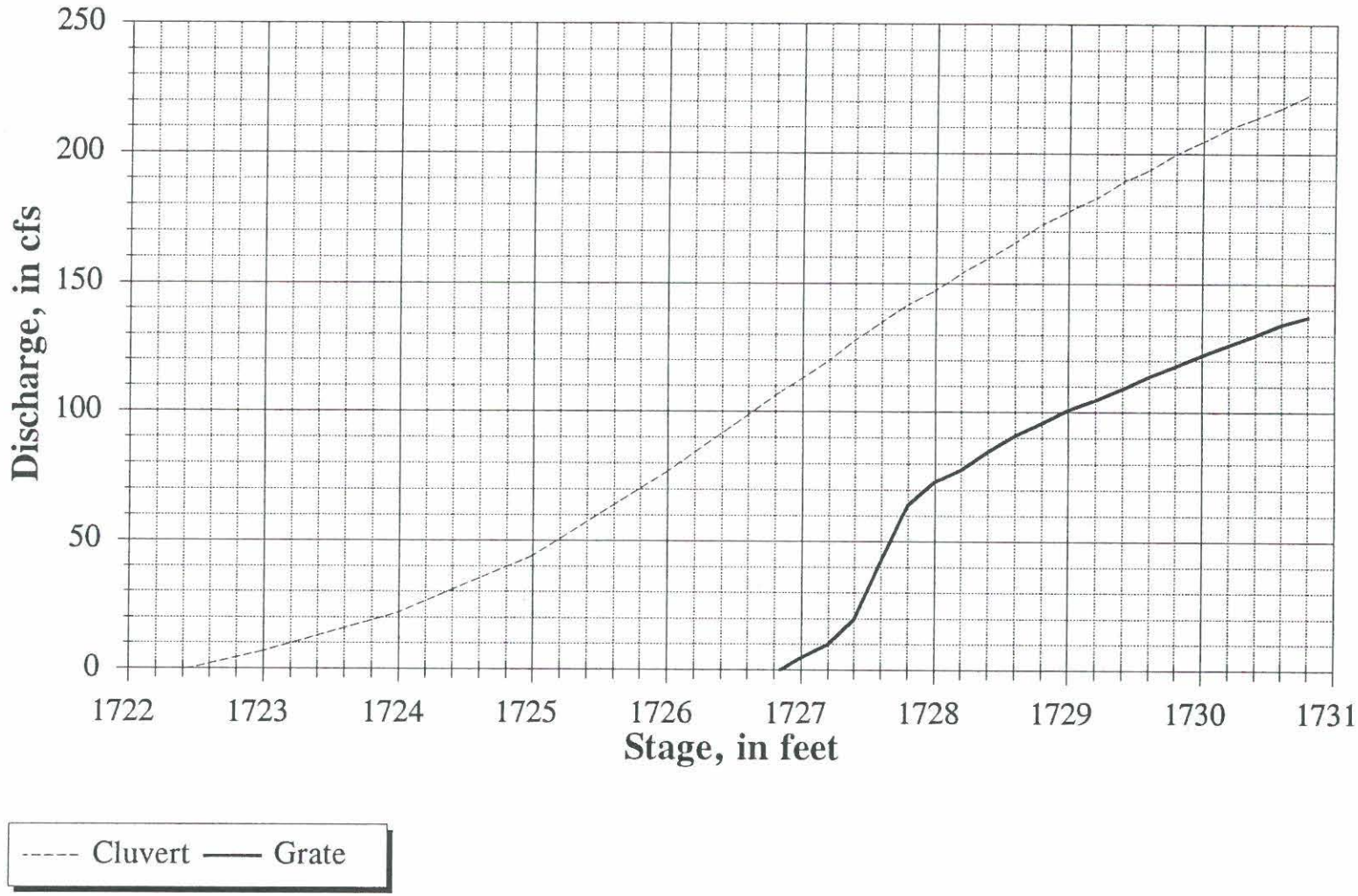
C605 Storage Volume

Calculated From Planimetered Contours



C605 Stage vs Discharge

Culvert/Grate Analysis



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF

CLIENT FCDMC

DATE 10/29/93

PROJECT Fountain Hills North FIS

BY TRL

SUBJECT C605 Inlet

PROJECT NO. 35

Double 4x4 grate in a sag with a P-1 7/8 Grate

Clear Opening Area = $(4\times4)2\times0.8 = 25.6\,ft^2$

Assume a clogging factor of 2.

head = 0.5' : Weir flow

$Q = C_w P d^{1.5}$ $\quad C_w = 3.0$, $P = 8\times2 + 4\times2 = 24'$, $d = 0.5'$

$Q = 3(24)0.5^{1.5} = 25.5$ cfs

Adj. for Clogging

$Q = Q/2 = 12.7$ cfs

head = 1.0' : Orifice flow

$Q = 0.67\,A(2gd)^{0.5}/2$

$= \frac{(0.67)}{2}(25.6)(64.4)^{.5}$

$= 69$ cfs

head = 2.0' : Orifice Flow

$Q = \frac{(0.67)}{2}(25.6)(64.4\cdot2)^{0.5}$

$= 97$ cfs

head = 3.0: $Q = \frac{0.67}{2}(25.6)(64.4\cdot3)^{0.5} = 119$ cfs

head = 4.0 $Q = \frac{0.67}{2}(25.6)(64.4\cdot4)^{0.5} = 138$ cfs

CURRENT DATE: 06-16-1993
CURRENT TIME: 09:48:56

FILE DATE: 06-16-1993
FILE NAME: C605

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1722.45	1715.23	357.57	1 CSP	5.00	5.00	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C605 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1722.45	0	0	0	0	0	0	0	0	1
1724.31	25	25	0	0	0	0	0	0	1
1725.18	50	50	0	0	0	0	0	0	1
1725.92	75	75	0	0	0	0	0	0	1
1726.62	100	100	0	0	0	0	0	0	1
1727.32	125	125	0	0	0	0	0	0	1
1728.06	150	150	0	0	0	0	0	0	1
1728.88	175	175	0	0	0	0	0	0	1
1729.80	200	200	0	0	0	0	0	0	1
1731.94	225	225	0	0	0	0	0	0	1
1734.67	250	248	0	0	0	0	0	2	5
1734.00	243	243	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C605 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1722.45	0.00	0	0	0.00
1724.31	0.00	25	0	0.00
1725.18	0.00	50	0	0.00
1725.92	0.00	75	0	0.00
1726.62	0.00	100	0	0.00
1727.32	0.00	125	0	0.00
1728.06	0.00	150	0	0.00
1728.88	0.00	175	0	0.00
1729.80	0.00	200	0	0.00

1731.94	0.00	225	0	0.00
1734.67	-0.01	250	0	0.04

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 06-16-1993 FILE DATE: 06-16-1993
CURRENT TIME: 09:48:56 FILE NAME: C605

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (5 BY 5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1722.45	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
25	1724.31	1.86	1.86	1-S2n	1.17	1.37	7.08	1.17	3.80	0.77
50	1725.18	2.73	2.73	1-S2n	1.69	1.98	8.55	1.69	4.55	1.08
75	1725.92	3.47	3.47	1-S2n	2.11	2.44	9.51	2.11	5.06	1.30
100	1726.62	4.17	4.17	1-S2n	2.49	2.84	10.22	2.49	5.46	1.49
125	1727.32	4.87	4.87	1-S2n	2.86	3.19	10.79	2.86	5.78	1.65
150	1728.06	5.61	5.61	5-S2n	3.23	3.51	11.21	3.23	6.06	1.79
175	1728.88	6.43	6.43	5-S2n	3.62	3.78	11.51	3.62	6.30	1.92
200	1729.80	7.35	7.24	2-M2c	4.10	4.03	11.79	4.03	6.55	2.03
225	1731.94	8.39	9.49	6-FFn	5.00	4.22	11.46	5.00	6.86	2.12
248	1734.66	9.47	12.21	6-FFn	5.00	4.39	12.64	5.00	7.15	2.20

El. inlet face invert 1722.45 ft El. outlet invert 1715.23 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1722.45
      OUTLET STATION (FT)                     357.50
      OUTLET ELEVATION (FT)                  1715.23
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0202
      CULVERT LENGTH ALONG SLOPE (FT)        357.57

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         5.00 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE WITH HEADWALL
      INLET DEPRESSION      NONE
```

CURRENT DATE: 06-16-1993
CURRENT TIME: 09:48:56

FILE DATE: 06-16-1993
FILE NAME: C605

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C605
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	2
RIGHT CHANNEL BOUNDARY	5
MANNING N LEFT OVER BANK	0.035
MANNING N MAIN CHANNEL	0.050
MANNING N RIGHT OVER BAN	0.023
SLOPE OF CHANNEL (FT/FT)	0.0380

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1719.20
2	1045.00	1717.23
3	1060.00	1715.23
4	1065.00	1715.23
5	1070.00	1717.23
6	1080.00	1719.23
7	1100.00	1721.23
8	1110.00	1723.23

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1715.23	0.000	0.00	0.00	0.00
25.00	1716.00	0.912	0.77	3.80	1.26
50.00	1716.31	0.953	1.08	4.55	1.65
75.00	1716.53	0.978	1.30	5.06	1.94
100.00	1716.72	0.996	1.49	5.46	2.17
125.00	1716.88	1.010	1.65	5.78	2.36
150.00	1717.02	1.022	1.79	6.06	2.54
175.00	1717.15	1.032	1.92	6.30	2.69
200.00	1717.26	1.042	2.03	6.55	2.85
225.00	1717.35	1.054	2.12	6.86	3.06
250.00	1717.43	1.065	2.20	7.15	3.25

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1734.00

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************


    PROJECT:  Fountain Hills North FIS                    C605
    ENGINEER:  dtp
    DATE:  10/20/1993
    TIME:  15:13. 8




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:      1730.60
    MAXIMUM WSEL:       1732.80
    STEP SIZE:             0.20
    BREADTH OF WEIR:      85.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                    C605
    DATE:  10/20/1993
    TIME:  15:13. 8
*********************************************
```

POINT	ELEVATION	STATION
1	1732.94	1000.00
2	1732.74	1050.00
3	1732.24	1100.00
4	1731.74	1150.00
5	1731.44	1200.00
6	1730.92	1250.00
7	1730.70	1300.00
8	1731.00	1350.00
9	1731.10	1400.00
10	1731.25	1438.43
11	1732.27	1488.00
12	1733.94	1538.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                    C605
    DATE:  10/20/1993
    TIME:  15:13. 8
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5078
3	0.40	2.5157
4	0.60	2.5235
5	0.80	2.5314
6	1.00	2.5392
7	1.20	2.5471
8	1.40	2.5549
9	1.60	2.5627
10	1.80	2.5706
11	2.00	2.5784
12	2.20	2.5863

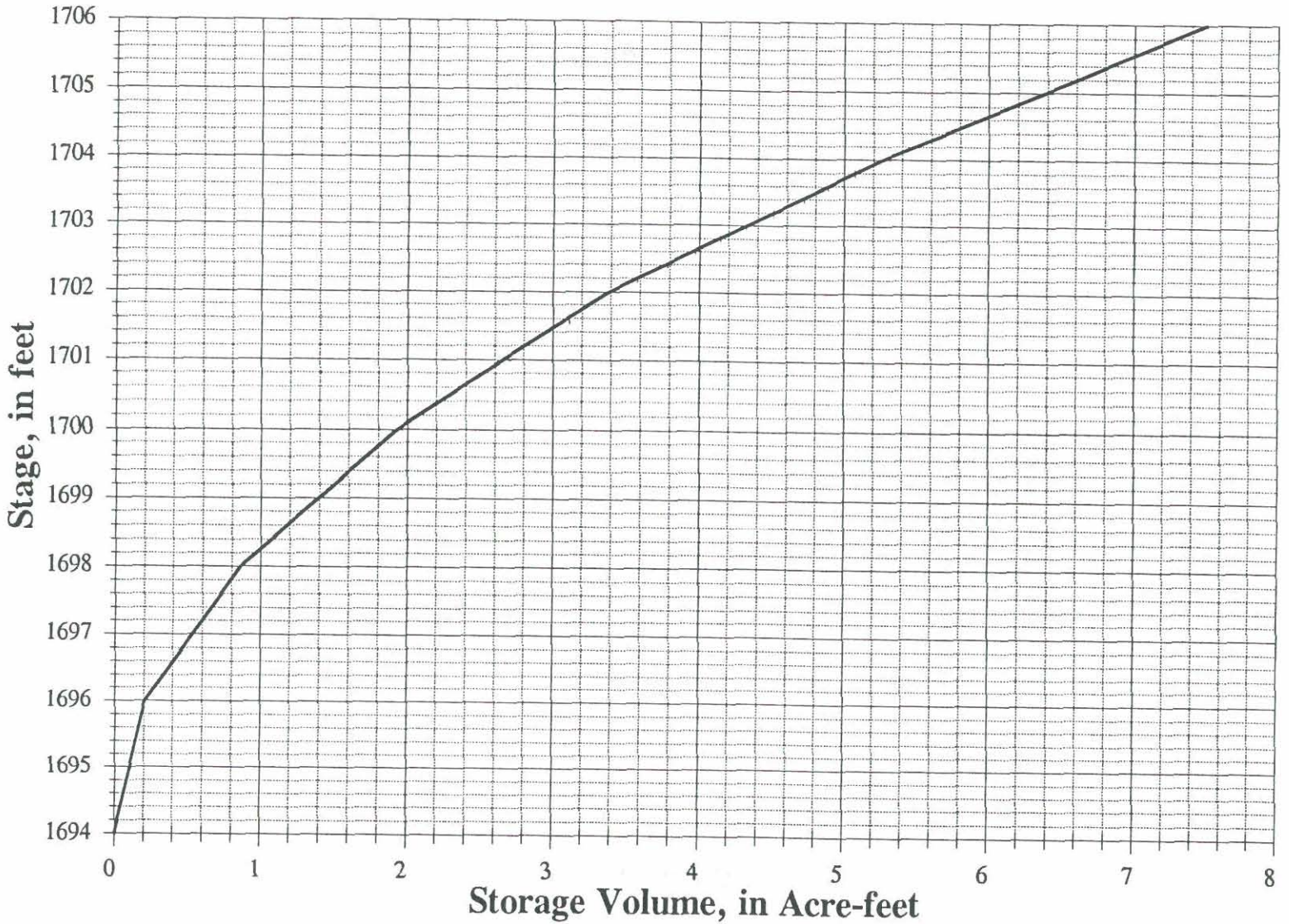
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                    C605
    DATE:  10/20/1993
    TIME:  15:13. 8
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1730.60	0.00
1730.80	1.25
1731.00	19.22
1731.20	69.69
1731.40	161.57
1731.60	290.98
1731.80	459.87
1732.00	668.89
1732.20	917.76
1732.40	1207.20
1732.60	1537.51
1732.80	1909.34

Hydraulic Calculations for Structure at C609

C609 Storage Volume

Calculated From Planimetered Contours



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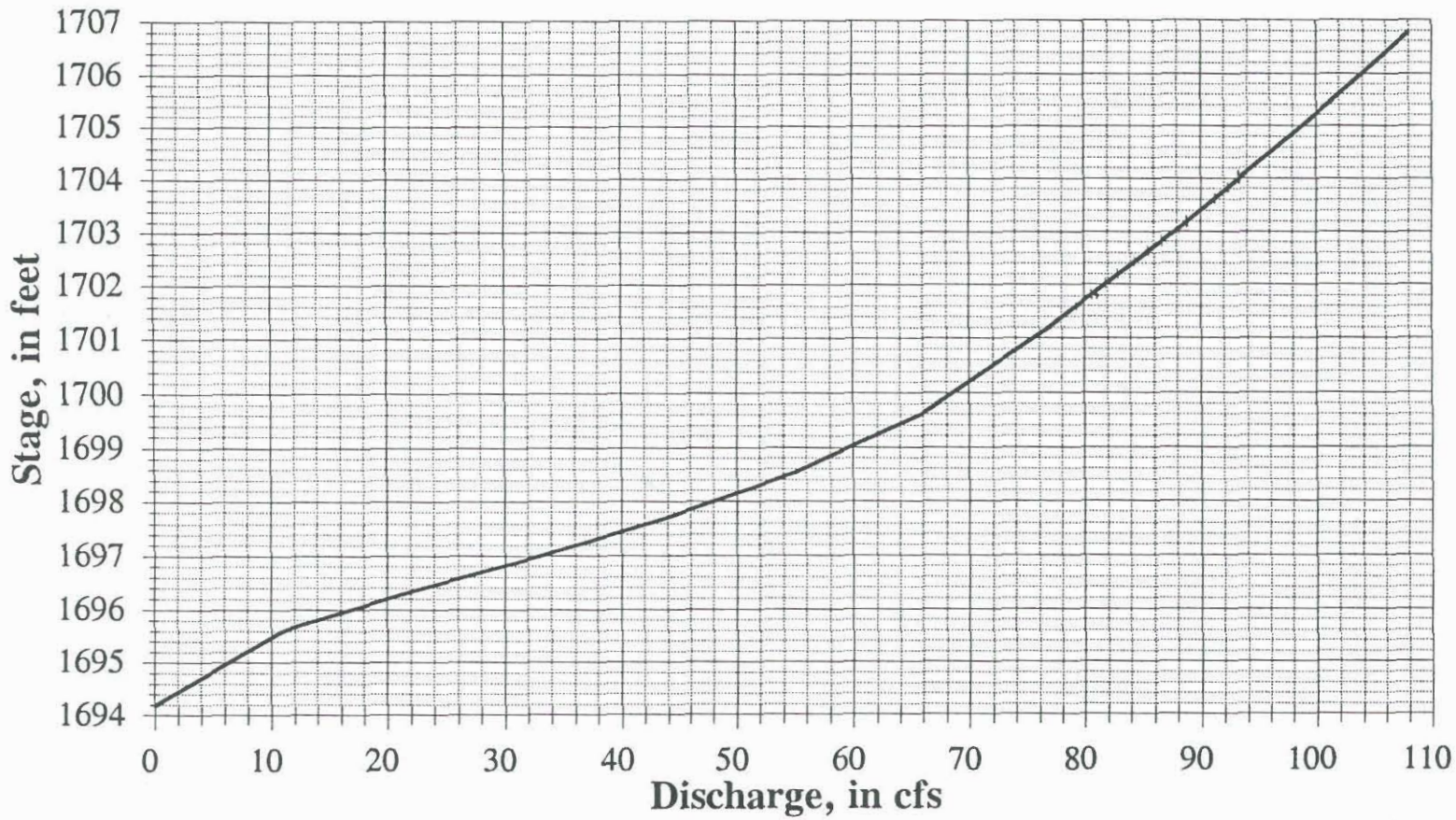
01-Nov-93

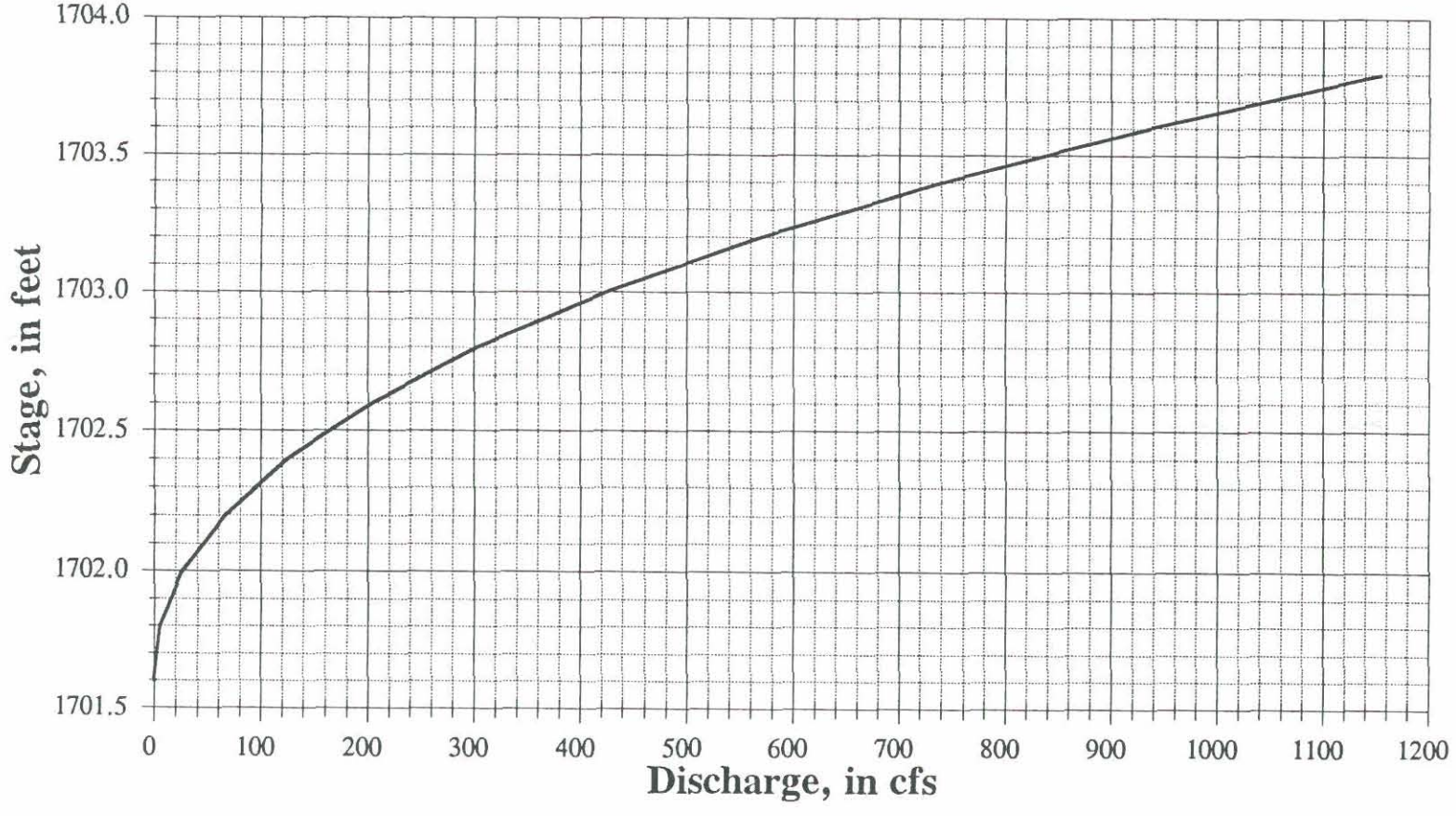
C609 Stage vs. Discharge

Culvert Flow from HY8



C609 Stage vs Discharge

Weir Flow from Uneven Weir



CURRENT DATE: 07-13-1993
CURRENT TIME: 08:42:07

FILE DATE: 06-16-1993
FILE NAME: C609

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1694.19	1692.69	76.01	1 CSP	3.00	3.00	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C609 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1694.19	0	0	0	0	0	0	0	0	1
1695.62	11	11	0	0	0	0	0	0	1
1696.34	22	22	0	0	0	0	0	0	1
1697.00	33	33	0	0	0	0	0	0	1
1697.70	44	44	0	0	0	0	0	0	1
1698.54	55	55	0	0	0	0	0	0	1
1699.63	66	66	0	0	0	0	0	0	1
1701.22	77	77	0	0	0	0	0	0	1
1703.04	88	88	0	0	0	0	0	0	1
1705.03	99	99	0	0	0	0	0	0	1
1706.78	110	108	0	0	0	0	0	2	4
1706.00	104	104	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C609 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1694.19	0.00	0	0	0.00
1695.62	0.00	11	0	0.00
1696.34	0.00	22	0	0.00
1697.00	0.00	33	0	0.00
1697.70	0.00	44	0	0.00
1698.54	0.00	55	0	0.00
1699.63	0.00	66	0	0.00
1701.22	0.00	77	0	0.00
1703.04	0.00	88	0	0.00

1705.03	0.00	99	0	0.00
1706.78	-0.00	110	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 07-13-1993 FILE DATE: 06-16-1993
CURRENT TIME: 08:42:07 FILE NAME: C609

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (3 BY 3) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1694.19	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
11	1695.62	1.43	1.43	1-S2n	0.91	1.04	6.12	0.91	3.51	0.32
22	1696.34	2.15	2.15	1-S2n	1.31	1.51	7.42	1.31	4.45	0.47
33	1697.00	2.81	2.81	1-S2n	1.67	1.86	8.19	1.67	5.12	0.59
44	1697.70	3.51	3.51	5-S2n	2.02	2.16	8.70	2.02	5.65	0.70
55	1698.54	4.35	4.31	2-M2c	2.45	2.41	9.05	2.41	6.08	0.80
66	1699.63	5.35	5.44	6-FFn	3.00	2.58	9.34	3.00	6.46	0.88
77	1701.22	6.56	7.03	6-FFn	3.00	2.76	10.89	3.00	6.79	0.96
88	1703.04	7.96	8.85	6-FFn	3.00	2.93	12.45	3.00	7.09	1.04
99	1705.03	9.55	10.84	6-FFn	3.00	3.00	14.01	3.00	7.37	1.11
108	1706.78	10.97	12.59	6-FFn	3.00	3.00	15.26	3.00	7.62	1.18

El. inlet face invert 1694.19 ft El. outlet invert 1692.69 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1694.19
OUTLET STATION (FT)	76.00
OUTLET ELEVATION (FT)	1692.69
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0197
CULVERT LENGTH ALONG SLOPE (FT)	76.01

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	3.00 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 07-13-1993
CURRENT TIME: 08:42:07

FILE DATE: 06-16-1993
FILE NAME: C609

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C609
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	3
RIGHT CHANNEL BOUNDARY	6
MANNING N LEFT OVER BANK	0.035
MANNING N MAIN CHANNEL	0.050
MANNING N RIGHT OVER BAN	0.035
SLOPE OF CHANNEL (FT/FT)	0.0700

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1700.69
2	1025.00	1698.69
3	1050.00	1694.69
4	1054.00	1692.69
5	1064.00	1692.69
6	1068.00	1694.69
7	1088.00	1698.69
8	1103.00	1700.69

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1692.69	0.000	0.00	0.00	0.00
11.00	1693.01	1.126	0.32	3.51	1.30
22.00	1693.16	1.191	0.47	4.45	1.86
33.00	1693.28	1.231	0.59	5.12	2.29
44.00	1693.39	1.259	0.70	5.65	2.66
55.00	1693.48	1.281	0.80	6.08	2.97
66.00	1693.57	1.299	0.88	6.46	3.25
77.00	1693.65	1.315	0.96	6.79	3.51
88.00	1693.73	1.328	1.04	7.09	3.74
99.00	1693.80	1.339	1.11	7.37	3.96
110.00	1693.87	1.350	1.18	7.62	4.17

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1706.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills FIS North                    C609
    ENGINEER:  MG
    DATE:   8/26/1993
    TIME:  13:40.36




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:      1701.60
    MAXIMUM WSEL:       1703.91
    STEP SIZE:             0.20
    BREADTH OF WEIR:      36.00
```

```
*******************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills FIS North                    C609
    DATE:   8/26/1993
    TIME:  13:40.36
*******************************************
```

POINT	ELEVATION	STATION
1	1705.33	1000.00
2	1704.22	1025.00
3	1703.32	1050.00
4	1702.10	1100.00
5	1701.96	1110.00
6	1701.79	1125.00
7	1701.60	1150.00
8	1701.77	1175.00
9	1702.06	1200.00
10	1703.91	1308.17

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills FIS North                    C609
    DATE:   8/26/1993
    TIME:  13:40.36
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5185
3	0.40	2.5370
4	0.60	2.5556
5	0.80	2.5741
6	1.00	2.5926
7	1.20	2.6111
8	1.40	2.6296
9	1.60	2.6481
10	1.80	2.6667
11	2.00	2.6852
12	2.20	2.7037

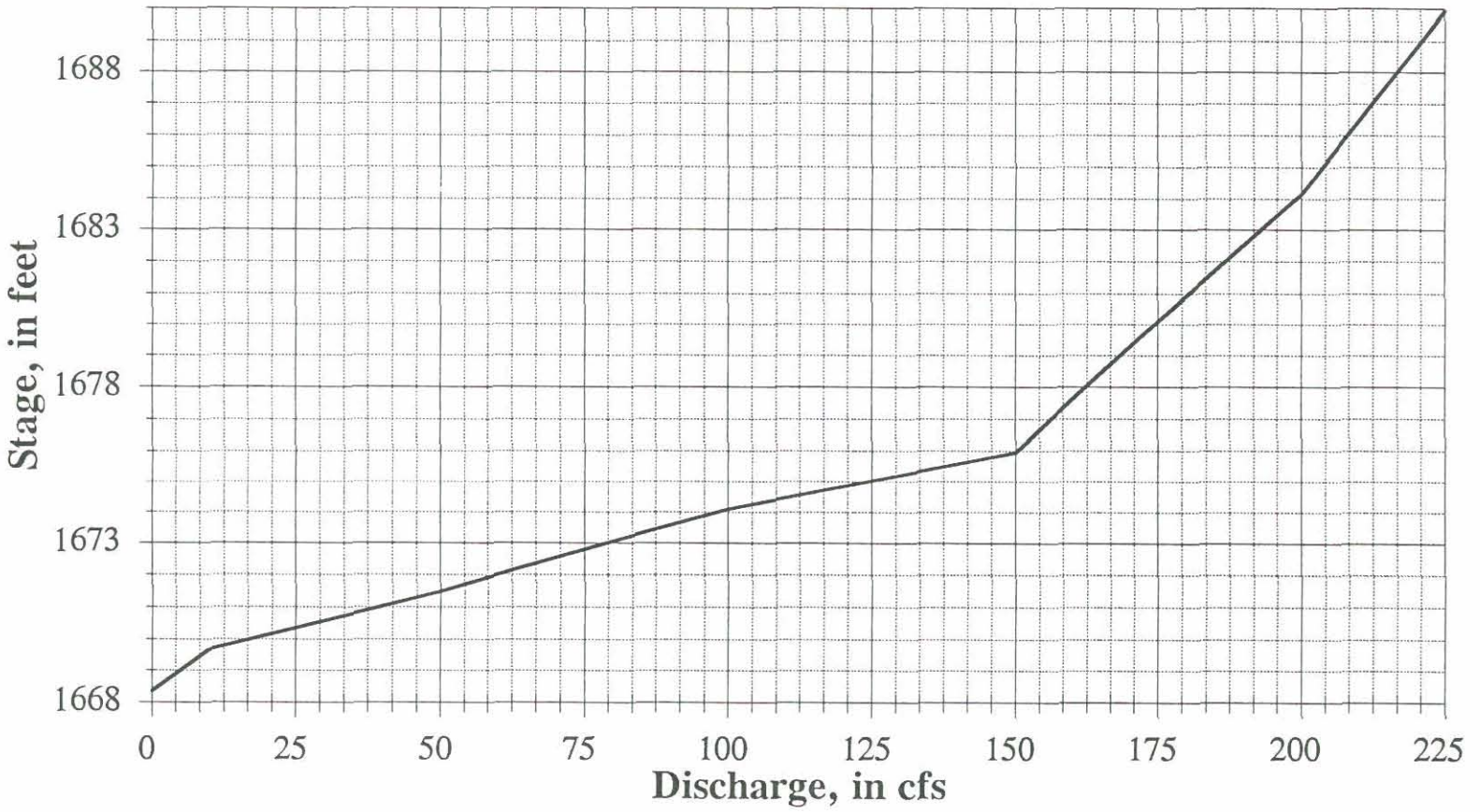
```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills FIS North                    C609
    DATE:   8/26/1993
    TIME:  13:40.36
*******************************************
```

ELEVATION	DISCHARGE (CFS)
1701.60	0.00
1701.80	4.99
1702.00	26.02
1702.20	65.90
1702.40	124.87
1702.60	203.50
1702.80	302.93
1703.00	424.40
1703.20	569.18
1703.40	738.64
1703.60	933.75
1703.80	1155.09

Hydraulic Calculations for Structure at C611

C611 Stage vs Discharge

Culvert Flow from THYSYS



Problem: Analyze storm drain hydraulics for purpose of developing a rating curve at the inlet (C611).

Assumptions: 1. Tailwater depth is the average of critical depth and the pipe diameter.

2. Junction losses can be estimated by:

$$h = k_e V^2/2g$$

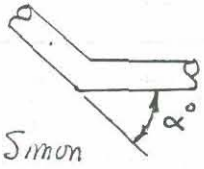
<u>ke Estimates</u>:

B04: Drop inlet with a dome trash rack.

Assume $k_e = 0.5$. Add 0.5 to approximate the effects of the trash rack.

$\therefore k_e = 0.1$

B03: Sharp elbow: $k_e = 67.6 \times 10^{-6} (\alpha^\circ)^{2.17}$



Ref: Practical Hydraulics. Andrew L. Simon 2nd Ed. 1981.
Table 4.4 Local Loss Coefficients

$k_e = 67.6 \times 10^{-6} (18^\circ)^{2.17} = 0.04$. Use $k_e = 0.1$

B02: $\alpha^\circ = 60^\circ$: $k_e = 67.6 \times 10^{-6} (60^\circ)^{2.17} = 0.5$

B01: Outlet: Assume $k_e = 1.0$ for sudden expansion

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 3

CLIENT

DATE 10/27/93

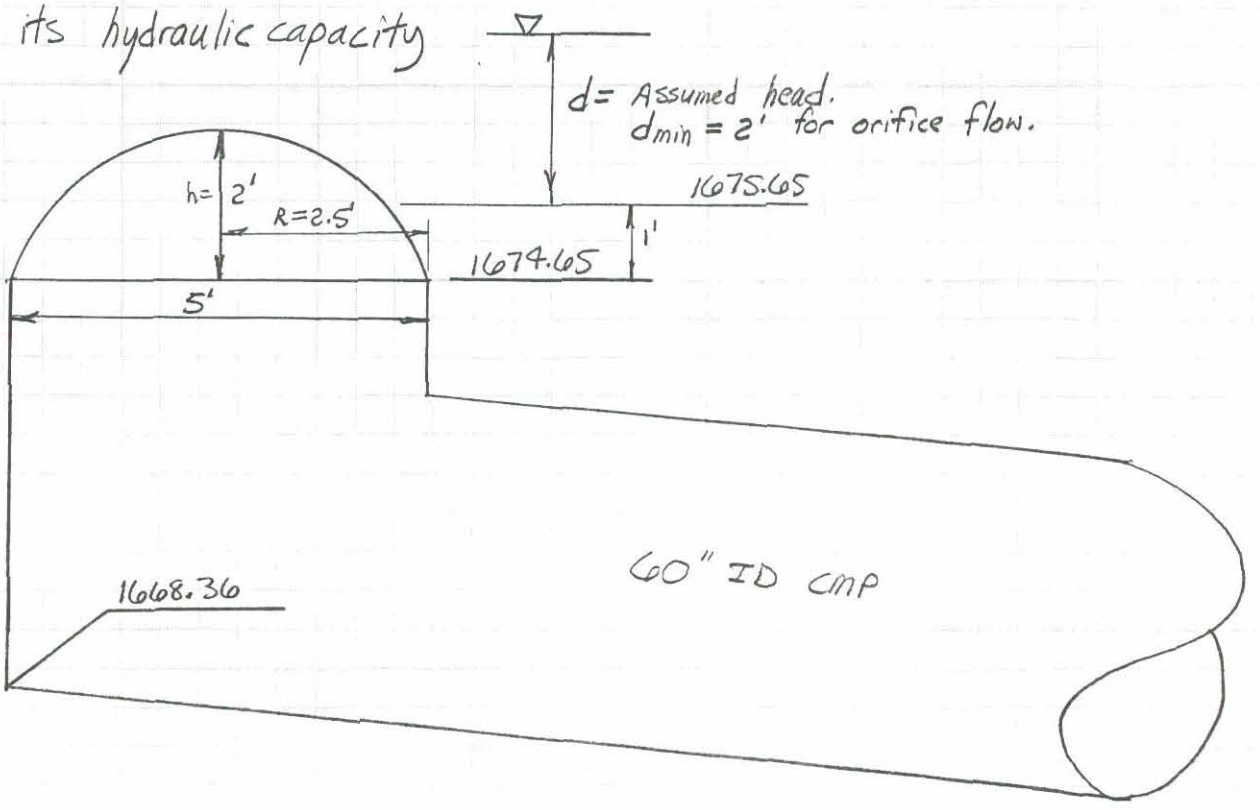
PROJECT

BY

SUBJECT C601 Storm Drain

PROJECT NO.

Check the effects of the "Bee Hive" trash rack by calculating its hydraulic capacity



1. Assumptions:

   1. Assume a clogging factor of 2
   2. Assume that weir flow is negligle
   3. Assume that the effective head, d, is measured from stage 1675.65
   4. Assume that full orifice flow starts at $d = 2'$

2. Calculations: Orifice Eqn.: $Q = 0.67 A (2gd)^{0.5}$ Ref. FCDMC Drainage Design Manual Vol. II. Eqn. 3.17.

The bee hive is constructed using 4x4 mesh of #6 rebar.

Total Surface Area $= 2\pi R h = 2\pi(2.5)(2) = 31.4\ ft^2$

Each square is 4"x4" made of #6 (Assumed 3/4") rebar

Squares $= 31.4 / (.33)^2 = 283$

Effective area $= \dfrac{283\left(\frac{4-0.75}{12}\right)^2}{2} = \dfrac{20.8}{2}$ sf. $= 10.4$ sf

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 3
DATE 10/26/93
BY TRL
PROJECT NO. 35

CLIENT
PROJECT
SUBJECT C601 Storm Drain

Discharge	B04 V	B04 h	B03 V	B03 h	B02 V	B02 h	B01 V	B01 h	Critical Depth	$\frac{D_c+D}{2}$	Assumed T.W.
10	2.8	0.1	1.8	0	0.8	0	0.8	0	0.9'	3.0	1663.5
50	4.3	0.3	4.9	0	3.4	0.1	3.4	0.2	2.0	3.5	1664.0
100	5.1	0.4	5.9	0.1	5.9	0.3	5.9	0.5	2.9	4.0	1664.5
150	7.6	0.9	7.6	0.1	8.2	0.5	8.2	1.1	3.5	4.3	1664.8
175	8.9	1.2	8.9	0.1	8.9	0.6	8.9	1.2	3.8	4.4	1664.9
200	10.2	1.6	10.2	0.2	10.2	0.8	10.2	1.6	FF	5.0	1665.5
225	11.5	2.1	11.5	0.2	11.5	1.0	11.5	2.1	FF	5.0	1665.5

Note:

1. B02 to B01 : S = 1.74%, D = 60", n = 0.024
2. Outlet channel is steep & has good conveyance. Assume TW = outlet top of pipe above 200 cfs.
3. Add B02 & B01 losses for pipe 003.

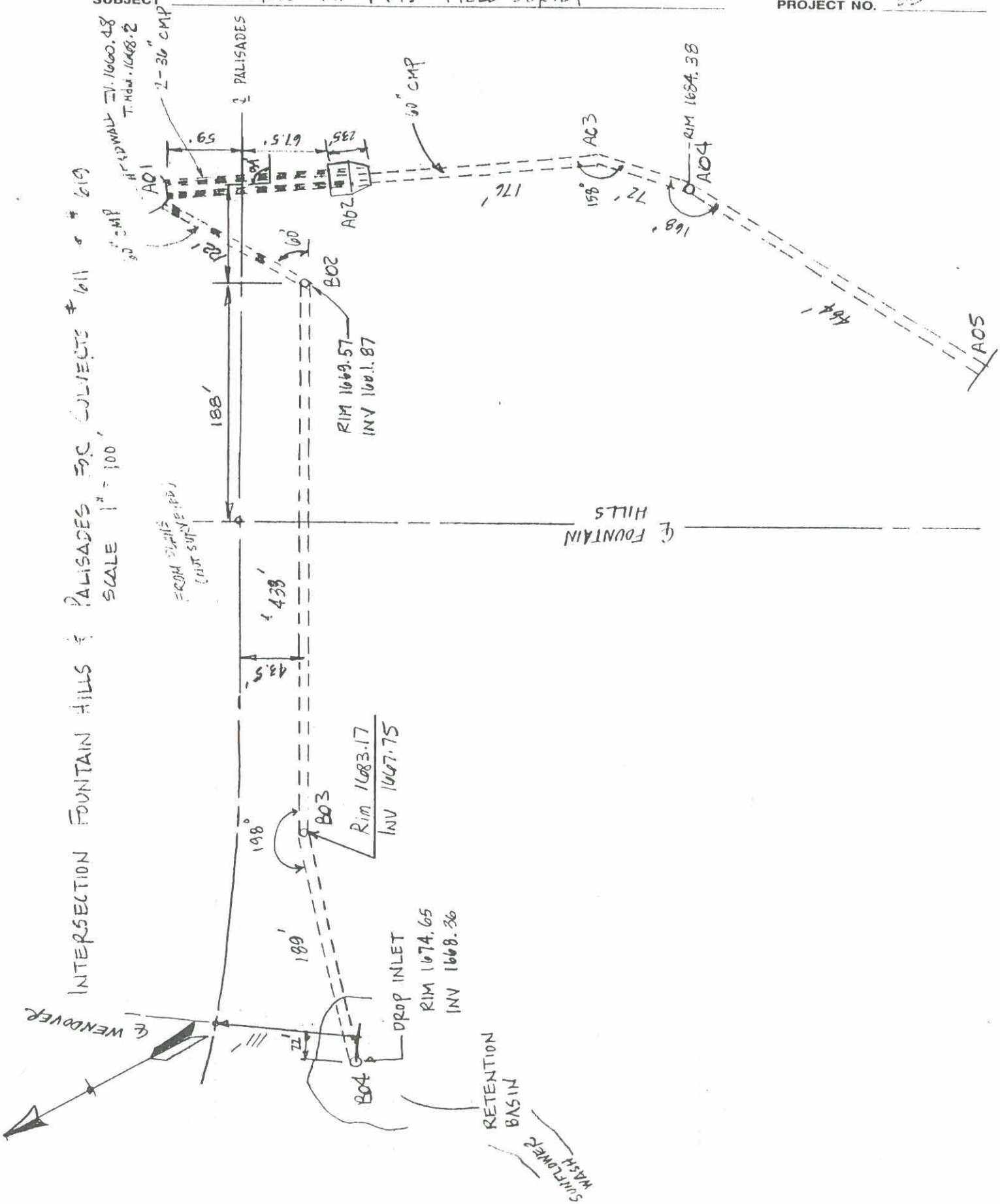
Summary Table : B04

Q	W.S.
10	1669.66
50	1671.51
100	1674.10
150	1675.95
175	1680.11
200	1684.16
225	1689.94

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 7
DATE 6/2
BY MGT
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERTS #611 & #619 FIELD SURVEY

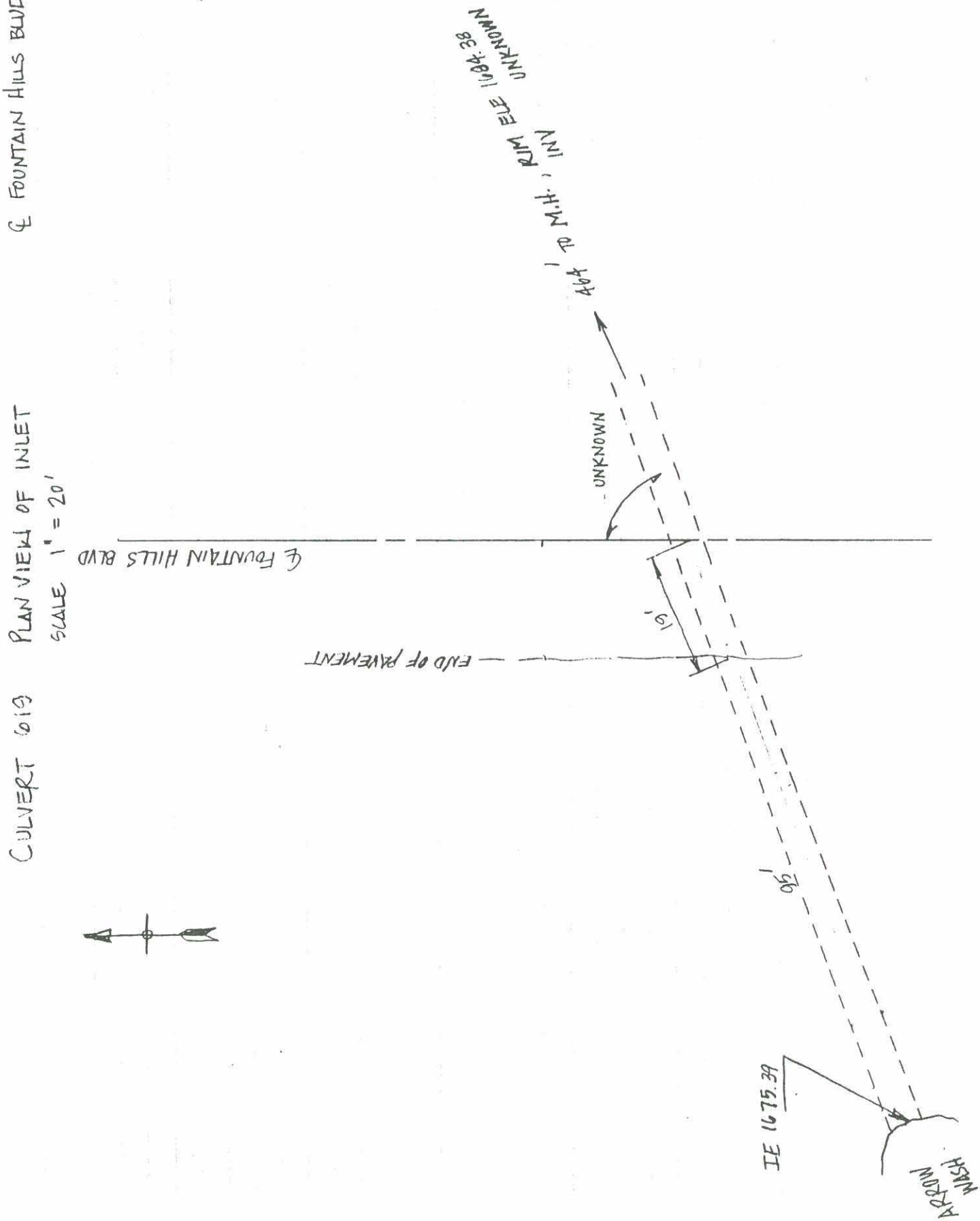


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 7
DATE 6/8
BY MG
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERT 619 FIELD STUDY

CULVERT 619 PLAN VIEW OF INLET
SCALE 1" = 20'



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 7

CLIENT MCFCD

DATE 6/8

PROJECT FOUNTAIN HILLS

BY MGT

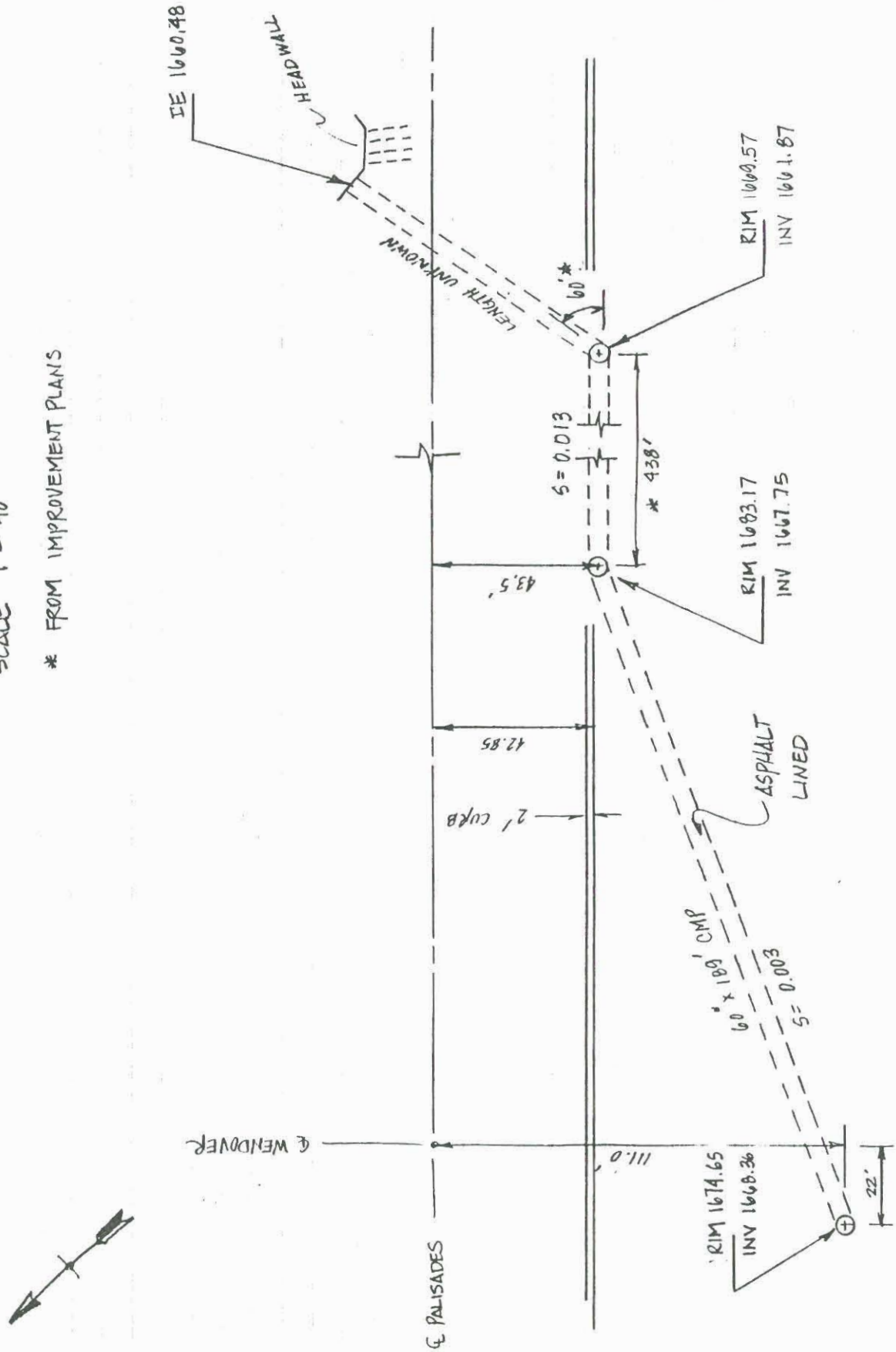
SUBJECT CULVERT 611 FIELD SURVEY

PROJECT NO. 35

CULVERT 611 PLAN VIEW

SCALE 1" = 40'

* FROM IMPROVEMENT PLANS



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 4 OF 7

CLIENT MCFCD

DATE 6/8

PROJECT FOUNTAIN HILLS

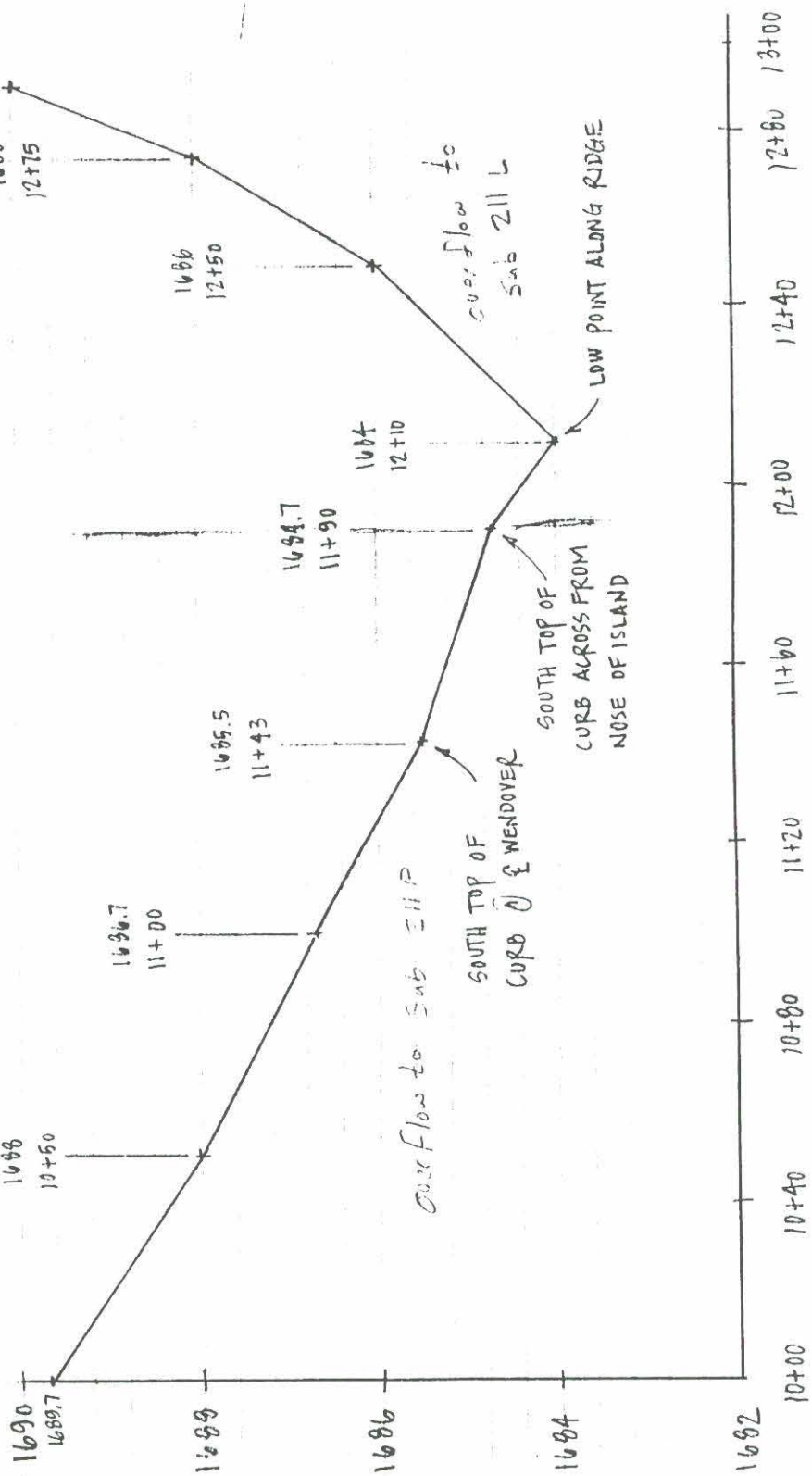
BY MGT

SUBJECT CULVERT 611 FIELD SURVEY

PROJECT NO. 35

CULVERT 611 @ PALISADES BLVD WEIR CROSS-SECTION SOUTH TOP OF WRB

SCALE HORZ 1" = 40'
VERT 1" = 2'



* CROSS-SECT. FROM 200 SCALE CONTOUR MAP & PALISADES STREET PLANS

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 5 OF 7

CLIENT MCFCD

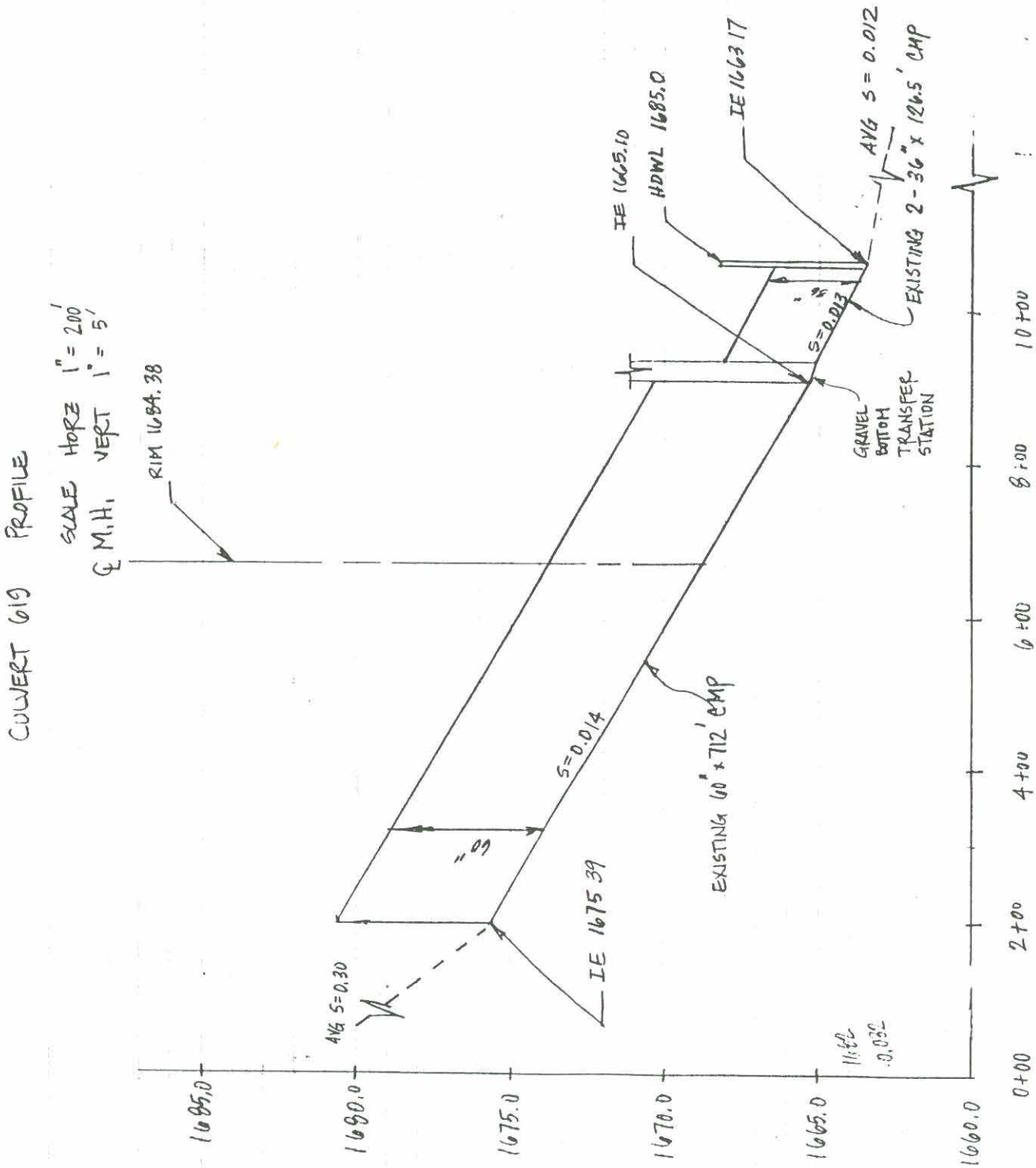
DATE 6/8

PROJECT FOUNTAIN HILLS

BY MGT

SUBJECT CULVERT 619 FIELD SURVEY

PROJECT NO. 35



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 6 OF 7

CLIENT MCFCD

DATE 6/8

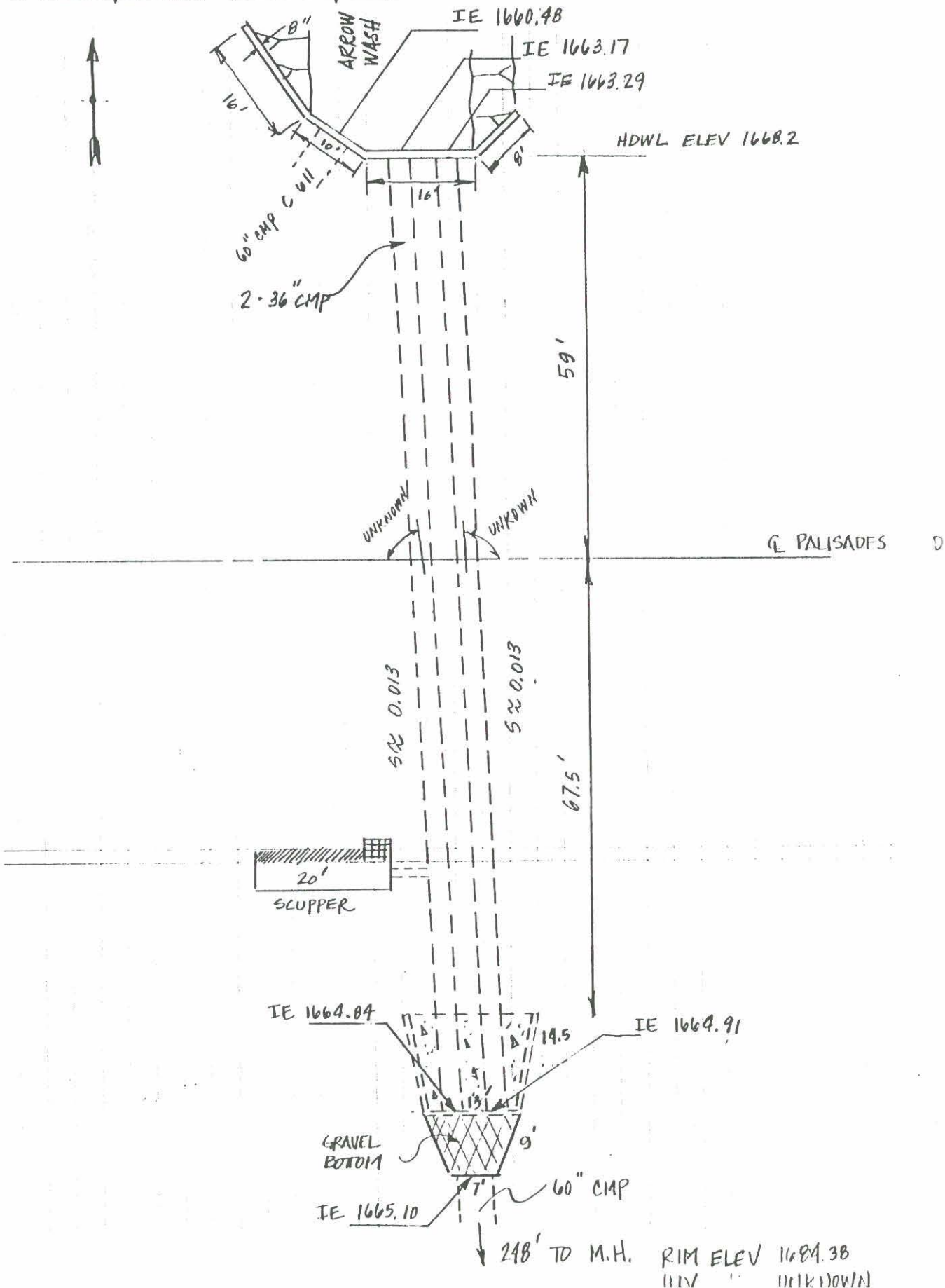
PROJECT FOUNTAIN HILLS

BY MG

SUBJECT CULVERT 619 FIELD SURVEY

PROJECT NO. 35

CULVERT 619 PLAN VIEW : OUTLET STRUCTURE
SCALE 1" = 20'



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 7 OF 7
DATE 6/3
BY MG
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERT 619 FIELD SURVEY

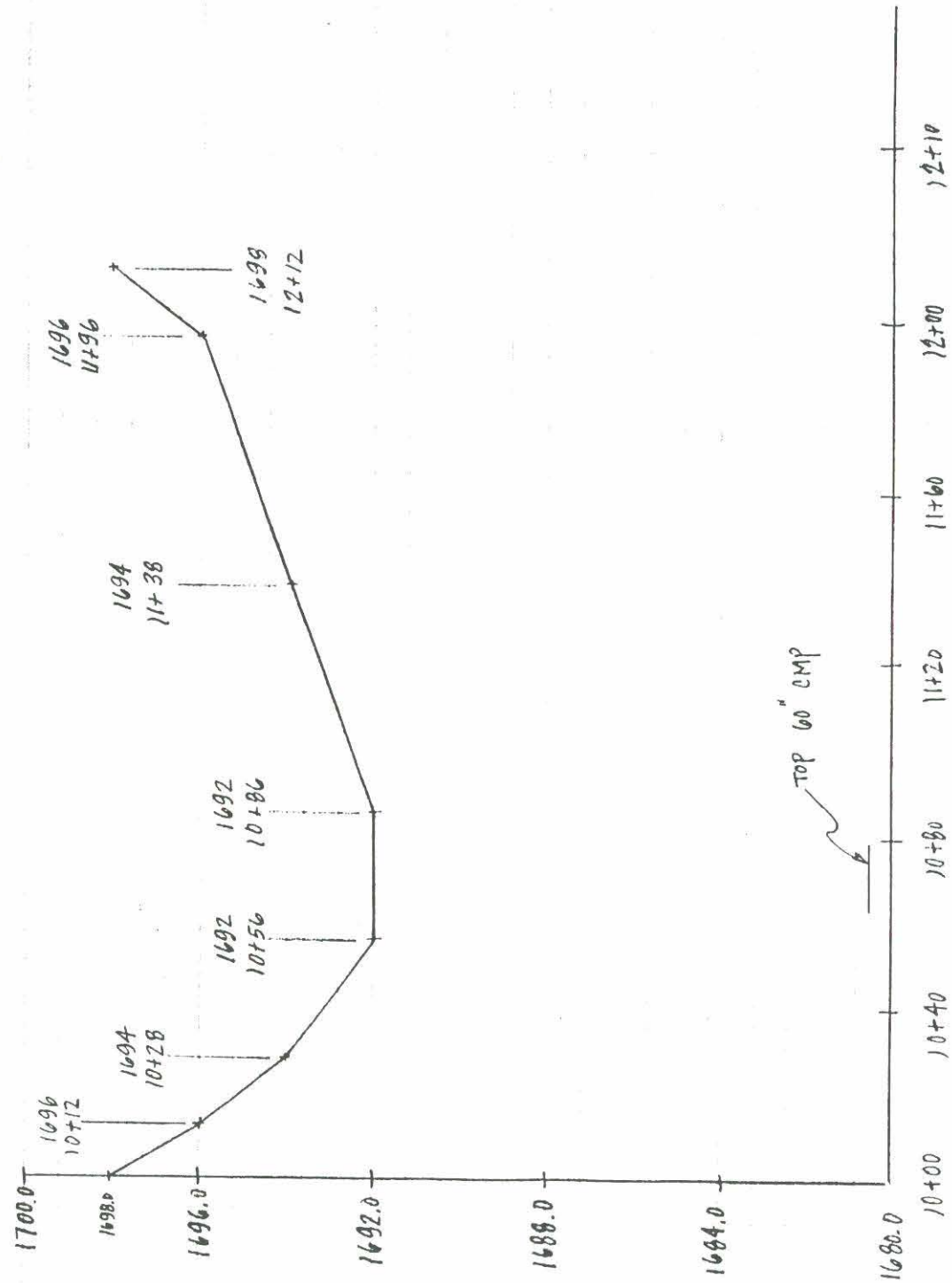
CULVERT 619 @ FOUNTAIN HILLS BLVD. WEIR CROSS-SECTION RIDGE LINE

SCALE HORZ 1" = 40'
VERT 1' = 4'

* CROSS-SECTION FROM 200 SCALE CONTOUR MAP

INV 60" CMP – 1675.57

10+00	1698.0
10+12	1696.0
10+28	1694.0
10+56	1692.0
10+86	1692.0
11+38	1694.0
11+96	1696.0
12+12	1698.0



```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=10cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1663.50    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0      10. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          0.1
ANAL 002  B 03 B 02 1.00 60.00          0.0
ANAL 003  B 02 B 01 1.00 60.00          0.0
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	10.00	.00	10.00
002	B 3	B 2	.00	.00	.00	.00	.00	10.00	.00	10.00
003	B 2	B 1	.00	.00	.00	.00	.00	10.00	.00	10.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
1992
THYSYS 27-Oct-1993
11:52

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	.10	10.00	1669.66	1668.95	.00005	.24	2.8	80.1
002	B 3	B 2	.024	.00	10.00	1668.60	1663.51	.00005	.17	1.8*	163.5
003	B 2	B 1	.024	.00	10.00	1663.51	1663.50	.00005	.17	.8*	150.6

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

1 TEXAS DEPARTMENT OF TRANSPORTATION
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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
001	B 4	749
002	B 3	560
003	B 2	122

FINISH

TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

27-Oct-1993

```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=50cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.00    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0      50. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          0.3
ANAL 002  B 03 B 02 1.00 60.00          0.0
ANAL 003  B 02 B 01 1.00 60.00          0.3
ENDATA
```


TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

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SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	50.00	.00	50.00
002	B 3	B 2	.00	.00	.00	.00	.00	50.00	.00	50.00
003	B 2	B 1	.00	.00	.00	.00	.00	50.00	.00	50.00

TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

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SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	.30	50.00	1671.51	1670.60	.00126	.57	4.3	80.1
002	B 3	B 2	.024	.00	50.00	1669.65	1664.45	.00126	.38	4.9*	163.5
003	B 2	B 1	.024	.30	50.00	1664.45	1664.00	.00126	.40	3.4*	150.6

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
001	B 4	749
002	B 3	560
003	B 2	122

FINISH

TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

27-Oct-1993

```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=100cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.50    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0     100. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          0.4
ANAL 002  B 03 B 02 1.00 60.00          0.1
ANAL 003  B 02 B 01 1.00 60.00          0.8
ENDATA
```


TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

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SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	100.00	.00	100.00
002	B 3	B 2	.00	.00	.00	.00	.00	100.00	.00	100.00
003	B 2	B 1	.00	.00	.00	.00	.00	100.00	.00	100.00

TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS HYDRAULICS SYSTEM

THYSYS

DOS- VER 2.4.2

27-Oct-1993

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	.40	100.00	1674.10	1672.75	.00503	1.00	5.1	80.1***
002	B 3	B 2	.024	.10	100.00	1670.70	1665.91	.00503	.57	5.9*	163.5
003	B 2	B 1	.024	.80	100.00	1665.91	1664.50	.00503	.60	5.9*	150.6

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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$EW0008--CAPACITY OF RUN 001 IS EXCEEDED.

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING

001	B 4	749
002	B 3	560
003	B 2	122

FINISH

```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=150cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.88    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0     150. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          0.9
ANAL 002  B 03 B 02 1.00 60.00          0.1
ANAL 003  B 02 B 01 1.00 60.00          1.6
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	150.00	.00	150.00
002	B 3	B 2	.00	.00	.00	.00	.00	150.00	.00	150.00
003	B 2	B 1	.00	.00	.00	.00	.00	150.00	.00	150.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
Page 4
THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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THYSYS 27-Oct-1993
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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	.90	150.00	1675.95	1672.91	.01131	1.00	7.6	80.1***
002	B 3	B 2	.024	.10	150.00	1672.91	1667.86	.01131	.75	7.6**	163.5
003	B 2	B 1	.024	1.60	150.00	1667.86	1664.88	.01131	.82	8.2*	150.6

SEW0069--**PIPE FLOWING FULL DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON FULL FLOW.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS
BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
1992
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SEW0008--CAPACITY OF RUN 001 IS EXCEEDED.

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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
001	B 4	749
002	B 3	560
003	B 2	122

FINISH

```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=200cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1665.50    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0     200. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          1.6
ANAL 002  B 03 B 02 1.00 60.00          0.2
ANAL 003  B 02 B 01 1.00 60.00          2.4
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	200.00	.00	200.00
002	B 3	B 2	.00	.00	.00	.00	.00	200.00	.00	200.00
003	B 2	B 1	.00	.00	.00	.00	.00	200.00	.00	200.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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THYSYS 27-Oct-1993
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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	1.60	200.00	1684.76	1679.36	.02010	1.00	10.2	80.1***
002	B 3	B 2	.024	.20	200.00	1679.36	1670.35	.02010	1.00	10.2	163.5***
003	B 2	B 1	.024	2.40	200.00	1670.35	1665.50	.02010	1.00	10.2	150.6***

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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SEW0008--CAPACITY OF RUN 001 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 002 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 003 IS EXCEEDED.

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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12: 1

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
001	B 4	749
002	B 3	560
003	B 2	122

FINISH

```
$    Storm drain system at C611 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=225cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC B 04 TYPE=JUNCT
JUNC B 03 TYPE=JUNCT
JUNC B 02 TYPE=JUNCT
JUNC B 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1665.48    B 01
DSGN 001  B 04 B 03 US1673.36 DS1672.75 189.0     225. 0024          CIRC
DSGN 002  B 03 B 02 US1672.75 DS1666.87 438.0          0024          CIRC
DSGN 003  B 02 B 01 US1666.87 DS1665.48 122.0          0024          CIRC
ANAL 001  B 04 B 03 1.00 60.00          2.1
ANAL 002  B 03 B 02 1.00 60.00          0.2
ANAL 003  B 02 B 01 1.00 60.00          3.1
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
001	B 4	B 3	.00	.00	.00	.00	.00	225.00	.00	225.00
002	B 3	B 2	.00	.00	.00	.00	.00	225.00	.00	225.00
003	B 2	B 1	.00	.00	.00	.00	.00	225.00	.00	225.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
001	B 4	B 3	1668.36	1667.75	189	.00323	1	60	60	CIRC
002	B 3	B 2	1667.75	1661.87	438	.01342	1	60	60	CIRC
003	B 2	B 1	1661.87	1660.48	122	.01139	1	60	60	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
001	B 4	B 3	.024	2.10	225.00	1689.94	1683.03	.02544	1.00	11.5	80.1***
002	B 3	B 2	.024	.20	225.00	1683.03	1671.68	.02544	1.00	11.5	163.5***
003	B 2	B 1	.024	3.10	225.00	1671.68	1665.48	.02544	1.00	11.5	150.6***

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
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SEW0008--CAPACITY OF RUN 001 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 002 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 003 IS EXCEEDED.

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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
1992
THYSYS 27-Oct-1993
12: 7

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
001	B 4	749
002	B 3	560
003	B 2	122

FINISH

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS
    ENGINEER:  C611 Detention Basin Weir Flow
    DATE:  10/26/1993
    TIME:  12:58.11




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       1684.00
    MAXIMUM WSEL:        1688.00
    STEP SIZE:              0.20
    BREADTH OF WEIR:       10.00
```

```
*******************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:58.11
*******************************************
```

POINT	ELEVATION	STATION
1	1690.00	1000.00
2	1689.70	1000.00
3	1688.00	1050.00
4	1686.70	1100.00
5	1685.50	1143.00
6	1684.70	1190.00
7	1684.00	1210.00
8	1686.00	1250.00
9	1688.00	1275.00
10	1690.00	1290.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:58.11
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5667
3	0.40	2.6333
4	0.60	2.7000
5	0.80	2.7667
6	1.00	2.8333
7	1.20	2.9000
8	1.40	2.9667
9	1.60	3.0022
10	1.80	3.0067
11	2.00	3.0111
12	2.20	3.0156
13	2.40	3.0200
14	2.60	3.0244
15	2.80	3.0289
16	3.00	3.0333
17	3.20	3.0378
18	3.40	3.0422
19	3.60	3.0467
20	3.80	3.0511

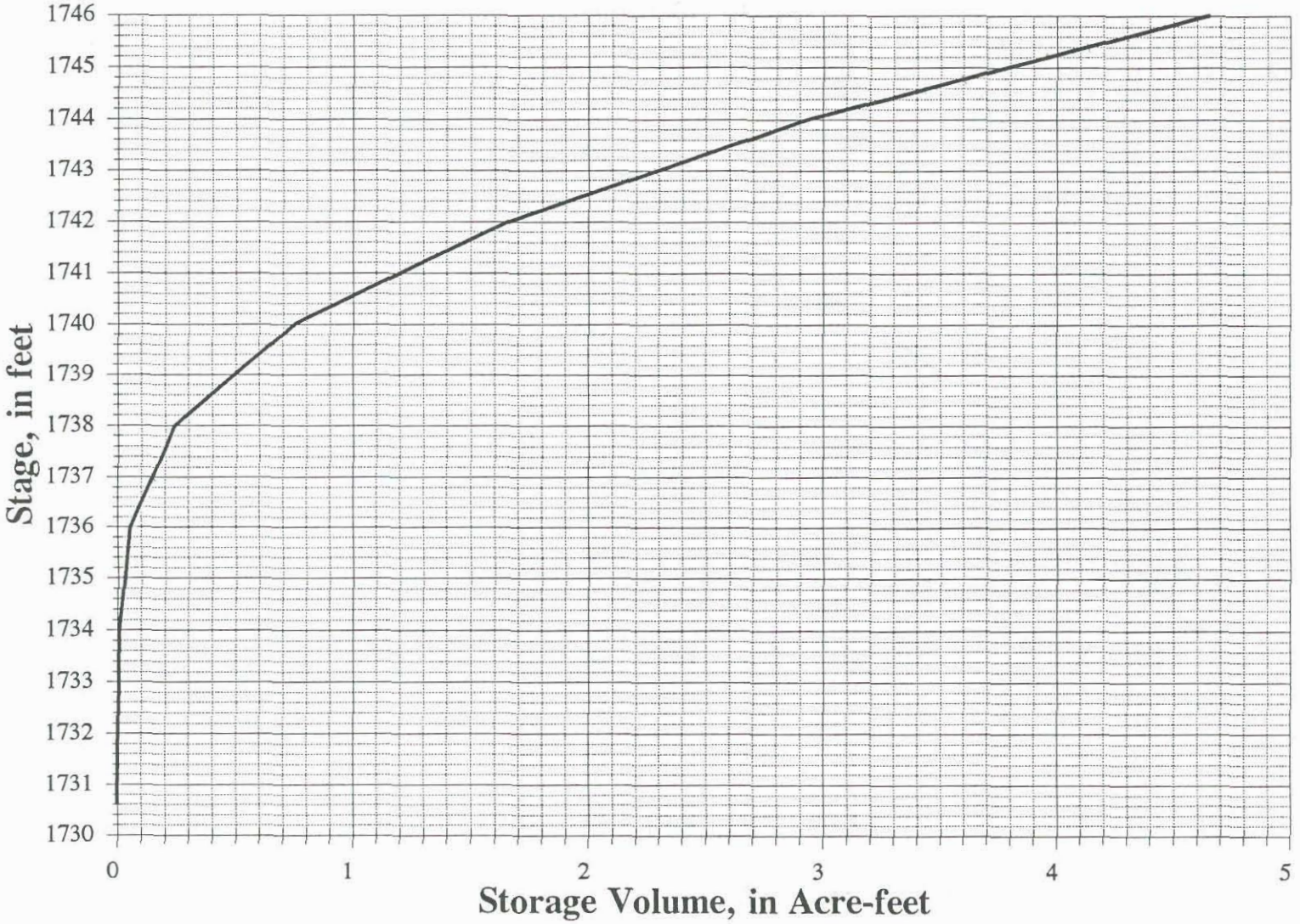
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:58.11
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1684.00	0.00
1684.20	0.88
1684.40	5.04
1684.60	14.08
1684.80	29.47
1685.00	53.77
1685.20	89.30
1685.40	138.01
1685.60	201.93
1685.80	282.27
1686.00	377.71
1686.20	491.49
1686.40	623.71
1686.60	772.64
1686.80	931.72
1687.00	1108.67
1687.20	1304.03
1687.40	1518.63
1687.60	1753.33
1687.80	2003.03

Hydraulic Calculations for Structure at C618

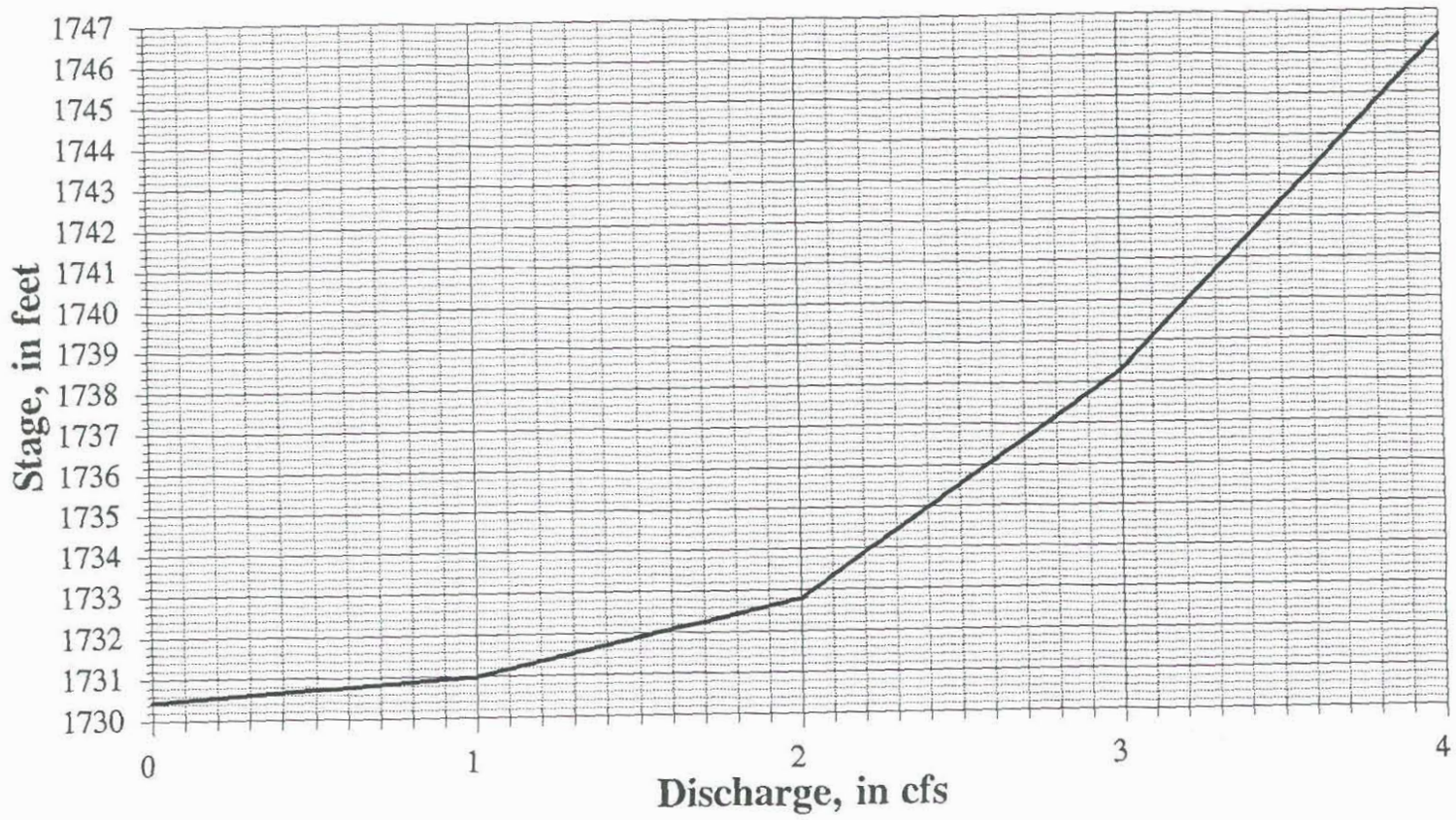
C618 Storage Volume

Calculated from Planimetered Contours



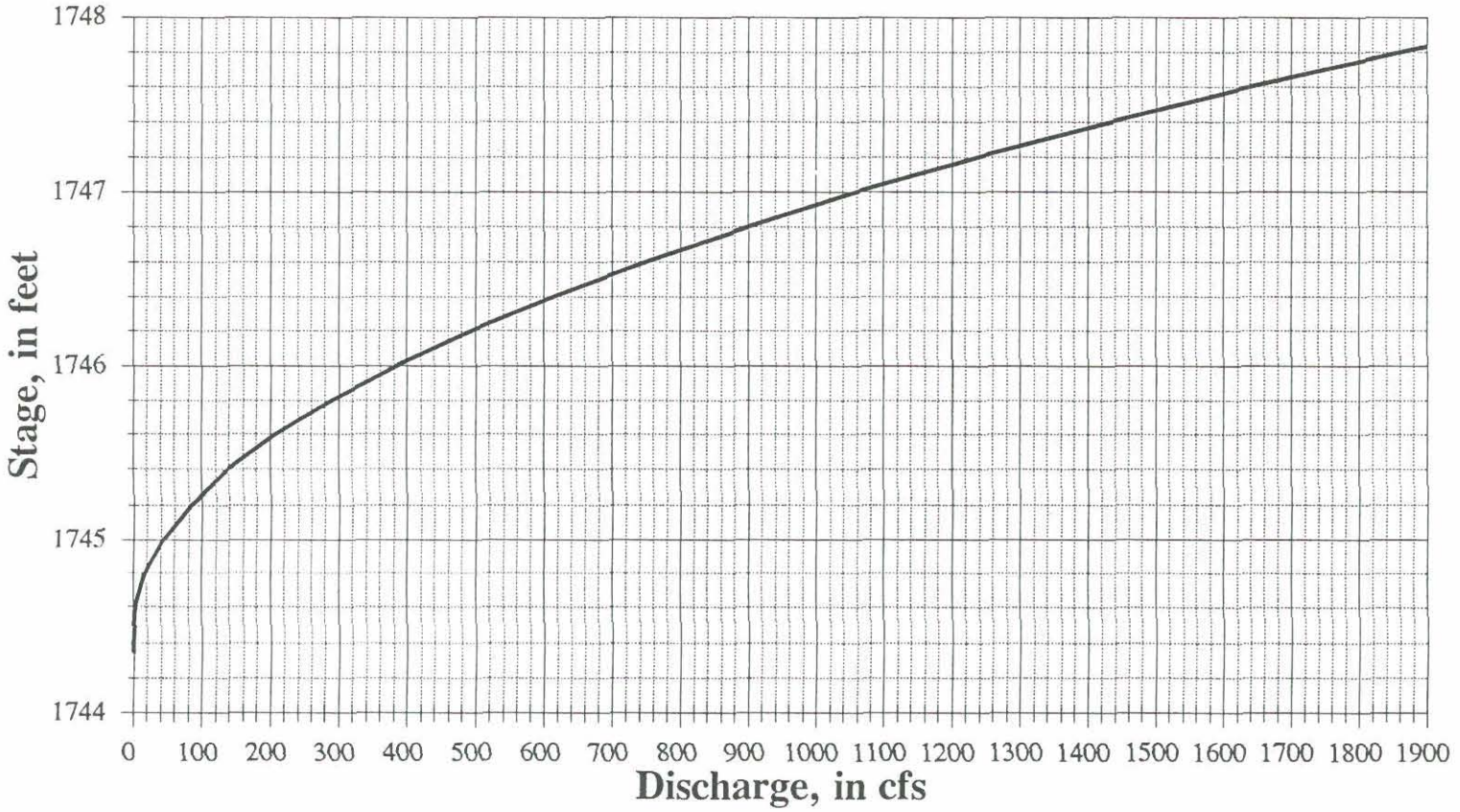
C618 Stage vs Discharge

Culvert Flow form HY8



C618 Stage vs Discharge

Weir Flow from Uneven Weir



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 3

CLIENT MCFCD

DATE 5/27

PROJECT FOUNTAIN HILLS

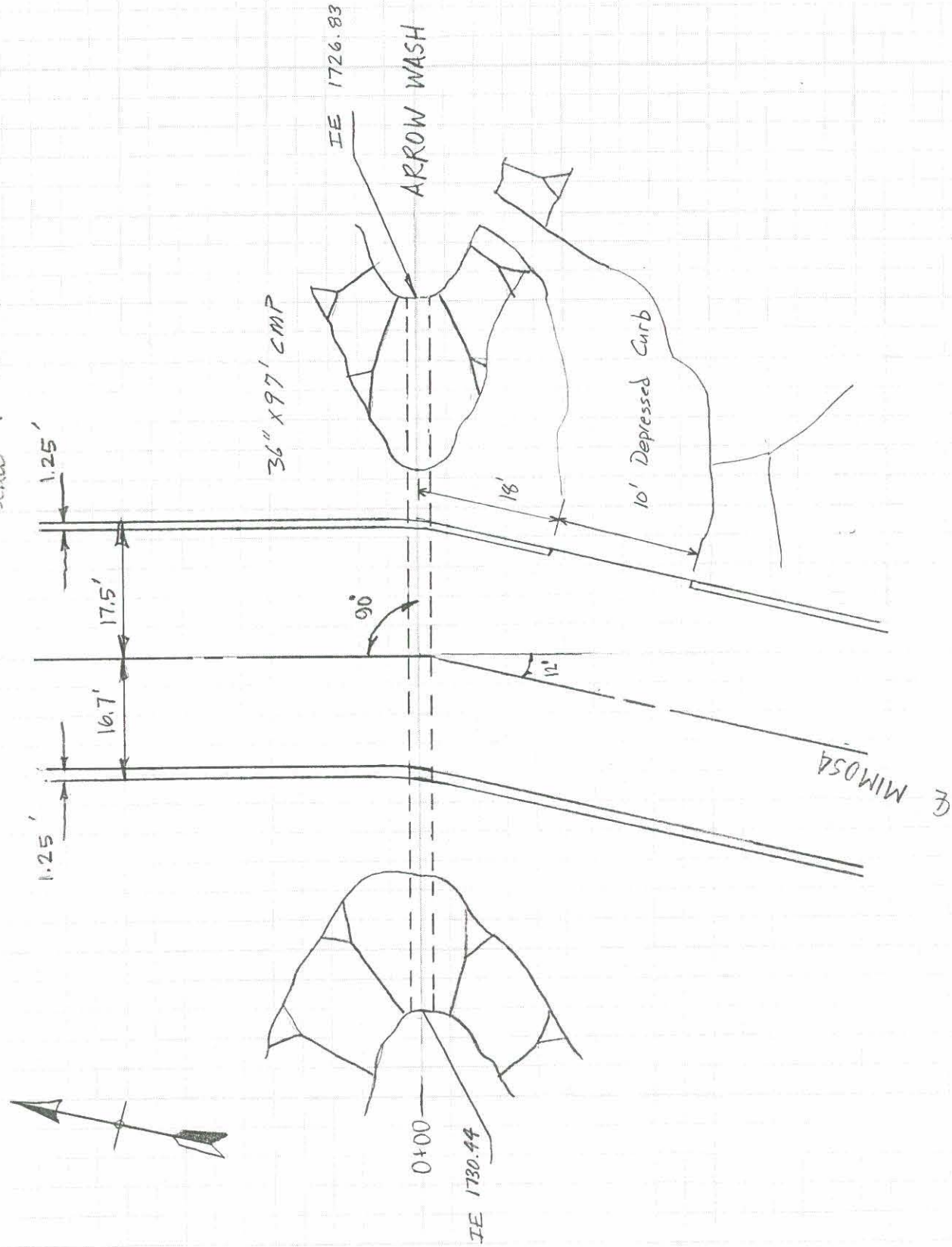
BY MG

SUBJECT CULVERT 618 FIELD SURVEY

PROJECT NO. 35

CULVERT 618 PLAN VIEW

SCALE 1" = 20'



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 3

CLIENT MCFCD

DATE 5/27

PROJECT FOUNTAIN HILLS

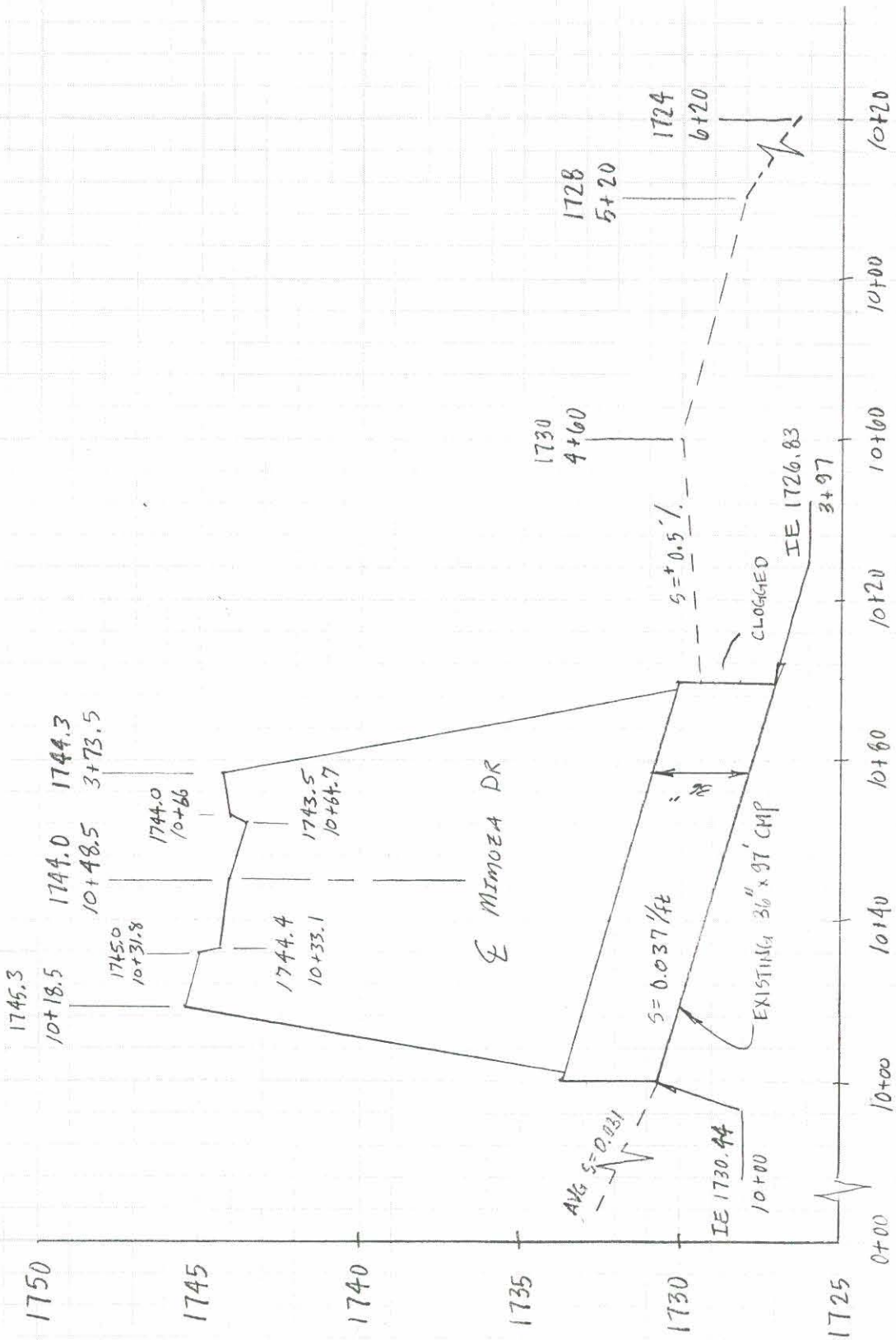
BY MG

SUBJECT CULVERT 618 FIELD SURVEY

PROJECT NO. 35

CULVERT 618 PROFILE

SCALE: HORZ 1" = 40
VERT 1" = 5'



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 3

CLIENT MCFCD

DATE

PROJECT FOUNTAIN HILLS

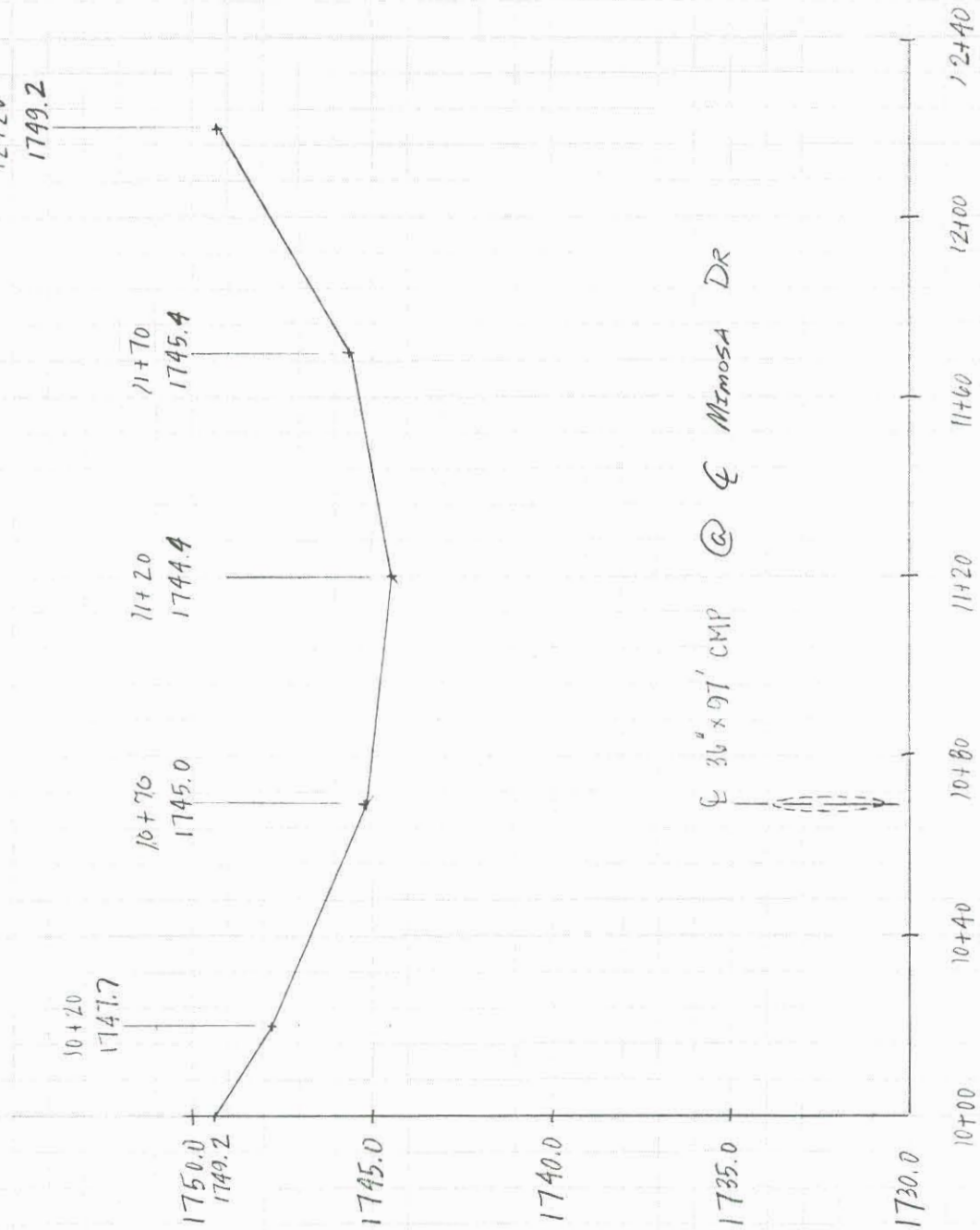
BY

SUBJECT CULVERT 618 FIELD SURVEY

PROJECT NO.

CULVERT 618 WEIR CROSS-SECTION

SCALE: HORZ 1" = 40'
VERT 1" = 5'



CURRENT DATE: 11-02-1993
CURRENT TIME: 10:22:34

FILE DATE: 11-02-1993
FILE NAME: C618

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1730.44	1729.08	97.01	1 CSP	0.75	0.75	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C618 DATE: 11-02-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1730.44	0	0	0	0	0	0	0	0	1
1730.99	1	1	0	0	0	0	0	0	1
1731.23	1	1	0	0	0	0	0	0	1
1732.78	2	2	0	0	0	0	0	0	1
1735.18	2	2	0	0	0	0	0	0	1
1738.26	3	3	0	0	0	0	0	0	1
1742.00	3	3	0	0	0	0	0	0	1
1746.40	4	4	0	0	0	0	0	0	1
1747.64	4	4	0	0	0	0	0	0	6
1747.82	5	4	0	0	0	0	0	1	4
1747.96	5	4	0	0	0	0	0	1	3
1747.40	4	4	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C618 DATE: 11-02-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1730.44	0.00	0	0	0.00
1730.99	0.00	1	0	0.00
1731.23	0.00	1	0	0.00
1732.78	0.00	2	0	0.00
1735.18	0.00	2	0	0.00
1738.26	0.00	3	0	0.00
1742.00	0.00	3	0	0.00
1746.40	0.00	4	0	0.00
1747.64	-0.00	4	0	0.33

1747.82	-0.00	5	0	0.31
1747.96	-0.01	5	0	0.70

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 11-02-1993 FILE DATE: 11-02-1993
CURRENT TIME: 10:22:34 FILE NAME: C618

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (.75 BY .75) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1730.44	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
1	1730.99	0.48	0.55	2-M2c	0.36	0.32	2.81	0.32	1.57	0.30
1	1731.23	0.76	0.79	2-M2c	0.58	0.46	3.54	0.46	1.68	0.34
2	1732.78	1.10	2.34	6-FFn	0.75	0.56	3.40	0.75	1.78	0.36
2	1735.18	1.57	4.74	6-FFn	0.75	0.64	4.53	0.75	1.86	0.39
3	1738.26	2.21	7.82	6-FFn	0.75	0.70	5.66	0.75	1.94	0.41
3	1742.00	3.02	11.56	6-FFn	0.75	0.75	6.79	0.75	2.00	0.43
4	1746.40	3.99	15.96	6-FFn	0.75	0.75	7.92	0.75	2.06	0.45
4	1747.64	4.26	17.20	6-FFn	0.75	0.75	8.21	0.75	2.12	0.47
4	1747.82	4.30	17.38	6-FFn	0.75	0.75	8.25	0.75	2.17	0.49
4	1747.96	4.33	17.52	6-FFn	0.75	0.75	8.29	0.75	2.23	0.51

El. inlet face invert 1730.44 ft El. outlet invert 1729.08 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1730.44
      OUTLET STATION (FT)                      97.00
      OUTLET ELEVATION (FT)                  1729.08
      NUMBER OF BARRELS                          1
      SLOPE (V-FT/H-FT)                          0.0140
      CULVERT LENGTH ALONG SLOPE (FT)          97.01

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         0.75 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
```

CURRENT DATE: 11-02-1993
CURRENT TIME: 10:22:34

FILE DATE: 11-02-1993
FILE NAME: C618

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION

FILE NAME: C618
FILE DATE: 11-02-1993

MAIN CHANNEL AND LT & RT OVER BANKS

LEFT CHANNEL BOUNDARY	7
RIGHT CHANNEL BOUNDARY	8
MANNING N LEFT OVER BANK	0.070
MANNING N MAIN CHANNEL	0.060
MANNING N RIGHT OVER BAN	0.070
SLOPE OF CHANNEL (FT/FT)	0.0500

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	9906.00	1742.08
2	9939.80	1735.78
3	9946.10	1737.58
4	9956.60	1739.18
5	9968.70	1738.48
6	9980.60	1734.98
7	10000.00	1729.08
8	10009.20	1729.58
9	10033.20	1734.48
10	10048.00	1742.98
11	10063.70	1743.78

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1729.08	0.000	0.00	0.00	0.00
0.50	1729.38	0.711	0.30	1.57	0.47
1.00	1729.42	0.724	0.34	1.68	0.52
1.50	1729.44	0.734	0.36	1.78	0.57
2.00	1729.47	0.743	0.39	1.86	0.61
2.50	1729.49	0.750	0.41	1.94	0.64
3.00	1729.51	0.756	0.43	2.00	0.68
3.50	1729.53	0.762	0.45	2.06	0.71
4.00	1729.55	0.767	0.47	2.12	0.74
4.50	1729.57	0.771	0.49	2.17	0.76
5.00	1729.59	0.777	0.51	2.23	0.80

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1747.40

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*******************************************


    PROJECT:  Fountain Hills North FIS                    C618
    ENGINEER:  MG
    DATE:   9/14/1993
    TIME:  11:41.11




-----------------------------------------------
    INPUT PARAMETERS
-----------------------------------------------


    STARTING WSEL:       1744.20
    MAXIMUM WSEL:        1749.09
    STEP SIZE:              0.20
    BREADTH OF WEIR:       34.20
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                    C618
    DATE:   9/14/1993
    TIME:  11:41.11
*********************************************
```

POINT	ELEVATION	STATION
1	1749.24	9930.00
2	1747.65	9950.00
3	1744.97	10000.00
4	1744.35	10050.00
5	1745.43	10100.00
6	1749.09	10150.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                    C618
    DATE:   9/14/1993
    TIME:  11:41.11
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5195
3	0.40	2.5390
4	0.60	2.5585
5	0.80	2.5780
6	1.00	2.5975
7	1.20	2.6170
8	1.40	2.6365
9	1.60	2.6559
10	1.80	2.6754
11	2.00	2.6949
12	2.20	2.7144
13	2.40	2.7339
14	2.60	2.7534
15	2.80	2.7729
16	3.00	2.7924
17	3.20	2.8119
18	3.40	2.8314
19	3.60	2.8509
20	3.80	2.8704

21	4.00	2.8899
22	4.20	2.9094
23	4.40	2.9288
24	4.60	2.9483
25	4.80	2.9678

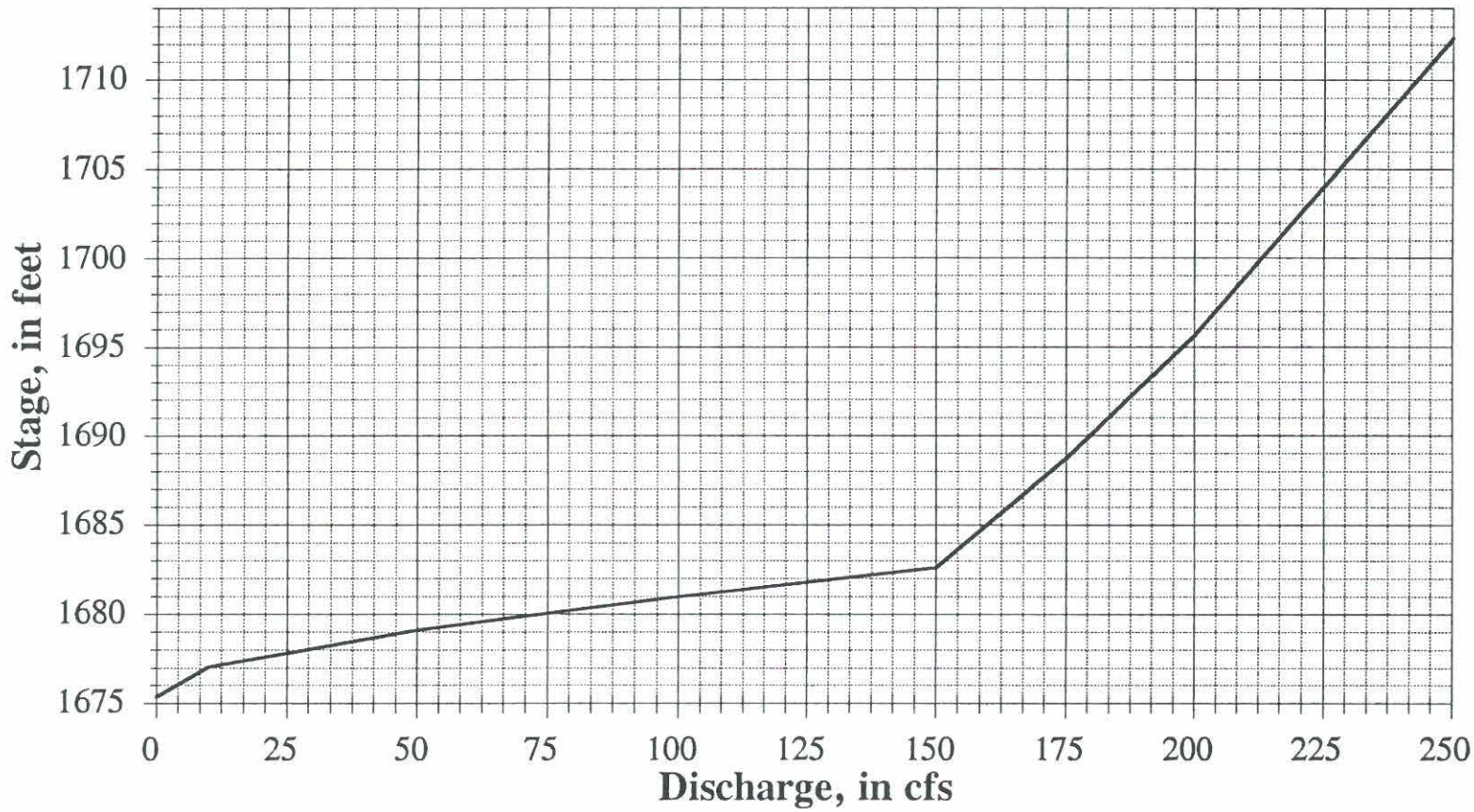
```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                    C618
    DATE:   9/14/1993
    TIME:  11:41.11
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1744.20	0.00
1744.40	0.07
1744.60	3.98
1744.80	17.38
1745.00	43.76
1745.20	84.52
1745.40	139.23
1745.60	208.22
1745.80	290.61
1746.00	386.09
1746.20	494.68
1746.40	616.54
1746.60	751.89
1746.80	900.98
1747.00	1064.11
1747.20	1241.57
1747.40	1433.70
1747.60	1640.81
1747.80	1863.91
1748.00	2102.86
1748.20	2357.58
1748.40	2628.29
1748.60	2915.24
1748.80	3218.68
1749.00	3538.88

Hydraulic Calculations for Structure at C619

C619 Stage vs Discharge

Culvert Flow from THYSYS



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 2
CLIENT FCDMC
DATE 10/26/93
PROJECT Fountain Hills North FIS
BY TRL
SUBJECT C619 Storm Drain
PROJECT NO. 35

Problem: Analyze storm drain hydraulics for purpose of developing a rating curve at the inlet (C619)

Assumptions: Same as for C611.

Ke Estimates:

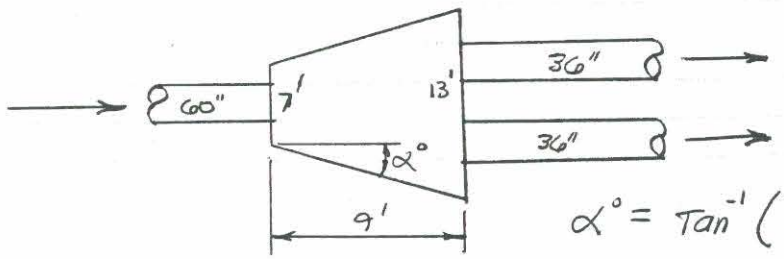
A05: Projecting inlet.

Assume $k_e = 1.0$

A04: $\alpha° = 12°$, $k_e = 0$

A03: $\alpha° = 22°$, $k_e = 0.06$, Use $k_e = 0.1$

A02: Expansion from 1-60" to 2-36" cmps



$\alpha° = \tan^{-1}(3/9) = 18.4° \approx 20°$

$k_e = 0.2$

A01: Outlet: Assume $k_e = 1.0$ for sudden expansion

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 2
CLIENT
DATE 10/26/93
PROJECT
BY TRL
SUBJECT C619 Storm Drain
PROJECT NO. 35

Discharge	A05 V	A05 h	A04 V	A04 h	A03 V	A03 h	A02 V	A02 h	A01 V	A01 h	Critical Depth (36")	$\frac{D_c+D}{2}$	Assumed T.W.
10	4.9	0.4'	4.9	0	3.2	0	4.1	0.1	4.1	0.3	1.0'	2.0	1663.5
50	7.6	0.9	7.1	0	5.4	0.1	6.6	0.1	6.6	0.7	F.F.	C611	1664.0
100	9.0	1.3	8.4	0	5.4	0.1	7.1	0.2	7.1	0.8	F.F.	C611	1664.5
150	7.6	0.9	7.6	0	7.6	0.1	10.6	0.3	10.6	1.7	F.F.	C611	1664.8
175	8.9	1.2	8.9	0	8.9	0.1	12.4	0.5	12.4	2.4	F.F.	C611	1664.9
200	10.2	1.6	10.2	0	10.2	0.2	14.1	0.6	14.1	3.1	F.F.	C611	1665.5
250	12.7	2.5	12.7	0	12.7	0.3	17.7	1.0	17.7	4.9	F.F.	C611	1665.5
~~300~~											~~F.F.~~	~~C611~~	~~1665.5~~

Note:

1. A02 to A01: S = 1.5%, D = 36", n = 0.024
2. Outlet channel is steep. Assume TW = Outlet top of pipe above 200 cfs. (using C611 for control)
3. Add A02 + A01 losses for pipe 007.

Summary Table: A05

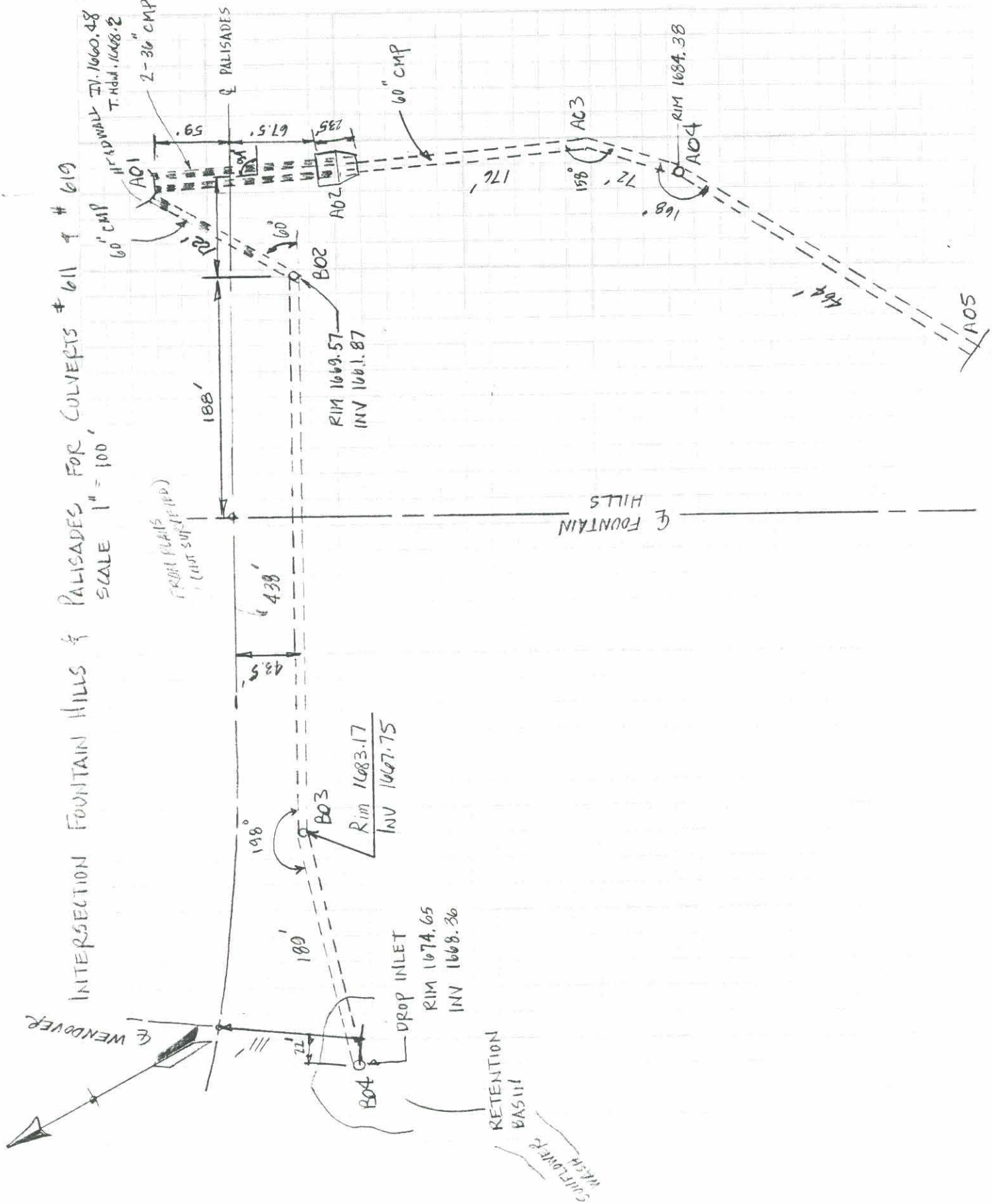
Q	W.S.
10	1677.10
50	1679.12
100	1680.99
150	1682.65
175	1688.72
200	1695.64
250	1712.32

Stage	Q
1676	4
1678	25
1680	72
1682	128
1684	155
1686	163
1688	172
1690	178
1692	187
1694	194
1696	202
1698	207
1700	213

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 7
DATE 6/2
BY MG
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERTS 611 & 619 FIELD SURVEY



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 2 OF 7

CLIENT MCFCD

DATE 6/8

PROJECT FOUNTAIN HILLS

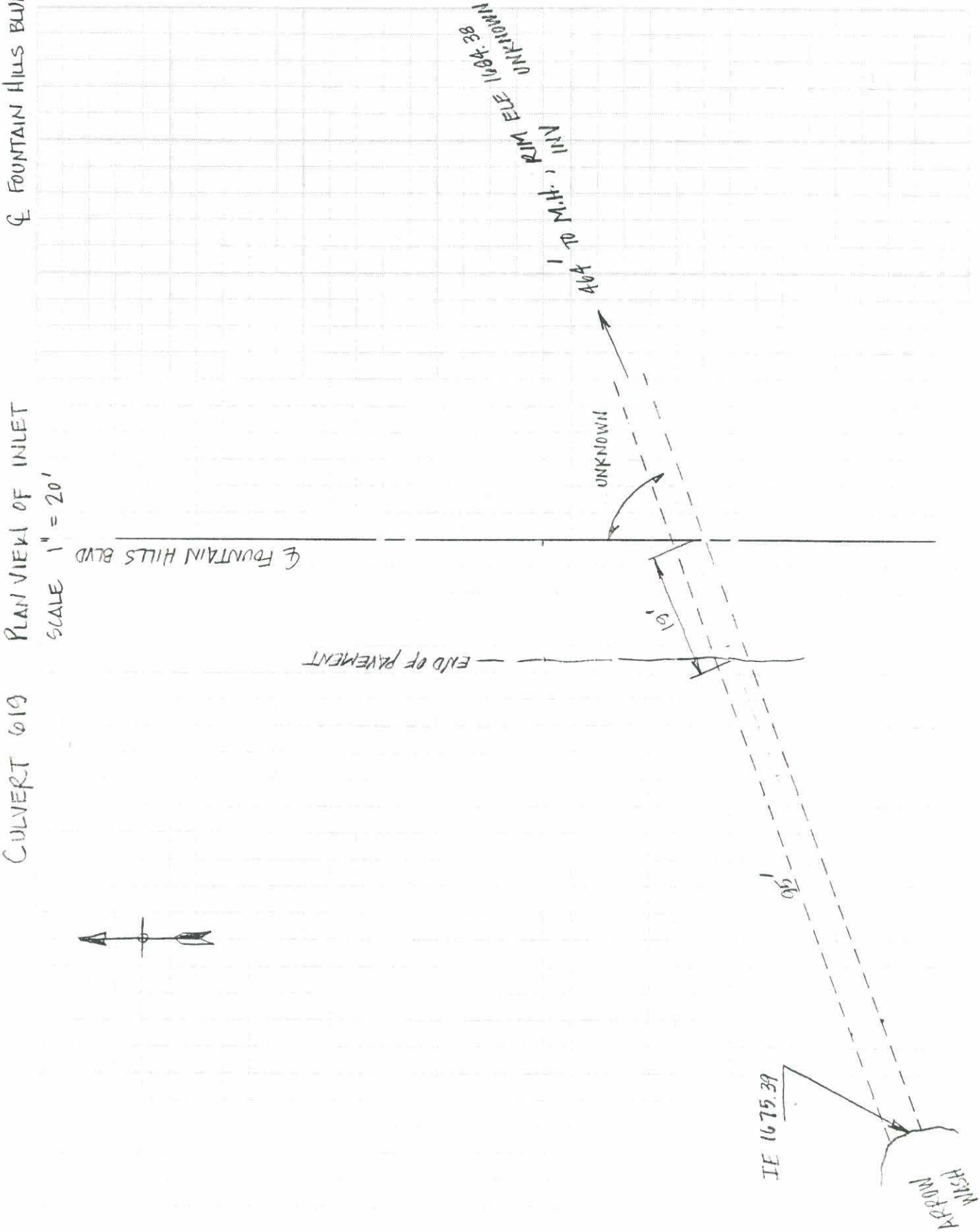
BY MG

SUBJECT CULVERT 619 FIELD STUDY

PROJECT NO. 35

CULVERT 619 PLAN VIEW OF INLET

SCALE 1" = 20'

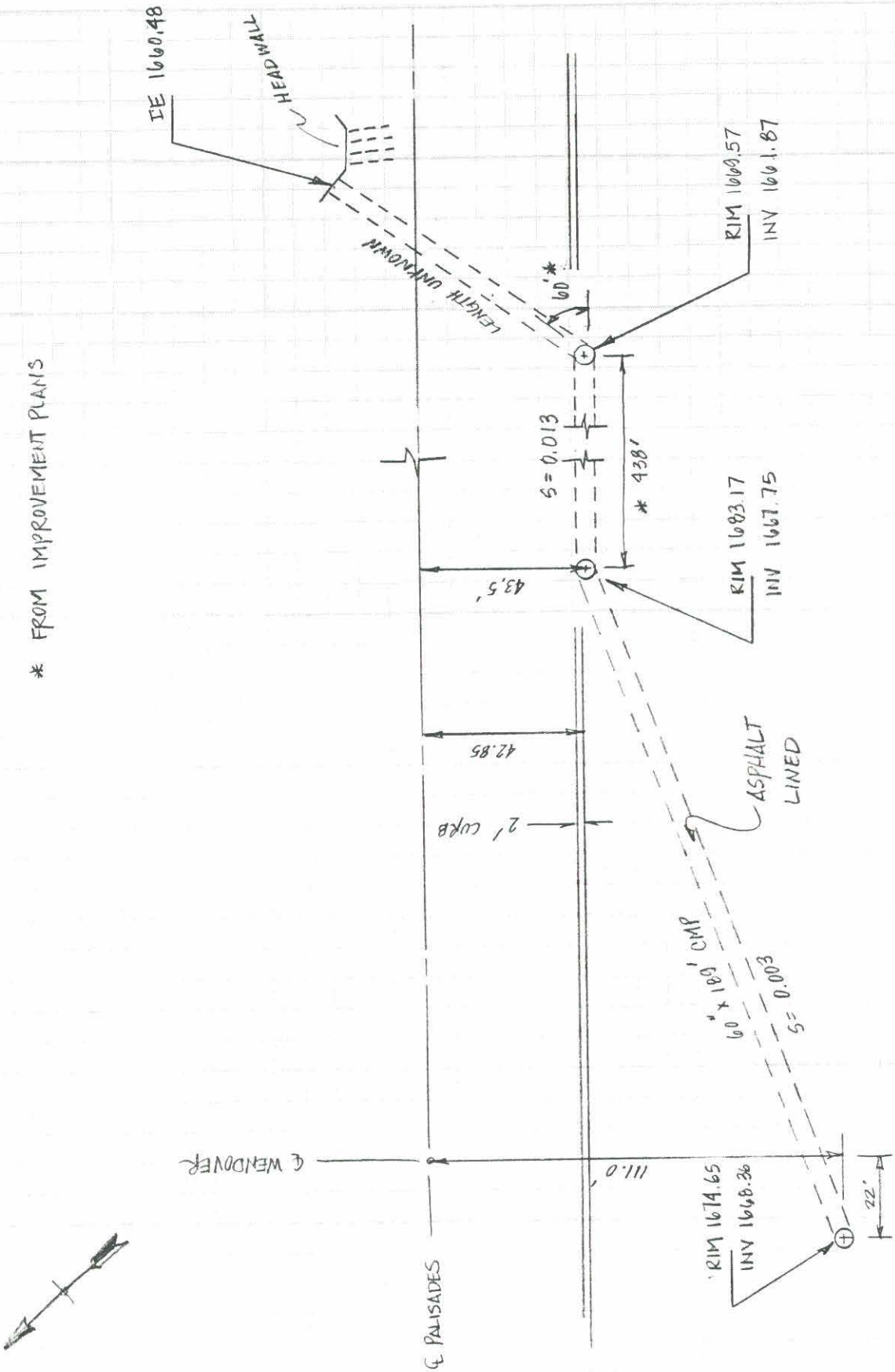


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 3 OF 7
DATE 6/8
BY MG
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERT 611 FIELD SURVEY

CULVERT 611 PLAN VIEW
SCALE 1" = 40'
* FROM IMPROVEMENT PLANS



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 4 OF 7

CLIENT MCFCD

DATE 6/8

PROJECT FOUNTAIN HILLS

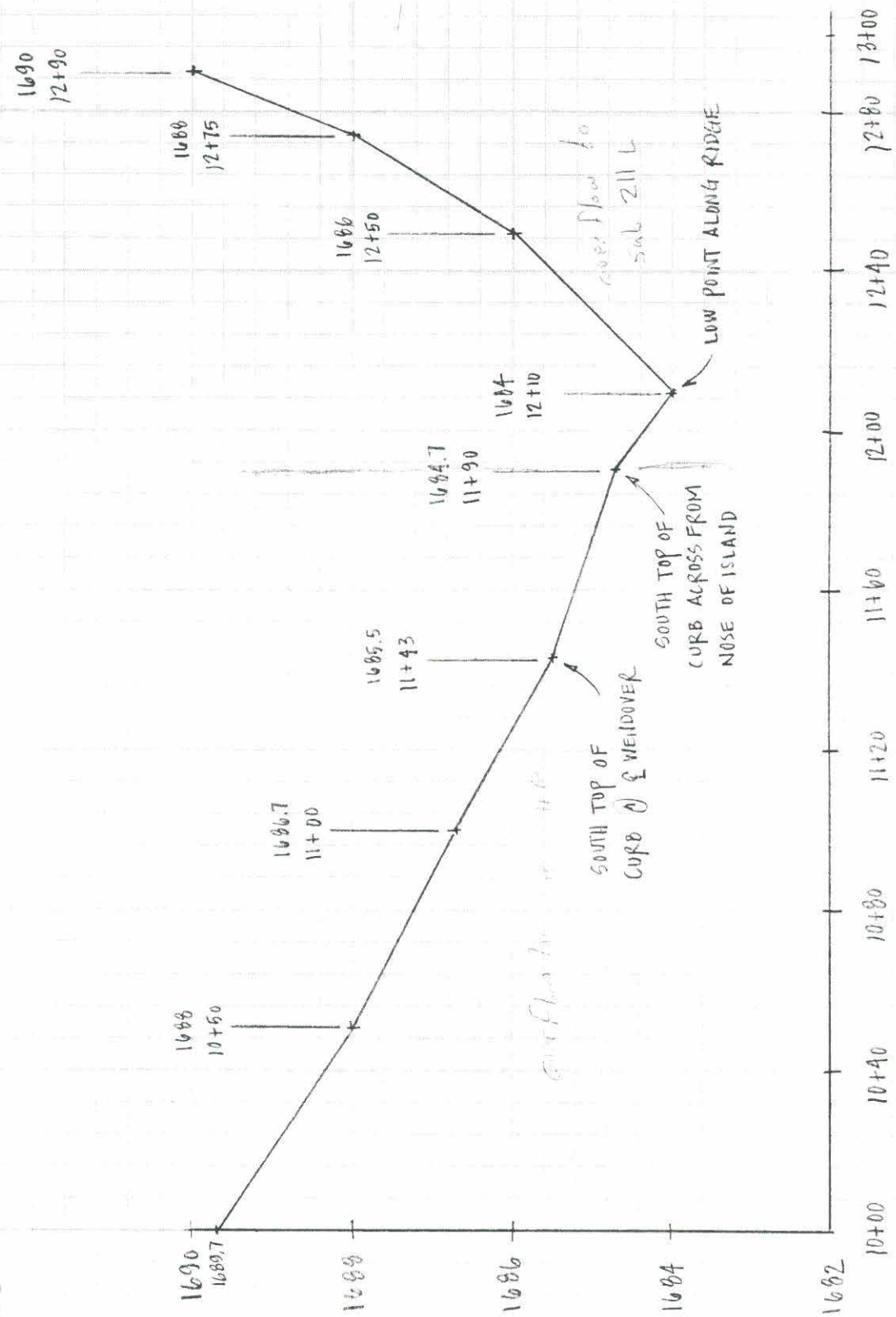
BY MG

SUBJECT CULVERT 611 FIELD SURVEY

PROJECT NO. 35

CULVERT 611 @ PALISADES BLVD WEIR CROSS-SECTION SOUTH TOP OF CURB

SCALE HORZ 1" = 40'
VERT 1" = 2'



* CROSS-SECT. FROM 200 SCALE CONTOUR MAP & PALISADES STREET PLANS

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 5 OF 7

CLIENT MCFCD

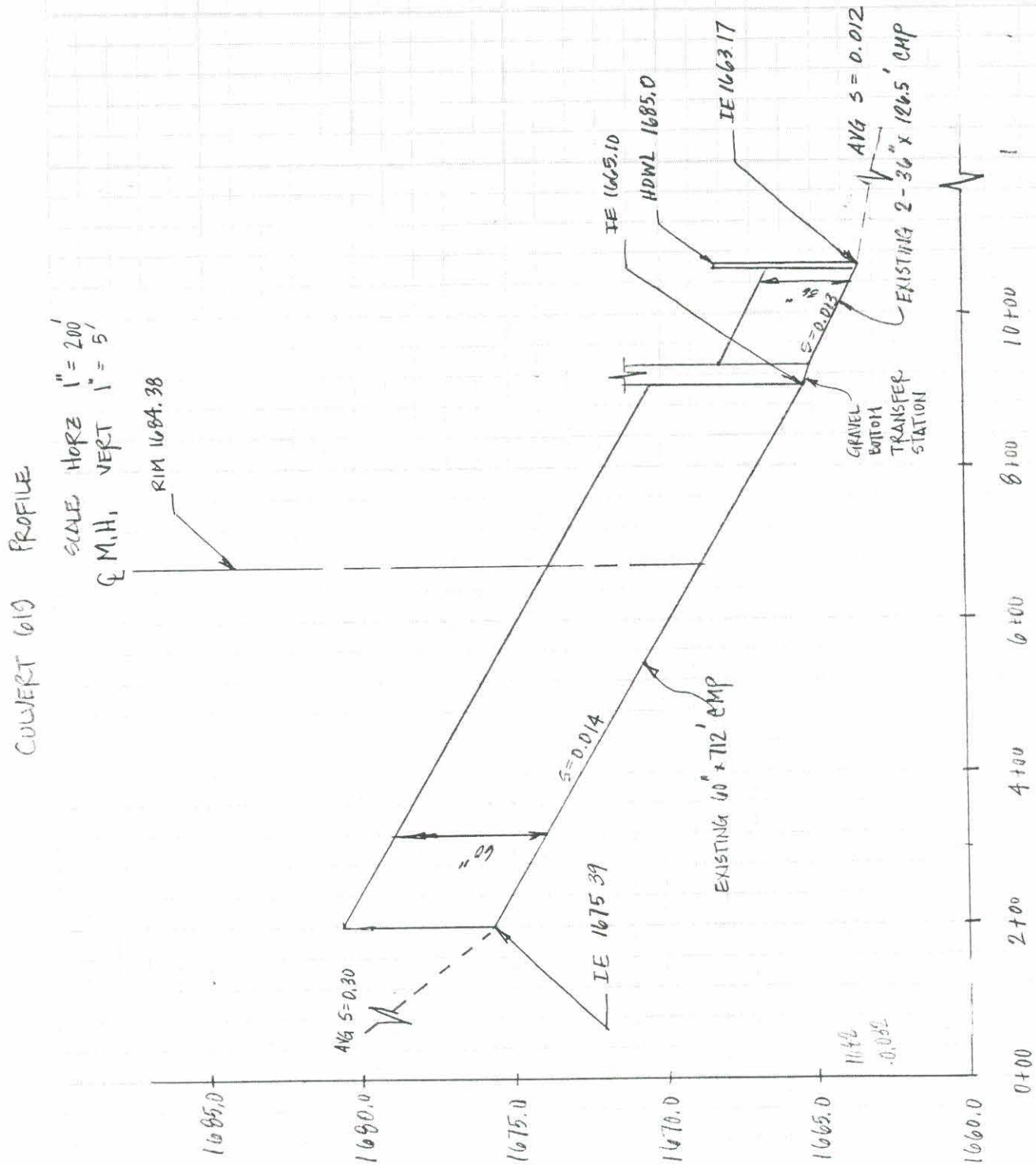
DATE 6/8

PROJECT FOUNTAIN HILLS

BY MGT

SUBJECT CULVERT 619 FIELD SURVEY

PROJECT NO. 35

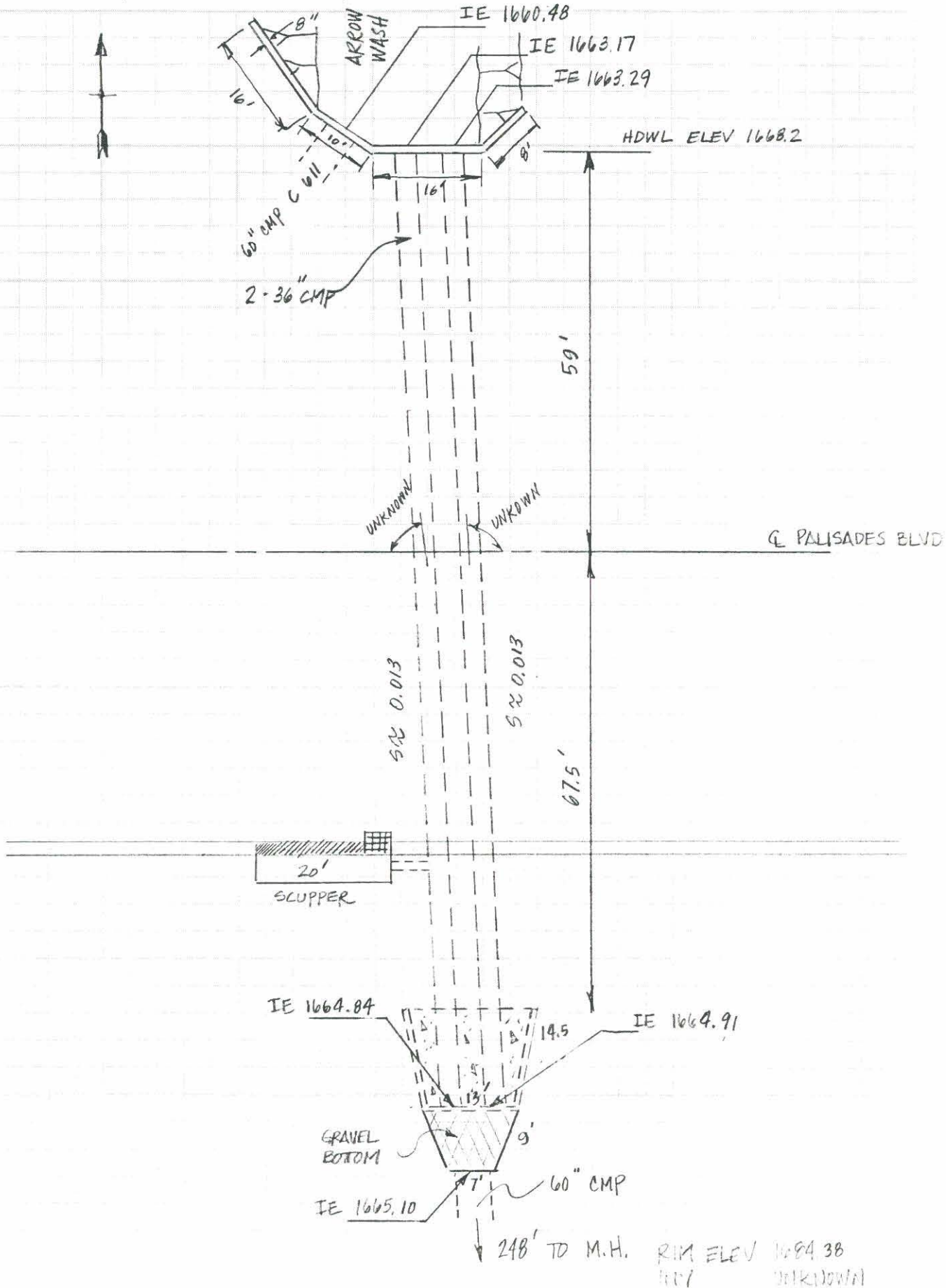


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 6 OF 7
DATE 6/8
BY MG
PROJECT NO. 35

CLIENT MCFCD
PROJECT FOUNTAIN HILLS
SUBJECT CULVERT 619 FIELD SURVEY

CULVERT 619 PLAN VIEW : OUTLET STRUCTURE
SCALE 1" = 20'



GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 7 OF 7

CLIENT MCFCD

DATE 6/3

PROJECT FOUNTAIN HILLS

BY MG

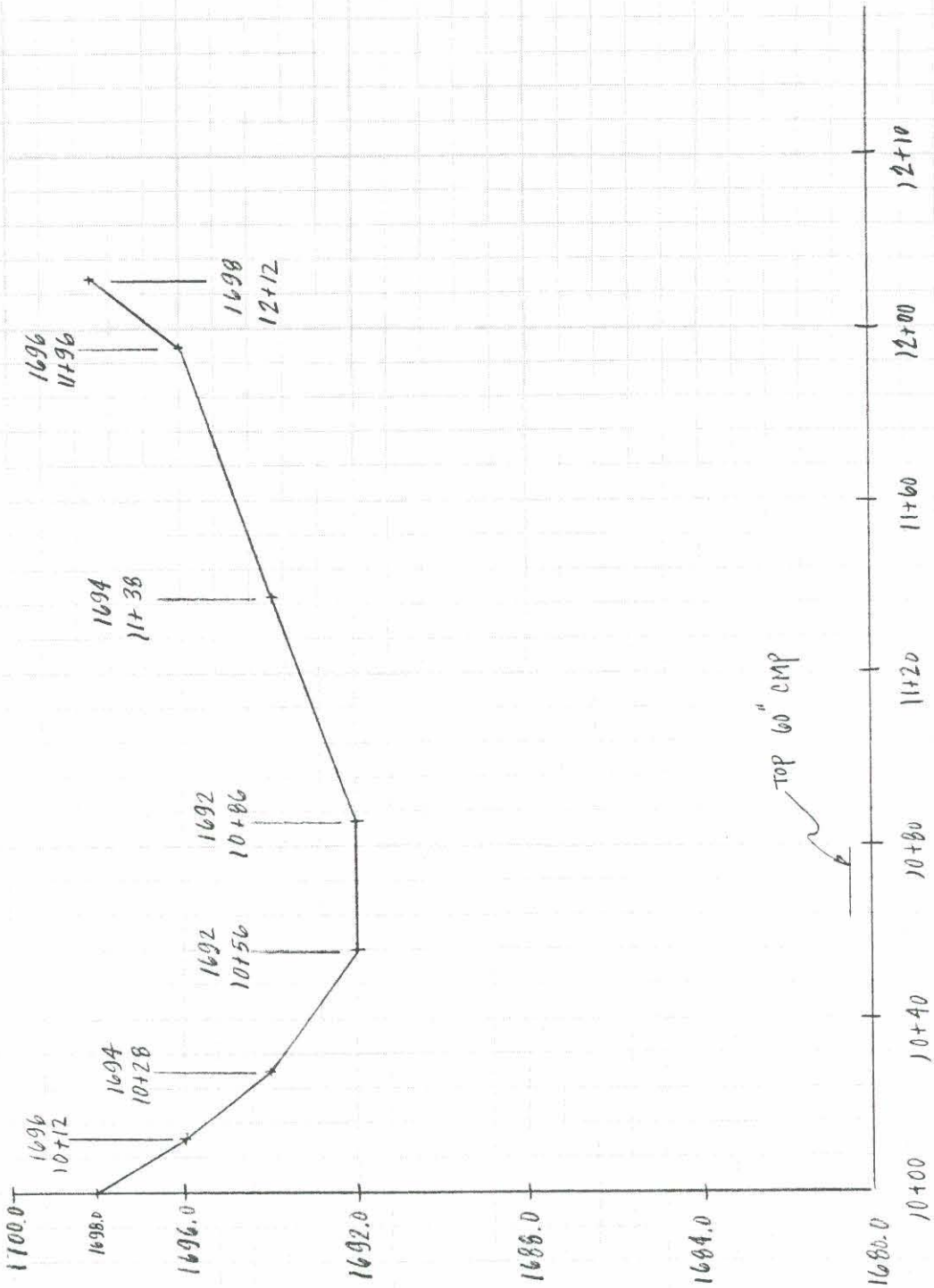
SUBJECT CULVERT 619 FIELD SURVEY

PROJECT NO. 35

CULVERT 619 @ FOUNTAIN HILLS BLVD. WEIR CROSS-SECTION RIDGE LINE

SCALE HORZ 1" = 40'
VERT 1" = 4'

* CROSS-SECTION FROM 200 SCALE CONTOUR MAP



INV 60" CMP - 1675.57

10+00	1698.0
10+12	1696.0
10+28	1694.0
10+56	1692.0
10+86	1692.0
11+38	1694.0
11+96	1696.0
12+12	1698.0

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=10cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1663.50    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0      10. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            0.4
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.0
ANAL 007  A 02 A 01 2.00 36.00            0.4
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	10.00	.00	10.00
005	A 4	A 3	.00	.00	.00	.00	.00	10.00	.00	10.00
006	A 3	A 2	.00	.00	.00	.00	.00	10.00	.00	10.00
007	A 2	A 1	.00	.00	.00	.00	.00	10.00	.00	10.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
ENTRANCE CONTROLS. TOTAL HEAD AT UPSTREAM END FOR RUN NO. 004 IS 1.31											
004	A 5	A 4	.024	.40	10.00	1677.10	1669.48	.00005	.16	4.9*	169.6
005	A 4	A 3	.024	.00	10.00	1669.48	1668.44	.00005	.16	4.9*	169.5
006	A 3	A 2	.024	.00	10.00	1668.44	1666.19	.00005	.16	3.2*	169.5
007	A 2	A 1	.024	.40	10.00	1666.19	1663.86	.00019	.23	4.1	89.4

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=50cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.00    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0      50. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            0.9
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.1
ANAL 007  A 02 A 01 2.00 36.00            0.8
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	50.00	.00	50.00
005	A 4	A 3	.00	.00	.00	.00	.00	50.00	.00	50.00
006	A 3	A 2	.00	.00	.00	.00	.00	50.00	.00	50.00
007	A 2	A 1	.00	.00	.00	.00	.00	50.00	.00	50.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
ENTRANCE CONTROLS. TOTAL HEAD AT UPSTREAM END FOR RUN NO. 004 IS 2.83											
004	A 5	A 4	.024	.90	50.00	1679.12	1670.53	.00126	.37	7.6	169.6
005	A 4	A 3	.024	.00	50.00	1670.53	1669.59	.00126	.37	7.1*	169.5
006	A 3	A 2	.024	.10	50.00	1669.59	1667.49	.00126	.37	5.4*	169.5
007	A 2	A 1	.024	.80	50.00	1667.49	1664.76	.00479	.53	6.6	89.4

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=100cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.50    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0     100. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            1.3
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.1
ANAL 007  A 02 A 01 2.00 36.00            1.0
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	100.00	.00	100.00
005	A 4	A 3	.00	.00	.00	.00	.00	100.00	.00	100.00
006	A 3	A 2	.00	.00	.00	.00	.00	100.00	.00	100.00
007	A 2	A 1	.00	.00	.00	.00	.00	100.00	.00	100.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
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THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
1992
THYSYS 26-Oct-1993
9:24

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
ENTRANCE CONTROLS. TOTAL HEAD AT UPSTREAM END FOR RUN NO. 004 IS 4.30											
004	A 5	A 4	.024	1.30	100.00	1680.99	1671.43	.00503	.55	9.0*	169.6
005	A 4	A 3	.024	.00	100.00	1671.43	1670.57	.00503	.55	8.4*	169.5
006	A 3	A 2	.024	.10	100.00	1670.57	1669.58	.00503	.55	5.4*	169.5
007	A 2	A 1	.024	1.00	100.00	1669.58	1666.17	.01916	1.00	7.1	89.4***

SEW0071--*PIPE FLOW DEPTH > NORMAL DEPTH DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON ELEVATION OF HYDRAULIC GRADE LINE AT DOWNSTREAM ELEVATION.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

1 TEXAS DEPARTMENT OF TRANSPORTATION
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1992
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9:24

SEW0008--CAPACITY OF RUN 007 IS EXCEEDED.

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1992
THYSYS 26-Oct-1993
9:24

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=150cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.80    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0     150. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            0.9
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.1
ANAL 007  A 02 A 01 2.00 36.00            2.0
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	150.00	.00	150.00
005	A 4	A 3	.00	.00	.00	.00	.00	150.00	.00	150.00
006	A 3	A 2	.00	.00	.00	.00	.00	150.00	.00	150.00
007	A 2	A 1	.00	.00	.00	.00	.00	150.00	.00	150.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

1 TEXAS DEPARTMENT OF TRANSPORTATION
Page 4
THYSYS TEXAS HYDRAULICS SYSTEM DOS- VER 2.4.2
1992
THYSYS 26-Oct-1993
9:29

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
004	A 5	A 4	.024	.90	150.00	1682.65	1676.50	.01131	.73	7.6**	169.6
005	A 4	A 3	.024	.00	150.00	1676.50	1675.69	.01131	.73	7.6**	169.5
006	A 3	A 2	.024	.10	150.00	1675.69	1673.60	.01131	.73	7.6**	169.5
007	A 2	A 1	.024	2.00	150.00	1673.60	1666.17	.04310	1.00	10.6	89.4***

SEW0069--**PIPE FLOWING FULL DUE TO DOWNSTREAM CONTROL, NOT INSUFFICIENT CAPACITY- VELOCITY IS BASED ON FULL FLOW.
JUNCTION LOSSES MAY NEED TO BE CONSIDERED AT SUBMERGED JUNCTIONS

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SEW0008--CAPACITY OF RUN 007 IS EXCEEDED.

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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=175cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1664.90    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0     175. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            1.2
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.1
ANAL 007  A 02 A 01 2.00 36.00            2.9
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	175.00	.00	175.00
005	A 4	A 3	.00	.00	.00	.00	.00	175.00	.00	175.00
006	A 3	A 2	.00	.00	.00	.00	.00	175.00	.00	175.00
007	A 2	A 1	.00	.00	.00	.00	.00	175.00	.00	175.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
004	A 5	A 4	.024	1.20	175.00	1688.72	1680.38	.01539	1.00	8.9	169.6***
005	A 4	A 3	.024	.00	175.00	1680.38	1679.27	.01539	1.00	8.9	169.5***
006	A 3	A 2	.024	.10	175.00	1679.27	1676.46	.01539	1.00	8.9	169.5***
007	A 2	A 1	.024	2.90	175.00	1676.46	1666.17	.05866	1.00	12.4	89.4***

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SEW0008--CAPACITY OF RUN 004 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 005 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 006 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 007 IS EXCEEDED.

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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=200cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1665.50    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0     200. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            1.6
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.2
ANAL 007  A 02 A 01 2.00 36.00            3.7
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	200.00	.00	200.00
005	A 4	A 3	.00	.00	.00	.00	.00	200.00	.00	200.00
006	A 3	A 2	.00	.00	.00	.00	.00	200.00	.00	200.00
007	A 2	A 1	.00	.00	.00	.00	.00	200.00	.00	200.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
004	A 5	A 4	.024	1.60	200.00	1695.64	1684.71	.02010	1.00	10.2	169.6***
005	A 4	A 3	.024	.00	200.00	1684.71	1683.26	.02010	1.00	10.2	169.5***
006	A 3	A 2	.024	.20	200.00	1683.26	1679.52	.02010	1.00	10.2	169.5***
007	A 2	A 1	.024	3.70	200.00	1679.52	1666.17	.07662	1.00	14.1	89.4***

SEW0008--CAPACITY OF RUN 004 IS EXCEFDED.
SEW0008--CAPACITY OF RUN 005 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 006 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 007 IS EXCEEDED.

STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
$    Storm drain system at C619 under Palisades Plaza.
$    Line A is C619 to C620.
$    Line B is C611 to C620.
$    Q=250cfs
SEWER              ANALYSIS                    SEWER     FREQUENCY=100YR
JUNC A 05 TYPE=JUNCT
JUNC A 04 TYPE=JUNCT
JUNC A 03 TYPE=JUNCT
JUNC A 02 TYPE=JUNCT
JUNC A 01 TYPE=JUNCT
OUTLET    STATIONING     0.00 T.W. ELEV 1665.50    A 01
DSGN 004  A 05 A 04 US1680.39 DS1673.68 464.0     250. 0024  010      CIRC
DSGN 005  A 04 A 03 US1673.68 DS1672.64  72.0          0024  010      CIRC
DSGN 006  A 03 A 02 US1672.64 DS1670.10 176.0          0024  010      CIRC
DSGN 007  A 02 A 01 US1668.10 DS1666.17 126.5          0024  010      CIRC
ANAL 004  A 05 A 04 1.00 60.00            2.5
ANAL 005  A 04 A 03 1.00 60.00            0.0
ANAL 006  A 03 A 02 1.00 60.00            0.3
ANAL 007  A 02 A 01 2.00 36.00            5.9
ENDATA
```


SEWER

CUMULATIVE RUNOFF CALCULATIONS FOR PIPE RUNS

RUN	U.S. I.D.	D.S. I.D.	"CA"	"TC"	AREA	CUMULATIVE "CA"	CUMULATIVE "TC"	SUPPLY Q	INTENSITY	FLOW
004	A 5	A 4	.00	.00	.00	.00	.00	250.00	.00	250.00
005	A 4	A 3	.00	.00	.00	.00	.00	250.00	.00	250.00
006	A 3	A 2	.00	.00	.00	.00	.00	250.00	.00	250.00
007	A 2	A 1	.00	.00	.00	.00	.00	250.00	.00	250.00

SEWER

SEWER ANALYSIS

CONFIGURATION DATA

RUN	U.S. ID	D.S. ID	U.S. F.L. ELEV	D.S. F.L. ELEV	LENGTH FEET	SLOPE	BBLS	RISE	SPAN	SHAPE
004	A 5	A 4	1675.39	1668.68	464	.01446	1	60	60	CIRC
005	A 4	A 3	1668.68	1667.64	72	.01444	1	60	60	CIRC
006	A 3	A 2	1667.64	1665.10	176	.01443	1	60	60	CIRC
007	A 2	A 1	1665.10	1663.17	126	.01532	2	36	36	CIRC

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HYDRAULIC DATA

RUN	U.S. ID	D.S. ID	'N'	JUNC LOSS	FLOW	U.S. HEAD	D.S. HEAD	HYDR. GRAD	DEPTH	VELOC.	PIPE CAPAC.
004	A 5	A 4	.024	2.50	250.00	1712.32	1695.24	.03141	1.00	12.7	169.6***
005	A 4	A 3	.024	.00	250.00	1695.24	1692.98	.03141	1.00	12.7	169.5***
006	A 3	A 2	.024	.30	250.00	1692.98	1687.16	.03141	1.00	12.7	169.5***
007	A 2	A 1	.024	5.90	250.00	1687.16	1666.17	.11972	1.00	17.7	89.4***

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SEW0008--CAPACITY OF RUN 004 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 005 IS EXCEFDED.
SEW0008--CAPACITY OF RUN 006 IS EXCEEDED.
SEW0008--CAPACITY OF RUN 007 IS EXCEEDED.

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STATIONING

RUN	UPSTREAM JUNCTION ID	STATIONING
004	A 5	838
005	A 4	374
006	A 3	302
007	A 2	126

FINISH

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************
```

PROJECT: Fountain Hills North FIS
ENGINEER: C619 Detention Basin Weir Flow
DATE: 10/26/1993
TIME: 12:32.37

INPUT PARAMETERS

STARTING WSEL:	1692.00
MAXIMUM WSEL:	1696.00
STEP SIZE:	0.20
BREADTH OF WEIR:	10.00

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:32.37
*********************************************
```

POINT	ELEVATION	STATION
1	1696.00	1012.00
2	1694.00	1028.00
3	1692.00	1056.00
4	1692.00	1086.00
5	1694.00	1138.00
6	1696.00	1196.00

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:32.37
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5667
3	0.40	2.6333
4	0.60	2.7000
5	0.80	2.7667
6	1.00	2.8333
7	1.20	2.9000
8	1.40	2.9667
9	1.60	3.0022
10	1.80	3.0067
11	2.00	3.0111
12	2.20	3.0156
13	2.40	3.0200
14	2.60	3.0244
15	2.80	3.0289
16	3.00	3.0333
17	3.20	3.0378
18	3.40	3.0422
19	3.60	3.0467
20	3.80	3.0511

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS
    DATE:  10/26/1993
    TIME:  12:32.37
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1692.00	0.00
1692.20	7.61
1692.40	24.13
1692.60	49.22
1692.80	83.47
1693.00	127.61
1693.20	182.42
1693.40	248.73
1693.60	325.47
1693.80	412.37
1694.00	511.69
1694.20	627.81
1694.40	759.05
1694.60	900.86
1694.80	1051.08
1695.00	1214.53
1695.20	1391.70
1695.40	1583.08
1695.60	1789.19
1695.80	2010.60

APPENDIX B

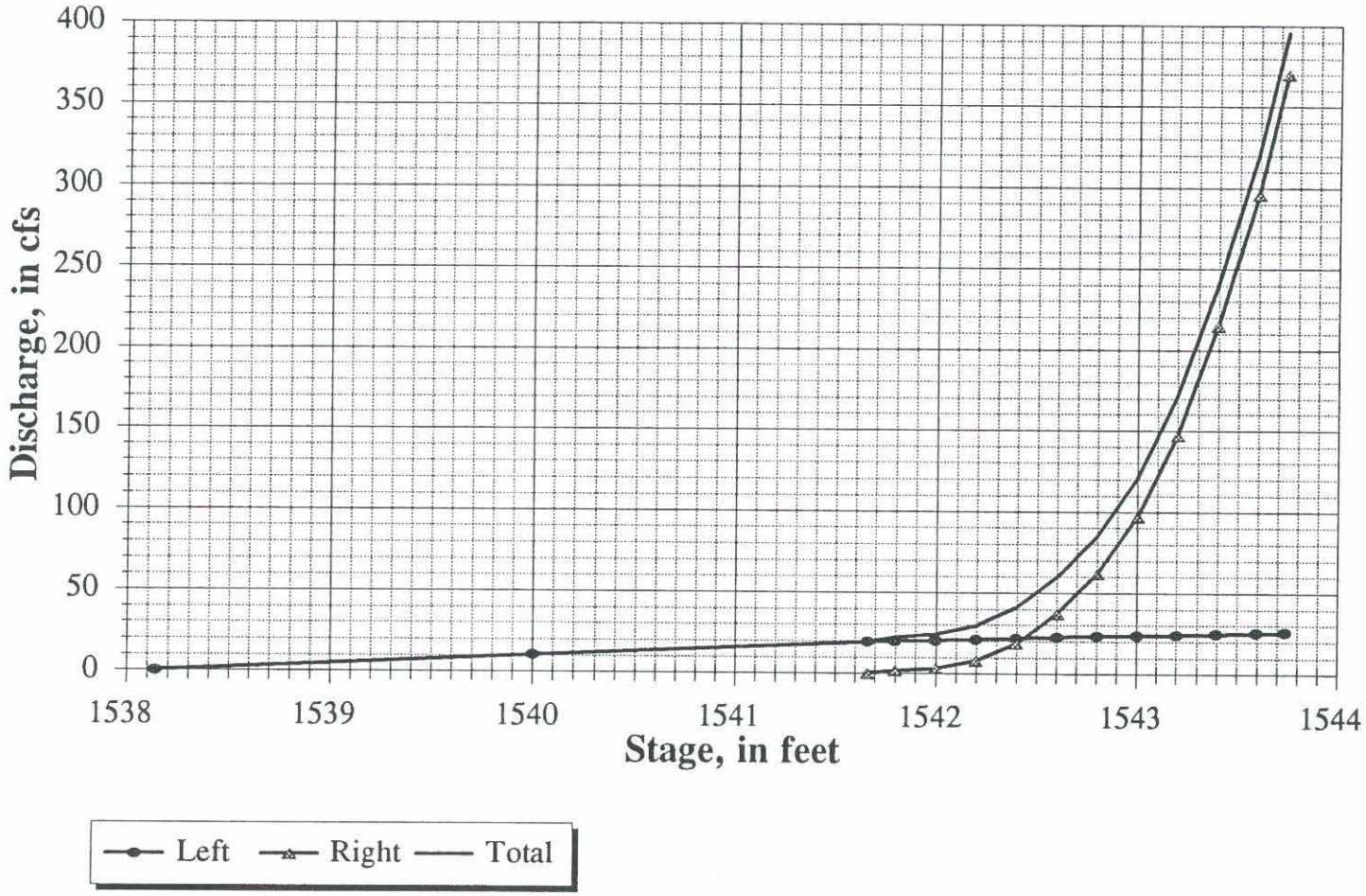
Flow Split Hydraulic Calculations

C504 Flow Split Hydraulic Calculations
C505 Flow Split Hydraulic Calculations
C506 Flow Split Hydraulic Calculations
C508 Flow Split Hydraulic Calculations
C512 Flow Split Hydraulic Calculations (Stock Tank)
C523 Flow Split Hydraulic Calculations
C543 Flow Split Hydraulic Calculations
C545 Flow Split Hydraulic Calculations
C611 Flow Split Hydraulic Calculations
C614 Flow Split Hydraulic Calculations
C615 Flow Split Hydraulic Calculations

C504 Flow Split Hydraulic Calculations

Figure D-1

Discharge vs Stage Curve for Flow Split at C504

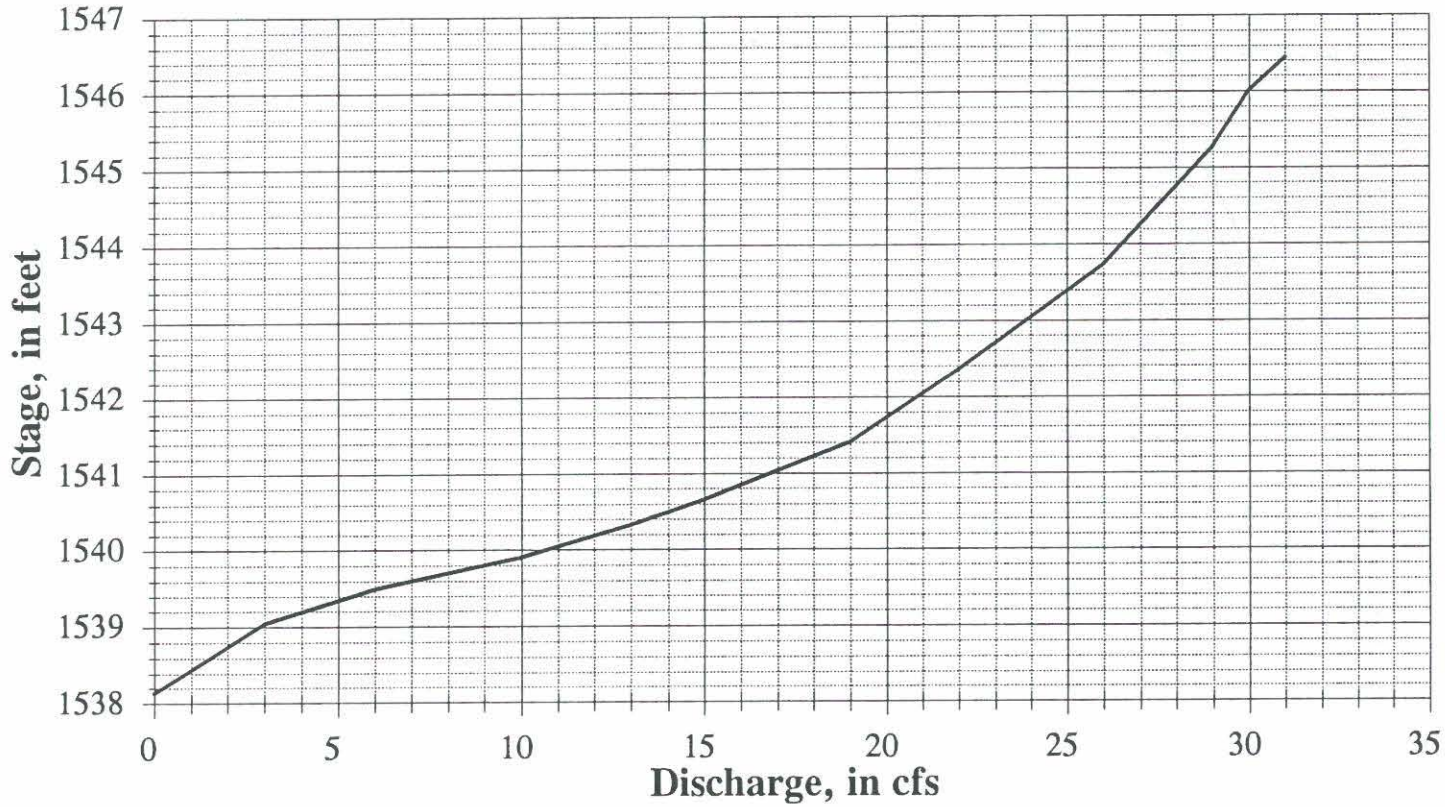


flowsplt.wb1

21-Jun-93

C504 Stage vs Discharge

Left Channel (Culvert Flow) from HY8

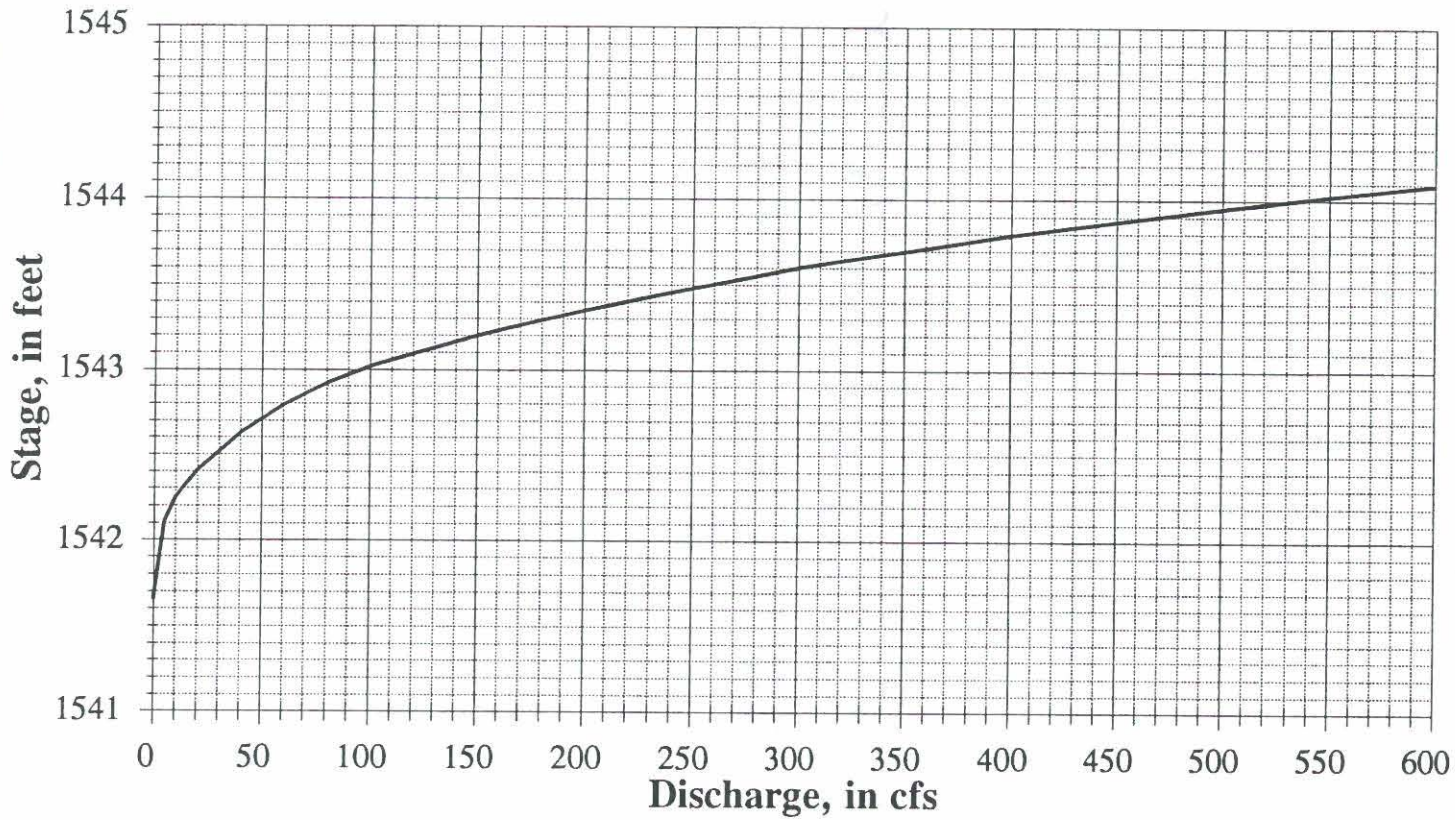


flowsplt.wb1

21-Jun-93

C504 Stage vs Discharge

Right Channel (Ditch Flow) from HEC-2

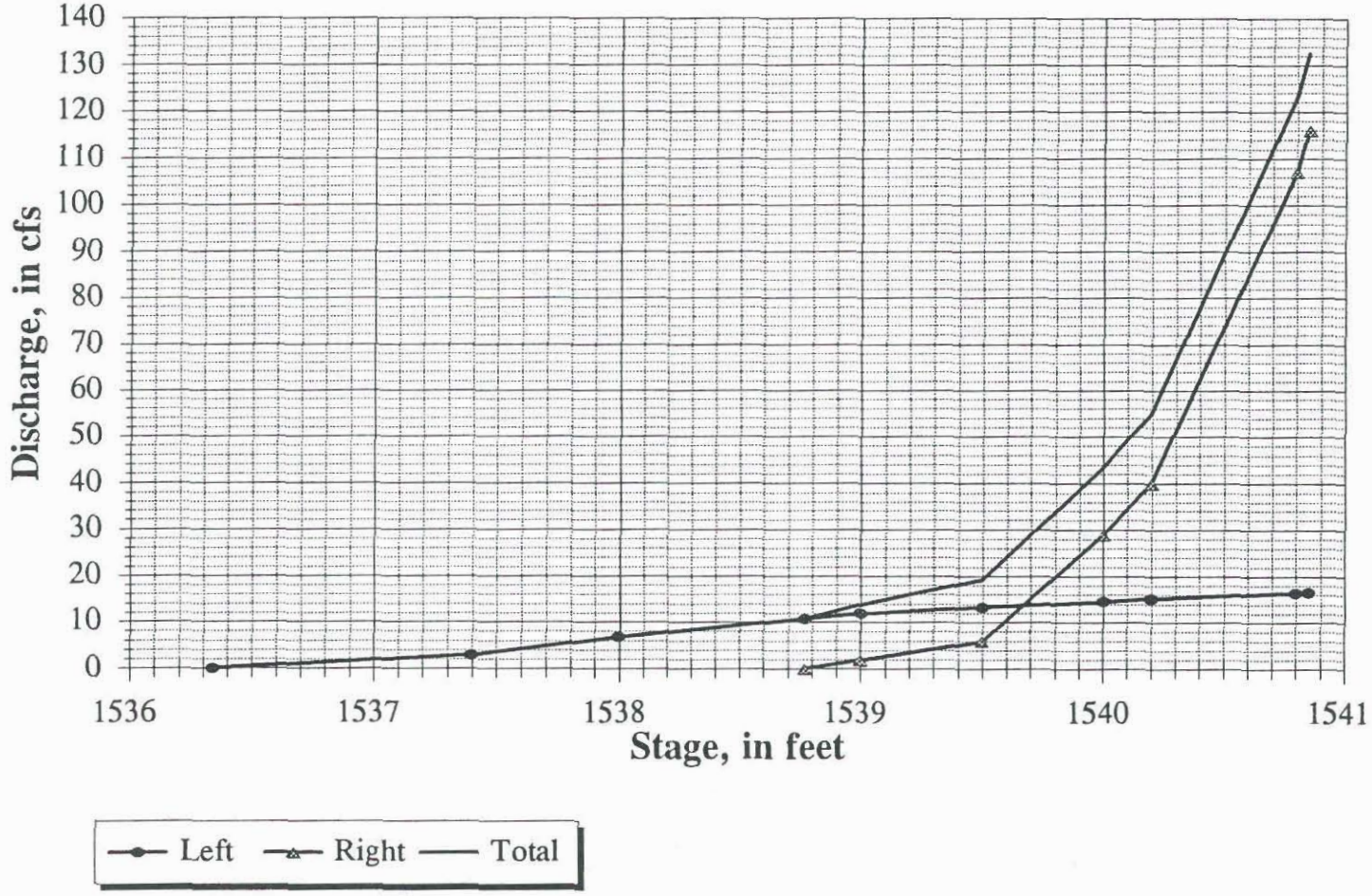


Refer to Appendix A for supporting calculations

C505 Flow Split Hydraulic Calculations

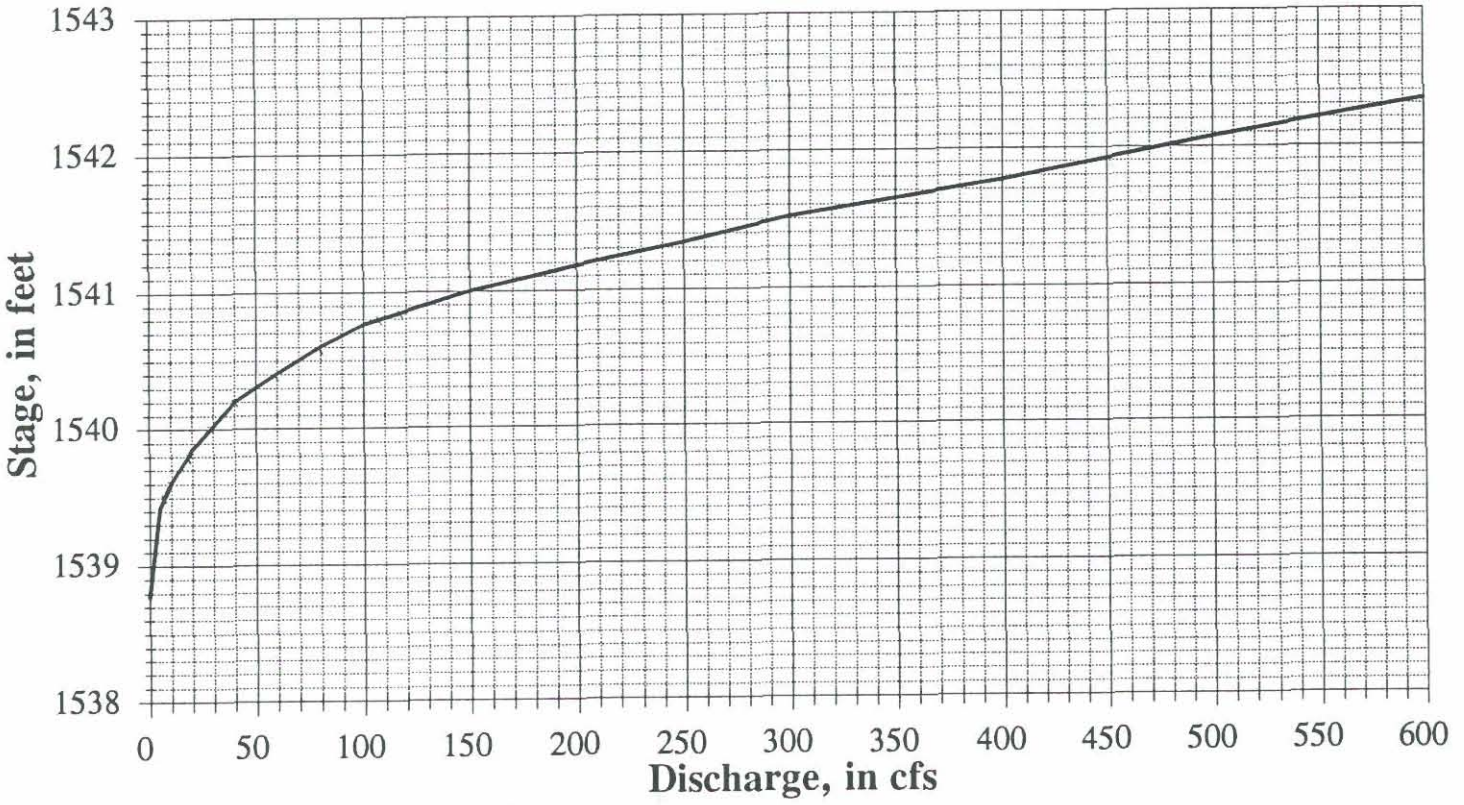
Figure D-2

Discharge vs Stage Curve for Flow Split at C505



C505 Stage vs Discharge

Right Channel (Ditch Flow) from HEC-2

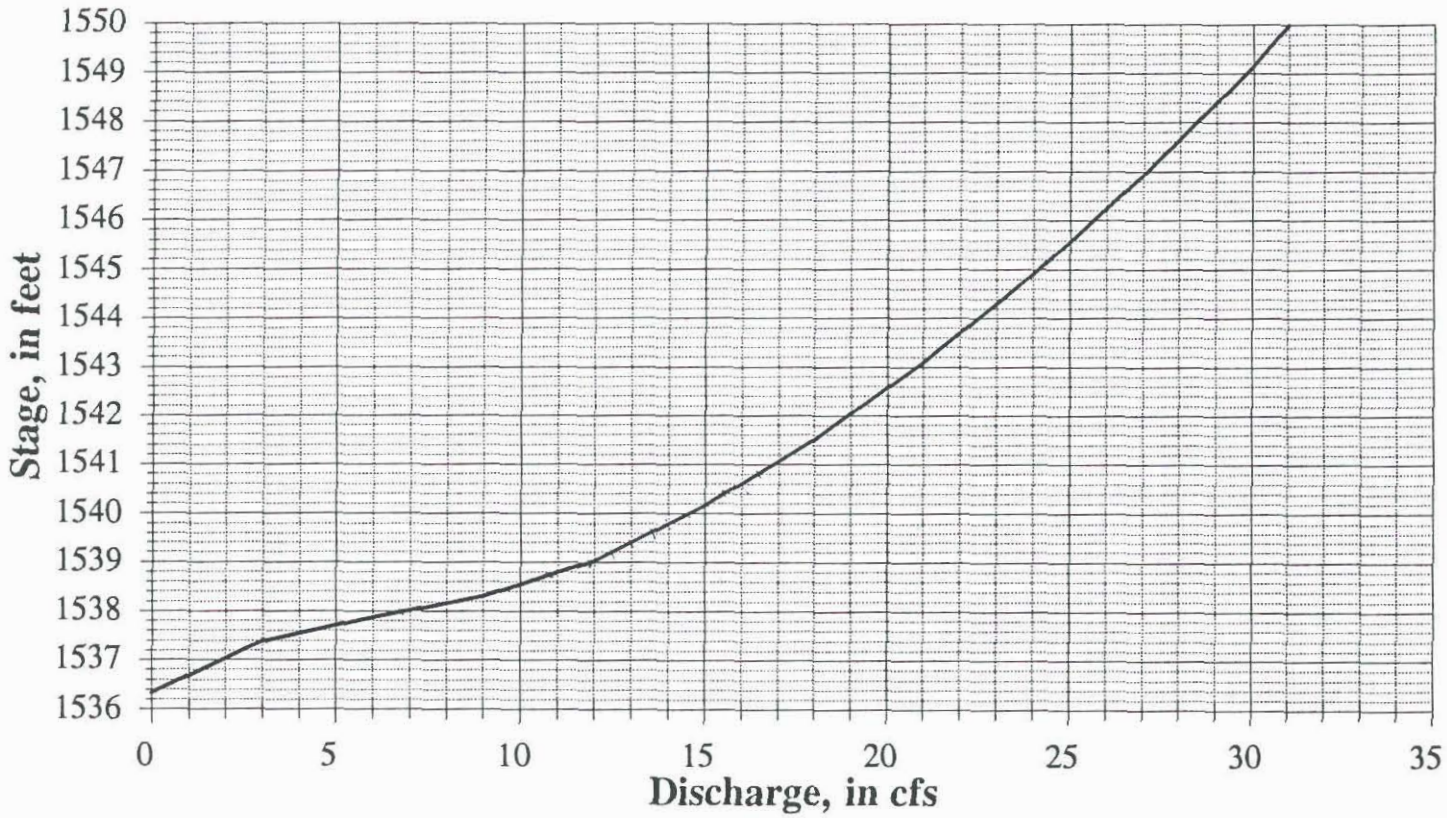


flowsplt.wb1

21-Jun-93

C505 Stage vs Discharge

Left Channel (Culvert Flow) from HY8



CURRENT DATE: 06-18-1993
CURRENT TIME: 20:30:14

FILE DATE: 06-16-1993
FILE NAME: C505

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1536.34	1535.64	70.00	1 CSP	1.75	1.75	.022	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C505 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1536.34	0	0	0	0	0	0	0	0	1
1537.37	3	3	0	0	0	0	0	0	1
1537.87	6	6	0	0	0	0	0	0	1
1538.30	9	9	0	0	0	0	0	0	1
1539.04	12	12	0	0	0	0	0	0	1
1540.16	15	15	0	0	0	0	0	0	1
1541.51	18	18	0	0	0	0	0	0	1
1543.09	21	21	0	0	0	0	0	0	1
1544.90	24	24	0	0	0	0	0	0	1
1546.90	27	27	0	0	0	0	0	0	1
1549.13	30	30	0	0	0	0	0	0	1
1550.00	31	31	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C505 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1536.34	0.00	0	0	0.00
1537.37	0.00	3	0	0.00
1537.87	0.00	6	0	0.00
1538.30	0.00	9	0	0.00
1539.04	0.00	12	0	0.00
1540.16	0.00	15	0	0.00
1541.51	0.00	18	0	0.00
1543.09	0.00	21	0	0.00
1544.90	0.00	24	0	0.00

1546.90	0.00	27	0	0.00
1549.13	0.00	30	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 06-18-1993 FILE DATE: 06-16-1993
CURRENT TIME: 20:30:14 FILE NAME: C505

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (1.75 BY 1.75) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1536.34	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
3	1537.37	0.93	1.03	2-M2c	0.68	0.62	3.89	0.62	2.05	0.22
6	1537.87	1.42	1.53	2-M2c	1.02	0.90	4.81	0.90	2.45	0.30
9	1538.30	1.89	1.96	2-M2c	1.38	1.11	5.59	1.11	2.74	0.37
12	1539.04	2.46	2.70	6-FFn	1.75	1.29	4.99	1.75	2.97	0.42
15	1540.16	3.19	3.82	6-FFn	1.75	1.43	6.24	1.75	3.15	0.47
18	1541.51	4.12	5.17	6-FFn	1.75	1.54	7.48	1.75	3.32	0.52
21	1543.09	5.25	6.75	6-FFn	1.75	1.64	8.73	1.75	3.46	0.56
24	1544.90	6.59	8.56	6-FFn	1.75	1.75	9.98	1.75	3.59	0.60
27	1546.90	8.13	10.56	6-FFn	1.75	1.75	11.23	1.75	3.70	0.63
30	1549.13	9.83	12.79	6-FFn	1.75	1.75	12.47	1.75	3.81	0.67

El. inlet face invert 1536.34 ft El. outlet invert 1535.64 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1536.34
OUTLET STATION (FT)	70.00
OUTLET ELEVATION (FT)	1535.64
NUMBER OF BARRELS	1
SLOPE (V-FT/H-FT)	0.0100
CULVERT LENGTH ALONG SLOPE (FT)	70.00

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	1.75 FT
BARREL MATERIAL	CORRUGATED STEEL
BARREL MANNING'S N	0.022
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	THIN EDGE PROJECTING
INLET DEPRESSION	NONE

CURRENT DATE: 06-18-1993
CURRENT TIME: 20:30:14

FILE DATE: 06-16-1993
FILE NAME: C505

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C505
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	4
RIGHT CHANNEL BOUNDARY	7
MANNING N LEFT OVER BANK	0.055
MANNING N MAIN CHANNEL	0.035
MANNING N RIGHT OVER BAN	0.060
SLOPE OF CHANNEL (FT/FT)	0.0210

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1545.64
2	1010.00	1543.64
3	1021.00	1541.64
4	1031.00	1539.64
5	1059.00	1537.64
6	1083.00	1535.64
7	1090.00	1535.64
8	1107.00	1537.64
9	1118.00	1539.64
10	1130.00	1541.64
11	1143.00	1543.64
12	1155.00	1545.64

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1535.64	0.000	0.00	0.00	0.00
3.00	1535.86	0.824	0.22	2.05	0.25
6.00	1535.94	0.861	0.30	2.45	0.33
9.00	1536.01	0.885	0.37	2.74	0.39
12.00	1536.06	0.903	0.42	2.97	0.44
15.00	1536.11	0.917	0.47	3.15	0.48
18.00	1536.16	0.928	0.52	3.32	0.52
21.00	1536.20	0.938	0.56	3.46	0.55
24.00	1536.24	0.946	0.60	3.59	0.58
27.00	1536.27	0.954	0.63	3.70	0.61
30.00	1536.31	0.961	0.67	3.81	0.64

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1550.00

```
1*********************************************                                    ****************************************
 *  HEC-2 WATER SURFACE PROFILES              *                                     *  U.S. ARMY CORPS OF ENGINEERS
 *                                            *                                     *  HYDROLOGIC ENGINEERING CENTER
 *                                            *                                     *  609 SECOND STREET, SUITE D
 *  Version   4.6.2;  May 1991                *                                     *  DAVIS, CALIFORNIA 95616-4687
 *                                            *                                     *          (916) 756-1104
 *  RUN DATE    22JUN93    TIME   19:05:53    *                                     ****************************************
 *********************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X            X     X
                                        X     X  X        X                        X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                  X
                                        X     X  X        X     X            X
                                        X     X  XXXXXXX   XXXXX             XXXXXXX
1
   22JUN93      19:05:53                                                                                          PAGE    1


                                                                                   THIS RUN EXECUTED 22JUN93    19:05:53
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
 T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE                 dtp
 T3                                                     FILE:     CH505.IH2
 T4
 T5              This model is used to develop a rating curve for culvert 505
 T6              Ditch flow to south of C505 is diverted to C506
 T7
 T8      Single X-Section Run
                 Ditch slope =     .020 ft/ft  From 200 scale map

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1                                        -1

    SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38         43          1          8         26          2          3         11          5         58

         Manning's n:          Min  Normal     Max
                   Earth      .015    .022    .030
               Pavement       .013    .016    .020
                  Desert      .040    .060    .080
               Veg Des.       .070    .100    .160

                  Earthy
    earth  desert  desert

 NC     .020       .055       .035        .1         .3
 QT       14          5         10        20         40          60         80        100        150        200
 QT      250        300        400       500        600

         X-Section 1
            this section needs to be input from 200 scale map
 X1        1          7       1022      1046
 GR     1543     999.99    1540.85      1000    1540.57       1014    1539.77       1022    1538.77       1026
 GR     1542       1046       1543      1076

1
   22JUN93      19:05:53                                                                                          PAGE    2


 X1        2                                                  .2         .2         .2

 X1        3                                                  .2         .2         .2

 X1        4                                                  .2         .2         .2

 X1        5                                                  .2         .2         .2

 X1        6                                                  .2         .2         .2

1
   22JUN93      19:05:53                                                                                          PAGE    3

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

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .61   1539.38   1539.34       .00   1539.49       .11       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       1.9        .0        .0        .0   1542.00
       .00       .00      2.67       .00      .000      .035      .000      .000   1538.77   1023.57
   .019890        0.        0.        0.         0        14        13       .00      6.18   1029.76


*SECNO 2.000
     2.000       .61   1539.38   1539.34       .00   1539.49       .11       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       1.9        .0        .0        .0   1542.00
       .00       .00      2.63       .00      .000      .035      .000      .000   1538.77   1023.56
   .019200        0.        0.        0.         0        11         0       .00      6.22   1029.78


*SECNO 3.000
     3.000       .62   1539.39   1539.34       .00   1539.50       .10       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       1.9        .0        .0        .0   1542.00
       .00       .00      2.57       .00      .000      .035      .000      .000   1538.77   1023.53
   .018074        0.        0.        0.         0        11         0       .00      6.29   1029.82


*SECNO 4.000
     4.000       .63   1539.40   1539.34       .00   1539.50       .10       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       2.0        .0        .0        .0   1542.00
       .00       .00      2.50       .00      .000      .035      .000      .000   1538.77   1023.50
   .016762        0.        0.        0.         0        12         0       .00      6.38   1029.88


*SECNO 5.000
     5.000       .64   1539.41   1539.34       .00   1539.50       .09       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       2.1        .0        .0        .0   1542.00
       .00       .00      2.43       .00      .000      .035      .000      .000   1538.77   1023.46
   .015482        0.        0.        0.         0        15         0       .00      6.48   1029.94


*SECNO 6.000
     6.000       .65   1539.42   1539.34       .00   1539.51       .09       .00       .00   1539.77
       5.0        .0       5.0        .0        .0       2.1        .0        .0        .0   1542.00
       .00       .00      2.36       .00      .000      .035      .000      .000   1538.77   1023.42
   .014360        0.        0.        0.         0        15         0       .00      6.57   1029.99

1
   22JUN93      19:05:53                                                                                PAGE    4

T3            Q2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                 -1                                      -1

1
   22JUN93      19:05:53                                                                                PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .79   1539.56   1539.52       .00   1539.71       .16       .00       .00   1539.77
      10.0        .0      10.0        .0        .0       3.1        .0        .0        .0   1542.00
       .00       .00      3.18       .00      .000      .035      .000      .000   1538.77   1022.86
   .020039        0.        0.        0.         0        22        14       .00      8.00   1030.86


*SECNO 2.000
     2.000       .79   1539.56   1539.52       .00   1539.72       .15       .00       .00   1539.77
      10.0        .0      10.0        .0        .0       3.2        .0        .0        .0   1542.00
       .00       .00      3.15       .00      .000      .035      .000      .000   1538.77   1022.84
   .019499        0.        0.        0.         0        11         0       .00      8.05   1030.89


*SECNO 3.000
     3.000       .80   1539.57   1539.52       .00   1539.72       .15       .00       .00   1539.77
      10.0        .0      10.0        .0        .0       3.2        .0        .0        .0   1542.00
       .00       .00      3.09       .00      .000      .035      .000      .000   1538.77   1022.81
   .018563        0.        0.        0.         0        11         0       .00      8.12   1030.93


*SECNO 4.000
     4.000       .81   1539.58   1539.52       .00   1539.73       .14       .00       .00   1539.77
      10.0        .0      10.0        .0        .0       3.3        .0        .0        .0   1542.00
       .00       .00      3.02       .00      .000      .035      .000      .000   1538.77   1022.77
   .017381        0.        0.        0.         0        11         0       .00      8.22   1030.99


*SECNO 5.000
     5.000       .83   1539.60   1539.52       .00   1539.73       .13       .00       .00   1539.77
      10.0        .0      10.0        .0        .0       3.4        .0        .0        .0   1542.00
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      .00       .00      2.93       .00      .000      .035      .000      .000   1538.77   1022.73
  .016158        0.        0.        0.         0        11         0       .00      8.33   1031.06

*SECNO 6.000
    6.000       .84   1539.61   1539.52       .00   1539.73       .13       .00       .00   1539.77
     10.0        .0      10.0        .0        .0       3.5        .0        .0        .0   1542.00
      .00       .00      2.85       .00      .000      .035      .000      .000   1538.77   1022.68
  .015001        0.        0.        0.         0        15         0       .00      8.45   1031.13
```

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1
  22JUN93      19:05:53                                                                          PAGE    6

T3            Q3
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1                                      -1

1
  22JUN93      19:05:53                                                                          PAGE    7

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

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
    1.000      1.02   1539.79   1539.76       .00   1540.01       .22       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.3        .0        .0        .0   1542.00
      .00       .11      3.79       .00      .020      .035      .000      .000   1538.77   1021.83
  .020036        0.        0.        0.         0        12        14       .00     10.47   1032.30

*SECNO 2.000
    2.000      1.02   1539.79   1539.76       .00   1540.01       .22       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.3        .0        .0        .0   1542.00
      .00       .10      3.77       .00      .020      .035      .000      .000   1538.77   1021.79
  .019581        0.        0.        0.         0         8         0       .00     10.53   1032.32

*SECNO 3.000
    3.000      1.04   1539.81   1539.76       .00   1540.02       .21       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.4        .0        .0        .0   1542.00
      .00       .10      3.71       .00      .020      .035      .000      .000   1538.77   1021.71
  .018748        0.        0.        0.         0         8         0       .00     10.66   1032.37

*SECNO 4.000
    4.000      1.05   1539.82   1539.76       .00   1540.02       .20       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.5        .0        .0        .0   1542.00
      .00       .10      3.63       .00      .020      .035      .000      .000   1538.77   1021.60
  .017645        0.        0.        0.         0        11         0       .00     10.83   1032.44

*SECNO 5.000
    5.000      1.07   1539.84   1539.75       .00   1540.03       .19       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.7        .0        .0        .0   1542.00
      .00       .09      3.51       .00      .020      .035      .000      .000   1538.77   1021.42
  .015963        0.        0.        0.         1         9         0       .00     11.13   1032.55

*SECNO 6.000
    6.000      1.08   1539.85   1539.76       .00   1540.03       .18       .00       .00   1539.77
     20.0        .0      20.0        .0        .0       5.8        .0        .0        .0   1542.00
      .00       .09      3.43       .00      .020      .035      .000      .000   1538.77   1021.29
  .014904        0.        0.        0.         0         9         0       .00     11.34   1032.63
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1
  22JUN93      19:05:53                                                                          PAGE    8

T3            Q4
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1                                      -1

1
  22JUN93      19:05:53                                                                          PAGE    9

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

*PROF 4
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```
CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.31   1540.08   1540.08       .00   1540.39       .31       .00       .00   1539.77
      40.0       1.4      38.6        .0        .5       8.5        .0        .0        .0   1542.00
       .00      2.90      4.53       .00      .020      .035      .000      .000   1538.77   1018.92
   .018593        0.        0.        0.         0        11        12       .00     15.18   1034.10


*SECNO 2.000
     2.000      1.34   1540.11   1540.09       .00   1540.40       .29       .00       .00   1539.77
      40.0       1.6      38.4        .0        .6       8.8        .0        .0        .0   1542.00
       .00      2.89      4.35       .00      .020      .035      .000      .000   1538.77   1018.67
   .016651        0.        0.        0.         0         5         0       .00     15.58   1034.25


*SECNO 3.000
     3.000      1.35   1540.12   1540.08       .00   1540.40       .28       .00       .00   1539.77
      40.0       1.7      38.3        .0        .6       8.9        .0        .0        .0   1542.00
       .00      2.88      4.28       .00      .020      .035      .000      .000   1538.77   1018.58
   .015956        0.        0.        0.         0         5         0       .00     15.73   1034.31


*SECNO 4.000
     4.000      1.40   1540.17   1540.09       .00   1540.41       .23       .00       .00   1539.77
      40.0       2.2      37.8        .0        .8       9.6        .0        .0        .0   1542.00
       .00      2.83      3.93       .00      .020      .035      .000      .000   1538.77   1018.04
   .012617        0.        0.        0.         3         8         0       .00     16.61   1034.65


*SECNO 5.000
     5.000      1.42   1540.19   1540.08       .00   1540.41       .22       .00       .00   1539.77
      40.0       2.3      37.7        .0        .8       9.8        .0        .0        .0   1542.00
       .00      2.81      3.86       .00      .020      .035      .000      .000   1538.77   1017.93
   .012041        0.        0.        0.         0        11         0       .00     16.79   1034.71
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```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 6.000
     6.000      1.43   1540.20   1540.08       .00   1540.41       .22       .00       .00   1539.77
      40.0       2.4      37.6        .0        .9       9.9        .0        .0        .0   1542.00
       .00      2.80      3.79       .00      .020      .035      .000      .000   1538.77   1017.82
   .011494        0.        0.        0.         0        11         0       .00     16.97   1034.78
```



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T3            Q5

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 6                             .020

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     5                    -1                                           -1
```



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

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.54   1540.31   1540.31       .00   1540.65       .34       .00       .00   1539.77
      60.0       5.6      54.4        .0       1.4      11.5        .0        .0        .0   1542.00
       .00      3.89      4.74       .00      .020      .035      .000      .000   1538.77   1016.62
   .015890        0.        0.        0.         0        16        11       .00     18.90   1035.52


*SECNO 2.000
     2.000      1.54   1540.31   1540.30       .00   1540.65       .33       .00       .00   1539.77
      60.0       5.7      54.3        .0       1.5      11.5        .0        .0        .0   1542.00
       .00      3.88      4.72       .00      .020      .035      .000      .000   1538.77   1016.59
   .015692        0.        0.        0.         0         5         0       .00     18.95   1035.54


*SECNO 3.000
     3.000      1.55   1540.32   1540.30       .00   1540.65       .33       .00       .00   1539.77
      60.0       5.8      54.2        .0       1.5      11.6        .0        .0        .0   1542.00
       .00      3.86      4.67       .00      .020      .035      .000      .000   1538.77   1016.52
   .015292        0.        0.        0.         0         5         0       .00     19.06   1035.58
```

```
*SECNO 4.000
    4.000      1.61   1540.38   1540.29       .00   1540.66       .28       .00       .01   1539.77
     60.0       6.8      53.2        .0       1.8      12.4        .0        .0        .0   1542.00
      .00      3.69      4.29       .00      .020      .035      .000      .000   1538.77   1015.95
  .012250        0.        0.        0.         5         5         0       .00     19.99   1035.94

*SECNO 5.000
    5.000      1.62   1540.39   1540.30       .00   1540.66       .27       .00       .00   1539.77
     60.0       6.9      53.1        .0       1.9      12.5        .0        .0        .0   1542.00
      .00      3.66      4.23       .00      .020      .035      .000      .000   1538.77   1015.84
  .011768        0.        0.        0.         0        11         0       .00     20.16   1036.00

1
  22JUN93      19:05:53                                                                                PAGE   13

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

*SECNO 6.000
    6.000      1.64   1540.41   1540.30       .00   1540.67       .26       .00       .00   1539.77
     60.0       7.1      52.9        .0       2.0      12.7        .0        .0        .0   1542.00
      .00      3.63      4.16       .00      .020      .035      .000      .000   1538.77   1015.73
  .011286        0.        0.        0.         0        11         0       .00     20.34   1036.07

1
  22JUN93      19:05:53                                                                                PAGE   14

T3           Q6

J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

               7                                .020

J2  NPROF    IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     6                   -1                                           -1

1
  22JUN93      19:05:53                                                                                PAGE   15

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

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
    1.000      1.69   1540.46   1540.46       .00   1540.85       .40       .00       .00   1539.77
     80.0      10.8      69.2        .0       2.3      13.5        .0        .0        .0   1542.00
      .00      4.61      5.11       .00      .020      .035      .000      .000   1538.77   1015.15
  .016160        0.        0.        0.         0        15        10       .00     21.29   1036.44

*SECNO 2.000
    2.000      1.72   1540.49   1540.47       .00   1540.86       .36       .00       .00   1539.77
     80.0      11.6      68.4        .0       2.6      14.0        .0        .0        .0   1542.00
      .00      4.48      4.89       .00      .020      .035      .000      .000   1538.77   1014.82
  .014376        0.        0.        0.         0         5         0       .00     21.82   1036.64

*SECNO 3.000
    3.000      1.76   1540.53   1540.48       .00   1540.86       .33       .00       .00   1539.77
     80.0      12.2      67.8        .0       2.8      14.5        .0        .0        .0   1542.00
      .00      4.37      4.69       .00      .020      .035      .000      .000   1538.77   1014.52
  .012907        0.        0.        0.         4         6         0       .00     22.31   1036.83

*SECNO 4.000
    4.000      1.82   1540.59   1540.49       .00   1540.87       .28       .00       .01   1539.77
     80.0      13.8      66.2        .0       3.3      15.5        .0        .0        .0   1542.00
      .00      4.15      4.28       .00      .020      .035      .000      .000   1538.77   1013.21
  .010183        0.        0.        0.         3         6         0       .00     24.03   1037.24

*SECNO 5.000
    5.000      1.83   1540.60   1540.49       .00   1540.87       .28       .00       .00   1539.77
     80.0      14.0      66.0        .0       3.4      15.6        .0        .0        .0   1542.00
      .00      4.14      4.24       .00      .020      .035      .000      .000   1538.77   1012.94
  .009981        0.        0.        0.         0        10         0       .00     24.34   1037.28

1
  22JUN93      19:05:53                                                                                PAGE   16

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

*SECNO 6.000
    6.000      1.83   1540.60   1540.45       .00   1540.88       .27       .00       .00   1539.77
```

```
      80.0      14.2      65.8        .0       3.4      15.6        .0        .0        .0   1542.00
       .00      4.13      4.21       .00      .020      .035      .000      .000   1538.77   1012.63
   .009757        0.        0.        0.         0        11         0       .00     24.69   1037.32

1
   22JUN93      19:05:53                                                                                PAGE   17

 T3            Q7

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 8                           .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       7                 -1                                        -1

1
   22JUN93      19:05:53                                                                                PAGE   18

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

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.88   1540.65   1540.65       .00   1541.02       .37       .00       .00   1539.77
      100.0      19.7      80.3        .0       4.0      16.5        .0        .0        .0   1542.00
        .00      4.94      4.88       .00      .020      .035      .000      .000   1538.77   1010.03
   .012634        0.        0.        0.         0        11         9       .00     27.61   1037.64

 *SECNO 2.000
      2.000      1.88   1540.65   1540.65       .00   1541.02       .37       .00       .00   1539.77
      100.0      19.8      80.2        .0       4.0      16.5        .0        .0        .0   1542.00
        .00      4.92      4.86       .00      .020      .035      .000      .000   1538.77   1009.90
   .012518        0.        0.        0.         0         5         0       .00     27.75   1037.65

 *SECNO 3.000
      3.000      1.89   1540.66   1540.65       .00   1541.03       .36       .00       .00   1539.77
      100.0      20.0      80.0        .0       4.1      16.6        .0        .0        .0   1542.00
        .00      4.89      4.83       .00      .020      .035      .000      .000   1538.77   1009.63
   .012280        0.        0.        0.         0         5         0       .00     28.06   1037.69

 *SECNO 4.000
      4.000      1.90   1540.67   1540.65       .00   1541.03       .36       .00       .00   1539.77
      100.0      20.3      79.7        .0       4.2      16.7        .0        .0        .0   1542.00
        .00      4.85      4.77       .00      .020      .035      .000      .000   1538.77   1009.22
   .011921        0.        0.        0.         0         5         0       .00     28.52   1037.74

 *SECNO 5.000
      5.000      1.98   1540.75   1540.65       .00   1541.04       .29       .00       .01   1539.77
      100.0      23.1      76.9        .0       5.2      17.8        .0        .0        .0   1542.00
        .00      4.41      4.31       .00      .020      .035      .000      .000   1538.77   1005.67
   .009265        0.        0.        0.         7         5         0       .00     32.51   1038.18

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   22JUN93      19:05:53                                                                                PAGE   19

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

 *SECNO 6.000
      6.000      1.99   1540.76   1540.65       .00   1541.04       .28       .00       .00   1539.77
      100.0      23.7      76.3        .0       5.5      18.1        .0        .0        .0   1542.00
        .00      4.31      4.21       .00      .020      .035      .000      .000   1538.77   1004.82
   .008722        0.        0.        0.         1         8         0       .00     33.47   1038.28

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   22JUN93      19:05:53                                                                                PAGE   20

 T3            Q8

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 9                           .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       8                 -1                                        -1

1
   22JUN93      19:05:53                                                                                PAGE   21

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.16    1540.93    1540.93       .00    1541.31       .39       .00       .00    1539.77
     150.0      46.6      103.4         .0       9.1       21.0        .0        .0        .0    1542.00
       .00      5.14       4.92        .00      .020       .035      .000      .000   1538.77    1000.00
   .010644        0.         0.         0.         0          5         8       .00     39.35    1039.35


*SECNO 2.000
     2.000      2.16    1540.93    1540.91       .00    1541.31       .38       .00       .00    1539.77
     150.0      46.7      103.2         .0       9.1       21.0        .0        .0        .0    1542.00
       .00      5.13       4.91        .00      .020       .035      .000      .000   1538.77    1000.00
   .010566        0.         0.         0.         0          5         0       .00     39.36    1039.36


*SECNO 3.000
     3.000      2.17    1540.94    1540.90       .00    1541.32       .38       .00       .00    1539.77
     150.0      47.0      103.0         .0       9.2       21.1        .0        .0        .0    1542.00
       .00      5.11       4.87        .00      .020       .035      .000      .000   1538.77    1000.00
   .010403        0.         0.         0.         0          5         0       .00     39.39    1039.39


*SECNO 4.000
     4.000      2.18    1540.95    1540.90       .00    1541.32       .37       .00       .00    1539.77
     150.0      47.5      102.5         .0       9.4       21.2        .0        .0        .0    1542.00
       .00      5.07       4.83        .00      .020       .035      .000      .000   1538.77    1000.00
   .010155        0.         0.         0.         0          5         0       .00     39.43    1039.43


*SECNO 5.000
     5.000      2.19    1540.96    1540.93       .00    1541.32       .37       .00       .00    1539.77
     150.0      48.1      101.9         .0       9.6       21.4        .0        .0        .0    1542.00
       .00      5.03       4.76        .00      .020       .035      .000      .000   1538.77    1000.00
   .009829        0.         0.         0.         0          6         0       .00     39.49    1039.49

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   22JUN93      19:05:53                                                                                PAGE   22

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


*SECNO 6.000
     6.000      2.23    1541.00    1540.93       .00    1541.33       .33       .00       .00    1539.77
     150.0      51.0       99.0         .0      10.6       22.2        .0        .0        .0    1542.00
       .00      4.81       4.46        .00      .020       .035      .000      .000   1538.77    1000.00
   .008364        0.         0.         0.         3          6         0       .00     39.78    1039.78

1
   22JUN93      19:05:53                                                                                PAGE   23

T3            Q9

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

              10                               .020

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     9                   -1                                           -1

1
   22JUN93      19:05:53                                                                                PAGE   24

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

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.30    1541.07    1541.07       .00    1541.56       .49       .00       .00    1539.77
     200.0      73.8      126.2         .0      12.3       23.6        .0        .0        .0    1542.00
       .00      6.01       5.34        .00      .020       .035      .000      .000   1538.77    1000.00
   .011496        0.         0.         0.         0          8         5       .00     40.26    1040.25


*SECNO 2.000
     2.000      2.31    1541.08    1541.07       .00    1541.56       .48       .00       .00    1539.77
     200.0      74.0      126.0         .0      12.3       23.7        .0        .0        .0    1542.00
       .00      5.99       5.33        .00      .020       .035      .000      .000   1538.77    1000.00
   .011409        0.         0.         0.         0          5         0       .00     40.27    1040.27


*SECNO 3.000
```

```
     3.000      2.31   1541.08   1541.07       .00   1541.56       .48       .00       .00   1539.77
     200.0      74.3     125.7        .0      12.4      23.7        .0        .0        .0   1542.00
       .00      5.97      5.29       .00      .020      .035      .000      .000   1538.77   1000.00
   .011226        0.        0.        0.         0         5         0       .00     40.30   1040.30

 *SECNO 4.000
     4.000      2.33   1541.10   1541.07       .00   1541.57       .47       .00       .00   1539.77
     200.0      74.9     125.1        .0      12.6      23.9        .0        .0        .0   1542.00
       .00      5.93      5.24       .00      .020      .035      .000      .000   1538.77   1000.00
   .010941        0.        0.        0.         0         5         0       .00     40.35   1040.35

 *SECNO 5.000
     5.000      2.40   1541.17   1541.06       .00   1541.58       .41       .00       .01   1539.77
     200.0      79.6     120.4        .0      14.2      25.2        .0        .0        .0   1542.00
       .00      5.60      4.77       .00      .020      .035      .000      .000   1538.77   1000.00
   .008700        0.        0.        0.         7         5         0       .00     40.80   1040.80

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   22JUN93      19:05:53                                                                                PAGE   25

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

 *SECNO 6.000
     6.000      2.41   1541.18   1541.12       .00   1541.58       .40       .00       .00   1539.77
     200.0      80.3     119.7        .0      14.5      25.5        .0        .0        .0   1542.00
       .00      5.55      4.70       .00      .020      .035      .000      .000   1538.77   1000.00
   .008412        0.        0.        0.         0         6         0       .00     40.87   1040.87

1
   22JUN93      19:05:53                                                                                PAGE   26

 T3           Q10

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               11                          .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     10                  -1                                      -1

1
   22JUN93      19:05:53                                                                                PAGE   27

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

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000      2.44   1541.21   1541.21       .00   1541.79       .58       .00       .00   1539.77
     250.0     103.2     146.8        .0      15.3      26.2        .0        .0        .0   1542.00
       .00      6.74      5.61       .00      .020      .035      .000      .000   1538.77   1000.00
   .011709        0.        0.        0.         0        11         5       .00     41.11   1041.11

 *SECNO 2.000
     2.000      2.49   1541.26   1541.22       .00   1541.79       .54       .00       .00   1539.77
     250.0     105.9     144.1        .0      16.2      26.9        .0        .0        .0   1542.00
       .00      6.55      5.35       .00      .020      .035      .000      .000   1538.77   1000.00
   .010432        0.        0.        0.         0         5         0       .00     41.35   1041.35

 *SECNO 3.000
     3.000      2.50   1541.27   1541.20       .00   1541.80       .53       .00       .00   1539.77
     250.0     106.5     143.5        .0      16.4      27.1        .0        .0        .0   1542.00
       .00      6.50      5.29       .00      .020      .035      .000      .000   1538.77   1000.00
   .010167        0.        0.        0.         0         5         0       .00     41.41   1041.41

 *SECNO 4.000
     4.000      2.54   1541.31   1541.24       .00   1541.80       .49       .00       .00   1539.77
     250.0     109.2     140.8        .0      17.3      28.0        .0        .0        .0   1542.00
       .00      6.31      5.04       .00      .020      .035      .000      .000   1538.77   1000.00
   .009005        0.        0.        0.         3         6         0       .00     41.67   1041.67

 *SECNO 5.000
     5.000      2.56   1541.33   1541.26       .00   1541.81       .48       .00       .00   1539.77
     250.0     110.2     139.8        .0      17.7      28.3        .0        .0        .0   1542.00
       .00      6.23      4.94       .00      .020      .035      .000      .000   1538.77   1000.00
   .008588        0.        0.        0.         1         6         0       .00     41.78   1041.78

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   22JUN93      19:05:53                                                                                PAGE   28

     SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
```

```
    TIME       VLOB       VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL      XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 6.000
     6.000      2.57    1541.34   1541.27      .00    1541.81      .46       .00       .00    1539.77
     250.0     111.2      138.8        .0     18.1      28.6        .0        .0        .0    1542.00
       .00      6.16       4.85       .00     .020      .035      .000      .000   1538.77    1000.00
   .008206        0.         0.        0.        1         6         0       .00     41.88    1041.88
```



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T3          Q11
J1  ICHECK  INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
            12                            .020
J2  NPROF   IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    11                -1                                      -1
```



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

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.59    1541.36   1541.36      .00    1542.00      .65       .00       .00    1539.77
     300.0     134.9      165.1        .0     18.5      29.0        .0        .0        .0    1542.00
       .00      7.28       5.69       .00     .020      .035      .000      .000   1538.77    1000.00
   .011162        0.         0.        0.        0        11         5       .00     42.01    1042.01

*SECNO 2.000
     2.000      2.62    1541.39   1541.36      .00    1542.01      .61       .00       .00    1539.77
     300.0     137.0      163.0        .0     19.3      29.7        .0        .0        .0    1542.00
       .00      7.11       5.48       .00     .020      .035      .000      .000   1538.77    1000.00
   .010208        0.         0.        0.        0         5         0       .00     42.22    1042.22

*SECNO 3.000
     3.000      2.63    1541.40   1541.34      .00    1542.01      .61       .00       .00    1539.77
     300.0     137.5      162.5        .0     19.4      29.9        .0        .0        .0    1542.00
       .00      7.08       5.44       .00     .020      .035      .000      .000   1538.77    1000.00
   .010001        0.         0.        0.        0         5         0       .00     42.27    1042.27

*SECNO 4.000
     4.000      2.68    1541.45   1541.38      .00    1542.02      .57       .00       .00    1539.77
     300.0     139.9      160.1        .0     20.3      30.7        .0        .0        .0    1542.00
       .00      6.89       5.22       .00     .020      .035      .000      .000   1538.77    1000.00
   .009011        0.         0.        0.        3         6         0       .00     42.52    1042.51

*SECNO 5.000
     5.000      2.74    1541.51   1541.35      .00    1542.02      .51       .00       .01    1539.77
     300.0     143.8      156.2        .0     21.9      32.2        .0        .0        .0    1542.00
       .00      6.57       4.86       .00     .020      .035      .000      .000   1538.77    1000.00
   .007554        0.         0.        0.        3        11         0       .00     42.96    1042.95
```



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

*SECNO 6.000
     6.000      2.75    1541.52   1541.40      .00    1542.02      .51       .00       .00    1539.77
     300.0     144.0      156.0        .0     22.0      32.3        .0        .0        .0    1542.00
       .00      6.56       4.84       .00     .020      .035      .000      .000   1538.77    1000.00
   .007471        0.         0.        0.        0        10         0       .00     42.98    1042.98
```



```
T3          Q12
J1  ICHECK  INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
            13                            .020
J2  NPROF   IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    12                -1                                      -1
```

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1
  22JUN93      19:05:53                                                                                                                PAGE   33

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

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.85   1541.62   1541.62       .00   1542.40       .78       .00       .00   1539.77
     400.0     198.8     201.2        .0      24.4      34.6        .0        .0        .0   1542.00
       .00      8.16      5.82       .00      .020      .035      .000      .000   1538.77   1000.00
   .010290        0.        0.        0.         0        14         5       .00     43.66   1043.65

*SECNO 2.000
     2.000      2.90   1541.67   1541.63       .00   1542.41       .74       .00       .00   1539.77
     400.0     201.1     198.9        .0      25.2      35.4        .0        .0        .0   1542.00
       .00      7.97      5.62       .00      .020      .035      .000      .000   1538.77   1000.00
   .009408        0.        0.        0.         0         5         0       .00     43.90   1043.90

*SECNO 3.000
     3.000      2.91   1541.68   1541.61       .00   1542.41       .73       .00       .00   1539.77
     400.0     201.5     198.5        .0      25.4      35.6        .0        .0        .0   1542.00
       .00      7.93      5.58       .00      .020      .035      .000      .000   1538.77   1000.00
   .009242        0.        0.        0.         0         5         0       .00     43.95   1043.95

*SECNO 4.000
     4.000      2.98   1541.75   1541.61       .00   1542.42       .67       .00       .01   1539.77
     400.0     204.9     195.1        .0      26.9      37.1        .0        .0        .0   1542.00
       .00      7.61      5.25       .00      .020      .035      .000      .000   1538.77   1000.00
   .007966        0.        0.        0.         3         5         0       .00     44.38   1044.37

*SECNO 5.000
     5.000      2.99   1541.76   1541.68       .00   1542.42       .66       .00       .00   1539.77
     400.0     205.4     194.6        .0      27.1      37.4        .0        .0        .0   1542.00
       .00      7.57      5.21       .00      .020      .035      .000      .000   1538.77   1000.00
   .007789        0.        0.        0.         0         6         0       .00     44.44   1044.44

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  22JUN93      19:05:53                                                                                                                PAGE   34

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

*SECNO 6.000
     6.000      3.00   1541.77   1541.69       .00   1542.42       .65       .00       .00   1539.77
     400.0     205.9     194.0        .0      27.4      37.6        .0        .0        .0   1542.00
       .00      7.52      5.16       .00      .020      .035      .000      .000   1538.77   1000.00
   .007608        0.        0.        0.         0         6         0       .00     44.51   1044.51

1
  22JUN93      19:05:53                                                                                                                PAGE   35

T3          Q13

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               14                            .020

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     13                  -1                                      -1

1
  22JUN93      19:05:53                                                                                                                PAGE   36

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

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      3.11   1541.88   1541.88       .00   1542.76       .88       .00       .00   1539.77
     500.0     263.8     236.2        .0      30.1      40.4        .0        .0        .0   1542.00
       .00      8.78      5.85       .00      .020      .035      .000      .000   1538.77   1000.00
   .009291        0.        0.        0.         0        14         5       .00     45.26   1045.26

*SECNO 2.000
     2.000      3.11   1541.88   1541.88       .00   1542.76       .88       .00       .00   1539.77
```

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    500.0     263.9     236.1        .0      30.1      40.4        .0       .0        .0   1542.00
      .00      8.77      5.84       .00      .020      .035      .000      .000   1538.77   1000.00
  .009258        0.        0.        0.         0         5         0       .00     45.27   1045.27

*SECNO 3.000
    3.000      3.12   1541.89   1541.88       .00   1542.77       .88       .00       .00   1539.77
    500.0     264.1     235.9        .0      30.2      40.5        .0        .0        .0   1542.00
      .00      8.75      5.82       .00      .020      .035      .000      .000   1538.77   1000.00
  .009187        0.        0.        0.         0         5         0       .00     45.30   1045.29

*SECNO 4.000
    4.000      3.13   1541.90   1541.88       .00   1542.77       .87       .00       .00   1539.77
    500.0     264.4     235.6        .0      30.3      40.7        .0        .0        .0   1542.00
      .00      8.72      5.80       .00      .020      .035      .000      .000   1538.77   1000.00
  .009077        0.        0.        0.         0         5         0       .00     45.33   1045.33

*SECNO 5.000
    5.000      3.14   1541.91   1541.88       .00   1542.77       .86       .00       .00   1539.77
    500.0     264.8     235.2        .0      30.5      40.9        .0        .0        .0   1542.00
      .00      8.68      5.76       .00      .020      .035      .000      .000   1538.77   1000.00
  .008925        0.        0.        0.         0         5         0       .00     45.39   1045.38

1
  22JUN93      19:05:53                                                                          PAGE   37

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

*SECNO 6.000
    6.000      3.30   1542.07   1541.88       .00   1542.79       .72       .00       .01   1539.77
    500.0     270.1     229.9        .0      34.0      44.7        .1        .0        .0   1542.00
      .00      7.94      5.15       .02      .020      .035      .055      .000   1538.77    999.99
  .006556        0.        0.        0.         9         5         0       .00     47.81   1047.81

1
  22JUN93      19:05:53                                                                          PAGE   38

T3          Q14

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              15                          .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    14                  -1                                      -1


1
  22JUN93      19:05:53                                                                          PAGE   39

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

*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
    1.000      3.38   1542.15   1542.15       .00   1543.08       .93       .00       .00   1539.77
    600.0     325.8     274.1        .1      36.0      46.8        .3        .0        .0   1542.00
      .00      9.05      5.85       .43      .020      .035      .055      .000   1538.77    999.99
  .007962        0.        0.        0.         0        17         5       .00     50.51   1050.51

*SECNO 2.000
    2.000      3.43   1542.20   1542.16       .00   1543.09       .89       .00       .00   1539.77
    600.0     326.5     273.2        .3      37.0      47.9        .6        .0        .0   1542.00
      .00      8.82      5.70       .49      .020      .035      .055      .000   1538.77    999.99
  .007317        0.        0.        0.         0         5         0       .00     51.90   1051.90

*SECNO 3.000
    3.000      3.44   1542.21   1542.14       .00   1543.09       .88       .00       .00   1539.77
    600.0     326.6     273.1        .3      37.2      48.1        .6        .0        .0   1542.00
      .00      8.78      5.67       .50      .020      .035      .055      .000   1538.77    999.99
  .007214        0.        0.        0.         0         5         0       .00     52.14   1052.13

*SECNO 4.000
    4.000      3.45   1542.22   1542.14       .00   1543.09       .87       .00       .00   1539.77
    600.0     326.8     272.9        .4      37.4      48.4        .7        .0        .0   1542.00
      .00      8.73      5.64       .51      .020      .035      .055      .000   1538.77    999.99
  .007092        0.        0.        0.         0         5         0       .00     52.42   1052.42

*SECNO 5.000
    5.000      3.56   1542.33   1542.17       .00   1543.10       .78       .00       .01   1539.77
    600.0     328.1     270.9       1.0      39.8      50.9       1.6        .0        .0   1542.00
      .00      8.25      5.32       .61      .020      .035      .055      .000   1538.77    999.99
  .005872        0.        0.        0.         3         8         0       .00     55.67   1055.66
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 6.000									
6.000	3.57	1542.34	1542.15	.00	1543.11	.77	.00	.00	1539.77
600.0	328.2	270.8	1.0	40.0	51.1	1.6	.0	.0	1542.00
.00	8.21	5.29	.62	.020	.035	.055	.000	1538.77	999.99
.005791	0.	0.	0.	0	11	0	.00	55.91	1055.91

THIS RUN EXECUTED 22JUN93 19:05:56

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	1.000	5.00	1539.38	.61	2.67	1539.34	1539.49	.00	198.90	.00
	1.000	10.00	1539.56	.79	3.18	1539.52	1539.71	.00	200.39	.00
	1.000	20.00	1539.79	1.02	3.79	1539.76	1540.01	.00	200.36	.00
*	1.000	40.00	1540.08	1.31	4.53	1540.08	1540.39	.00	185.93	.00
*	1.000	60.00	1540.31	1.54	4.74	1540.31	1540.65	.00	158.90	.00
*	1.000	80.00	1540.46	1.69	5.11	1540.46	1540.85	.00	161.60	.00
*	1.000	100.00	1540.65	1.88	4.88	1540.65	1541.02	.00	126.34	.00
*	1.000	150.00	1540.93	2.16	4.92	1540.93	1541.31	.00	106.44	.00
*	1.000	200.00	1541.07	2.30	5.34	1541.07	1541.56	.00	114.96	.00
*	1.000	250.00	1541.21	2.44	5.61	1541.21	1541.79	.00	117.09	.00
*	1.000	300.00	1541.36	2.59	5.69	1541.36	1542.00	.00	111.62	.00
*	1.000	400.00	1541.62	2.85	5.82	1541.62	1542.40	.00	102.90	.00
*	1.000	500.00	1541.88	3.11	5.85	1541.88	1542.76	.00	92.91	.00
*	1.000	600.00	1542.15	3.38	5.85	1542.15	1543.08	.00	79.62	.00
	2.000	5.00	1539.38	.61	2.63	1539.34	1539.49	.00	192.00	1.02
	2.000	10.00	1539.56	.79	3.15	1539.52	1539.72	.00	194.99	1.01
	2.000	20.00	1539.79	1.02	3.77	1539.76	1540.01	.00	195.81	1.01
	2.000	40.00	1540.11	1.34	4.35	1540.09	1540.40	.00	166.51	1.06
	2.000	60.00	1540.31	1.54	4.72	1540.30	1540.65	.00	156.92	1.01
	2.000	80.00	1540.49	1.72	4.89	1540.47	1540.86	.00	143.76	1.06
	2.000	100.00	1540.65	1.88	4.86	1540.65	1541.02	.00	125.18	1.00
	2.000	150.00	1540.93	2.16	4.91	1540.91	1541.31	.00	105.66	1.00
	2.000	200.00	1541.08	2.31	5.33	1541.07	1541.56	.00	114.09	1.00
	2.000	250.00	1541.26	2.49	5.35	1541.22	1541.79	.00	104.32	1.06
	2.000	300.00	1541.39	2.62	5.48	1541.36	1542.01	.00	102.08	1.05
	2.000	400.00	1541.67	2.90	5.62	1541.63	1542.41	.00	94.08	1.05
	2.000	500.00	1541.88	3.11	5.84	1541.88	1542.76	.00	92.58	1.00
	2.000	600.00	1542.20	3.43	5.70	1542.16	1543.09	.00	73.17	1.04

SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
3.000	5.00	1539.39	.62	2.57	1539.34	1539.50	.00	180.74	1.03
3.000	10.00	1539.57	.80	3.09	1539.52	1539.72	.00	185.63	1.02
3.000	20.00	1539.81	1.04	3.71	1539.76	1540.02	.00	187.48	1.02
3.000	40.00	1540.12	1.35	4.28	1540.08	1540.40	.00	159.56	1.02
3.000	60.00	1540.32	1.55	4.67	1540.30	1540.65	.00	152.92	1.01
3.000	80.00	1540.53	1.76	4.69	1540.48	1540.86	.00	129.07	1.06
3.000	100.00	1540.66	1.89	4.83	1540.65	1541.03	.00	122.80	1.01
3.000	150.00	1540.94	2.17	4.87	1540.90	1541.32	.00	104.03	1.01
3.000	200.00	1541.08	2.31	5.29	1541.07	1541.56	.00	112.26	1.01
3.000	250.00	1541.27	2.50	5.29	1541.20	1541.80	.00	101.67	1.01
3.000	300.00	1541.40	2.63	5.44	1541.34	1542.01	.00	100.01	1.01
3.000	400.00	1541.68	2.91	5.58	1541.61	1542.41	.00	92.42	1.01
3.000	500.00	1541.89	3.12	5.82	1541.88	1542.77	.00	91.87	1.00
3.000	600.00	1542.21	3.44	5.67	1542.14	1543.09	.00	72.14	1.01
4.000	5.00	1539.40	.63	2.50	1539.34	1539.50	.00	167.62	1.04
4.000	10.00	1539.58	.81	3.02	1539.52	1539.73	.00	173.81	1.03
4.000	20.00	1539.82	1.05	3.63	1539.76	1540.02	.00	176.45	1.03
4.000	40.00	1540.17	1.40	3.93	1540.09	1540.41	.00	126.17	1.12
4.000	60.00	1540.38	1.61	4.29	1540.29	1540.66	.00	122.50	1.12
4.000	80.00	1540.59	1.82	4.28	1540.49	1540.87	.00	101.83	1.13
4.000	100.00	1540.67	1.90	4.77	1540.65	1541.03	.00	119.21	1.01
4.000	150.00	1540.95	2.18	4.83	1540.90	1541.32	.00	101.55	1.01
4.000	200.00	1541.10	2.33	5.24	1541.07	1541.57	.00	109.41	1.01
4.000	250.00	1541.31	2.54	5.04	1541.24	1541.80	.00	90.05	1.06
4.000	300.00	1541.45	2.68	5.22	1541.38	1542.02	.00	90.11	1.05
4.000	400.00	1541.75	2.98	5.25	1541.61	1542.42	.00	79.66	1.08
4.000	500.00	1541.90	3.13	5.80	1541.88	1542.77	.00	90.77	1.01
4.000	600.00	1542.22	3.45	5.64	1542.14	1543.09	.00	70.92	1.01
5.000	5.00	1539.41	.64	2.43	1539.34	1539.50	.00	154.82	1.04
5.000	10.00	1539.60	.83	2.93	1539.52	1539.73	.00	161.58	1.04

5.000	20.00	1539.84	1.07	3.51	1539.75	1540.03	.00	159.63	1.05
5.000	40.00	1540.19	1.42	3.86	1540.08	1540.41	.00	120.41	1.02
5.000	60.00	1540.39	1.62	4.23	1540.30	1540.66	.00	117.68	1.02
5.000	80.00	1540.60	1.83	4.24	1540.49	1540.87	.00	99.81	1.01
5.000	100.00	1540.75	1.98	4.31	1540.65	1541.04	.00	92.65	1.13
5.000	150.00	1540.96	2.19	4.76	1540.93	1541.32	.00	98.29	1.02
5.000	200.00	1541.17	2.40	4.77	1541.06	1541.58	.00	87.00	1.12
5.000	250.00	1541.33	2.56	4.94	1541.26	1541.81	.00	85.88	1.02
5.000	300.00	1541.51	2.74	4.86	1541.35	1542.02	.00	75.54	1.09
5.000	400.00	1541.76	2.99	5.21	1541.68	1542.42	.00	77.89	1.01
5.000	500.00	1541.91	3.14	5.76	1541.88	1542.77	.00	89.25	1.01
5.000	600.00	1542.33	3.56	5.32	1542.17	1543.10	.00	58.72	1.10

1

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1539.42	.65	2.36	1539.34	1539.51	.00	143.60	1.04
6.000	10.00	1539.61	.84	2.85	1539.52	1539.73	.00	150.01	1.04
6.000	20.00	1539.85	1.08	3.43	1539.76	1540.03	.00	149.04	1.03
6.000	40.00	1540.20	1.43	3.79	1540.08	1540.41	.00	114.94	1.02
6.000	60.00	1540.41	1.64	4.16	1540.30	1540.67	.00	112.86	1.02
6.000	80.00	1540.60	1.83	4.21	1540.45	1540.88	.00	97.57	1.01
6.000	100.00	1540.76	1.99	4.21	1540.65	1541.04	.00	87.22	1.03
6.000	150.00	1541.00	2.23	4.46	1540.93	1541.33	.00	83.64	1.08
6.000	200.00	1541.18	2.41	4.70	1541.12	1541.58	.00	84.12	1.02
6.000	250.00	1541.34	2.57	4.85	1541.27	1541.81	.00	82.06	1.02
6.000	300.00	1541.52	2.75	4.84	1541.40	1542.02	.00	74.71	1.01
6.000	400.00	1541.77	3.00	5.16	1541.69	1542.42	.00	76.08	1.01
6.000	500.00	1542.07	3.30	5.15	1541.88	1542.79	.00	65.56	1.17
6.000	600.00	1542.34	3.57	5.29	1542.15	1543.11	.00	57.91	1.01

1

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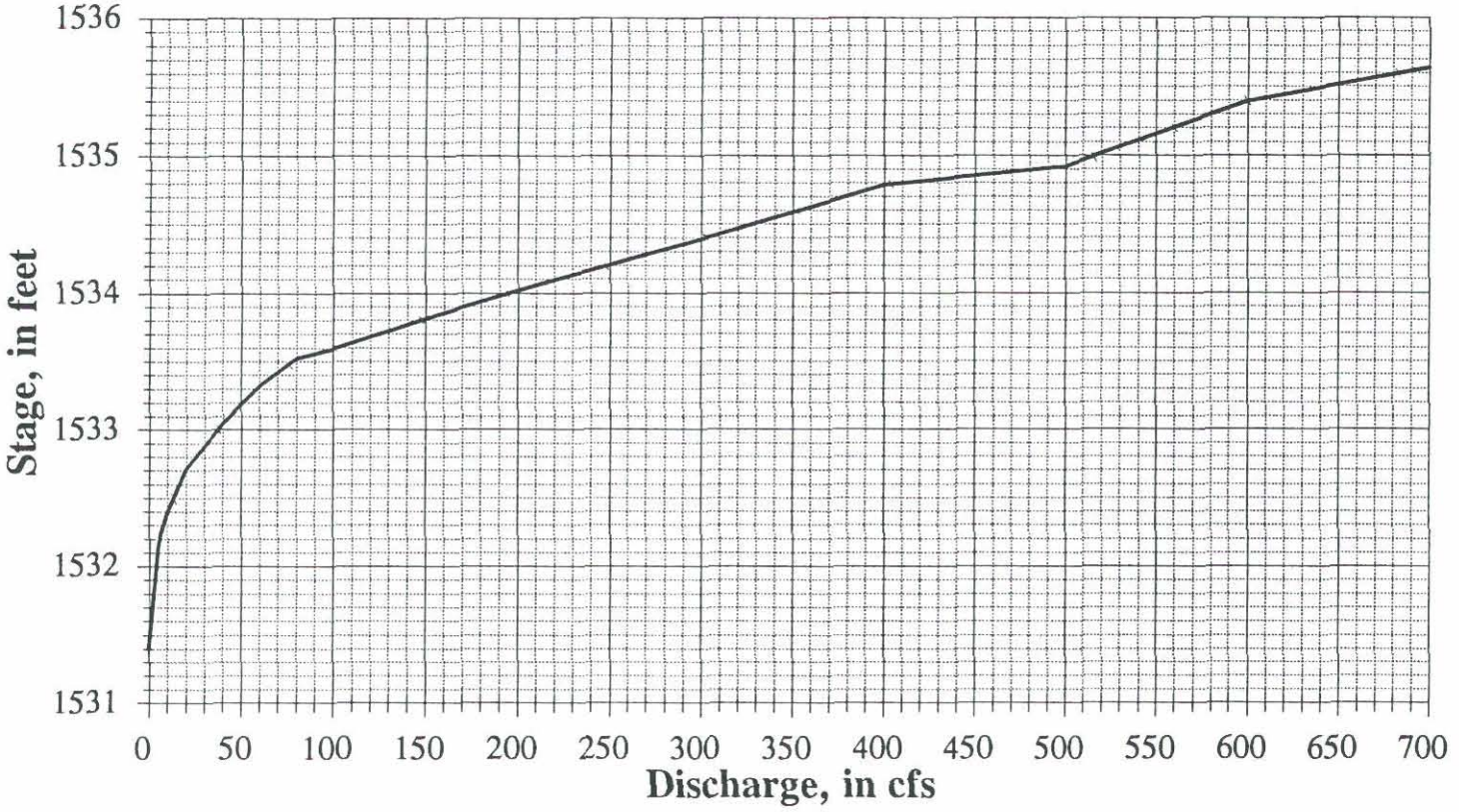
SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 10  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 11  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 14  CRITICAL DEPTH ASSUMED
```

C506 Flow Split Hydraulic Calculations

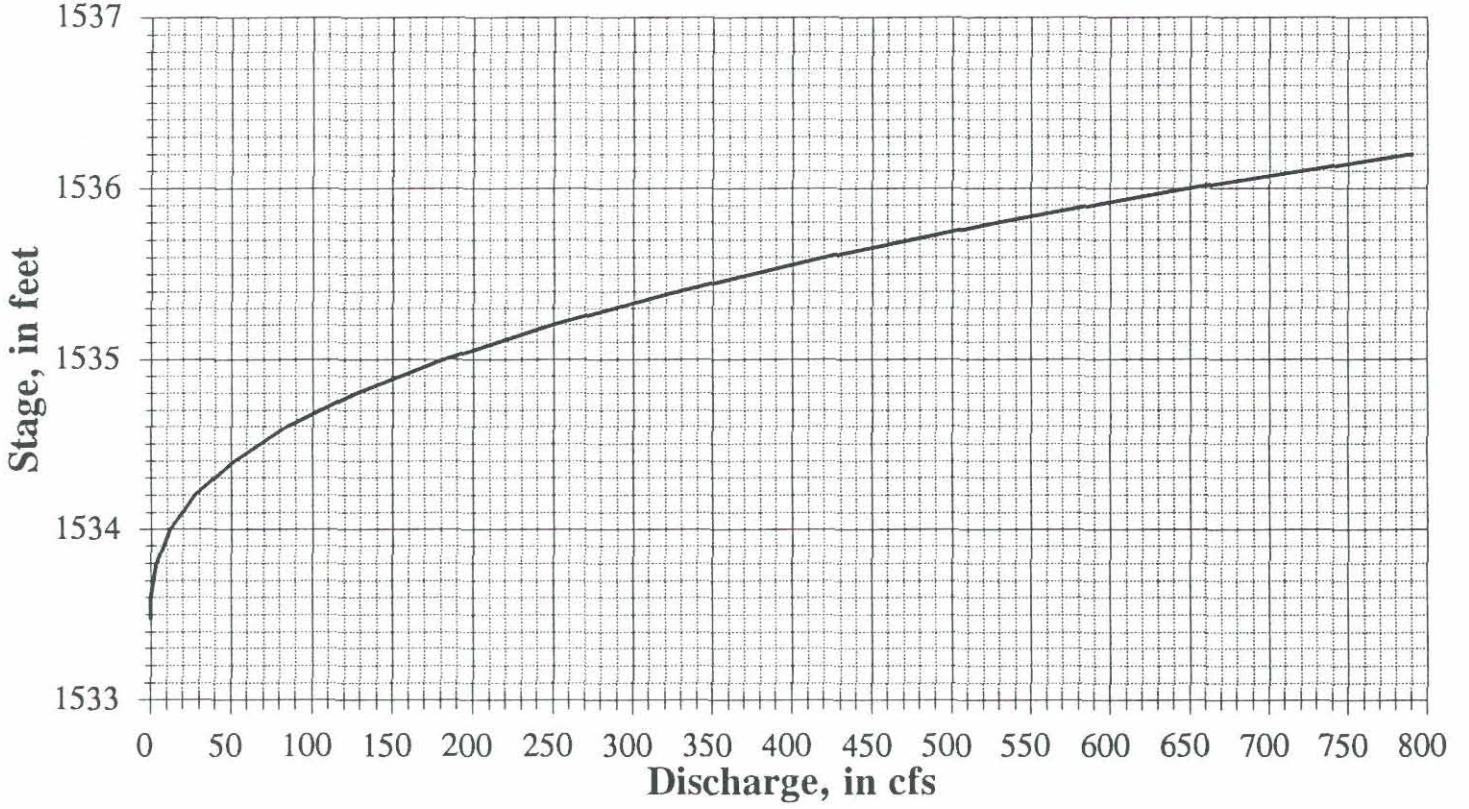
C506 Stage vs Discharge

Right Channel (Ditch Flow) from HEC-2



C506 Stage vs Discharge

Left Channel (Weir Flow) from Uneven Weir



CURRENT DATE: 11-11-1993
CURRENT TIME: 11:27:27

FILE DATE: 06-16-1993
FILE NAME: C506

FHWA CULVERT ANALYSIS
HY-8, VERSION 4.0

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	1530.24	1529.04	60.01	1 CSP	1.50	1.50	.024	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: C506 DATE: 06-16-1993

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1530.24	0	0	0	0	0	0	0	0	1
1531.02	2	2	0	0	0	0	0	0	1
1531.43	4	4	0	0	0	0	0	0	1
1531.96	6	6	0	0	0	0	0	0	1
1532.30	8	8	0	0	0	0	0	0	1
1533.19	10	10	0	0	0	0	0	0	1
1534.46	12	12	0	0	0	0	0	0	1
1535.95	14	14	0	0	0	0	0	0	1
1537.67	16	16	0	0	0	0	0	0	1
1539.57	18	18	0	0	0	0	0	0	1
1540.50	20	19	0	0	0	0	0	1	3
1540.00	18	18	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C506 DATE: 06-16-1993

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1530.24	0.00	0	0	0.00
1531.02	0.00	2	0	0.00
1531.43	0.00	4	0	0.00
1531.96	0.00	6	0	0.00
1532.30	0.00	8	0	0.00
1533.19	0.00	10	0	0.00
1534.46	0.00	12	0	0.00
1535.95	0.00	14	0	0.00
1537.67	0.00	16	0	0.00

1539.57	0.00	18	0	0.00
1540.50	-0.00	20	0	0.04

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

2

CURRENT DATE: 11-11-1993 FILE DATE: 06-16-1993
CURRENT TIME: 11:27:27 FILE NAME: C506

PERFORMANCE CURVE FOR CULVERT # 1 - 1 (1.5 BY 1.5) CSP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	OUTLET VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	1530.24	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
2	1531.02	0.78	0.78	1-S2n	0.51	0.53	3.81	0.51	1.77	0.14
4	1531.43	1.19	1.19	1-S2n	0.75	0.76	4.55	0.75	2.13	0.19
6	1531.96	1.59	1.72	2-M2c	0.97	0.94	5.12	0.94	2.40	0.23
8	1532.30	2.06	2.03	2-M2c	1.23	1.09	5.79	1.09	2.63	0.27
10	1533.19	2.66	2.95	6-FFn	1.50	1.22	5.66	1.50	2.81	0.30
12	1534.46	3.42	4.22	6-FFn	1.50	1.31	6.79	1.50	2.97	0.33
14	1535.95	4.35	5.71	6-FFn	1.50	1.40	7.92	1.50	3.12	0.36
16	1537.67	5.45	7.43	6-FFn	1.50	1.49	9.05	1.50	3.26	0.39
18	1539.57	6.72	9.33	6-FFn	1.50	1.50	10.19	1.50	3.37	0.41
19	1540.50	7.33	10.26	6-FFn	1.50	1.50	10.70	1.50	3.49	0.43

El. inlet face invert 1530.24 ft El. outlet invert 1529.04 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION (FT)                        0.00
      INLET ELEVATION (FT)                   1530.24
      OUTLET STATION (FT)                      60.00
      OUTLET ELEVATION (FT)                  1529.04
      NUMBER OF BARRELS                         1
      SLOPE (V-FT/H-FT)                         0.0200
      CULVERT LENGTH ALONG SLOPE (FT)          60.01

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          CIRCULAR
      BARREL DIAMETER         1.50 FT
      BARREL MATERIAL       CORRUGATED STEEL
      BARREL MANNING'S N    0.024
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   THIN EDGE PROJECTING
      INLET DEPRESSION      NONE
```

CURRENT DATE: 11-11-1993
CURRENT TIME: 11:27:27

FILE DATE: 06-16-1993
FILE NAME: C506

TAILWATER

***** USER DEFINED CHANNEL CROSS-SECTION
MAIN CHANNEL AND LT & RT OVER BANKS

FILE NAME: C506
FILE DATE: 06-16-1993

LEFT CHANNEL BOUNDARY	6
RIGHT CHANNEL BOUNDARY	8
MANNING N LEFT OVER BANK	0.040
MANNING N MAIN CHANNEL	0.030
MANNING N RIGHT OVER BAN	0.040
SLOPE OF CHANNEL (FT/FT)	0.0190

CROSS-SECTION COORD. NO.	X (FT)	Y (FT)
1	1000.00	1541.04
2	1008.00	1539.04
3	1016.00	1537.04
4	1022.00	1535.04
5	1027.00	1533.04
6	1039.00	1531.04
7	1062.00	1529.04
8	1073.00	1529.04
9	1081.00	1531.04
10	1089.00	1533.04
11	1098.00	1535.04
12	1108.00	1537.04
13	1115.00	1539.04
14	1123.00	1541.04

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NUMBER	DEPTH (FT)	VEL. (FPS)	SHEAR (PSF)
0.00	1529.04	0.000	0.00	0.00	0.00
2.00	1529.18	0.859	0.14	1.77	0.16
4.00	1529.23	0.899	0.19	2.13	0.21
6.00	1529.27	0.927	0.23	2.40	0.25
8.00	1529.31	0.947	0.27	2.63	0.28
10.00	1529.34	0.963	0.30	2.81	0.31
12.00	1529.37	0.977	0.33	2.97	0.34
14.00	1529.40	0.989	0.36	3.12	0.37
16.00	1529.43	0.999	0.39	3.26	0.39
18.00	1529.45	1.008	0.41	3.37	0.41
20.00	1529.47	1.017	0.43	3.49	0.43

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH (FT)	1.00
CREST LENGTH (FT)	1.00
OVERTOPPING CREST ELEVATION (FT)	1540.00

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Fountain Hills North FIS                C506
    ENGINEER:  dtp
    DATE:   6/22/1993
    TIME:  12:10.31




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:      1533.40
    MAXIMUM WSEL:       1536.21
    STEP SIZE:             0.20
    BREADTH OF WEIR:      28.00




*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Fountain Hills North FIS                C506
    DATE:   6/22/1993
    TIME:  12:10.31
*********************************************
```

POINT	ELEVATION	STATION
1	1536.29	1000.00
2	1535.92	1020.00
3	1535.55	1040.00
4	1535.18	1060.00
5	1534.82	1080.00
6	1534.47	1100.00
7	1534.30	1110.00
8	1534.13	1120.00
9	1533.96	1130.00
10	1533.80	1140.00
11	1533.64	1150.00
12	1533.56	1155.00

13	1533.48	1160.00
14	1536.30	1160.01

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Fountain Hills North FIS                C506
    DATE:   6/22/1993
    TIME:  12:10.31
*********************************************
```

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.5000
2	0.20	2.5238
3	0.40	2.5476
4	0.60	2.5714
5	0.80	2.5952
6	1.00	2.6190
7	1.20	2.6429
8	1.40	2.6667
9	1.60	2.6905
10	1.80	2.7143
11	2.00	2.7381
12	2.20	2.7619
13	2.40	2.7857
14	2.60	2.8095
15	2.80	2.8333

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Fountain Hills North FIS                C506
    DATE:   6/22/1993
    TIME:  12:10.31
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1533.40	0.00
1533.60	0.31
1533.80	3.66
1534.00	12.39
1534.20	28.04
1534.40	51.81
1534.60	84.83

1534.80	128.08
1535.00	182.52
1535.20	248.99
1535.40	328.34
1535.60	421.35
1535.80	528.84
1536.00	651.61
1536.20	790.46

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *                                          *
 *                                          *
 *  Version   4.6.2;  May 1991              *
 *                                          *
 *                                          *
 *  RUN DATE    22JUN93    TIME   19:06:36  *
 *******************************************
```

```
*************************************
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
*************************************
```

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

```
1
   22JUN93      19:06:36                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 22JUN93    19:06:36
 *************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 *************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY:  FCD#92-04
 T2      FOUNTAIN HILLS NORTH FIS STUDY by GVSCE                    dtp
 T3                                                        FILE:     CH506.IH2
 T4
 T5              This model is used to develop a rating curve for culvert 506
 T6              Ditch flow to south of C506 is diverted to C507
 T7
 T8      Single X-Section Run
                 Ditch slope =     .020 ft/ft  From 200 scale map

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1                                      -1

    SECNO       Q   CWSEL   DEPTH     VCH   CRIWS      EG      HL   SLOPE  KRATIO

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38         43          1          8         26          2          3         11          5         58


         Manning's n:          Min  Normal     Max
                   Earth      .015    .022    .030
               Pavement       .013    .016    .020
                  Desert      .040    .060    .080
               Veg Des.       .070    .100    .160

                  Earthy
    earth  desert  desert

 NC     .020       .055       .035        .1         .3
 QT       14          5         10        20         40          60          80         100         150         200
 QT      300        400        500       600        700


         X-Section 1
            this section needs to be input from 200 scale map
 X1        1          7       1022       1035
 GR     1542     999.99    1533.48       1000     1533.20       1014      1532.4       1022      1531.4       1026
 GR     1535       1035       1542       1051

1
   22JUN93      19:06:36                                                                                    PAGE    2


 X1        2                                                  .2          .2          .2

 X1        3                                                  .2          .2          .2

 X1        4                                                  .2          .2          .2

 X1        5                                                  .2          .2          .2

 X1        6                                                  .2          .2          .2

1
   22JUN93      19:06:36                                                                                    PAGE    3

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

```
*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .72   1532.12   1532.08       .00   1532.26       .13       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.7        .0        .0        .0   1535.00
       .00       .00      2.95       .00      .000      .035      .000      .000   1531.40   1023.11
   .019918        0.        0.        0.         0        17        11       .00      4.70   1027.81

*SECNO 2.000
     2.000       .73   1532.13   1532.08       .00   1532.26       .13       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.7        .0        .0        .0   1535.00
       .00       .00      2.91       .00      .000      .035      .000      .000   1531.40   1023.09
   .019336        0.        0.        0.         0        11         0       .00      4.72   1027.82

*SECNO 3.000
     3.000       .74   1532.14   1532.08       .00   1532.27       .13       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.7        .0        .0        .0   1535.00
       .00       .00      2.86       .00      .000      .035      .000      .000   1531.40   1023.06
   .018362        0.        0.        0.         0        11         0       .00      4.77   1027.83

*SECNO 4.000
     4.000       .75   1532.15   1532.08       .00   1532.27       .12       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.8        .0        .0        .0   1535.00
       .00       .00      2.79       .00      .000      .035      .000      .000   1531.40   1023.03
   .017188        0.        0.        0.         0        11         0       .00      4.83   1027.86

*SECNO 5.000
     5.000       .76   1532.16   1532.08       .00   1532.27       .11       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.8        .0        .0        .0   1535.00
       .00       .00      2.71       .00      .000      .035      .000      .000   1531.40   1022.99
   .016004        0.        0.        0.         0        11         0       .00      4.89   1027.88

*SECNO 6.000
     6.000       .77   1532.17   1532.08       .00   1532.28       .11       .00       .00   1532.40
       5.0        .0       5.0        .0        .0       1.9        .0        .0        .0   1535.00
       .00       .00      2.64       .00      .000      .035      .000      .000   1531.40   1022.95
   .014916        0.        0.        0.         0        15         0       .00      4.96   1027.91

1
   22JUN93      19:06:36                                                                          PAGE    4

T3            Q2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                 -1                                      -1

1
   22JUN93      19:06:36                                                                          PAGE    5

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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .94   1532.34   1532.29       .00   1532.53       .19       .00       .00   1532.40
      10.0        .0      10.0        .0        .0       2.9        .0        .0        .0   1535.00
       .00       .00      3.49       .00      .000      .035      .000      .000   1531.40   1022.25
   .019762        0.        0.        0.         0        24        10       .00      6.10   1028.35

*SECNO 2.000
     2.000       .95   1532.35   1532.30       .00   1532.53       .19       .00       .00   1532.40
      10.0        .0      10.0        .0        .0       2.9        .0        .0        .0   1535.00
       .00       .00      3.46       .00      .000      .035      .000      .000   1531.40   1022.23
   .019329        0.        0.        0.         0         8         0       .00      6.13   1028.36

*SECNO 3.000
     3.000       .96   1532.36   1532.29       .00   1532.54       .18       .00       .00   1532.40
      10.0        .0      10.0        .0        .0       2.9        .0        .0        .0   1535.00
       .00       .00      3.41       .00      .000      .035      .000      .000   1531.40   1022.20
   .018548        0.        0.        0.         0        11         0       .00      6.17   1028.37

*SECNO 4.000
     4.000       .97   1532.37   1532.29       .00   1532.54       .17       .00       .00   1532.40
      10.0        .0      10.0        .0        .0       3.0        .0        .0        .0   1535.00
       .00       .00      3.34       .00      .000      .035      .000      .000   1531.40   1022.16
   .017539        0.        0.        0.         0        11         0       .00      6.24   1028.40

*SECNO 5.000
     5.000       .98   1532.38   1532.29       .00   1532.55       .16       .00       .00   1532.40
      10.0        .0      10.0        .0        .0       3.1        .0        .0        .0   1535.00
```

```
      .00       .00      3.26       .00      .000      .035      .000      .000   1531.40   1022.11
  .016440        0.        0.        0.         0        11         0       .00      6.32   1028.43

*SECNO 6.000
    6.000       .99   1532.39   1532.29       .00   1532.55       .16       .00       .00   1532.40
     10.0        .0      10.0        .0        .0       3.1        .0        .0        .0   1535.00
      .00       .00      3.18       .00      .000      .035      .000      .000   1531.40   1022.06
  .015381        0.        0.        0.         0        11         0       .00      6.39   1028.46
```

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```
T3          Q3
J1  ICHECK  INQ     NINV    IDIR    STRT    METRIC  HVINS   Q       WSEL    FQ
            4                           .020
J2  NPROF   IPLOT   PRFVS   XSECV   XSECH   FN      ALLDC   IBW     CHNIM   ITRACE
    3               -1                              -1
```

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

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
    1.000      1.20   1532.60   1532.60       .00   1532.88       .28       .00       .00   1532.40
     20.0        .4      19.6        .0        .2       4.6        .0        .0        .0   1535.00
      .00      2.18      4.26       .00      .020      .035      .000      .000   1531.40   1020.01
  .018864        0.        0.        0.         0        17         9       .00      8.99   1029.00

*SECNO 2.000
    2.000      1.21   1532.61   1532.60       .00   1532.88       .27       .00       .00   1532.40
     20.0        .4      19.5        .0        .2       4.6        .0        .0        .0   1535.00
      .00      2.19      4.23       .00      .020      .035      .000      .000   1531.40   1019.97
  .018506        0.        0.        0.         0         5         0       .00      9.03   1029.01

*SECNO 3.000
    3.000      1.22   1532.62   1532.60       .00   1532.88       .27       .00       .00   1532.40
     20.0        .5      19.5        .0        .2       4.7        .0        .0        .0   1535.00
      .00      2.20      4.17       .00      .020      .035      .000      .000   1531.40   1019.89
  .017769        0.        0.        0.         0         5         0       .00      9.13   1029.03

*SECNO 4.000
    4.000      1.29   1532.69   1532.59       .00   1532.89       .20       .00       .01   1532.40
     20.0        .9      19.1        .0        .4       5.2        .0        .0        .0   1535.00
      .00      2.24      3.68       .00      .020      .035      .000      .000   1531.40   1019.17
  .012437        0.        0.        0.         5         5         0       .00     10.04   1029.21

*SECNO 5.000
    5.000      1.30   1532.70   1532.60       .00   1532.90       .20       .00       .00   1532.40
     20.0       1.0      19.0        .0        .4       5.3        .0        .0        .0   1535.00
      .00      2.24      3.62       .00      .020      .035      .000      .000   1531.40   1019.07
  .011881        0.        0.        0.         0        11         0       .00     10.16   1029.23
```

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

*SECNO 6.000
    6.000      1.31   1532.71   1532.60       .00   1532.90       .19       .00       .00   1532.40
     20.0       1.0      19.0        .0        .5       5.3        .0        .0        .0   1535.00
      .00      2.24      3.56       .00      .020      .035      .000      .000   1531.40   1018.98
  .011359        0.        0.        0.         0        11         0       .00     10.28   1029.26
```

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```
T3          Q4
J1  ICHECK  INQ     NINV    IDIR    STRT    METRIC  HVINS   Q       WSEL    FQ
            5                           .020
J2  NPROF   IPLOT   PRFVS   XSECV   XSECH   FN      ALLDC   IBW     CHNIM   ITRACE
    4               -1                              -1
```

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1
   22JUN93      19:06:36                                                                                                PAGE   10

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

 *PROF 4

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.55   1532.95   1532.95       .00   1533.28       .33       .00       .00   1532.40
       40.0       5.8       34.2        .0       1.5       7.2        .0        .0        .0   1535.00
        .00      3.84       4.74       .00      .020      .035      .000      .000   1531.40   1016.49
    .015026        0.         0.        0.         0        17         8       .00     13.39   1029.88

 *SECNO 2.000
      2.000      1.58   1532.98   1532.96       .00   1533.29       .31       .00       .00   1532.40
       40.0       6.2       33.8        .0       1.6       7.4        .0        .0        .0   1535.00
        .00      3.78       4.59       .00      .020      .035      .000      .000   1531.40   1016.29
    .013841        0.         0.        0.         0         5         0       .00     13.64   1029.93

 *SECNO 3.000
      3.000      1.59   1532.99   1532.95       .00   1533.29       .30       .00       .00   1532.40
       40.0       6.3       33.7        .0       1.7       7.4        .0        .0        .0   1535.00
        .00      3.75       4.54       .00      .020      .035      .000      .000   1531.40   1016.21
    .013404        0.         0.        0.         0         5         0       .00     13.73   1029.95

 *SECNO 4.000
      4.000      1.63   1533.03   1532.96       .00   1533.30       .27       .00       .00   1532.40
       40.0       6.9       33.1        .0       1.9       7.7        .0        .0        .0   1535.00
        .00      3.62       4.29       .00      .020      .035      .000      .000   1531.40   1015.84
    .011517        0.         0.        0.         3         8         0       .00     14.20   1030.04

 *SECNO 5.000
      5.000      1.64   1533.04   1532.95       .00   1533.30       .26       .00       .00   1532.40
       40.0       7.1       32.9        .0       2.0       7.8        .0        .0        .0   1535.00
        .00      3.59       4.21       .00      .020      .035      .000      .000   1531.40   1015.72
    .011000        0.         0.        0.         0        11         0       .00     14.35   1030.07

1
   22JUN93      19:06:36                                                                                                PAGE   11

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

 *SECNO 6.000
      6.000      1.65   1533.05   1532.95       .00   1533.30       .25       .00       .00   1532.40
       40.0       7.3       32.7        .0       2.1       8.0        .0        .0        .0   1535.00
        .00      3.53       4.10       .00      .020      .035      .000      .000   1531.40   1015.55
    .010279        0.         0.        0.         1        11         0       .00     14.56   1030.11

1
   22JUN93      19:06:36                                                                                                PAGE   12

 T3           Q5

 J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                6                              .020

 J2  NPROF    IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       5                 -1                                           -1

1
   22JUN93      19:06:36                                                                                                PAGE   13

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

 *PROF 5

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.80   1533.20   1533.20       .00   1533.56       .36       .00       .00   1532.40
       60.0      14.5       45.5        .0       3.2       9.2        .0        .0        .0   1535.00
        .00      4.57       4.93       .00      .020      .035      .000      .000   1531.40   1014.03
    .012968        0.         0.        0.         0        19         8       .00     16.47   1030.49

 *SECNO 2.000
      2.000      1.80   1533.20   1533.20       .00   1533.56       .36       .00       .00   1532.40
```

```
     60.0      14.6      45.4        .0       3.2       9.2        .0       .0        .0   1535.00
      .00      4.56      4.91       .00      .020      .035      .000      .000   1531.40   1014.00
  .012848        0.        0.        0.         0         5         0       .00     16.50   1030.50

*SECNO 3.000
    3.000      1.81   1533.21   1533.20       .00   1533.57       .36       .00       .00   1532.40
     60.0      14.7      45.3        .0       3.2       9.3        .0        .0        .0   1535.00
      .00      4.55      4.87       .00      .020      .035      .000      .000   1531.40   1013.74
  .012579        0.        0.        0.         0         5         0       .00     16.77   1030.51

*SECNO 4.000
    4.000      1.82   1533.22   1533.20       .00   1533.57       .35       .00       .00   1532.40
     60.0      15.0      45.0        .0       3.3       9.4        .0        .0        .0   1535.00
      .00      4.53      4.81       .00      .020      .035      .000      .000   1531.40   1013.33
  .012167        0.        0.        0.         0         5         0       .00     17.20   1030.53

*SECNO 5.000
    5.000      1.91   1533.31   1533.20       .00   1533.58       .27       .00       .01   1532.40
     60.0      17.6      42.4        .0       4.3      10.1        .0        .0        .0   1535.00
      .00      4.13      4.18       .00      .020      .035      .000      .000   1531.40   1008.92
  .008595        0.        0.        0.         8         5         0       .00     21.84   1030.75
```



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

*SECNO 6.000
    6.000      1.92   1533.32   1533.20       .00   1533.58       .26       .00       .00   1532.40
     60.0      18.0      42.0        .0       4.4      10.2        .0        .0        .0   1535.00
      .00      4.06      4.11       .00      .020      .035      .000      .000   1531.40   1008.34
  .008219        0.        0.        0.         0         8         0       .00     22.44   1030.78
```



```
T3          Q6

J1  ICHECK  INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

            7                             .020

J2  NPROF   IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    6                 -1                                      -1
```



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

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
    1.000      2.02   1533.42   1533.42       .00   1533.75       .33       .00       .00   1532.40
     80.0      28.4      51.6        .0       6.2      11.2        .0        .0        .0   1535.00
      .00      4.56      4.61       .00      .020      .035      .000      .000   1531.40   1002.87
  .009553        0.        0.        0.         0        16         7       .00     28.18   1031.06

*SECNO 2.000
    2.000      2.07   1533.47   1533.44       .00   1533.76       .29       .00       .00   1532.40
     80.0      29.9      50.1        .0       7.0      11.6        .0        .0        .0   1535.00
      .00      4.28      4.34       .00      .020      .035      .000      .000   1531.40   1000.96
  .008234        0.        0.        0.         0         5         0       .00     30.19   1031.15

*SECNO 3.000
    3.000      2.08   1533.48   1533.42       .00   1533.76       .28       .00       .00   1532.40
     80.0      30.2      49.8        .0       7.1      11.6        .0        .0        .0   1535.00
      .00      4.23      4.29       .00      .020      .035      .000      .000   1531.40   1000.59
  .008000        0.        0.        0.         0         5         0       .00     30.58   1031.17

*SECNO 4.000
    4.000      2.09   1533.49   1533.44       .00   1533.76       .27       .00       .00   1532.40
     80.0      30.6      49.4        .0       7.3      11.7        .0        .0        .0   1535.00
      .00      4.16      4.22       .00      .020      .035      .000      .000   1531.40   1000.13
  .007725        0.        0.        0.         0         8         0       .00     31.06   1031.19

*SECNO 5.000
    5.000      2.10   1533.50   1533.44       .00   1533.76       .26       .00       .00   1532.40
     80.0      31.2      48.7        .0       7.7      11.8        .0        .0        .0   1535.00
      .00      4.07      4.11       .00      .020      .035      .000      .000   1531.40   1000.00
  .007253        0.        0.        0.         1         8         0       .00     31.23   1031.23
```

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1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 6.000
     6.000      2.12    1533.52    1533.43        .00    1533.77        .25        .00        .00    1532.40
      80.0      32.0       48.0         .0        8.0       12.0         .0         .0         .0    1535.00
       .00      3.97       4.00        .00       .020       .035       .000       .000    1531.40    1000.00
   .006792        0.         0.         0.          1         11          0        .00      31.27    1031.27

1
   22JUN93      19:06:36                                                                                                PAGE   18

 T3           Q7

 J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                8                              .020

 J2  NPROF    IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      7                  -1                                           -1

1
   22JUN93      19:06:36                                                                                                PAGE   19

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

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000      2.16    1533.56    1533.56        .00    1533.89        .34        .00        .00    1532.40
     100.0      42.4       57.6         .0        9.1       12.4         .0         .0         .0    1535.00
       .00      4.68       4.63        .00       .020       .035       .000       .000    1531.40    1000.00
   .008817        0.         0.         0.          0         17          7        .00      31.39    1031.39

 *SECNO 2.000
     2.000      2.16    1533.56    1533.52        .00    1533.89        .33        .00        .00    1532.40
     100.0      42.5       57.5         .0        9.1       12.4         .0         .0         .0    1535.00
       .00      4.67       4.62        .00       .020       .035       .000       .000    1531.40    1000.00
   .008758        0.         0.         0.          0          5          0        .00      31.39    1031.39

 *SECNO 3.000
     3.000      2.16    1533.56    1533.52        .00    1533.90        .33        .00        .00    1532.40
     100.0      42.7       57.3         .0        9.2       12.5         .0         .0         .0    1535.00
       .00      4.65       4.59        .00       .020       .035       .000       .000    1531.40    1000.00
   .008632        0.         0.         0.          0          5          0        .00      31.40    1031.40

 *SECNO 4.000
     4.000      2.17    1533.57    1533.52        .00    1533.90        .33        .00        .00    1532.40
     100.0      43.0       57.0         .0        9.3       12.5         .0         .0         .0    1535.00
       .00      4.62       4.55        .00       .020       .035       .000       .000    1531.40    1000.00
   .008445        0.         0.         0.          0          5          0        .00      31.42    1031.42

 *SECNO 5.000
     5.000      2.18    1533.58    1533.55        .00    1533.90        .32        .00        .00    1532.40
     100.0      43.4       56.6         .0        9.5       12.6         .0         .0         .0    1535.00
       .00      4.58       4.49        .00       .020       .035       .000       .000    1531.40    1000.00
   .008203        0.         0.         0.          0          6          0        .00      31.44    1031.44

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   22JUN93      19:06:36                                                                                                PAGE   20

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

 *SECNO 6.000
     6.000      2.19    1533.59    1533.56        .00    1533.90        .31        .00        .00    1532.40
     100.0      43.8       56.2         .0        9.7       12.7         .0         .0         .0    1535.00
       .00      4.53       4.43        .00       .020       .035       .000       .000    1531.40    1000.00
   .007916        0.         0.         0.          0          6          0        .00      31.46    1031.46

1
   22JUN93      19:06:36                                                                                                PAGE   21

 T3           Q8

 J1  ICHECK   INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                9                              .020
```

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8                   -1                                      -1

1
   22JUN93      19:06:36                                                                                          PAGE   22

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

 *PROF 8

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000      2.37   1533.77   1533.77       .00   1534.21       .44       .00       .00   1532.40
     150.0      77.5      72.5        .0      13.8      14.5        .0        .0        .0   1535.00
       .00      5.61      4.99       .00      .020      .035      .000      .000   1531.40   1000.00
   .008986        0.        0.        0.         0        13         6       .00     31.93   1031.93

 *SECNO 2.000
     2.000      2.38   1533.78   1533.73       .00   1534.21       .44       .00       .00   1532.40
     150.0      77.6      72.4        .0      13.9      14.5        .0        .0        .0   1535.00
       .00      5.60      4.98       .00      .020      .035      .000      .000   1531.40   1000.00
   .008930        0.        0.        0.         0         5         0       .00     31.93   1031.93

 *SECNO 3.000
     3.000      2.38   1533.78   1533.72       .00   1534.22       .43       .00       .00   1532.40
     150.0      77.8      72.2        .0      13.9      14.6        .0        .0        .0   1535.00
       .00      5.58      4.95       .00      .020      .035      .000      .000   1531.40   1000.00
   .008821        0.        0.        0.         0         5         0       .00     31.94   1031.94

 *SECNO 4.000
     4.000      2.39   1533.79   1533.76       .00   1534.22       .43       .00       .00   1532.40
     150.0      78.1      71.9        .0      14.1      14.6        .0        .0        .0   1535.00
       .00      5.55      4.92       .00      .020      .035      .000      .000   1531.40   1000.00
   .008656        0.        0.        0.         0         6         0       .00     31.96   1031.96

 *SECNO 5.000
     5.000      2.40   1533.80   1533.77       .00   1534.22       .42       .00       .00   1532.40
     150.0      78.5      71.5        .0      14.2      14.7        .0        .0        .0   1535.00
       .00      5.52      4.87       .00      .020      .035      .000      .000   1531.40   1000.00
   .008447        0.        0.        0.         0         6         0       .00     31.98   1031.98

1
   22JUN93      19:06:36                                                                                          PAGE   23

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

 *SECNO 6.000
     6.000      2.41   1533.81   1533.77       .00   1534.22       .41       .00       .00   1532.40
     150.0      78.9      71.1        .0      14.4      14.8        .0        .0        .0   1535.00
       .00      5.47      4.81       .00      .020      .035      .000      .000   1531.40   1000.00
   .008197        0.        0.        0.         0         6         0       .00     32.00   1032.00

1
   22JUN93      19:06:36                                                                                          PAGE   24

 T3            Q9

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               10                            .020

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9                   -1                                      -1

1
   22JUN93      19:06:36                                                                                          PAGE   25

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

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
     1.000      2.59   1533.99   1533.99       .00   1534.50       .52       .00       .00   1532.40
     200.0     115.6      84.4        .0      18.5      16.7        .0        .0        .0   1535.00
```

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      .00      6.24      5.05       .00      .020      .035      .000      .000   1531.40   1000.00
  .008193        0.        0.        0.         0         9         6       .00     32.47   1032.46

*SECNO 2.000
     2.000      2.59   1533.99   1533.96       .00   1534.50       .52       .00       .00   1532.40
     200.0     115.7      84.3        .0     18.6      16.7        .0        .0        .0   1535.00
      .00      6.23      5.04       .00      .020      .035      .000      .000   1531.40   1000.00
  .008156        0.        0.        0.         0         6         0       .00     32.47   1032.47

*SECNO 3.000
     3.000      2.59   1533.99   1533.96       .00   1534.51       .51       .00       .00   1532.40
     200.0     115.9      84.1        .0     18.6      16.8        .0        .0        .0   1535.00
      .00      6.22      5.02       .00      .020      .035      .000      .000   1531.40   1000.00
  .008079        0.        0.        0.         0         6         0       .00     32.48   1032.48

*SECNO 4.000
     4.000      2.60   1534.00   1533.96       .00   1534.51       .51       .00       .00   1532.40
     200.0     116.1      83.9        .0     18.7      16.8        .0        .0        .0   1535.00
      .00      6.19      4.99       .00      .020      .035      .000      .000   1531.40   1000.00
  .007967        0.        0.        0.         0         6         0       .00     32.49   1032.49

*SECNO 5.000
     5.000      2.61   1534.01   1533.97       .00   1534.51       .50       .00       .00   1532.40
     200.0     116.4      83.6        .0     18.9      16.9        .0        .0        .0   1535.00
      .00      6.16      4.96       .00      .020      .035      .000      .000   1531.40   1000.00
  .007825        0.        0.        0.         0         6         0       .00     32.51   1032.51

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   22JUN93      19:06:36                                                                          PAGE   26

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

*SECNO 6.000
     6.000      2.62   1534.02   1533.97       .00   1534.51       .50       .00       .00   1532.40
     200.0     116.7      83.3        .0     19.1      17.0        .0        .0        .0   1535.00
      .00      6.13      4.91       .00      .020      .035      .000      .000   1531.40   1000.00
  .007659        0.        0.        0.         0         6         0       .00     32.52   1032.52

1
   22JUN93      19:06:36                                                                          PAGE   27

T3          Q10

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              11                            .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10                  -1                                      -1

1
   22JUN93      19:06:36                                                                          PAGE   28

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

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      2.87   1534.27   1534.27       .00   1535.02       .75       .00       .00   1532.40
     300.0     189.2     110.8        .0     24.8      19.8        .0        .0        .0   1535.00
      .00      7.62      5.60       .00      .020      .035      .000      .000   1531.40   1000.00
  .008769        0.        0.        0.         0        11         5       .00     33.18   1033.18

*SECNO 2.000
     2.000      2.91   1534.31   1534.28       .00   1535.03       .72       .00       .00   1532.40
     300.0     190.5     109.5        .0     25.5      20.2        .0        .0        .0   1535.00
      .00      7.46      5.43       .00      .020      .035      .000      .000   1531.40   1000.00
  .008140        0.        0.        0.         0         5         0       .00     33.26   1033.26

*SECNO 3.000
     3.000      2.92   1534.32   1534.26       .00   1535.03       .71       .00       .00   1532.40
     300.0     190.8     109.2        .0     25.7      20.2        .0        .0        .0   1535.00
      .00      7.43      5.40       .00      .020      .035      .000      .000   1531.40   1000.00
  .008018        0.        0.        0.         0         5         0       .00     33.28   1033.28

*SECNO 4.000
     4.000      2.93   1534.33   1534.25       .00   1535.03       .70       .00       .00   1532.40
     300.0     191.1     108.9        .0     25.9      20.3        .0        .0        .0   1535.00
      .00      7.39      5.36       .00      .020      .035      .000      .000   1531.40   1000.00
  .007865        0.        0.        0.         0         5         0       .00     33.30   1033.30

*SECNO 5.000
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```
    5.000      2.98   1534.38   1534.28       .00   1535.04       .65       .00       .00   1532.40
    300.0     193.2     106.8        .0      27.0      20.9        .0        .0        .0   1535.00
      .00      7.15      5.10       .00      .020      .035      .000      .000   1531.40   1000.00
  .006981        0.        0.        0.         4         8         0       .00     33.43   1033.43

1
  22JUN93      19:06:36                                                                          PAGE   29

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

 *SECNO 6.000
    6.000      2.99   1534.39   1534.27       .00   1535.04       .65       .00       .00   1532.40
    300.0     193.5     106.5        .0      27.3      21.1        .0        .0        .0   1535.00
      .00      7.10      5.06       .00      .020      .035      .000      .000   1531.40   1000.00
  .006818        0.        0.        0.         0        11         0       .00     33.46   1033.46

1
  22JUN93      19:06:36                                                                          PAGE   30

 T3          Q11
 J1  ICHECK    INQ      NINV      IDIR      STRT    METRIC     HVINS         Q      WSEL        FQ

                12                          .020

 J2  NPROF    IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE

      11                 -1                            -1

1
  22JUN93      19:06:36                                                                          PAGE   31

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

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
    1.000      3.18   1534.58   1534.58       .00   1535.48       .90       .00       .00   1532.40
    400.0     266.2     133.8        .0      31.6      23.4        .0        .0        .0   1535.00
      .00      8.42      5.73       .00      .020      .035      .000      .000   1531.40   1000.00
  .008068        0.        0.        0.         0        14         5       .00     33.95   1033.95

 *SECNO 2.000
    2.000      3.23   1534.63   1534.59       .00   1535.49       .86       .00       .00   1532.40
    400.0     267.6     132.4        .0      32.5      23.9        .0        .0        .0   1535.00
      .00      8.23      5.55       .00      .020      .035      .000      .000   1531.40   1000.00
  .007431        0.        0.        0.         0         5         0       .00     34.06   1034.06

 *SECNO 3.000
    3.000      3.24   1534.64   1534.57       .00   1535.49       .85       .00       .00   1532.40
    400.0     267.9     132.1        .0      32.7      24.0        .0        .0        .0   1535.00
      .00      8.19      5.51       .00      .020      .035      .000      .000   1531.40   1000.00
  .007325        0.        0.        0.         0         5         0       .00     34.08   1034.07

 *SECNO 4.000
    4.000      3.25   1534.65   1534.57       .00   1535.49       .85       .00       .00   1532.40
    400.0     268.2     131.8        .0      32.9      24.1        .0        .0        .0   1535.00
      .00      8.15      5.48       .00      .020      .035      .000      .000   1531.40   1000.00
  .007197        0.        0.        0.         0         5         0       .00     34.10   1034.10

 *SECNO 5.000
    5.000      3.37   1534.77   1534.60       .00   1535.51       .73       .00       .01   1532.40
    400.0     272.1     127.9        .0      35.8      25.7        .0        .0        .0   1535.00
      .00      7.60      4.98       .00      .020      .035      .000      .000   1531.40   1000.00
  .005652        0.        0.        0.         4         8         0       .00     34.43   1034.43

1
  22JUN93      19:06:36                                                                          PAGE   32

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

 *SECNO 6.000
    6.000      3.38   1534.78   1534.60       .00   1535.51       .73       .00       .00   1532.40
    400.0     272.2     127.8        .0      35.9      25.7        .0        .0        .0   1535.00
      .00      7.58      4.96       .00      .020      .035      .000      .000   1531.40   1000.00
  .005618        0.        0.        0.         0        12         0       .00     34.44   1034.44

1
  22JUN93      19:06:36                                                                          PAGE   33
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T3          Q12

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               13                          .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     12                  -1                                      -1

1
   22JUN93      19:06:36                                                                                          PAGE   34

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

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      3.48   1534.88   1534.88       .00   1535.91      1.02       .00       .00   1532.40
     500.0     343.7     156.3        .0      38.3      27.1        .0        .0        .0   1535.00
       .00      8.98      5.77       .00      .020      .035      .000      .000   1531.40   1000.00
   .007290        0.        0.        0.         0        14         4       .00     34.71   1034.71

*SECNO 2.000
     2.000      3.49   1534.89   1534.88       .00   1535.91      1.02       .00       .00   1532.40
     500.0     343.7     156.3        .0      38.3      27.1        .0        .0        .0   1535.00
       .00      8.97      5.76       .00      .020      .035      .000      .000   1531.40   1000.00
   .007272        0.        0.        0.         0         5         0       .00     34.71   1034.71

*SECNO 3.000
     3.000      3.49   1534.89   1534.89       .00   1535.91      1.02       .00       .00   1532.40
     500.0     343.8     156.2        .0      38.4      27.2        .0        .0        .0   1535.00
       .00      8.96      5.75       .00      .020      .035      .000      .000   1531.40   1000.00
   .007235        0.        0.        0.         0         5         0       .00     34.72   1034.72

*SECNO 4.000
     4.000      3.50   1534.90   1534.88       .00   1535.91      1.01       .00       .00   1532.40
     500.0     343.9     156.1        .0      38.5      27.2        .0        .0        .0   1535.00
       .00      8.94      5.73       .00      .020      .035      .000      .000   1531.40   1000.00
   .007177        0.        0.        0.         0         5         0       .00     34.73   1034.73

*SECNO 5.000
     5.000      3.51   1534.91   1534.89       .00   1535.91      1.01       .00       .00   1532.40
     500.0     344.1     155.9        .0      38.6      27.3        .0        .0        .0   1535.00
       .00      8.91      5.71       .00      .020      .035      .000      .000   1531.40   1000.00
   .007096        0.        0.        0.         0         5         0       .00     34.75   1034.75

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   22JUN93      19:06:36                                                                                          PAGE   35

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

*SECNO 6.000
     6.000      3.52   1534.92   1534.89       .00   1535.92      1.00       .00       .00   1532.40
     500.0     344.4     155.6        .0      38.8      27.4        .0        .0        .0   1535.00
       .00      8.87      5.68       .00      .020      .035      .000      .000   1531.40   1000.00
   .006994        0.        0.        0.         0         5         0       .00     34.77   1034.77

1
   22JUN93      19:06:36                                                                                          PAGE   36

T3          Q13

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               14                          .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     13                  -1                                      -1

1
   22JUN93      19:06:36                                                                                          PAGE   37

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

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
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*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      3.77   1535.17   1535.17       .00   1536.29      1.12       .00       .00   1532.40
     600.0     418.2     181.8        .0      44.6      30.8        .0        .0        .0   1535.00
       .00      9.38      5.90       .02      .020      .035      .055      .000   1531.40   1000.00
   .006626        0.        0.        0.         0        19         4       .00     35.39   1035.39

*SECNO 2.000
     2.000      3.83   1535.23   1535.18       .00   1536.29      1.07       .00       .00   1532.40
     600.0     418.7     181.3        .0      45.7      31.5        .1        .0        .0   1535.00
       .00      9.17      5.76       .02      .020      .035      .055      .000   1531.40   1000.00
   .006156        0.        0.        0.         0         5         0       .00     35.50   1035.50

*SECNO 3.000
     3.000      3.83   1535.23   1535.16       .00   1536.29      1.06       .00       .00   1532.40
     600.0     418.8     181.2        .0      45.8      31.5        .1        .0        .0   1535.00
       .00      9.14      5.75       .02      .020      .035      .055      .000   1531.40   1000.00
   .006090        0.        0.        0.         0         5         0       .00     35.52   1035.52

*SECNO 4.000
     4.000      3.84   1535.24   1535.16       .00   1536.30      1.05       .00       .00   1532.40
     600.0     418.9     181.1        .0      46.0      31.7        .1        .0        .0   1535.00
       .00      9.10      5.72       .02      .020      .035      .055      .000   1531.40   1000.00
   .006010        0.        0.        0.         0         5         0       .00     35.54   1035.54

*SECNO 5.000
     5.000      3.98   1535.38   1535.15       .00   1536.31       .93       .00       .01   1532.40
     600.0     420.1     179.8        .1      49.2      33.5        .2        .0        .0   1535.00
       .00      8.54      5.36       .59      .020      .035      .055      .000   1531.40   1000.00
   .004888        0.        0.        0.         4         5         0       .00     35.87   1035.87

1
   22JUN93      19:06:36                                                                          PAGE   38

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

*SECNO 6.000
     6.000      3.99   1535.39   1535.17       .00   1536.31       .92       .00       .00   1532.40
     600.0     420.2     179.7        .1      49.3      33.6        .2        .0        .0   1535.00
       .00      8.52      5.35       .59      .020      .035      .055      .000   1531.40   1000.00
   .004857        0.        0.        0.         0        11         0       .00     35.88   1035.88

1
   22JUN93      19:06:36                                                                          PAGE   39

T3          Q14

J1  ICHECK    INQ       NINV      IDIR      STRT     METRIC     HVINS         Q      WSEL        FQ

              15                            .020

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH       FN     ALLDC       IBW     CHNIM     ITRACE

    14                  -1                                       -1


1
   22JUN93      19:06:36                                                                          PAGE   40

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

*PROF14

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      4.01   1535.41   1535.41       .00   1536.64      1.23       .00       .00   1532.40
     700.0     490.4     209.5        .1      49.9      33.9        .2        .0        .0   1535.00
       .00      9.84      6.17       .71      .020      .035      .055      .000   1531.40   1000.00
   .006384        0.        0.        0.         0        19         2       .00     35.94   1035.94

*SECNO 2.000
     2.000      4.07   1535.47   1535.42       .00   1536.65      1.18       .00       .01   1532.40
     700.0     490.9     209.0        .2      51.0      34.6        .2        .0        .0   1535.00
       .00      9.63      6.04       .74      .020      .035      .055      .000   1531.40   1000.00
   .005950        0.        0.        0.         0         5         0       .00     36.06   1036.05

*SECNO 3.000
     3.000      4.08   1535.48   1535.40       .00   1536.65      1.17       .00       .00   1532.40
     700.0     490.9     208.9        .2      51.2      34.7        .3        .0        .0   1535.00
       .00      9.60      6.02       .74      .020      .035      .055      .000   1531.40   1000.00
   .005889        0.        0.        0.         0         5         0       .00     36.07   1036.07

*SECNO 4.000
```

4.000	4.09	1535.49	1535.40	.00	1536.65	1.16	.00	.00	1532.40
700.0	491.0	208.8	.2	51.4	34.8	.3	.0	.0	1535.00
.00	9.56	6.00	.75	.020	.035	.055	.000	1531.40	1000.00
.005816	0.	0.	0.	0	5	0	.00	36.10	1036.09

*SECNO 5.000

5.000	4.24	1535.64	1535.39	.00	1536.66	1.03	.00	.01	1532.40
700.0	492.1	207.5	.4	54.7	36.8	.5	.0	.0	1535.00
.00	8.99	5.64	.82	.020	.035	.055	.000	1531.40	1000.00
.004774	0.	0.	0.	4	5	0	.00	36.45	1036.44

1

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

*SECNO 6.000

6.000	4.24	1535.64	1535.41	.00	1536.67	1.02	.00	.00	1532.40
700.0	492.2	207.5	.4	54.8	36.9	.5	.0	.0	1535.00
.00	8.97	5.63	.82	.020	.035	.055	.000	1531.40	1000.00
.004744	0.	0.	0.	0	11	0	.00	36.46	1036.45

1

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THIS RUN EXECUTED 22JUN93 19:06:39

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
	1.000	5.00	1532.12	.72	2.95	1532.08	1532.26	.00	199.18	.00
	1.000	10.00	1532.34	.94	3.49	1532.29	1532.53	.00	197.62	.00
*	1.000	20.00	1532.60	1.20	4.26	1532.60	1532.88	.00	188.64	.00
*	1.000	40.00	1532.95	1.55	4.74	1532.95	1533.28	.00	150.26	.00
*	1.000	60.00	1533.20	1.80	4.93	1533.20	1533.56	.00	129.68	.00
*	1.000	80.00	1533.42	2.02	4.61	1533.42	1533.75	.00	95.53	.00
*	1.000	100.00	1533.56	2.16	4.63	1533.56	1533.89	.00	88.17	.00
*	1.000	150.00	1533.77	2.37	4.99	1533.77	1534.21	.00	89.86	.00
*	1.000	200.00	1533.99	2.59	5.05	1533.99	1534.50	.00	81.93	.00
*	1.000	300.00	1534.27	2.87	5.60	1534.27	1535.02	.00	87.69	.00
*	1.000	400.00	1534.58	3.18	5.73	1534.58	1535.48	.00	80.68	.00
*	1.000	500.00	1534.88	3.48	5.77	1534.88	1535.91	.00	72.90	.00
*	1.000	600.00	1535.17	3.77	5.90	1535.17	1536.29	.00	66.26	.00
*	1.000	700.00	1535.41	4.01	6.17	1535.41	1536.64	.00	63.84	.00
	2.000	5.00	1532.13	.73	2.91	1532.08	1532.26	.00	193.36	1.01
	2.000	10.00	1532.35	.95	3.46	1532.30	1532.53	.00	193.29	1.01
	2.000	20.00	1532.61	1.21	4.23	1532.60	1532.88	.00	185.06	1.01
	2.000	40.00	1532.98	1.58	4.59	1532.96	1533.29	.00	138.41	1.04
	2.000	60.00	1533.20	1.80	4.91	1533.20	1533.56	.00	128.48	1.00
	2.000	80.00	1533.47	2.07	4.34	1533.44	1533.76	.00	82.34	1.08
	2.000	100.00	1533.56	2.16	4.62	1533.52	1533.89	.00	87.58	1.00
	2.000	150.00	1533.78	2.38	4.98	1533.73	1534.21	.00	89.30	1.00
	2.000	200.00	1533.99	2.59	5.04	1533.96	1534.50	.00	81.56	1.00
	2.000	300.00	1534.31	2.91	5.43	1534.28	1535.03	.00	81.40	1.04
	2.000	400.00	1534.63	3.23	5.55	1534.59	1535.49	.00	74.31	1.04
	2.000	500.00	1534.89	3.49	5.76	1534.88	1535.91	.00	72.72	1.00
	2.000	600.00	1535.23	3.83	5.76	1535.18	1536.29	.00	61.56	1.04
	2.000	700.00	1535.47	4.07	6.04	1535.42	1536.65	.00	59.50	1.04

1

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
3.000	5.00	1532.14	.74	2.86	1532.08	1532.27	.00	183.62	1.03
3.000	10.00	1532.36	.96	3.41	1532.29	1532.54	.00	185.48	1.02
3.000	20.00	1532.62	1.22	4.17	1532.60	1532.88	.00	177.69	1.02
3.000	40.00	1532.99	1.59	4.54	1532.95	1533.29	.00	134.04	1.02
3.000	60.00	1533.21	1.81	4.87	1533.20	1533.57	.00	125.79	1.01
3.000	80.00	1533.48	2.08	4.29	1533.42	1533.76	.00	80.00	1.01
3.000	100.00	1533.56	2.16	4.59	1533.52	1533.90	.00	86.32	1.01
3.000	150.00	1533.78	2.38	4.95	1533.72	1534.22	.00	88.21	1.01
3.000	200.00	1533.99	2.59	5.02	1533.96	1534.51	.00	80.79	1.00
3.000	300.00	1534.32	2.92	5.40	1534.26	1535.03	.00	80.18	1.01
3.000	400.00	1534.64	3.24	5.51	1534.57	1535.49	.00	73.25	1.01
3.000	500.00	1534.89	3.49	5.75	1534.89	1535.91	.00	72.35	1.00
3.000	600.00	1535.23	3.83	5.75	1535.16	1536.29	.00	60.90	1.01
3.000	700.00	1535.48	4.08	6.02	1535.40	1536.65	.00	58.89	1.01
4.000	5.00	1532.15	.75	2.79	1532.08	1532.27	.00	171.88	1.03
4.000	10.00	1532.37	.97	3.34	1532.29	1532.54	.00	175.39	1.03
4.000	20.00	1532.69	1.29	3.68	1532.59	1532.89	.00	124.37	1.20
4.000	40.00	1533.03	1.63	4.29	1532.96	1533.30	.00	115.17	1.08
4.000	60.00	1533.22	1.82	4.81	1533.20	1533.57	.00	121.67	1.02

4.000	80.00	1533.49	2.09	4.22	1533.44	1533.76	.00	77.25	1.02
4.000	100.00	1533.57	2.17	4.55	1533.52	1533.90	.00	84.45	1.01
4.000	150.00	1533.79	2.39	4.92	1533.76	1534.22	.00	86.56	1.01
4.000	200.00	1534.00	2.60	4.99	1533.96	1534.51	.00	79.67	1.01
4.000	300.00	1534.33	2.93	5.36	1534.25	1535.03	.00	78.65	1.01
4.000	400.00	1534.65	3.25	5.48	1534.57	1535.49	.00	71.97	1.01
4.000	500.00	1534.90	3.50	5.73	1534.88	1535.91	.00	71.77	1.00
4.000	600.00	1535.24	3.84	5.72	1535.16	1536.30	.00	60.10	1.01
4.000	700.00	1535.49	4.09	6.00	1535.40	1536.65	.00	58.16	1.01
5.000	5.00	1532.16	.76	2.71	1532.08	1532.27	.00	160.04	1.04
5.000	10.00	1532.38	.98	3.26	1532.29	1532.55	.00	164.40	1.03
5.000	20.00	1532.70	1.30	3.62	1532.60	1532.90	.00	118.81	1.02
5.000	40.00	1533.04	1.64	4.21	1532.95	1533.30	.00	110.00	1.02
5.000	60.00	1533.31	1.91	4.18	1533.20	1533.58	.00	85.95	1.19
5.000	80.00	1533.50	2.10	4.11	1533.44	1533.76	.00	72.53	1.03
5.000	100.00	1533.58	2.18	4.49	1533.55	1533.90	.00	82.03	1.01
5.000	150.00	1533.80	2.40	4.87	1533.77	1534.22	.00	84.47	1.01
5.000	200.00	1534.01	2.61	4.96	1533.97	1534.51	.00	78.25	1.01
5.000	300.00	1534.38	2.98	5.10	1534.28	1535.04	.00	69.81	1.06
5.000	400.00	1534.77	3.37	4.98	1534.60	1535.51	.00	56.52	1.13
5.000	500.00	1534.91	3.51	5.71	1534.89	1535.91	.00	70.96	1.01
5.000	600.00	1535.38	3.98	5.36	1535.15	1536.31	.00	48.88	1.11
5.000	700.00	1535.64	4.24	5.64	1535.39	1536.66	.00	47.74	1.10

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SECNO	Q	CWSEL	DEPTH	VCH	CRIWS	EG	HL	10*KS	KRATIO
6.000	5.00	1532.17	.77	2.64	1532.08	1532.28	.00	149.16	1.04
6.000	10.00	1532.39	.99	3.18	1532.29	1532.55	.00	153.81	1.03
6.000	20.00	1532.71	1.31	3.56	1532.60	1532.90	.00	113.59	1.02
6.000	40.00	1533.05	1.65	4.10	1532.95	1533.30	.00	102.79	1.03
6.000	60.00	1533.32	1.92	4.11	1533.20	1533.58	.00	82.19	1.02
6.000	80.00	1533.52	2.12	4.00	1533.43	1533.77	.00	67.92	1.03
6.000	100.00	1533.59	2.19	4.43	1533.56	1533.90	.00	79.16	1.02
6.000	150.00	1533.81	2.41	4.81	1533.77	1534.22	.00	81.97	1.02
6.000	200.00	1534.02	2.62	4.91	1533.97	1534.51	.00	76.59	1.01
6.000	300.00	1534.39	2.99	5.06	1534.27	1535.04	.00	68.18	1.01
6.000	400.00	1534.78	3.38	4.96	1534.60	1535.51	.00	56.18	1.00
6.000	500.00	1534.92	3.52	5.68	1534.89	1535.92	.00	69.94	1.01
6.000	600.00	1535.39	3.99	5.35	1535.17	1536.31	.00	48.57	1.00
6.000	700.00	1535.64	4.24	5.63	1535.41	1536.67	.00	47.44	1.00

1

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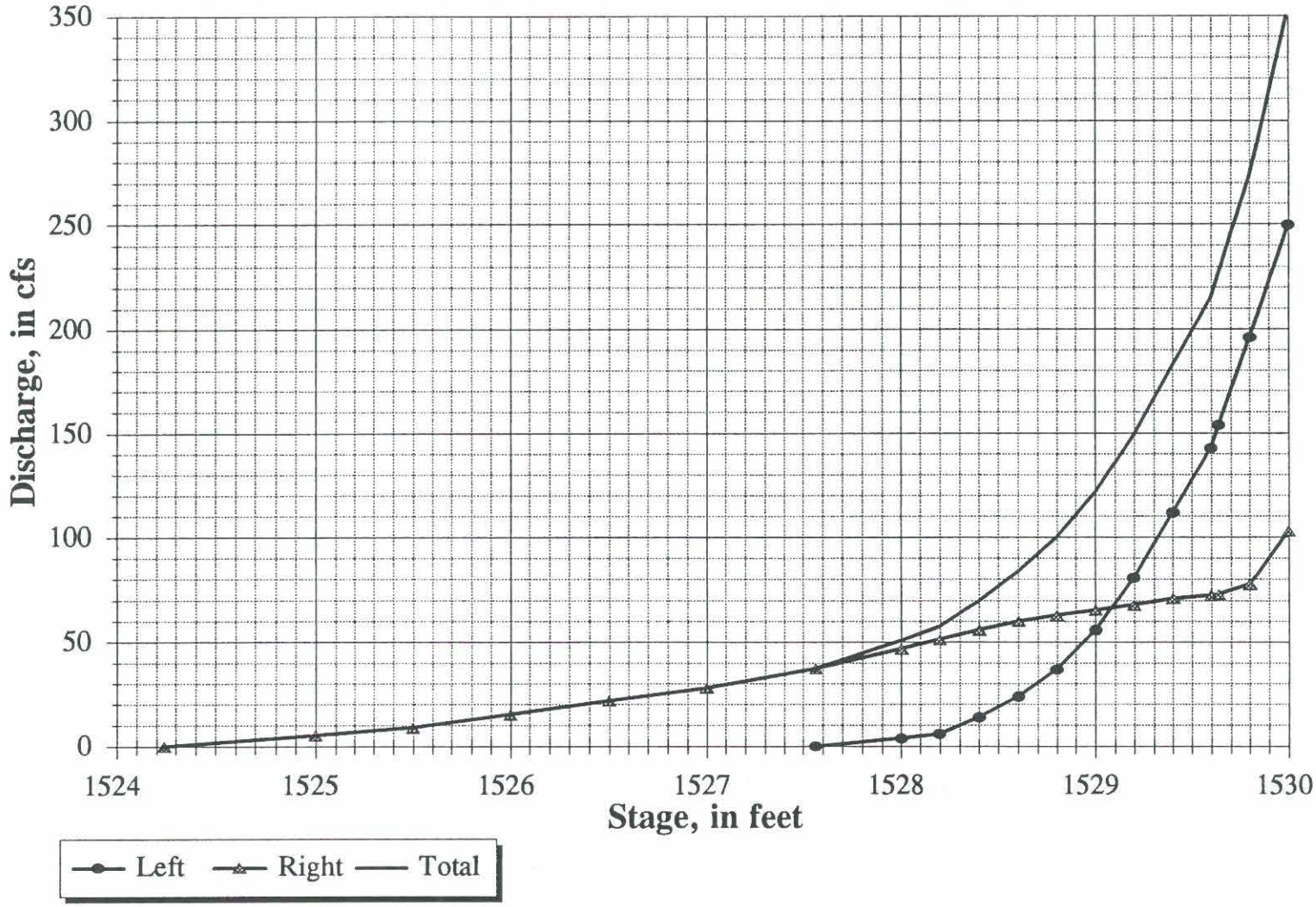
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=	1.000	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 5	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 6	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 7	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 8	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 9	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 10	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 11	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 12	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 13	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.000	PROFILE= 14	CRITICAL DEPTH ASSUMED

C508 Flow Split Hydraulic Calculations

Figure D-4

Discharge vs Stage Curve for Flow Split at C508

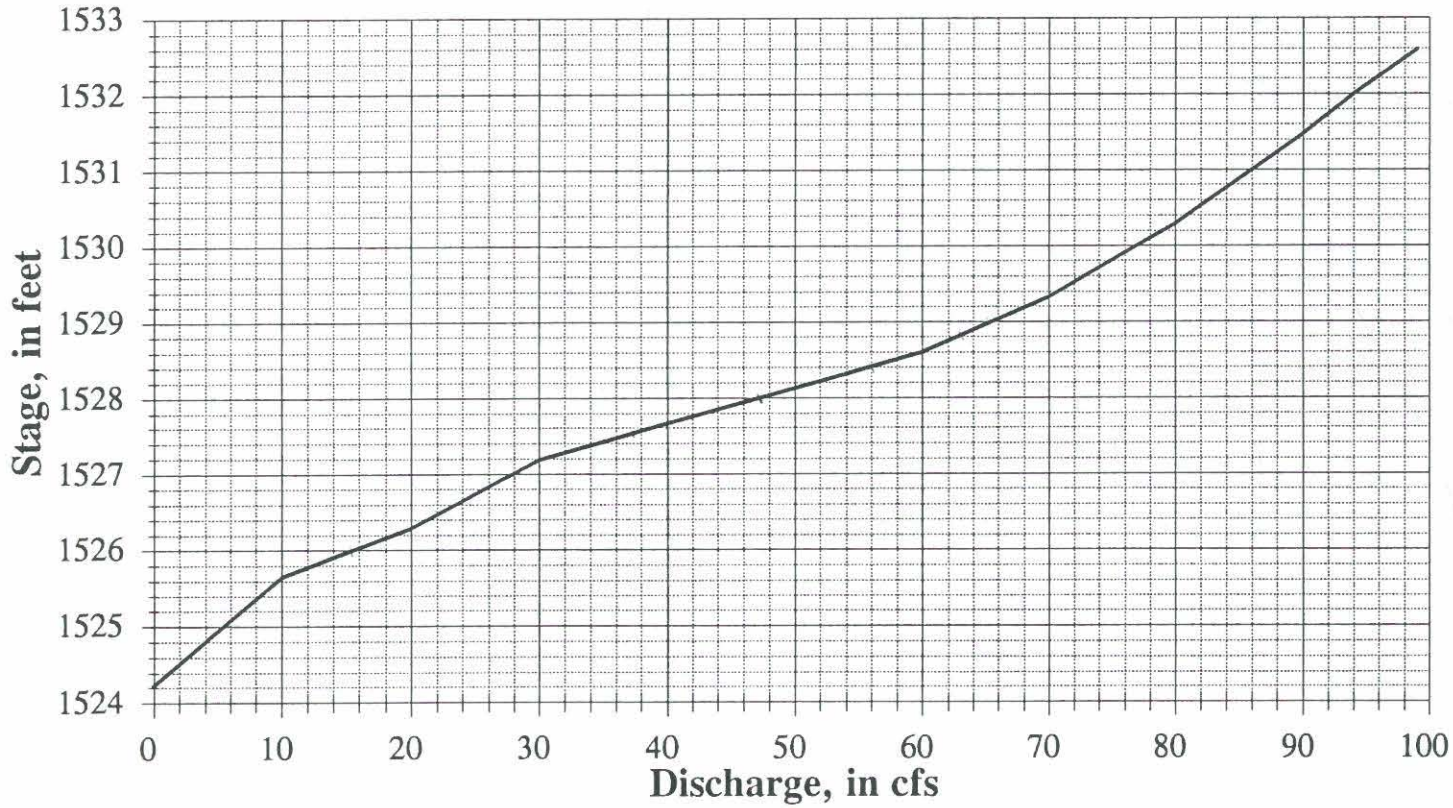


flowsplt.wb1

17-Feb-94

C508 Stage vs Discharge

Right Channel (Culvert Flow) from HY8

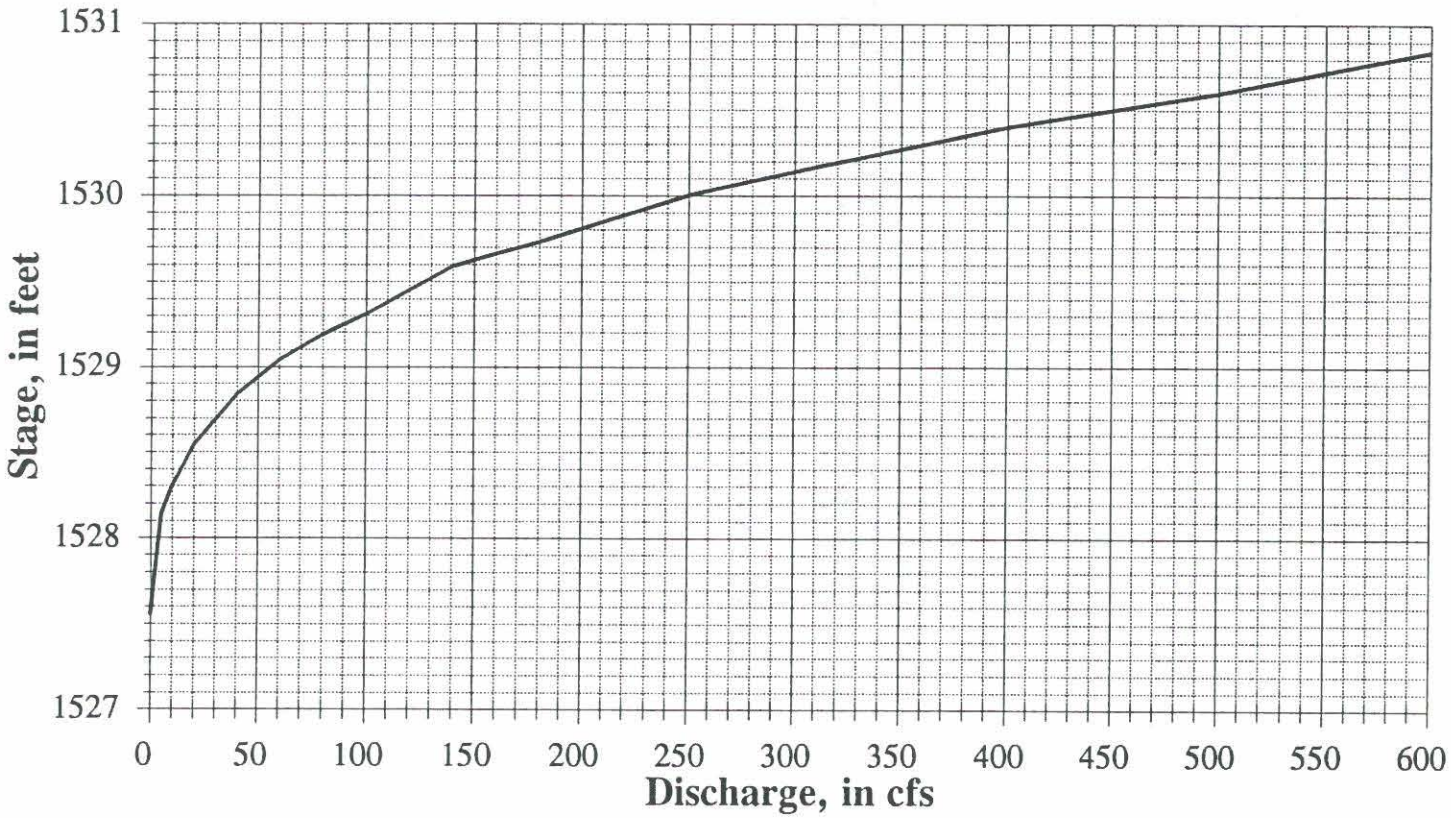


flowsplt.wb1

21-Jun-93

C508 Stage vs Discharge

Left Channel (Ditch Flow) from HEC-2

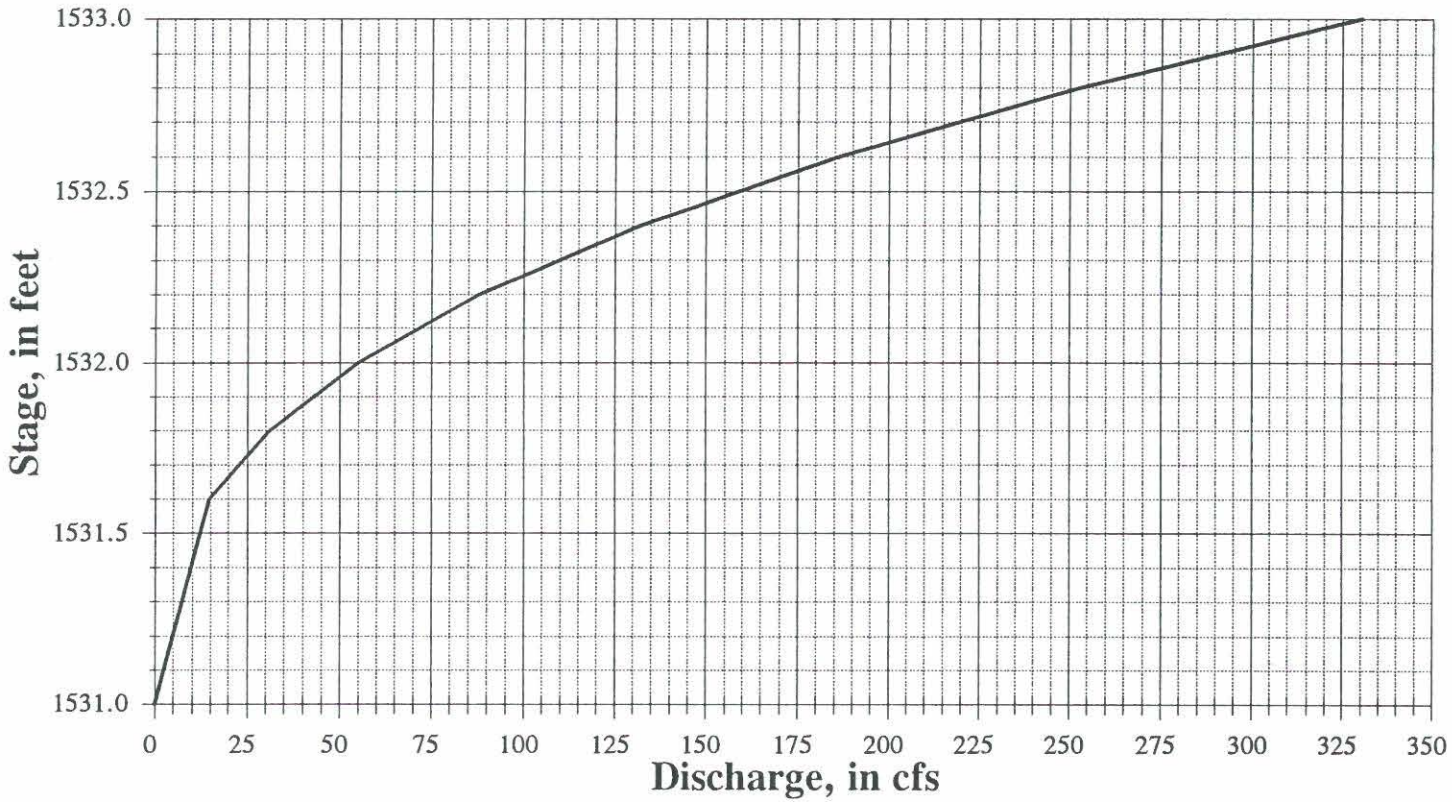


Refer to Appendix A for supporting calculations

C512 Flow Split Hydraulic Calculations (Stock Tank)

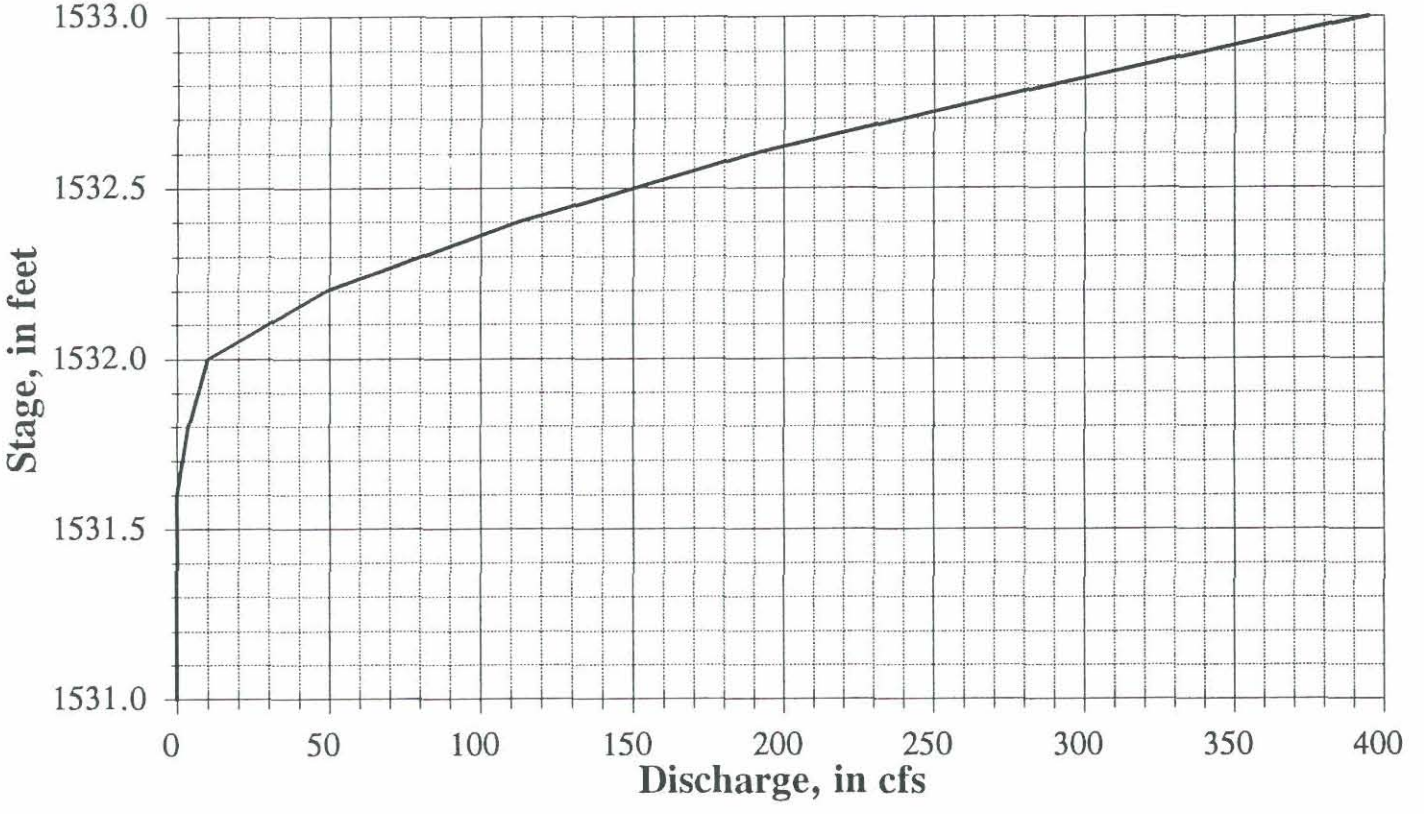
C512 Stage vs Discharge

Left Channel (Weir Flow)



C512 Stage vs Discharge

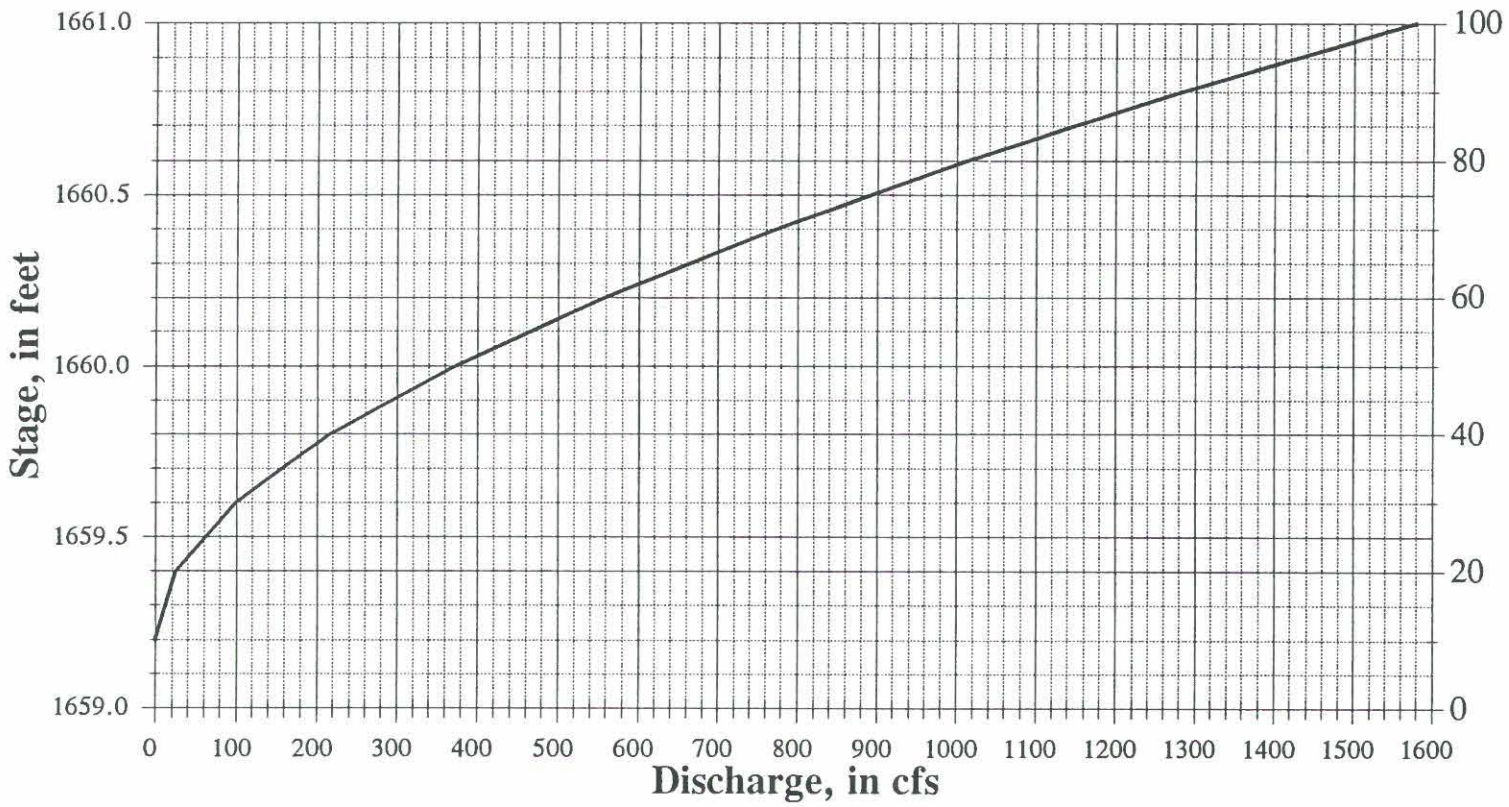
Right Channel (Bahia Drive) from HEC-2



Refer to Appendix A for supporting calculations

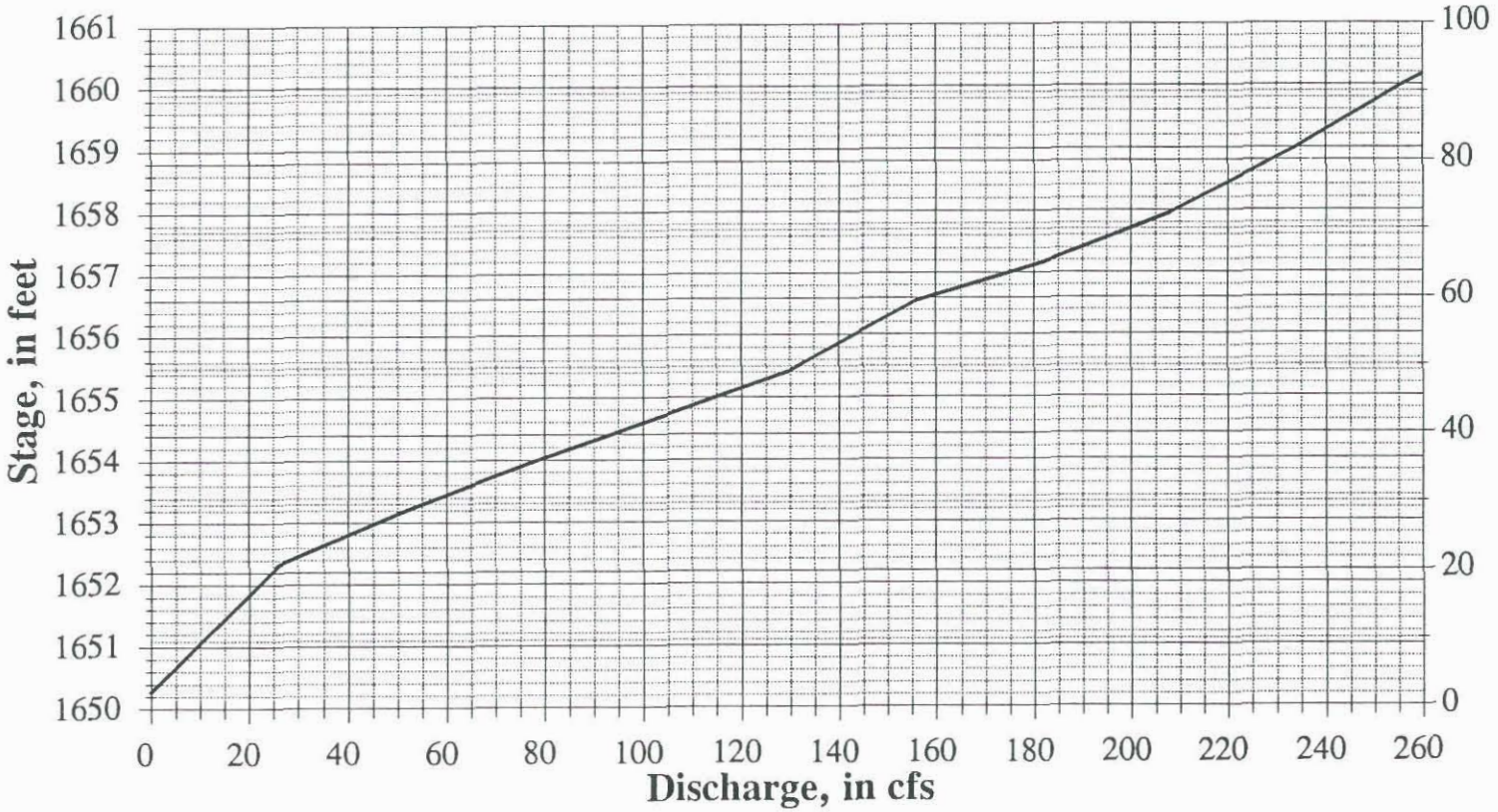
C523 Flow Split Hydraulic Calculations

C523 Stage vs Discharge
Left Channel (Weir Flow)



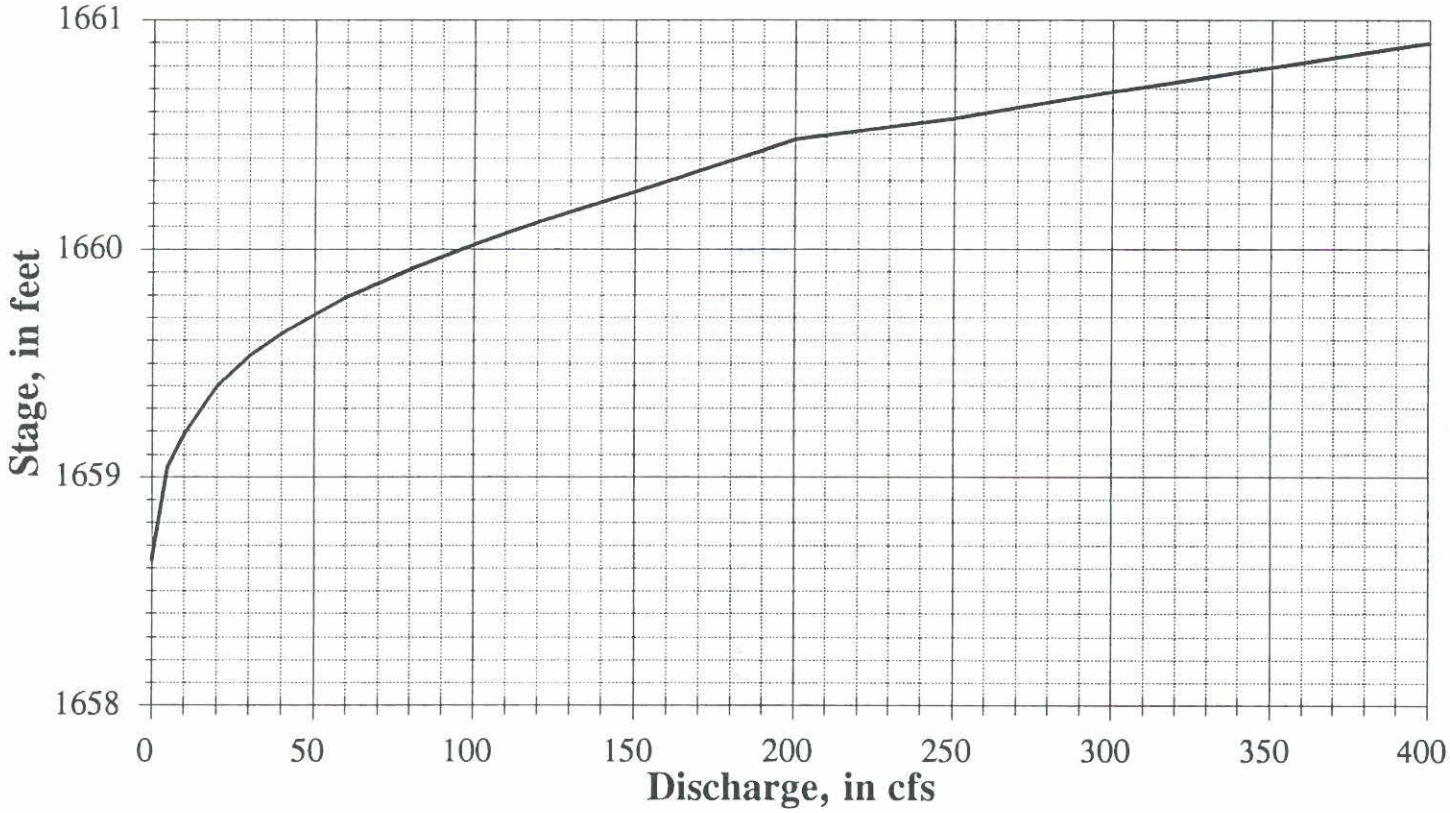
C523 Stage vs Discharge

Left Channel (Culvert Flow) from HY8



C523 Stage vs Discharge

Right Channel (Ditch Flow) from HEC-2



flowsplt.wb1

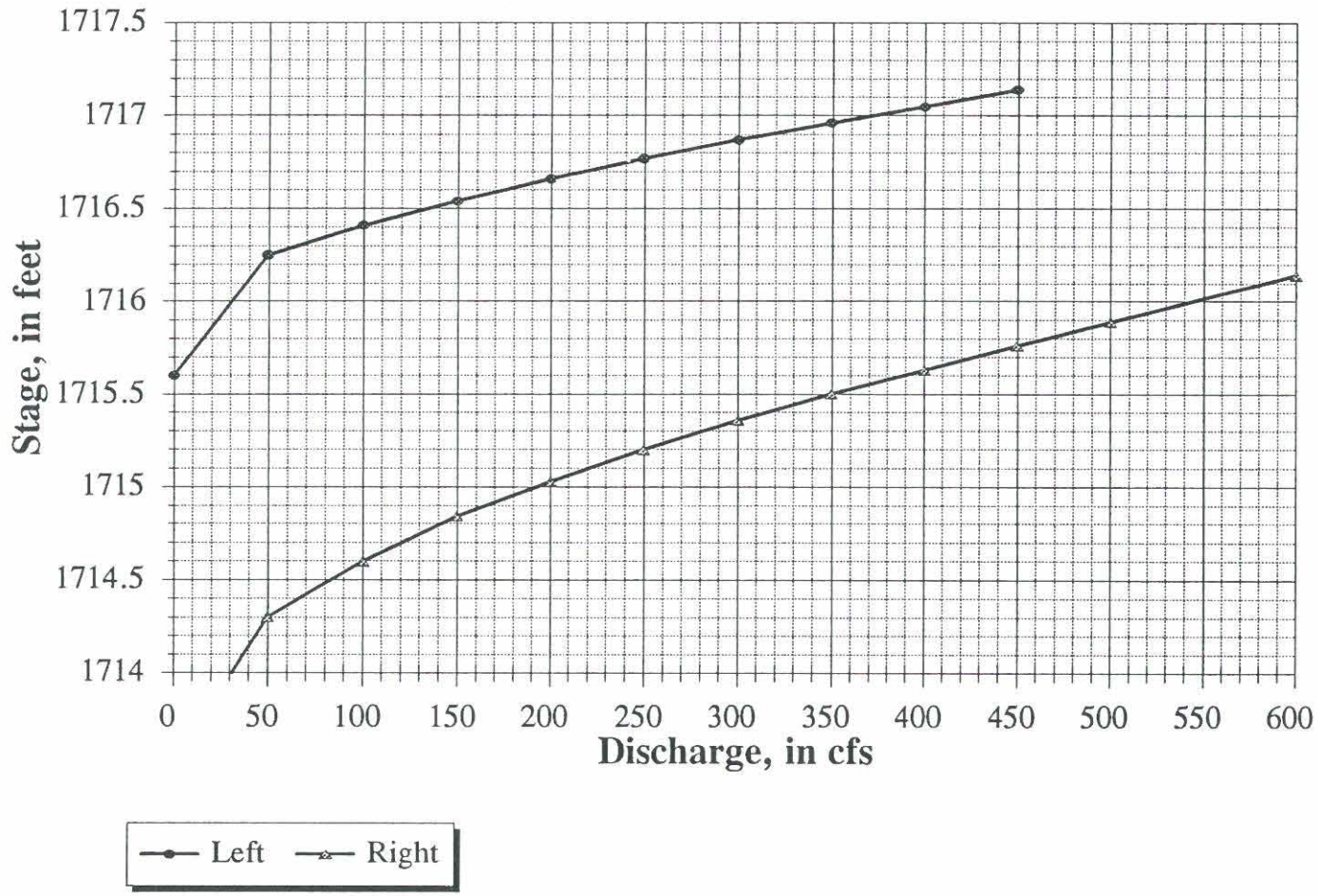
09-Jul-93

Refer to Appendix A for supporting calculations

C543 Flow Split Hydraulic Calculations

C543 HEC-2 Results

Discharge vs Stage Curve for Flow Split at C543



flowsplt.wb1

17-Nov-93

GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF

CLIENT FCDMC

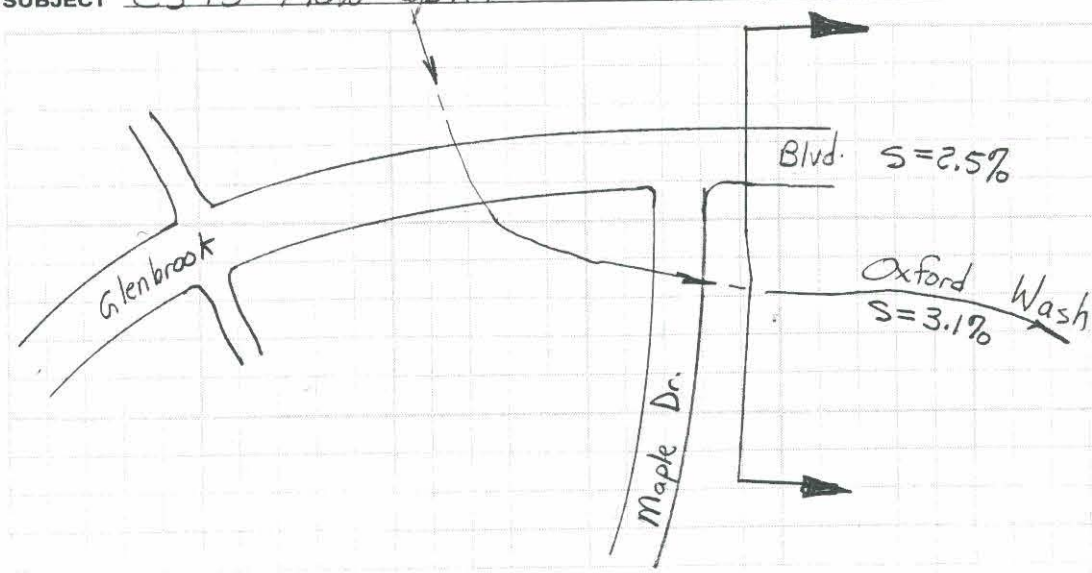
DATE 10/29/93

PROJECT Fountain Hills North FIS

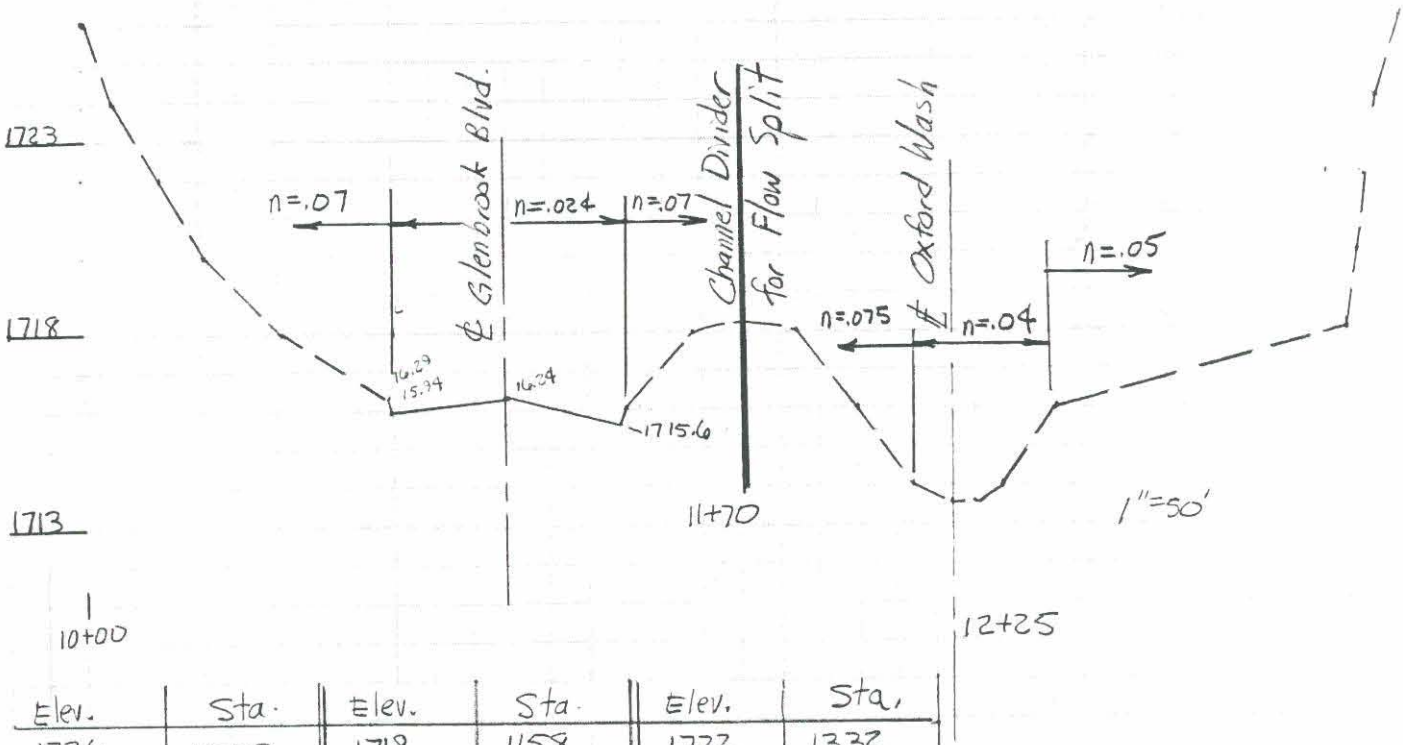
BY TRL

SUBJECT C543 Flow Split

PROJECT NO. 35



Q_{100} = 182 cfs



Elev.	Sta.	Elev.	Sta.	Elev.	Sta.
1726	1000	1718	1158	1722	1332
1724	1008	1718	1185	1724	1336
1722	1020	1716	1200	1726	1341
1720	1031	1714	1215		
1718	1051	1713.5	1225		
1716.3	1077.6	1713.5	1230		
1715.9	1078.8	1714	1238		
1716.2	1108.8	1716	1252		
1715.6	1138.8	1718	1328		
1716	1140	1720	1330		

```
1*****************************************
****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    29OCT93    TIME   15:25:47 *
 *****************************************
****************************************
```

```
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
```

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

1
29OCT93 15:25:47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****************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
****************************************
```

THIS RUN EXECUTED 29OCT93 15:25:47

```
T1  Flow split at C543 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q = 50  C543L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
                2                          .025                                1718.0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       43       1        2        3        4        8        5        26

QT        9       50      100      150      200      250      300      350      400      450
NC     .070     .070     .024       .1       .3
X1      1.0     13.0   1077.6   1140.0
GR   1726.0   1000.0   1724.0   1008.0   1722.0   1020.0   1720.0   1031.0   1718.0   1051.0
GR   1716.3   1077.6   1715.9   1079.8   1716.2   1108.8   1715.6   1138.8   1716.0   1140.0
GR   1718.0   1158.0   1718.0   1170.0   1726.0   1170.0

X1      1.1                                 0.1      0.1      0.1

X1      1.2                                 0.1      0.1      0.1
```

1
29OCT93 15:25:47


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

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      .64  1716.24  1716.24  1718.00  1716.38      .14      .00      .00  1716.30
      50.0       .0     49.8      .2       .0     16.5       .3       .0       .0  1716.00
       .00      .00     3.02      .61     .000     .024     .070     .000  1715.60  1077.78
   .013978       0.       0.       0.        0       14        0      .00    64.36  1142.15

*SECNO 1.100
     1.100      .65  1716.25  1716.24      .00  1716.38      .14      .00      .00  1716.30
      50.0       .0     49.8      .2       .0     16.8       .3       .0       .0  1716.00
       .00      .00     2.97      .60     .000     .024     .070     .000  1715.60  1077.77
   .013215       0.       0.       0.        0        5        0      .00    64.42  1142.19

*SECNO 1.200
     1.200      .65  1716.25  1716.24      .00  1716.38      .13      .00      .00  1716.30
      50.0       .0     49.8      .2       .0     17.0       .3       .0       .0  1716.00
       .00      .00     2.93      .59     .000     .024     .070     .000  1715.60  1077.76
   .012674       0.       0.       0.        0        5        0      .00    64.46  1142.22
```

1
29OCT93 15:25:47


```
T1  Flow split at C543 left channel (Cavern Drive)
T2  Fountain Hills North FIS
```

```
T3  Q=100 C543L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .025                                    1718.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2

1
   29OCT93      15:25:47                                                                                    PAGE    4

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

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      .80   1716.40   1716.40   1718.00   1716.62       .22       .00       .00   1716.30
     100.0       .0      99.4       .6        .1      26.5        .7        .0        .0   1716.00
       .00      .02      3.75       .77      .070      .024      .070      .000   1715.60   1076.05
   .011476       0.        0.        0.         0        26         0       .00     67.55   1143.59

*SECNO 1.100
     1.100      .80   1716.40   1716.40       .00   1716.62       .21       .00       .00   1716.30
     100.0       .0      99.4       .6        .1      26.8        .7        .0        .0   1716.00
       .00      .02      3.72       .77      .070      .024      .070      .000   1715.60   1075.99
   .011173       0.        0.        0.         0         5         0       .00     67.63   1143.63

*SECNO 1.200
     1.200      .81   1716.41   1716.40       .00   1716.62       .21       .00       .00   1716.30
     100.0       .0      99.4       .6        .1      26.9        .7        .0        .0   1716.00
       .00      .02      3.69       .76      .070      .024      .070      .000   1715.60   1075.95
   .010942       0.        0.        0.         0         5         0       .00     67.70   1143.65

1
   29OCT93      15:25:47                                                                                    PAGE    5

T1  Flow split at C543 left channel (Cavern Drive)
T2  Fountain Hills North FIS
T3  Q=150 C543L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .025                                    1718.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3

1
   29OCT93      15:25:47                                                                                    PAGE    6

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

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      .93   1716.53   1716.53   1718.00   1716.81       .28       .00       .00   1716.30
     150.0       .2     148.6       1.1        .4      34.8       1.3        .0        .0   1716.00
       .00      .51      4.27       .89      .070      .024      .070      .000   1715.60   1073.97
   .010366       0.        0.        0.         0        22         0       .00     70.82   1144.79

*SECNO 1.100
     1.100      .94   1716.54   1716.53       .00   1716.81       .28       .00       .00   1716.30
     150.0       .2     148.6       1.1        .4      35.0       1.3        .0        .0   1716.00
       .00      .51      4.24       .89      .070      .024      .070      .000   1715.60   1073.92
   .010170       0.        0.        0.         0         5         0       .00     70.90   1144.82

*SECNO 1.200
     1.200      .94   1716.54   1716.53       .00   1716.82       .27       .00       .00   1716.30
     150.0       .2     148.6       1.1        .4      35.2       1.3        .0        .0   1716.00
       .00      .51      4.22       .88      .070      .024      .070      .000   1715.60   1073.88
   .010023       0.        0.        0.         0         5         0       .00     70.96   1144.84

1
   29OCT93      15:25:47                                                                                    PAGE    7

T1  Flow split at C543 left channel (Cavern Drive)
T2  Fountain Hills North FIS
T3  Q=200 C543L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .025                                    1718.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

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     4

1
   29OCT93       15:25:47                                                                                                PAGE    8

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

 *PROF 4

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.05   1716.65    1716.65    1718.00    1716.99        .34        .00        .00    1716.30
      200.0        .6     197.5        1.9        1.0       42.2        1.9         .0         .0    1716.00
        .00       .65      4.68        .98       .070       .024       .070       .000    1715.60    1072.13
    .009673        0.        0.         0.          0         18          0        .00      73.72    1145.85

 *SECNO 1.100
      1.100      1.06   1716.66    1716.65        .00    1716.99        .33        .00        .00    1716.30
      200.0        .6     197.5        1.9        1.0       42.4        1.9         .0         .0    1716.00
        .00       .65      4.66        .98       .070       .024       .070       .000    1715.60    1072.07
    .009492        0.        0.         0.          0          5          0        .00      73.82    1145.88

 *SECNO 1.200
      1.200      1.06   1716.66    1716.65        .00    1716.99        .33        .00        .00    1716.30
      200.0        .6     197.5        1.9        1.0       42.6        1.9         .0         .0    1716.00
        .00       .65      4.64        .97       .070       .024       .070       .000    1715.60    1072.03
    .009384        0.        0.         0.          0          5          0        .00      73.87    1145.90

1
   29OCT93       15:25:47                                                                                                PAGE    9

 T1  Flow split at C543 left channel (Cavern Drive)
 T2  Fountain Hills North FIS
 T3  Q=250 C543L.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  6                             .025                                         1718.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      5

1
   29OCT93       15:25:47                                                                                                PAGE   10

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

 *PROF 5

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.16   1716.76    1716.76    1718.00    1717.14        .38        .00        .00    1716.30
      250.0       1.3     246.0        2.8        1.7       49.3        2.6         .0         .0    1716.00
        .00       .76      4.99       1.05       .070       .024       .070       .000    1715.60    1070.34
    .008927        0.        0.         0.          0         11          0        .00      76.53    1146.87

 *SECNO 1.100
      1.100      1.17   1716.77    1716.76        .00    1717.15        .38        .00        .00    1716.30
      250.0       1.3     246.0        2.8        1.7       49.3        2.6         .0         .0    1716.00
        .00       .76      4.99       1.05       .070       .024       .070       .000    1715.60    1070.33
    .008894        0.        0.         0.          0          5          0        .00      76.55    1146.88

 *SECNO 1.200
      1.200      1.17   1716.77    1716.76        .00    1717.15        .38        .00        .00    1716.30
      250.0       1.3     245.9        2.8        1.7       49.4        2.6         .0         .0    1716.00
        .00       .75      4.97       1.05       .070       .024       .070       .000    1715.60    1070.30
    .008825        0.        0.         0.          0          5          0        .00      76.60    1146.90

1
   29OCT93       15:25:47                                                                                                PAGE   11

 T1  Flow split at C543 left channel (Cavern Drive)
 T2  Fountain Hills North FIS
 T3  Q=300 C543L.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  7                             .025                                         1718.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      6

1
   29OCT93       15:25:47                                                                                                PAGE   12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
```

```
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.26   1716.86   1716.86   1718.00   1717.29       .43       .00       .00   1716.30
     300.0       2.1     294.2       3.7       2.4      55.2       3.3        .0        .0   1716.00
       .00       .85      5.33      1.13      .070      .024      .070      .000   1715.60   1068.86
   .008751        0.        0.        0.         0        11         0       .00     78.87   1147.73


*SECNO 1.100
     1.100      1.26   1716.86   1716.86       .00   1717.29       .43       .00       .00   1716.30
     300.0       2.1     294.2       3.8       2.5      55.4       3.3        .0        .0   1716.00
       .00       .84      5.31      1.12      .070      .024      .070      .000   1715.60   1068.80
   .008625        0.        0.        0.         0         5         0       .00     78.96   1147.76


*SECNO 1.200
     1.200      1.27   1716.87   1716.86       .00   1717.29       .43       .00       .00   1716.30
     300.0       2.1     294.1       3.8       2.5      55.6       3.4        .0        .0   1716.00
       .00       .84      5.29      1.12      .070      .024      .070      .000   1715.60   1068.77
   .008553        0.        0.        0.         0         5         0       .00     79.02   1147.78


1
   29OCT93      15:25:47                                                                          PAGE   13

 T1  Flow split at C543 left channel (Cavern Drive)
 T2  Fountain Hills North FIS
 T3  Q=350 C543L.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 8                           .025                                    1718.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       7

1
   29OCT93      15:25:47                                                                          PAGE   14

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

 *PROF 7

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      1.36   1716.96   1716.96   1718.00   1717.43       .47       .00       .00   1716.30
      350.0       3.1     342.0       4.9       3.4      61.4       4.1        .0        .0   1716.00
        .00       .92      5.57      1.18      .070      .024      .070      .000   1715.60   1067.29
    .008273        0.        0.        0.         0        11         0       .00     81.34   1148.63


 *SECNO 1.100
      1.100      1.36   1716.96   1716.95       .00   1717.43       .47       .00       .00   1716.30
      350.0       3.1     342.0       4.9       3.4      61.5       4.1        .0        .0   1716.00
        .00       .92      5.56      1.18      .070      .024      .070      .000   1715.60   1067.28
    .008248        0.        0.        0.         0         5         0       .00     81.36   1148.64


 *SECNO 1.200
      1.200      1.36   1716.96   1716.95       .00   1717.43       .47       .00       .00   1716.30
      350.0       3.1     342.0       4.9       3.4      61.6       4.2        .0        .0   1716.00
        .00       .92      5.55      1.17      .070      .024      .070      .000   1715.60   1067.25
    .008200        0.        0.        0.         0         5         0       .00     81.40   1148.65

1
   29OCT93      15:25:47                                                                          PAGE   15

 T1  Flow split at C543 left channel (Cavern Drive)
 T2  Fountain Hills North FIS
 T3  Q=400 C543L.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 9                           .025                                    1718.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       8

1
   29OCT93      15:25:47                                                                          PAGE   16

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

 *PROF 8

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
```

```
3720 CRITICAL DEPTH ASSUMED
     1.000      1.44   1717.04   1717.04   1718.00   1717.56       .52       .00       .00   1716.30
     400.0       4.3     389.7       6.1       4.3      66.8       4.9        .0        .0   1716.00
       .00       .99      5.84      1.24      .070      .024      .070      .000   1715.60   1065.96
   .008146        0.        0.        0.         0        14         0       .00     83.43   1149.39

*SECNO 1.100
     1.100      1.45   1717.05   1717.05       .00   1717.56       .51       .00       .00   1716.30
     400.0       4.3     389.6       6.1       4.4      67.0       4.9        .0        .0   1716.00
       .00       .99      5.82      1.23      .070      .024      .070      .000   1715.60   1065.90
   .008052        0.        0.        0.         0         5         0       .00     83.52   1149.43

*SECNO 1.200
     1.200      1.45   1717.05   1717.05       .00   1717.56       .51       .00       .00   1716.30
     400.0       4.3     389.6       6.1       4.4      67.1       5.0        .0        .0   1716.00
       .00       .99      5.80      1.23      .070      .024      .070      .000   1715.60   1065.87
   .007999        0.        0.        0.         0         5         0       .00     83.57   1149.45

1
   29OCT93      15:25:47                                                                          PAGE   17

T1  Flow split at C543 left channel (Cavern Drive)
T2  Fountain Hills North FIS
T3  Q=450 C543L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              10                            .025                                    1718.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   29OCT93      15:25:47                                                                          PAGE   18

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

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.53   1717.13   1717.13   1718.00   1717.68       .55       .00       .00   1716.30
     450.0       5.7     436.9       7.4       5.4      72.2       5.8        .0        .0   1716.00
       .00      1.05      6.05      1.28      .070      .024      .070      .000   1715.60   1064.60
   .007887        0.        0.        0.         0        14         0       .00     85.58   1150.18

*SECNO 1.100
     1.100      1.54   1717.14   1717.13       .00   1717.69       .55       .00       .00   1716.30
     450.0       5.7     436.9       7.4       5.4      72.4       5.8        .0        .0   1716.00
       .00      1.05      6.03      1.28      .070      .024      .070      .000   1715.60   1064.54
   .007805        0.        0.        0.         0         5         0       .00     85.67   1150.21

*SECNO 1.200
     1.200      1.54   1717.14   1717.13       .00   1717.69       .55       .00       .00   1716.30
     450.0       5.7     436.9       7.4       5.5      72.5       5.8        .0        .0   1716.00
       .00      1.04      6.02      1.28      .070      .024      .070      .000   1715.60   1064.51
   .007760        0.        0.        0.         0         5         0       .00     85.72   1150.23

1
   29OCT93      15:25:47                                                                          PAGE   19


                                                                    THIS RUN EXECUTED 29OCT93     15:25:51
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

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

50  C543L.IH2.  29 Oct 9

SUMMARY PRINTOUT

      SECNO       Q       CWSEL     CRIWS      EG       TOPWID     DEPTH     10*KS      VCH

*      1.000     50.00   1716.24   1716.24   1716.38    64.36       .64    139.78      3.02
*      1.000    100.00   1716.40   1716.40   1716.62    67.55       .80    114.76      3.75
*      1.000    150.00   1716.53   1716.53   1716.81    70.82       .93    103.66      4.27
*      1.000    200.00   1716.65   1716.65   1716.99    73.72      1.05     96.73      4.68
*      1.000    250.00   1716.76   1716.76   1717.14    76.53      1.16     89.27      4.99
*      1.000    300.00   1716.86   1716.86   1717.29    78.87      1.26     87.51      5.33
*      1.000    350.00   1716.96   1716.96   1717.43    81.34      1.36     82.73      5.57
*      1.000    400.00   1717.04   1717.04   1717.56    83.43      1.44     81.46      5.84
*      1.000    450.00   1717.13   1717.13   1717.68    85.58      1.53     78.87      6.05

       1.100     50.00   1716.25   1716.24   1716.38    64.42       .65    132.15      2.97
       1.100    100.00   1716.40   1716.40   1716.62    67.63       .80    111.73      3.72
       1.100    150.00   1716.54   1716.53   1716.81    70.90       .94    101.70      4.24
       1.100    200.00   1716.66   1716.65   1716.99    73.82      1.06     94.92      4.66
```

1.100	250.00	1716.77	1716.76	1717.15	76.55	1.17	88.94	4.99
1.100	300.00	1716.86	1716.86	1717.29	78.96	1.26	86.25	5.31
1.100	350.00	1716.96	1716.95	1717.43	81.36	1.36	82.48	5.56
1.100	400.00	1717.05	1717.05	1717.56	83.52	1.45	80.52	5.82
1.100	450.00	1717.14	1717.13	1717.69	85.67	1.54	78.05	6.03
1.200	50.00	1716.25	1716.24	1716.38	64.46	.65	126.74	2.93
1.200	100.00	1716.41	1716.40	1716.62	67.70	.81	109.42	3.69
1.200	150.00	1716.54	1716.53	1716.82	70.96	.94	100.23	4.22
1.200	200.00	1716.66	1716.65	1716.99	73.87	1.06	93.84	4.64
1.200	250.00	1716.77	1716.76	1717.15	76.60	1.17	88.25	4.97
1.200	300.00	1716.87	1716.86	1717.29	79.02	1.27	85.53	5.29
1.200	350.00	1716.96	1716.95	1717.43	81.40	1.36	82.00	5.55
1.200	400.00	1717.05	1717.05	1717.56	83.57	1.45	79.99	5.80
1.200	450.00	1717.14	1717.13	1717.69	85.72	1.54	77.60	6.02

1

29OCT93 15:25:47 PAGE 20

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
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1*****************************************
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
*
 *                                        *
*
 *  Version   4.6.2;  May 1991            *
*
 *                                        *
*
 *  RUN DATE    04NOV93    TIME   12:00:39  *
*
 *****************************************
*************************************
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```
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   04NOV93      12:00:39                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 04NOV93    12:00:39
 *************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 *************************************


 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q = 50  C543R.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .031                                    1718.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9        50       100       150       200       250       300       400       500       600
 NC     .075      .050      .050        .1        .3
 X1      1.0      14.0    1215.0    1252.0
 GR   1726.0    1170.0    1718.0    1170.0    1718.0    1185.0    1716.0    1200.0    1714.0    1215.0
 GR   1713.5    1225.0    1713.5    1230.0    1714.0    1238.0    1716.0    1252.0    1718.0    1328.0
 GR   1720.0    1330.0    1722.0    1332.0    1724.0    1336.0    1726.0    1341.0

 X1      1.1                                   0.1       0.1       0.1

 X1      1.2                                   0.1       0.1       0.1
1
   04NOV93      12:00:39                                                                                    PAGE    2

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

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
      1.000       .79   1714.29       .00   1718.00   1714.49       .19       .00       .00   1714.00
       50.0        .3      49.7        .0        .3      14.0        .0        .0        .0   1716.00
        .00       .96      3.55       .00      .075      .050      .000      .000   1713.50   1212.81
    .030992        0.        0.        0.         0         0         8       .00     27.23   1240.04


 *SECNO 1.100
      1.100       .80   1714.30       .00       .00   1714.49       .19       .00       .00   1714.00
       50.0        .3      49.7        .0        .3      14.1        .0        .0        .0   1716.00
        .00       .96      3.53       .00      .075      .050      .000      .000   1713.50   1212.79
    .030462        0.        0.        0.         0         0         0       .00     27.27   1240.06


 *SECNO 1.200
      1.200       .80   1714.30       .00       .00   1714.49       .19       .00       .00   1714.00
       50.0        .3      49.7        .0        .3      14.2        .0        .0        .0   1716.00
        .00       .96      3.49       .00      .075      .050      .000      .000   1713.50   1212.75
    .029537        0.        0.        0.         0         0         0       .00     27.35   1240.10

1
   04NOV93      12:00:39                                                                                    PAGE    3

 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q=100 C543R.IH2.  29 Oct 93 trl
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```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           .031                                    1718.0
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2

1
   04NOV93      12:00:39                                                                                    PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
     1.000      1.09   1714.59       .00   1718.00   1714.90       .31       .00       .00   1714.00
     100.0       2.0      98.0        .0       1.3      21.8        .0        .0        .0   1716.00
       .00      1.53      4.51       .00      .075      .050      .000      .000   1713.50   1210.58
   .030938        0.        0.        0.         0         0         7       .00     31.54   1242.12

 *SECNO 1.100
     1.100      1.09   1714.59       .00       .00   1714.90       .31       .00       .00   1714.00
     100.0       2.0      98.0        .0       1.3      21.8        .0        .0        .0   1716.00
       .00      1.53      4.49       .00      .075      .050      .000      .000   1713.50   1210.56
   .030571        0.        0.        0.         0         0         0       .00     31.58   1242.14

 *SECNO 1.200
     1.200      1.10   1714.60       .00       .00   1714.91       .30       .00       .00   1714.00
     100.0       2.0      98.0        .0       1.3      22.0        .0        .0        .0   1716.00
       .00      1.52      4.45       .00      .075      .050      .000      .000   1713.50   1210.52
   .029897        0.        0.        0.         0         0         0       .00     31.66   1242.18

1
   04NOV93      12:00:39                                                                                    PAGE    5

 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q=150 C543R.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 4                           .031                                    1718.0
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       3

1
   04NOV93      12:00:39                                                                                    PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
     1.000      1.32   1714.82       .00   1718.00   1715.22       .40       .00       .00   1714.00
     150.0       4.8     145.2        .0       2.5      28.3        .0        .0        .0   1716.00
       .00      1.91      5.13       .00      .075      .050      .000      .000   1713.50   1208.83
   .030642        0.        0.        0.         0         0         6       .00     34.92   1243.76

 *SECNO 1.100
     1.100      1.33   1714.83       .00       .00   1715.22       .40       .00       .00   1714.00
     150.0       4.9     145.1        .0       2.6      28.4        .0        .0        .0   1716.00
       .00      1.90      5.12       .00      .075      .050      .000      .000   1713.50   1208.81
   .030347        0.        0.        0.         0         0         0       .00     34.97   1243.78

 *SECNO 1.200
     1.200      1.34   1714.84       .00       .00   1715.23       .39       .00       .00   1714.00
     150.0       4.9     145.1        .0       2.6      28.5        .0        .0        .0   1716.00
       .00      1.89      5.08       .00      .075      .050      .000      .000   1713.50   1208.77
   .029779        0.        0.        0.         0         0         0       .00     35.05   1243.82

1
   04NOV93      12:00:39                                                                                    PAGE    7

 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q=200 C543R.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 5                           .031                                    1718.0
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       4

 1
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   04NOV93       12:00:39                                                                                                PAGE    8

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

 *PROF 4

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
      1.000       1.51    1715.01    1714.98    1718.00    1715.49        .48        .00        .00    1714.00
      200.0        8.5      191.5         .0        3.9       33.9         .0        .0         .0    1716.00
        .00       2.20       5.64        .00       .075       .050       .000       .000    1713.50    1207.39
    .030892         0.         0.         0.          0         17          0        .00      37.71    1245.10

 *SECNO 1.100
      1.100       1.52    1715.02    1714.98        .00    1715.49        .47        .00        .00    1714.00
      200.0        8.5      191.5         .0        3.9       34.0         .0        .0         .0    1716.00
        .00       2.20       5.63        .00       .075       .050       .000       .000    1713.50    1207.37
    .030633         0.         0.         0.          0          8          0        .00      37.75    1245.12

 *SECNO 1.200
      1.200       1.53    1715.03        .00        .00    1715.50        .47        .00        .00    1714.00
      200.0        8.6      191.4         .0        3.9       34.2         .0        .0         .0    1716.00
        .00       2.19       5.60        .00       .075       .050       .000       .000    1713.50    1207.33
    .030135         0.         0.         0.          0          0          0        .00      37.84    1245.16

1
   04NOV93       12:00:39                                                                                                PAGE    9

 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q=250 C543R.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  6                             .031                                         1718.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       5

1
   04NOV93       12:00:39                                                                                                PAGE   10

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

 *PROF 5

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
      1.000       1.68    1715.18    1715.16    1718.00    1715.73        .55        .00        .00    1714.00
      250.0       12.9      237.1         .0        5.3       39.1         .0        .0         .0    1716.00
        .00       2.44       6.06        .00       .075       .050       .000       .000    1713.50    1206.12
    .030970         0.         0.         0.          0         18          0        .00      40.17    1246.29

 *SECNO 1.100
      1.100       1.69    1715.19    1715.15        .00    1715.73        .54        .00        .00    1714.00
      250.0       12.9      237.1         .0        5.3       39.2         .0        .0         .0    1716.00
        .00       2.44       6.04        .00       .075       .050       .000       .000    1713.50    1206.10
    .030737         0.         0.         0.          0          5          0        .00      40.22    1246.31

 *SECNO 1.200
      1.200       1.70    1715.20    1715.16        .00    1715.74        .54        .00        .00    1714.00
      250.0       13.0      237.0         .0        5.3       39.4         .0        .0         .0    1716.00
        .00       2.43       6.01        .00       .075       .050       .000       .000    1713.50    1206.05
    .030260         0.         0.         0.          0          8          0        .00      40.31    1246.36

1
   04NOV93       12:00:39                                                                                                PAGE   11

 T1  Flow split at C543 right channel (Oxford Wash)
 T2  Fountain Hills North FIS
 T3  Q=300 C543R.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  7                             .031                                         1718.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       6

1
   04NOV93       12:00:39                                                                                                PAGE   12

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

 *PROF 6
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```
CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.84   1715.34   1715.32   1718.00   1715.94       .60       .00       .00   1714.00
     300.0      17.9     282.1        .0       6.8      44.2        .0        .0        .0   1716.00
       .00      2.64      6.38       .00      .075      .050      .000      .000   1713.50   1204.92
   .030551        0.        0.        0.         0        18         0       .00     42.49   1247.41

*SECNO 1.100
     1.100      1.85   1715.35   1715.32       .00   1715.95       .60       .00       .00   1714.00
     300.0      17.9     282.1        .0       6.8      44.3        .0        .0        .0   1716.00
       .00      2.64      6.36       .00      .075      .050      .000      .000   1713.50   1204.90
   .030341        0.        0.        0.         0         5         0       .00     42.54   1247.43

*SECNO 1.200
     1.200      1.86   1715.36   1715.32       .00   1715.95       .59       .00       .00   1714.00
     300.0      18.0     282.0        .0       6.9      44.5        .0        .0        .0   1716.00
       .00      2.63      6.33       .00      .075      .050      .000      .000   1713.50   1204.85
   .029918        0.        0.        0.         0         5         0       .00     42.63   1247.47

1
   04NOV93      12:00:39                                                                          PAGE   13

T1  Flow split at C543 right channel (Oxford Wash)
T2  Fountain Hills North FIS
T3  Q=400 C543R.IH2.  29 Oct 93 trl

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 8                           .031                                    1718.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7

1
   04NOV93      12:00:39                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      2.11   1715.61   1715.61   1718.00   1716.32       .71       .00       .00   1714.00
     400.0      29.2     370.8        .0       9.7      53.2        .0        .0        .0   1716.00
       .00      3.00      6.98       .00      .075      .050      .000      .000   1713.50   1202.91
   .030860        0.        0.        0.         0        14         0       .00     46.37   1249.28

*SECNO 1.100
3720 CRITICAL DEPTH ASSUMED
     1.100      2.12   1715.62   1715.61       .00   1716.33       .71       .00       .00   1714.00
     400.0      29.2     370.8        .0       9.8      53.3        .0        .0        .0   1716.00
       .00      2.99      6.96       .00      .075      .050      .000      .000   1713.50   1202.89
   .030674        0.        0.        0.         0         5         0       .00     46.41   1249.30

*SECNO 1.200
     1.200      2.13   1715.63   1715.61       .00   1716.33       .70       .00       .00   1714.00
     400.0      29.4     370.6        .0       9.9      53.5        .0        .0        .0   1716.00
       .00      2.98      6.93       .00      .075      .050      .000      .000   1713.50   1202.84
   .030277        0.        0.        0.         0         5         0       .00     46.51   1249.35

1
   04NOV93      12:00:39                                                                          PAGE   15

T1  Flow split at C543 right channel (Oxford Wash)
T2  Fountain Hills North FIS
T3  Q=500 C543R.IH2.  29 Oct 93 trl

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 9                           .031                                    1718.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      12:00:39                                                                          PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      2.36   1715.86   1715.86   1718.00   1716.65       .80       .00       .00   1714.00
     500.0      42.2     457.8        .0      12.9      61.7        .0        .0        .0   1716.00
       .00      3.27      7.42       .00      .075      .050      .000      .000   1713.50   1201.08
   .030512        0.        0.        0.         0        11         0       .00     49.90   1250.99
```

```
*SECNO 1.100
     1.100      2.38   1715.88   1715.87       .00   1716.66       .78       .00       .00   1714.00
     500.0      42.6     457.4        .0      13.1      62.3        .0        .0        .0   1716.00
       .00      3.25      7.35       .00      .075      .050      .000      .000   1713.50   1200.97
   .029695        0.        0.        0.         0         5         0       .00     50.12   1251.09

*SECNO 1.200
     1.200      2.39   1715.89   1715.86       .00   1716.66       .77       .00       .00   1714.00
     500.0      42.8     457.2        .0      13.2      62.6        .0        .0        .0   1716.00
       .00      3.23      7.31       .00      .075      .050      .000      .000   1713.50   1200.91
   .029281        0.        0.        0.         0         5         0       .00     50.24   1251.15

1
   04NOV93      12:00:39                                                                          PAGE   17

T1  Flow split at C543 right channel (Oxford Wash)
T2  Fountain Hills North FIS
T3  Q=600 C543R.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              10                            .031                                    1718.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   04NOV93      12:00:39                                                                          PAGE   18

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

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      2.62   1716.12   1716.12   1718.00   1716.94       .82       .00       .00   1714.00
     600.0      59.0     540.8        .2      16.9      71.6        .3        .0        .0   1716.00
       .00      3.48      7.55       .77      .075      .050      .050      .000   1713.50   1199.07
   .026951        0.        0.        0.         0        11         0       .00     57.65   1256.72

*SECNO 1.100
     1.100      2.63   1716.13   1716.11       .00   1716.94       .81       .00       .00   1714.00
     600.0      59.1     540.7        .2      17.0      71.7        .3        .0        .0   1716.00
       .00      3.48      7.54       .77      .075      .050      .050      .000   1713.50   1199.05
   .026816        0.        0.        0.         0         5         0       .00     57.78   1256.82

*SECNO 1.200
     1.200      2.64   1716.14   1716.11       .00   1716.95       .81       .00       .00   1714.00
     600.0      59.2     540.5        .3      17.1      71.9        .3        .0        .0   1716.00
       .00      3.47      7.52       .79      .075      .050      .050      .000   1713.50   1199.01
   .026544        0.        0.        0.         0         5         0       .00     58.03   1257.03

1
   04NOV93      12:00:39                                                                          PAGE   19


                                                                          THIS RUN EXECUTED 04NOV93     12:00:44
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

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

50  C543R.IH2.  29 Oct 9

SUMMARY PRINTOUT

      SECNO       Q       CWSEL     CRIWS      EG       TOPWID     DEPTH     10*KS     VCH

      1.000     50.00   1714.29       .00   1714.49     27.23       .79    309.92     3.55
      1.000    100.00   1714.59       .00   1714.90     31.54      1.09    309.38     4.51
      1.000    150.00   1714.82       .00   1715.22     34.92      1.32    306.42     5.13
      1.000    200.00   1715.01   1714.98   1715.49     37.71      1.51    308.92     5.64
      1.000    250.00   1715.18   1715.16   1715.73     40.17      1.68    309.70     6.06
      1.000    300.00   1715.34   1715.32   1715.94     42.49      1.84    305.51     6.38
*     1.000    400.00   1715.61   1715.61   1716.32     46.37      2.11    308.60     6.98
*     1.000    500.00   1715.86   1715.86   1716.65     49.90      2.36    305.12     7.42
*     1.000    600.00   1716.12   1716.12   1716.94     57.65      2.62    269.51     7.55

      1.100     50.00   1714.30       .00   1714.49     27.27       .80    304.62     3.53
      1.100    100.00   1714.59       .00   1714.90     31.58      1.09    305.71     4.49
      1.100    150.00   1714.83       .00   1715.22     34.97      1.33    303.47     5.12
      1.100    200.00   1715.02   1714.98   1715.49     37.75      1.52    306.33     5.63
      1.100    250.00   1715.19   1715.15   1715.73     40.22      1.69    307.37     6.04
      1.100    300.00   1715.35   1715.32   1715.95     42.54      1.85    303.41     6.36
*     1.100    400.00   1715.62   1715.61   1716.33     46.41      2.12    306.74     6.96
      1.100    500.00   1715.88   1715.87   1716.66     50.12      2.38    296.95     7.35
      1.100    600.00   1716.13   1716.11   1716.94     57.78      2.63    268.16     7.54
```

1.200	50.00	1714.30	.00	1714.49	27.35	.80	295.37	3.49
1.200	100.00	1714.60	.00	1714.91	31.66	1.10	298.97	4.45
1.200	150.00	1714.84	.00	1715.23	35.05	1.34	297.79	5.08
1.200	200.00	1715.03	.00	1715.50	37.84	1.53	301.35	5.60
1.200	250.00	1715.20	1715.16	1715.74	40.31	1.70	302.60	6.01
1.200	300.00	1715.36	1715.32	1715.95	42.63	1.86	299.18	6.33
1.200	400.00	1715.63	1715.61	1716.33	46.51	2.13	302.77	6.93
1.200	500.00	1715.89	1715.86	1716.66	50.24	2.39	292.81	7.31
1.200	600.00	1716.14	1716.11	1716.95	58.03	2.64	265.44	7.52

1

04NOV93 12:00:39 PAGE 20

SUMMARY OF ERRORS AND SPECIAL NOTES

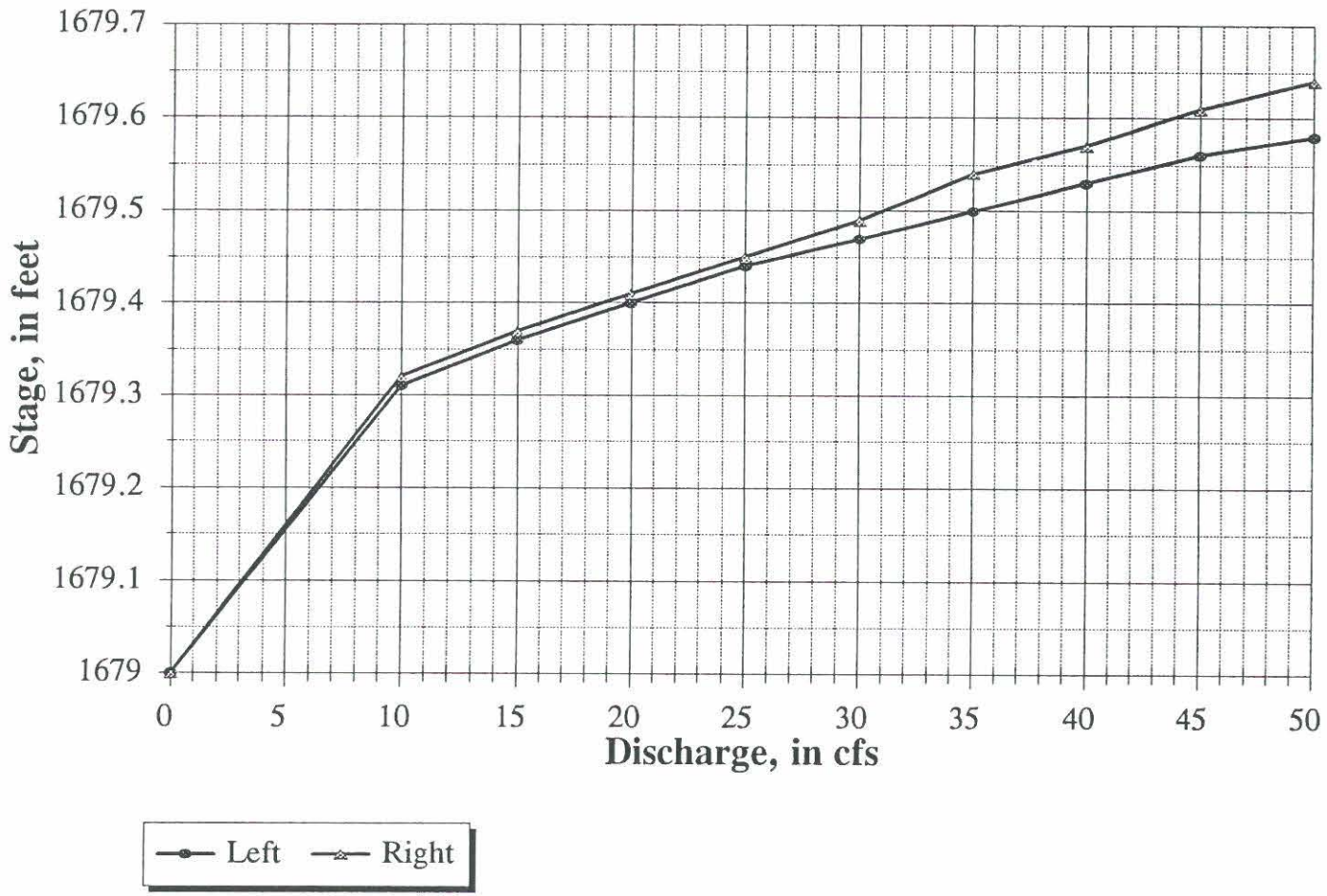
CAUTION SECNO= 1.000 PROFILE= 7 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 8 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 9 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 1.100 PROFILE= 7 CRITICAL DEPTH ASSUMED

C545 Flow Split Hydraulic Calculations

C545 HEC-2 Results

Discharge vs Stage Curve for Flow Split at C545



flowsplt.wb1

17-Nov-93

George V. Sabol Consulting Engineers, Inc.

SHEET 1 OF

CLIENT FCDMC

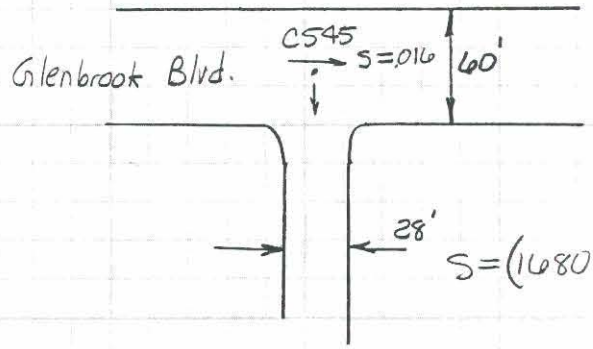
DATE 11/4/93

PROJECT Fountain Hills North FIS

BY TRL

SUBJECT C545 Flow Split

PROJECT NO. 35



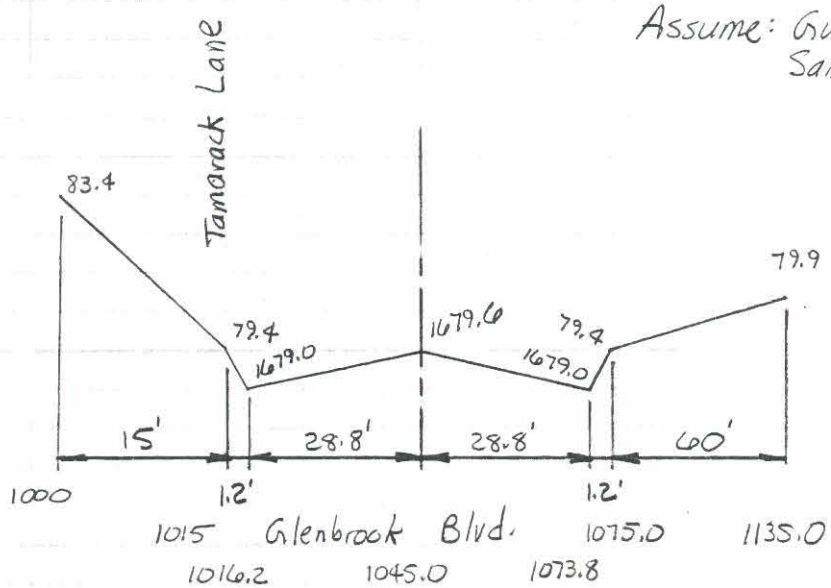
$S = (1680 - 1678)/125$

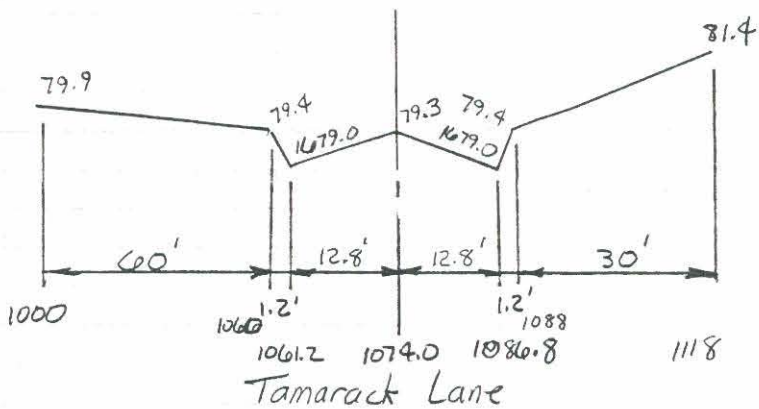
$= 0.016'/'$

$S = (1680 - 1678)/100 = 0.02'/'$

N

Assume: Gutters are at the Same elevation.





```
1*****************************************
****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    04NOV93    TIME   12:00:54 *
 *
 *****************************************
****************************************
```

```
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                   X
X     X  X        X     X             X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   04NOV93      12:00:54                                                                                    PAGE    1
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THIS RUN EXECUTED 04NOV93 12:00:54

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****************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
****************************************
```

```
T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q = 10  C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           .016                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2         3         4         8         5        26

QT        9        10        15        20        25        30        35        40        45        50
NC     .050      .050      .024        .1        .3
X1      1.0       7.0    1015.0    1075.0
GR   1683.4    1000.0    1679.4    1015.0    1679.0    1016.2    1679.6    1045.0    1679.0    1073.8
GR   1679.4    1075.0    1679.9    1135.0

X1      1.1                                   0.1       0.1       0.1

X1      1.2                                   0.1       0.1       0.1
1
   04NOV93      12:00:54                                                                                    PAGE    2

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

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000       .30   1679.30   1679.30   1679.40   1679.37       .08       .00       .00   1679.40
      10.0        .0      10.0        .0        .0       4.5        .0       .0        .0   1679.40
       .00       .00      2.20       .00      .000      .024      .000      .000   1679.00   1015.30
   .016001        0.        0.        0.         0        19         0       .00     30.46   1074.70

 *SECNO 1.100

 3265 DIVIDED FLOW

     1.100       .30   1679.30   1679.30       .00   1679.38       .07       .00       .00   1679.40
      10.0        .0      10.0        .0        .0       4.6        .0       .0        .0   1679.40
       .00       .00      2.18       .00      .000      .024      .000      .000   1679.00   1015.30
   .015555        0.        0.        0.         0         5         0       .00     30.62   1074.70

 *SECNO 1.200

 3265 DIVIDED FLOW

     1.200       .31   1679.31       .00       .00   1679.38       .07       .00       .00   1679.40
      10.0        .0      10.0        .0        .0       4.7        .0       .0        .0   1679.40
       .00       .00      2.13       .00      .000      .024      .000      .000   1679.00   1015.29
   .014675        0.        0.        0.         0         0         0       .00     30.95   1074.71
```

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1
   04NOV93       12:00:54                                                                                    PAGE    3

 T1  Flow split at C545 left channel (Glenbrook Blvd.)
 T2  Fountain Hills North FIS
 T3  Q= 15 C545L.IH2.  04 Nov 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 3                                .016                                         1679.4

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2

1
   04NOV93       12:00:54                                                                                    PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.000       .35   1679.35   1679.35   1679.40   1679.44       .09       .00       .00   1679.40
       15.0        .0      15.0        .0        .0       6.2        .0        .0        .0   1679.40
        .00       .00      2.41       .00      .000      .024      .000      .000   1679.00   1015.15
    .015550        0.        0.        0.         0        15         0       .00     35.65   1074.85

 *SECNO 1.100

 3265 DIVIDED FLOW

      1.100       .35   1679.35   1679.35       .00   1679.44       .09       .00       .00   1679.40
       15.0        .0      15.0        .0        .0       6.3        .0        .0        .0   1679.40
        .00       .00      2.39       .00      .000      .024      .000      .000   1679.00   1015.15
    .015179        0.        0.        0.         0         5         0       .00     35.81   1074.85

 *SECNO 1.200

 3265 DIVIDED FLOW

      1.200       .36   1679.36   1679.35       .00   1679.44       .09       .00       .00   1679.40
       15.0        .0      15.0        .0        .0       6.4        .0        .0        .0   1679.40
        .00       .00      2.34       .00      .000      .024      .000      .000   1679.00   1015.14
    .014441        0.        0.        0.         0         5         0       .00     36.15   1074.86

1
   04NOV93       12:00:54                                                                                    PAGE    5

 T1  Flow split at C545 left channel (Glenbrook Blvd.)
 T2  Fountain Hills North FIS
 T3  Q= 20 C545L.IH2.  04 Nov 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                                .016                                         1679.4

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3

1
   04NOV93       12:00:54                                                                                    PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.000       .39   1679.39   1679.39   1679.40   1679.49       .10       .00       .00   1679.40
       20.0        .0      20.0        .0        .0       7.8        .0        .0        .0   1679.40
        .00       .00      2.56       .00      .000      .024      .000      .000   1679.00   1015.03
    .015120        0.        0.        0.         0         5         0       .00     39.92   1074.97

 *SECNO 1.100

 3265 DIVIDED FLOW

      1.100       .40   1679.40   1679.39       .00   1679.49       .10       .00       .00   1679.40
       20.0        .0      20.0        .0        .0       7.9        .0        .0        .0   1679.40
        .00       .00      2.52       .00      .000      .024      .000      .000   1679.00   1015.02
    .014554        0.        0.        0.         0         5         0       .00     40.21   1074.98
```

```
*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .40   1679.40   1679.39       .00   1679.50       .10       .00       .00   1679.40
      20.0        .0      20.0        .0        .0       8.1        .0        .0        .0   1679.40
       .00       .00      2.48       .00      .000      .024      .000      .000   1679.00   1015.01
   .013899        0.        0.        0.         0         5         0       .00     40.55   1074.99


1
   04NOV93      12:00:54                                                                                PAGE    7

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 25 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                           .016                                   1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4

1
   04NOV93      12:00:54                                                                                PAGE    8

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

*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .43   1679.43   1679.43   1679.40   1679.54       .11       .00       .00   1679.40
      25.0        .0      25.0        .0        .0       9.5        .1        .0        .0   1679.40
       .00       .04      2.63       .04      .000      .024      .050      .000   1679.00   1014.88
   .013981        0.        0.        0.         0         8         0       .00     47.70   1078.76


*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .43   1679.43   1679.43       .00   1679.54       .11       .00       .00   1679.40
      25.0        .0      25.0        .0        .0       9.5        .1        .0        .0   1679.40
       .00       .03      2.62       .03      .000      .024      .050      .000   1679.00   1014.88
   .013748        0.        0.        0.         0         5         0       .00     47.99   1078.93


*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .44   1679.44   1679.43       .00   1679.54       .10       .00       .00   1679.40
      25.0        .0      25.0        .0        .0       9.7        .1        .0        .0   1679.40
       .00       .03      2.58       .03      .000      .024      .050      .000   1679.00   1014.87
   .013278        0.        0.        0.         0         5         0       .00     48.61   1079.26


1
   04NOV93      12:00:54                                                                                PAGE    9

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 30 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                           .016                                   1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      5

1
   04NOV93      12:00:54                                                                                PAGE   10

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

*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .46   1679.46   1679.46   1679.40   1679.58       .12       .00       .00   1679.40
      30.0        .0      29.9        .1        .0      10.9        .2        .0        .0   1679.40
       .00       .03      2.73       .35      .050      .024      .050      .000   1679.00   1014.76
   .013637        0.        0.        0.         0        11         0       .00     54.73   1082.60
```

```
*SECNO 1.100

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.100       .47   1679.47   1679.46       .00   1679.58       .11       .00       .00   1679.40
      30.0        .0      29.9        .1        .0      11.0        .3        .0        .0   1679.40
       .00       .03      2.72       .35      .050      .024      .050      .000   1679.00   1014.76
   .013423        0.        0.        0.         0         5         0       .00     55.02   1082.76

*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .47   1679.47   1679.46       .00   1679.58       .11       .00       .00   1679.40
      30.0        .0      29.9        .1        .0      11.1        .3        .0        .0   1679.40
       .00       .03      2.68       .35      .050      .024      .050      .000   1679.00   1014.75
   .012971        0.        0.        0.         0         5         0       .00     55.67   1083.12

1
   04NOV93      12:00:54                                                                          PAGE   11

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 35 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                7                           .016                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      6

1
   04NOV93      12:00:54                                                                          PAGE   12

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

*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .49   1679.49   1679.49   1679.40   1679.61       .12       .00       .00   1679.40
      35.0        .0      34.8        .2        .0      12.4        .5        .0        .0   1679.40
       .00       .03      2.79       .44      .050      .024      .050      .000   1679.00   1014.65
   .013004        0.        0.        0.         0        11         0       .00     61.57   1086.34

*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .50   1679.50   1679.49       .00   1679.62       .12       .00       .00   1679.40
      35.0        .0      34.8        .2        .0      12.5        .6        .0        .0   1679.40
       .00       .03      2.78       .44      .050      .024      .050      .000   1679.00   1014.64
   .012812        0.        0.        0.         0         5         0       .00     61.86   1086.50

*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .50   1679.50   1679.49       .00   1679.62       .12       .00       .00   1679.40
      35.0        .0      34.7        .3        .0      12.7        .6        .0        .0   1679.40
       .00       .03      2.75       .45      .050      .024      .050      .000   1679.00   1014.63
   .012421        0.        0.        0.         0         5         0       .00     62.48   1086.84

1
   04NOV93      12:00:54                                                                          PAGE   13

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 40 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                8                           .016                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      7

1
   04NOV93      12:00:54                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
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```
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .52   1679.52   1679.52   1679.40   1679.65       .12       .00       .00   1679.40
      40.0        .0      39.5       .5        .0      13.9        .9        .0        .0   1679.40
       .00       .03      2.85       .52      .050      .024      .050      .000   1679.00   1014.54
   .012593        0.        0.        0.         0        11         0       .00     67.63   1089.65


*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .52   1679.52   1679.52       .00   1679.65       .12       .00       .00   1679.40
      40.0        .0      39.5       .5        .0      13.9        .9        .0        .0   1679.40
       .00       .03      2.84       .52      .050      .024      .050      .000   1679.00   1014.54
   .012432        0.        0.        0.         0         5         0       .00     67.90   1089.79


*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .53   1679.53   1679.52       .00   1679.65       .12       .00       .00   1679.40
      40.0        .0      39.5       .5        .0      14.1       1.0        .0        .0   1679.40
       .00       .03      2.81       .52      .050      .024      .050      .000   1679.00   1014.53
   .012100        0.        0.        0.         0         5         0       .00     68.46   1090.10


1
   04NOV93      12:00:54                                                                          PAGE   15

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 45 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                9                           .016                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      12:00:54                                                                          PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .55   1679.55   1679.55   1679.40   1679.68       .13       .00       .00   1679.40
      45.0        .0      44.2       .8        .0      15.3       1.3        .0        .0   1679.40
       .00       .03      2.90       .58      .050      .024      .050      .000   1679.00   1014.44
   .012128        0.        0.        0.         0        11         0       .00     73.42   1092.81


*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .55   1679.55   1679.55       .00   1679.68       .13       .00       .00   1679.40
      45.0        .0      44.2       .8        .0      15.3       1.3        .0        .0   1679.40
       .00       .03      2.88       .58      .050      .024      .050      .000   1679.00   1014.44
   .011979        0.        0.        0.         0         5         0       .00     73.69   1092.96


*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .56   1679.56   1679.55       .00   1679.68       .12       .00       .00   1679.40
      45.0        .0      44.2       .8        .0      15.5       1.4        .0        .0   1679.40
       .00       .03      2.85       .58      .050      .024      .050      .000   1679.00   1014.43
   .011673        0.        0.        0.         0         5         0       .00     74.26   1093.27


1
   04NOV93      12:00:54                                                                          PAGE   17

T1  Flow split at C545 left channel (Glenbrook Blvd.)
T2  Fountain Hills North FIS
T3  Q= 50 C545L.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                10                          .016                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   04NOV93      12:00:54                                                                          PAGE   18
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .57   1679.57   1679.57   1679.40   1679.70       .13       .00       .00   1679.40
      50.0        .0      48.9       1.1        .1      16.5       1.7        .0        .0   1679.40
       .00       .03      2.96       .63      .050      .024      .050      .000   1679.00   1014.36
   .012000        0.        0.        0.         0        14         0       .00     78.31   1095.48

*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .57   1679.57   1679.57       .00   1679.71       .13       .00       .00   1679.40
      50.0        .0      48.9       1.1        .1      16.6       1.8        .0        .0   1679.40
       .00       .03      2.95       .63      .050      .024      .050      .000   1679.00   1014.36
   .011858        0.        0.        0.         0         5         0       .00     78.57   1095.63

*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .58   1679.58   1679.57       .00   1679.71       .13       .00       .00   1679.40
      50.0        .0      48.8       1.1        .1      16.7       1.8        .0        .0   1679.40
       .00       .03      2.92       .63      .050      .024      .050      .000   1679.00   1014.35
   .011565        0.        0.        0.         0         5         0       .00     79.14   1095.93

1
   04NOV93      12:00:54                                                                                  PAGE   19


                                                                                  THIS RUN EXECUTED 04NOV93     12:00:58
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

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

10  C545L.IH2.  04 Nov 9

SUMMARY PRINTOUT

      SECNO        Q        CWSEL      CRIWS       EG       TOPWID     DEPTH      10*KS      VCH

       1.000     10.00     1679.30    1679.30    1679.37     30.46       .30     160.01      2.20
*      1.000     15.00     1679.35    1679.35    1679.44     35.65       .35     155.50      2.41
*      1.000     20.00     1679.39    1679.39    1679.49     39.92       .39     151.20      2.56
*      1.000     25.00     1679.43    1679.43    1679.54     47.70       .43     139.81      2.63
*      1.000     30.00     1679.46    1679.46    1679.58     54.73       .46     136.37      2.73
*      1.000     35.00     1679.49    1679.49    1679.61     61.57       .49     130.04      2.79
*      1.000     40.00     1679.52    1679.52    1679.65     67.63       .52     125.93      2.85
*      1.000     45.00     1679.55    1679.55    1679.68     73.42       .55     121.28      2.90
*      1.000     50.00     1679.57    1679.57    1679.70     78.31       .57     120.00      2.96

       1.100     10.00     1679.30    1679.30    1679.38     30.62       .30     155.55      2.18
       1.100     15.00     1679.35    1679.35    1679.44     35.81       .35     151.79      2.39
       1.100     20.00     1679.40    1679.39    1679.49     40.21       .40     145.54      2.52
       1.100     25.00     1679.43    1679.43    1679.54     47.99       .43     137.48      2.62
*      1.100     30.00     1679.47    1679.46    1679.58     55.02       .47     134.23      2.72
       1.100     35.00     1679.50    1679.49    1679.62     61.86       .50     128.12      2.78
       1.100     40.00     1679.52    1679.52    1679.65     67.90       .52     124.32      2.84
       1.100     45.00     1679.55    1679.55    1679.68     73.69       .55     119.79      2.88
       1.100     50.00     1679.57    1679.57    1679.71     78.57       .57     118.58      2.95

       1.200     10.00     1679.31        .00    1679.38     30.95       .31     146.75      2.13
       1.200     15.00     1679.36    1679.35    1679.44     36.15       .36     144.41      2.34
       1.200     20.00     1679.40    1679.39    1679.50     40.55       .40     138.99      2.48
       1.200     25.00     1679.44    1679.43    1679.54     48.61       .44     132.78      2.58
       1.200     30.00     1679.47    1679.46    1679.58     55.67       .47     129.71      2.68
       1.200     35.00     1679.50    1679.49    1679.62     62.48       .50     124.21      2.75
       1.200     40.00     1679.53    1679.52    1679.65     68.46       .53     121.00      2.81
       1.200     45.00     1679.56    1679.55    1679.68     74.26       .56     116.73      2.85
       1.200     50.00     1679.58    1679.57    1679.71     79.14       .58     115.65      2.92

1
   04NOV93      12:00:54                                                                                  PAGE   20


  SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.100  PROFILE=  5  CRITICAL DEPTH ASSUMED
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1*****************************************
****************************************
 *  HEC-2 WATER SURFACE PROFILES          *                                    *  U.S. ARMY CORPS OF ENGINEERS
 *                                        *                                    *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991            *                                    *  609 SECOND STREET, SUITE D
 *                                        *                                    *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    04NOV93    TIME   12:03:45 *                                    *          (916) 756-1104
 *****************************************
****************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X         X     X            X     X
                                        X     X  X         X                        X
                                        XXXXXXX  XXXX      X           XXXXX    XXXXX
                                        X     X  X         X                  X
                                        X     X  X         X     X            X
                                        X     X  XXXXXXX   XXXXX              XXXXXXX
1
   04NOV93      12:03:45                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 04NOV93    12:03:45
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q = 50  C545R.IH2.  04 Nov 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .020                                    1679.4

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9        10        15        20        25        30        35        40        45        50
 NC     .050      .050      .024        .1        .3
 X1      1.0       7.0    1060.0    1088.0
 GR   1679.9    1000.0    1679.4    1060.0    1679.0    1061.2    1679.3    1074.0    1679.0    1086.8
 GR   1679.4    1088.0    1681.4    1118.0

 X1      1.1                                     0.1       0.1       0.1

 X1      1.2                                     0.1       0.1       0.1
1
   04NOV93      12:03:45                                                                                    PAGE    2

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

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .32   1679.32   1679.32   1679.40   1679.39      .08       .00       .00   1679.40
       10.0       .0      10.0       .0        .0       4.5       .0        .0        .0   1679.40
        .00      .00      2.20       .00      .000      .024     .000      .000   1679.00   1060.25
    .013979       0.        0.        0.         0        14        0       .00     27.50   1087.75


 *SECNO 1.100
      1.100      .32   1679.32       .00       .00   1679.39      .07       .00       .00   1679.40
       10.0       .0      10.0       .0        .0       4.6       .0        .0        .0   1679.40
        .00      .00      2.18       .00      .000      .024     .000      .000   1679.00   1060.25
    .013612       0.        0.        0.         0         0        0       .00     27.50   1087.75


 *SECNO 1.200
      1.200      .32   1679.32       .00       .00   1679.39      .07       .00       .00   1679.40
       10.0       .0      10.0       .0        .0       4.7       .0        .0        .0   1679.40
        .00      .00      2.15       .00      .000      .024     .000      .000   1679.00   1060.24
    .012916       0.        0.        0.         0         0        0       .00     27.52   1087.76


1
   04NOV93      12:03:45                                                                                    PAGE    3

 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q= 15 C545R.IH2.  04 Nov 93 trl
```

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           .020                                    1679.4
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2
1
   04NOV93      12:03:45                                                                                    PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .36  1679.36  1679.36  1679.40  1679.47      .11       .00       .00  1679.40
       15.0       .0     15.0       .0       .0      5.7       .0       .0       .0  1679.40
        .00      .00     2.63      .00     .000     .024     .000     .000   1679.00  1060.13
    .015053       0.       0.       0.        0       15        0      .00     27.74  1087.87

 *SECNO 1.100
      1.100      .36  1679.36  1679.36      .00  1679.47      .10       .00       .00  1679.40
       15.0       .0     15.0       .0       .0      5.8       .0       .0       .0  1679.40
        .00      .00     2.59      .00     .000     .024     .000     .000   1679.00  1060.12
    .014316       0.       0.       0.        0        5        0      .00     27.76  1087.88

 *SECNO 1.200
      1.200      .37  1679.37  1679.36      .00  1679.47      .10       .00       .00  1679.40
       15.0       .0     15.0       .0       .0      5.9       .0       .0       .0  1679.40
        .00      .00     2.55      .00     .000     .024     .000     .000   1679.00  1060.11
    .013574       0.       0.       0.        0        5        0      .00     27.78  1087.89

1
   04NOV93      12:03:45                                                                                    PAGE    5

 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q= 20 C545R.IH2.  04 Nov 93 trl
 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                4                           .020                                    1679.4
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3
1
   04NOV93      12:03:45                                                                                    PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .40  1679.40  1679.40  1679.40  1679.53      .13       .00       .00  1679.40
       20.0       .0     20.0       .0       .0      7.0       .0       .0       .0  1679.40
        .00      .03     2.85      .00     .000     .024     .000     .000   1679.00  1059.41
    .013500       0.       0.       0.        0        5        0      .00     28.66  1088.07

 *SECNO 1.100
      1.100      .41  1679.41  1679.40      .00  1679.53      .12       .00       .00  1679.40
       20.0       .0     20.0       .0       .0      7.1       .0       .0       .0  1679.40
        .00      .03     2.83      .00     .000     .024     .000     .000   1679.00  1059.25
    .013262       0.       0.       0.        0        5        0      .00     28.84  1088.09

 *SECNO 1.200
      1.200      .41  1679.41  1679.40      .00  1679.53      .12       .00       .00  1679.40
       20.0       .0     20.0       .0       .0      7.1       .0       .0       .0  1679.40
        .00      .03     2.80      .00     .050     .024     .000     .000   1679.00  1058.92
    .012781       0.       0.       0.        0        5        0      .00     29.22  1088.14

1
   04NOV93      12:03:45                                                                                    PAGE    7

 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q= 25 C545R.IH2.  04 Nov 93 trl
 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                5                           .020                                    1679.4
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      4
```

```
1
   04NOV93       12:03:45                                                                                                PAGE    8

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

 *PROF 4

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .45   1679.45    1679.45    1679.40    1679.59       .14        .00        .00    1679.40
       25.0        .0      25.0         .0         .1        8.2        .0        .0         .0    1679.40
        .00       .27      3.04        .03       .050       .024      .050       .000    1679.00    1054.29
    .012444        0.        0.         0.          0          8         0        .00      34.43    1088.71

 *SECNO 1.100
      1.100       .45   1679.45    1679.45        .00    1679.59       .14        .00        .00    1679.40
       25.0        .0      25.0         .0         .1        8.2        .0        .0         .0    1679.40
        .00       .28      3.03        .03       .050       .024      .050       .000    1679.00    1054.14
    .012271        0.        0.         0.          0          5         0        .00      34.59    1088.73

 *SECNO 1.200
      1.200       .45   1679.45    1679.45        .00    1679.59       .14        .00        .00    1679.40
       25.0        .0      25.0         .0         .2        8.3        .0        .0         .0    1679.40
        .00       .28      3.00        .03       .050       .024      .050       .000    1679.00    1053.83
    .011916        0.        0.         0.          0          5         0        .00      34.94    1088.77

1
   04NOV93       12:03:45                                                                                                PAGE    9

 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q= 30 C545R.IH2.  04 Nov 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  6                             .020                                         1679.4

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       5

1
   04NOV93       12:03:45                                                                                                PAGE   10

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

 *PROF 5

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .48   1679.48    1679.48    1679.40    1679.65       .16        .00        .00    1679.40
       30.0        .2      29.8         .0         .4        9.3        .1        .0         .0    1679.40
        .00       .39      3.22        .03       .050       .024      .050       .000    1679.00    1049.80
    .011915        0.        0.         0.          0         11         0        .00      39.47    1089.27

 *SECNO 1.100
      1.100       .49   1679.49    1679.49        .00    1679.65       .16        .00        .00    1679.40
       30.0        .2      29.8         .0         .5        9.3        .1        .0         .0    1679.40
        .00       .40      3.20        .03       .050       .024      .050       .000    1679.00    1049.58
    .011691        0.        0.         0.          0          5         0        .00      39.72    1089.30

 *SECNO 1.200
      1.200       .49   1679.49    1679.49        .00    1679.65       .16        .00        .00    1679.40
       30.0        .2      29.8         .0         .5        9.4        .1        .0         .0    1679.40
        .00       .40      3.18        .03       .050       .024      .050       .000    1679.00    1049.28
    .011387        0.        0.         0.          0          5         0        .00      40.06    1089.34

1
   04NOV93       12:03:45                                                                                                PAGE   11

 T1  Flow split at C545 right channel (Tamarack Lane)
 T2  Fountain Hills North FIS
 T3  Q= 35 C545R.IH2.  04 Nov 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  7                             .020                                         1679.4

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       6

1
   04NOV93       12:03:45                                                                                                PAGE   12

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

```
*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .53   1679.53   1679.53   1679.40   1679.69       .17       .00       .00   1679.40
      35.0        .5      34.5       .1        .9      10.4        .1        .0        .0   1679.40
       .00       .49      3.32       .49      .050      .024      .050      .000   1679.00   1044.93
   .010819        0.        0.        0.         0        11         0       .00     44.96   1089.88


*SECNO 1.100
     1.100       .53   1679.53   1679.53       .00   1679.70       .16       .00       .00   1679.40
      35.0        .5      34.4       .1       1.0      10.5        .1        .0        .0   1679.40
       .00       .49      3.28       .49      .050      .024      .050      .000   1679.00   1044.43
   .010403        0.        0.        0.         0         5         0       .00     45.52   1089.95


*SECNO 1.200
     1.200       .54   1679.54   1679.53       .00   1679.70       .16       .00       .00   1679.40
      35.0        .5      34.4       .1       1.1      10.6        .1        .0        .0   1679.40
       .00       .49      3.25       .49      .050      .024      .050      .000   1679.00   1044.11
   .010145        0.        0.        0.         0         5         0       .00     45.88   1089.99


1
   04NOV93      12:03:45                                                                          PAGE   13

T1  Flow split at C545 right channel (Tamarack Lane)
T2  Fountain Hills North FIS
T3  Q= 40 C545R.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 8                           .020                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7

1
   04NOV93      12:03:45                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .56   1679.56   1679.56   1679.40   1679.74       .17       .00       .00   1679.40
      40.0        .9      39.0       .1       1.6      11.5        .2        .0        .0   1679.40
       .00       .56      3.40       .56      .050      .024      .050      .000   1679.00   1040.30
   .009947        0.        0.        0.         0        11         0       .00     50.16   1090.46


*SECNO 1.100
     1.100       .57   1679.57   1679.56       .00   1679.74       .17       .00       .00   1679.40
      40.0        .9      39.0       .1       1.6      11.5        .2        .0        .0   1679.40
       .00       .56      3.39       .56      .050      .024      .050      .000   1679.00   1040.18
   .009862        0.        0.        0.         0         5         0       .00     50.30   1090.48


*SECNO 1.200
     1.200       .57   1679.57   1679.56       .00   1679.74       .17       .00       .00   1679.40
      40.0        .9      38.9       .1       1.7      11.6        .2        .0        .0   1679.40
       .00       .56      3.37       .56      .050      .024      .050      .000   1679.00   1039.93
   .009685        0.        0.        0.         0         5         0       .00     50.58   1090.51


1
   04NOV93      12:03:45                                                                          PAGE   15

T1  Flow split at C545 right channel (Tamarack Lane)
T2  Fountain Hills North FIS
T3  Q= 45 C545R.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 9                           .020                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      12:03:45                                                                          PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .60   1679.60   1679.60   1679.40   1679.78       .18       .00       .00   1679.40
      45.0       1.5      43.3       .2        2.4      12.5        .3        .0        .0   1679.40
```

```
      .00       .62      3.47       .62      .050      .024      .050      .000   1679.00   1035.95
  .009264        0.        0.        0.         0        11         0       .00     55.06   1091.01

*SECNO 1.100
     1.100       .60   1679.60   1679.60       .00   1679.78       .18       .00       .00   1679.40
      45.0       1.5      43.3        .2       2.4      12.5        .3        .0        .0   1679.40
      .00        .62      3.46       .62      .050      .024      .050      .000   1679.00   1035.83
  .009190        0.        0.        0.         0         5         0       .00     55.19   1091.02

*SECNO 1.200
     1.200       .61   1679.61   1679.60       .00   1679.78       .18       .00       .00   1679.40
      45.0       1.5      43.3        .2       2.5      12.6        .3        .0        .0   1679.40
      .00        .62      3.44       .61      .050      .024      .050      .000   1679.00   1035.60
  .009045        0.        0.        0.         0         5         0       .00     55.45   1091.05

1
   04NOV93      12:03:45                                                                          PAGE   17

T1  Flow split at C545 right channel (Tamarack Lane)
T2  Fountain Hills North FIS
T3  Q= 50 C545R.IH2.  04 Nov 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              10                            .020                                    1679.4

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   04NOV93      12:03:45                                                                          PAGE   18

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

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .63   1679.63   1679.63   1679.40   1679.82       .19       .00       .00   1679.40
      50.0       2.1      47.6        .3       3.2      13.3        .4        .0        .0   1679.40
      .00        .67      3.58       .67      .050      .024      .050      .000   1679.00   1032.49
  .009087        0.        0.        0.         0        14         0       .00     58.95   1091.44

*SECNO 1.100
     1.100       .63   1679.63   1679.63       .00   1679.82       .19       .00       .00   1679.40
      50.0       2.1      47.6        .3       3.2      13.4        .4        .0        .0   1679.40
      .00        .67      3.56       .67      .050      .024      .050      .000   1679.00   1032.24
  .008942        0.        0.        0.         0         5         0       .00     59.23   1091.47

*SECNO 1.200
     1.200       .64   1679.64   1679.63       .00   1679.82       .19       .00       .00   1679.40
      50.0       2.2      47.6        .3       3.3      13.4        .4        .0        .0   1679.40
      .00        .67      3.55       .66      .050      .024      .050      .000   1679.00   1032.01
  .008808        0.        0.        0.         0         5         0       .00     59.49   1091.50

1
   04NOV93      12:03:45                                                                          PAGE   19

                                                                    THIS RUN EXECUTED 04NOV93     12:03:50
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

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

50  C545R.IH2.  04 Nov 9

SUMMARY PRINTOUT

      SECNO       Q        CWSEL     CRIWS     EG        TOPWID    DEPTH     10*KS     VCH

*     1.000    10.00     1679.32   1679.32   1679.39     27.50       .32    139.79     2.20
*     1.000    15.00     1679.36   1679.36   1679.47     27.74       .36    150.53     2.63
*     1.000    20.00     1679.40   1679.40   1679.53     28.66       .40    135.00     2.85
*     1.000    25.00     1679.45   1679.45   1679.59     34.43       .45    124.44     3.04
*     1.000    30.00     1679.48   1679.48   1679.65     39.47       .48    119.15     3.22
*     1.000    35.00     1679.53   1679.53   1679.69     44.96       .53    108.19     3.32
*     1.000    40.00     1679.56   1679.56   1679.74     50.16       .56     99.47     3.40
*     1.000    45.00     1679.60   1679.60   1679.78     55.06       .60     92.64     3.47
*     1.000    50.00     1679.63   1679.63   1679.82     58.95       .63     90.87     3.58

      1.100    10.00     1679.32       .00   1679.39     27.50       .32    136.12     2.18
      1.100    15.00     1679.36   1679.36   1679.47     27.76       .36    143.16     2.59
      1.100    20.00     1679.41   1679.40   1679.53     28.84       .41    132.62     2.83
      1.100    25.00     1679.45   1679.45   1679.59     34.59       .45    122.71     3.03
      1.100    30.00     1679.49   1679.49   1679.65     39.72       .49    116.91     3.20
      1.100    35.00     1679.53   1679.53   1679.70     45.52       .53    104.03     3.28
      1.100    40.00     1679.57   1679.56   1679.74     50.30       .57     98.62     3.39
```

1.100	45.00	1679.60	1679.60	1679.78	55.19	.60	91.90	3.46
1.100	50.00	1679.63	1679.63	1679.82	59.23	.63	89.42	3.56
1.200	10.00	1679.32	.00	1679.39	27.52	.32	129.16	2.15
1.200	15.00	1679.37	1679.36	1679.47	27.78	.37	135.74	2.55
1.200	20.00	1679.41	1679.40	1679.53	29.22	.41	127.81	2.80
1.200	25.00	1679.45	1679.45	1679.59	34.94	.45	119.16	3.00
1.200	30.00	1679.49	1679.49	1679.65	40.06	.49	113.87	3.18
1.200	35.00	1679.54	1679.53	1679.70	45.88	.54	101.45	3.25
1.200	40.00	1679.57	1679.56	1679.74	50.58	.57	96.85	3.37
1.200	45.00	1679.61	1679.60	1679.78	55.45	.61	90.45	3.44
1.200	50.00	1679.64	1679.63	1679.82	59.49	.64	88.08	3.55

1

04NOV93 12:03:45 PAGE 20

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
```

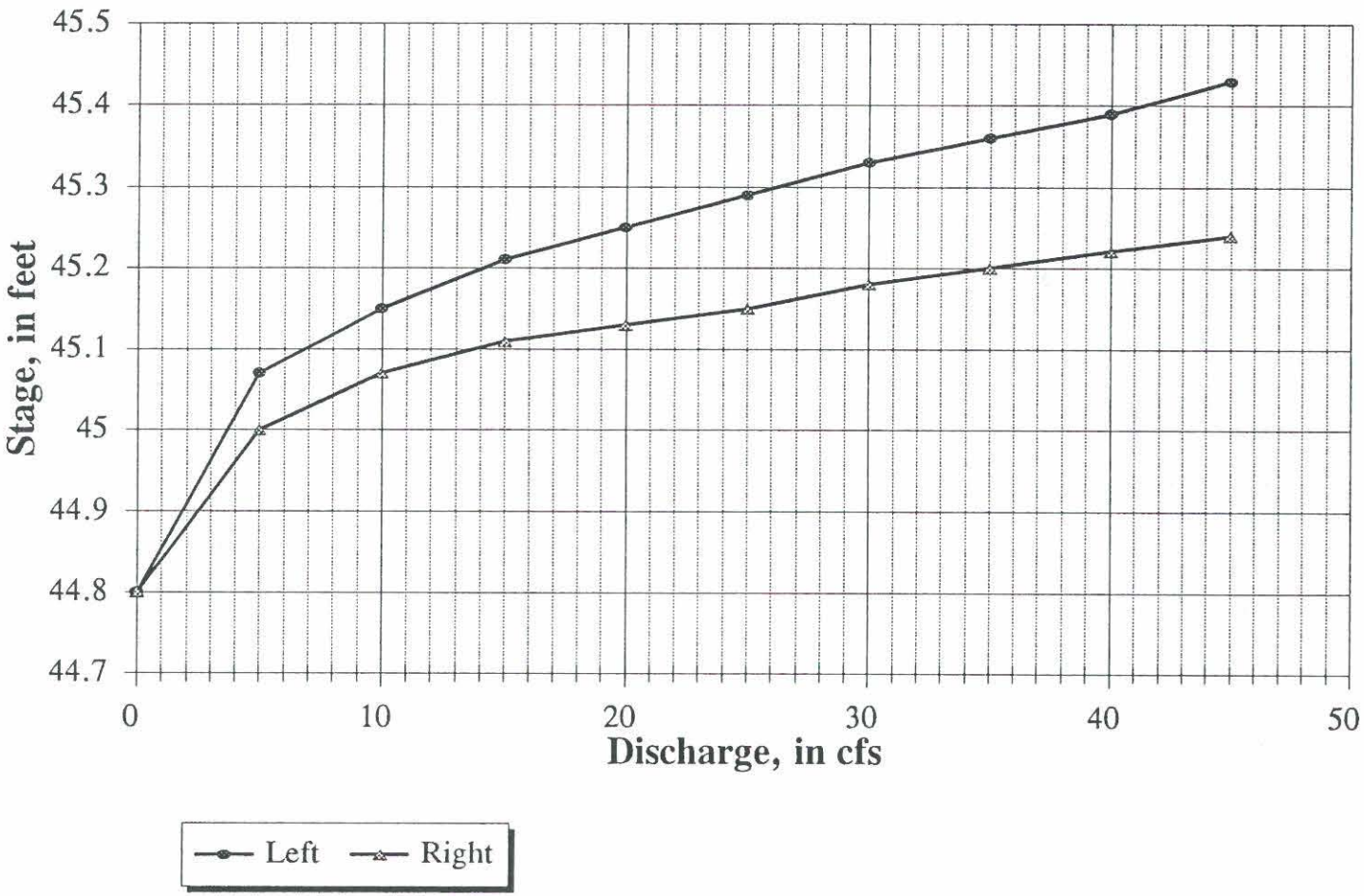
C611 Flow Split Hydraulic Calculations

Refer to Appendix A for supporting calculations

C614 Flow Split Hydraulic Calculations

C614 HEC-2 Results

Discharge vs Stage Curve for Flow Split at C614



flowsplt.wb1

17-Nov-93

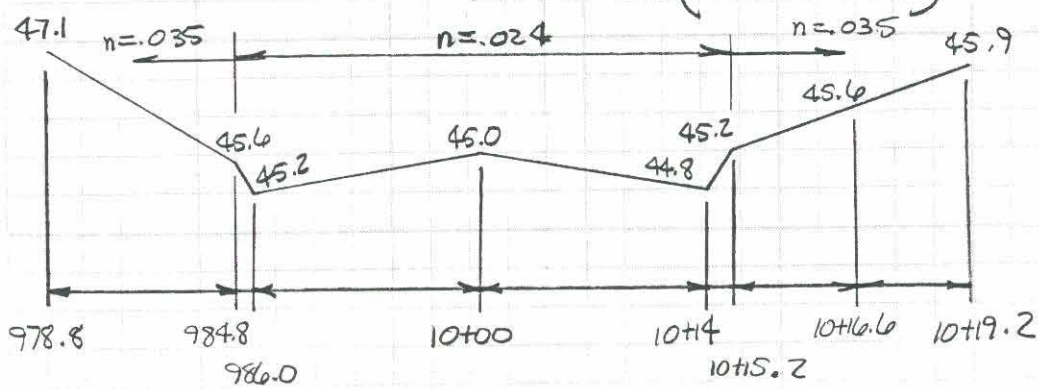
GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 1
DATE 10/28/93
BY TRL
PROJECT NO. 35

CLIENT FCDMC
PROJECT Fountain Hills North FIS
SUBJECT C614 Flow Split

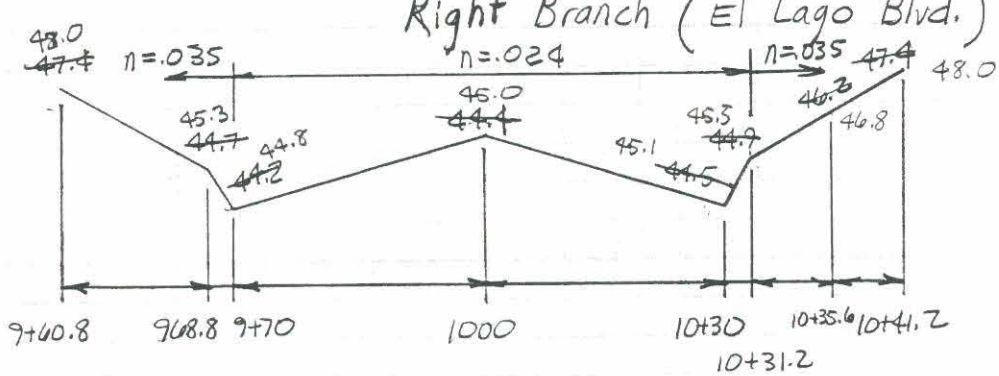
C614

Left Branch (Cavern Drive)



$S = (45.0 - 43.4)/50 = 3.2\%$

Right Branch (El Lago Blvd.)



Adjust ℄ Elev to match C614

$S = (46.5 - 44.4)/75 = 2.8\%$

Summary

Q	Stage Left	Stage Right
0	44.8	44.8
5	45.07	45.00
10	45.15	45.07
15	45.21	45.11
20	45.25	45.13
25	45.29	45.15
30	45.33	45.18
35	45.36	45.20
40	45.39	45.22
45	45.43	45.24

Stage	Discharge Left	Discharge Right	Discharge Total
44.80	0	0	0
44.90	1.8	2.5	4.3
45.00	3.5	5.0	8.5
45.10	6.5	13.5	20.0
45.20	14.0	35.0	49.0
45.30	25.5	60.0	85.5

```
1*****************************************
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
*                                        *
 *                                       *
*                                        *
 *  Version   4.6.2;  May 1991            *
*                                        *
 *                                       *
*                                        *
 *  RUN DATE    04NOV93    TIME   11:59:30  *
*                                        *
 *****************************************
*************************************
```

```
 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
```

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

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1
   04NOV93       11:59:30                                                                    PAGE    1

                                                                  THIS RUN EXECUTED 04NOV93     11:59:30
 *************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 *************************************

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3Q = 5  C614L.IH2.  28 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .032                                    45.6

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
       1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9         5        10        15        20        25        30        35        40        45
 NC     .035      .035      .024        .1        .3
 X1      1.0       8.0     984.8    1015.2
 GR     47.1     978.8      45.6     984.8      45.2     986.0      45.0    1000.0      44.8    1014.0
 GR     45.2    1015.2      45.6    1016.6      45.9    1019.2

 X1      1.1                                    0.1       0.1       0.1

 X1      1.2                                    0.1       0.1       0.1
1
   04NOV93       11:59:30                                                                    PAGE    2

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

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .26     45.06     45.06     45.60     45.12       .07       .00       .00     45.60
        5.0        .0       5.0        .0        .0       2.4        .0        .0        .0     45.20
        .00       .00      2.06       .00      .000      .024      .000      .000     44.80    995.96
    .017082        0.        0.        0.         0        17         0       .00     18.82   1014.77

 *SECNO 1.100
      1.100       .26     45.06     45.06       .00     45.13       .06       .00       .00     45.60
        5.0        .0       5.0        .0        .0       2.5        .0        .0        .0     45.20
        .00       .00      2.03       .00      .000      .024      .000      .000     44.80    995.84
    .016491        0.        0.        0.         0         5         0       .00     18.94   1014.78

 *SECNO 1.200
      1.200       .27     45.07       .00       .00     45.13       .06       .00       .00     45.60
        5.0        .0       5.0        .0        .0       2.5        .0        .0        .0     45.20
        .00       .00      1.98       .00      .000      .024      .000      .000     44.80    995.59
    .015341        0.        0.        0.         0         0         0       .00     19.20   1014.79

1
   04NOV93       11:59:30                                                                    PAGE    3

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3  Q=10 C614L.IH2.  28 Oct 93 trl
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```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2

1
   04NOV93      11:59:30                                                                                    PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
     1.000      .34     45.14     45.14     45.60     45.23       .09       .00       .00     45.60
      10.0       .0      10.0       .0       .0       4.2        .0        .0        .0     45.20
       .00      .00      2.37       .00      .000      .024      .000      .000     44.80    990.22
   .015681       0.        0.        0.        0        18         0       .00     24.80   1015.02

 *SECNO 1.100
     1.100      .34     45.14     45.14       .00     45.23       .09       .00       .00     45.60
      10.0       .0      10.0       .0       .0       4.3        .0        .0        .0     45.20
       .00      .00      2.35       .00      .000      .024      .000      .000     44.80    990.11
   .015301       0.        0.        0.        0         5         0       .00     24.91   1015.02

 *SECNO 1.200
     1.200      .35     45.15     45.14       .00     45.23       .08       .00       .00     45.60
      10.0       .0      10.0       .0       .0       4.3        .0        .0        .0     45.20
       .00      .00      2.31       .00      .000      .024      .000      .000     44.80    989.88
   .014538       0.        0.        0.        0         5         0       .00     25.15   1015.03

1
   04NOV93      11:59:30                                                                                    PAGE    5

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3  Q=15 C614L.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3

1
   04NOV93      11:59:30                                                                                    PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
     1.000      .40     45.20     45.20     45.60     45.30       .10       .00       .00     45.60
      15.0       .0      15.0       .0       .0       5.8        .0        .0        .0     45.20
       .00      .00      2.57       .00      .000      .024      .000      .000     44.80    986.03
   .014847       0.        0.        0.        0         8         0       .00     29.17   1015.20

 *SECNO 1.100
     1.100      .40     45.20     45.20       .00     45.30       .10       .00       .00     45.60
      15.0       .0      15.0       .0       .0       5.9        .0        .0        .0     45.20
       .00      .00      2.56       .00      .000      .024      .000      .000     44.80    986.00
   .014509       0.        0.        0.        0         5         0       .00     29.21   1015.20

 *SECNO 1.200
     1.200      .41     45.21     45.20       .00     45.31       .10       .00       .00     45.60
      15.0       .0      15.0       .0       .0       6.0        .0        .0        .0     45.20
       .00      .00      2.52       .00      .000      .024      .000      .000     44.80    985.99
   .013790       0.        0.        0.        0         5         0       .00     29.23   1015.21

1
   04NOV93      11:59:30                                                                                    PAGE    7

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3  Q=20 C614L.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4
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1
   04NOV93      11:59:30                                                                                                PAGE   8

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

 *PROF 4

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .44      45.24      45.24      45.60      45.37       .12        .00        .00      45.60
       20.0        .0       20.0        .0         .0        7.1        .0         .0         .0       45.20
        .00       .00       2.82       .05       .000       .024       .035       .000      44.80     985.87
    .013762        0.         0.         0.         0         11         0        .00      29.48    1015.35

 *SECNO 1.100
      1.100       .45      45.25      45.24        .00      45.37       .12        .00        .00      45.60
       20.0        .0       20.0        .0         .0        7.1        .0         .0         .0       45.20
        .00       .00       2.80       .05       .000       .024       .035       .000      44.80     985.87
    .013507        0.         0.         0.         0          5         0        .00      29.49    1015.36

 *SECNO 1.200
      1.200       .45      45.25      45.24        .00      45.37       .12        .00        .00      45.60
       20.0        .0       20.0        .0         .0        7.2        .0         .0         .0       45.20
        .00       .00       2.77       .05       .000       .024       .035       .000      44.80     985.86
    .012993        0.         0.         0.         0          5         0        .00      29.51    1015.37

1
   04NOV93      11:59:30                                                                                                PAGE   9

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3  Q=25 C614L.IH2.  28 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  6                             .032                                          45.6

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       5

1
   04NOV93      11:59:30                                                                                                PAGE  10

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

 *PROF 5

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .48      45.28      45.28      45.60      45.42       .14        .00        .00      45.60
       25.0        .0       25.0        .0         .0        8.2        .0         .0         .0       45.20
        .00       .00       3.05       .05       .000       .024       .035       .000      44.80     985.76
    .013361        0.         0.         0.         0         14         0        .00      29.72    1015.48

 *SECNO 1.100
      1.100       .48      45.28      45.28        .00      45.43       .14        .00        .00      45.60
       25.0        .0       25.0        .0         .0        8.3        .0         .0         .0       45.20
        .00       .00       3.02       .05       .000       .024       .035       .000      44.80     985.75
    .013038        0.         0.         0.         0          5         0        .00      29.74    1015.49

 *SECNO 1.200
      1.200       .49      45.29      45.28        .00      45.43       .14        .00        .00      45.60
       25.0        .0       25.0        .0         .0        8.3        .0         .0         .0       45.20
        .00       .00       2.99       .05       .000       .024       .035       .000      44.80     985.74
    .012603        0.         0.         0.         0          5         0        .00      29.76    1015.50

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   04NOV93      11:59:30                                                                                                PAGE  11

 T1Flow split at C614 left channel (Cavern Drive)
 T2Fountain Hills North FIS
 T3  Q=30 C614L.IH2.  28 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  7                             .032                                          45.6

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       6

1
   04NOV93      11:59:30                                                                                                PAGE  12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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```
*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .52     45.32     45.32     45.60     45.48       .16       .00       .00     45.60
      30.0        .0      30.0        .0        .0       9.3        .0        .0        .0     45.20
       .00       .00      3.22       .05      .000      .024      .035      .000     44.80    985.64
   .012595        0.        0.        0.         0        14         0       .00     29.97   1015.62


*SECNO 1.100
     1.100       .52     45.32     45.32       .00     45.48       .16       .00       .00     45.60
      30.0        .0      30.0        .0        .0       9.4        .0        .0        .0     45.20
       .00       .00      3.20       .05      .000      .024      .035      .000     44.80    985.64
   .012431        0.        0.        0.         0         5         0       .00     29.98   1015.62


*SECNO 1.200
     1.200       .53     45.33     45.32       .00     45.48       .16       .00       .00     45.60
      30.0        .0      30.0        .0        .0       9.4        .0        .0        .0     45.20
       .00       .00      3.18       .05      .000      .024      .035      .000     44.80    985.63
   .012097        0.        0.        0.         0         5         0       .00     30.00   1015.63


1
   04NOV93      11:59:30                                                                          PAGE   13

T1Flow split at C614 left channel (Cavern Drive)
T2Fountain Hills North FIS
T3  Q=35 C614L.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 8                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7

1
   04NOV93      11:59:30                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .55     45.35     45.35     45.60     45.53       .18       .00       .00     45.60
      35.0        .0      35.0        .0        .0      10.4        .0        .0        .0     45.20
       .00       .00      3.37       .05      .000      .024      .035      .000     44.80    985.54
   .012032        0.        0.        0.         0        20         0       .00     30.21   1015.74


*SECNO 1.100
     1.100       .56     45.36     45.35       .00     45.53       .17       .00       .00     45.60
      35.0        .0      35.0        .0        .0      10.4        .0        .0        .0     45.20
       .00       .00      3.36       .05      .000      .024      .035      .000     44.80    985.53
   .011898        0.        0.        0.         0         5         0       .00     30.21   1015.75


*SECNO 1.200
     1.200       .56     45.36     45.35       .00     45.53       .17       .00       .00     45.60
      35.0        .0      35.0        .0        .0      10.5        .0        .0        .0     45.20
       .00       .00      3.33       .05      .000      .024      .035      .000     44.80    985.52
   .011622        0.        0.        0.         0         5         0       .00     30.23   1015.75


1
   04NOV93      11:59:30                                                                          PAGE   15

T1Flow split at C614 left channel (Cavern Drive)
T2Fountain Hills North FIS
T3  Q=40 C614L.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 9                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      11:59:30                                                                          PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .58     45.38     45.38     45.60     45.58       .20       .00       .00     45.60
      40.0        .0      40.0        .0        .0      11.3        .1        .0        .0     45.20
```

```
      .00        .00       3.55       .05       .000       .024       .035       .000      44.80    985.45
  .012079         0.         0.        0.          0         16          0        .00      30.39   1015.84

*SECNO 1.100
     1.100        .59      45.39     45.38        .00      45.58        .19        .00       .00     45.60
     40.0         .0       40.0        .0         .0       11.3         .1         .0        .0      45.20
      .00        .00       3.54       .05       .000       .024       .035       .000      44.80    985.44
  .011953         0.         0.        0.          0          5          0        .00      30.40   1015.85

*SECNO 1.200
     1.200        .59      45.39     45.38        .00      45.58        .19        .00       .00     45.60
     40.0         .0       40.0        .0         .0       11.4         .1         .0        .0      45.20
      .00        .00       3.52       .05       .000       .024       .035       .000      44.80    985.44
  .011692         0.         0.        0.          0          5          0        .00      30.42   1015.86

1
   04NOV93      11:59:30                                                                                PAGE   17

T1Flow split at C614 left channel (Cavern Drive)
T2Fountain Hills North FIS
T3  Q=45 C614L.IH2.  28 Oct 93 trl

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               10                            .032                                    45.6

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   04NOV93      11:59:30                                                                                PAGE   18

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

*PROF 9

CCHV=      .100 CEHV=      .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000        .63      45.43     45.43     45.60      45.63        .20        .00       .00     45.60
     45.0         .0       45.0        .0         .0       12.5         .1         .0        .0      45.20
      .00        .00       3.59       .04       .000       .024       .035       .000      44.80    985.32
  .010806         0.         0.        0.          0         15          0        .00      30.67   1015.99

*SECNO 1.100
     1.100        .63      45.43     45.43        .00      45.63        .20        .00       .00     45.60
     45.0         .0       45.0        .0         .0       12.5         .1         .0        .0      45.20
      .00        .00       3.59       .04       .000       .024       .035       .000      44.80    985.32
  .010716         0.         0.        0.          0          5          0        .00      30.68   1015.99

*SECNO 1.200
     1.200        .63      45.43     45.43        .00      45.63        .20        .00       .00     45.60
     45.0         .0       45.0        .0         .0       12.6         .1         .0        .0      45.20
      .00        .00       3.57       .04       .000       .024       .035       .000      44.80    985.31
  .010533         0.         0.        0.          0          5          0        .00      30.69   1016.00

1
   04NOV93      11:59:30                                                                                PAGE   19


                                                                                THIS RUN EXECUTED 04NOV93     11:59:33
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 C614L.IH2.  28 Oct 93 t

SUMMARY PRINTOUT

      SECNO        Q        CWSEL     CRIWS     EG        TOPWID    DEPTH     10*KS     VCH

*     1.000      5.00       45.06     45.06     45.12     18.82       .26     170.82     2.06
*     1.000     10.00       45.14     45.14     45.23     24.80       .34     156.81     2.37
*     1.000     15.00       45.20     45.20     45.30     29.17       .40     148.47     2.57
*     1.000     20.00       45.24     45.24     45.37     29.48       .44     137.62     2.82
*     1.000     25.00       45.28     45.28     45.42     29.72       .48     133.61     3.05
*     1.000     30.00       45.32     45.32     45.48     29.97       .52     125.95     3.22
*     1.000     35.00       45.35     45.35     45.53     30.21       .55     120.32     3.37
*     1.000     40.00       45.38     45.38     45.58     30.39       .58     120.79     3.55
*     1.000     45.00       45.43     45.43     45.63     30.67       .63     108.06     3.59

      1.100      5.00       45.06     45.06     45.13     18.94       .26     164.91     2.03
      1.100     10.00       45.14     45.14     45.23     24.91       .34     153.01     2.35
      1.100     15.00       45.20     45.20     45.30     29.21       .40     145.09     2.56
      1.100     20.00       45.25     45.24     45.37     29.49       .45     135.07     2.80
      1.100     25.00       45.28     45.28     45.43     29.74       .48     130.38     3.02
      1.100     30.00       45.32     45.32     45.48     29.98       .52     124.31     3.20
      1.100     35.00       45.36     45.35     45.53     30.21       .56     118.98     3.36
```

1.100	40.00	45.39	45.38	45.58	30.40	.59	119.53	3.54
1.100	45.00	45.43	45.43	45.63	30.68	.63	107.16	3.59
1.200	5.00	45.07	.00	45.13	19.20	.27	153.41	1.98
1.200	10.00	45.15	45.14	45.23	25.15	.35	145.38	2.31
1.200	15.00	45.21	45.20	45.31	29.23	.41	137.90	2.52
1.200	20.00	45.25	45.24	45.37	29.51	.45	129.93	2.77
1.200	25.00	45.29	45.28	45.43	29.76	.49	126.03	2.99
1.200	30.00	45.33	45.32	45.48	30.00	.53	120.97	3.18
1.200	35.00	45.36	45.35	45.53	30.23	.56	116.22	3.33
1.200	40.00	45.39	45.38	45.58	30.42	.59	116.92	3.52
1.200	45.00	45.43	45.43	45.63	30.69	.63	105.33	3.57

1

04NOV93 11:59:30 PAGE 20

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
```

```
1*****************************************
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    04NOV93    TIME   11:59:44  *
 *****************************************
*************************************
```

```
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   04NOV93      11:59:44                                                                    PAGE    1

                                                                  THIS RUN EXECUTED 04NOV93    11:59:44
 *************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 *************************************

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3 Q = 5 cfs. C614R.IH2.  28 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .028                                    45.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9         5        10        15        20        25        30        35        40        45
 NC     .035      .035      .024        .1        .3
 X1      1.0       8.0     968.8    1031.2
 GR     48.0     960.8      45.3     968.8      44.8     970.0      45.0    1000.0      45.1    1030.0
 GR     45.5    1031.2      46.8    1035.6      48.0    1041.2

 X1      1.1                                    0.1       0.1       0.1

 X1      1.2                                    0.1       0.1       0.1
1
   04NOV93      11:59:44                                                                    PAGE    2

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

 *PROF 1

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .19     44.99     44.99     45.00     45.04       .05       .00       .00     45.30
        5.0        .0       5.0        .0        .0       2.8        .0       .0        .0     45.50
        .00       .00      1.79       .00      .000      .024      .000      .000     44.80    969.54
    .019259        0.        0.        0.         0        11         0       .00     29.14    998.68

 *SECNO 1.100
      1.100       .20     45.00     44.99       .00     45.04       .05       .00       .00     45.30
        5.0        .0       5.0        .0        .0       2.8        .0       .0        .0     45.50
        .00       .00      1.76       .00      .000      .024      .000      .000     44.80    969.54
    .018257        0.        0.        0.         0         5         0       .00     29.43    998.97

 *SECNO 1.200
      1.200       .20     45.00       .00       .00     45.05       .04       .00       .00     45.30
        5.0        .0       5.0        .0        .0       3.0        .0       .0        .0     45.50
        .00       .00      1.69       .00      .000      .024      .000      .000     44.80    969.53
    .016372        0.        0.        0.         0         0         0       .00     30.04    999.56

1
   04NOV93      11:59:44                                                                    PAGE    3

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=10 C614R.IH2.  28 Oct 93 trl
```

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           .032                                    45.6
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2

1
   04NOV93      11:59:44                                                                                                PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .26     45.06     45.06     45.60     45.11       .06       .00       .00     45.30
       10.0       .0      10.0        .0        .0       5.2        .0        .0        .0     45.50
        .00      .00      1.91       .00      .000      .024      .000      .000     44.80    969.39
    .018074       0.        0.        0.         0        17         0       .00     47.41   1016.79

 *SECNO 1.100
      1.100      .26     45.06     45.06       .00     45.11       .05       .00       .00     45.30
       10.0       .0      10.0        .0        .0       5.3        .0        .0        .0     45.50
        .00      .00      1.88       .00      .000      .024      .000      .000     44.80    969.38
    .017379       0.        0.        0.         0         5         0       .00     47.95   1017.33

 *SECNO 1.200
      1.200      .27     45.07       .00       .00     45.12       .05       .00       .00     45.30
       10.0       .0      10.0        .0        .0       5.5        .0        .0        .0     45.50
        .00      .00      1.82       .00      .000      .024      .000      .000     44.80    969.37
    .016027       0.        0.        0.         0         0         0       .00     49.09   1018.46

1
   04NOV93      11:59:44                                                                                                PAGE    5

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=15 C614R.IH2.  28 Oct 93 trl
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                4                           .032                                    45.6
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3

1
   04NOV93      11:59:44                                                                                                PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .30     45.10     45.10     45.60     45.16       .06       .00       .00     45.30
       15.0       .0      15.0        .0        .0       7.5        .0        .0        .0     45.50
        .00      .00      2.00       .00      .000      .024      .000      .000     44.80    969.28
    .016852       0.        0.        0.         0        19         0       .00     60.12   1029.40

 *SECNO 1.100
      1.100      .30     45.10     45.10       .00     45.16       .06       .00       .00     45.30
       15.0       .0      15.0        .0        .0       7.6        .0        .0        .0     45.50
        .00      .00      1.98       .00      .000      .024      .000      .000     44.80    969.28
    .016293       0.        0.        0.         0         5         0       .00     60.63   1029.91

 *SECNO 1.200
      1.200      .31     45.11       .00       .00     45.16       .06       .00       .00     45.30
       15.0       .0      15.0        .0        .0       7.8        .0        .0        .0     45.50
        .00      .00      1.92       .00      .000      .024      .000      .000     44.80    969.27
    .014915       0.        0.        0.         0         0         0       .00     60.74   1030.01

1
   04NOV93      11:59:44                                                                                                PAGE    7

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=20 C614R.IH2.  28 Oct 93 trl
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                5                           .032                                    45.6
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      4
```

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1
   04NOV93       11:59:44                                                                                                                PAGE    8

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

 *PROF 4

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .33      45.13      45.13      45.60      45.20       .07        .00        .00      45.30
       20.0        .0       20.0        .0         .0        9.3        .0         .0         .0       45.50
        .00       .00       2.16       .00       .000       .024      .000       .000      44.80     969.21
    .014951        0.         0.        0.          0         17         0        .00      60.87    1030.08

 *SECNO 1.100
      1.100       .33      45.13       .00        .00      45.20       .07        .00        .00      45.30
       20.0        .0       20.0        .0         .0        9.4        .0         .0         .0       45.50
        .00       .00       2.14       .00       .000       .024      .000       .000      44.80     969.21
    .014474        0.         0.        0.          0          0         0        .00      60.88    1030.09

 *SECNO 1.200
      1.200       .33      45.13       .00        .00      45.20       .07        .00        .00      45.30
       20.0        .0       20.0        .0         .0        9.5        .0         .0         .0       45.50
        .00       .00       2.10       .00       .000       .024      .000       .000      44.80     969.20
    .013580        0.         0.        0.          0          0         0        .00      60.89    1030.10

1
   04NOV93       11:59:44                                                                                                                PAGE    9

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=25 C614R.IH2.  28 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 6                              .032                                           45.6

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      5

1
   04NOV93       11:59:44                                                                                                                PAGE   10

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

 *PROF 5

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .35      45.15      45.15      45.60      45.24       .09        .00        .00      45.30
       25.0        .0       25.0        .0         .0       10.4        .0         .0         .0       45.50
        .00       .00       2.40       .00       .000       .024      .000       .000      44.80     969.17
    .015907        0.         0.        0.          0         18         0        .00      60.97    1030.14

 *SECNO 1.100
      1.100       .35      45.15      45.15        .00      45.24       .09        .00        .00      45.30
       25.0        .0       25.0        .0         .0       10.5        .0         .0         .0       45.50
        .00       .00       2.38       .00       .000       .024      .000       .000      44.80     969.17
    .015426        0.         0.        0.          0          5         0        .00      60.98    1030.14

 *SECNO 1.200
      1.200       .35      45.15      45.15        .00      45.24       .08        .00        .00      45.30
       25.0        .0       25.0        .0         .0       10.7        .0         .0         .0       45.50
        .00       .00       2.33       .00       .000       .024      .000       .000      44.80     969.16
    .014472        0.         0.        0.          0          5         0        .00      61.00    1030.15

1
   04NOV93       11:59:44                                                                                                                PAGE   11

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=30 C614R.IH2.  28 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 7                              .032                                           45.6

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      6

1
   04NOV93       11:59:44                                                                                                                PAGE   12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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```
*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .37     45.17     45.17     45.60     45.27       .10       .00       .00     45.30
      30.0        .0      30.0        .0        .0      11.8        .0        .0        .0     45.50
       .00       .00      2.54       .00      .000      .024      .000      .000     44.80    969.12
   .015155        0.        0.        0.         0        18         0       .00     61.09   1030.21


*SECNO 1.100
     1.100       .37     45.17     45.17       .00     45.27       .10       .00       .00     45.30
      30.0        .0      30.0        .0        .0      11.9        .0        .0        .0     45.50
       .00       .00      2.52       .00      .000      .024      .000      .000     44.80    969.11
   .014768        0.        0.        0.         0         5         0       .00     61.10   1030.21


*SECNO 1.200
     1.200       .38     45.18     45.17       .00     45.27       .10       .00       .00     45.30
      30.0        .0      30.0        .0        .0      12.1        .0        .0        .0     45.50
       .00       .00      2.48       .00      .000      .024      .000      .000     44.80    969.10
   .013995        0.        0.        0.         0         5         0       .00     61.12   1030.22


1
   04NOV93      11:59:44                                                                          PAGE   13

T1 Flow split at C614 right channel (El Lago Blvd.)
T2 Fountain Hills North FIS
T3  Q=35 C614R.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                8                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7

1
   04NOV93      11:59:44                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .39     45.19     45.19     45.60     45.30       .11       .00       .00     45.30
      35.0        .0      35.0        .0        .0      13.2        .0        .0        .0     45.50
       .00       .00      2.65       .00      .000      .024      .000      .000     44.80    969.06
   .014112        0.        0.        0.         0        11         0       .00     61.22   1030.28


*SECNO 1.100
     1.100       .40     45.20     45.19       .00     45.30       .11       .00       .00     45.30
      35.0        .0      35.0        .0        .0      13.3        .0        .0        .0     45.50
       .00       .00      2.63       .00      .000      .024      .000      .000     44.80    969.06
   .013812        0.        0.        0.         0         5         0       .00     61.23   1030.28


*SECNO 1.200
     1.200       .40     45.20     45.19       .00     45.30       .10       .00       .00     45.30
      35.0        .0      35.0        .0        .0      13.5        .0        .0        .0     45.50
       .00       .00      2.59       .00      .000      .024      .000      .000     44.80    969.05
   .013215        0.        0.        0.         0         5         0       .00     61.24   1030.29

1
   04NOV93      11:59:44                                                                          PAGE   15

T1 Flow split at C614 right channel (El Lago Blvd.)
T2 Fountain Hills North FIS
T3  Q=40 C614R.IH2.  28 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                9                           .032                                    45.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      11:59:44                                                                          PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .41     45.21     45.21     45.60     45.33       .12       .00       .00     45.30
      40.0        .0      40.0        .0        .0      14.3        .0        .0        .0     45.50
```

```
      .00       .00      2.79       .00      .000      .024      .000      .000     44.80    969.02
   .014151       0.        0.        0.         0        11         0       .00     61.31   1030.33

 *SECNO 1.100
     1.100       .41     45.21     45.21       .00     45.33       .12       .00       .00     45.30
      40.0        .0      40.0        .0        .0      14.4        .0        .0        .0     45.50
      .00       .00      2.77       .00      .000      .024      .000      .000     44.80    969.01
   .013872       0.        0.        0.         0         5         0       .00     61.32   1030.33

 *SECNO 1.200
     1.200       .42     45.22     45.21       .00     45.33       .12       .00       .00     45.30
      40.0        .0      40.0        .0        .0      14.6        .0        .0        .0     45.50
      .00       .00      2.74       .00      .000      .024      .000      .000     44.80    969.01
   .013306       0.        0.        0.         0         5         0       .00     61.34   1030.34

1
   04NOV93      11:59:44                                                                          PAGE   17

 T1 Flow split at C614 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=45 C614R.IH2.  28 Oct 93 trl

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 10                          .032                                    45.6

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15

1
   04NOV93      11:59:44                                                                          PAGE   18

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

 *PROF 9

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
     1.000       .43     45.23     45.23     45.60     45.36       .13       .00       .00     45.30
      45.0        .0      45.0        .0        .0      15.5        .0        .0        .0     45.50
      .00       .00      2.90       .00      .000      .024      .000      .000     44.80    968.97
   .013693       0.        0.        0.         0        11         0       .00     61.42   1030.39

 *SECNO 1.100
     1.100       .43     45.23     45.23       .00     45.36       .13       .00       .00     45.30
      45.0        .0      45.0        .0        .0      15.6        .0        .0        .0     45.50
      .00       .00      2.88       .00      .000      .024      .000      .000     44.80    968.96
   .013451       0.        0.        0.         0         5         0       .00     61.43   1030.39

 *SECNO 1.200
     1.200       .44     45.24     45.23       .00     45.36       .13       .00       .00     45.30
      45.0        .0      45.0        .0        .0      15.8        .0        .0        .0     45.50
      .00       .00      2.85       .00      .000      .024      .000      .000     44.80    968.96
   .012960       0.        0.        0.         0         5         0       .00     61.44   1030.40

1
   04NOV93      11:59:44                                                                          PAGE   19

                                                                   THIS RUN EXECUTED 04NOV93     11:59:48
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

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

  cfs. C614R.IH2.  28 Oct

 SUMMARY PRINTOUT

       SECNO       Q        CWSEL     CRIWS     EG        TOPWID    DEPTH     10*KS     VCH

 *     1.000     5.00       44.99     44.99     45.04     29.14       .19    192.59      1.79
 *     1.000    10.00       45.06     45.06     45.11     47.41       .26    180.74      1.91
 *     1.000    15.00       45.10     45.10     45.16     60.12       .30    168.52      2.00
 *     1.000    20.00       45.13     45.13     45.20     60.87       .33    149.51      2.16
 *     1.000    25.00       45.15     45.15     45.24     60.97       .35    159.07      2.40
 *     1.000    30.00       45.17     45.17     45.27     61.09       .37    151.55      2.54
 *     1.000    35.00       45.19     45.19     45.30     61.22       .39    141.12      2.65
 *     1.000    40.00       45.21     45.21     45.33     61.31       .41    141.51      2.79
 *     1.000    45.00       45.23     45.23     45.36     61.42       .43    136.93      2.90

       1.100     5.00       45.00     44.99     45.04     29.43       .20    182.57      1.76
       1.100    10.00       45.06     45.06     45.11     47.95       .26    173.79      1.88
       1.100    15.00       45.10     45.10     45.16     60.63       .30    162.93      1.98
       1.100    20.00       45.13       .00     45.20     60.88       .33    144.74      2.14
       1.100    25.00       45.15     45.15     45.24     60.98       .35    154.26      2.38
       1.100    30.00       45.17     45.17     45.27     61.10       .37    147.68      2.52
       1.100    35.00       45.20     45.19     45.30     61.23       .40    138.12      2.63
```

1.100	40.00	45.21	45.21	45.33	61.32	.41	138.72	2.77
1.100	45.00	45.23	45.23	45.36	61.43	.43	134.51	2.88
1.200	5.00	45.00	.00	45.05	30.04	.20	163.72	1.69
1.200	10.00	45.07	.00	45.12	49.09	.27	160.27	1.82
1.200	15.00	45.11	.00	45.16	60.74	.31	149.15	1.92
1.200	20.00	45.13	.00	45.20	60.89	.33	135.80	2.10
1.200	25.00	45.15	45.15	45.24	61.00	.35	144.72	2.33
1.200	30.00	45.18	45.17	45.27	61.12	.38	139.95	2.48
1.200	35.00	45.20	45.19	45.30	61.24	.40	132.15	2.59
1.200	40.00	45.22	45.21	45.33	61.34	.42	133.06	2.74
1.200	45.00	45.24	45.23	45.36	61.44	.44	129.60	2.85

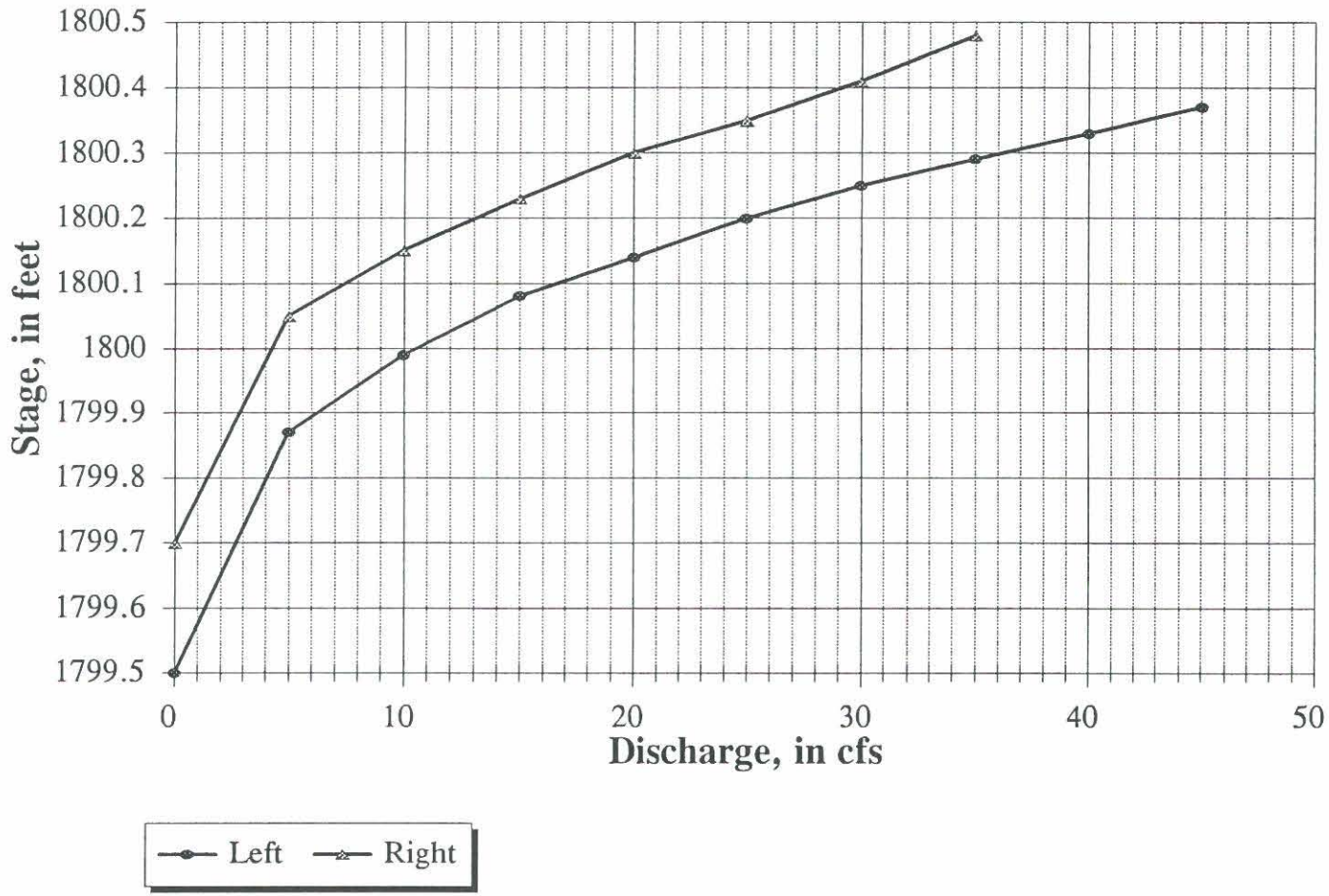
SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
```

C615 Flow Split Hydraulic Calculations

C615 HEC-2 Results

Discharge vs Stage Curve for Flow Split at C615

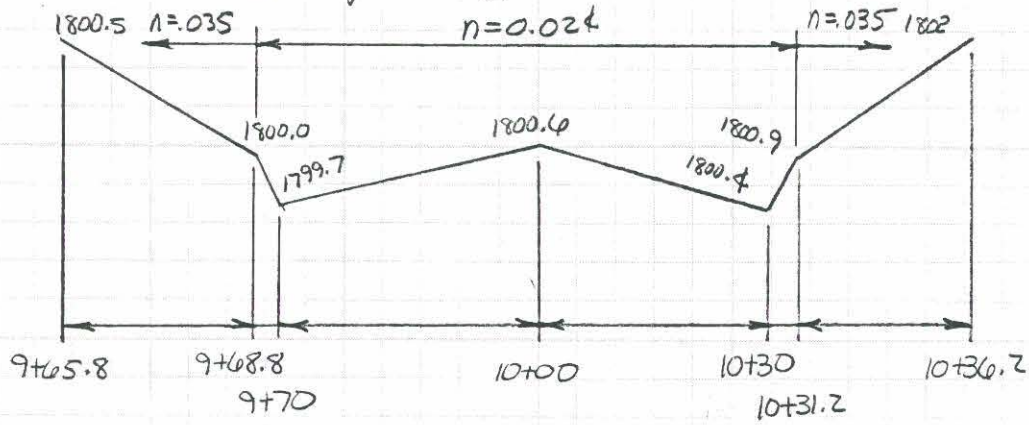


GEORGE V. SABOL CONSULTING ENGINEERS, INC.

SHEET 1 OF 1
DATE 10/29/93
BY TRL
PROJECT NO. 35

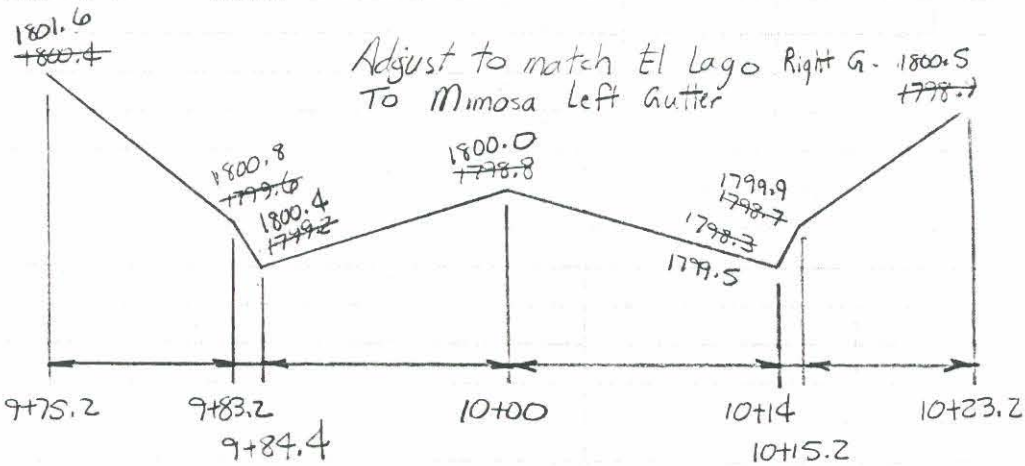
CLIENT FCDMC
PROJECT Fountain Hills North (FIS)
SUBJECT C615 Flow Split

C615R El Lago Blvd @ East Return



$S = (1800.6 - 1798.1)/50 = 0.05\%$

C615L Mimosa Dr.



$S = 0.056\%$

Summary

Q	Stage Left	Stage Right
0	1799.5	1799.7
5	1799.87	1800.05
10	1799.99	1800.15
15	1800.08	1800.23
20	1800.14	1800.30
25	1800.20	1800.35
30	1800.25	1800.41
35	1800.29	1800.48
40	1800.33	
45	1800.37	

Stage	Discharge Left	Discharge Right	Discharge Total
1799.5	0	0	0
1799.6	1.3		1.3
1799.7	2.5	0	2.5
1799.8	4.0	1.3	5.3
1799.9	6.0	2.6	8.6
1800.0	10.0	4.2	14.2
1800.1	16.0	7.0	23.0
1800.2	24.0	12.8	36.8
1800.3	36.0	19.5	55.5
1800.4	48.8	29.5	77.5

```
1*****************************************
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    04NOV93    TIME   11:59:58 *
 *****************************************
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 *  U.S. ARMY CORPS OF ENGINEERS
 *  HYDROLOGIC ENGINEERING CENTER
 *  609 SECOND STREET, SUITE D
 *  DAVIS, CALIFORNIA 95616-4687
 *          (916) 756-1104
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                  X     X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   04NOV93      11:59:58                                                                    PAGE    1

                                                                THIS RUN EXECUTED 04NOV93    11:59:58
 *************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 *************************************

 T1 Flow split at C615 left channel (Mimosa Drive)
 T2 Fountain Hills North FIS
 T3 Q = 5 cfs. C615L.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .056                                    1800.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9         5        10        15        20        25        30        35        40        45
 NC     .035      .035      .024        .1        .3
 X1      1.0       7.0     983.2    1015.2
 GR   1801.6     975.2    1800.8     983.2    1800.4     984.4    1800.0    1000.0    1799.5    1014.0
 GR   1799.9    1015.2    1800.5    1023.2

 X1      1.1                                    0.1       0.1       0.1

 X1      1.2                                    0.1       0.1       0.1
1
   04NOV93      11:59:58                                                                    PAGE    2

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

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .36   1799.86   1799.86   1800.00   1799.96       .09       .00       .00   1800.80
        5.0       .0       5.0        .0        .0       2.0        .0        .0        .0   1799.90
        .00      .00      2.46       .00      .000      .024      .000      .000   1799.50   1003.87
    .015594       0.        0.        0.         0        19         0       .00     11.22   1015.09

 *SECNO 1.100
      1.100      .37   1799.87   1799.86       .00   1799.96       .09       .00       .00   1800.80
        5.0       .0       5.0        .0        .0       2.1        .0        .0        .0   1799.90
        .00      .00      2.43       .00      .000      .024      .000      .000   1799.50   1003.80
    .015018       0.        0.        0.         0         5         0       .00     11.30   1015.09

 *SECNO 1.200
      1.200      .37   1799.87   1799.86       .00   1799.96       .09       .00       .00   1800.80
        5.0       .0       5.0        .0        .0       2.1        .0        .0        .0   1799.90
        .00      .00      2.38       .00      .000      .024      .000      .000   1799.50   1003.70
    .014263       0.        0.        0.         0         5         0       .00     11.41   1015.10

1
   04NOV93      11:59:58                                                                    PAGE    3

 T1 Flow split at C615 left channel (Mimosa Drive)
 T2 Fountain Hills North FIS
 T3  Q=10 C615L.IH2.  29 Oct 93 trl
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```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2

1
   04NOV93      11:59:58                                                                                    PAGE    4

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

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .48   1799.98   1799.98   1800.00   1800.10       .12       .00       .00   1800.80
      10.0        .0      10.0        .0        .0       3.5        .0        .0        .0   1799.90
       .00       .00      2.82       .05      .000      .024      .035      .000   1799.50   1000.60
   .013851        0.        0.        0.         0         9         0       .00     15.65   1016.25

*SECNO 1.100
     1.100       .48   1799.98   1799.97       .00   1800.10       .12       .00       .00   1800.80
      10.0        .0      10.0        .0        .0       3.6        .0        .0        .0   1799.90
       .00       .00      2.81       .05      .000      .024      .035      .000   1799.50   1000.56
   .013645        0.        0.        0.         0         5         0       .00     15.70   1016.26

*SECNO 1.200
     1.200       .49   1799.99   1799.97       .00   1800.11       .12       .00       .00   1800.80
      10.0        .0      10.0        .0        .0       3.6        .0        .0        .0   1799.90
       .00       .00      2.78       .05      .000      .024      .035      .000   1799.50   1000.49
   .013225        0.        0.        0.         0         5         0       .00     15.82   1016.30

1
   04NOV93      11:59:58                                                                                    PAGE    5

T1 Flow split at C615 left channel (Mimosa Drive)
T2 Fountain Hills North FIS
T3  Q=15 C615L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3

1
   04NOV93      11:59:58                                                                                    PAGE    6

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

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .57   1800.07   1800.07   1800.00   1800.20       .13       .00       .00   1800.80
      15.0        .0      14.8        .2        .0       5.0        .2        .0        .0   1799.90
       .00       .00      2.94       .91      .000      .024      .035      .000   1799.50    997.22
   .012356        0.        0.        0.         0         8         0       .00     20.26   1017.48

*SECNO 1.100
     1.100       .57   1800.07   1800.07       .00   1800.21       .13       .00       .00   1800.80
      15.0        .0      14.8        .2        .0       5.1        .2        .0        .0   1799.90
       .00       .00      2.93       .91      .000      .024      .035      .000   1799.50    997.18
   .012217        0.        0.        0.         0         5         0       .00     20.32   1017.50

*SECNO 1.200
     1.200       .58   1800.08   1800.07       .00   1800.21       .13       .00       .00   1800.80
      15.0        .0      14.8        .2        .0       5.1        .2        .0        .0   1799.90
       .00       .00      2.90       .91      .000      .024      .035      .000   1799.50    997.08
   .011931        0.        0.        0.         0         5         0       .00     20.46   1017.53

1
   04NOV93      11:59:58                                                                                    PAGE    7

T1 Flow split at C615 left channel (Mimosa Drive)
T2 Fountain Hills North FIS
T3  Q=20 C615L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4
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1
   04NOV93      11:59:58                                                                                                PAGE    8

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

 *PROF 4

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .64   1800.14   1800.14   1800.00   1800.28       .15       .00       .00   1800.80
       20.0        .0      19.6        .4        .0       6.3        .4        .0        .0   1799.90
        .00       .00      3.10      1.13      .000      .024      .035      .000   1799.50    994.66
    .012189        0.        0.        0.         0        11         0       .00     23.70   1018.36

 *SECNO 1.100
      1.100       .64   1800.14   1800.14       .00   1800.29       .15       .00       .00   1800.80
       20.0        .0      19.6        .4        .0       6.3        .4        .0        .0   1799.90
        .00       .00      3.09      1.13      .000      .024      .035      .000   1799.50    994.61
    .012061        0.        0.        0.         0         5         0       .00     23.76   1018.38

 *SECNO 1.200
      1.200       .64   1800.14   1800.14       .00   1800.29       .14       .00       .00   1800.80
       20.0        .0      19.6        .4        .0       6.4        .4        .0        .0   1799.90
        .00       .00      3.06      1.12      .000      .024      .035      .000   1799.50    994.51
    .011798        0.        0.        0.         0         5         0       .00     23.90   1018.41

1
   04NOV93      11:59:58                                                                                                PAGE    9

 T1 Flow split at C615 left channel (Mimosa Drive)
 T2 Fountain Hills North FIS
 T3  Q=25 C615L.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  6                             .056                                         1800.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       5

1
   04NOV93      11:59:58                                                                                                PAGE   10

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

 *PROF 5

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000       .69   1800.19   1800.19   1800.00   1800.35       .16       .00       .00   1800.80
       25.0        .0      24.3        .7        .0       7.5        .6        .0        .0   1799.90
        .00       .00      3.24      1.29      .000      .024      .035      .000   1799.50    992.53
    .012063        0.        0.        0.         0        14         0       .00     26.56   1019.09

 *SECNO 1.100
      1.100       .70   1800.20   1800.19       .00   1800.35       .16       .00       .00   1800.80
       25.0        .0      24.3        .7        .0       7.6        .6        .0        .0   1799.90
        .00       .00      3.21      1.28      .000      .024      .035      .000   1799.50    992.42
    .011791        0.        0.        0.         0         5         0       .00     26.70   1019.12

 *SECNO 1.200
      1.200       .70   1800.20   1800.19       .00   1800.35       .15       .00       .00   1800.80
       25.0        .0      24.2        .8        .0       7.6        .6        .0        .0   1799.90
        .00       .00      3.18      1.28      .000      .024      .035      .000   1799.50    992.31
    .011527        0.        0.        0.         0         5         0       .00     26.85   1019.16

1
   04NOV93      11:59:58                                                                                                PAGE   11

 T1 Flow split at C615 left channel (Mimosa Drive)
 T2 Fountain Hills North FIS
 T3  Q=30 C615L.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  7                             .056                                         1800.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       6

1
   04NOV93      11:59:58                                                                                                PAGE   12

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

```
*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .74   1800.24   1800.24   1800.00   1800.41       .17       .00       .00   1800.80
      30.0        .0      28.9       1.1        .0       8.6        .8        .0        .0   1799.90
       .00       .00      3.35      1.42      .000      .024      .035      .000   1799.50    990.65
   .011872        0.        0.        0.         0        14         0       .00     29.08   1019.73


*SECNO 1.100
3720 CRITICAL DEPTH ASSUMED
     1.100       .74   1800.24   1800.24       .00   1800.41       .17       .00       .00   1800.80
      30.0        .0      28.9       1.1        .0       8.7        .8        .0        .0   1799.90
       .00       .00      3.34      1.41      .000      .024      .035      .000   1799.50    990.60
   .011761        0.        0.        0.         0         5         0       .00     29.14   1019.75


*SECNO 1.200
     1.200       .75   1800.25   1800.24       .00   1800.41       .17       .00       .00   1800.80
      30.0        .0      28.9       1.1        .0       8.7        .8        .0        .0   1799.90
       .00       .00      3.31      1.41      .000      .024      .035      .000   1799.50    990.50
   .011532        0.        0.        0.         0         5         0       .00     29.28   1019.78


1
   04NOV93      11:59:58                                                                                PAGE   13

T1 Flow split at C615 left channel (Mimosa Drive)
T2 Fountain Hills North FIS
T3  Q=35 C615L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                8                           .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7

1
   04NOV93      11:59:58                                                                                PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .78   1800.28   1800.28   1800.00   1800.46       .18       .00       .00   1800.80
      35.0        .0      33.5       1.5        .0       9.8       1.0        .0        .0   1799.90
       .00       .00      3.43      1.52      .000      .024      .035      .000   1799.50    988.91
   .011565        0.        0.        0.         0        14         0       .00     31.42   1020.33


*SECNO 1.100
     1.100       .79   1800.29   1800.28       .00   1800.46       .18       .00       .00   1800.80
      35.0        .0      33.5       1.5        .0       9.8       1.0        .0        .0   1799.90
       .00       .00      3.42      1.51      .000      .024      .035      .000   1799.50    988.87
   .011473        0.        0.        0.         0         5         0       .00     31.47   1020.34


*SECNO 1.200
     1.200       .79   1800.29   1800.28       .00   1800.46       .17       .00       .00   1800.80
      35.0        .0      33.5       1.5        .0       9.9       1.0        .0        .0   1799.90
       .00       .00      3.40      1.51      .000      .024      .035      .000   1799.50    988.77
   .011280        0.        0.        0.         0         5         0       .00     31.60   1020.37


1
   04NOV93      11:59:58                                                                                PAGE   15

T1 Flow split at C615 left channel (Mimosa Drive)
T2 Fountain Hills North FIS
T3  Q=30 C615L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                9                           .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8

1
   04NOV93      11:59:58                                                                                PAGE   16

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

*PROF 8

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000       .82   1800.32   1800.32   1800.00   1800.51       .18       .00       .00   1800.80
```

```
     40.0        .0      38.1       1.9        .0      10.9       1.2        .0        .0   1799.90
      .00       .00      3.51      1.60      .000      .024      .035      .000   1799.50    987.33
  .011311        0.        0.        0.         0        14         0       .00     33.54   1020.87


*SECNO 1.100
    1.100       .83   1800.33   1800.32       .00   1800.51       .18       .00       .00   1800.80
     40.0        .0      38.1       1.9        .0      10.9       1.2        .0        .0   1799.90
      .00       .00      3.50      1.60      .000      .024      .035      .000   1799.50    987.28
  .011225        0.        0.        0.         0         5         0       .00     33.60   1020.88


*SECNO 1.200
    1.200       .83   1800.33   1800.32       .00   1800.51       .18       .00       .00   1800.80
     40.0        .0      38.0       2.0        .0      11.0       1.2        .0        .0   1799.90
      .00       .00      3.47      1.59      .000      .024      .035      .000   1799.50    987.19
  .011045        0.        0.        0.         0         5         0       .00     33.72   1020.91
```



```
T1 Flow split at C615 left channel (Mimosa Drive)
T2 Fountain Hills North FIS
T3  Q=35 C615L.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              10                            .056                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15
```



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

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
    1.000       .86   1800.36   1800.36   1800.00   1800.55       .19       .00       .00   1800.80
     45.0        .0      42.6       2.4        .0      11.9       1.4        .0        .0   1799.90
      .00       .00      3.59      1.69      .000      .024      .035      .000   1799.50    985.95
  .011235        0.        0.        0.         0        17         0       .00     35.39   1021.34


*SECNO 1.100
    1.100       .86   1800.36   1800.36       .00   1800.55       .19       .00       .00   1800.80
     45.0        .0      42.6       2.4        .0      11.9       1.4        .0        .0   1799.90
      .00       .00      3.58      1.68      .000      .024      .035      .000   1799.50    985.90
  .011153        0.        0.        0.         0         5         0       .00     35.45   1021.35


*SECNO 1.200
    1.200       .87   1800.37   1800.36       .00   1800.55       .19       .00       .00   1800.80
     45.0        .0      42.6       2.4        .0      12.0       1.4        .0        .0   1799.90
      .00       .00      3.56      1.68      .000      .024      .035      .000   1799.50    985.81
  .010981        0.        0.        0.         0         5         0       .00     35.57   1021.38
```



```
                                                                    THIS RUN EXECUTED 04NOV93    12:00:03

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

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

 cfs. C615L.IH2.  29 Oct

SUMMARY PRINTOUT

      SECNO       Q       CWSEL     CRIWS     EG        TOPWID    DEPTH     10*KS     VCH

*     1.000     5.00    1799.86   1799.86   1799.96    11.22       .36     155.94     2.46
*     1.000    10.00    1799.98   1799.98   1800.10    15.65       .48     138.51     2.82
*     1.000    15.00    1800.07   1800.07   1800.20    20.26       .57     123.56     2.94
*     1.000    20.00    1800.14   1800.14   1800.28    23.70       .64     121.89     3.10
*     1.000    25.00    1800.19   1800.19   1800.35    26.56       .69     120.63     3.24
*     1.000    30.00    1800.24   1800.24   1800.41    29.08       .74     118.72     3.35
*     1.000    35.00    1800.28   1800.28   1800.46    31.42       .78     115.65     3.43
*     1.000    40.00    1800.32   1800.32   1800.51    33.54       .82     113.11     3.51
*     1.000    45.00    1800.36   1800.36   1800.55    35.39       .86     112.35     3.59

      1.100     5.00    1799.87   1799.86   1799.96    11.30       .37     150.18     2.43
      1.100    10.00    1799.98   1799.97   1800.10    15.70       .48     136.45     2.81
      1.100    15.00    1800.07   1800.07   1800.21    20.32       .57     122.17     2.93
      1.100    20.00    1800.14   1800.14   1800.29    23.76       .64     120.61     3.09
      1.100    25.00    1800.20   1800.19   1800.35    26.70       .70     117.91     3.21
*     1.100    30.00    1800.24   1800.24   1800.41    29.14       .74     117.61     3.34
```

1.100	35.00	1800.29	1800.28	1800.46	31.47	.79	114.73	3.42
1.100	40.00	1800.33	1800.32	1800.51	33.60	.83	112.25	3.50
1.100	45.00	1800.36	1800.36	1800.55	35.45	.86	111.53	3.58
1.200	5.00	1799.87	1799.86	1799.96	11.41	.37	142.63	2.38
1.200	10.00	1799.99	1799.97	1800.11	15.82	.49	132.25	2.78
1.200	15.00	1800.08	1800.07	1800.21	20.46	.58	119.31	2.90
1.200	20.00	1800.14	1800.14	1800.29	23.90	.64	117.98	3.06
1.200	25.00	1800.20	1800.19	1800.35	26.85	.70	115.27	3.18
1.200	30.00	1800.25	1800.24	1800.41	29.28	.75	115.32	3.31
1.200	35.00	1800.29	1800.28	1800.46	31.60	.79	112.80	3.40
1.200	40.00	1800.33	1800.32	1800.51	33.72	.83	110.45	3.47
1.200	45.00	1800.37	1800.36	1800.55	35.57	.87	109.81	3.56

1

04NOV93 11:59:58 PAGE 20

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      1.100  PROFILE=  6  CRITICAL DEPTH ASSUMED
```

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1*****************************************
*************************************
 *  HEC-2 WATER SURFACE PROFILES            *                                          *  U.S. ARMY CORPS OF ENGINEERS
*
 *                                          *                                          *  HYDROLOGIC ENGINEERING CENTER
*
 *  Version   4.6.2;  May 1991              *                                          *  609 SECOND STREET, SUITE D
*
 *                                          *                                          *  DAVIS, CALIFORNIA 95616-4687
*
 *  RUN DATE    04NOV93    TIME   12:00:11  *                                          *          (916) 756-1104
*
 *****************************************
*************************************
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```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   04NOV93      12:00:11                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 04NOV93    12:00:11
 *************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 *************************************


 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3 Q = 5 cfs. C615R.IH2.  29 Oct 93 trl

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .050                                    1800.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2         3         4         8         5        26

 QT        9         5        10        15        20        25        30        35
 NC     .035      .035      .024        .1        .3
 X1      1.0       7.0     968.8    1031.2
 GR   1800.5     965.8    1800.0     968.8    1799.7     970.0    1800.6    1000.0    1800.4    1030.0
 GR   1800.9    1031.2    1802.0    1036.2

 X1      1.1                                    0.1       0.1       0.1

 X1      1.2                                    0.1       0.1       0.1
1
   04NOV93      12:00:11                                                                                    PAGE    2

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


 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      .34   1800.04   1800.04   1800.00   1800.12       .09       .00       .00   1800.00
        5.0       .0       5.0       .0        .0       2.1        .0        .0        .0   1800.90
        .00      .05      2.37       .00      .035      .024      .000      .000   1799.70    968.58
    .015559       0.        0.        0.         0         8         0       .00     12.64    981.22


 *SECNO 1.100
      1.100      .34   1800.04   1800.04       .00   1800.13       .09       .00       .00   1800.00
        5.0       .0       5.0       .0        .0       2.1        .0        .0        .0   1800.90
        .00      .05      2.34       .00      .035      .024      .000      .000   1799.70    968.57
    .015169       0.        0.        0.         0         5         0       .00     12.70    981.27


 *SECNO 1.200
      1.200      .35   1800.05   1800.04       .00   1800.13       .08       .00       .00   1800.00
        5.0       .0       5.0       .0        .0       2.2        .0        .0        .0   1800.90
        .00      .05      2.30       .00      .035      .024      .000      .000   1799.70    968.55
    .014397       0.        0.        0.         0         5         0       .00     12.83    981.38


1
   04NOV93      12:00:11                                                                                    PAGE    3

 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=10 C615R.IH2.  29 Oct 93 trl
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```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           .050                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2

1
   04NOV93      12:00:11                                                                                    PAGE    4

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

 *PROF 2

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
     1.000       .44   1800.14   1800.14   1800.00   1800.26       .12       .00       .00   1800.00
      10.0        .0      10.0        .0        .1       3.6        .0        .0        .0   1800.90
       .00       .05      2.75       .00      .035      .024      .000      .000   1799.70    967.94
   .014326        0.        0.        0.         0        15         0       .00     16.84    984.78

 *SECNO 1.100
     1.100       .45   1800.15   1800.14       .00   1800.26       .12       .00       .00   1800.00
      10.0        .0      10.0        .0        .1       3.7        .0        .0        .0   1800.90
       .00       .05      2.74       .00      .035      .024      .000      .000   1799.70    967.93
   .014079        0.        0.        0.         0         5         0       .00     16.90    984.83

 *SECNO 1.200
     1.200       .45   1800.15   1800.14       .00   1800.26       .11       .00       .00   1800.00
      10.0        .0      10.0        .0        .1       3.7        .0        .0        .0   1800.90
       .00       .05      2.70       .00      .035      .024      .000      .000   1799.70    967.91
   .013580        0.        0.        0.         0         6         0       .00     17.02    984.93

1
   04NOV93      12:00:11                                                                                    PAGE    5

 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=15 C615R.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           .050                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3

1
   04NOV93      12:00:11                                                                                    PAGE    6

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

 *PROF 3

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
     1.000       .52   1800.22   1800.22   1800.00   1800.36       .13       .00       .00   1800.00
      15.0        .2      14.8        .0        .2       5.0        .0        .0        .0   1800.90
       .00      1.12      2.95       .00      .035      .024      .000      .000   1799.70    967.46
   .013092        0.        0.        0.         0        20         0       .00     20.02    987.47

 *SECNO 1.100
     1.100       .53   1800.23   1800.22       .00   1800.36       .13       .00       .00   1800.00
      15.0        .2      14.8        .0        .2       5.1        .0        .0        .0   1800.90
       .00      1.12      2.93       .00      .035      .024      .000      .000   1799.70    967.45
   .012915        0.        0.        0.         0         5         0       .00     20.07    987.52

 *SECNO 1.200
     1.200       .53   1800.23   1800.22       .00   1800.36       .13       .00       .00   1800.00
      15.0        .2      14.8        .0        .2       5.1        .0        .0        .0   1800.90
       .00      1.11      2.90       .00      .035      .024      .000      .000   1799.70    967.43
   .012554        0.        0.        0.         0         5         0       .00     20.18    987.61

1
   04NOV93      12:00:11                                                                                    PAGE    7

 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=20 C615R.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           .050                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4
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1                                                                                                    PAGE    8
   04NOV93      12:00:11

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

 *PROF 4

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000        .59    1800.29    1800.29    1800.00    1800.44        .15        .00        .00    1800.00
       20.0         .3       19.7         .0         .3        6.3         .0         .0         .0    1800.90
        .00       1.30       3.12        .00       .035       .024       .000       .000    1799.70     967.07
    .012501         0.         0.         0.          0         17          0        .00      22.57     989.64


 *SECNO 1.100
      1.100        .59    1800.29    1800.29        .00    1800.44        .15        .00        .00    1800.00
       20.0         .3       19.7         .0         .3        6.3         .0         .0         .0    1800.90
        .00       1.29       3.10        .00       .035       .024       .000       .000    1799.70     967.06
    .012364         0.         0.         0.          0          5          0        .00      22.62     989.68


 *SECNO 1.200
      1.200        .60    1800.30    1800.29        .00    1800.44        .14        .00        .00    1800.00
       20.0         .3       19.7         .0         .3        6.4         .0         .0         .0    1800.90
        .00       1.28       3.08        .00       .035       .024       .000       .000    1799.70     967.04
    .012069         0.         0.         0.          0          5          0        .00      22.72     989.77

1                                                                                                    PAGE    9
   04NOV93      12:00:11

 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=25 C615R.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 6                                .050                                       1800.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

        5
1                                                                                                    PAGE   10
   04NOV93      12:00:11

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

 *PROF 5

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000        .64    1800.34    1800.34    1800.00    1800.51        .17        .00        .00    1800.00
       25.0         .5       24.5         .0         .3        7.4         .0         .0         .0    1800.90
        .00       1.45       3.30        .00       .035       .024       .000       .000    1799.70     966.76
    .012543         0.         0.         0.          0         20          0        .00      24.58     991.34


 *SECNO 1.100
      1.100        .65    1800.35    1800.34        .00    1800.51        .16        .00        .00    1800.00
       25.0         .5       24.5         .0         .4        7.5         .0         .0         .0    1800.90
        .00       1.43       3.25        .00       .035       .024       .000       .000    1799.70     966.73
    .012070         0.         0.         0.          0          5          0        .00      24.77     991.50


 *SECNO 1.200
      1.200        .65    1800.35    1800.34        .00    1800.51        .16        .00        .00    1800.00
       25.0         .5       24.5         .0         .4        7.6         .0         .0         .0    1800.90
        .00       1.42       3.22        .00       .035       .024       .000       .000    1799.70     966.71
    .011771         0.         0.         0.          0          5          0        .00      24.89     991.60

1                                                                                                    PAGE   11
   04NOV93      12:00:11

 T1 Flow split at C615 right channel (El Lago Blvd.)
 T2 Fountain Hills North FIS
 T3  Q=30 C615R.IH2.  29 Oct 93 trl

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 7                                .050                                       1800.0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

        6
1                                                                                                    PAGE   12
   04NOV93      12:00:11

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

```
*PROF 6

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .70   1800.40   1800.40   1800.00   1800.57       .16       .00       .00   1800.00
      30.0        .8      29.2       .0        .5       8.9        .0        .0        .0   1800.90
       .00      1.54      3.27       .00      .035      .024      .000      .000   1799.70    966.37
   .011242        0.        0.        0.         0        20         0       .00     27.75   1030.01

*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .71   1800.41   1800.41       .00   1800.57       .16       .00       .00   1800.00
      30.0        .8      29.2       .0        .5       9.0        .0        .0        .0   1800.90
       .00      1.54      3.25       .00      .035      .024      .000      .000   1799.70    966.36
   .011239        0.        0.        0.         0         5         0       .00     28.15   1030.02

*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .71   1800.41   1800.41       .00   1800.57       .16       .00       .00   1800.00
      30.0        .8      29.2       .0        .5       9.1        .0        .0        .0   1800.90
       .00      1.55      3.23       .00      .035      .024      .000      .000   1799.70    966.35
   .011229        0.        0.        0.         0         5         0       .00     28.62   1030.02

1
   04NOV93      12:00:11                                                                          PAGE   13

T1 Flow split at C615 right channel (El Lago Blvd.)
T2 Fountain Hills North FIS
T3  Q=35 C615R.IH2.  29 Oct 93 trl

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                8                           .050                                    1800.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15

1
   04NOV93      12:00:11                                                                          PAGE   14

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

*PROF 7

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000       .77   1800.47   1800.47   1800.00   1800.61       .14       .00       .00   1800.00
      35.0       1.2      33.8       .0        .7      11.0        .0        .0        .0   1800.90
       .00      1.80      3.07       .00      .035      .024      .000      .000   1799.70    965.98
   .012639        0.        0.        0.         0        20         0       .00     40.49   1030.17

*SECNO 1.100

3265 DIVIDED FLOW

     1.100       .77   1800.47   1800.47       .00   1800.61       .14       .00       .00   1800.00
      35.0       1.2      33.8       .0        .7      11.1        .0        .0        .0   1800.90
       .00      1.80      3.05       .00      .035      .024      .000      .000   1799.70    965.97
   .012561        0.        0.        0.         0         5         0       .00     40.72   1030.17

*SECNO 1.200

3265 DIVIDED FLOW

     1.200       .78   1800.48   1800.47       .00   1800.62       .14       .00       .00   1800.00
      35.0       1.2      33.8       .0        .7      11.2        .0        .0        .0   1800.90
       .00      1.79      3.02       .00      .035      .024      .000      .000   1799.70    965.95
   .012388        0.        0.        0.         0         5         0       .00     41.24   1030.18

1
   04NOV93      12:00:11                                                                          PAGE   15

                                                                  THIS RUN EXECUTED 04NOV93     12:00:15
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

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

cfs. C615R.IH2. 29 Oct

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	EG	TOPWID	DEPTH	10*KS	VCH
*	1.000	5.00	1800.04	1800.04	1800.12	12.64	.34	155.59	2.37
*	1.000	10.00	1800.14	1800.14	1800.26	16.84	.44	143.26	2.75
*	1.000	15.00	1800.22	1800.22	1800.36	20.02	.52	130.92	2.95
*	1.000	20.00	1800.29	1800.29	1800.44	22.57	.59	125.01	3.12
*	1.000	25.00	1800.34	1800.34	1800.51	24.58	.64	125.43	3.30
*	1.000	30.00	1800.40	1800.40	1800.57	27.75	.70	112.42	3.27
*	1.000	35.00	1800.47	1800.47	1800.61	40.49	.77	126.39	3.07
	1.100	5.00	1800.04	1800.04	1800.13	12.70	.34	151.69	2.34
	1.100	10.00	1800.15	1800.14	1800.26	16.90	.45	140.79	2.74
	1.100	15.00	1800.23	1800.22	1800.36	20.07	.53	129.15	2.93
	1.100	20.00	1800.29	1800.29	1800.44	22.62	.59	123.64	3.10
	1.100	25.00	1800.35	1800.34	1800.51	24.77	.65	120.70	3.25
	1.100	30.00	1800.41	1800.41	1800.57	28.15	.71	112.39	3.25
	1.100	35.00	1800.47	1800.47	1800.61	40.72	.77	125.61	3.05
	1.200	5.00	1800.05	1800.04	1800.13	12.83	.35	143.97	2.30
	1.200	10.00	1800.15	1800.14	1800.26	17.02	.45	135.80	2.70
	1.200	15.00	1800.23	1800.22	1800.36	20.18	.53	125.54	2.90
	1.200	20.00	1800.30	1800.29	1800.44	22.72	.60	120.69	3.08
	1.200	25.00	1800.35	1800.34	1800.51	24.89	.65	117.71	3.22
	1.200	30.00	1800.41	1800.41	1800.57	28.62	.71	112.29	3.23
	1.200	35.00	1800.48	1800.47	1800.62	41.24	.78	123.88	3.02

1

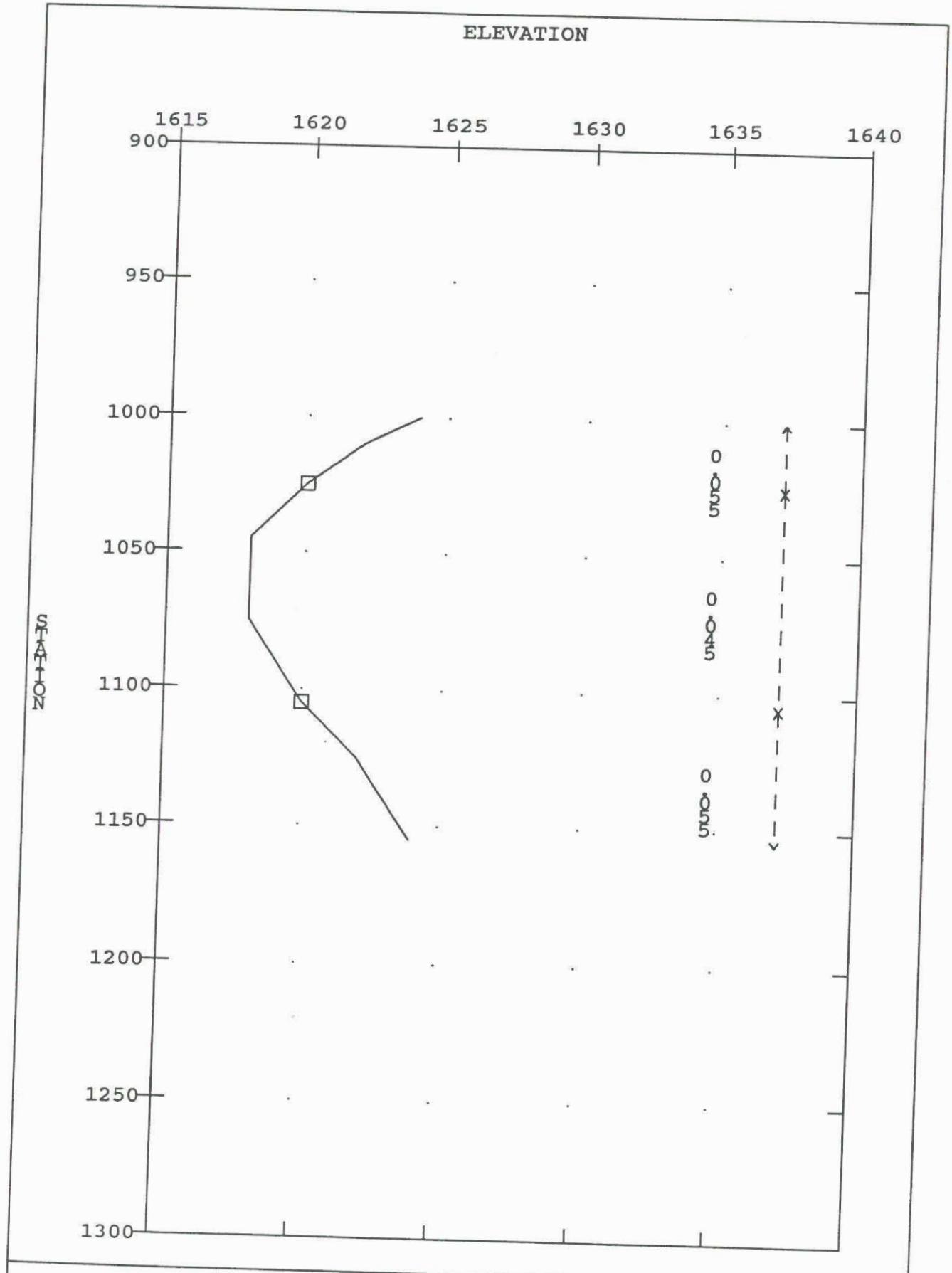
04NOV93 12:00:11 PAGE 16

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 5 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 7 CRITICAL DEPTH ASSUMED

APPENDIX C

Reach Route Cross Section Plots



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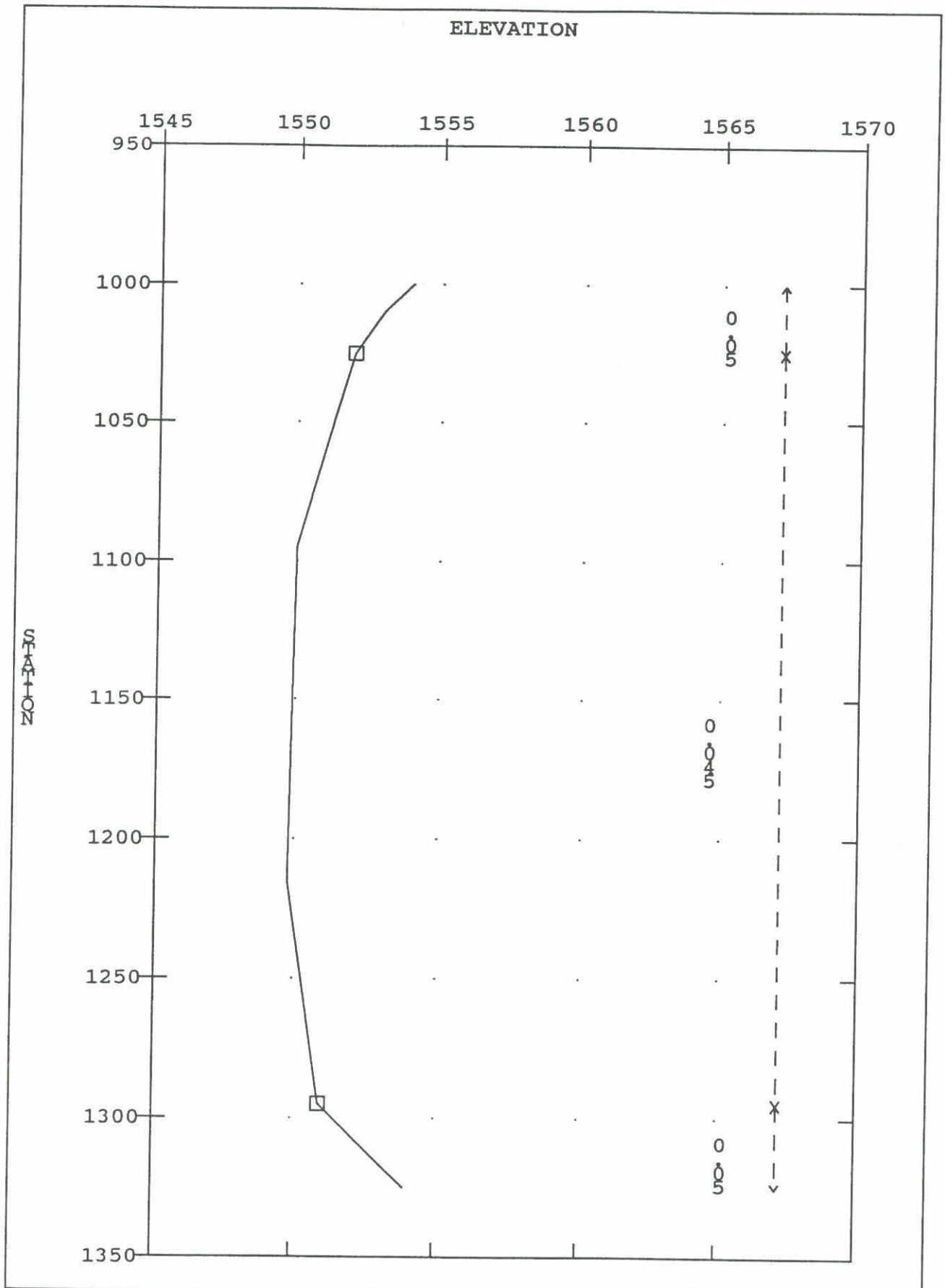

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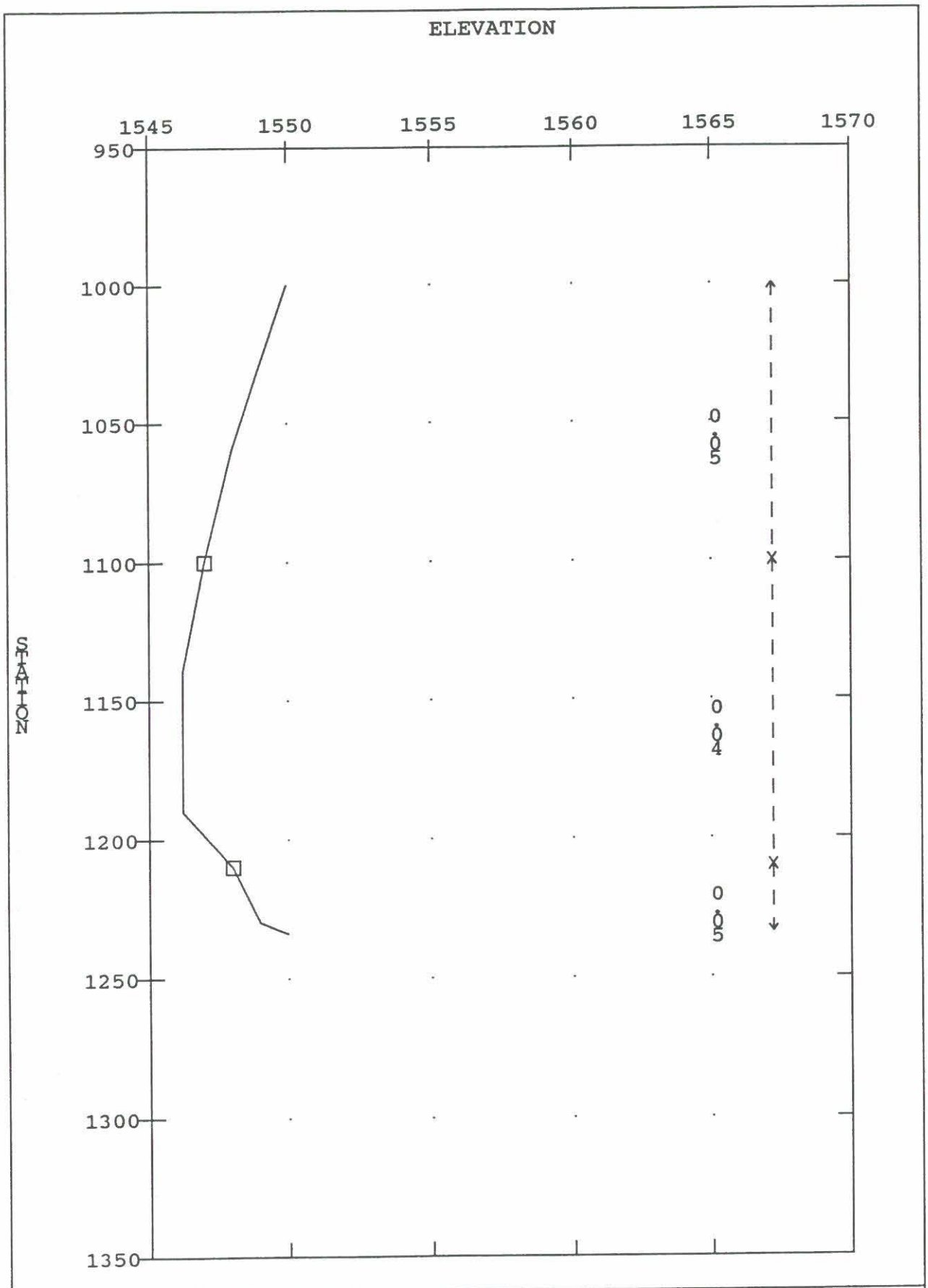

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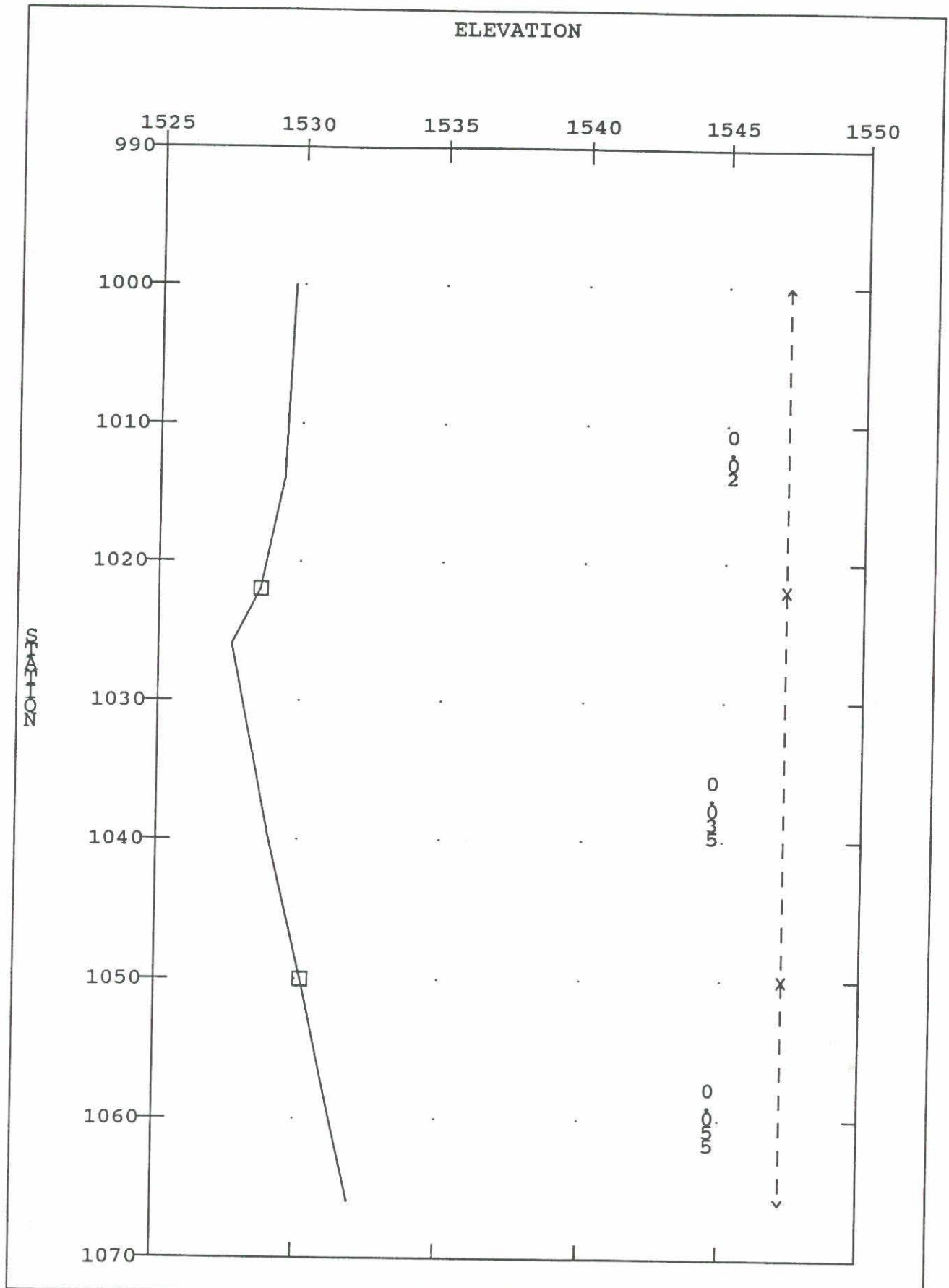

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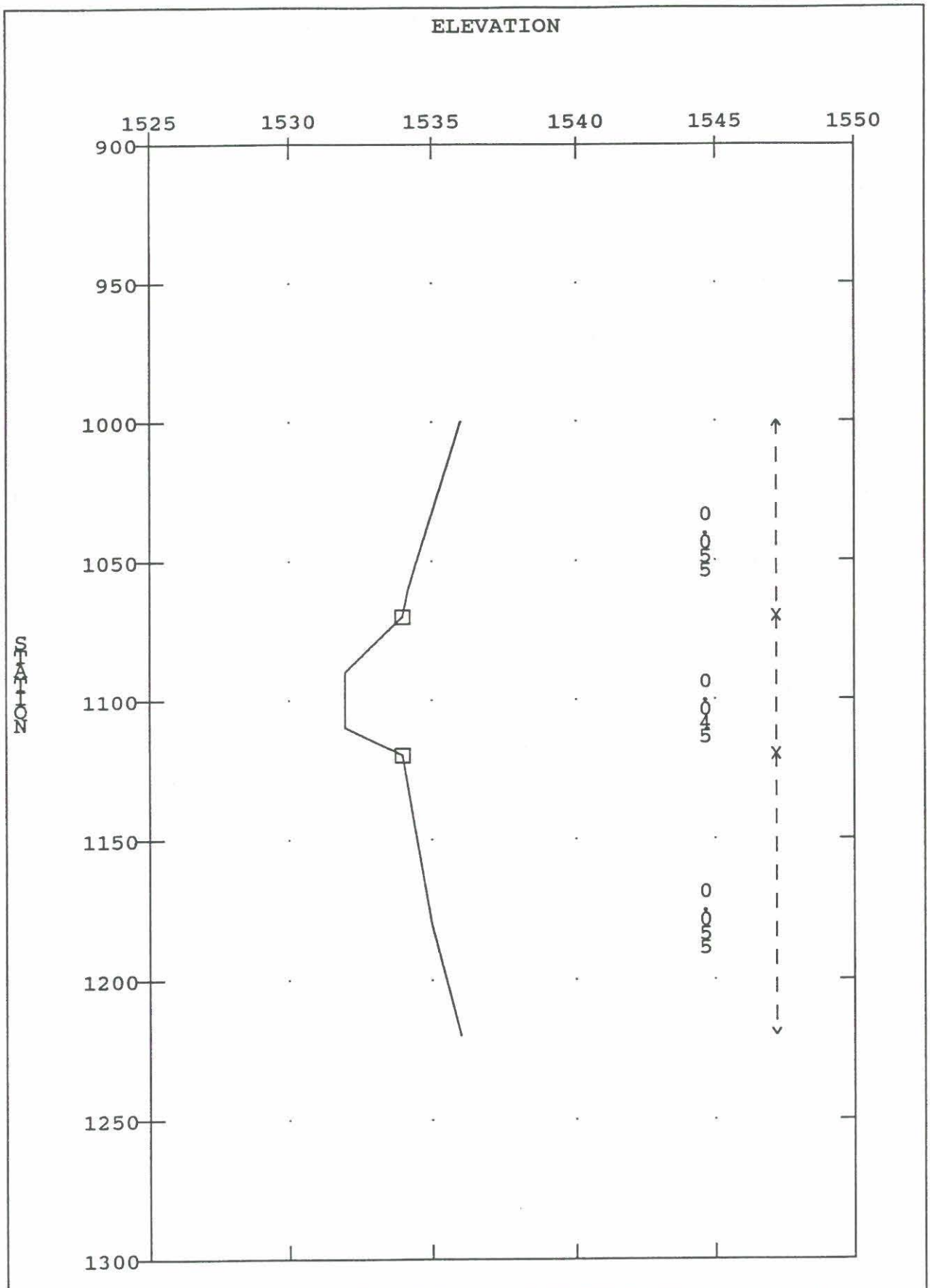

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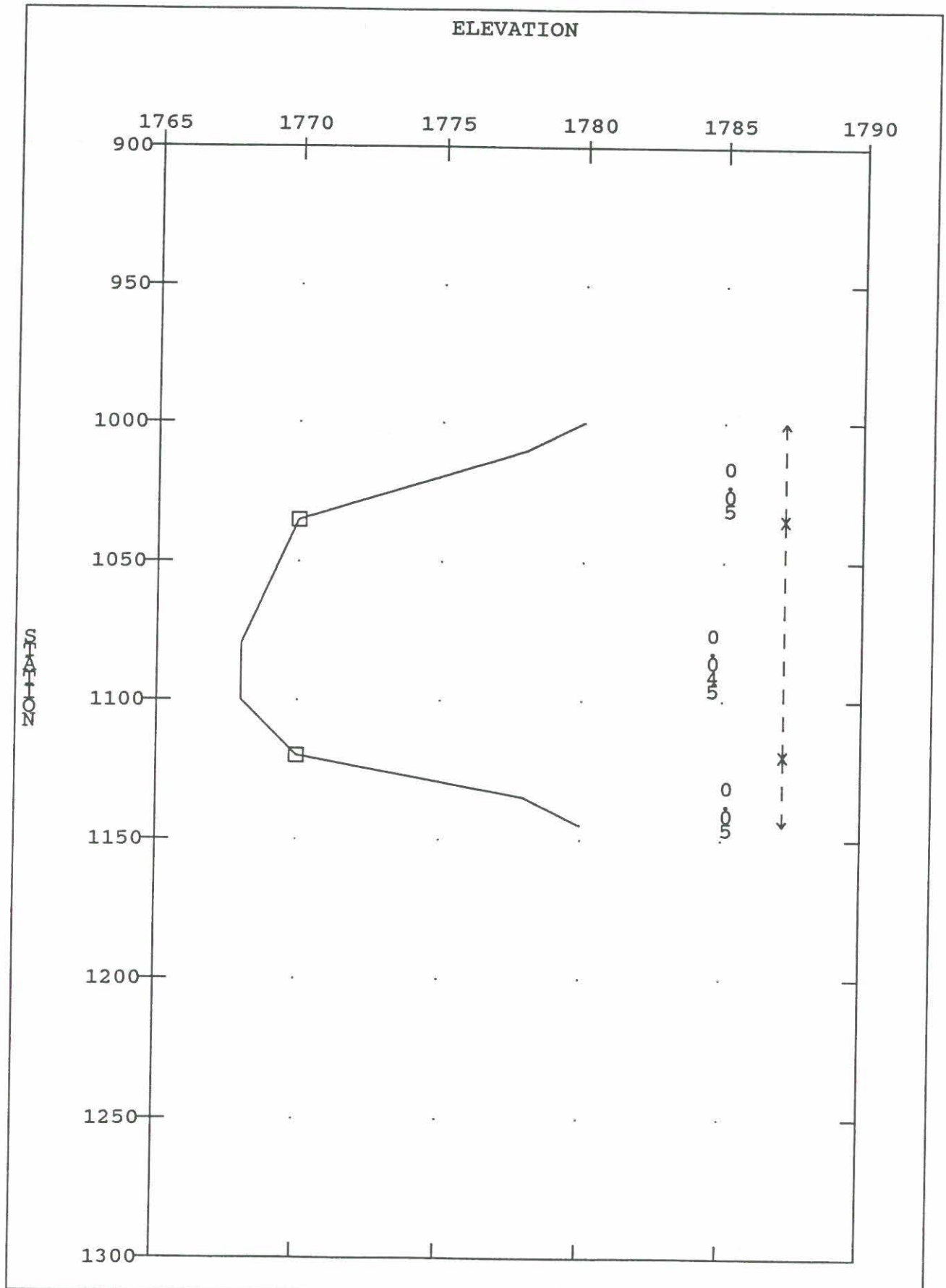

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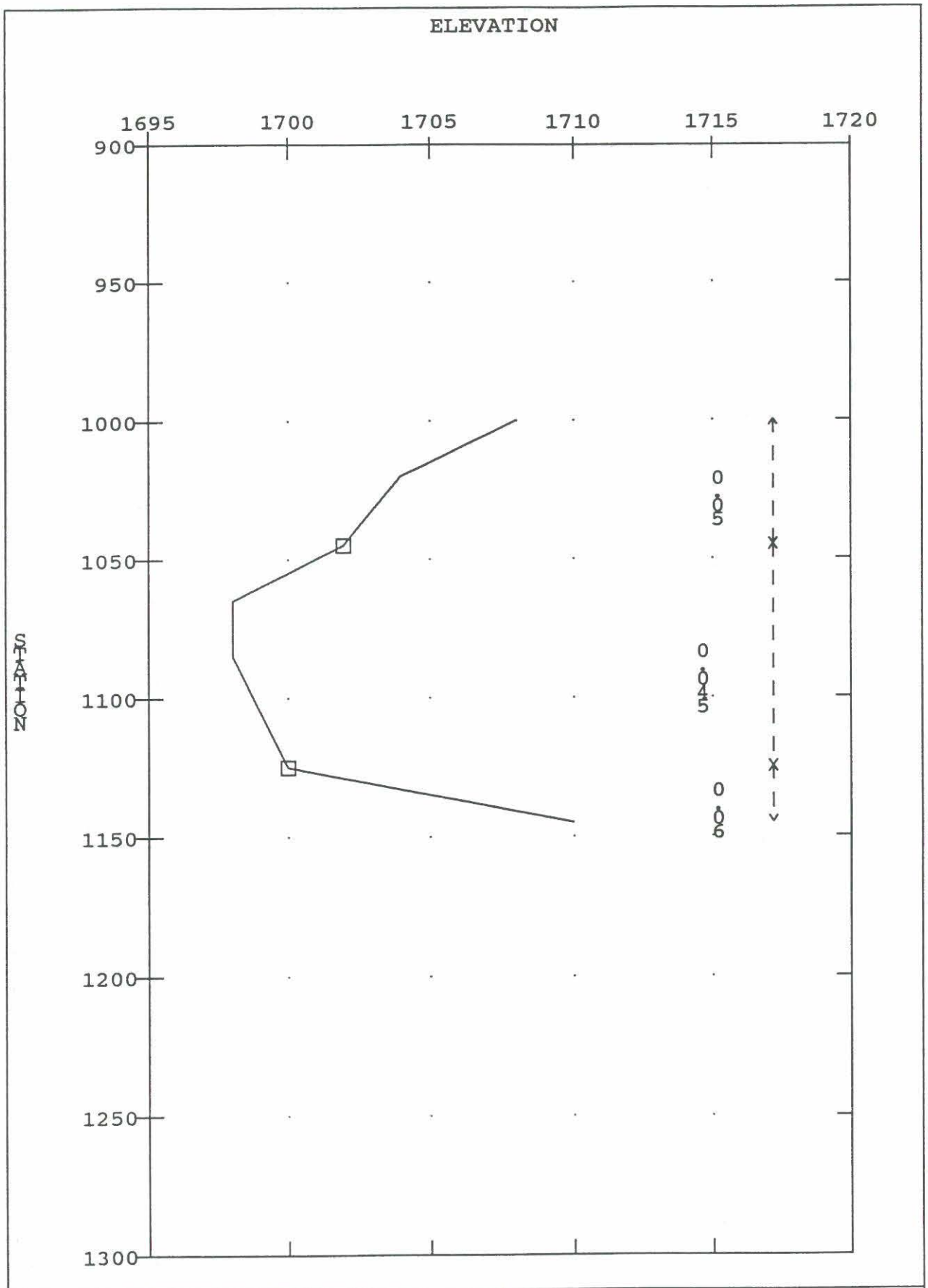

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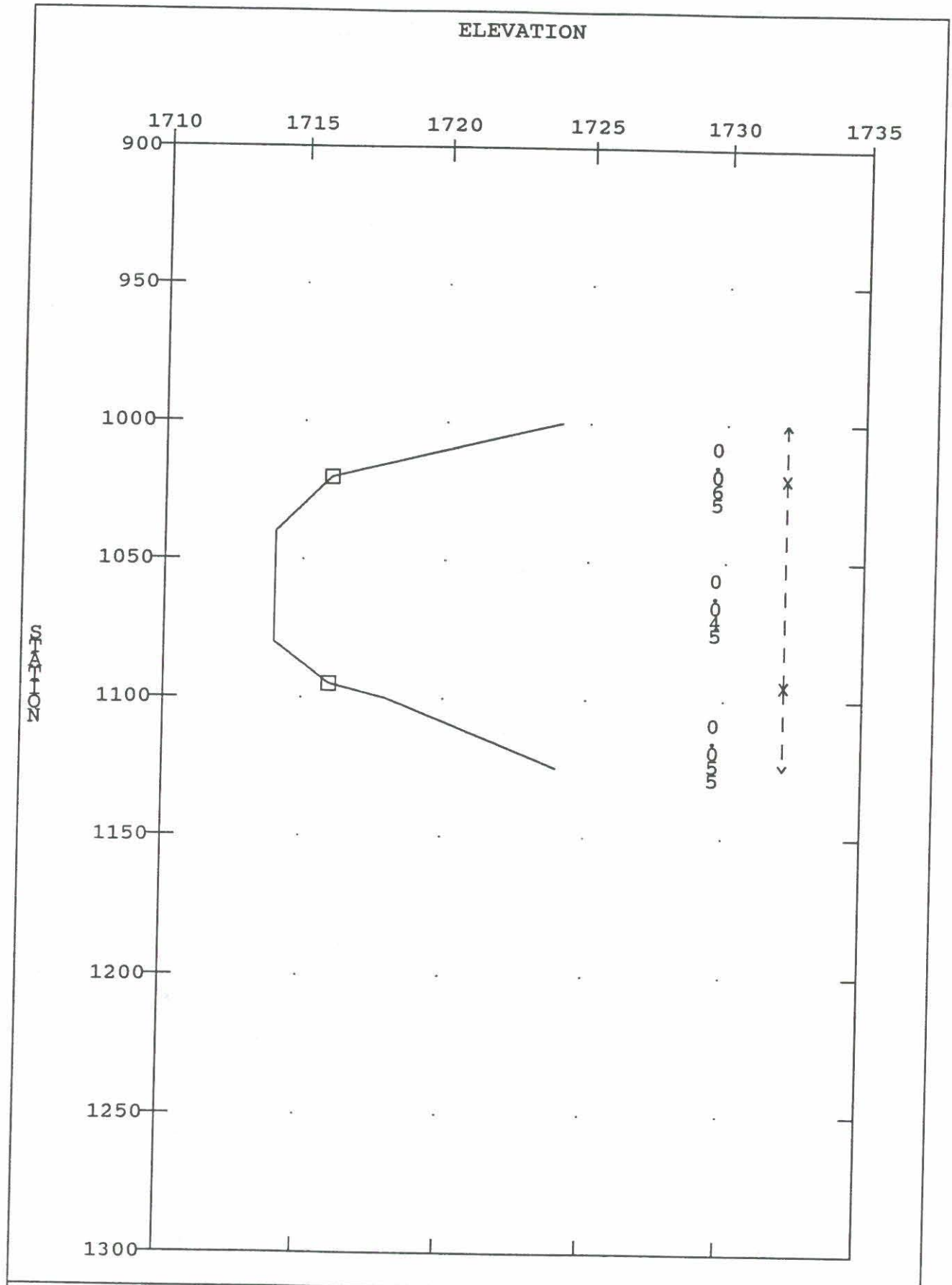

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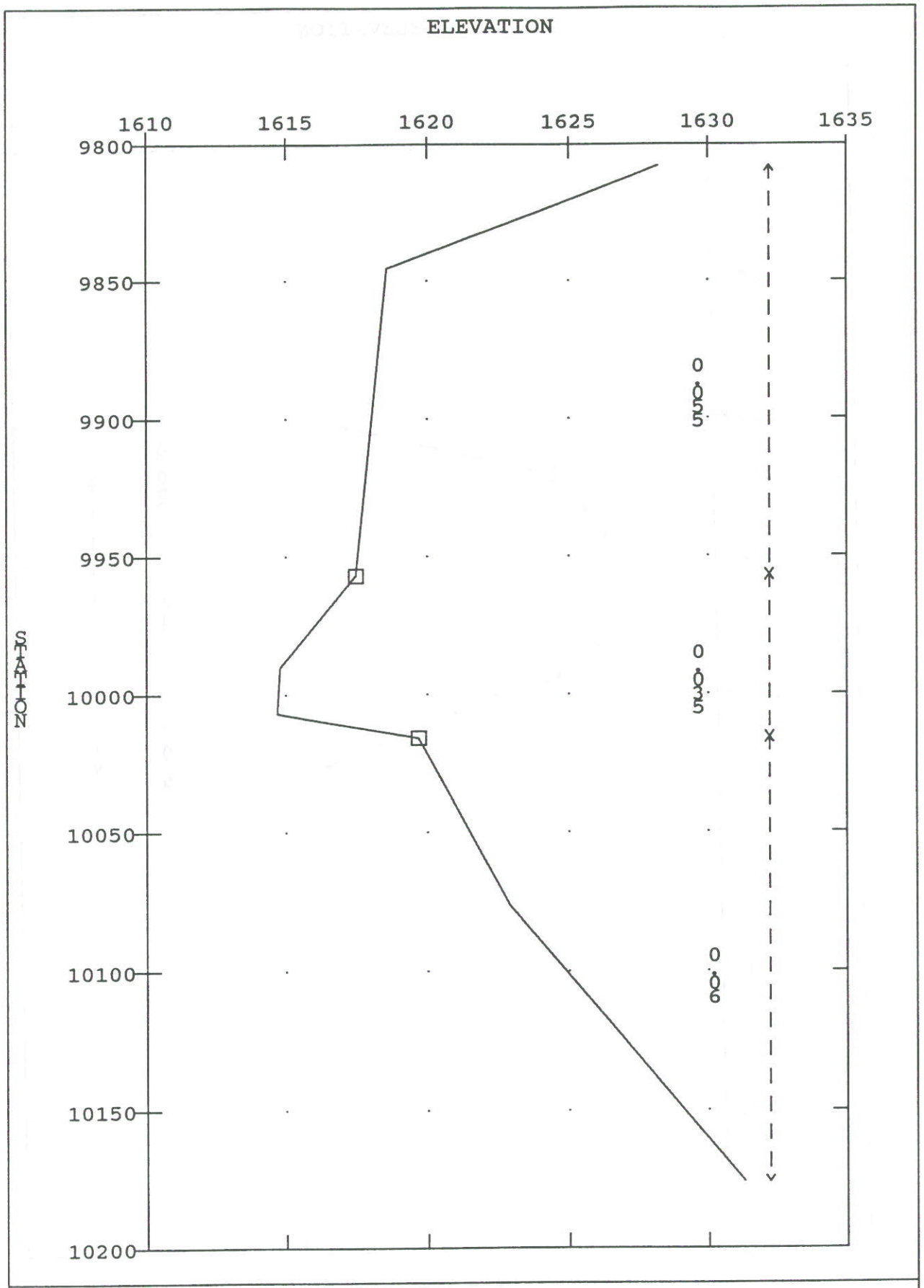

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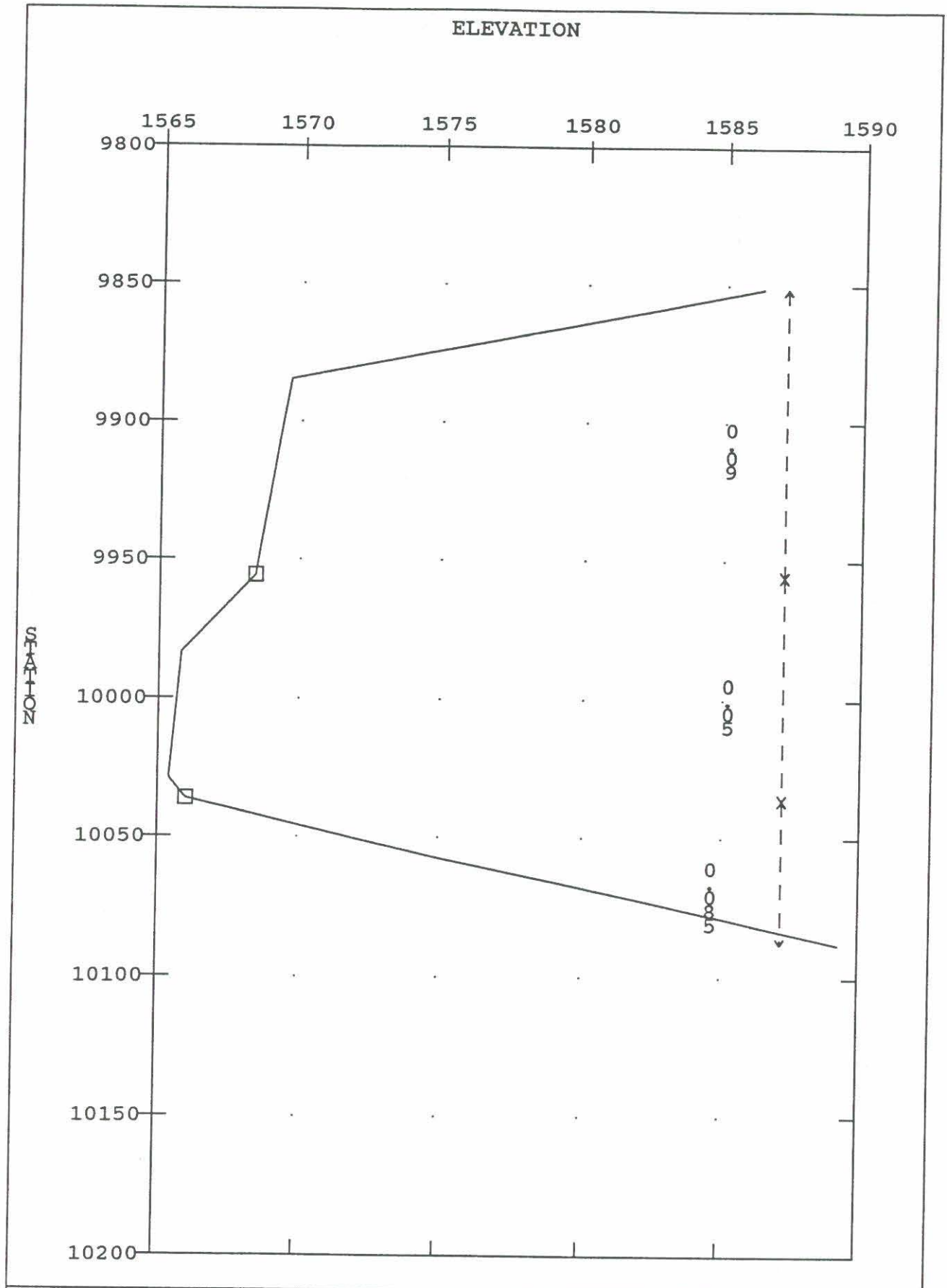

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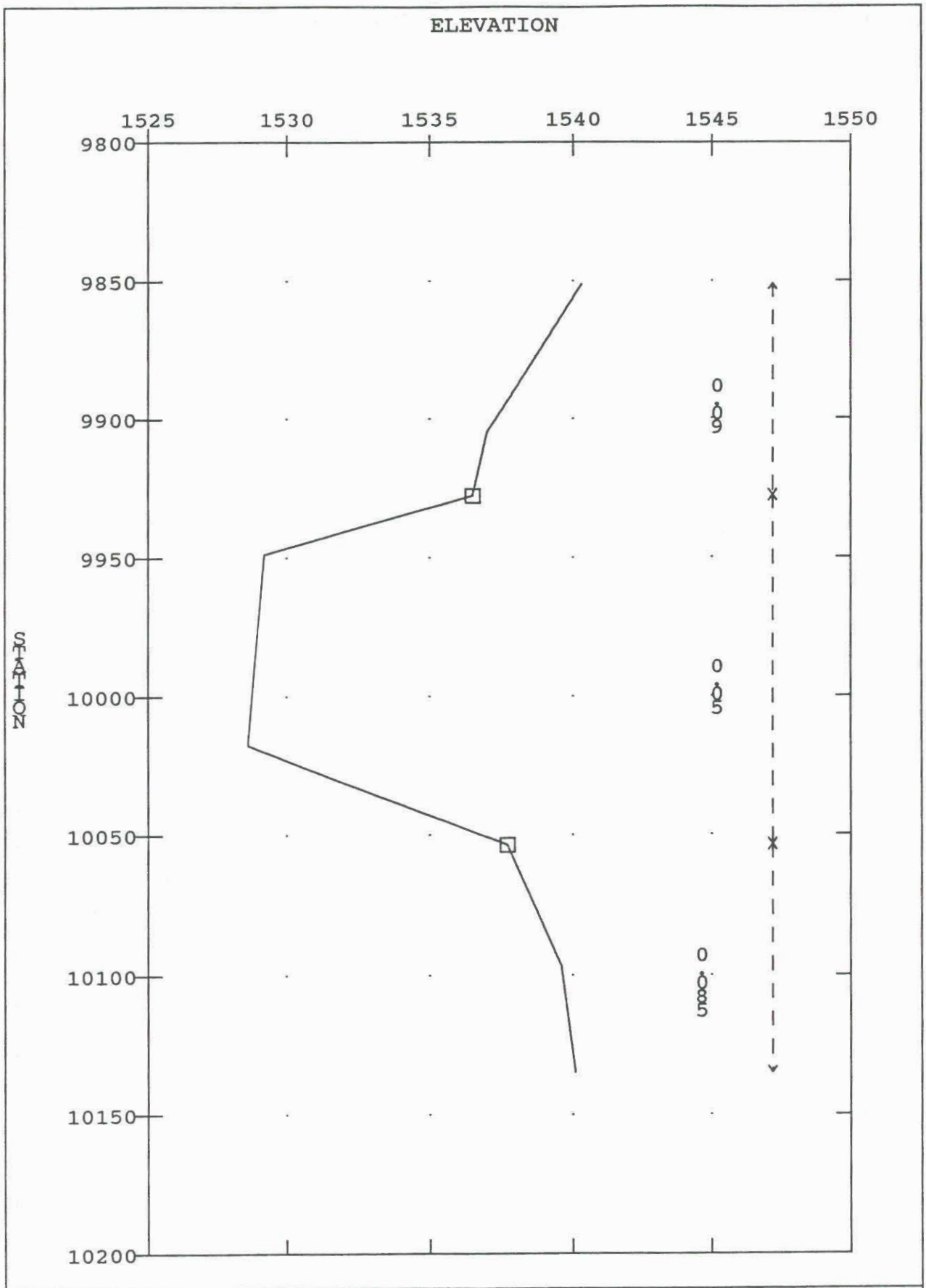

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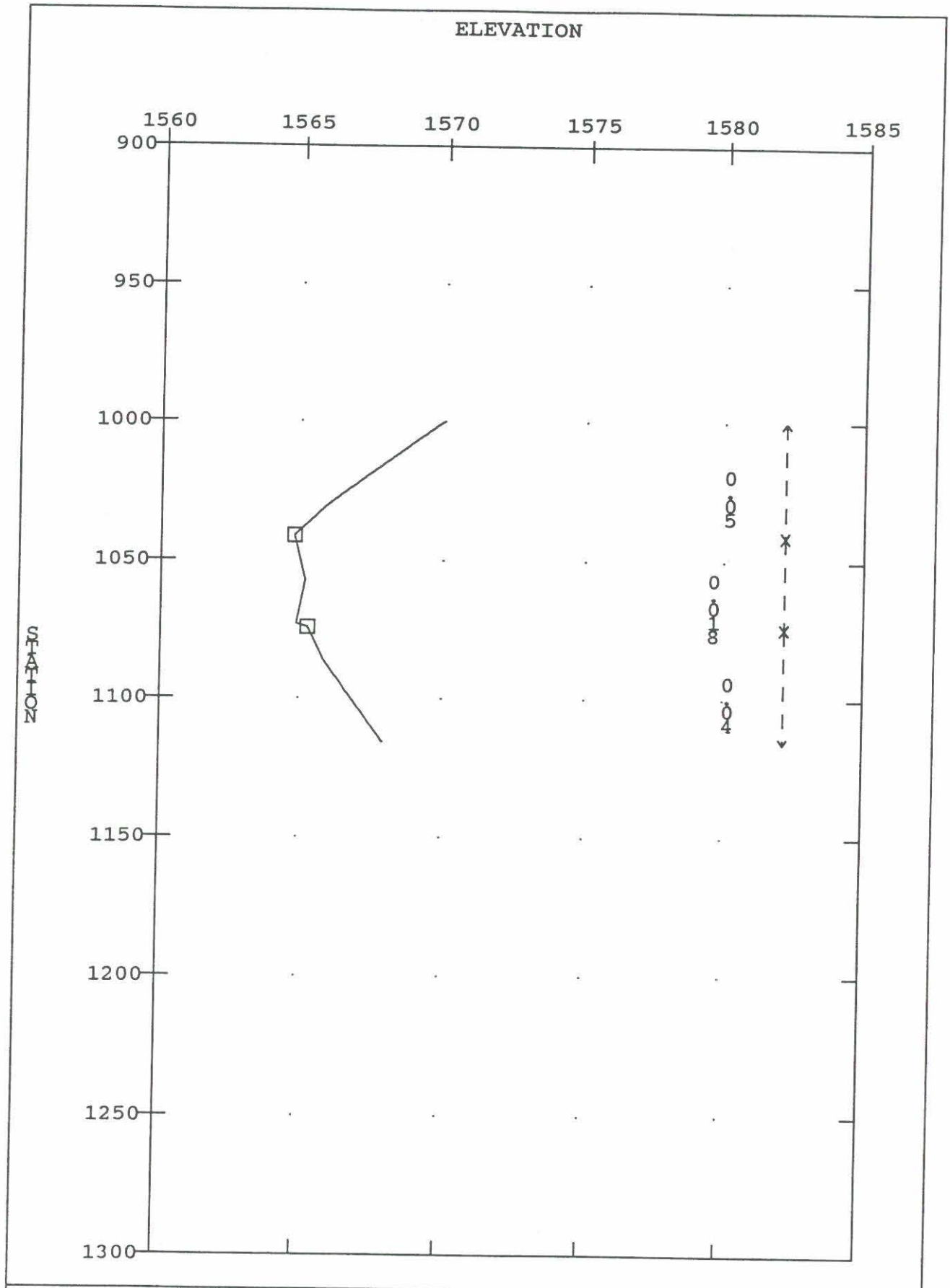

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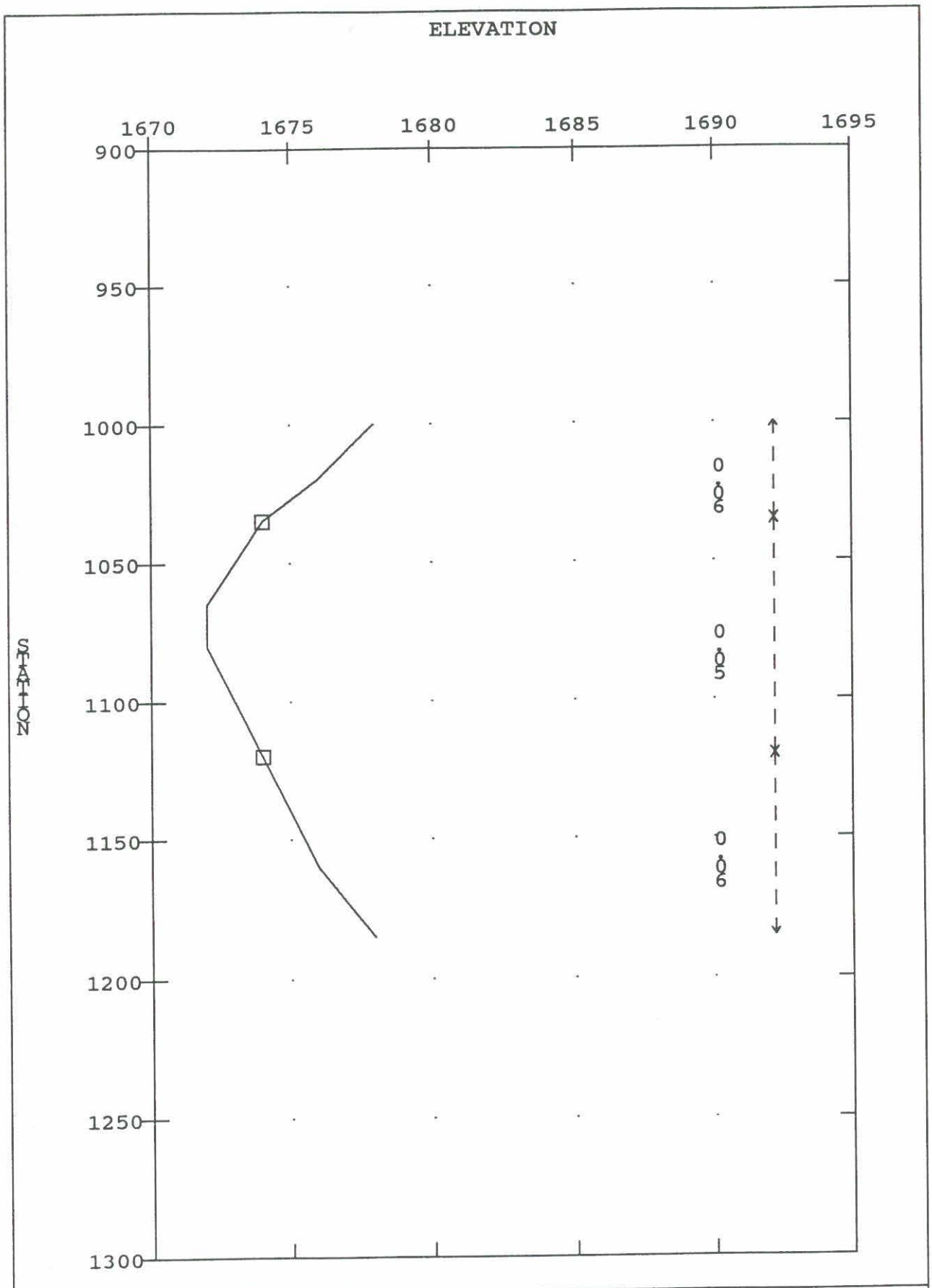

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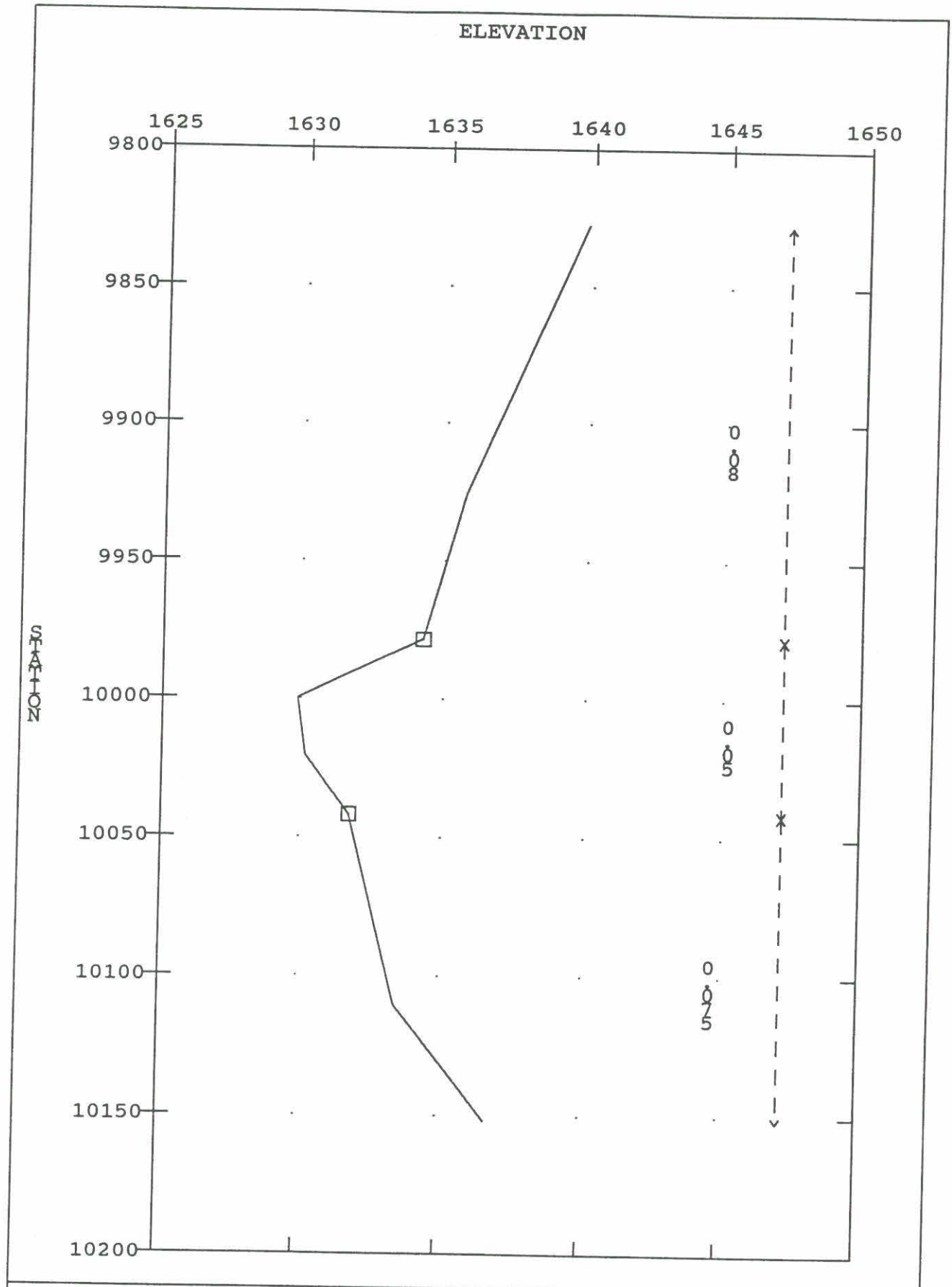

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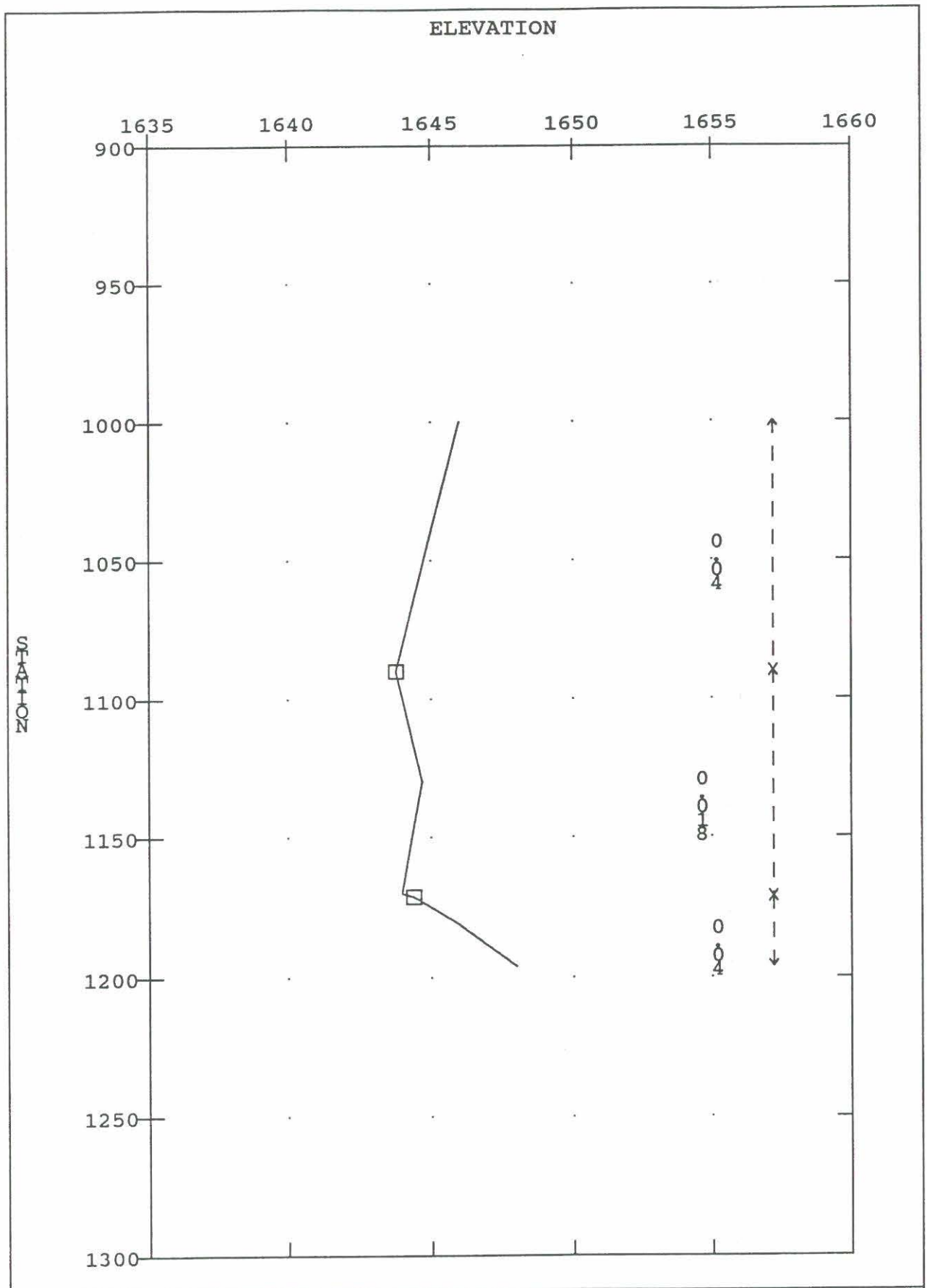

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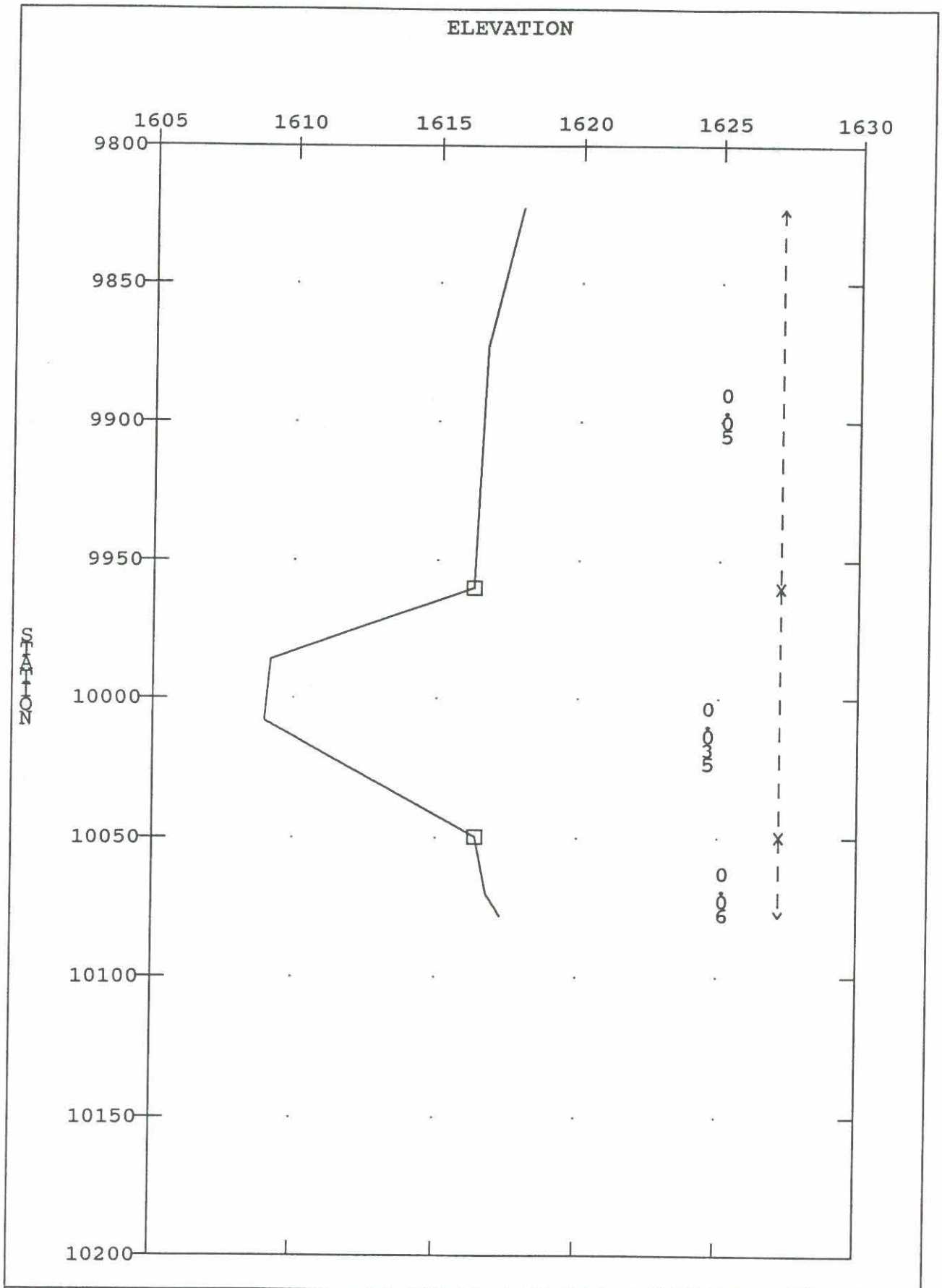

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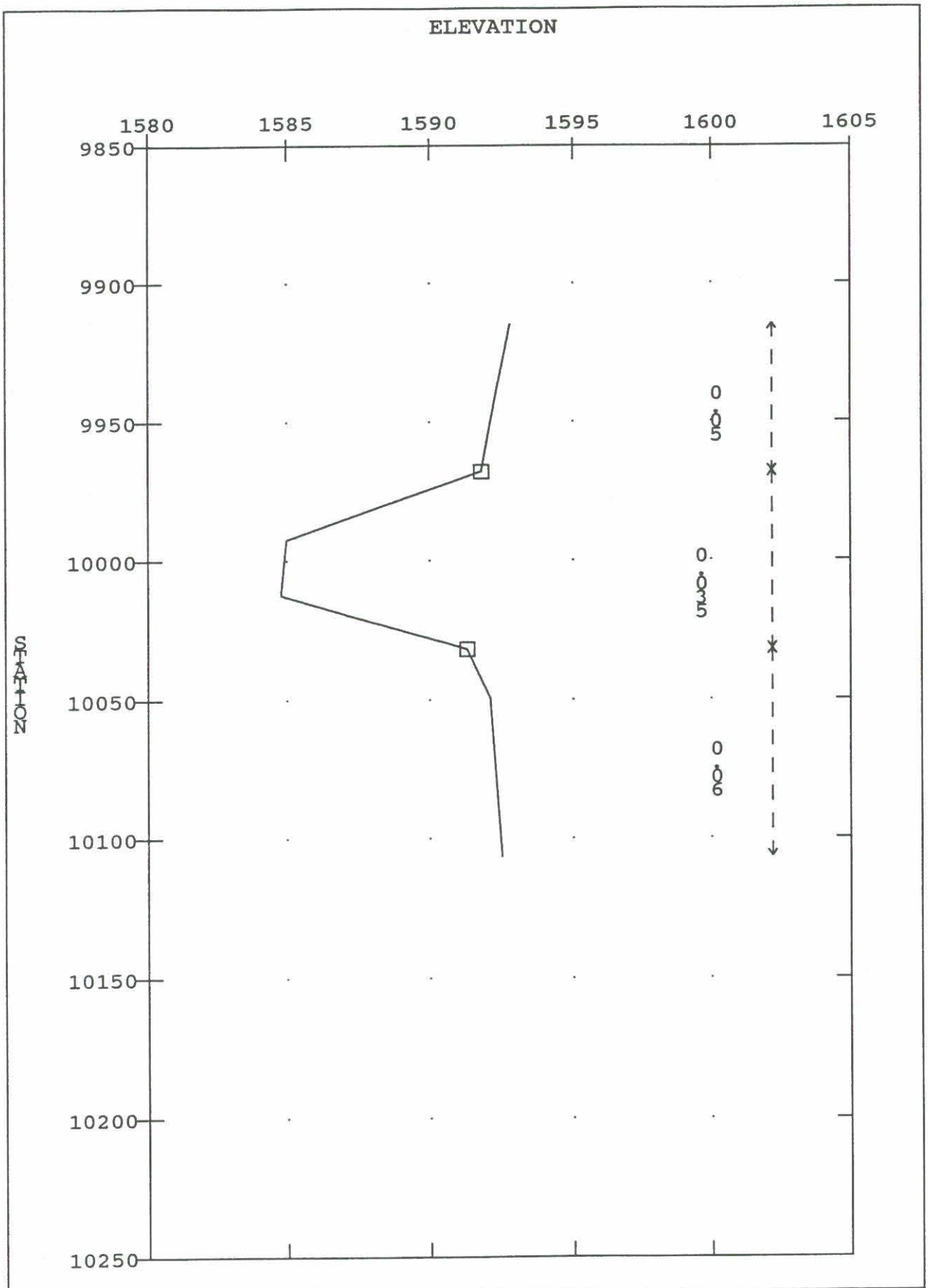

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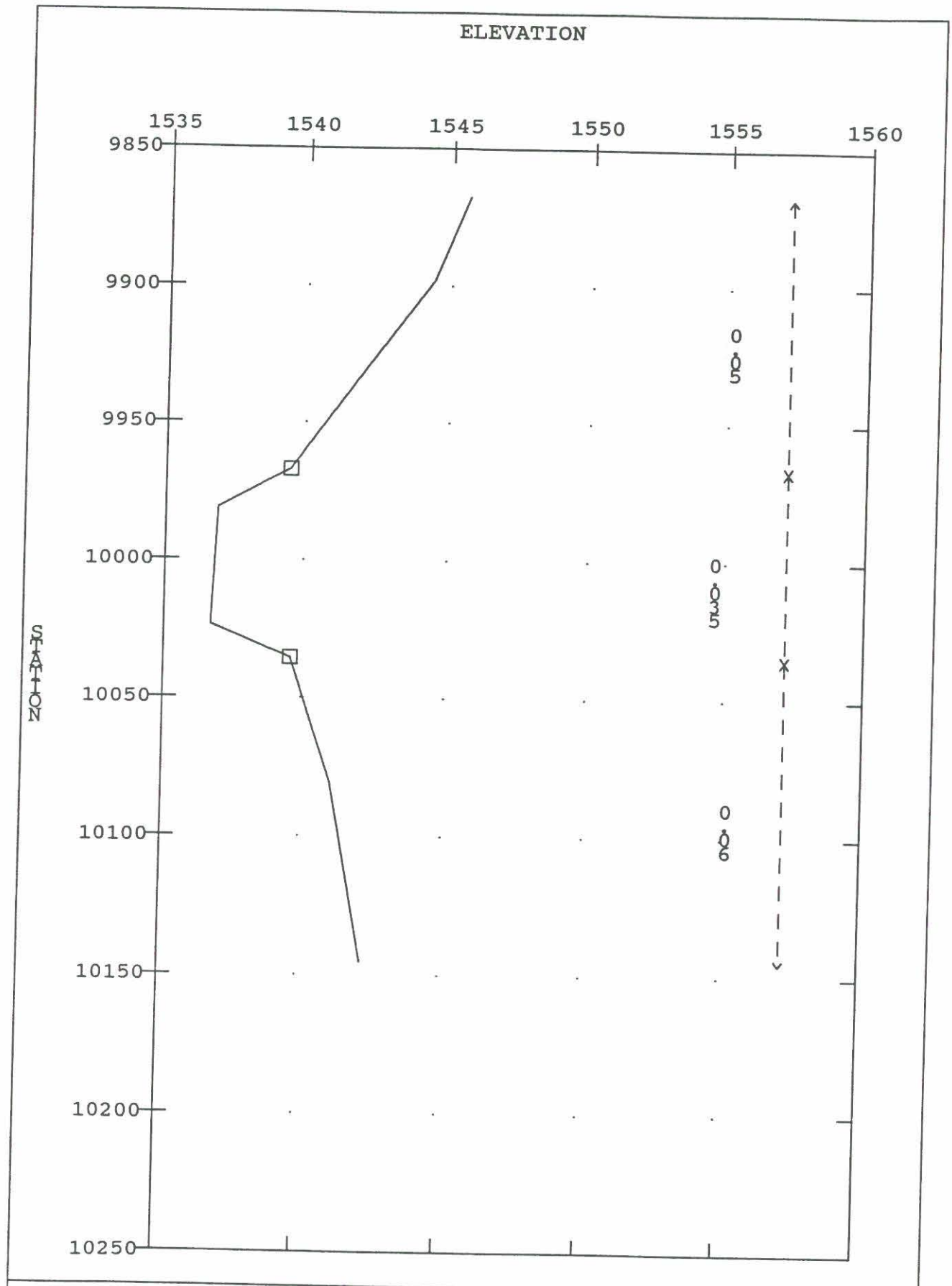

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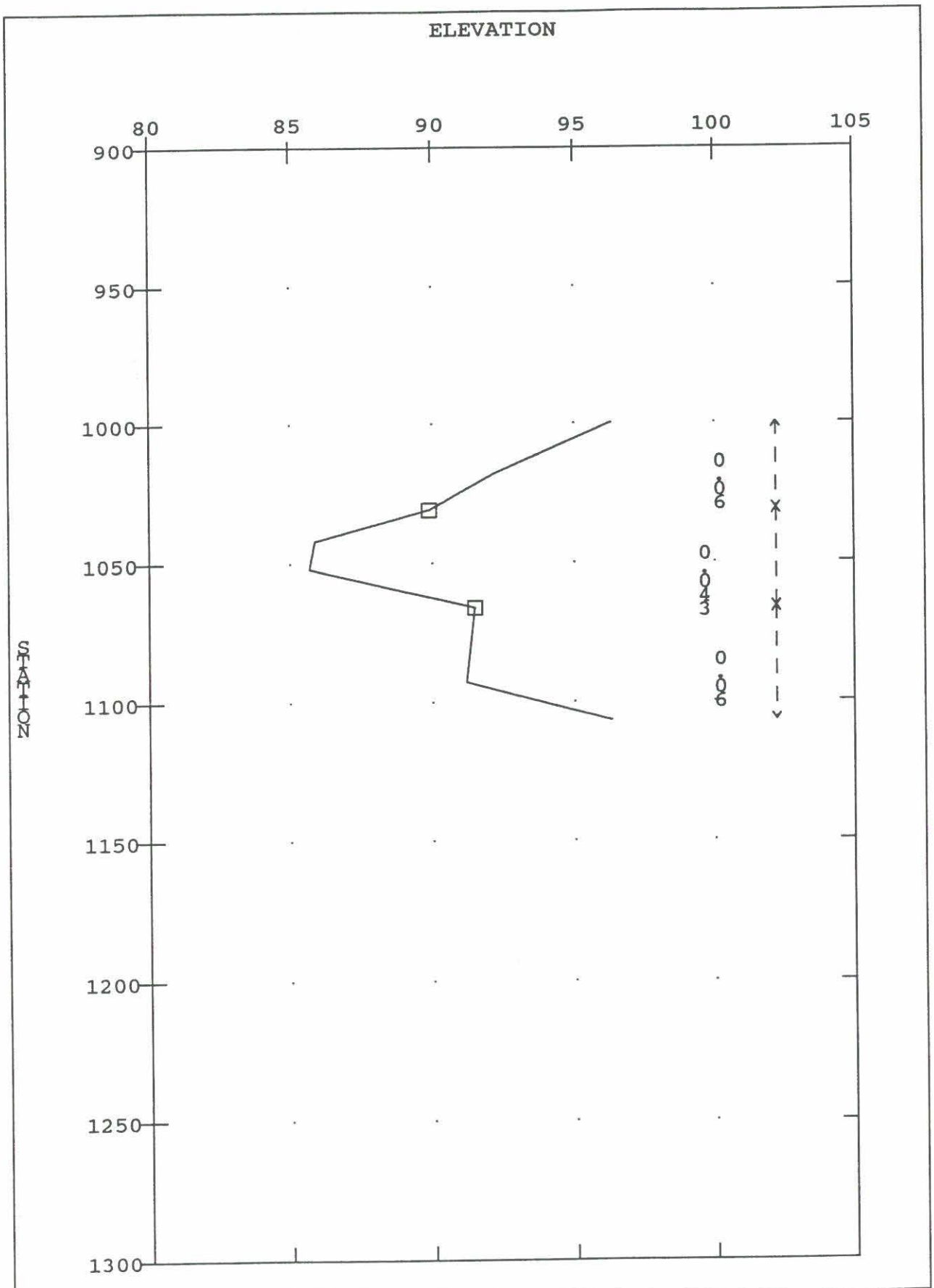

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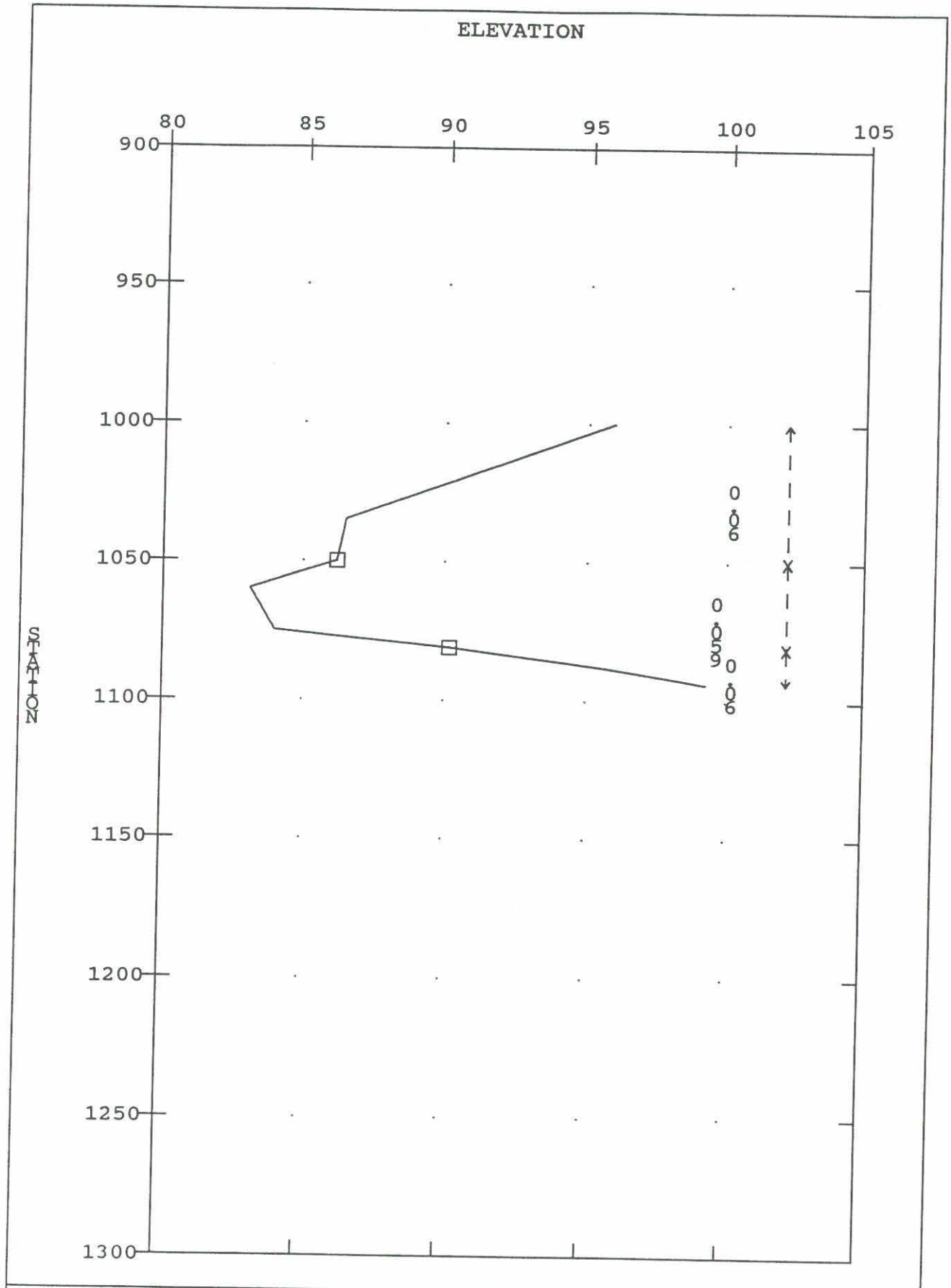

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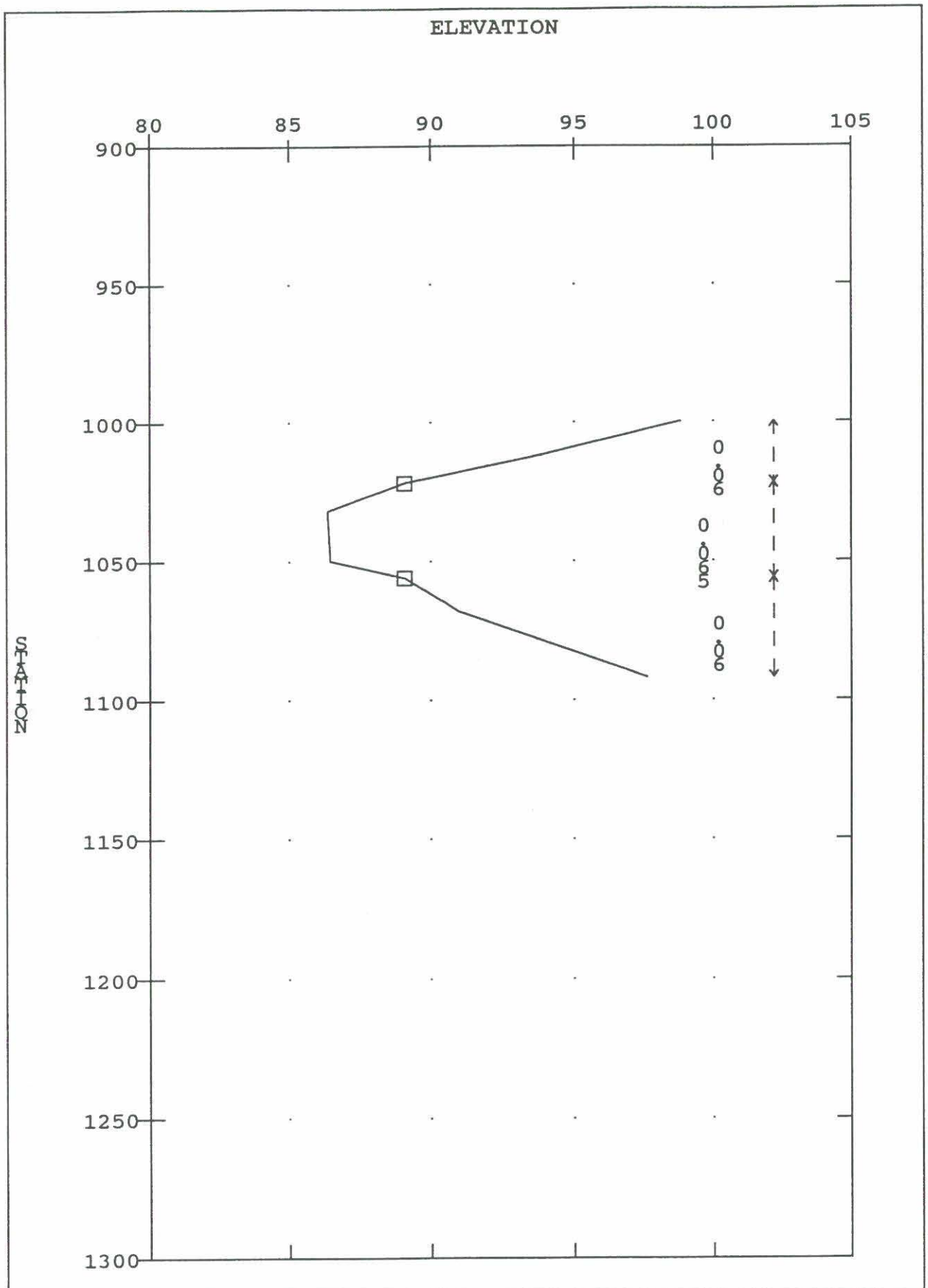

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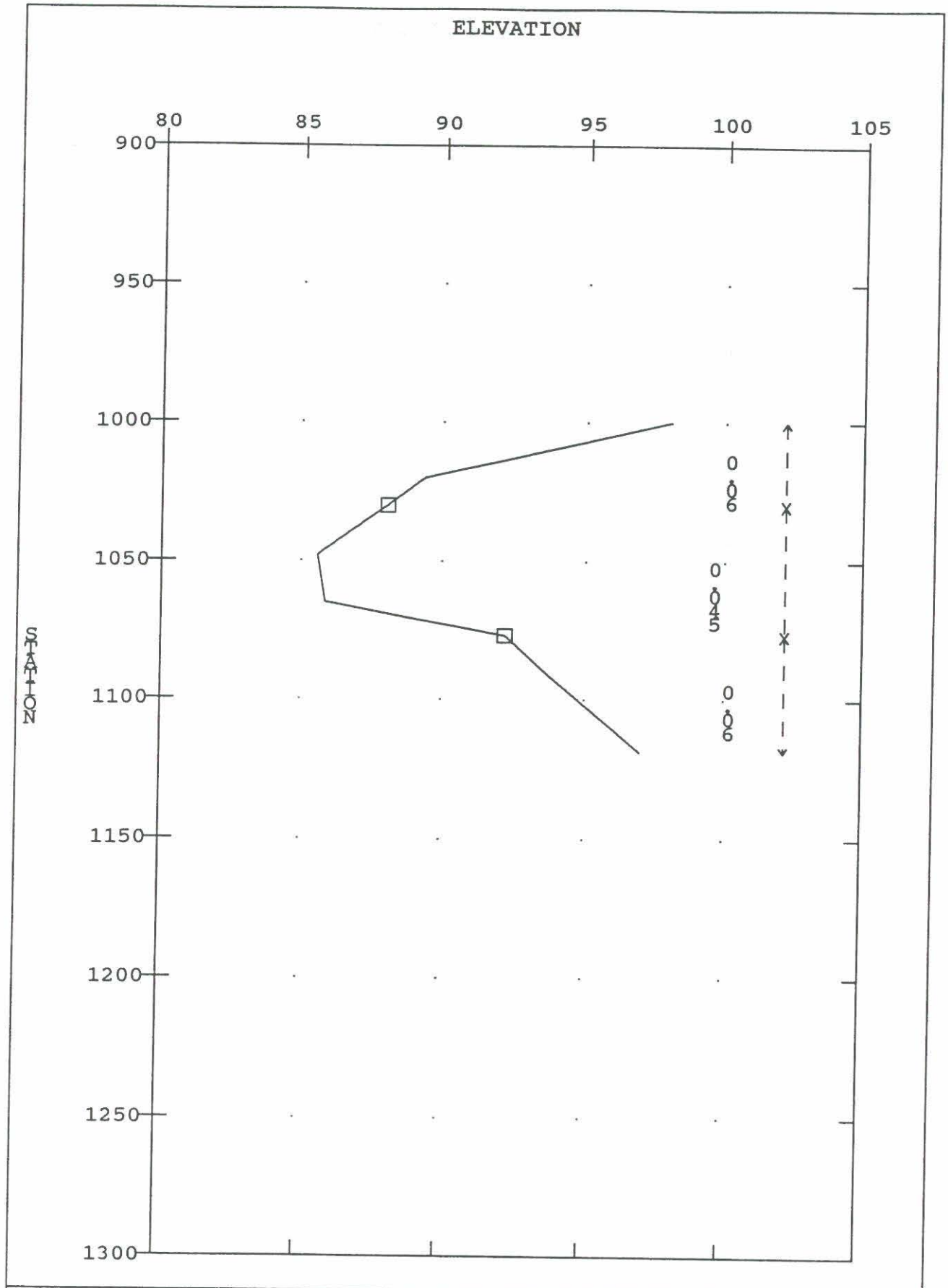

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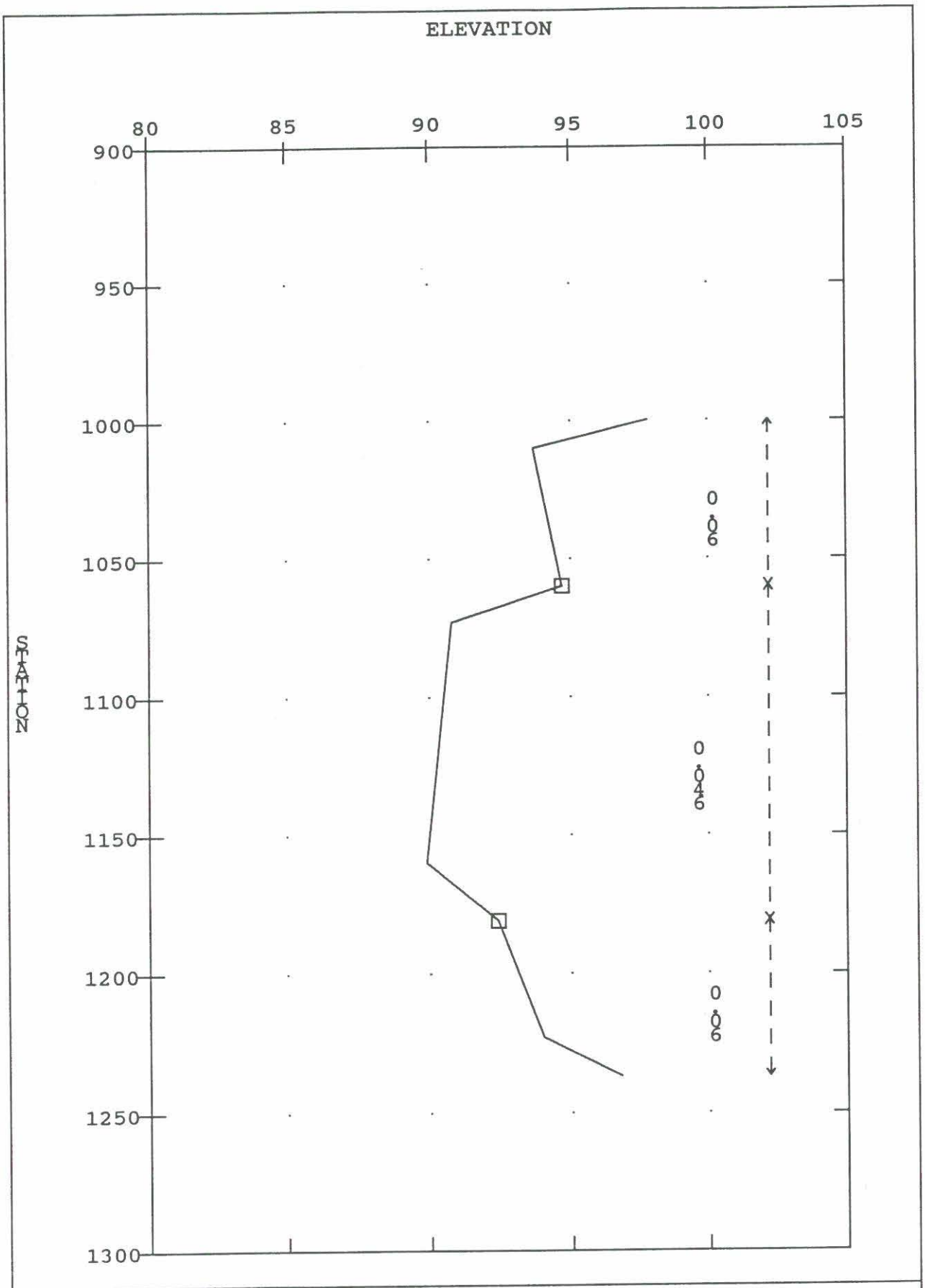

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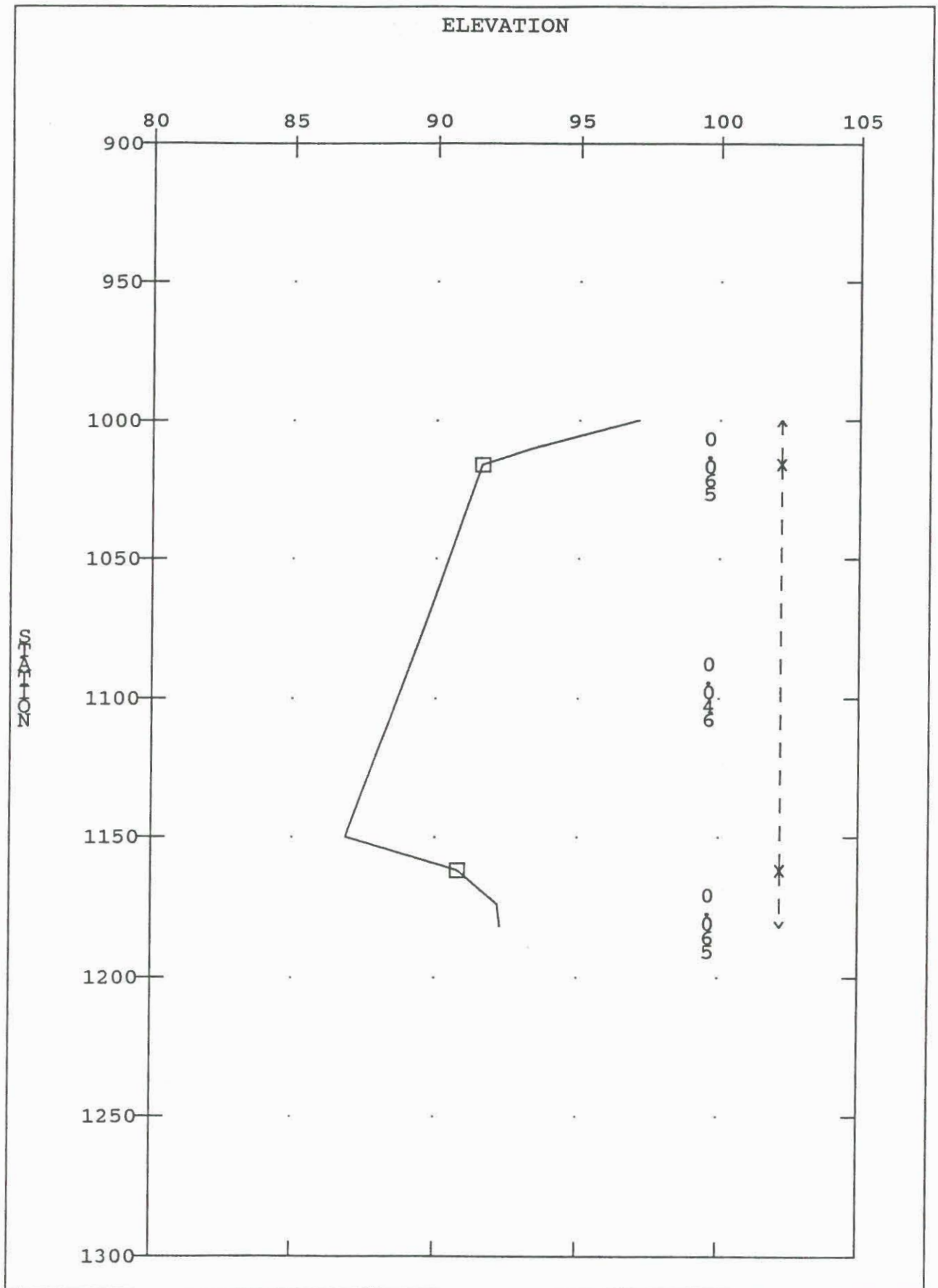

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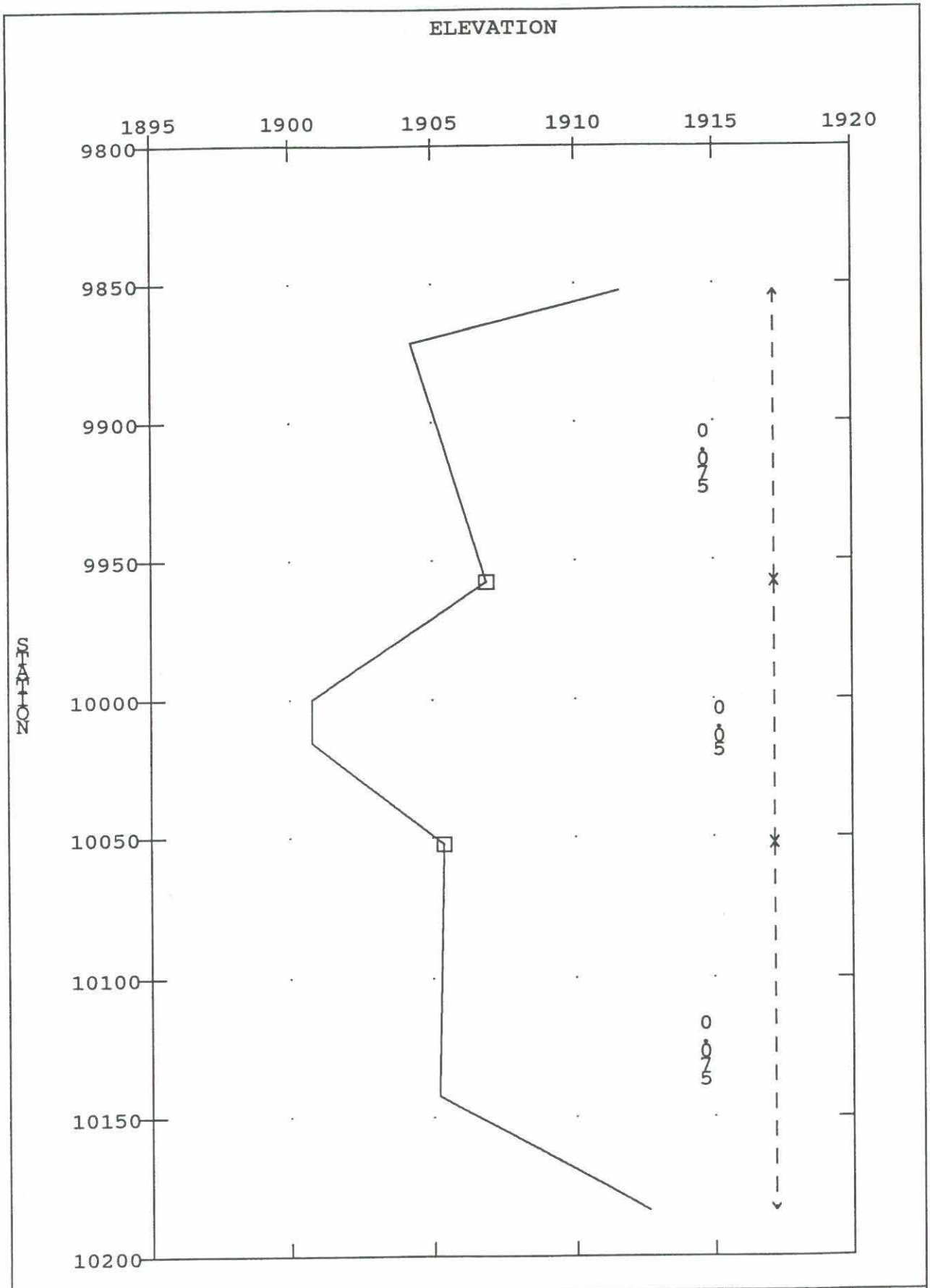

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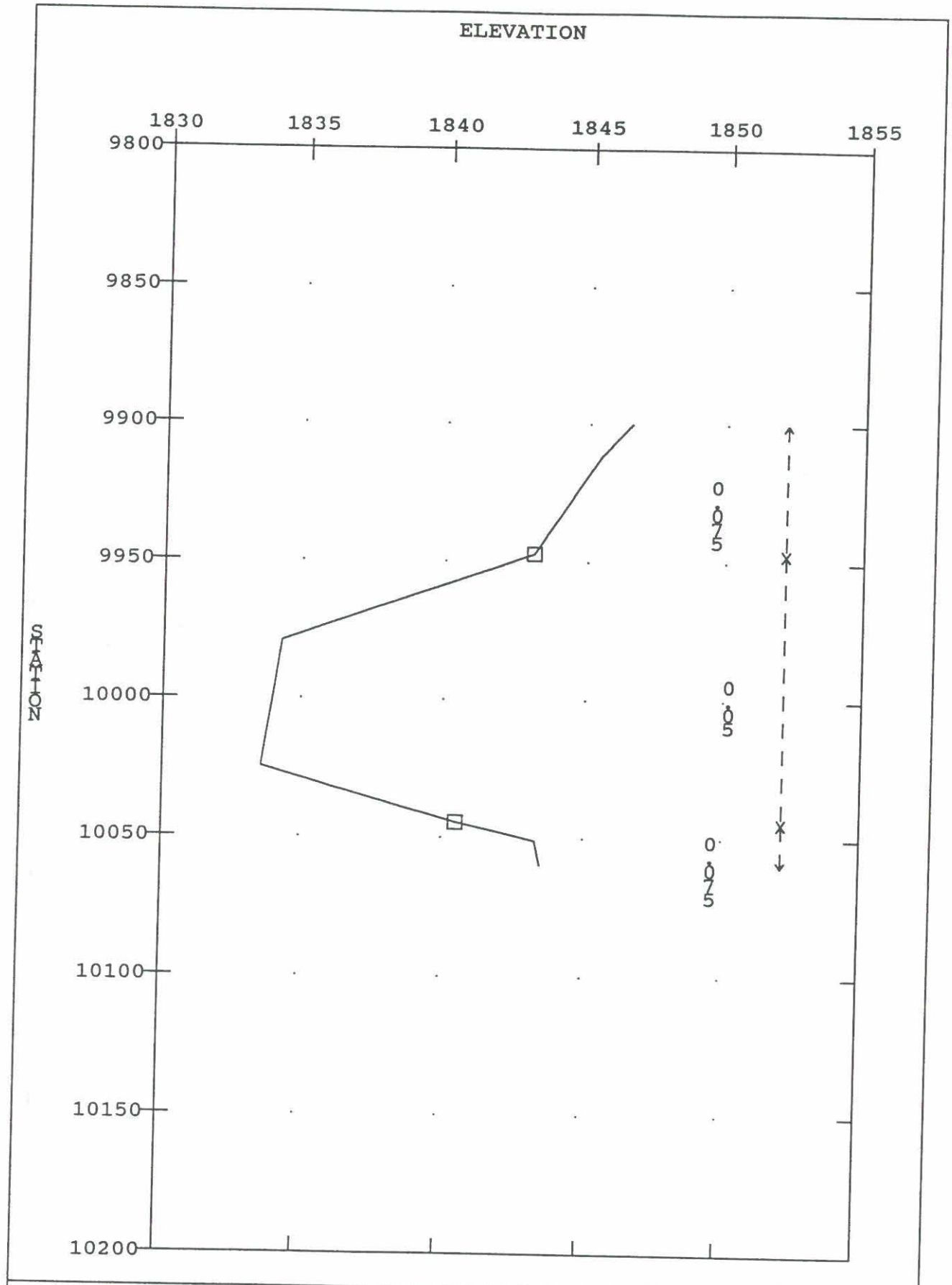

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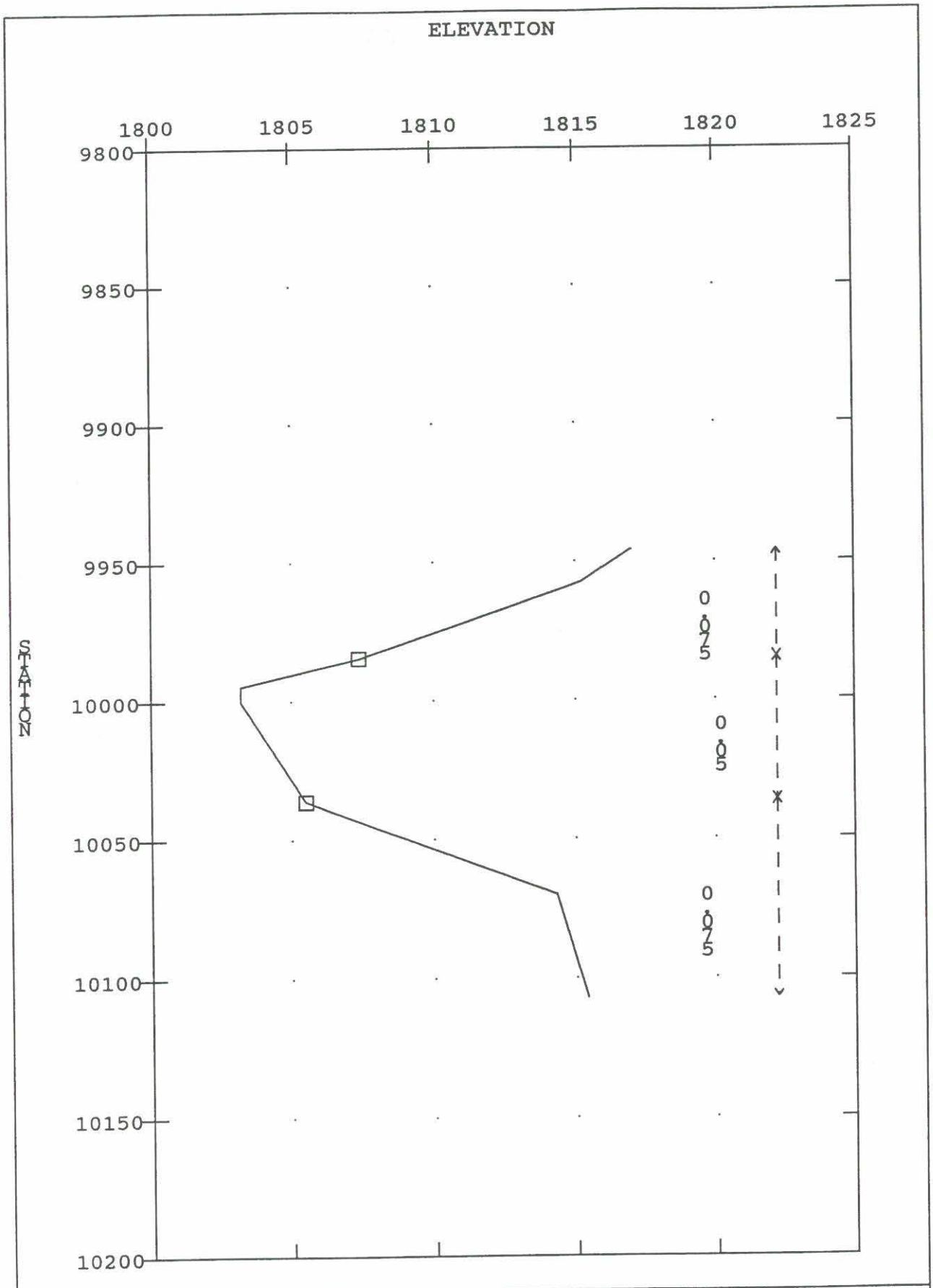

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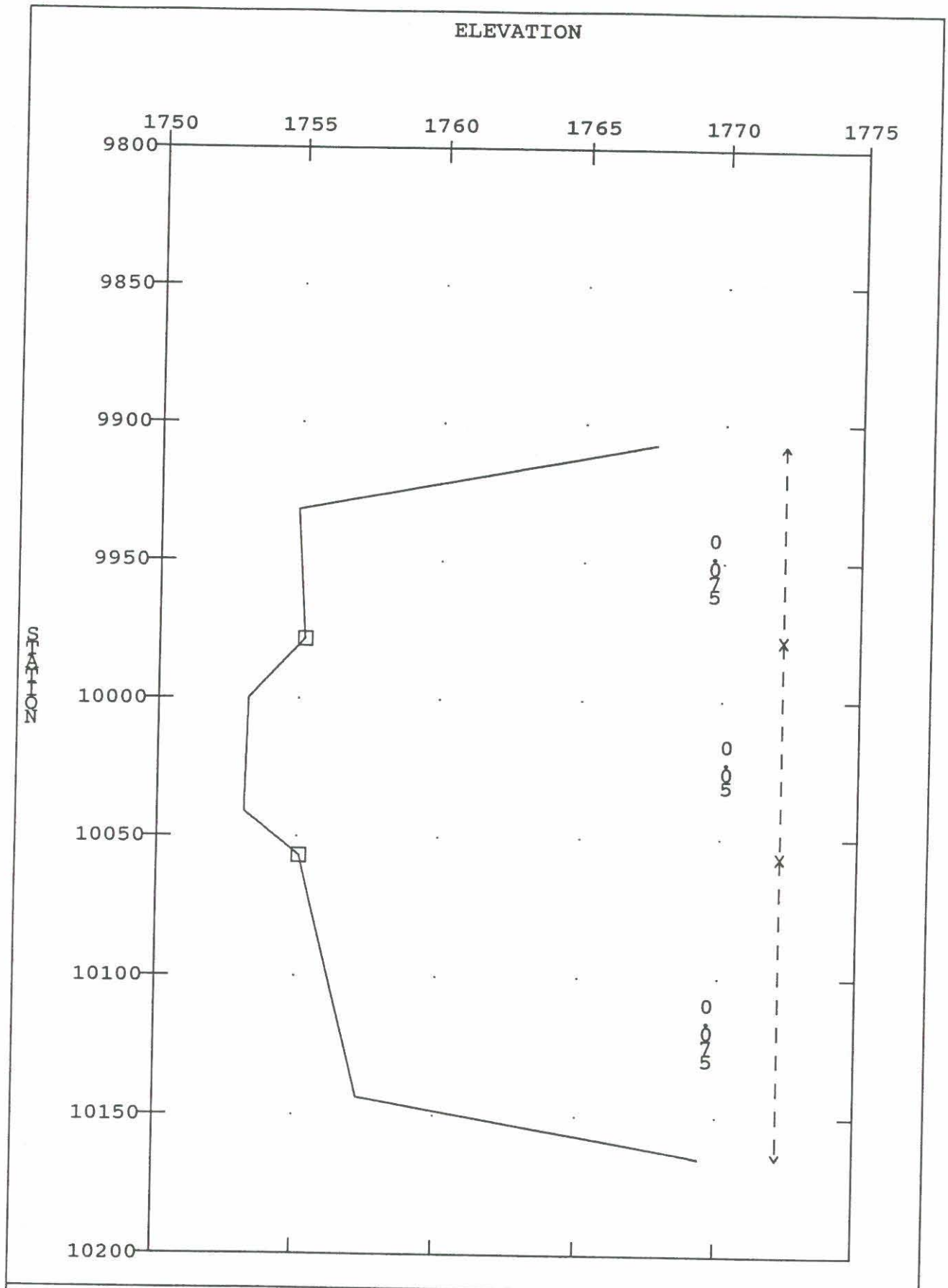

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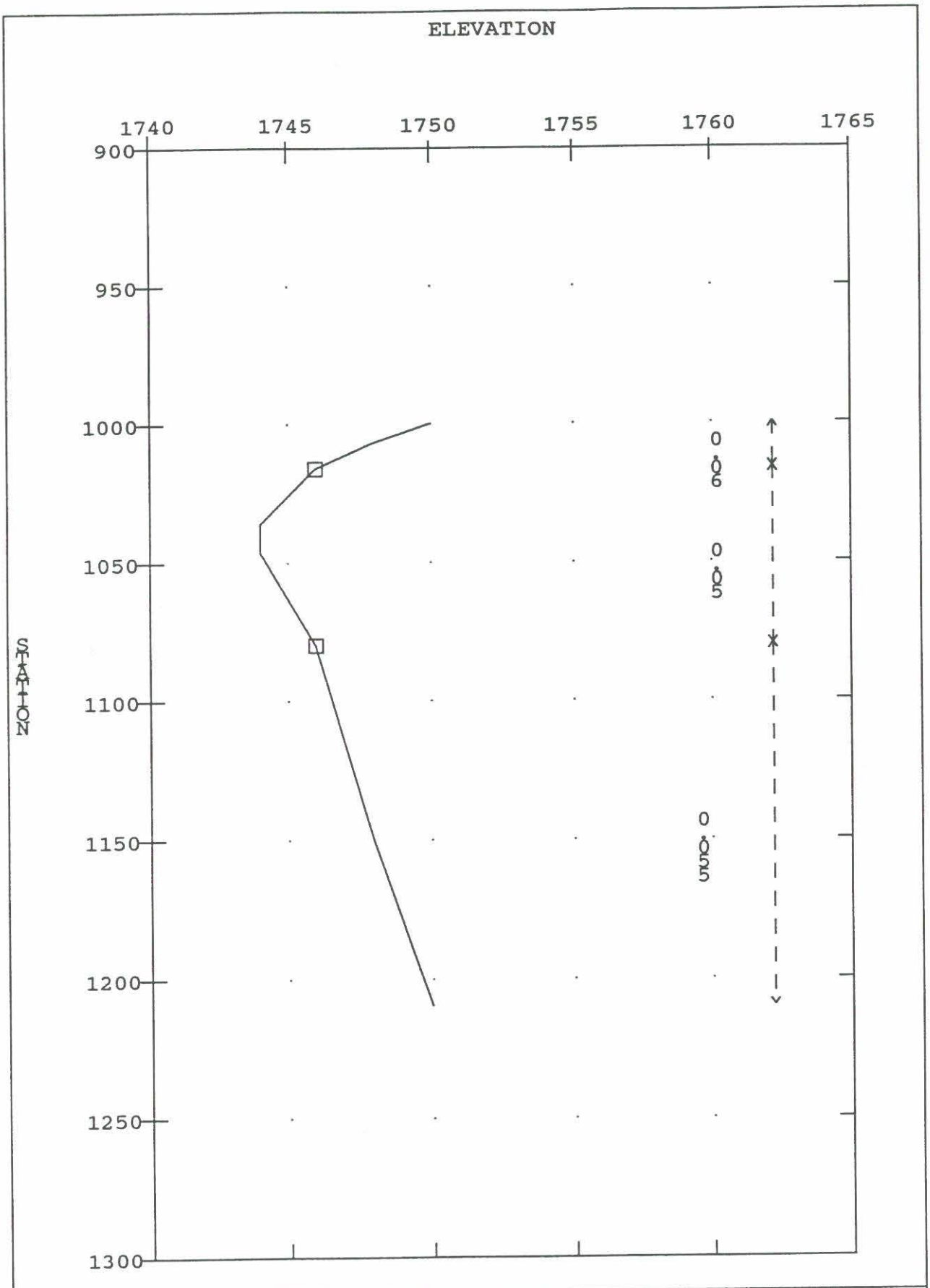
Fountain Hills North FIS



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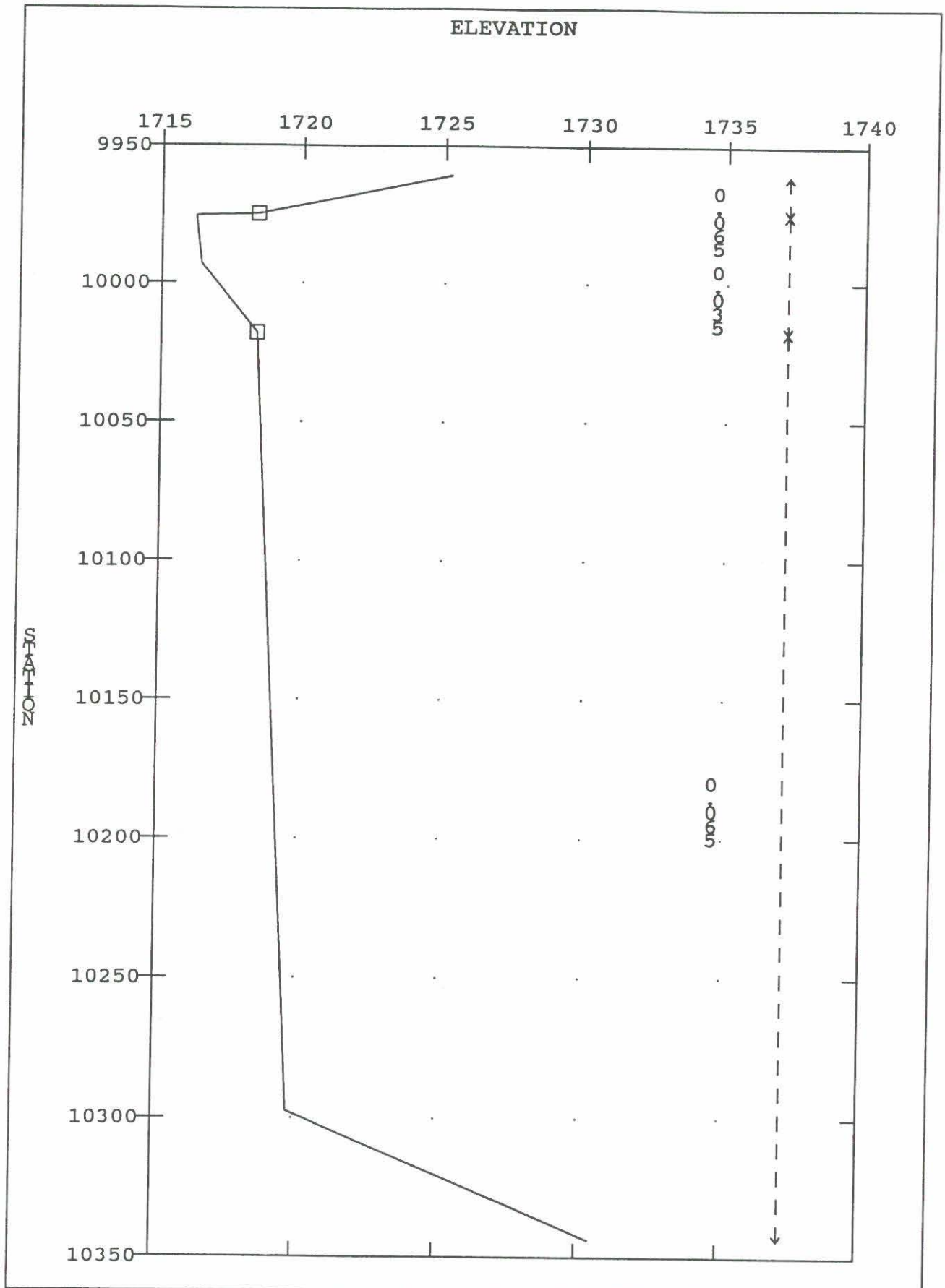

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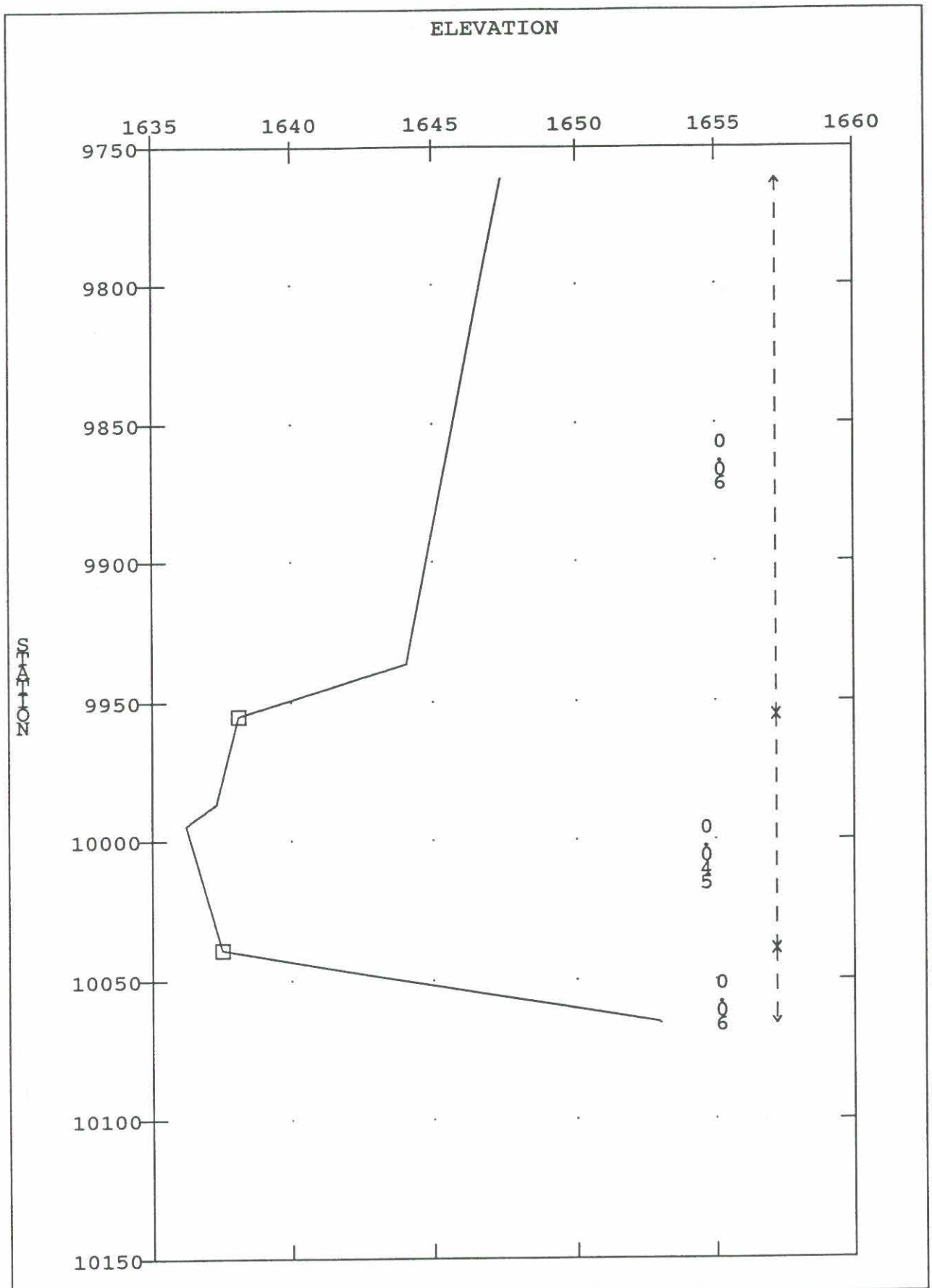

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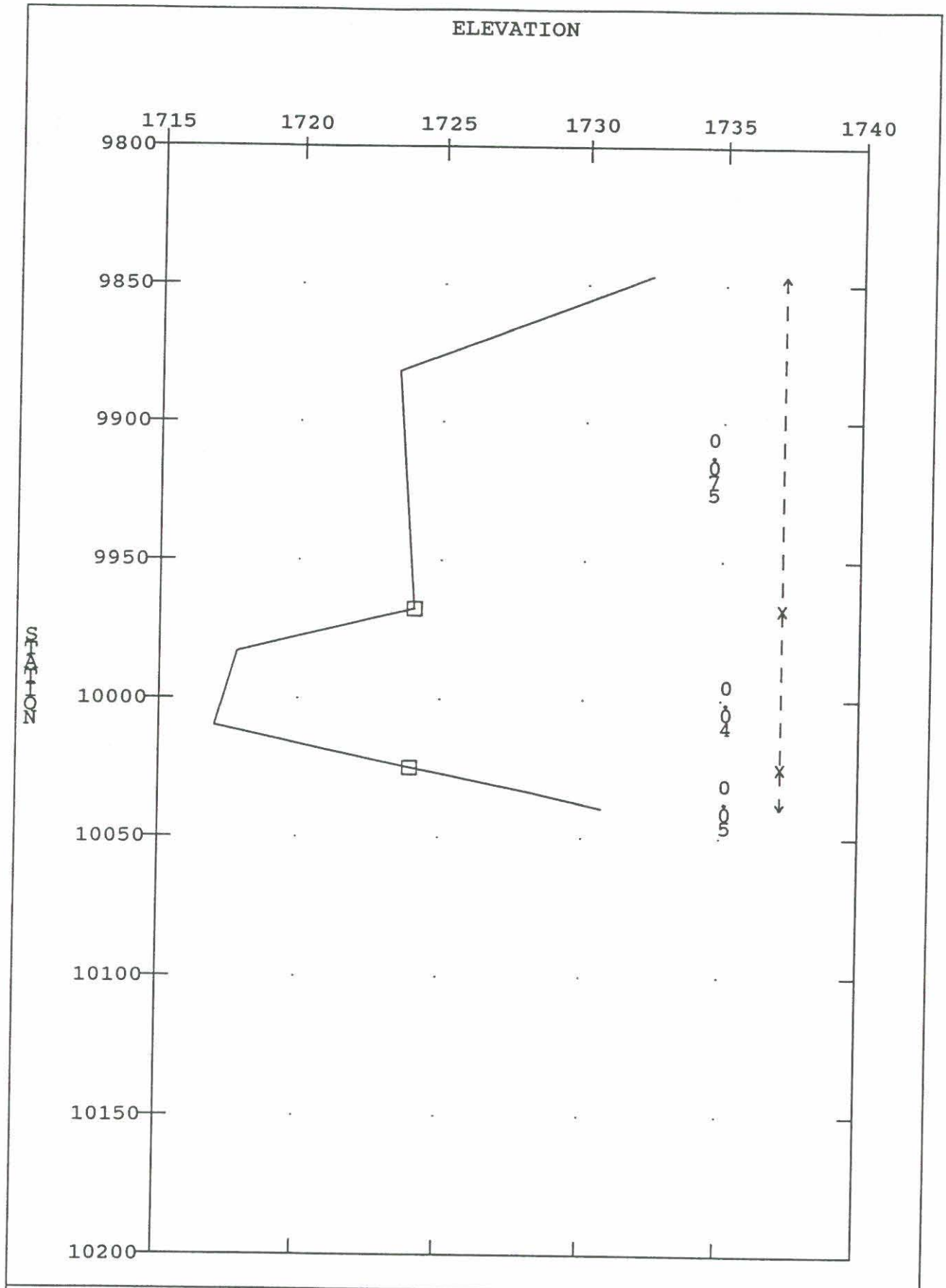
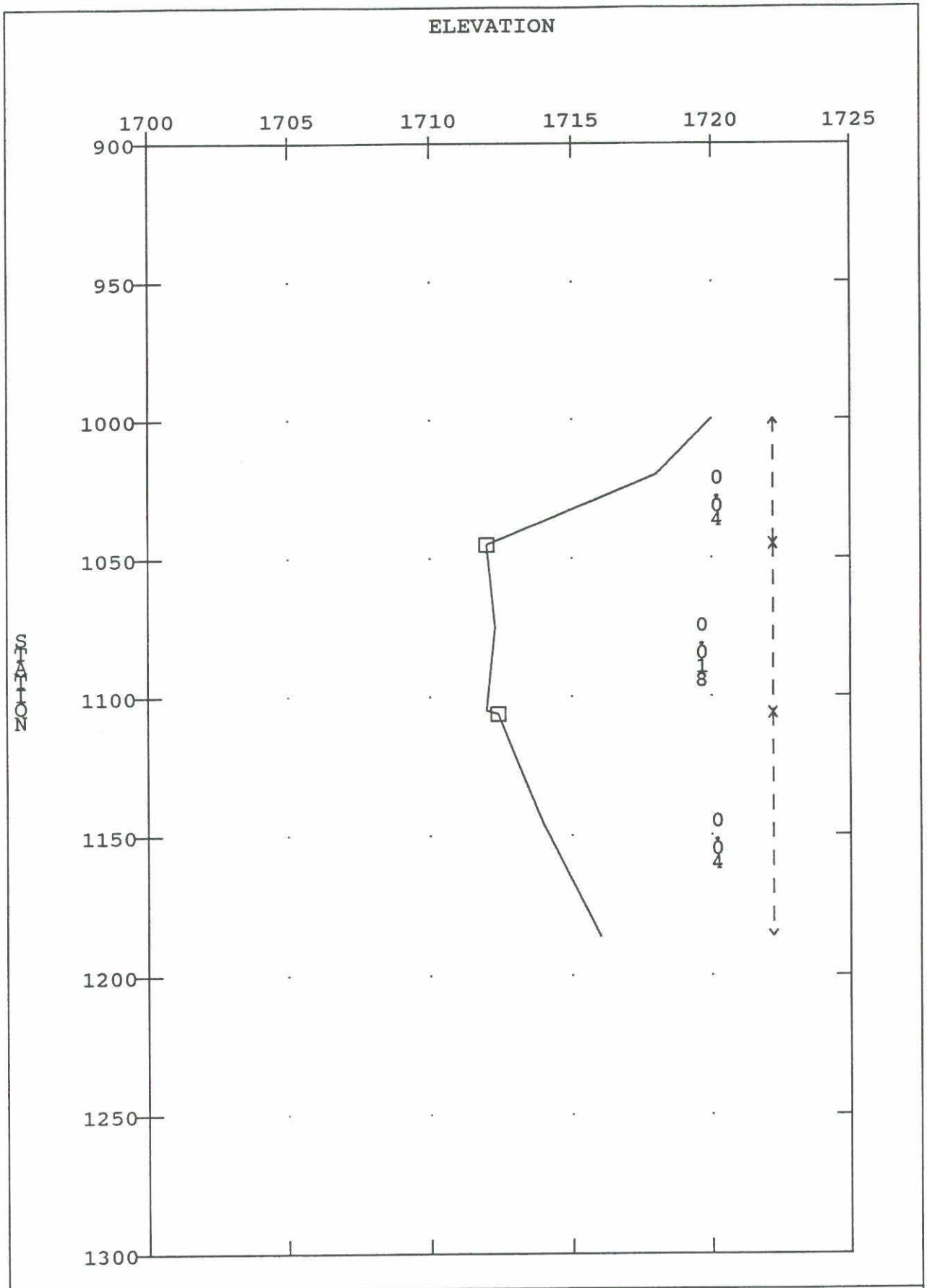


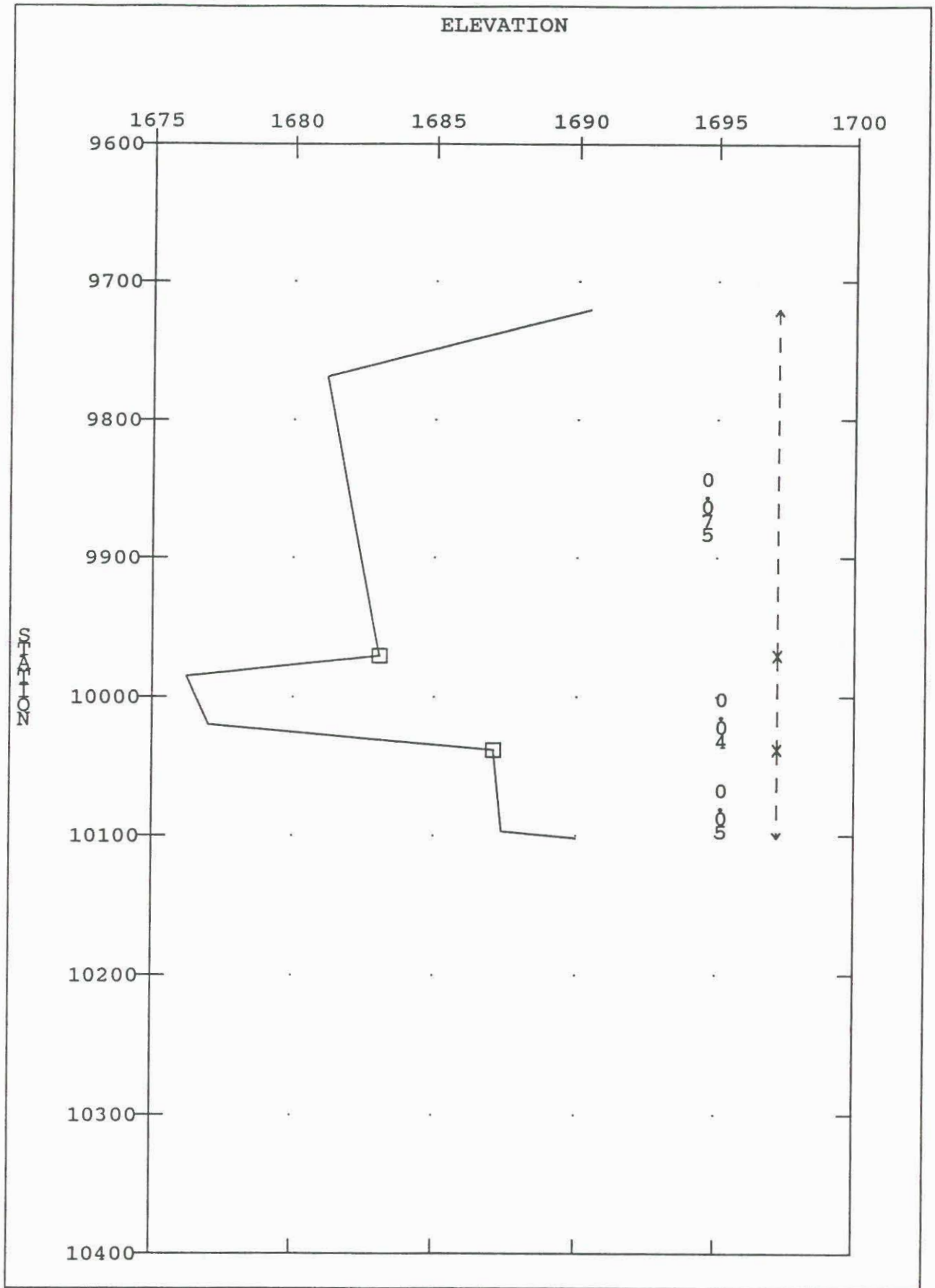
SECTION : 542543

Fountain Hills North FIS



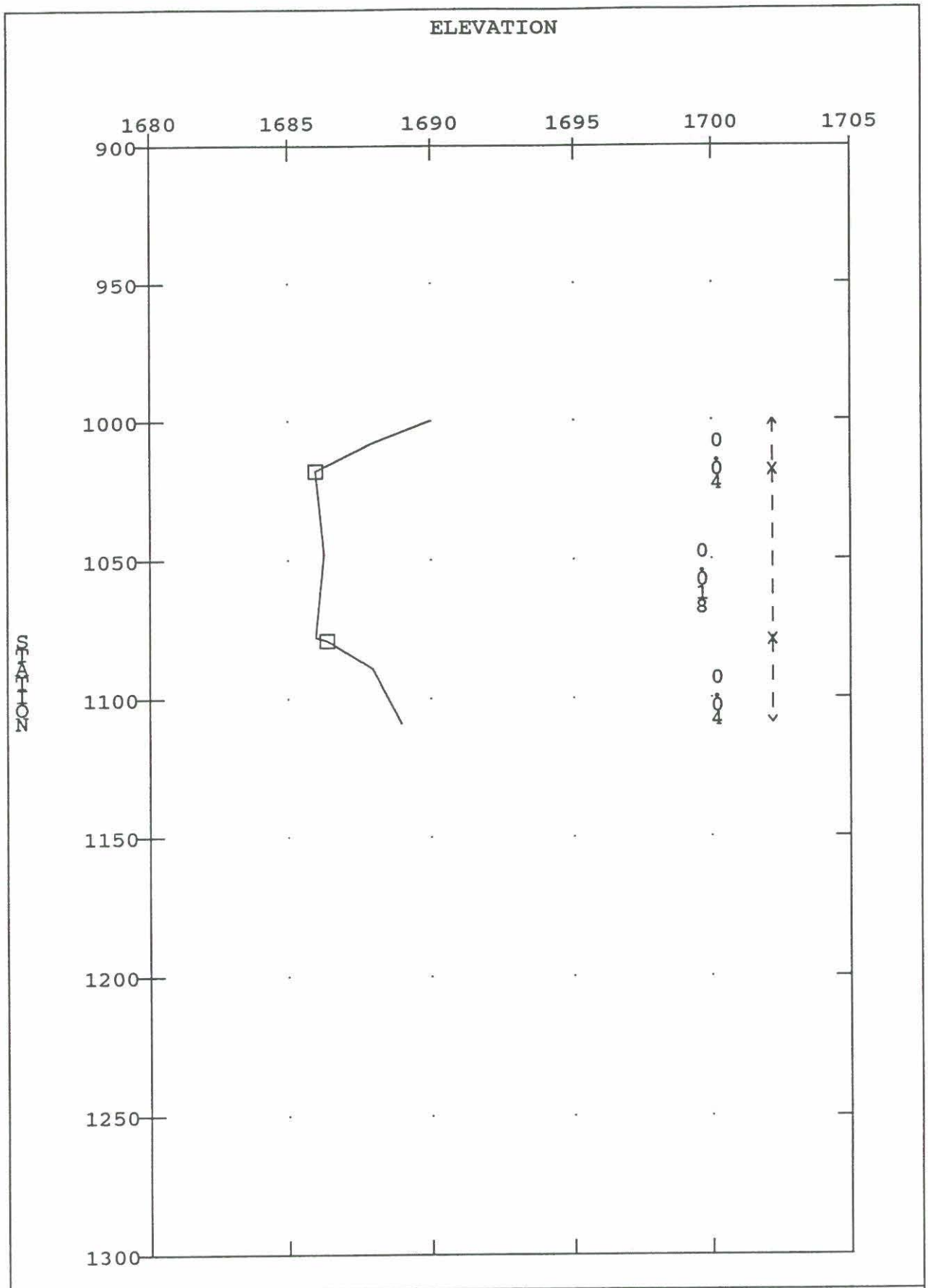
SECTION : 543544

Fountain Hills North FIS



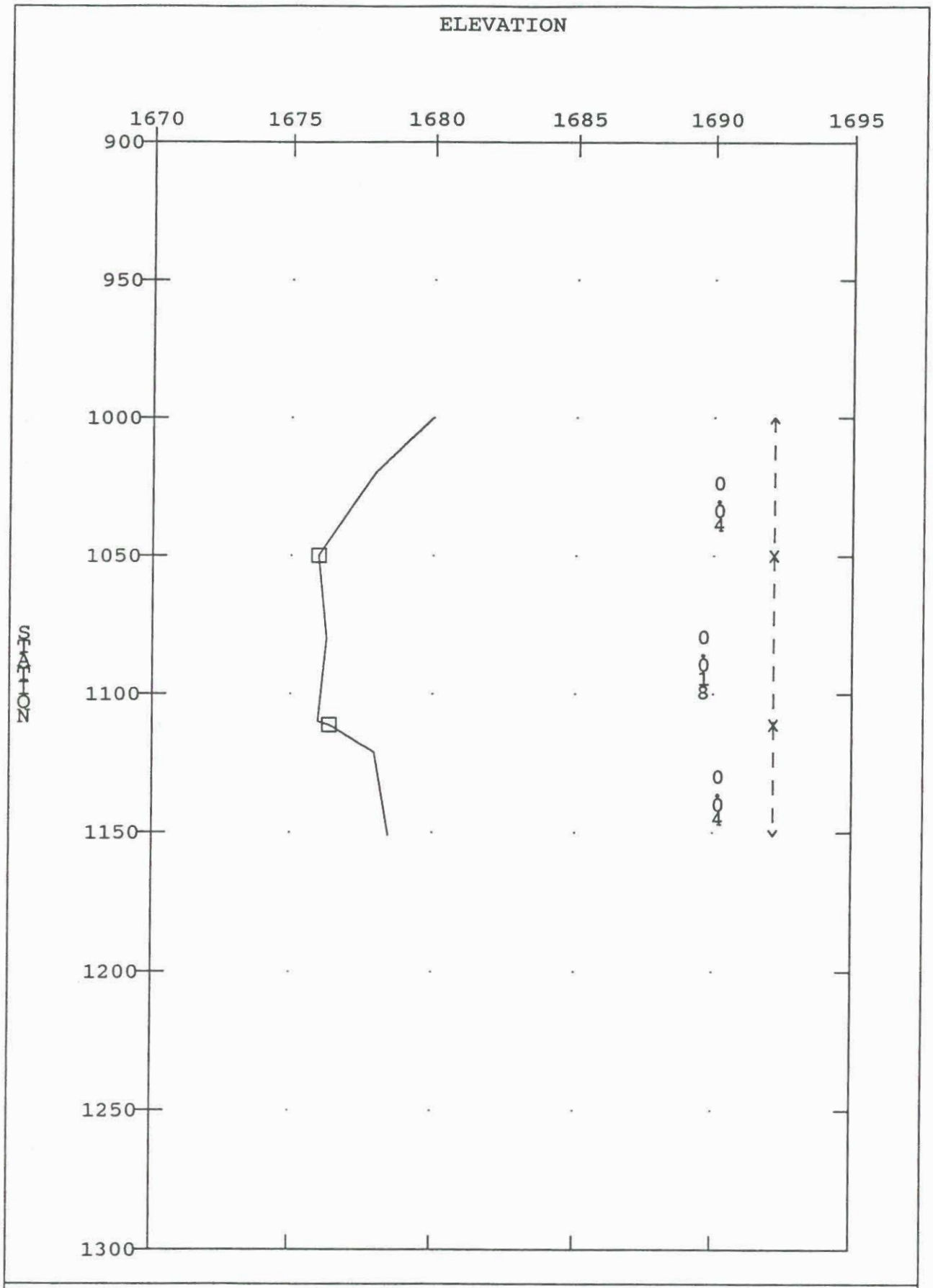
SECTION : 543547

Fountain Hills North FIS



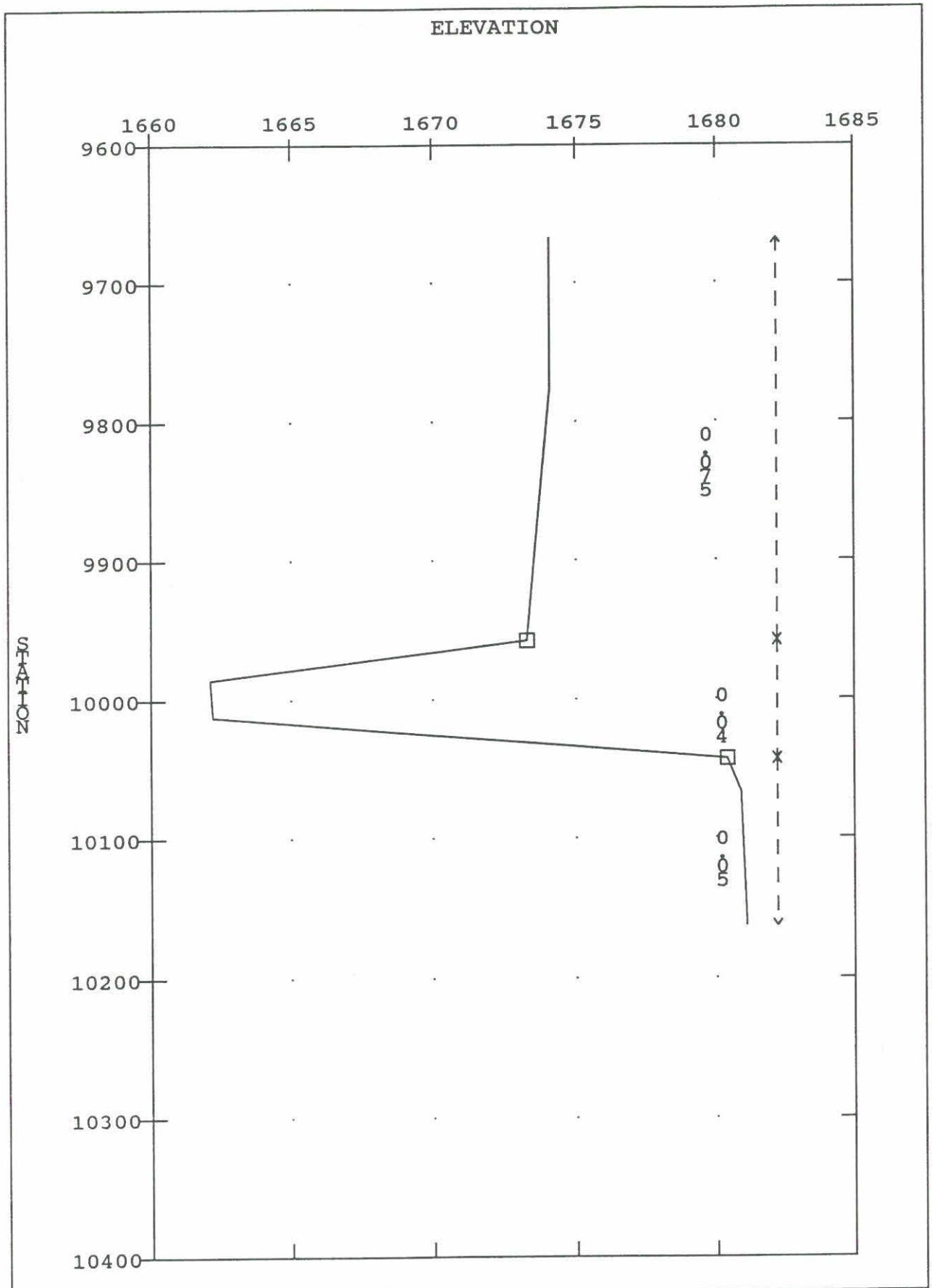
SECTION : 544545

Fountain Hills North FIS



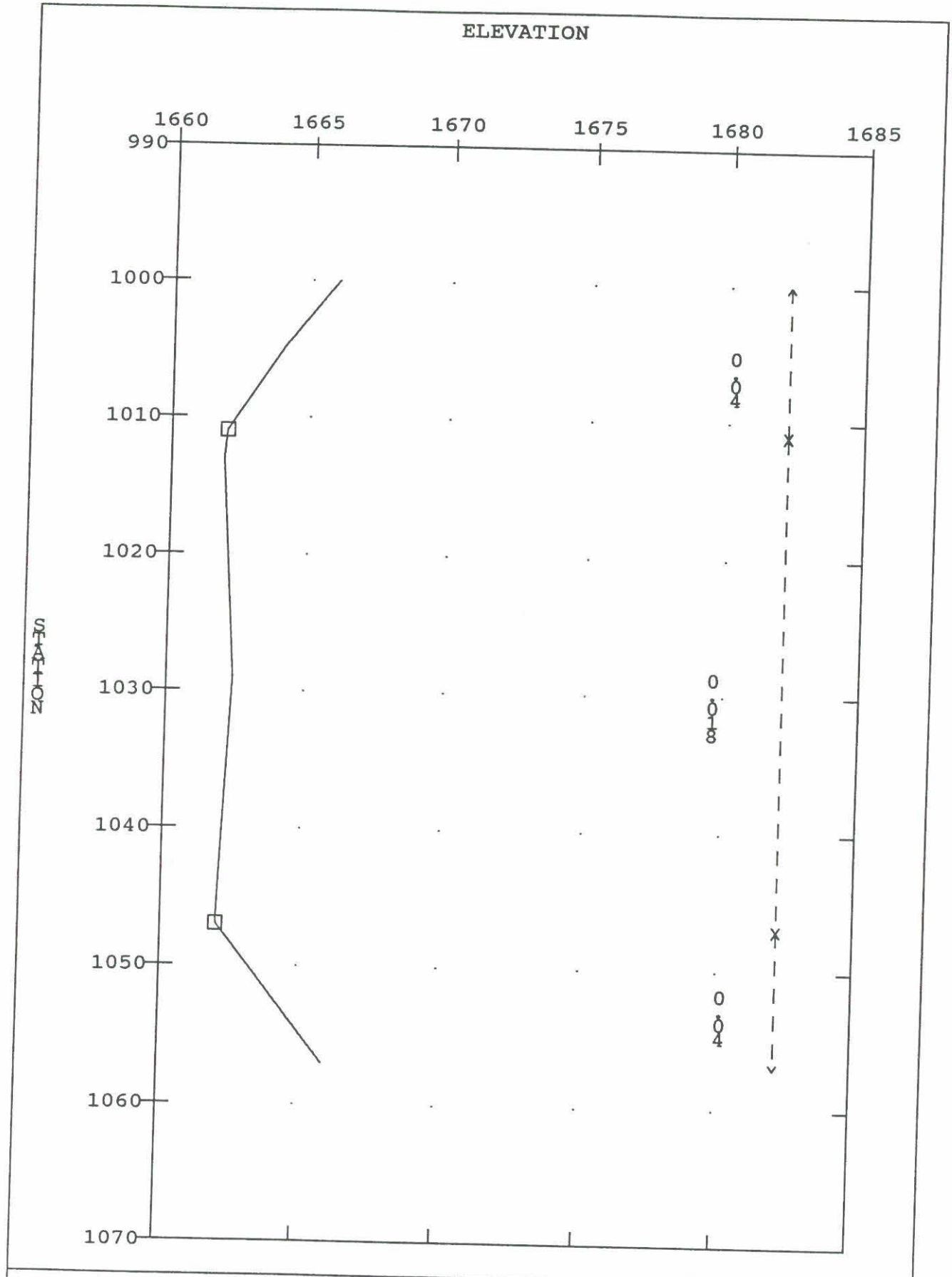
SECTION : 545546

Fountain Hills North FIS



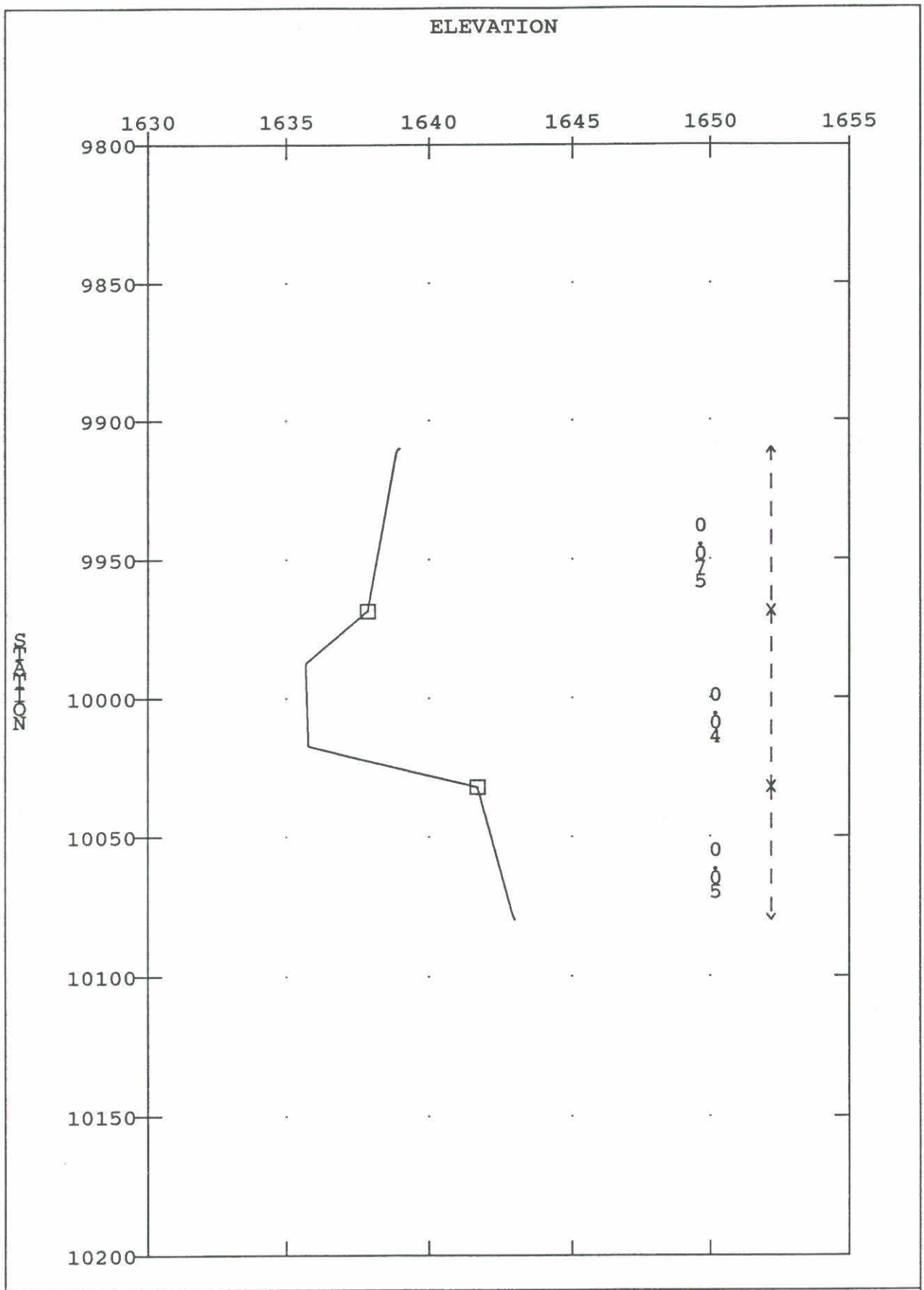
SECTION : 545547

Fountain Hills North FIS



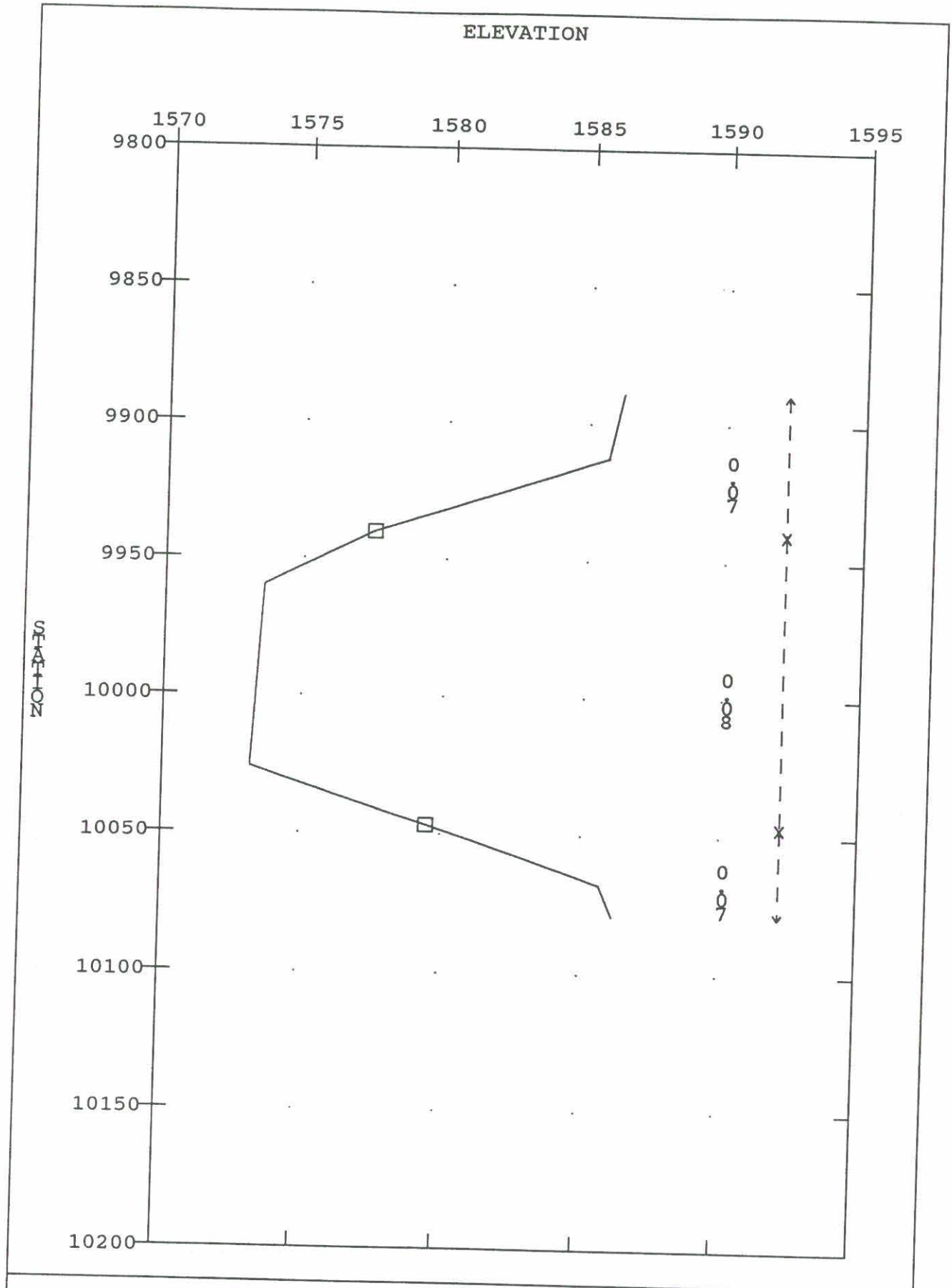
SECTION : 546547

Fountain Hills North FIS



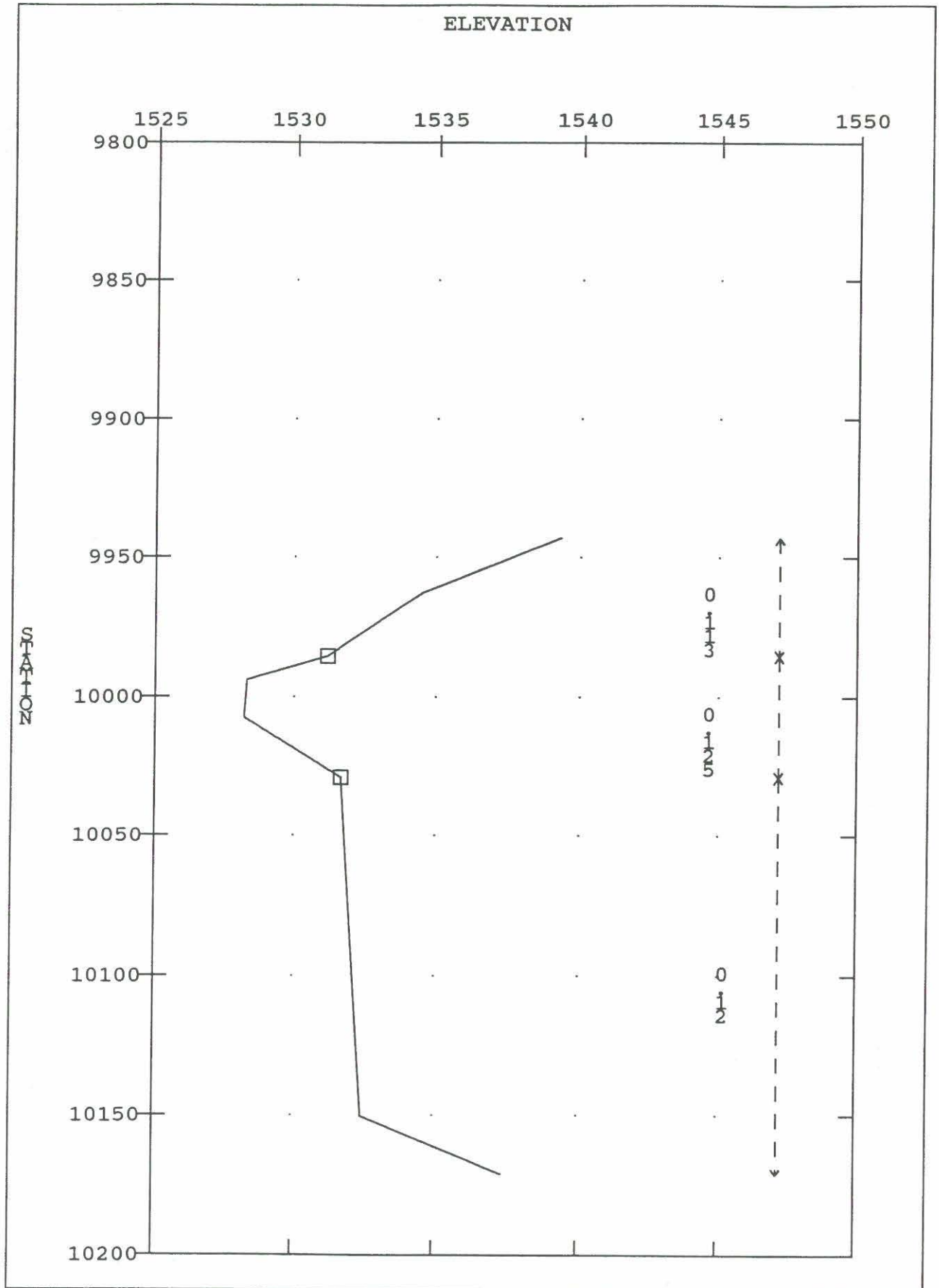
SECTION : 547548

Fountain Hills North FIS



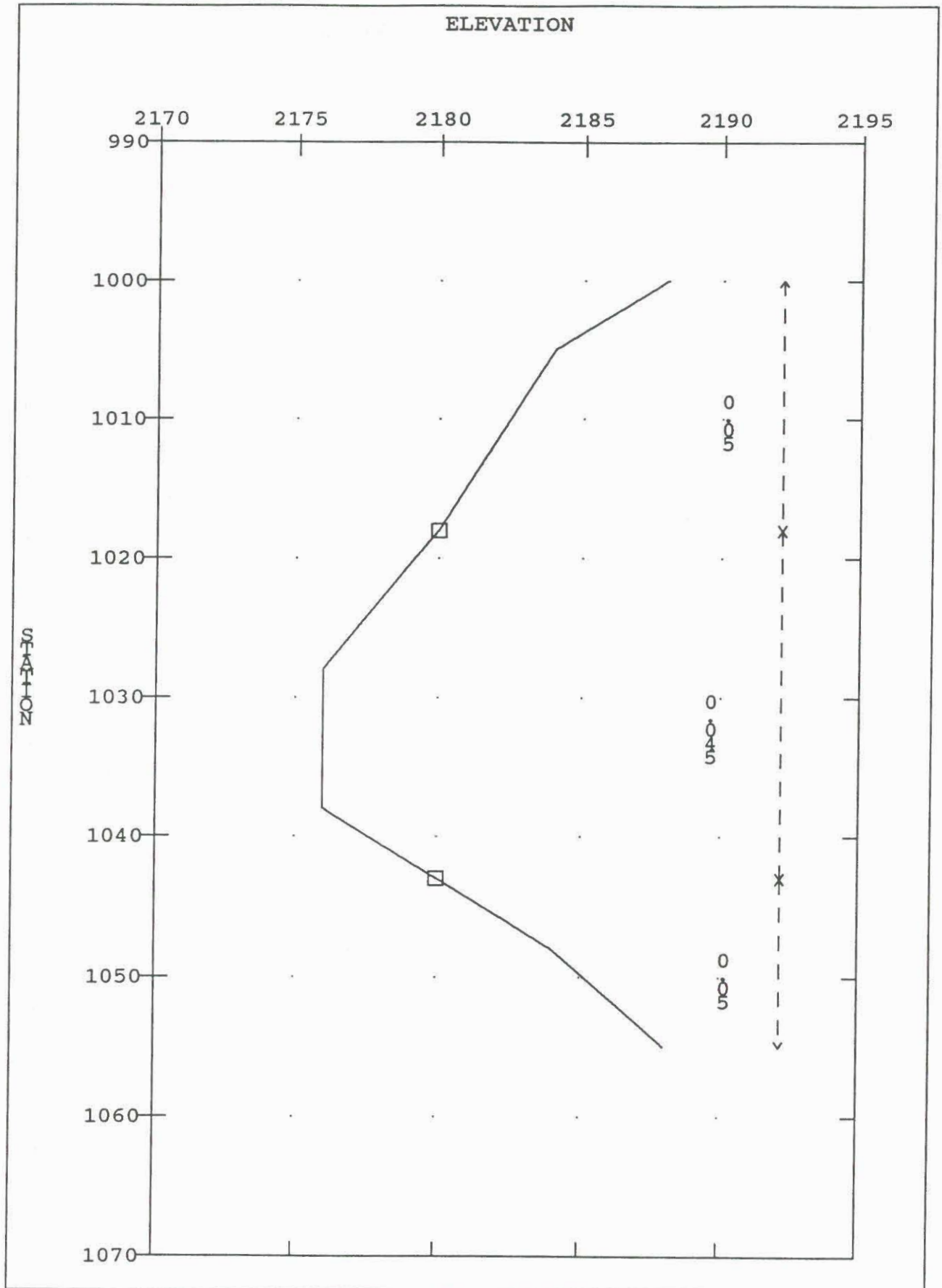
SECTION : 548549

Fountain Hills North FIS



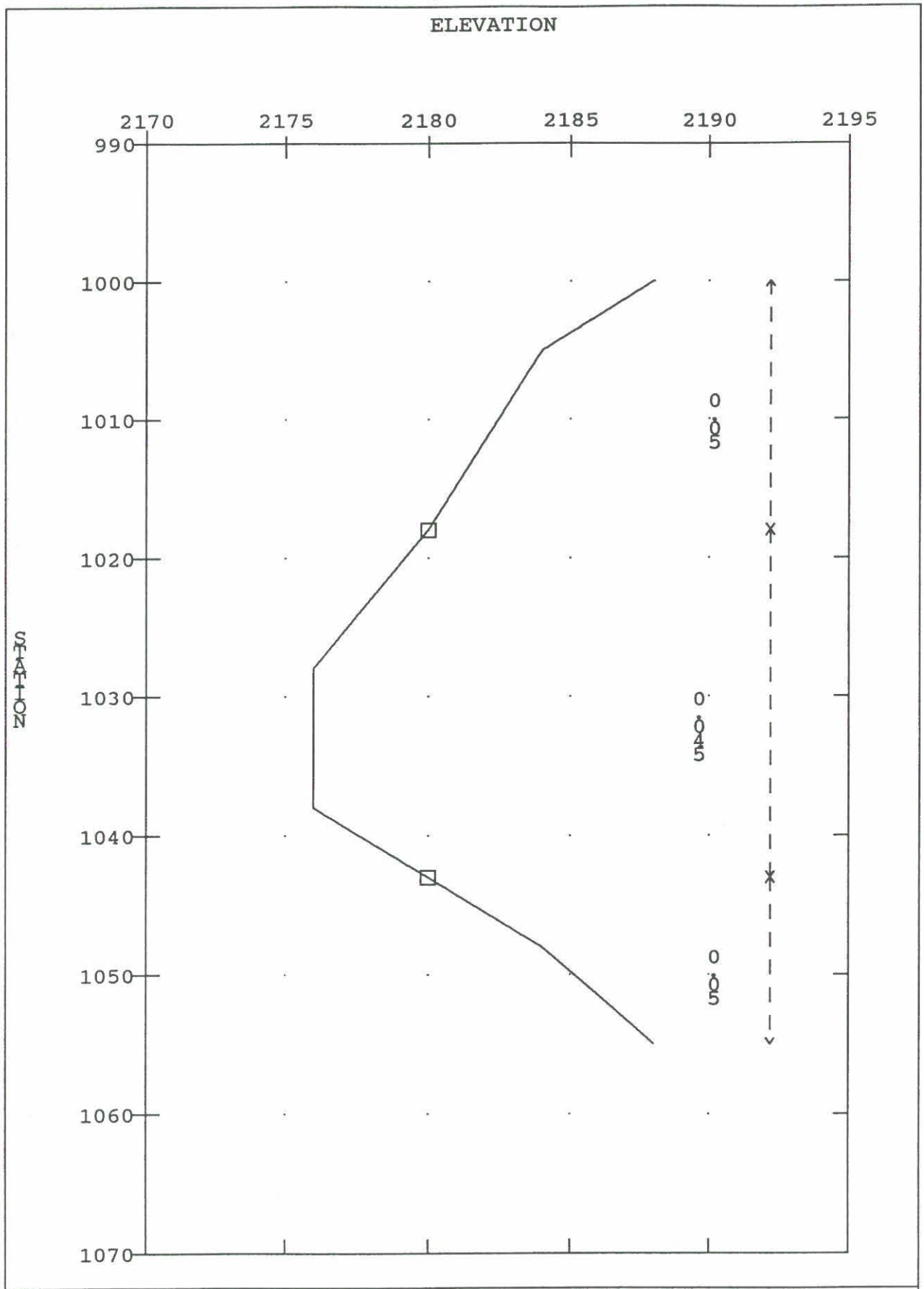
SECTION : 549626

Fountain Hills North FIS



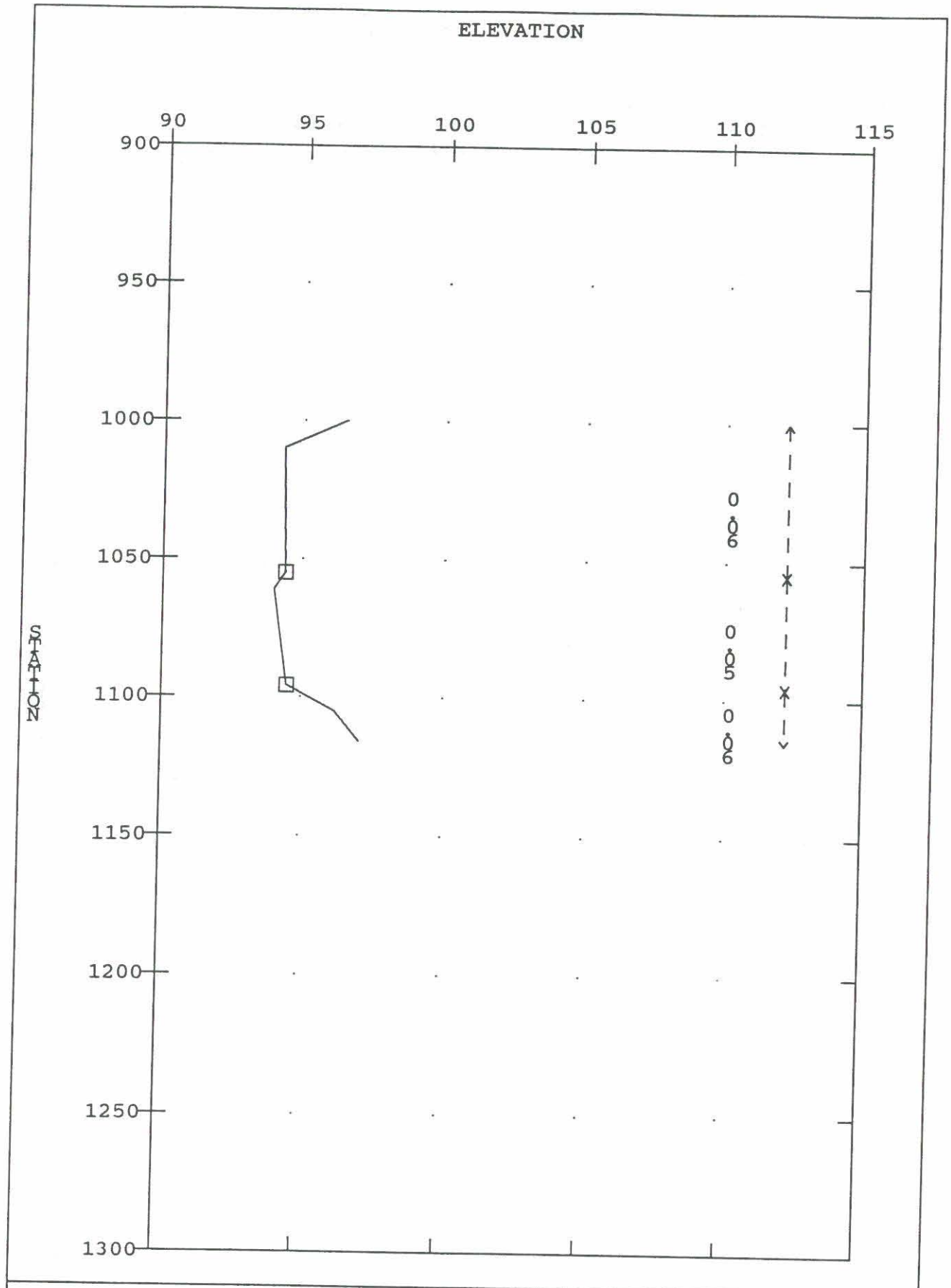
SECTION : 550552

Fountain Hills North FIS



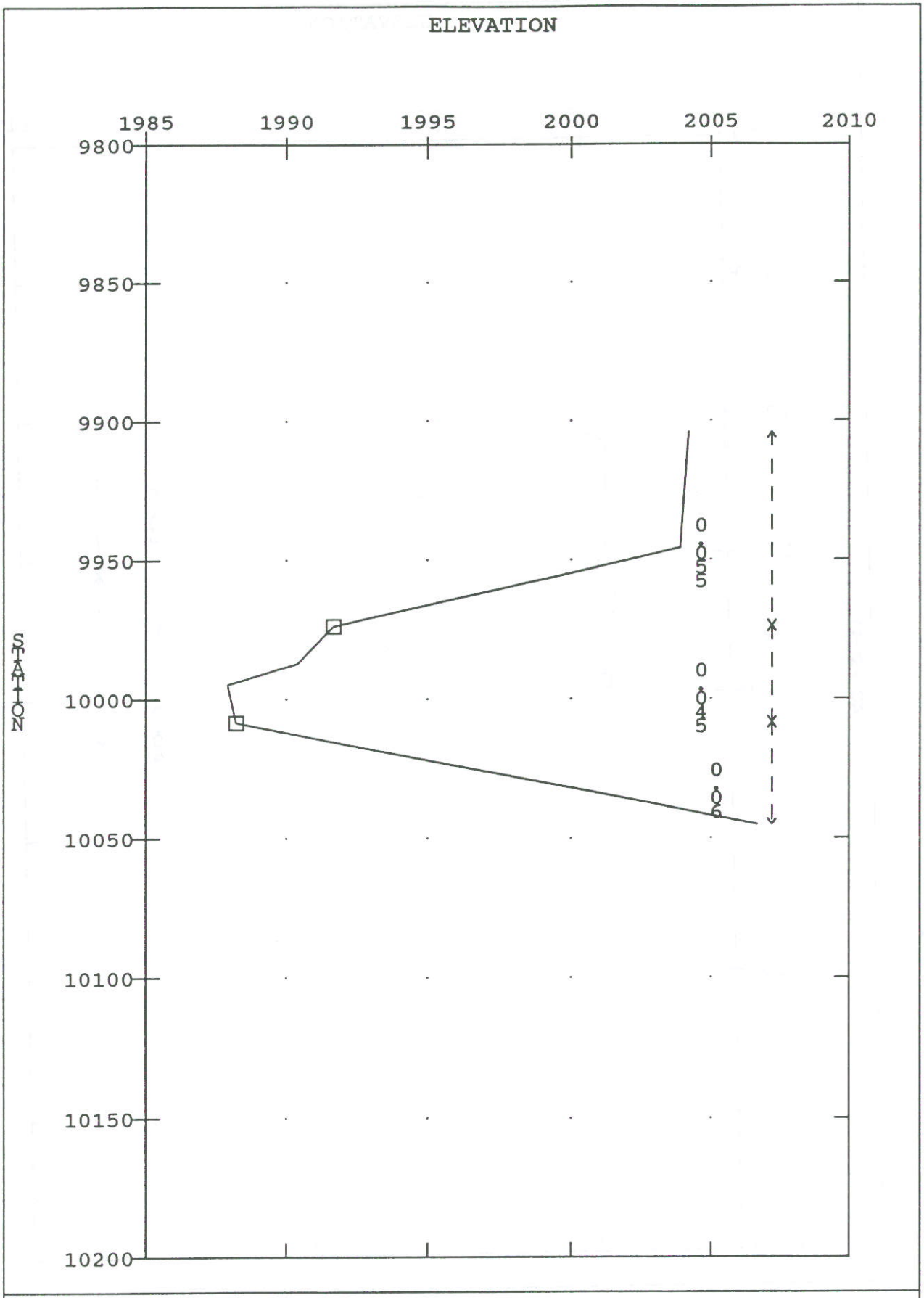
SECTION : 551552

Fountain Hills North FIS



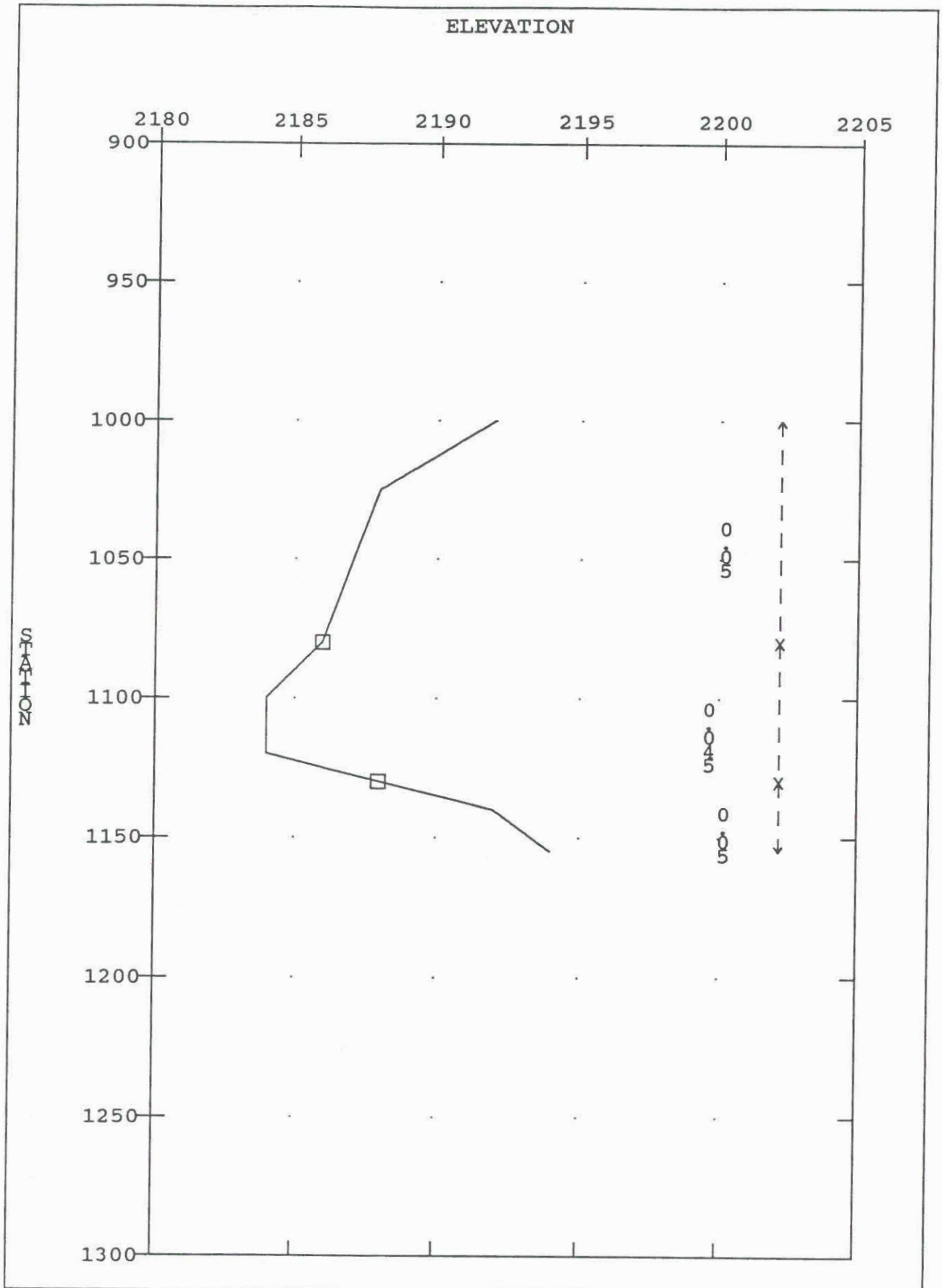
SECTION : 552553

Fountain Hills North FIS



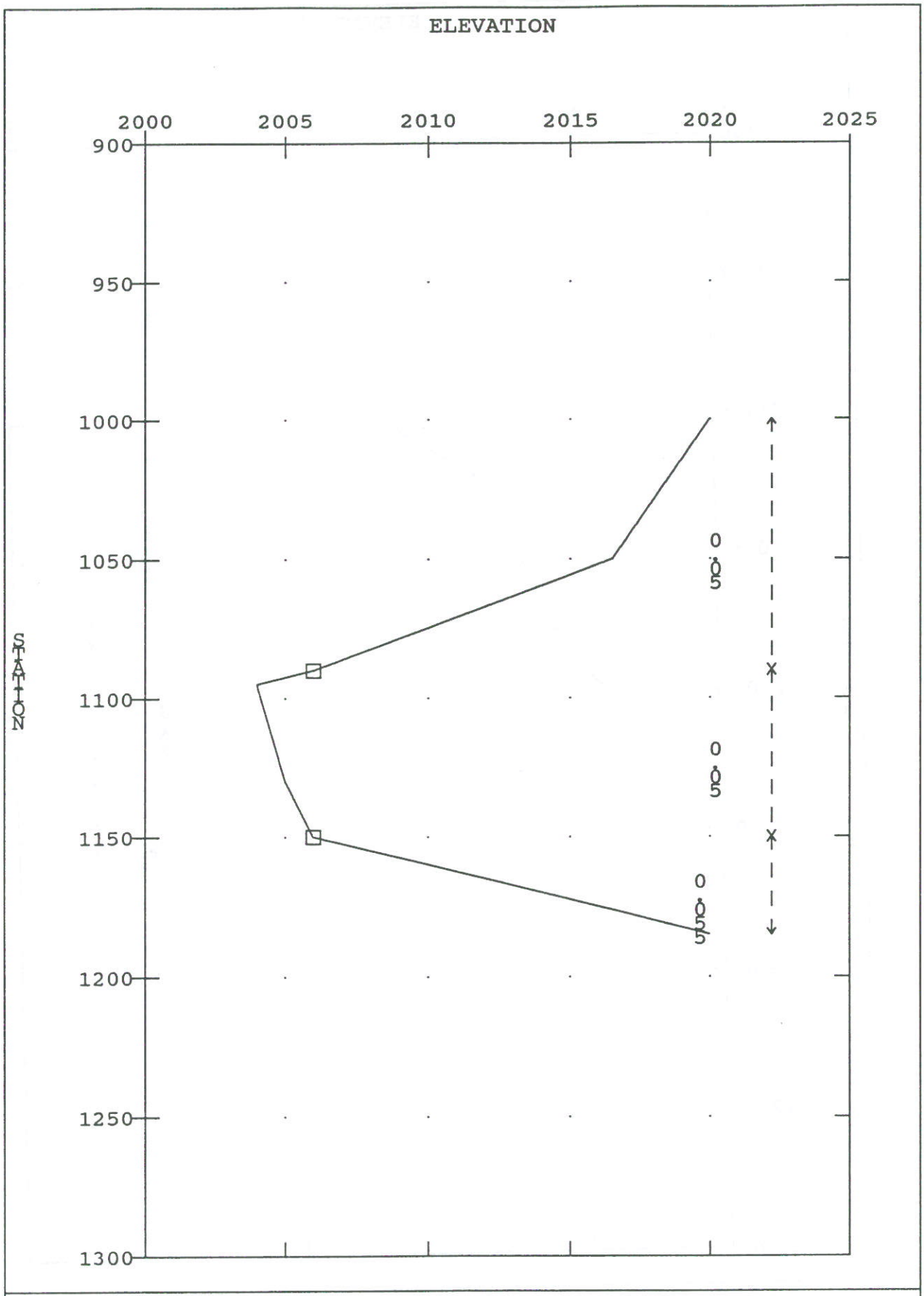
SECTION : 553556

Fountain Hills North FIS



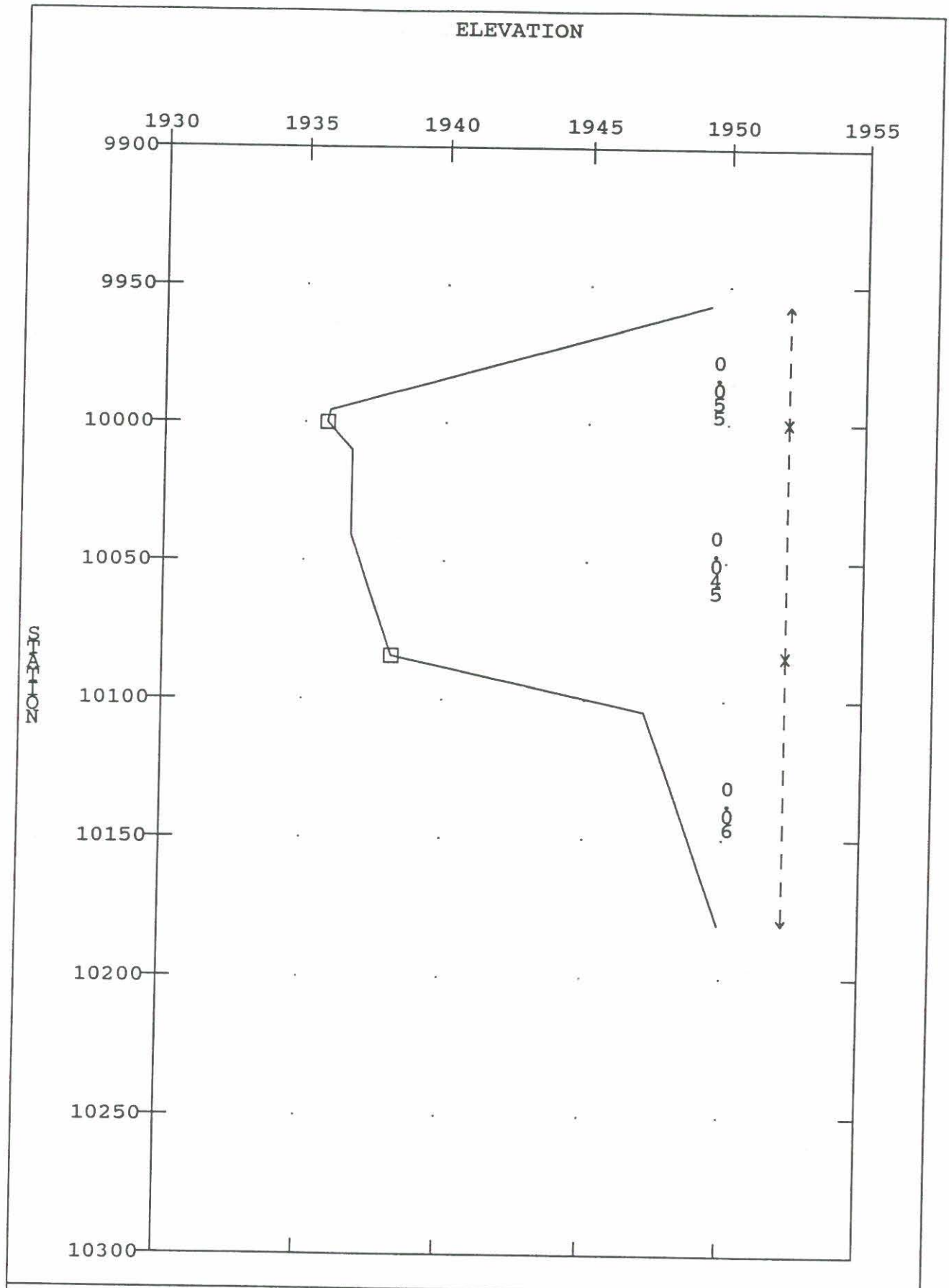
SECTION : 554555

Fountain Hills North FIS



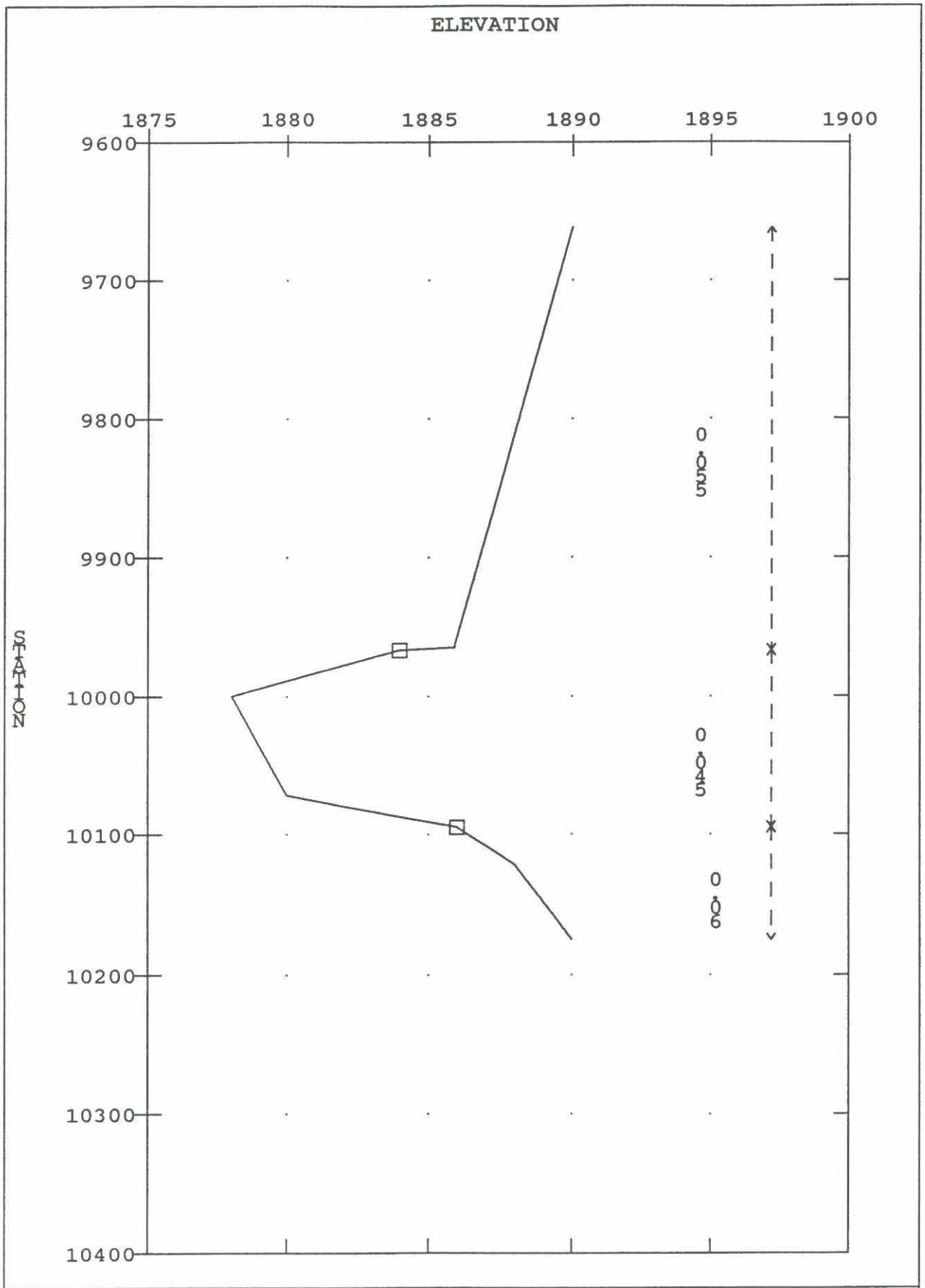
SECTION : 555556

Fountain Hills North FIS



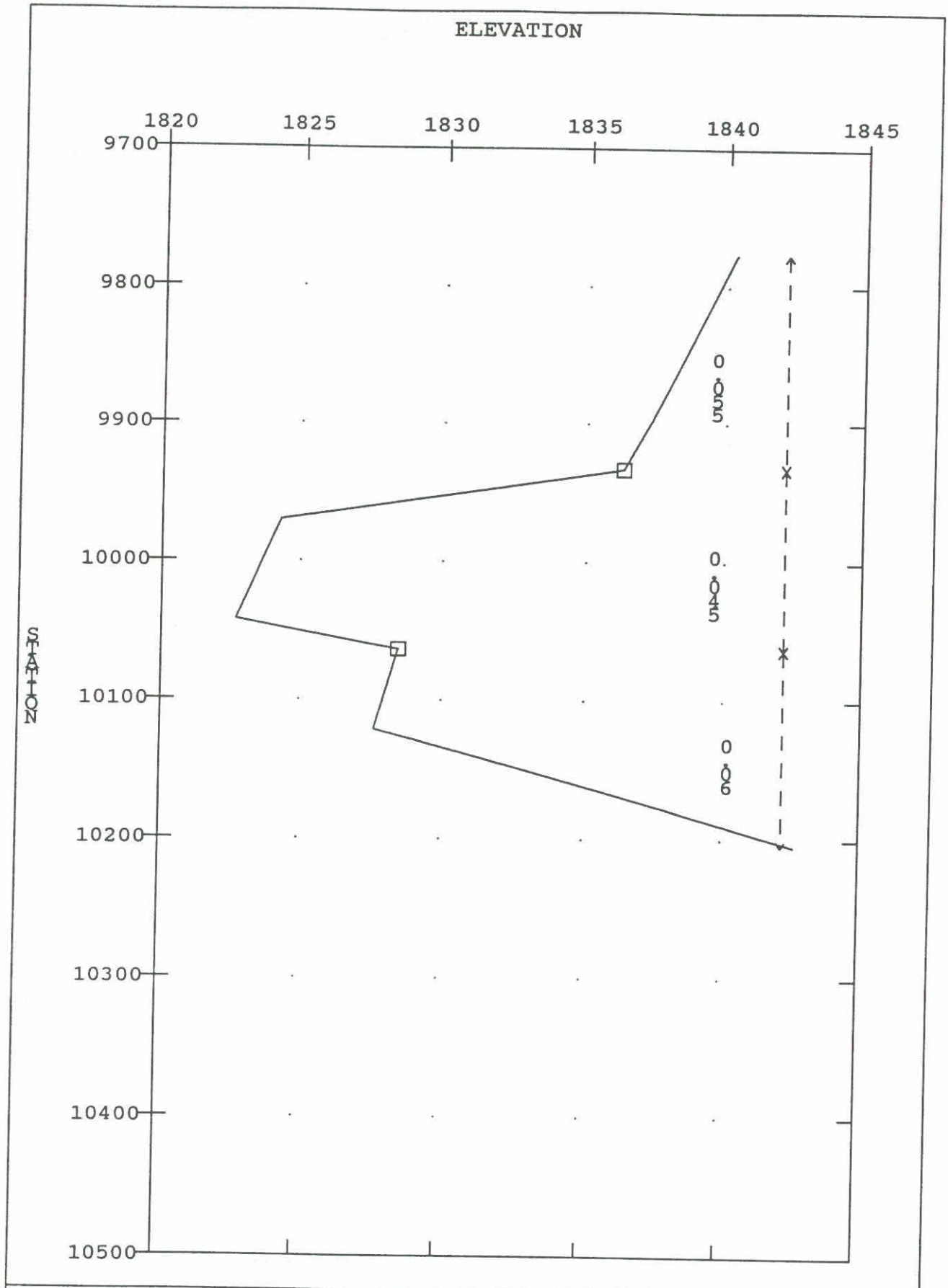
SECTION : 556557

Fountain Hills North FIS



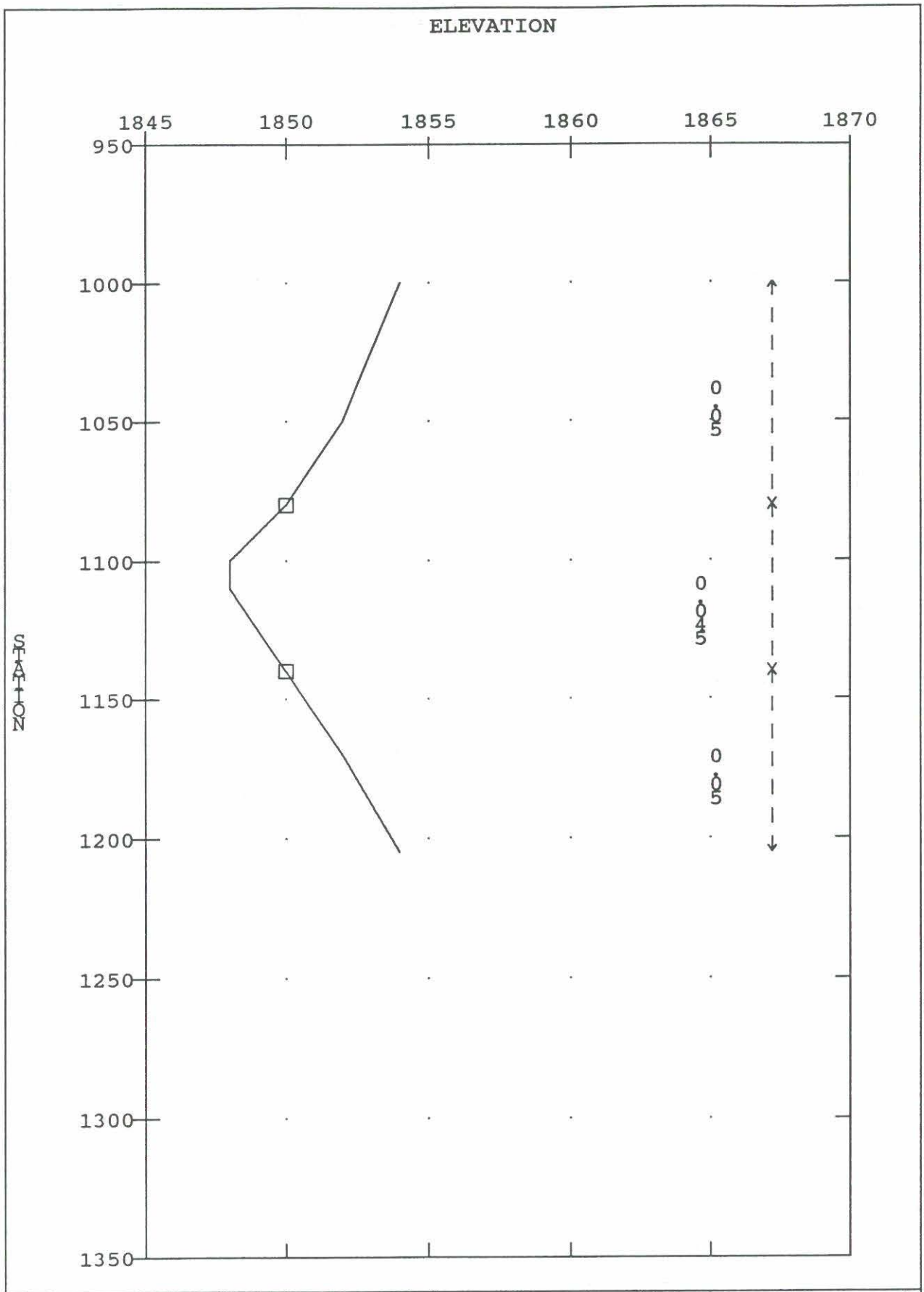
SECTION : 557558

Fountain Hills North FIS



SECTION : 558560

Fountain Hills North FIS



SECTION : 559560

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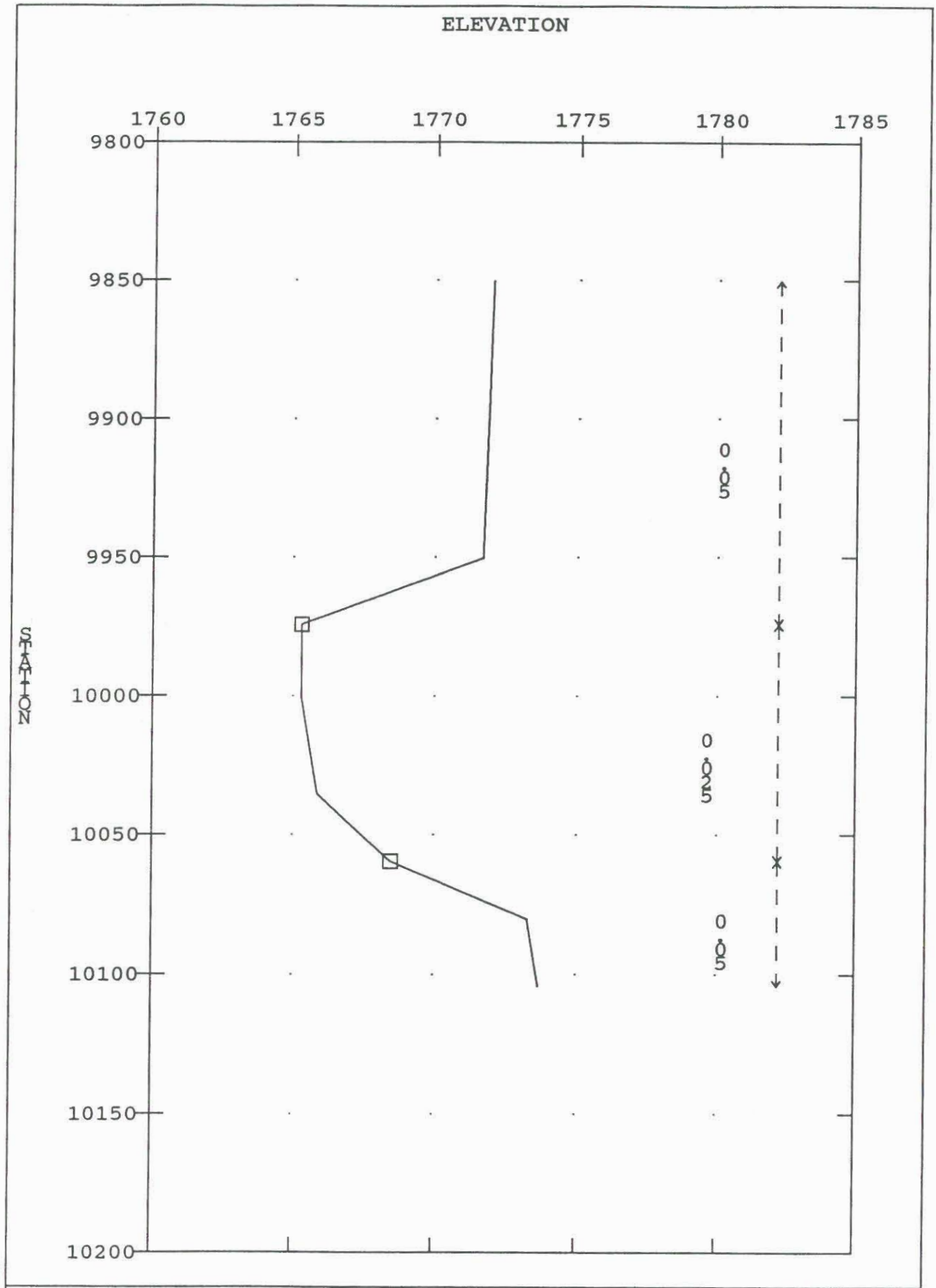

SECTION : 560585

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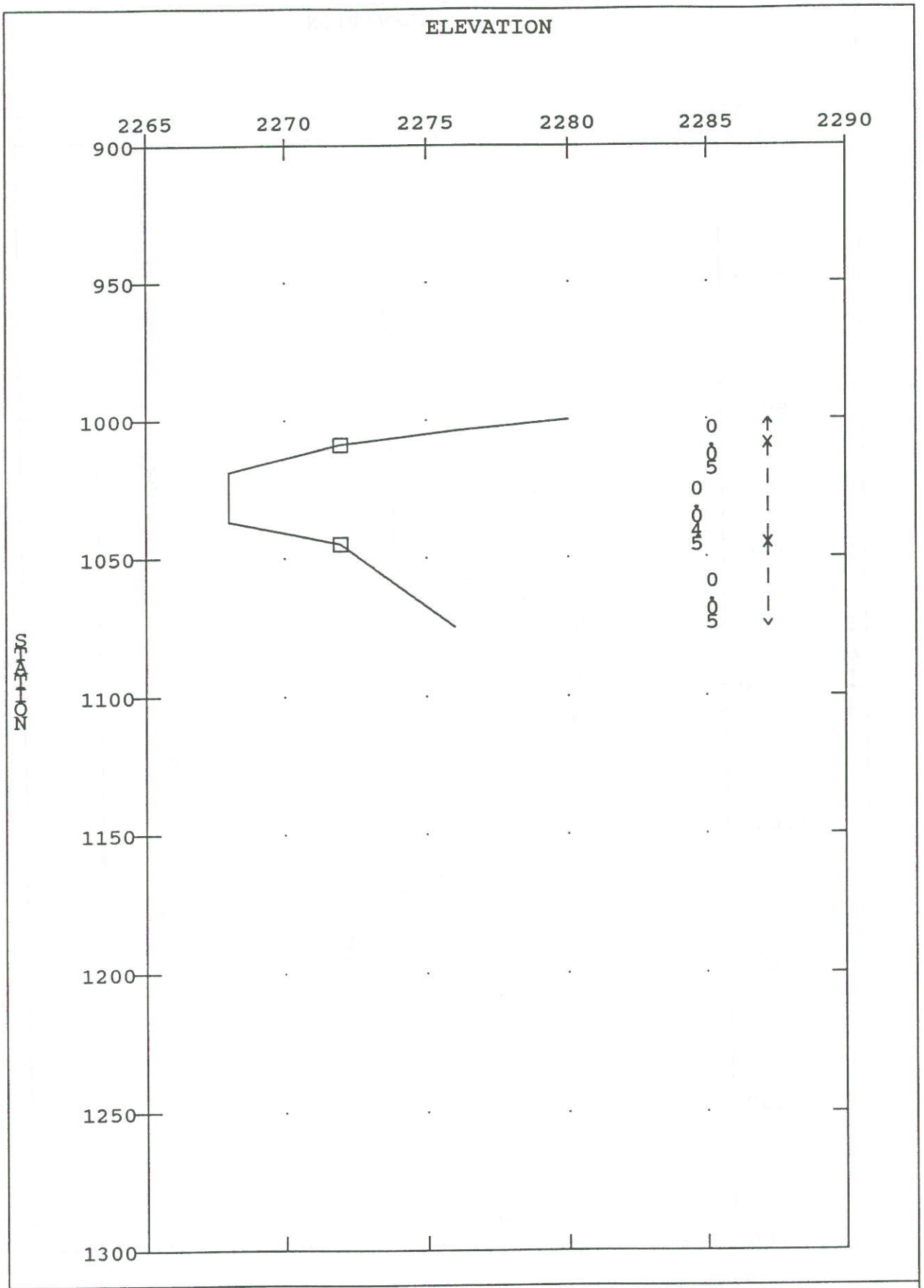
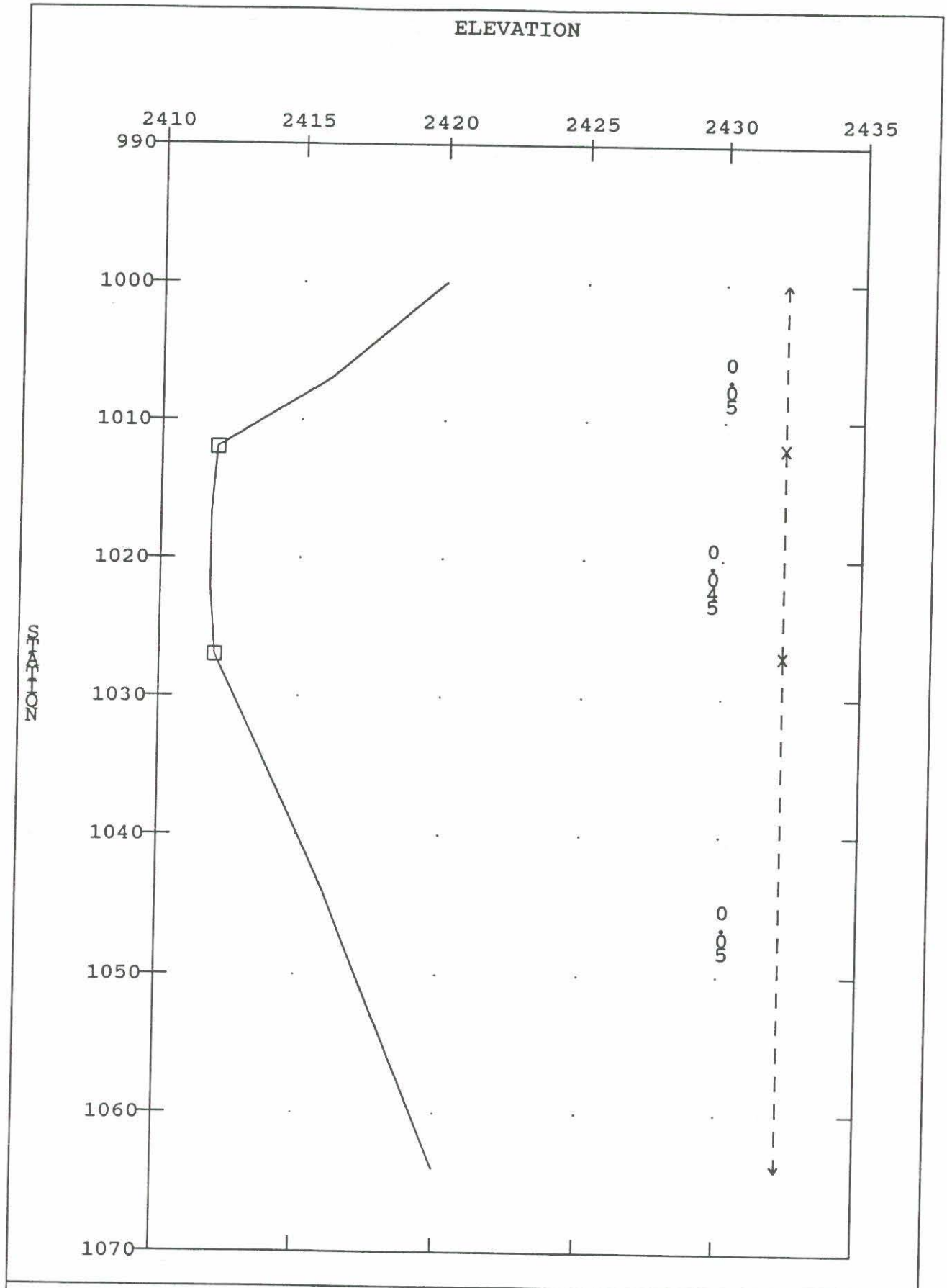


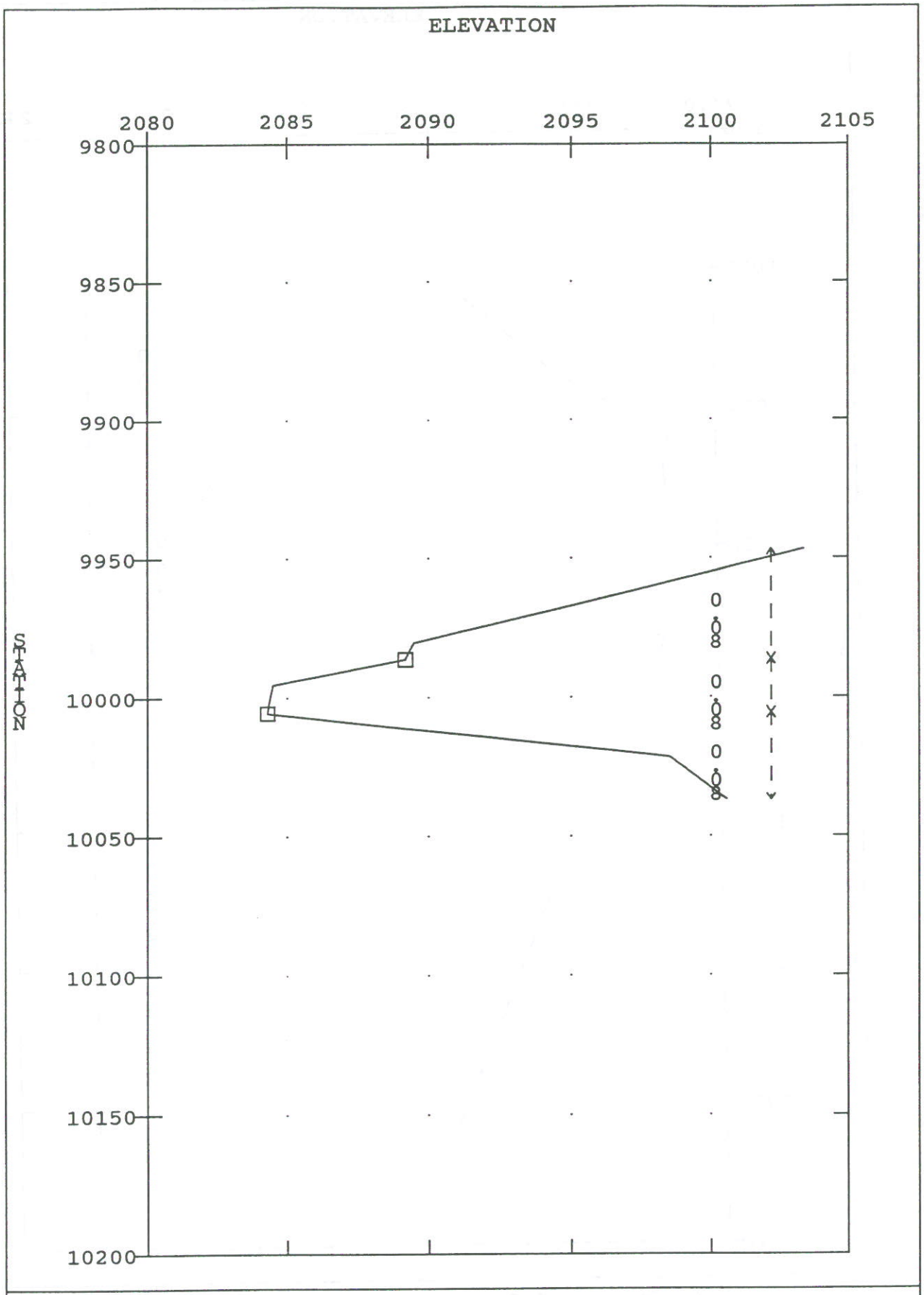
SECTION : 561563

Fountain Hills North FIS



SECTION : 562563

Fountain Hills North FIS



SECTION : 563564

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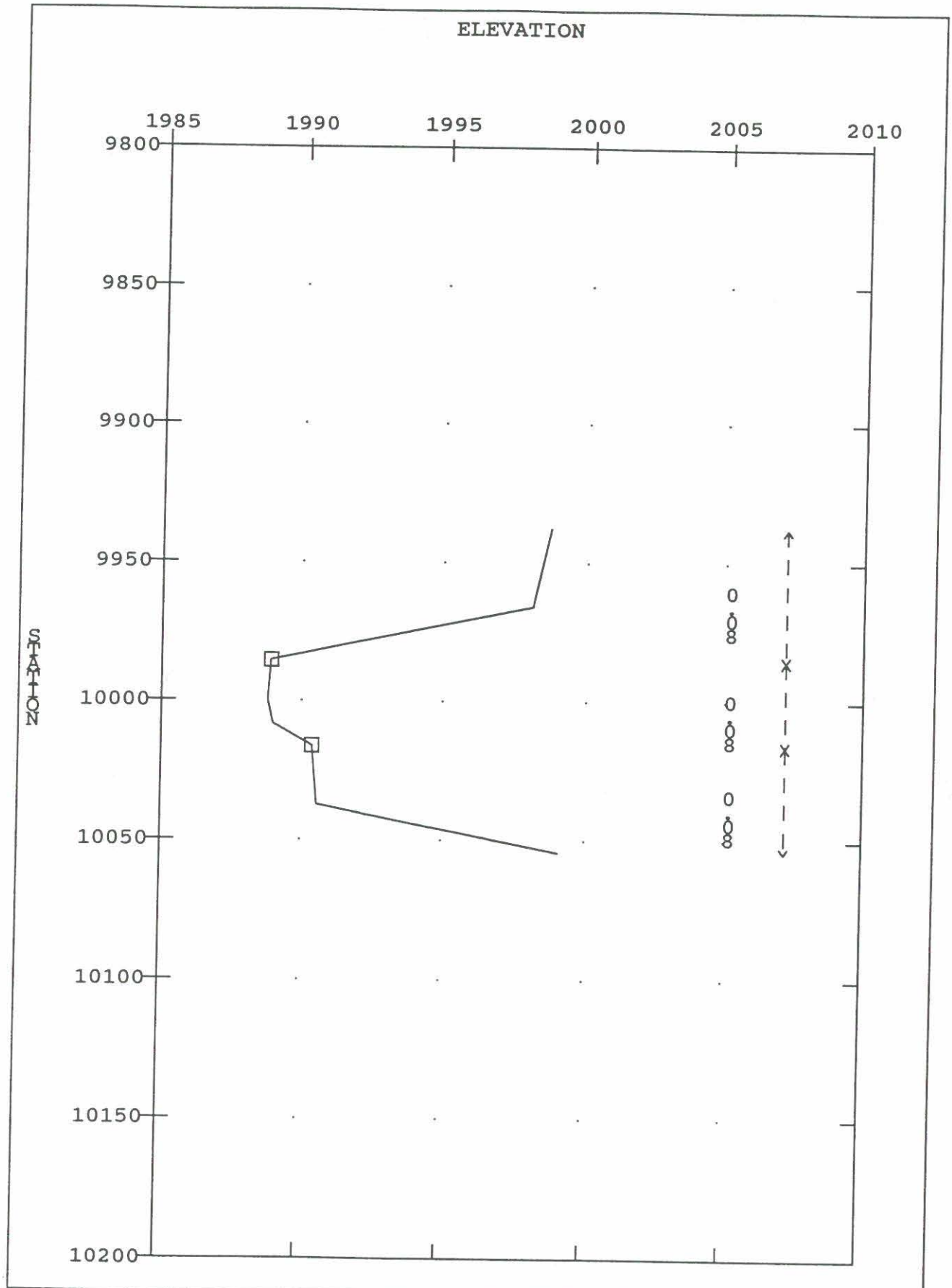
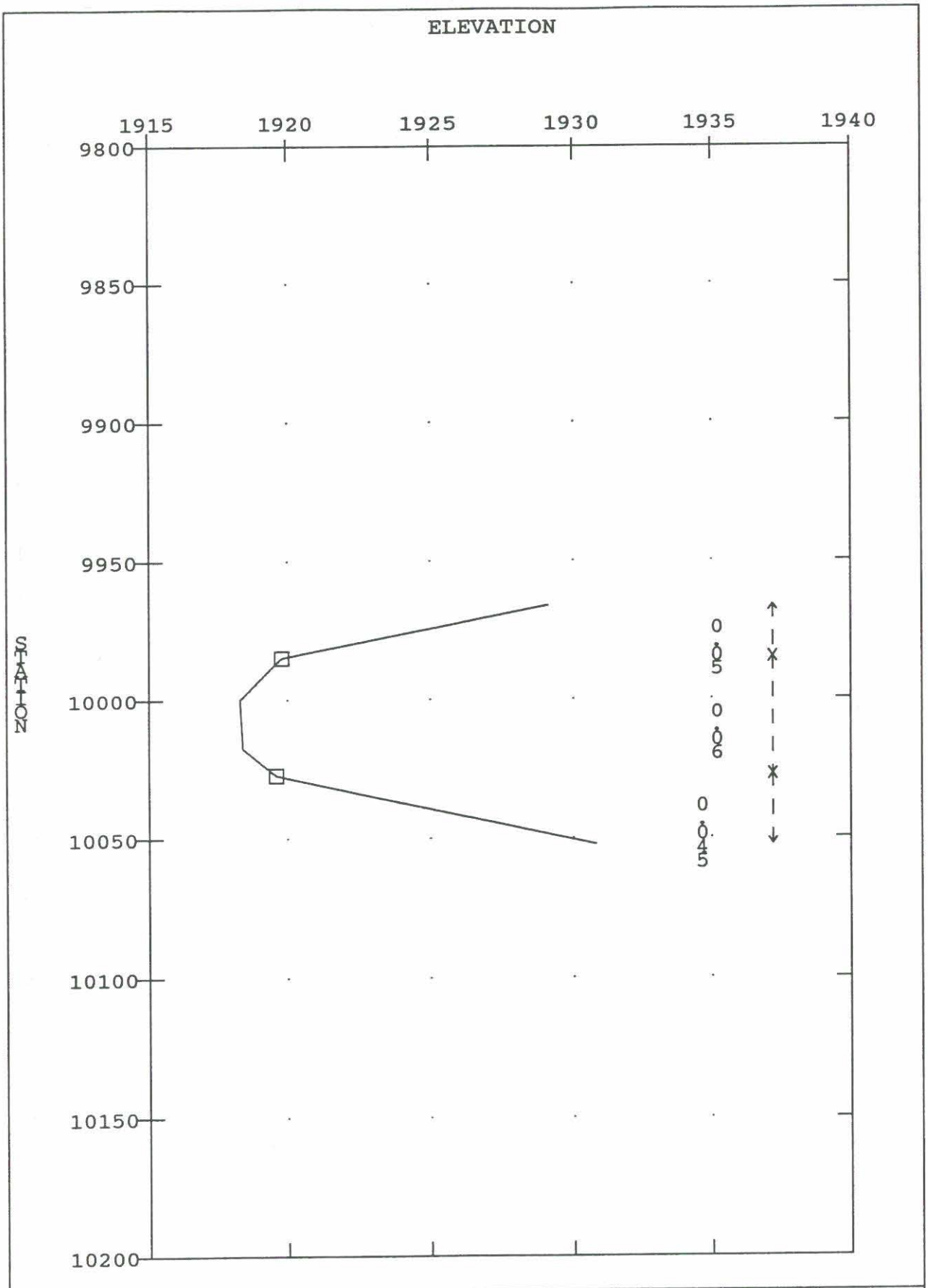


SECTION : 564565

Fountain Hills North FIS



SECTION : 565568

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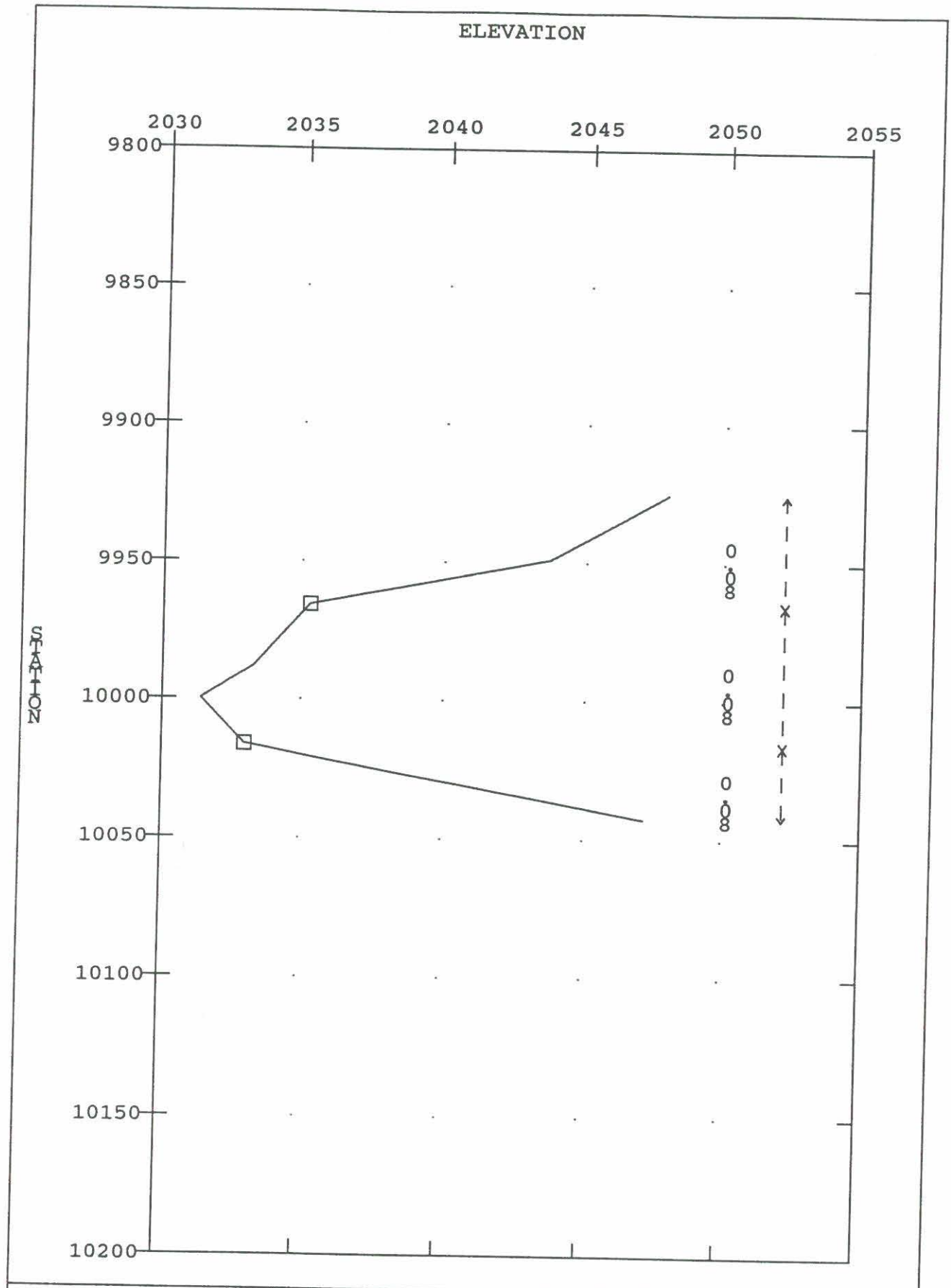
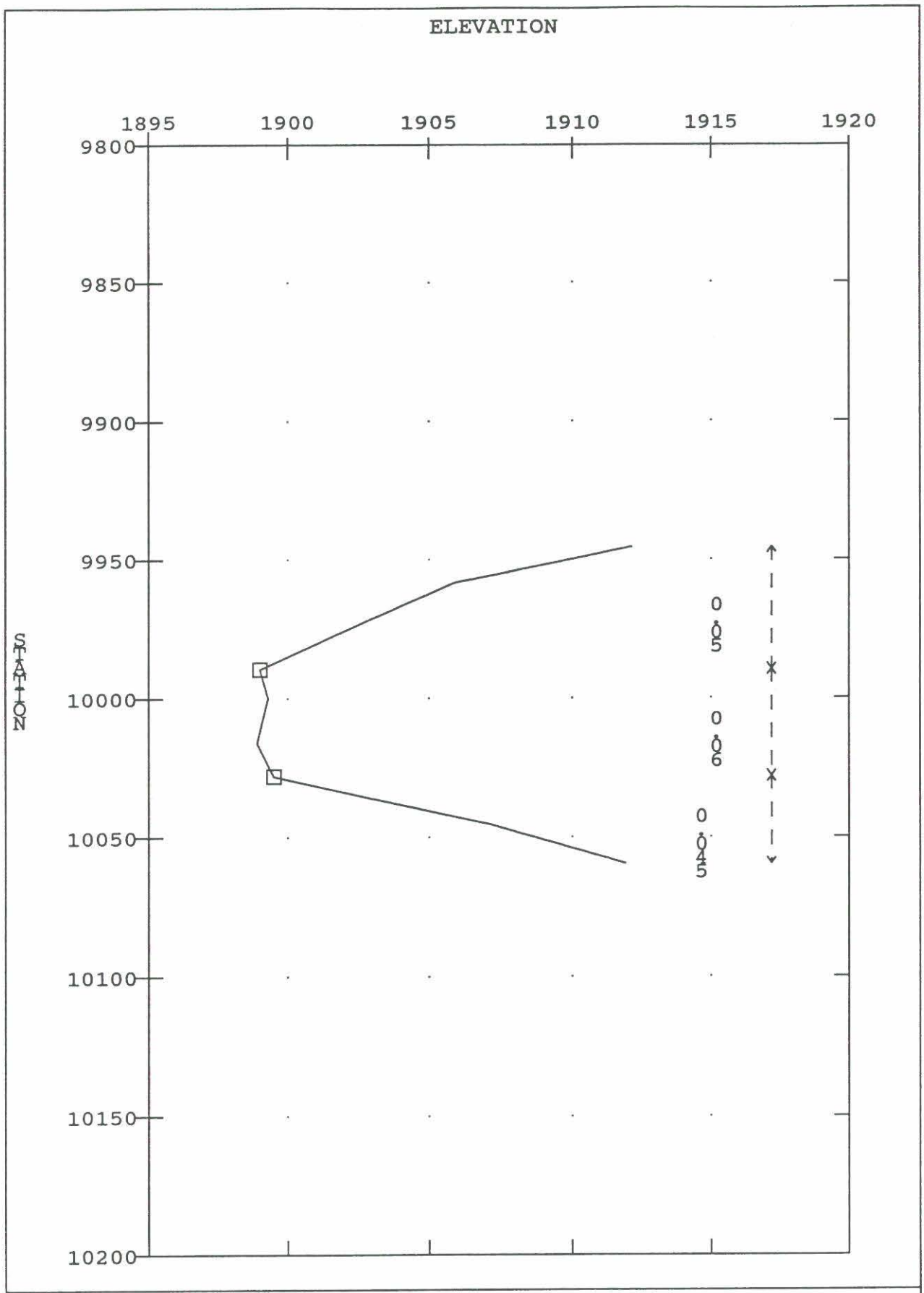


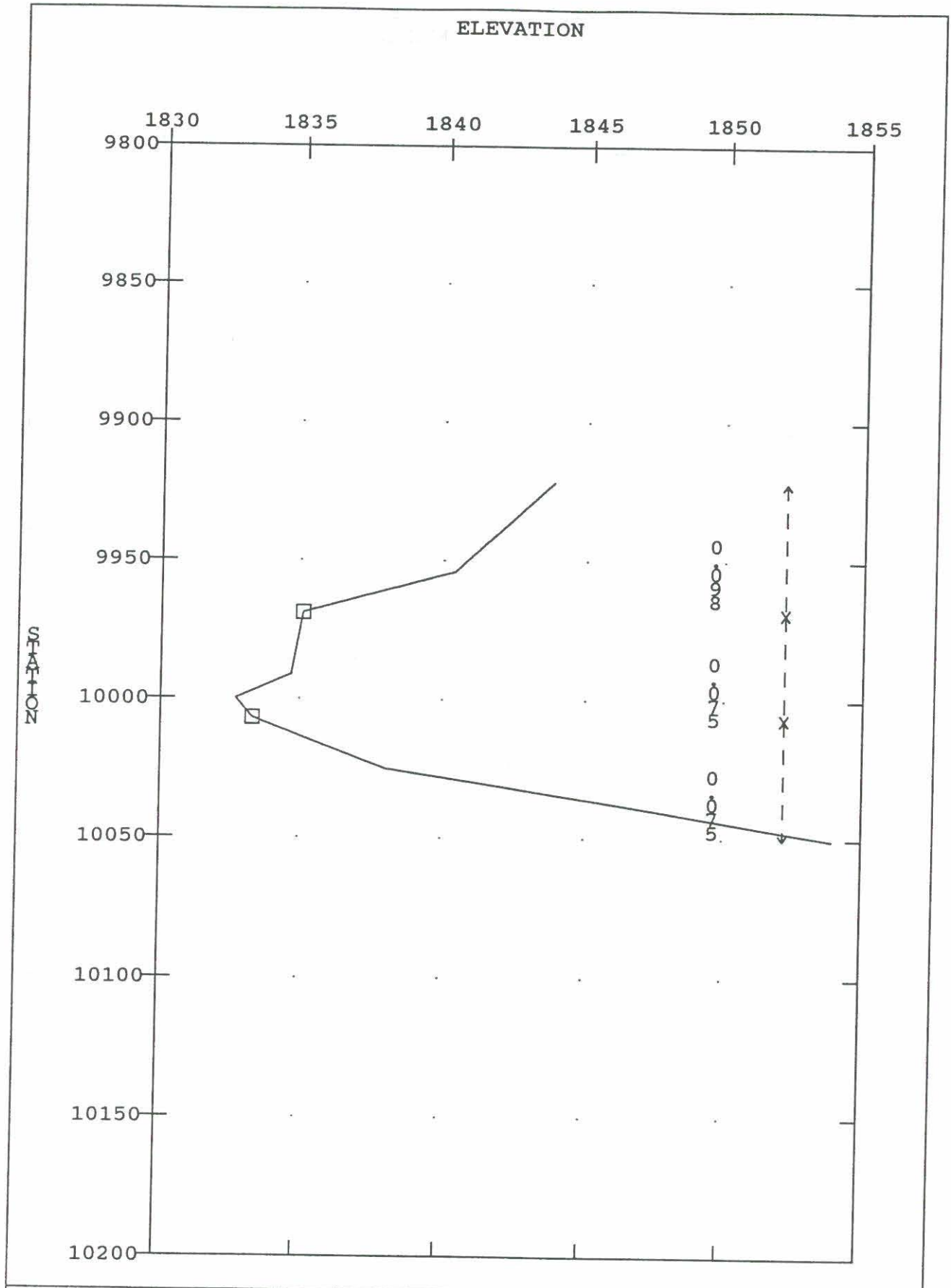
SECTION : 566567

Fountain Hills North FIS



SECTION : 567568

Fountain Hills North FIS



SECTION : 568573

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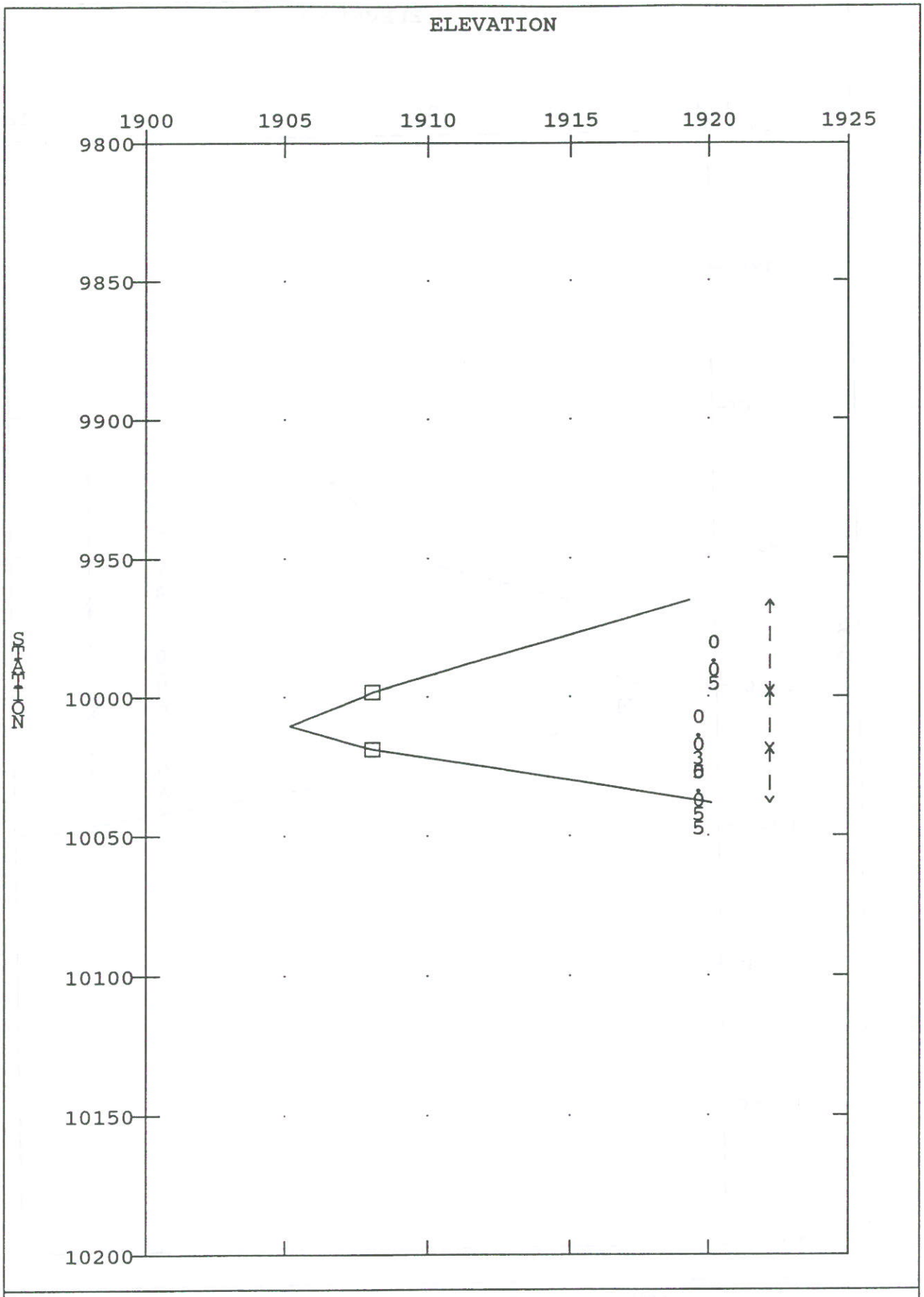

SECTION : 569570

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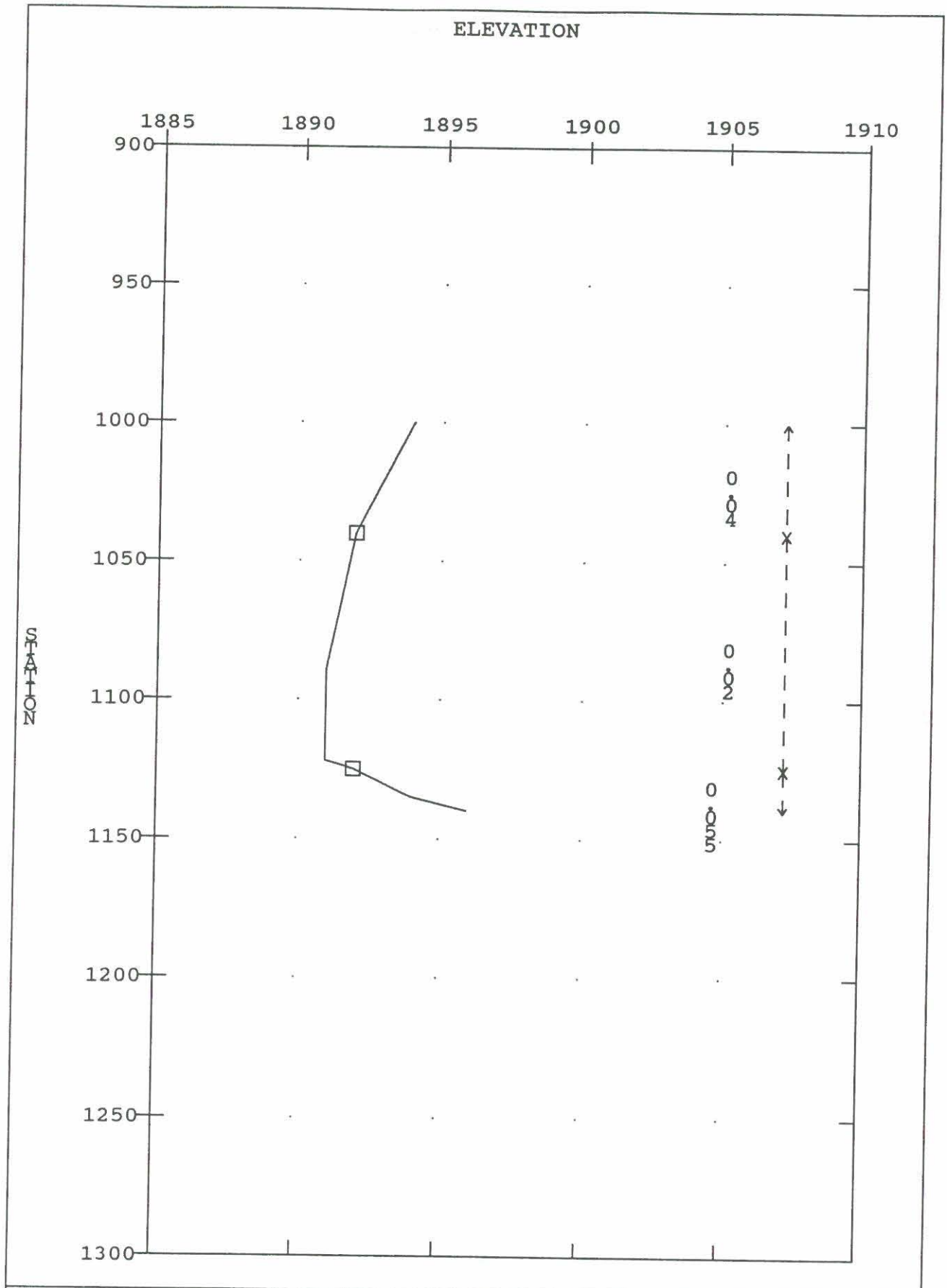
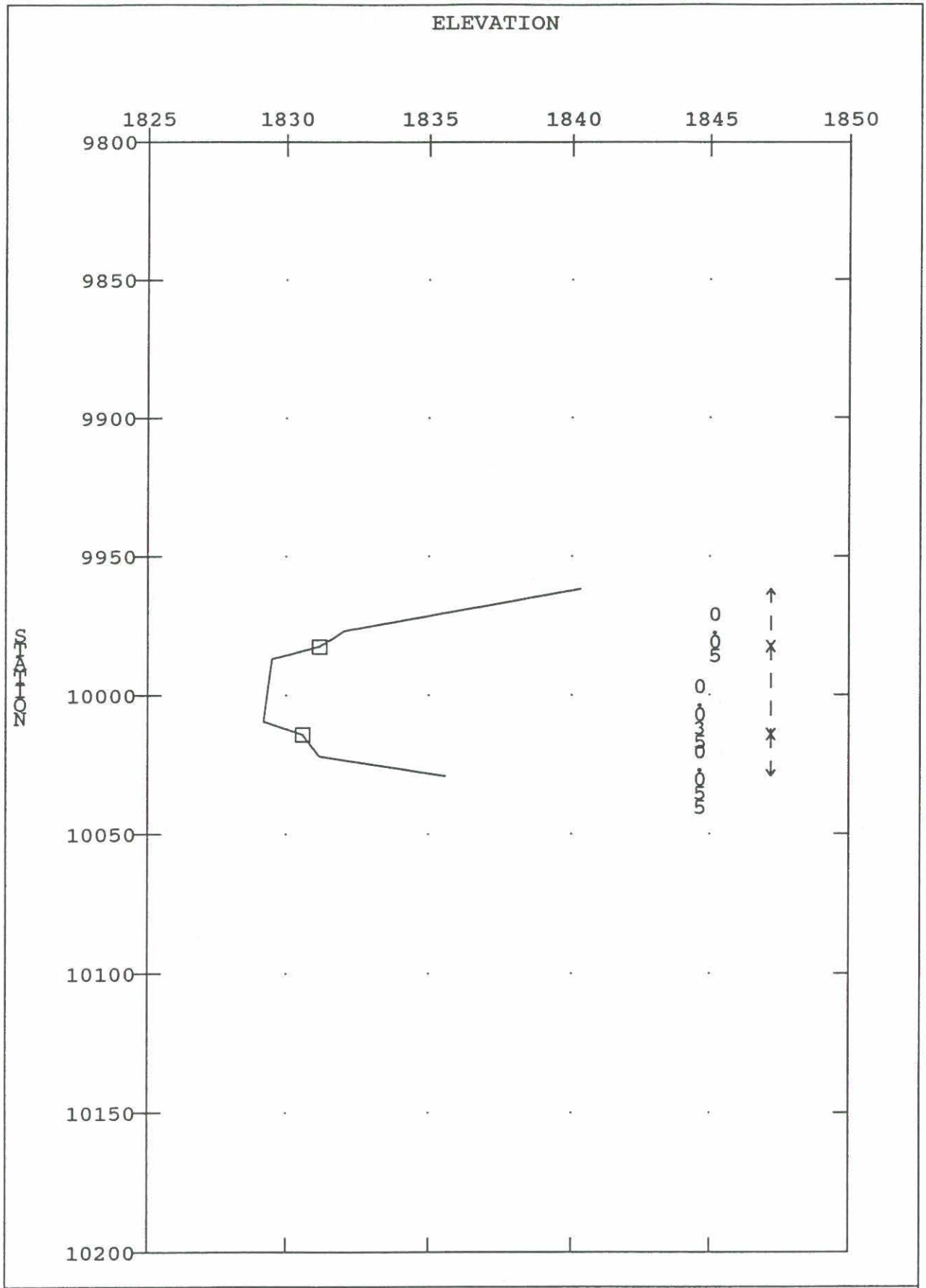


SECTION : 571572

Fountain Hills North FIS



SECTION : 572573

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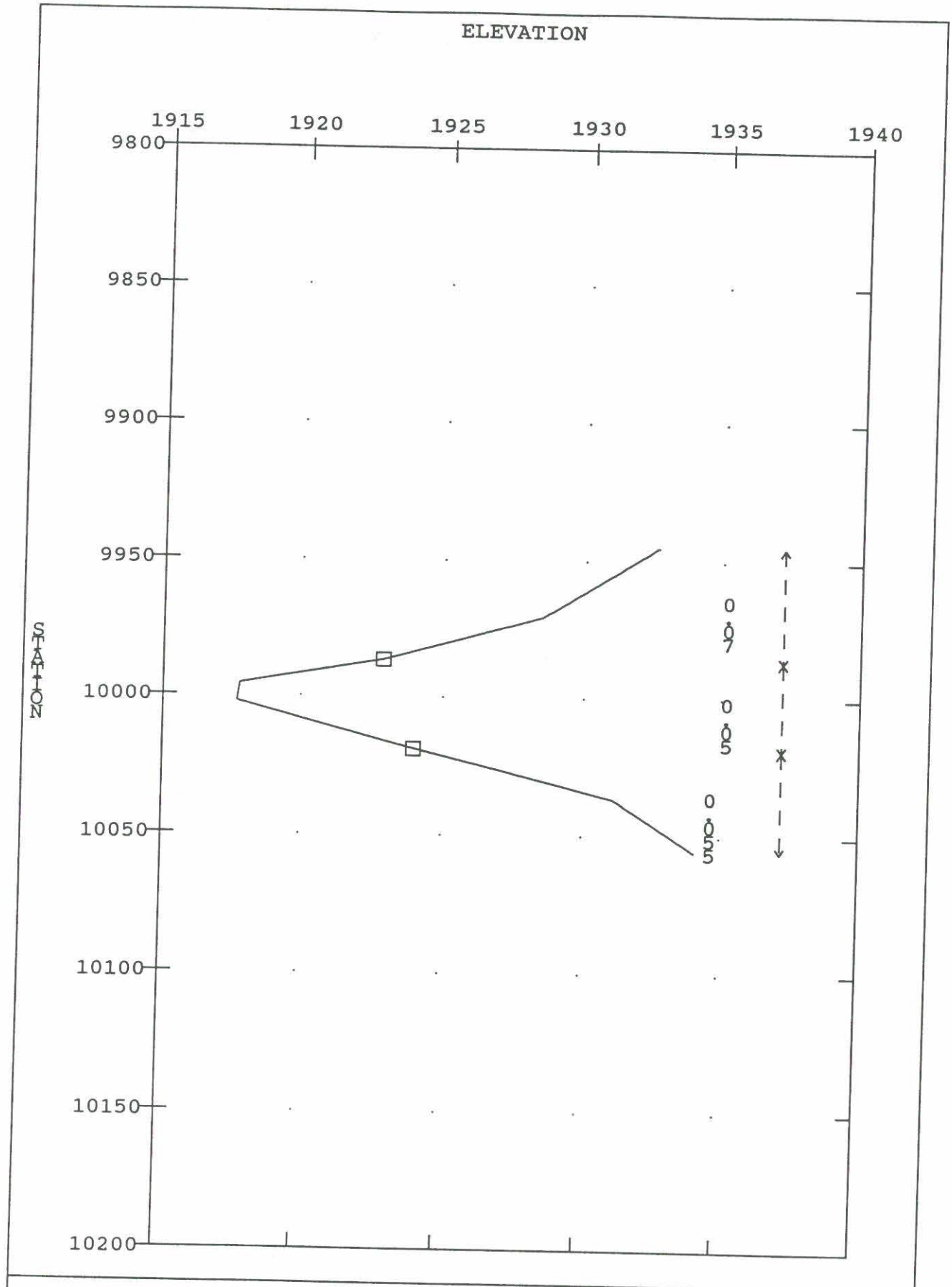
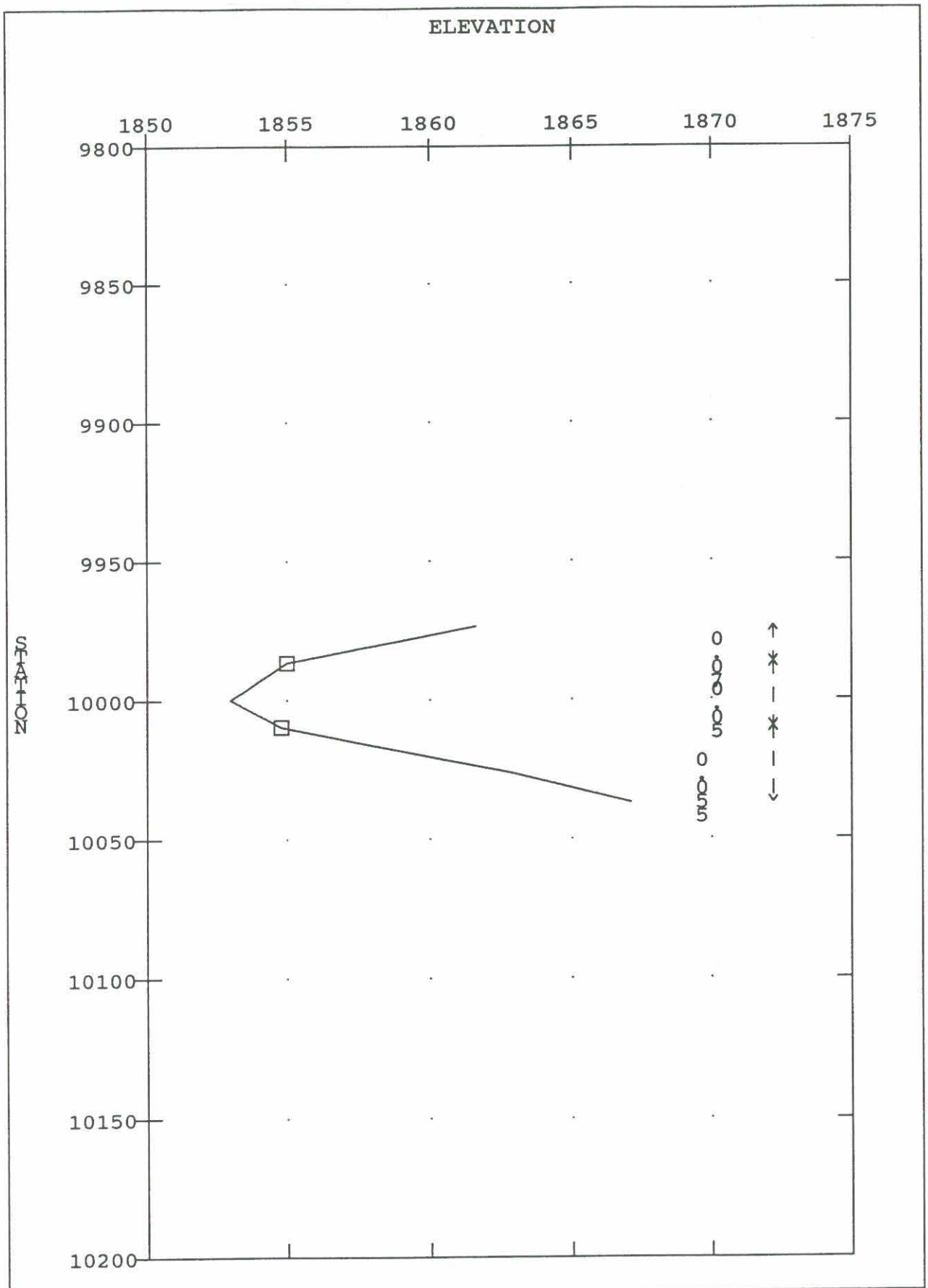


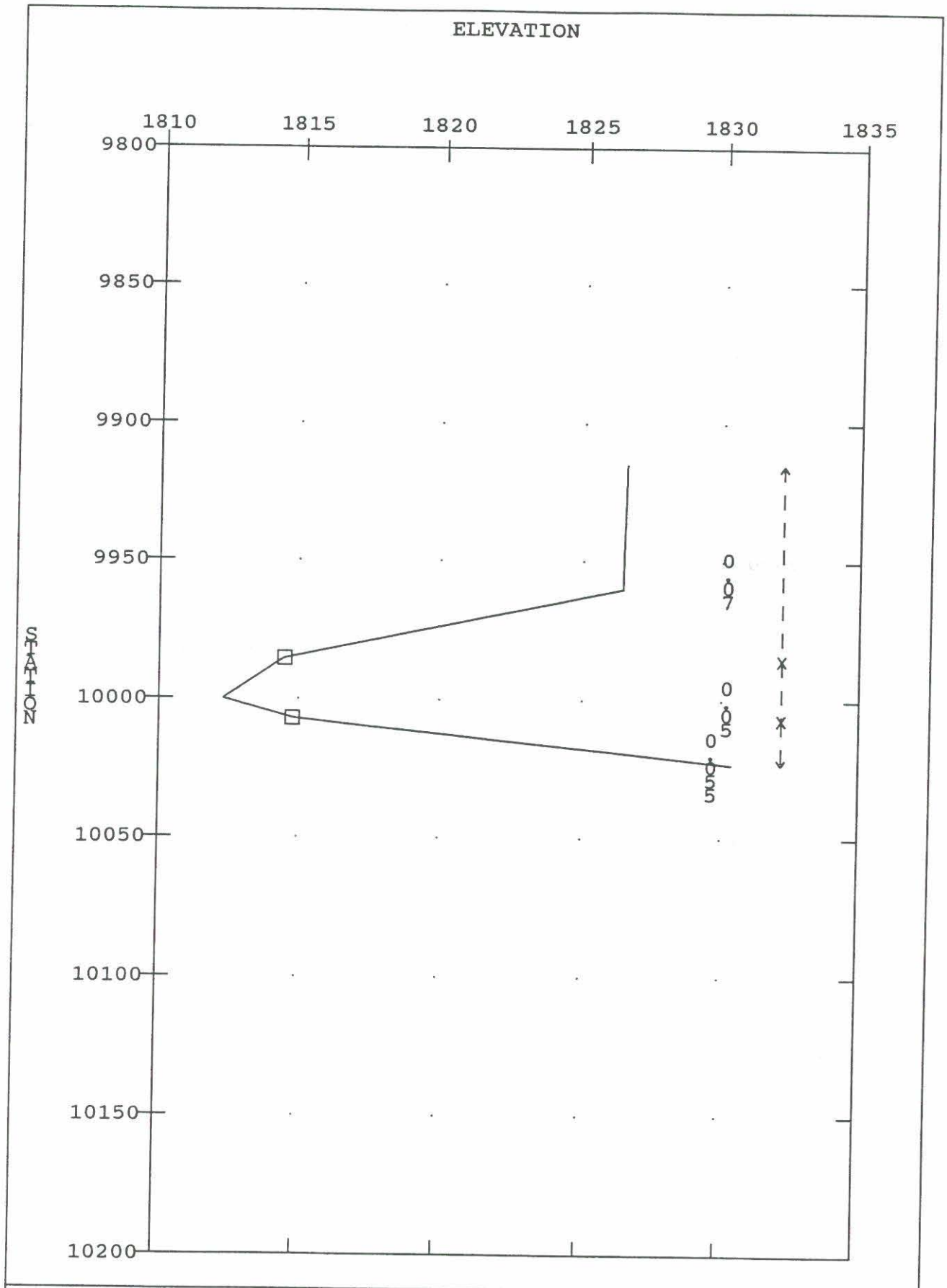
SECTION : 574575

Fountain Hills North FIS



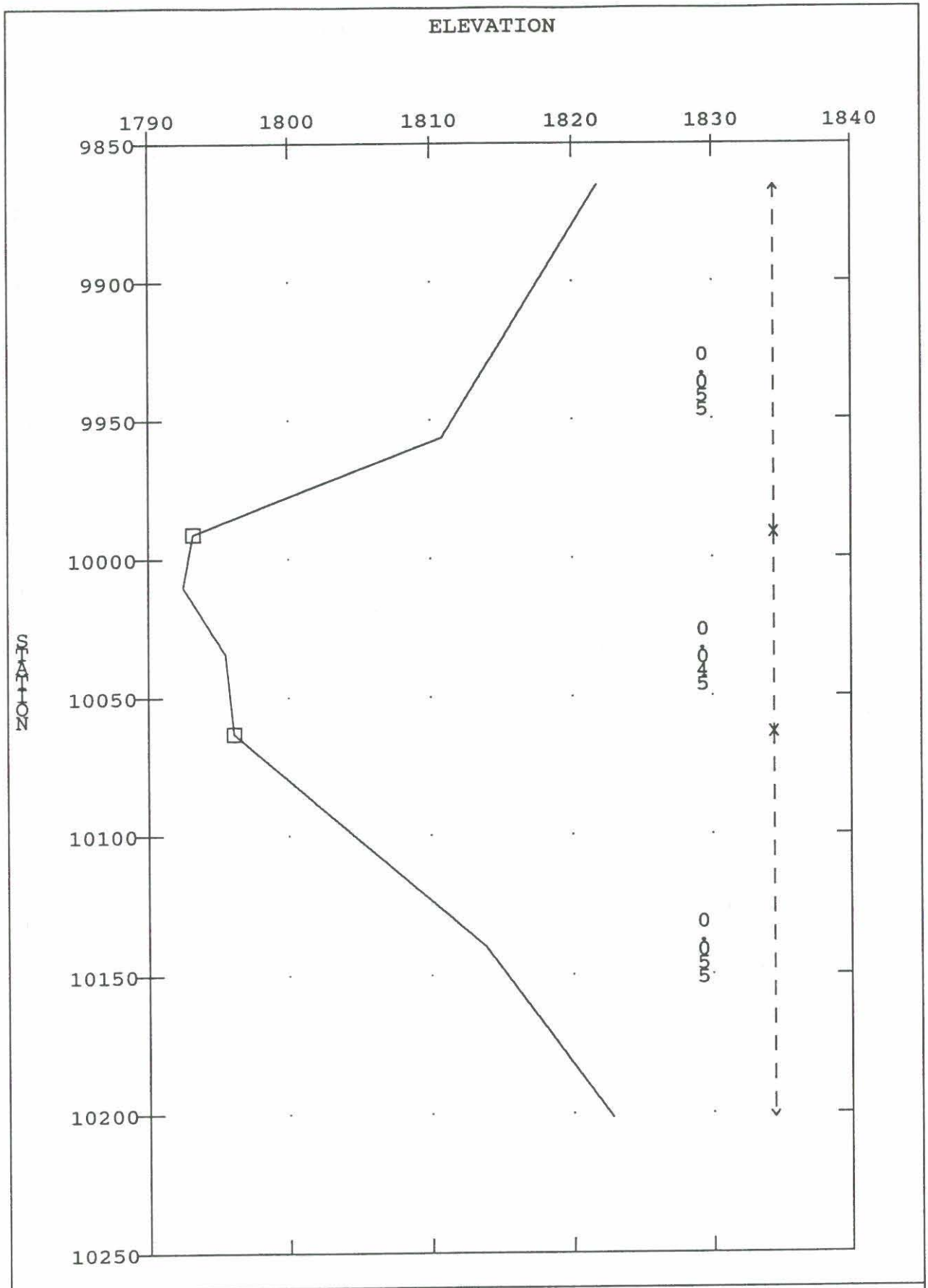
SECTION : 575576

Fountain Hills North FIS



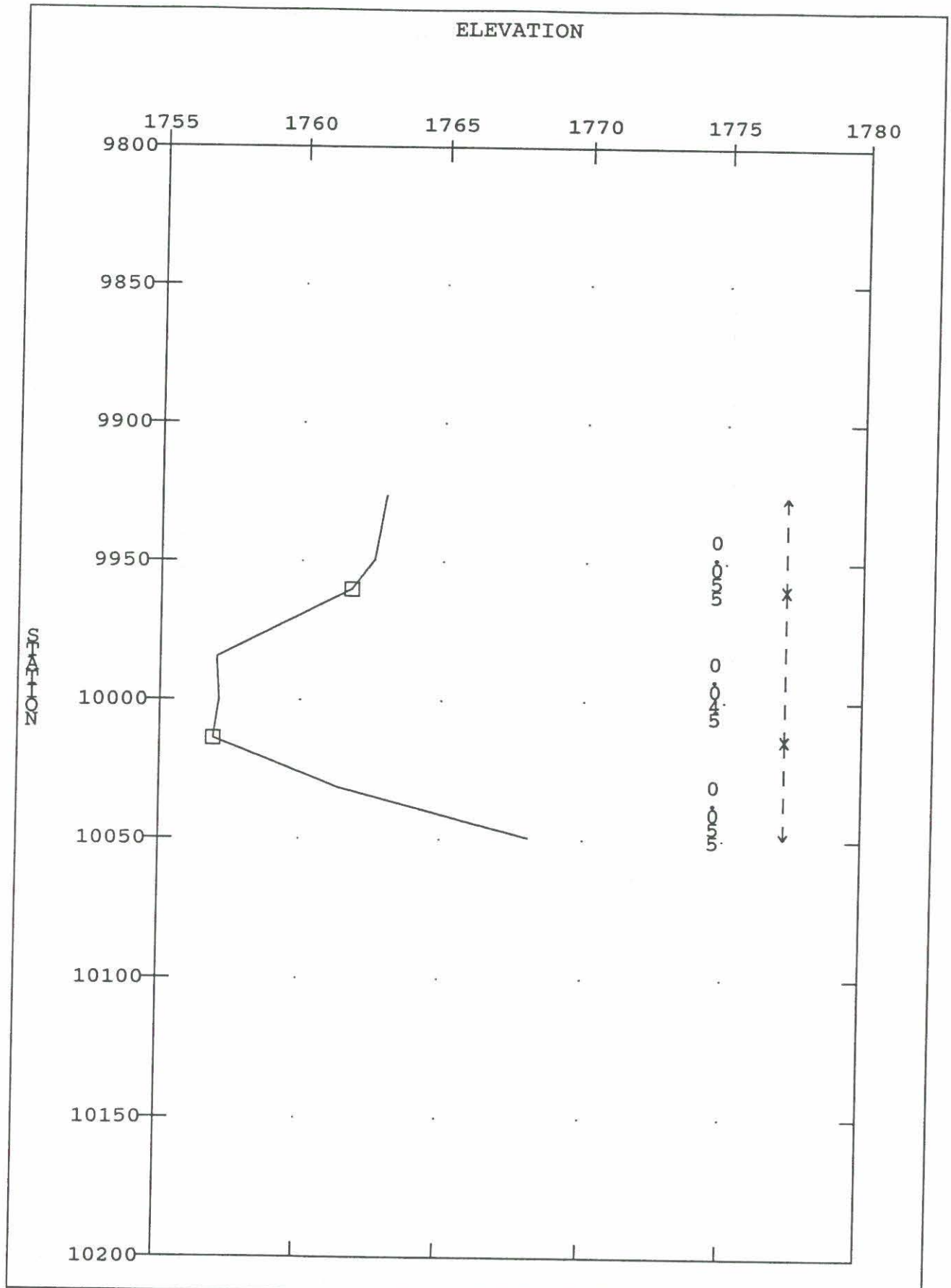
SECTION : 576577

Fountain Hills North FIS



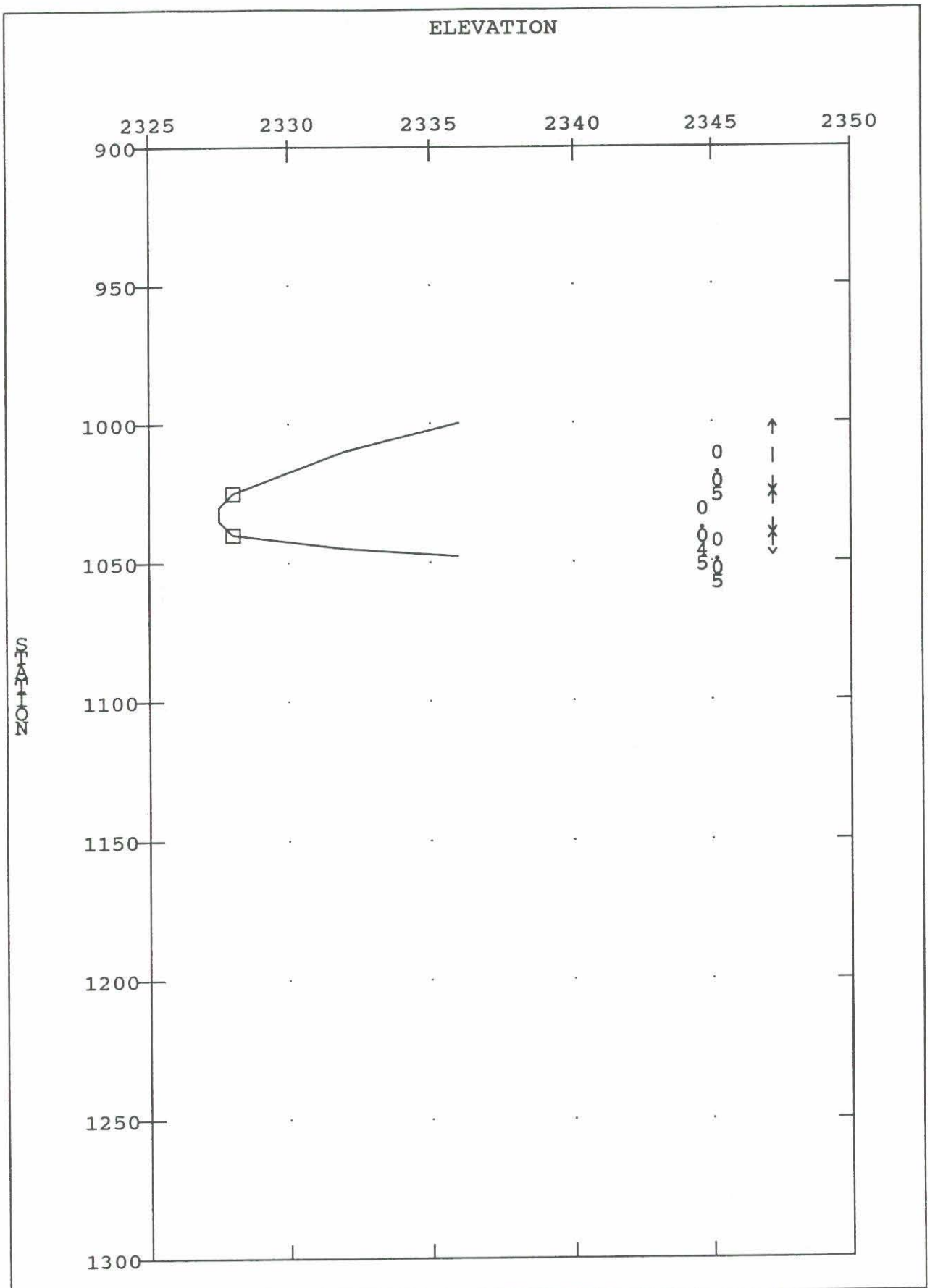
SECTION : 577578

Fountain Hills North FIS



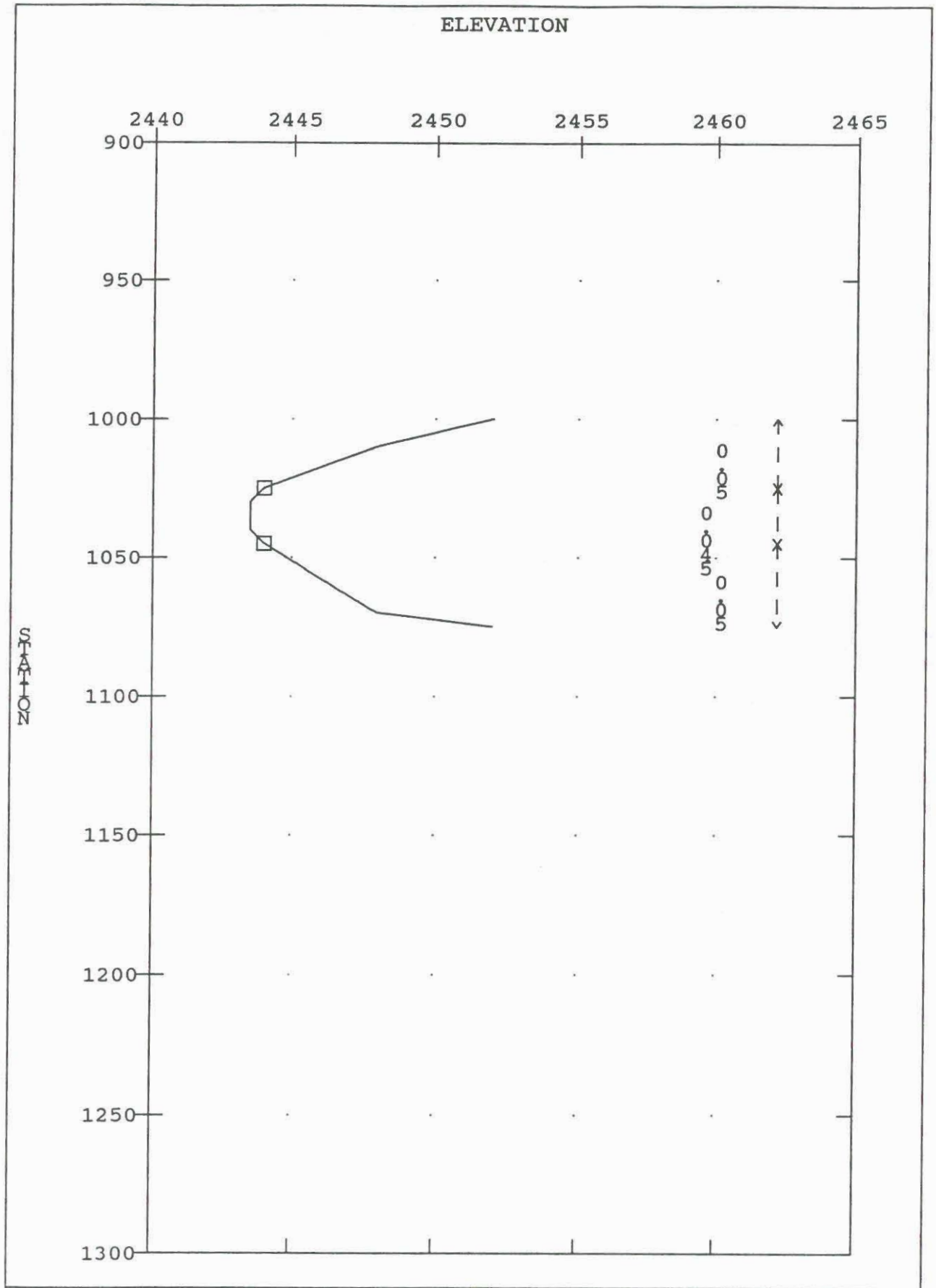
SECTION : 578587

Fountain Hills North FIS



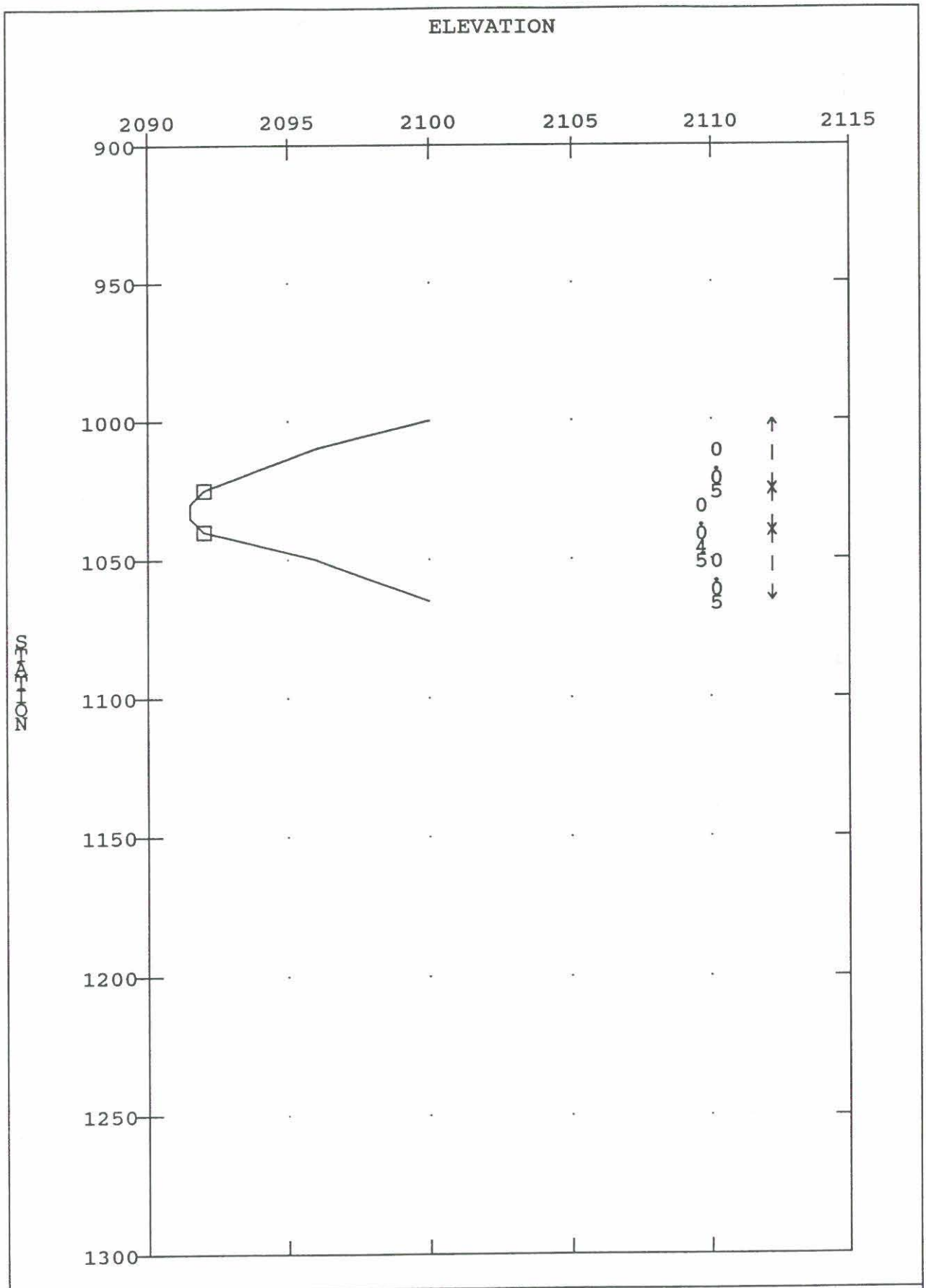
SECTION : 579580

Fountain Hills North FIS



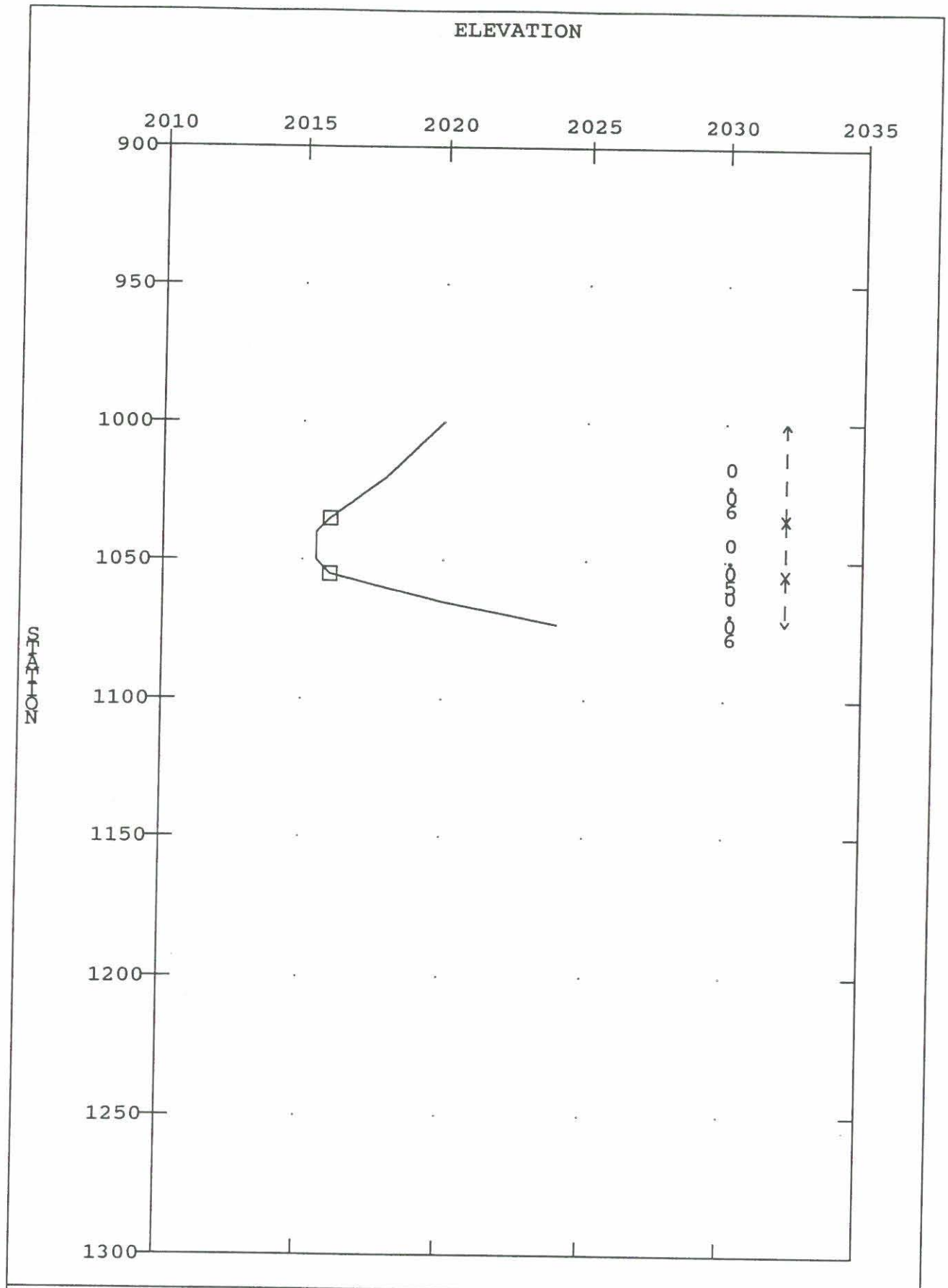
SECTION : 580581

Fountain Hills North FIS



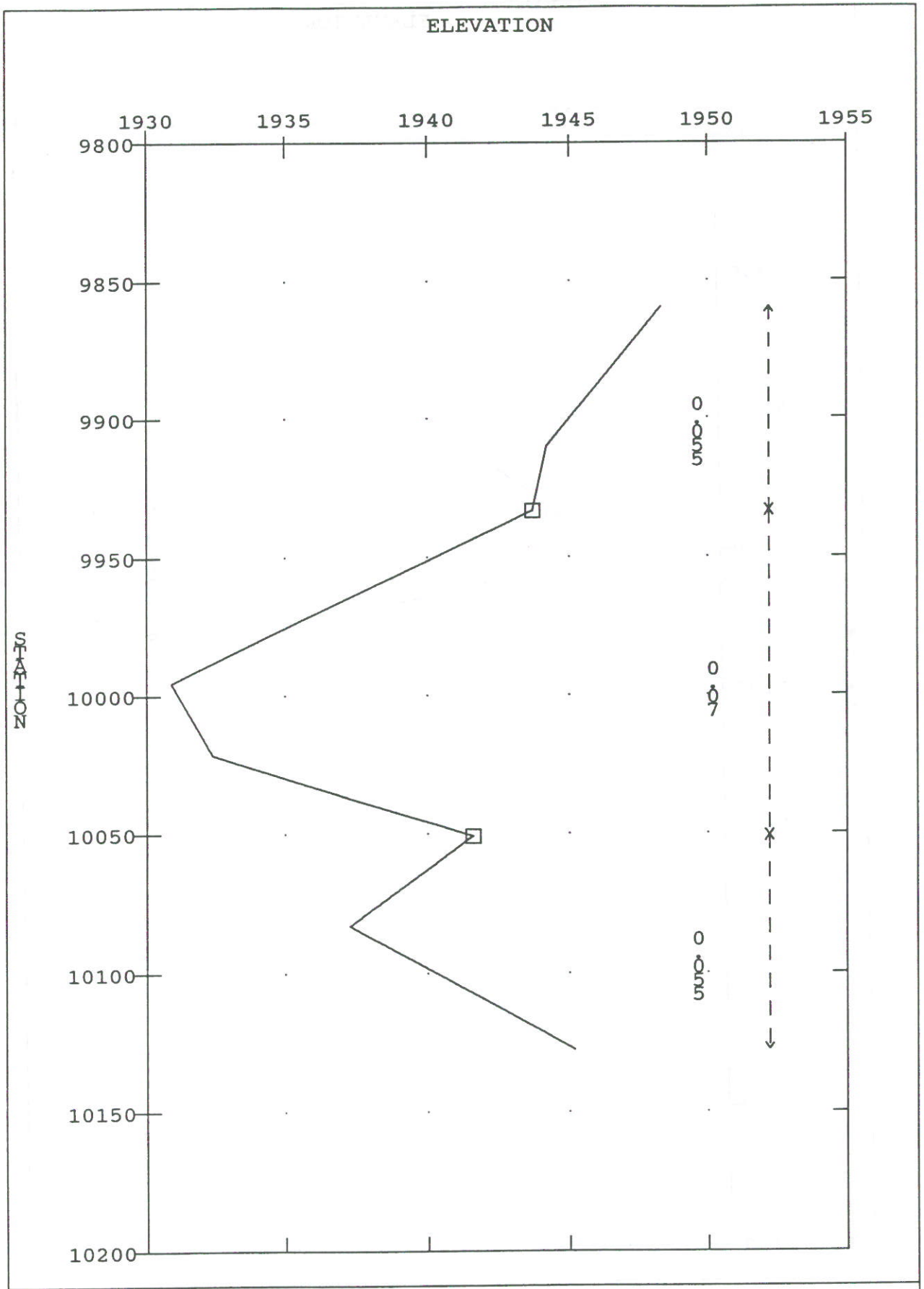
SECTION : 581582

Fountain Hills North FIS



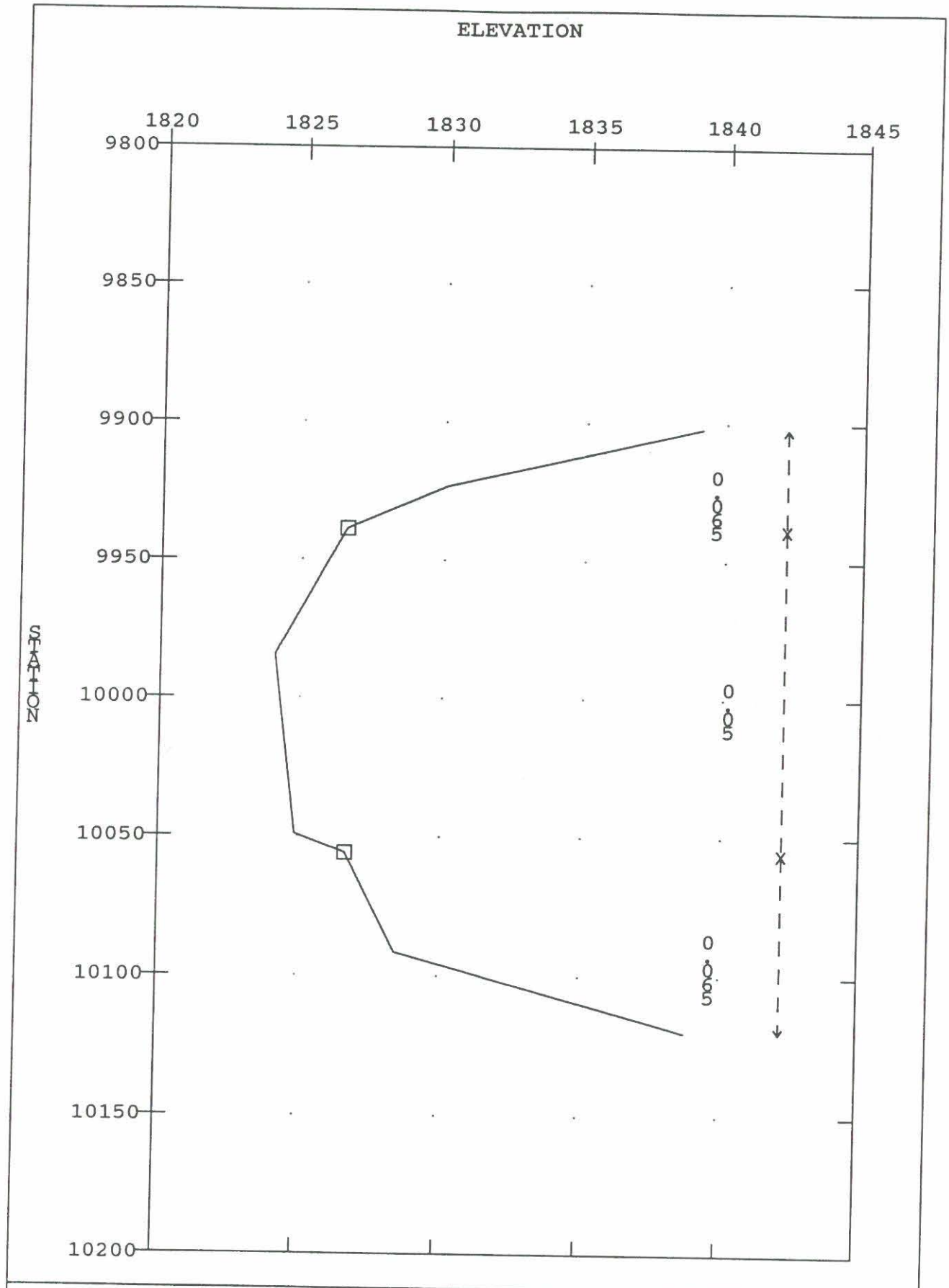
SECTION : 582583

Fountain Hills North FIS



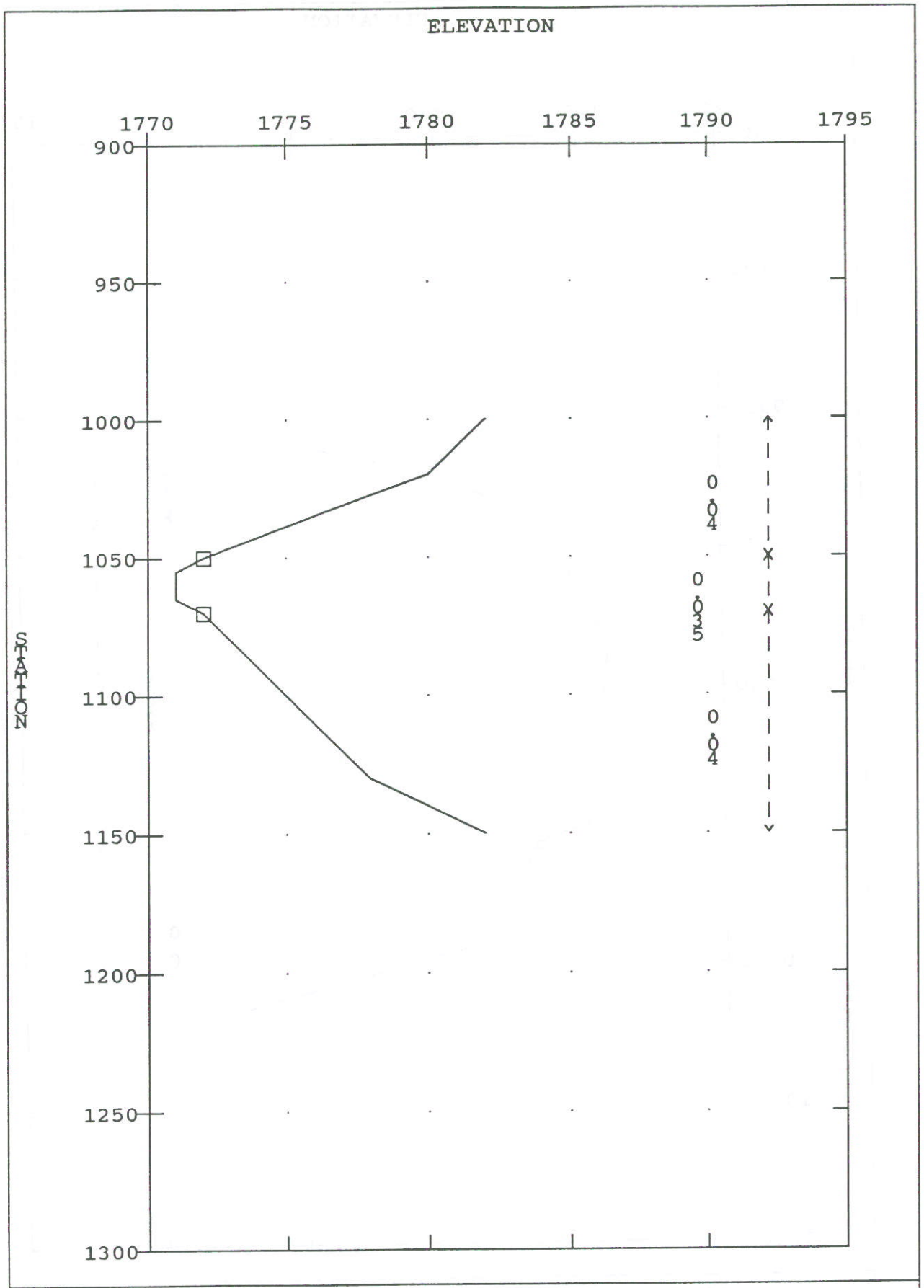
SECTION : 583584

Fountain Hills North FIS



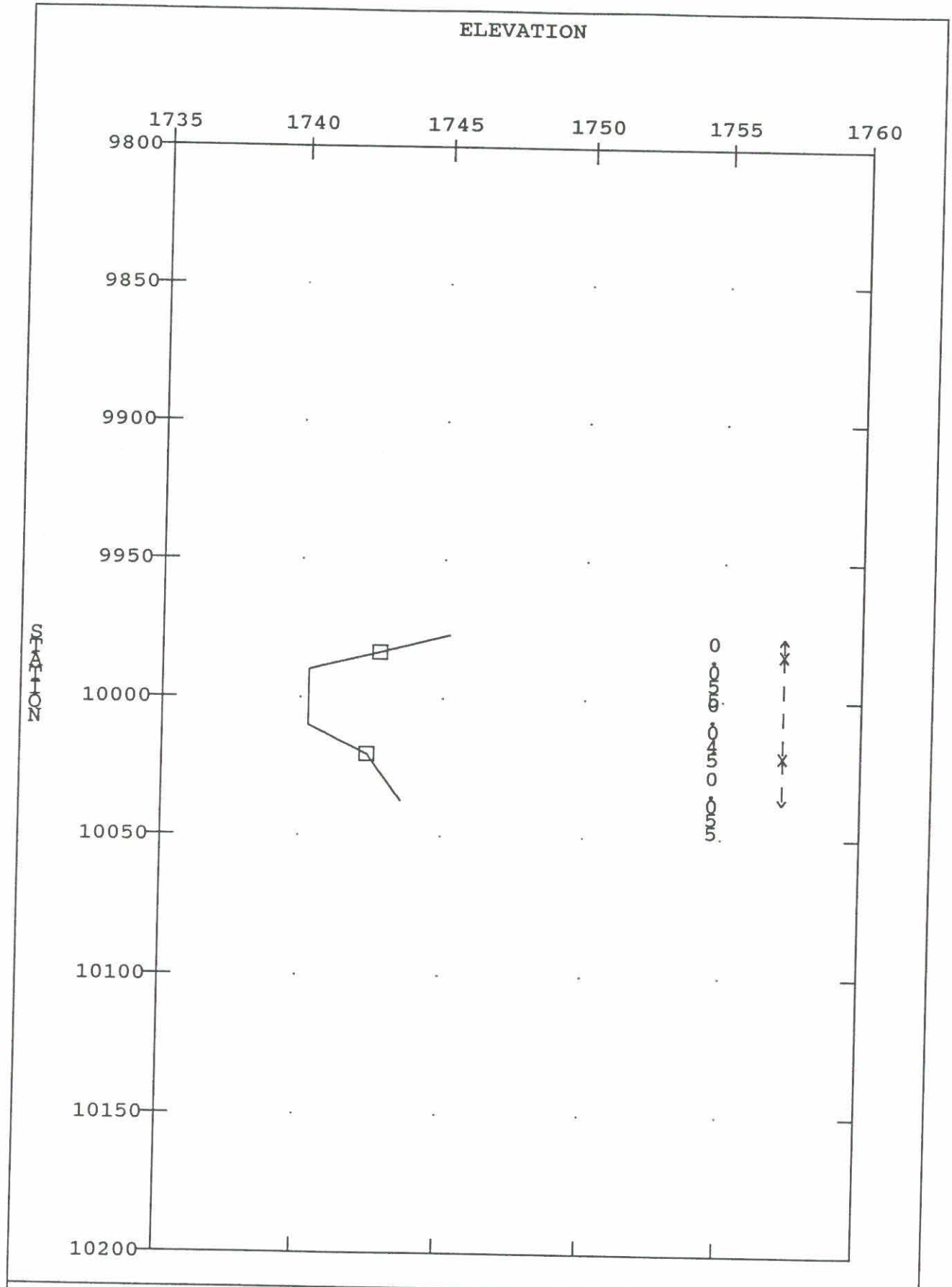
SECTION : 584597

Fountain Hills North FIS



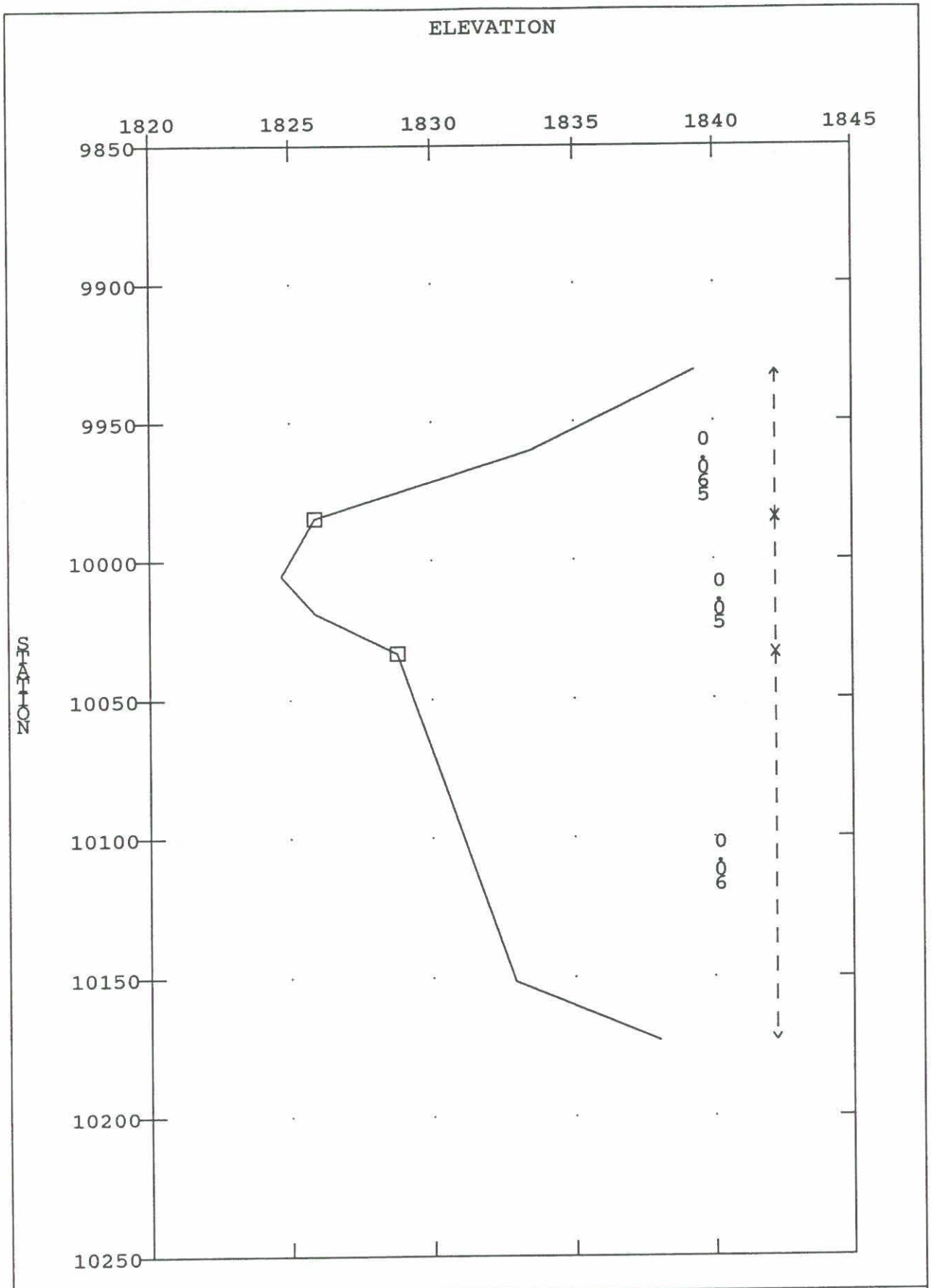
SECTION : 586587

Fountain Hills North FIS



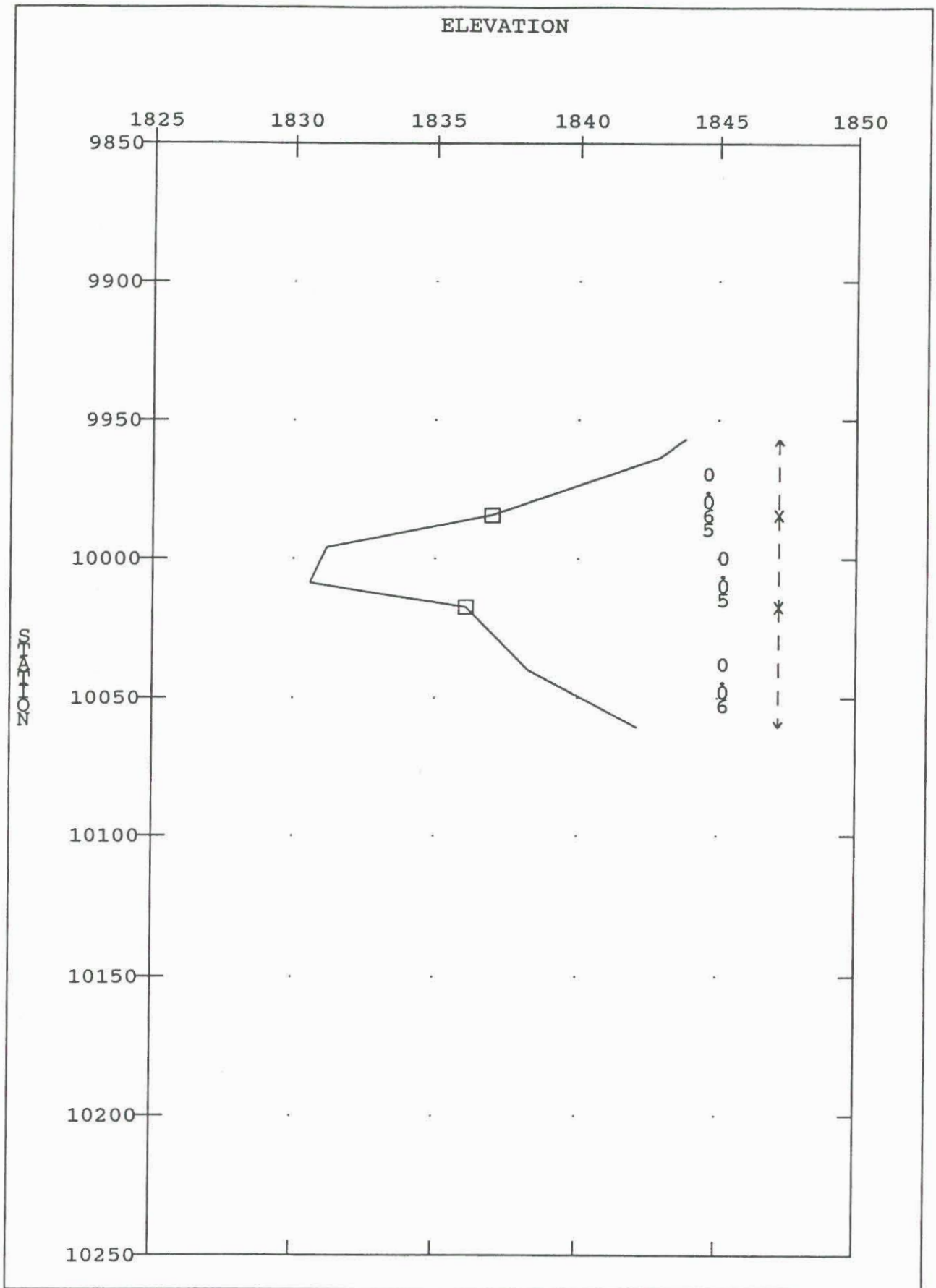
SECTION : 587595

Fountain Hills North FIS



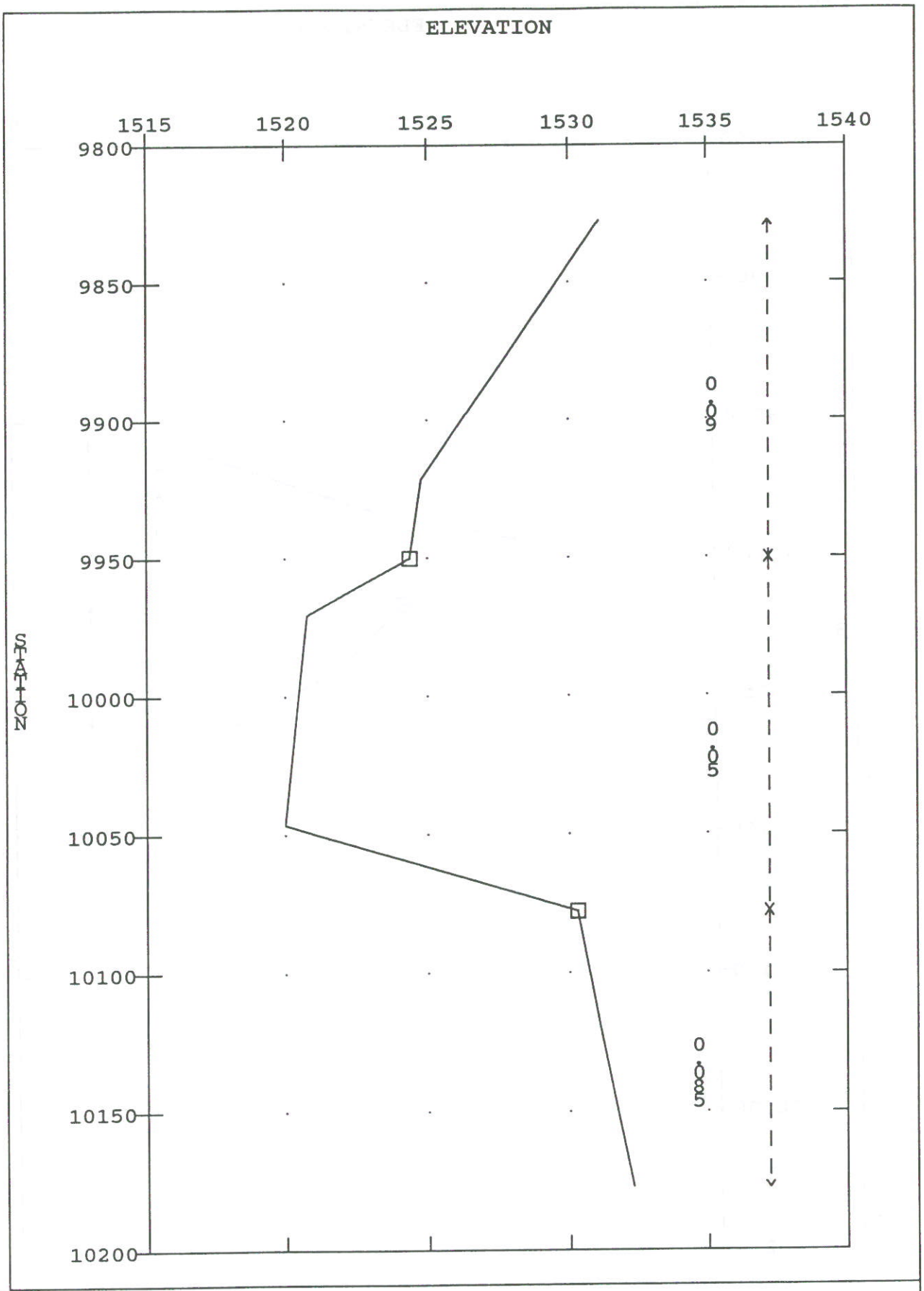
SECTION : 588590

Fountain Hills North FIS



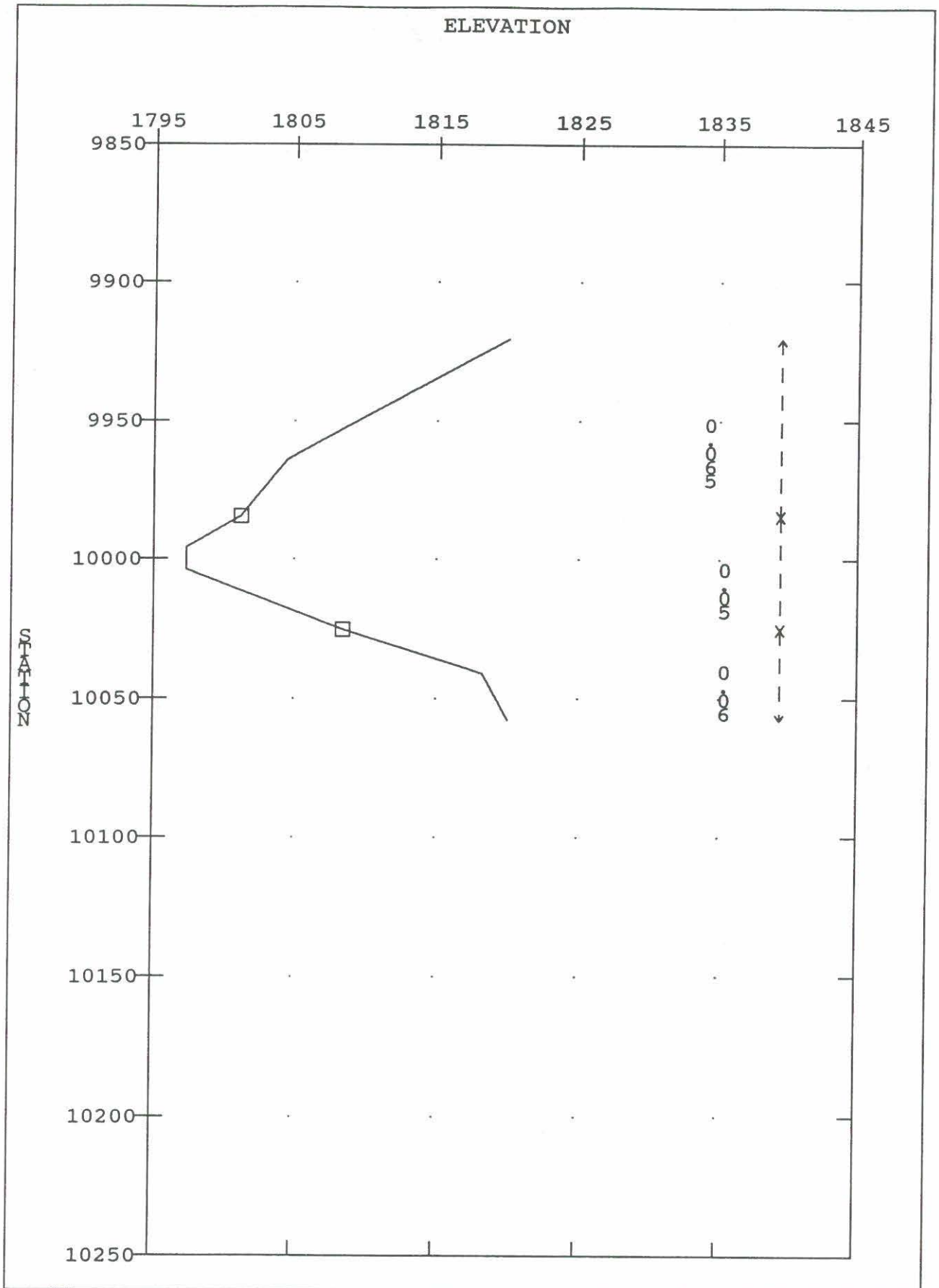
SECTION : 589590

Fountain Hills North FIS



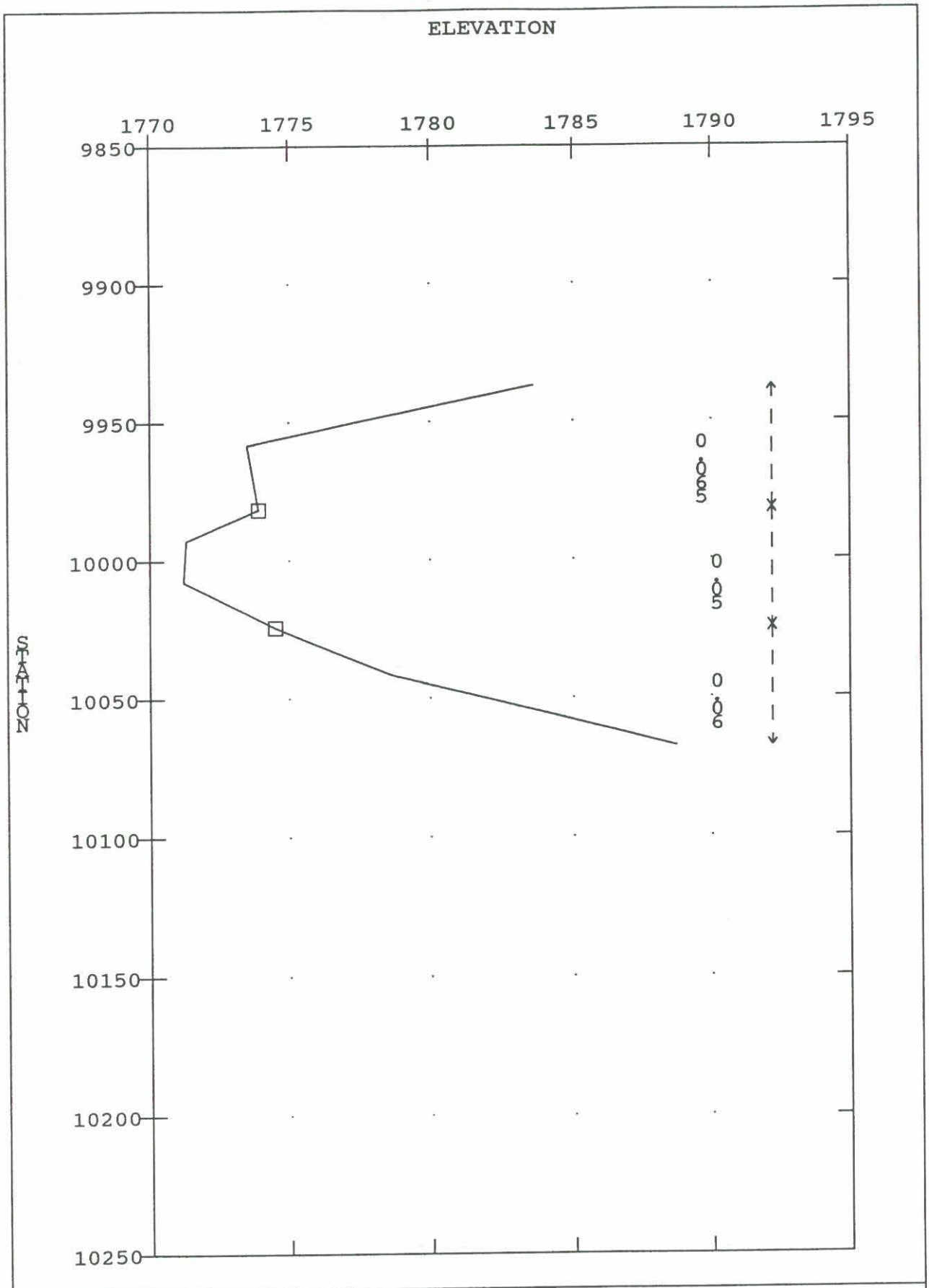
SECTION : 591521

Fountain Hills North FIS



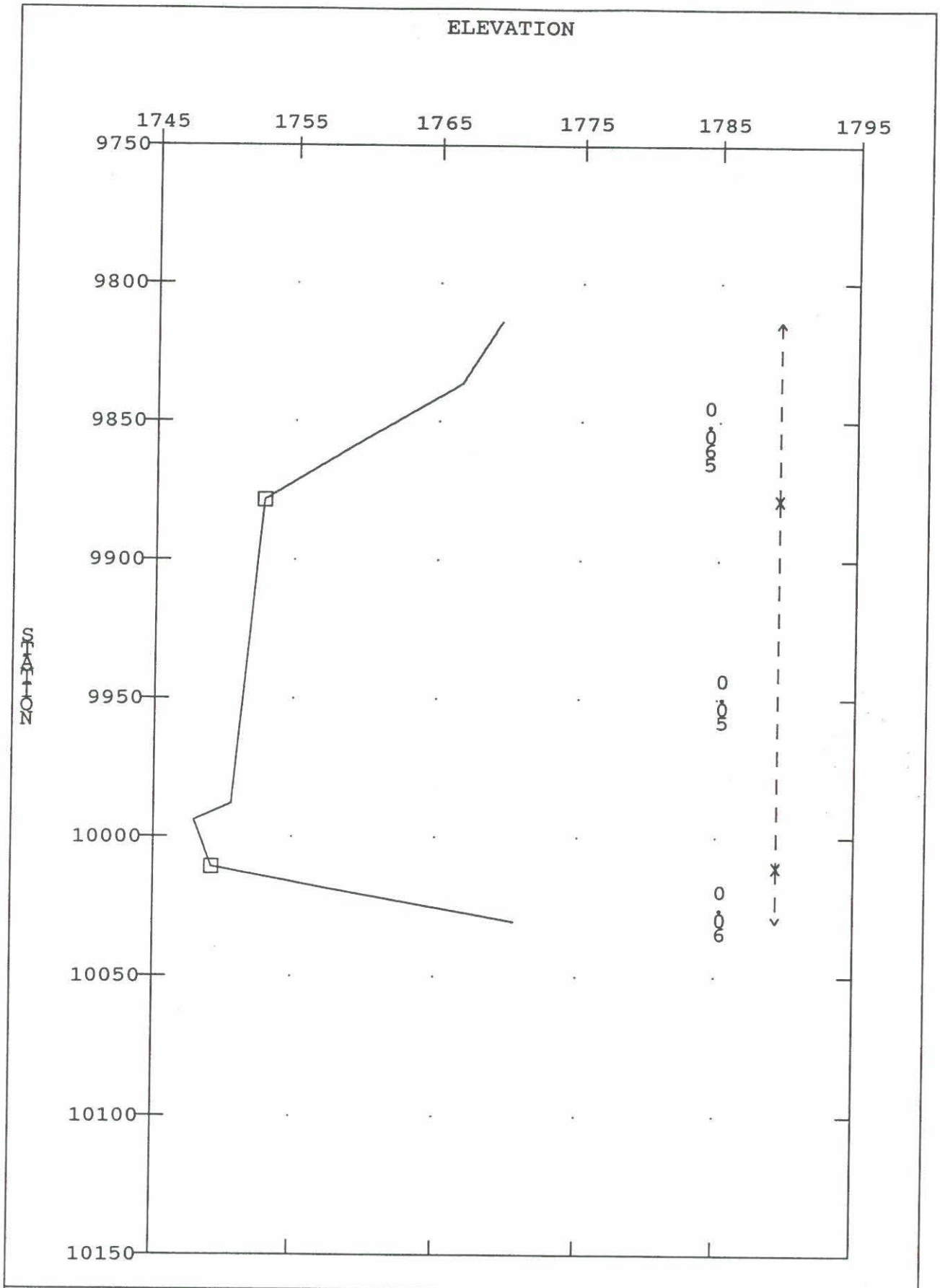
SECTION : 592593

Fountain Hills North FIS



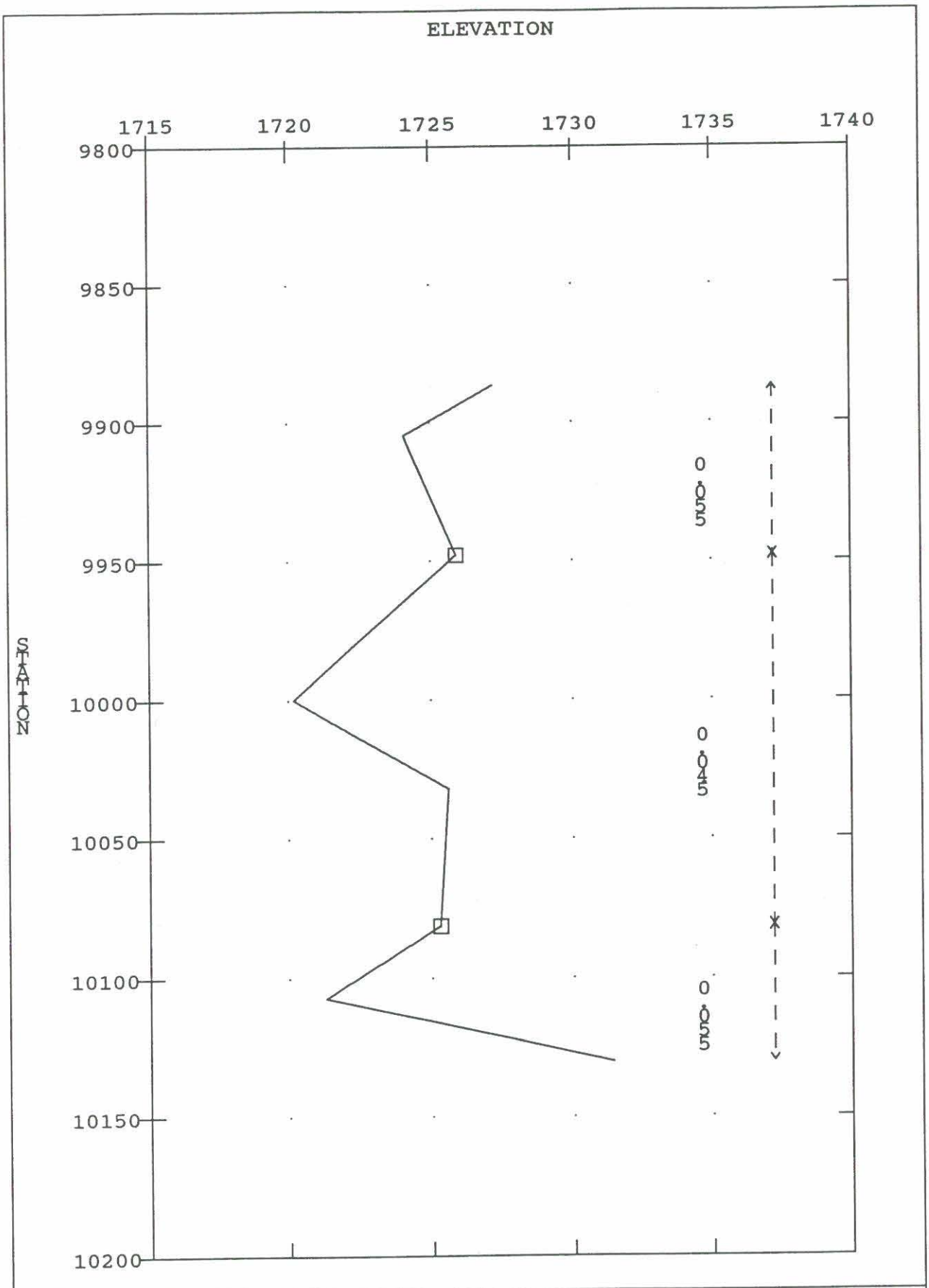
SECTION : 593594

Fountain Hills North FIS



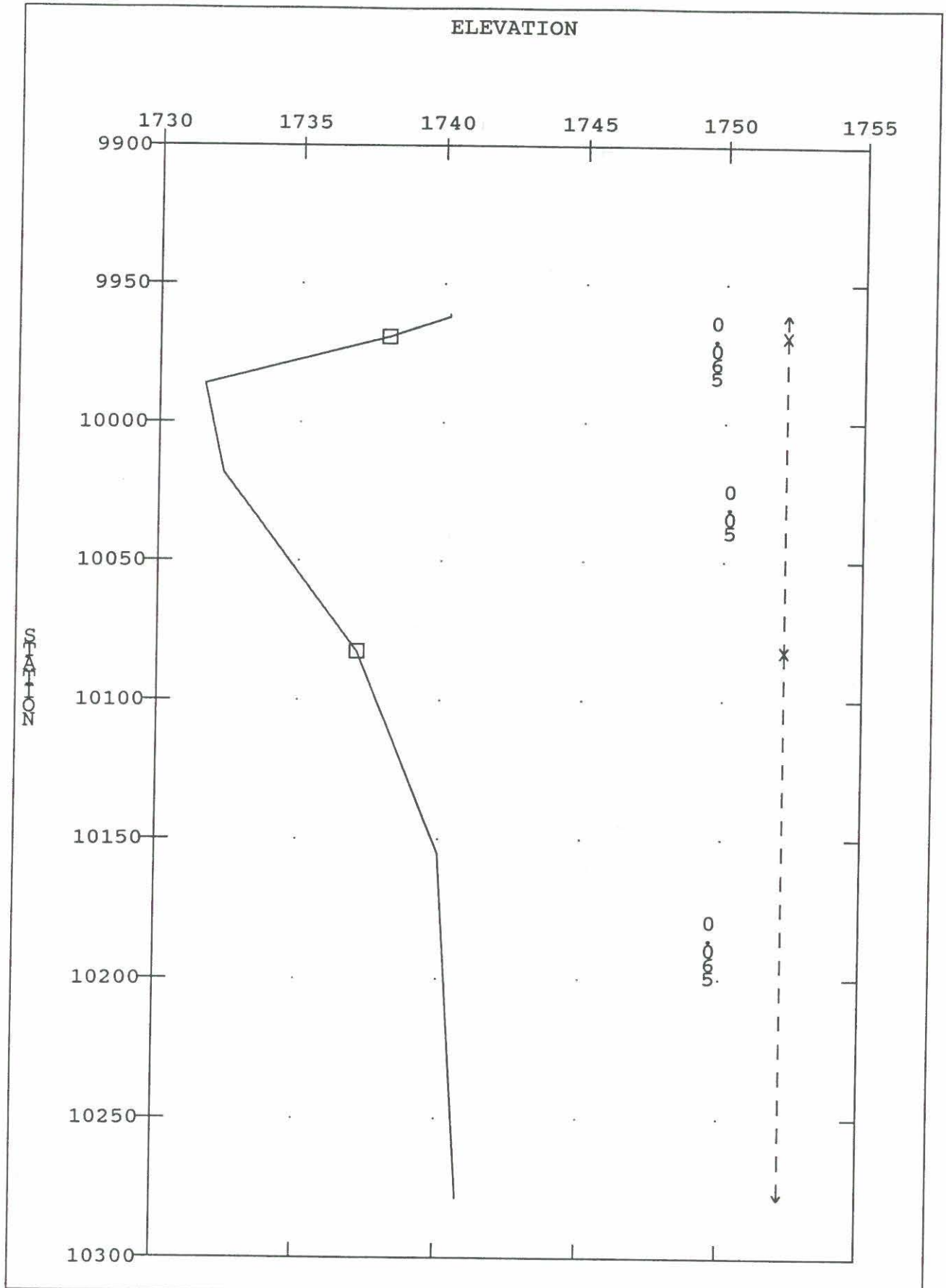
SECTION : 594595

Fountain Hills North FIS



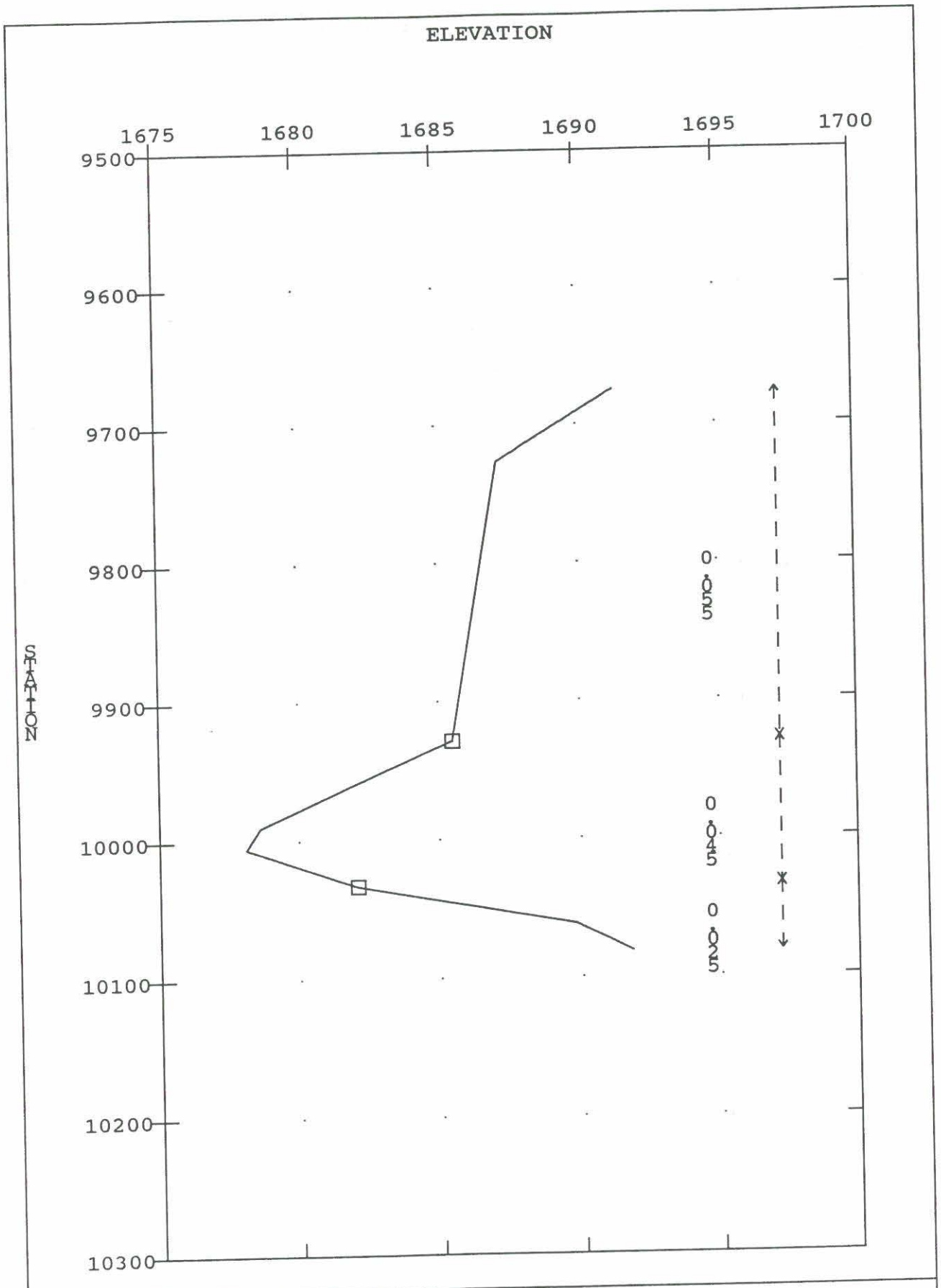
SECTION : 595596

Fountain Hills North FIS



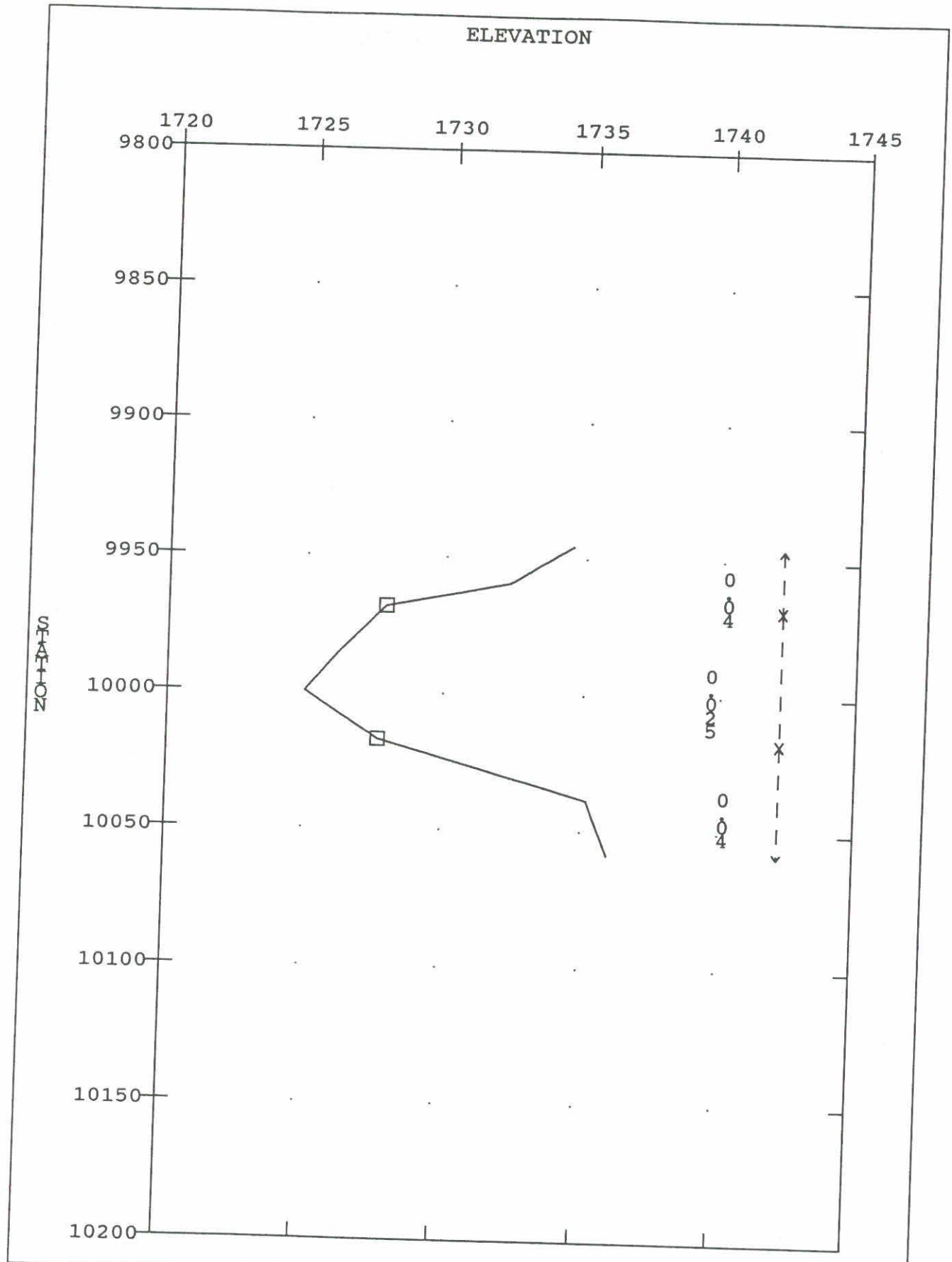
SECTION : 597598

Fountain Hills North FIS



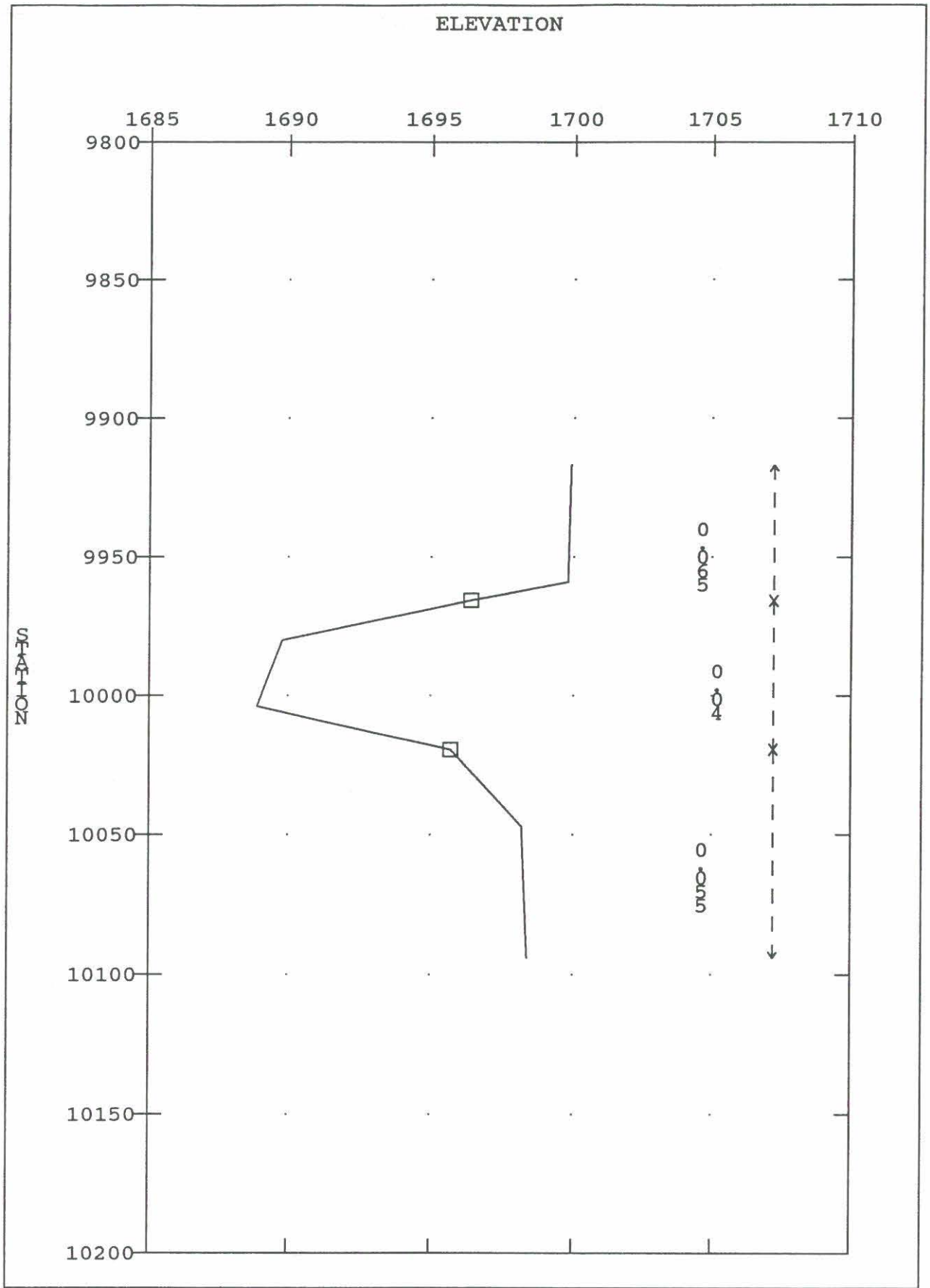
SECTION : 599608

Fountain Hills North FIS



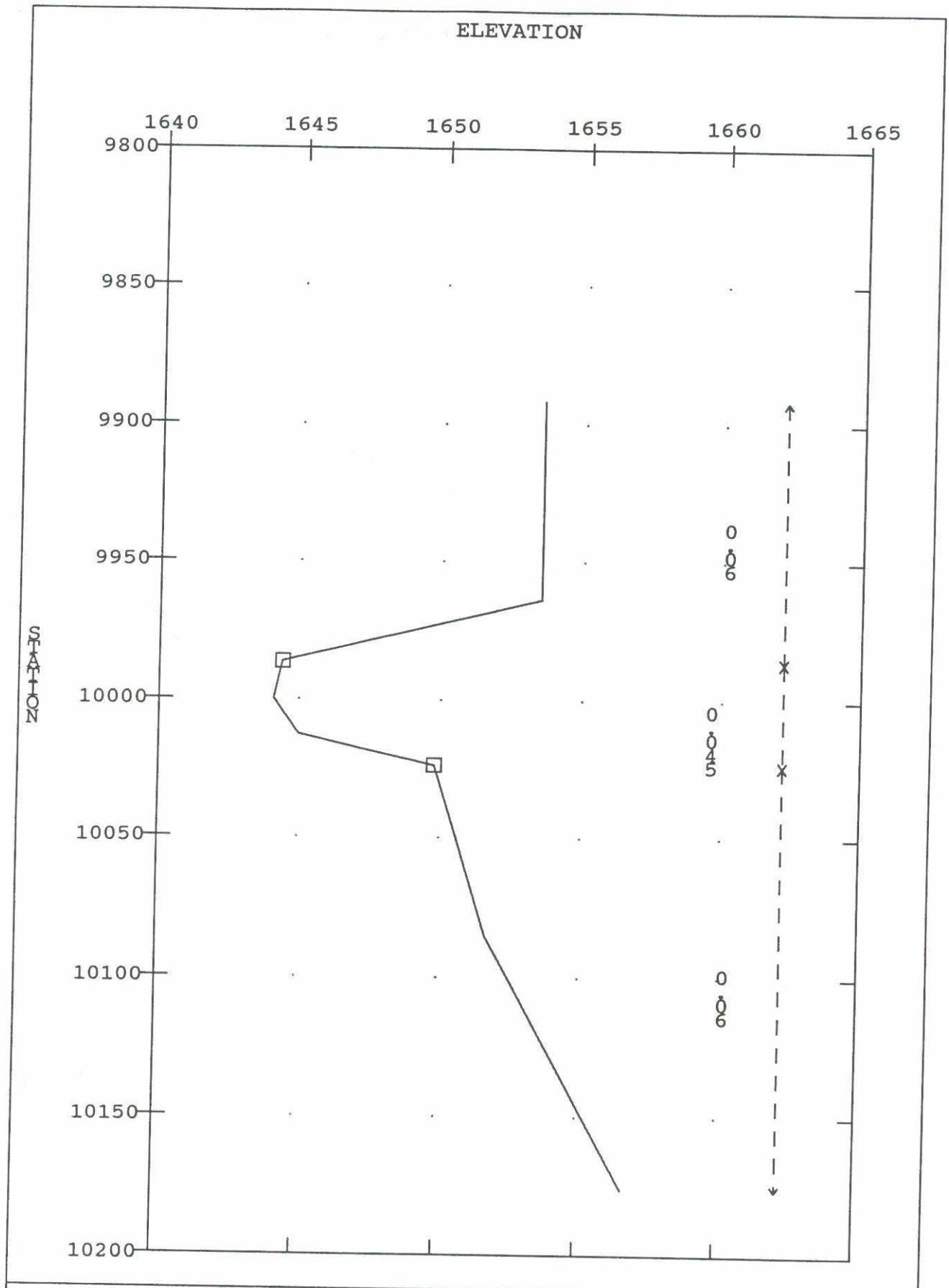
SECTION : 600601

Fountain Hills North FIS



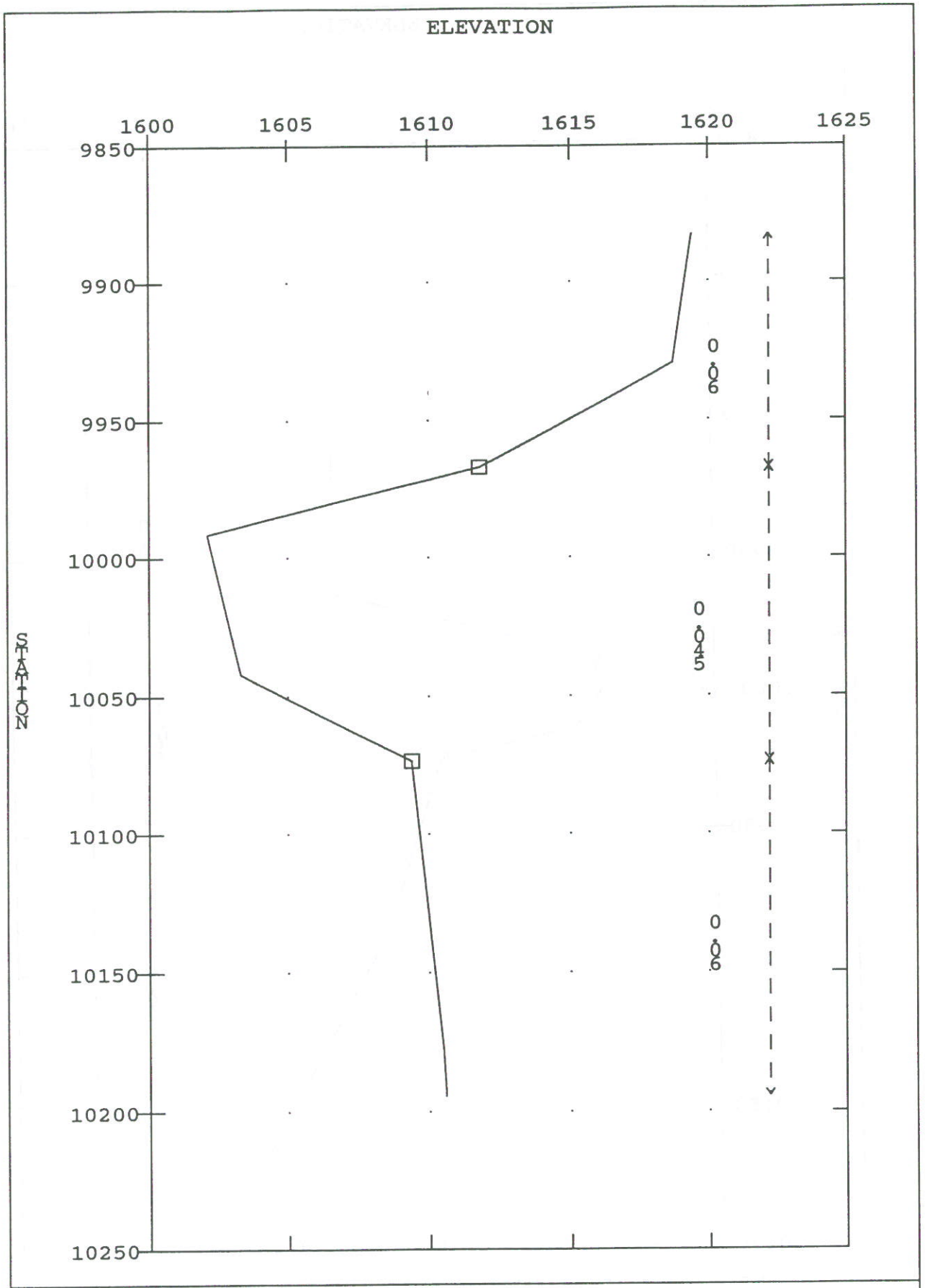
SECTION : 601602

Fountain Hills North FIS



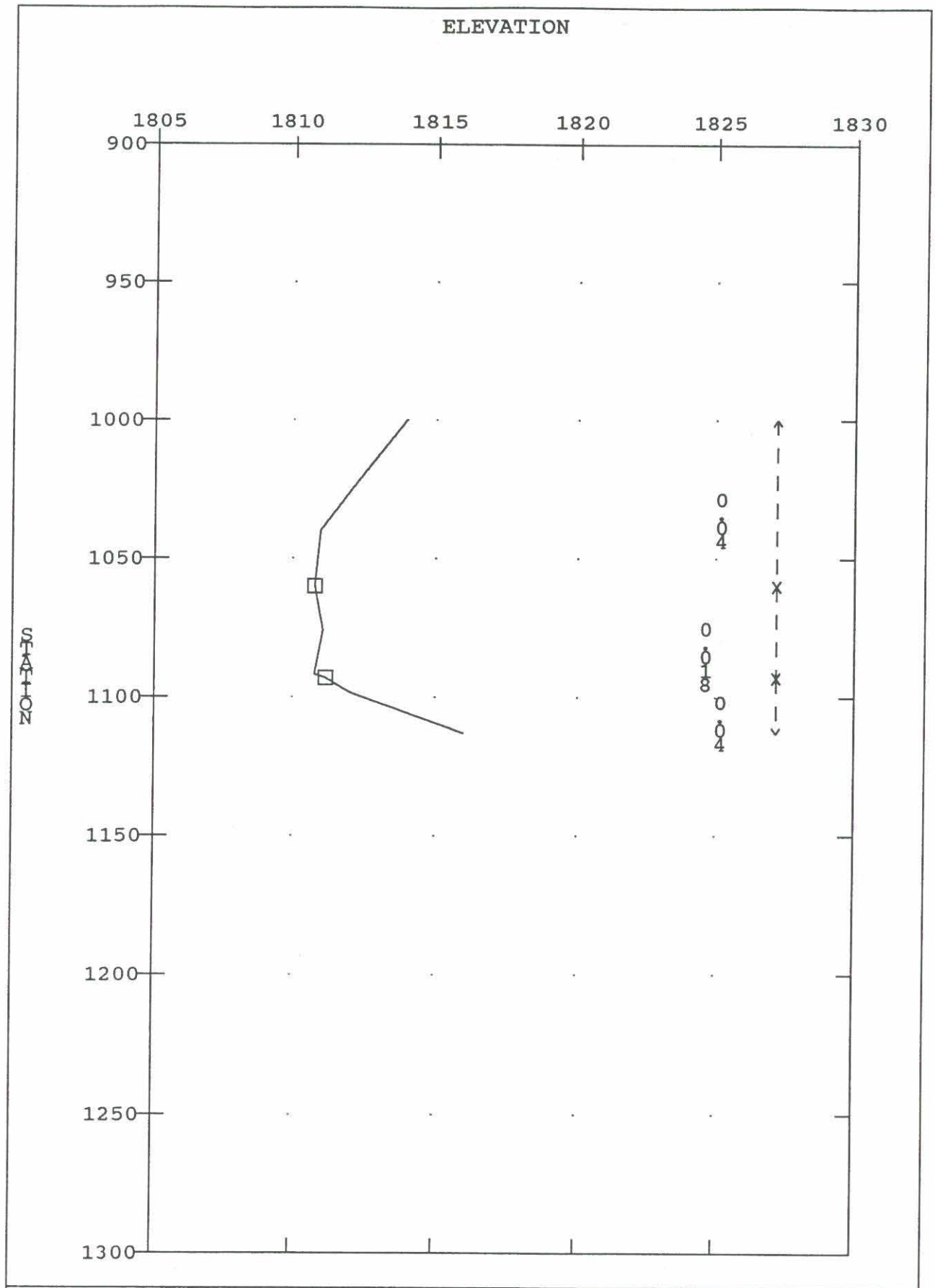
SECTION : 602603

Fountain Hills North FIS



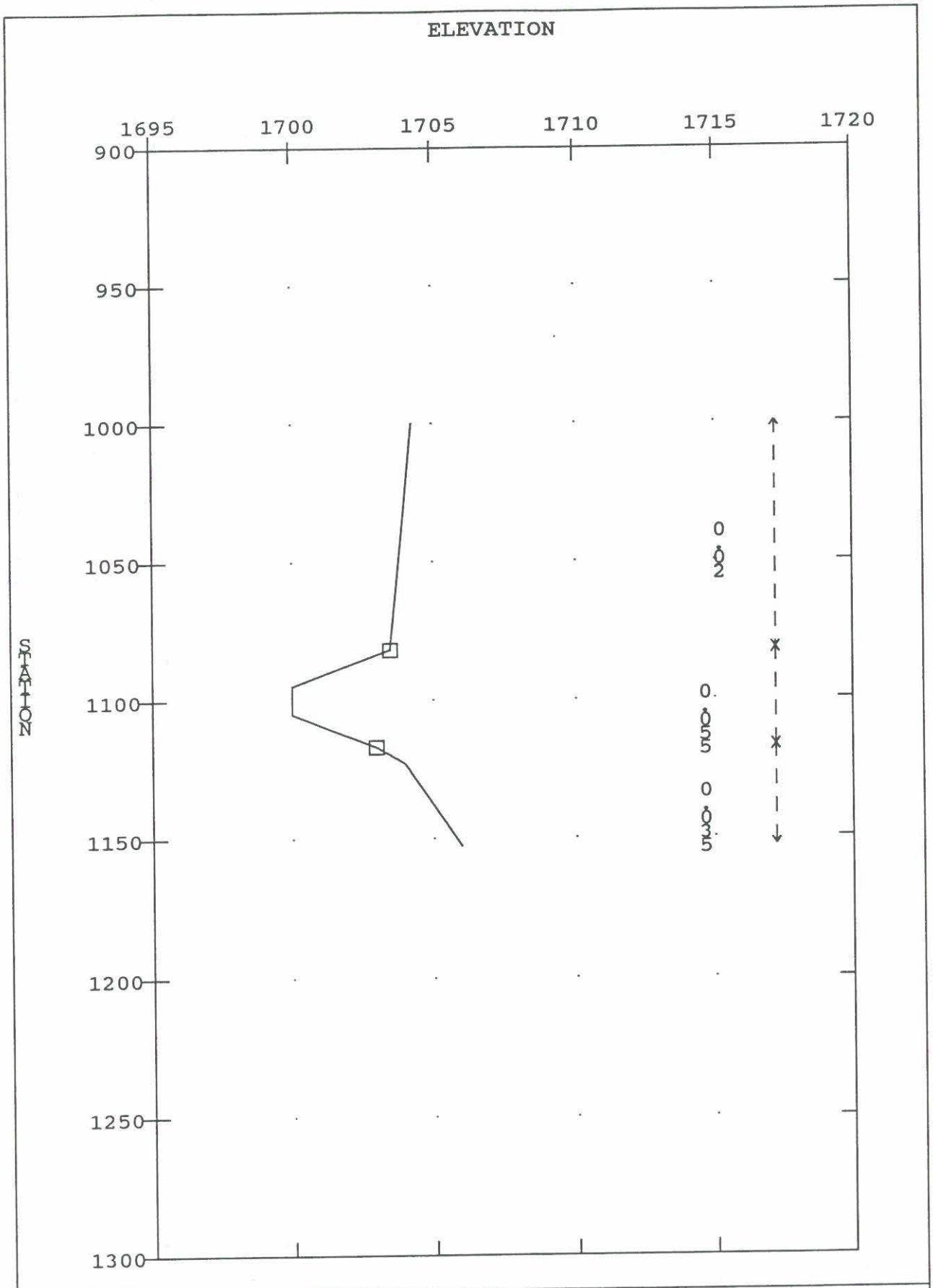
SECTION : 603622

Fountain Hills North FIS



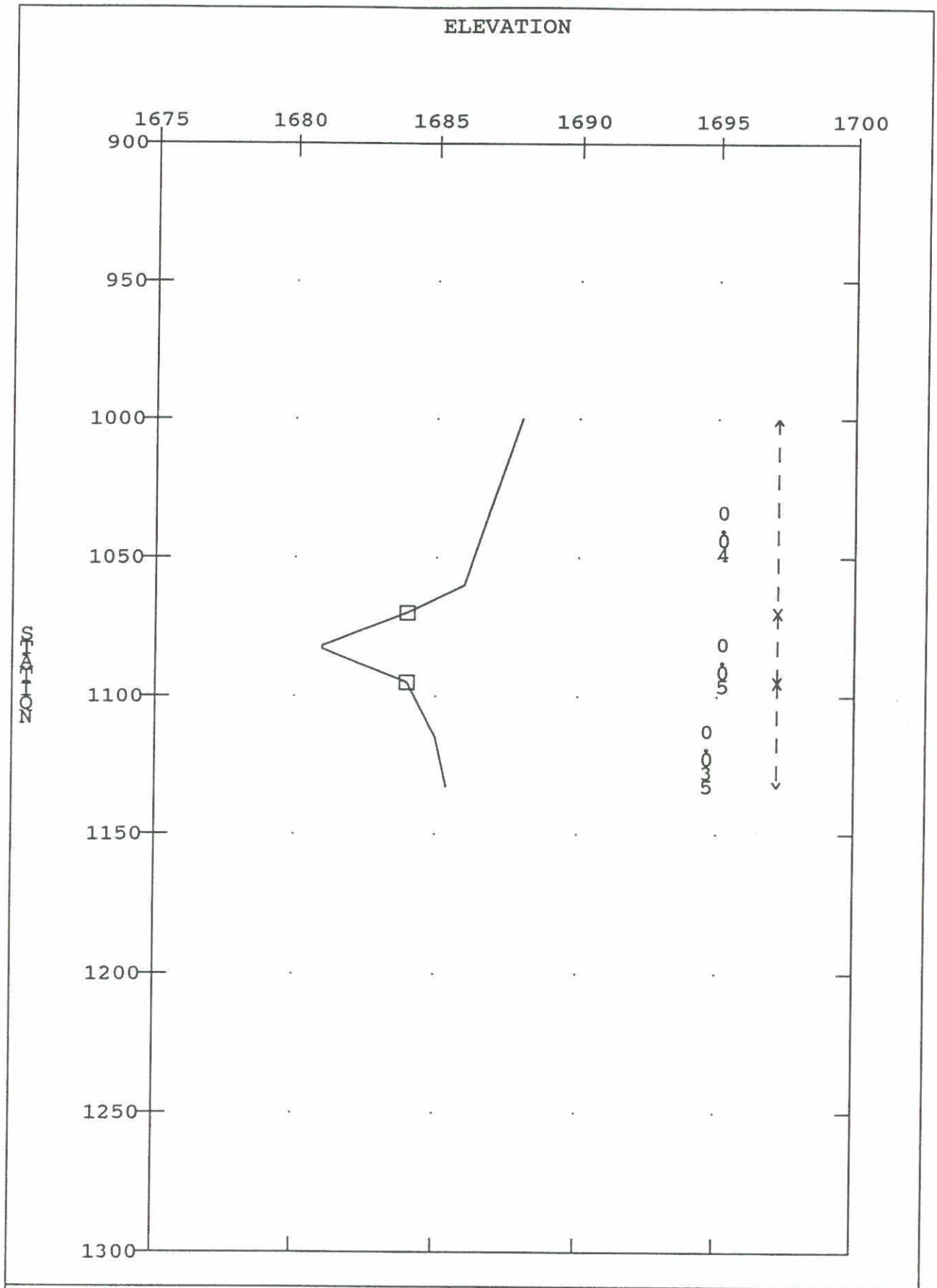
SECTION : 604606

Fountain Hills North FIS



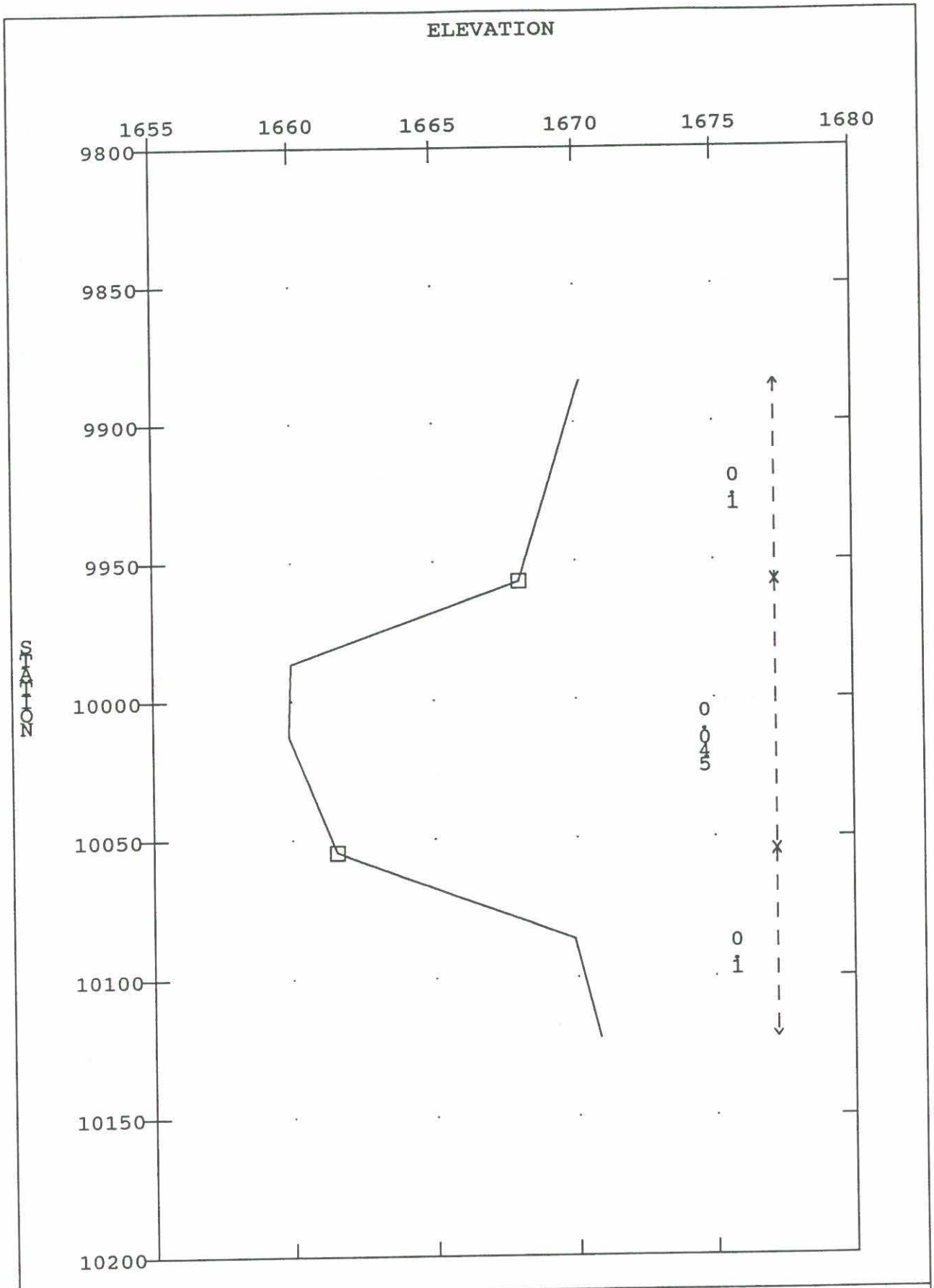
SECTION : 606607

Fountain Hills North FIS



SECTION : 607608

Fountain Hills North FIS



SECTION : 608613

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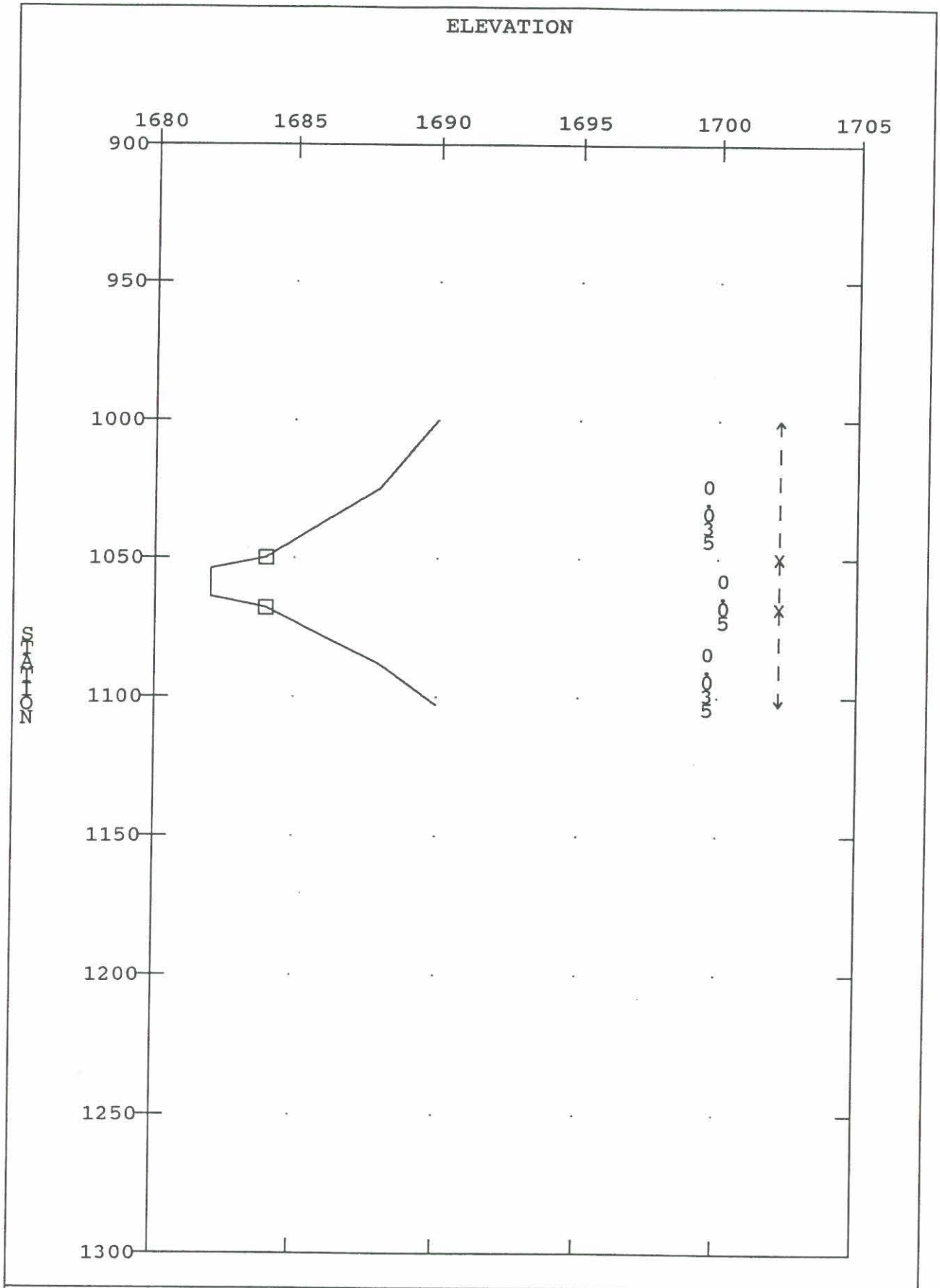
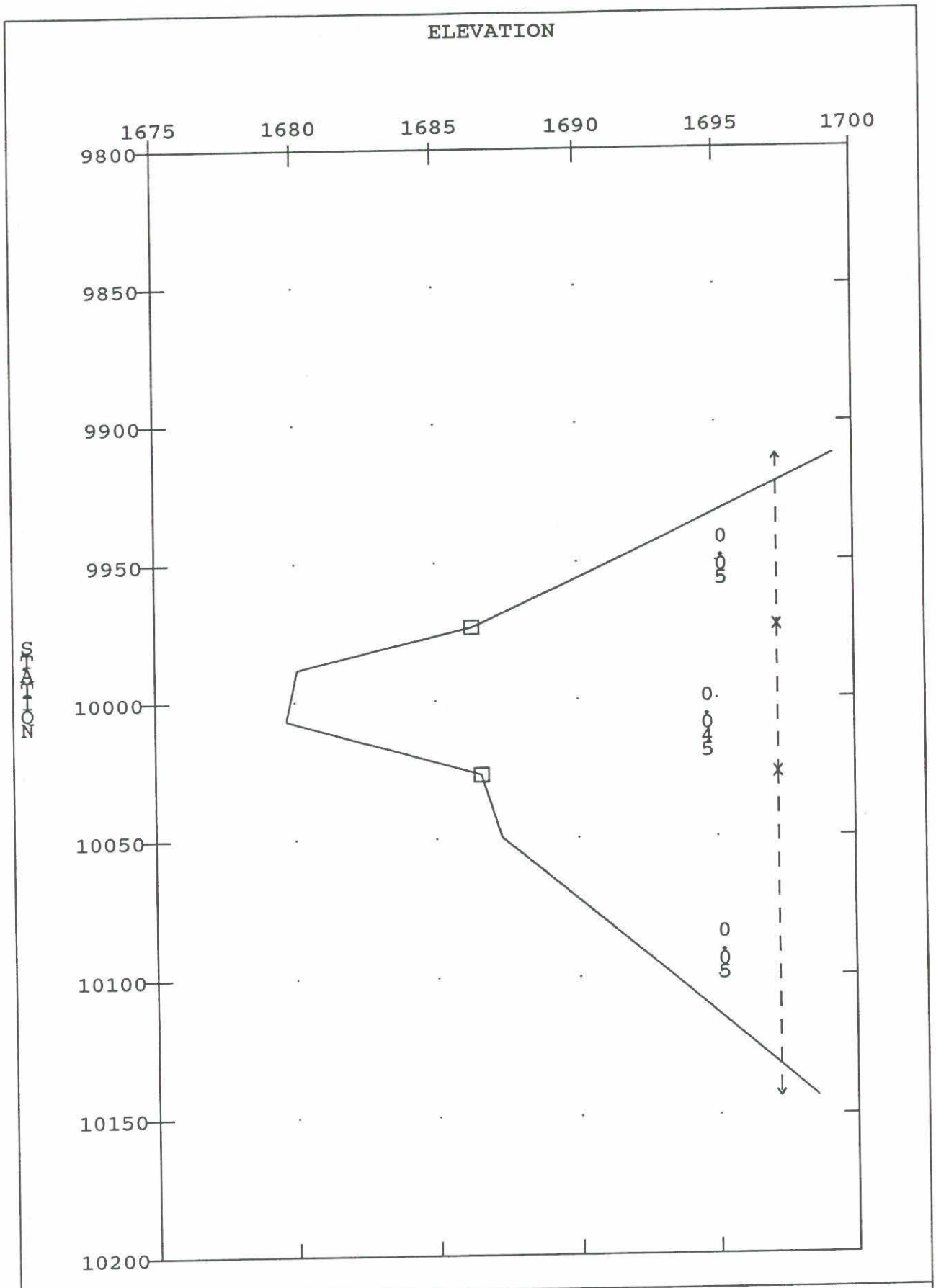


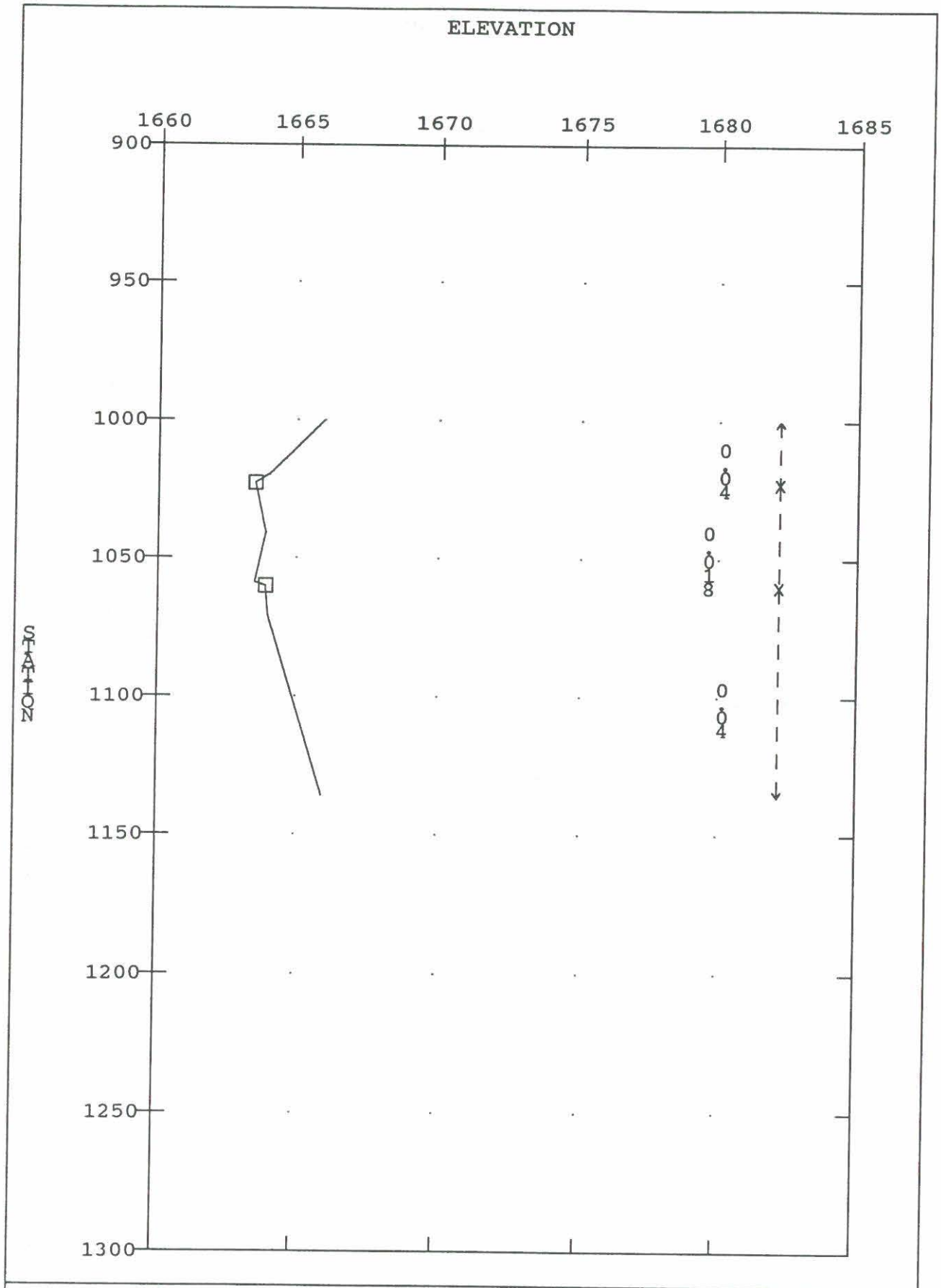
SECTION : 609611

Fountain Hills North FIS



SECTION : 610611

Fountain Hills North FIS



SECTION : 611612

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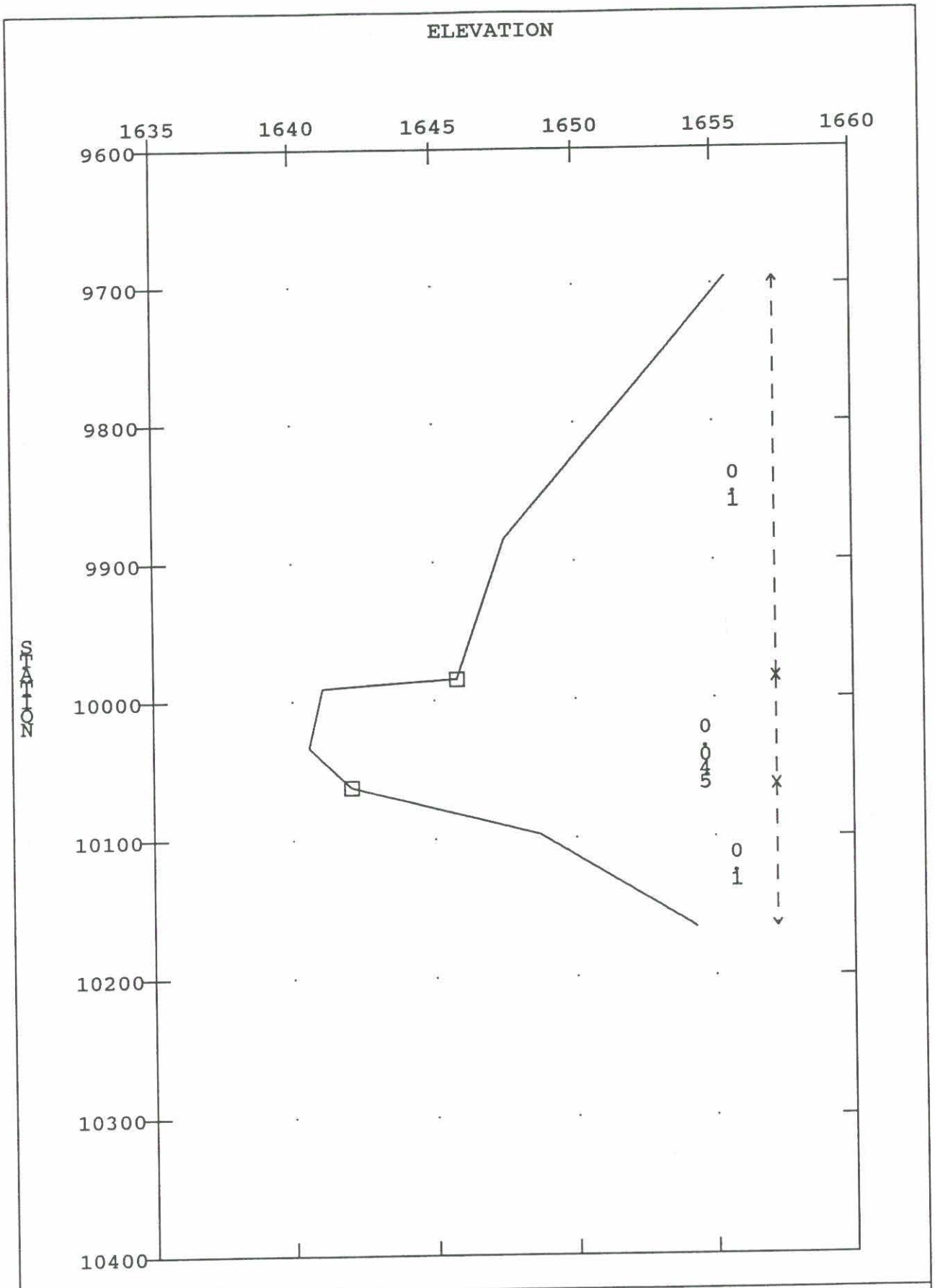

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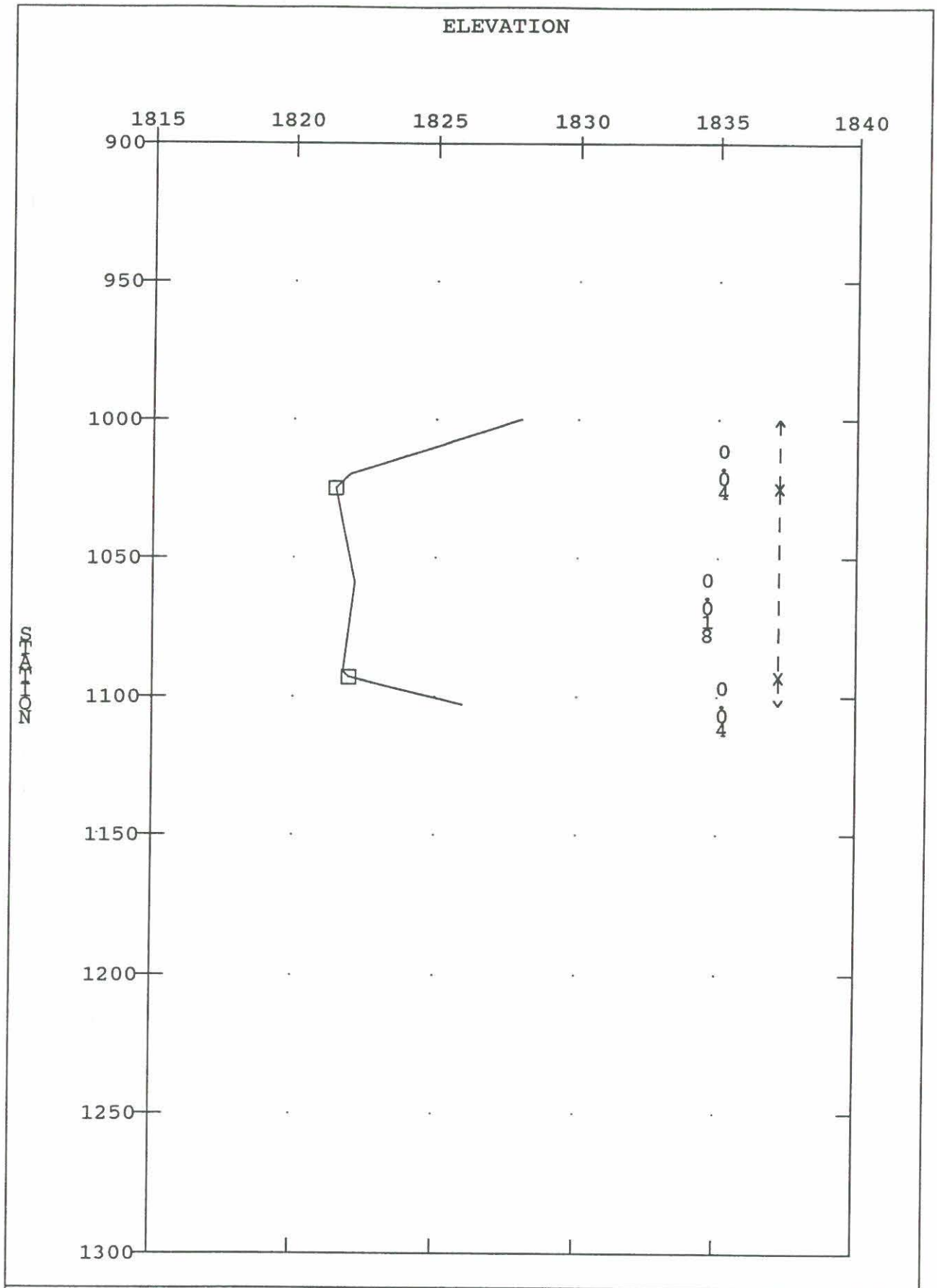
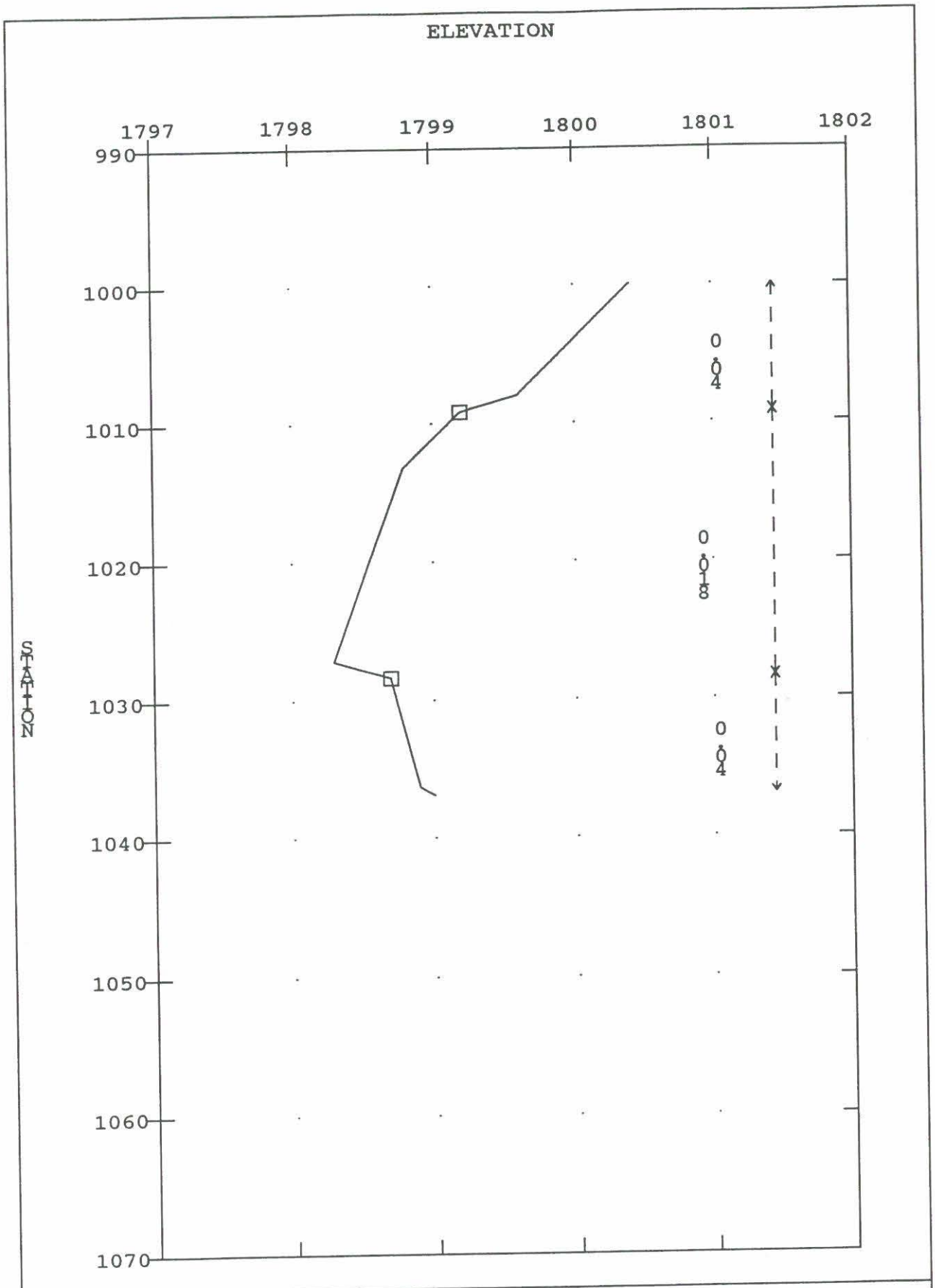
Fountain Hills North FIS



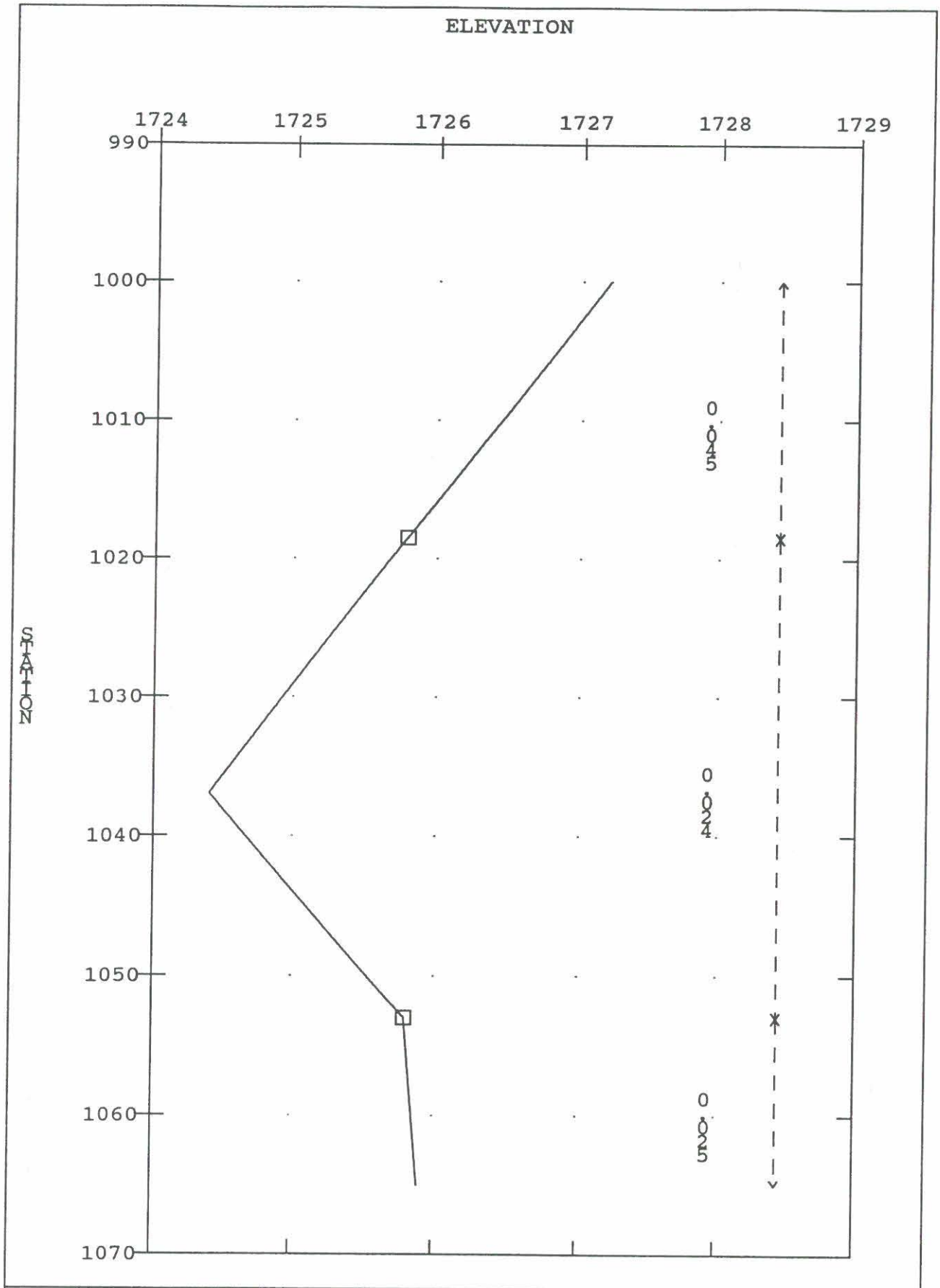
SECTION : 614615

Fountain Hills North FIS



SECTION : 615618

Fountain Hills North FIS



SECTION : 615619

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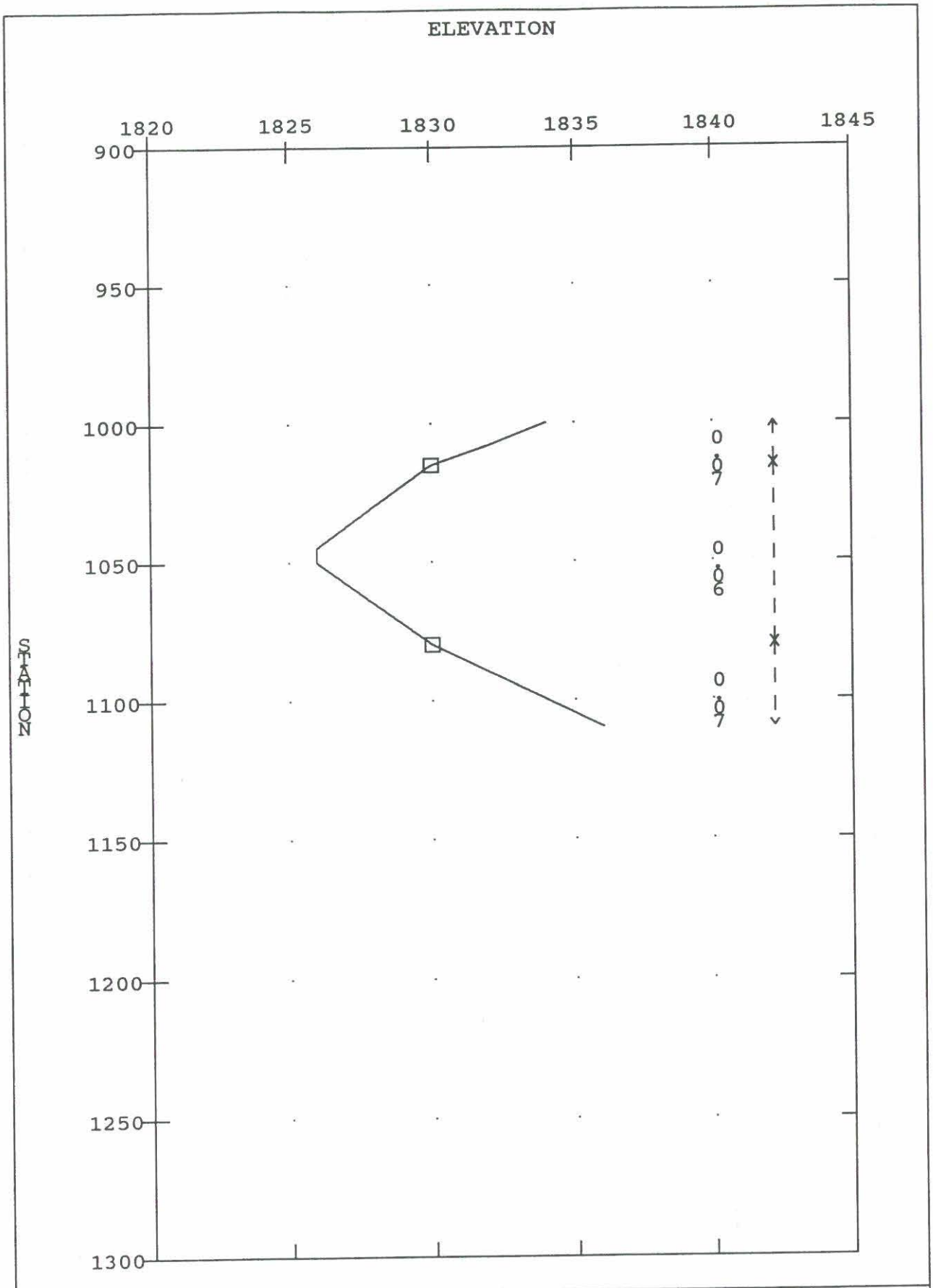

SECTION : 616617

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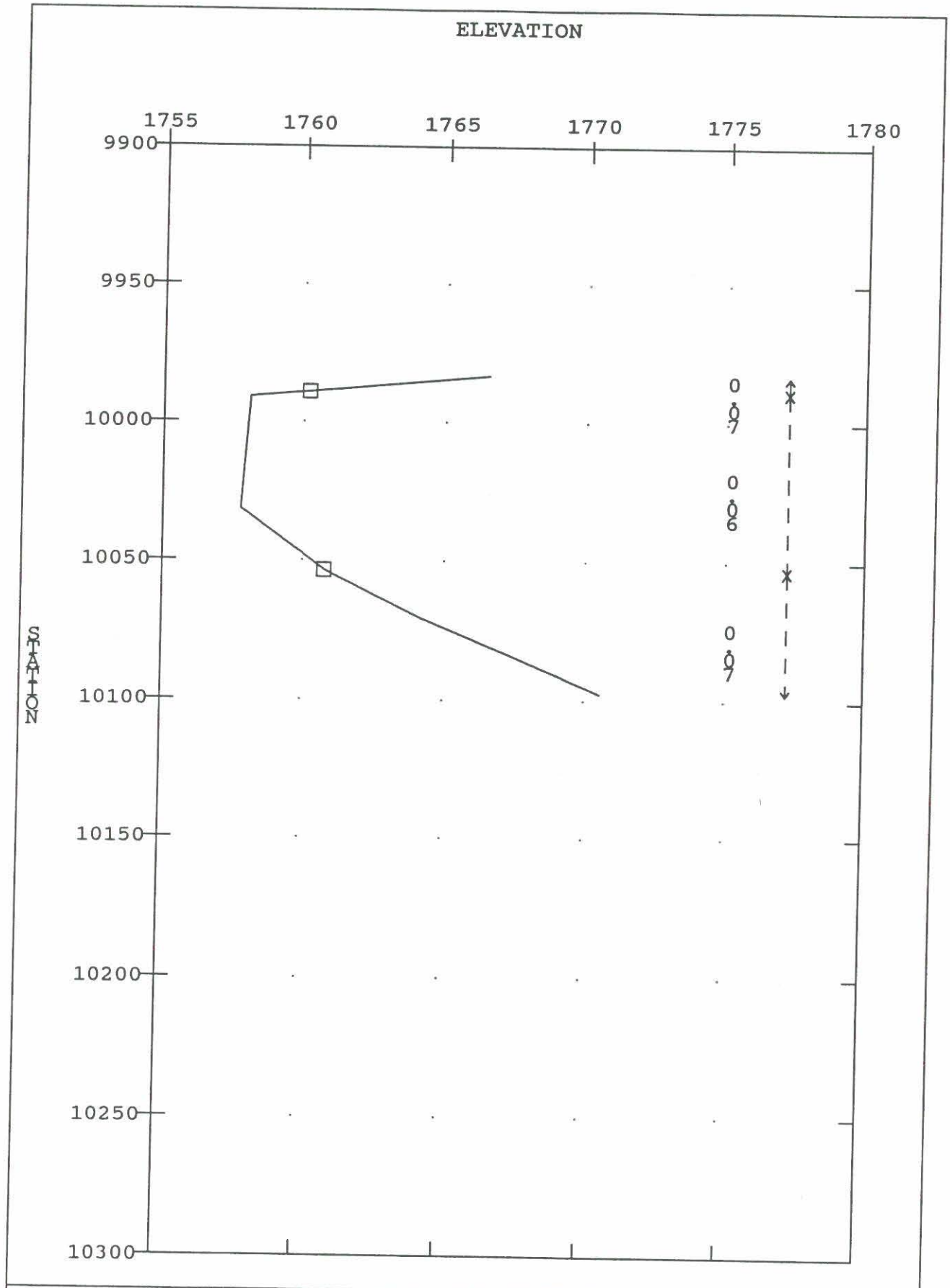
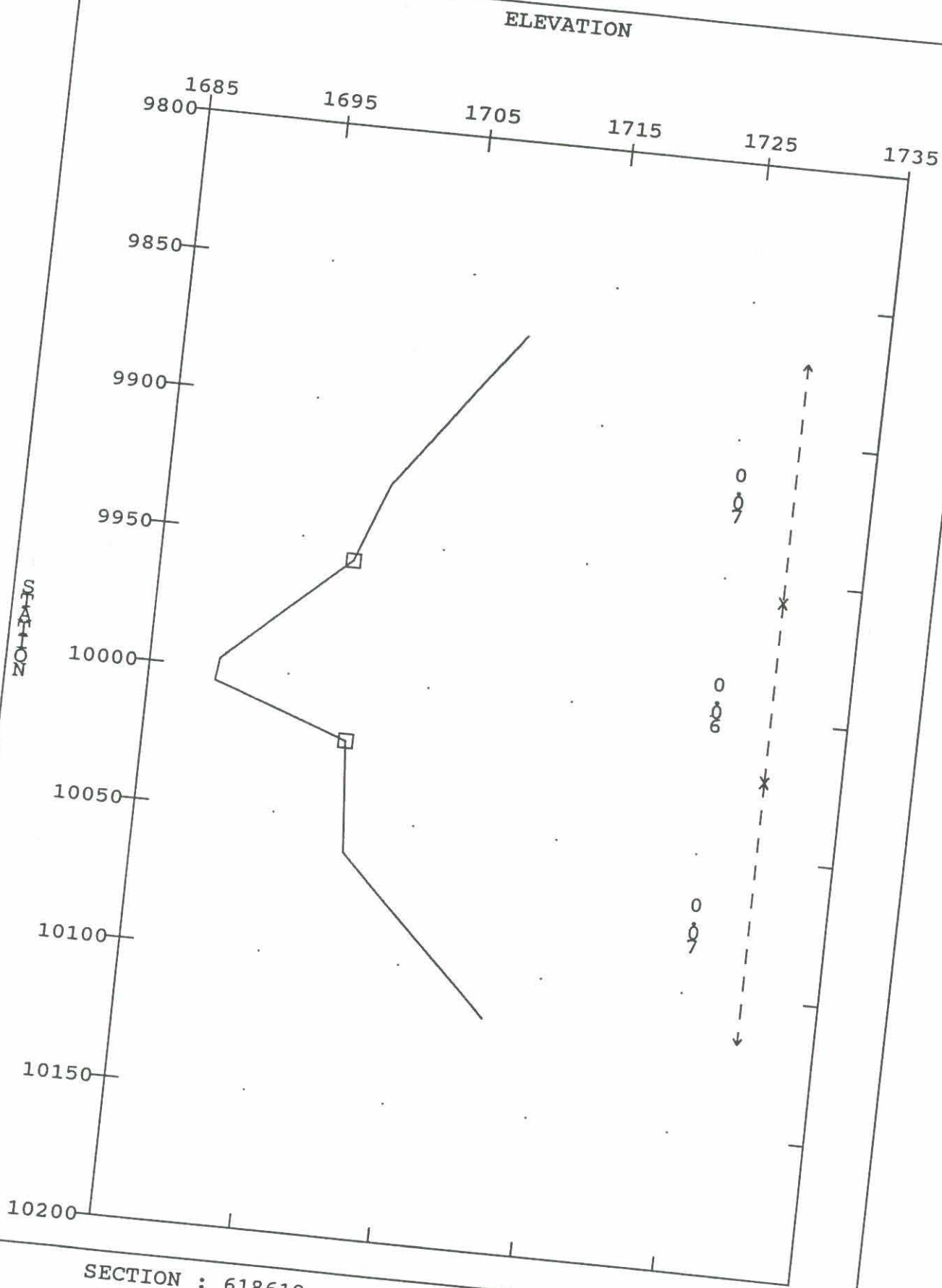


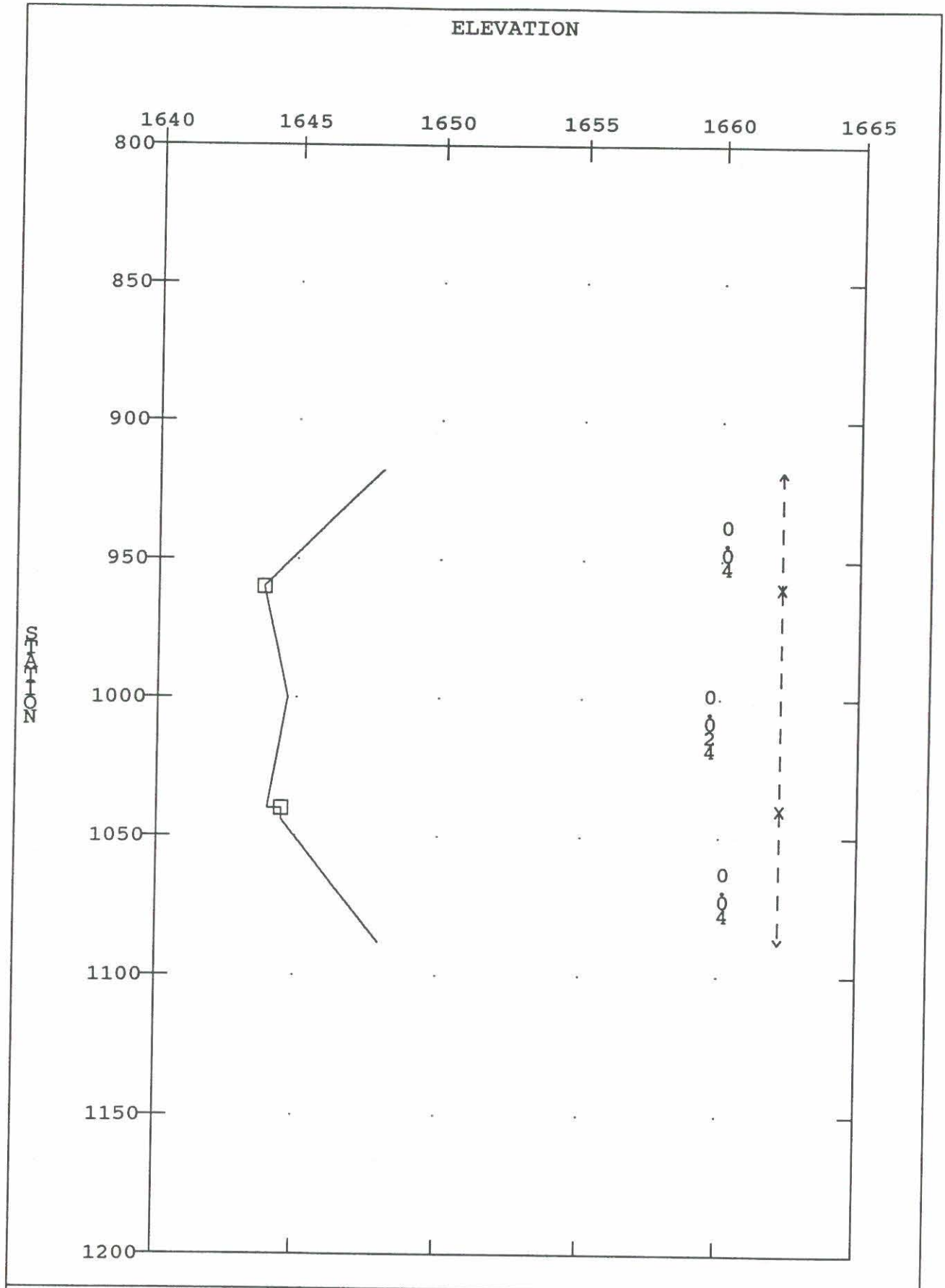
SECTION : 617618

Fountain Hills North FIS



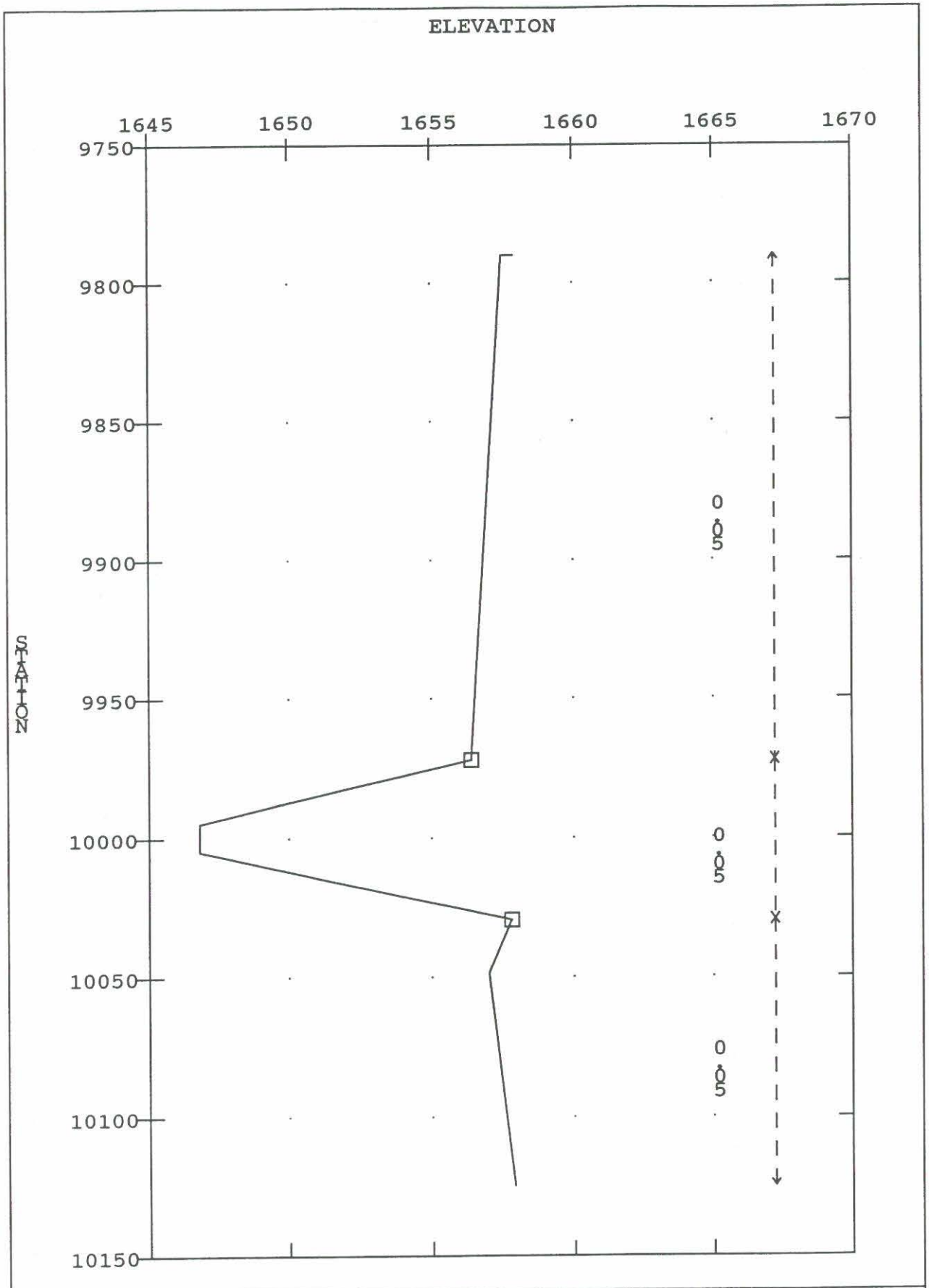
SECTION : 618619

Fountain Hills North FIS



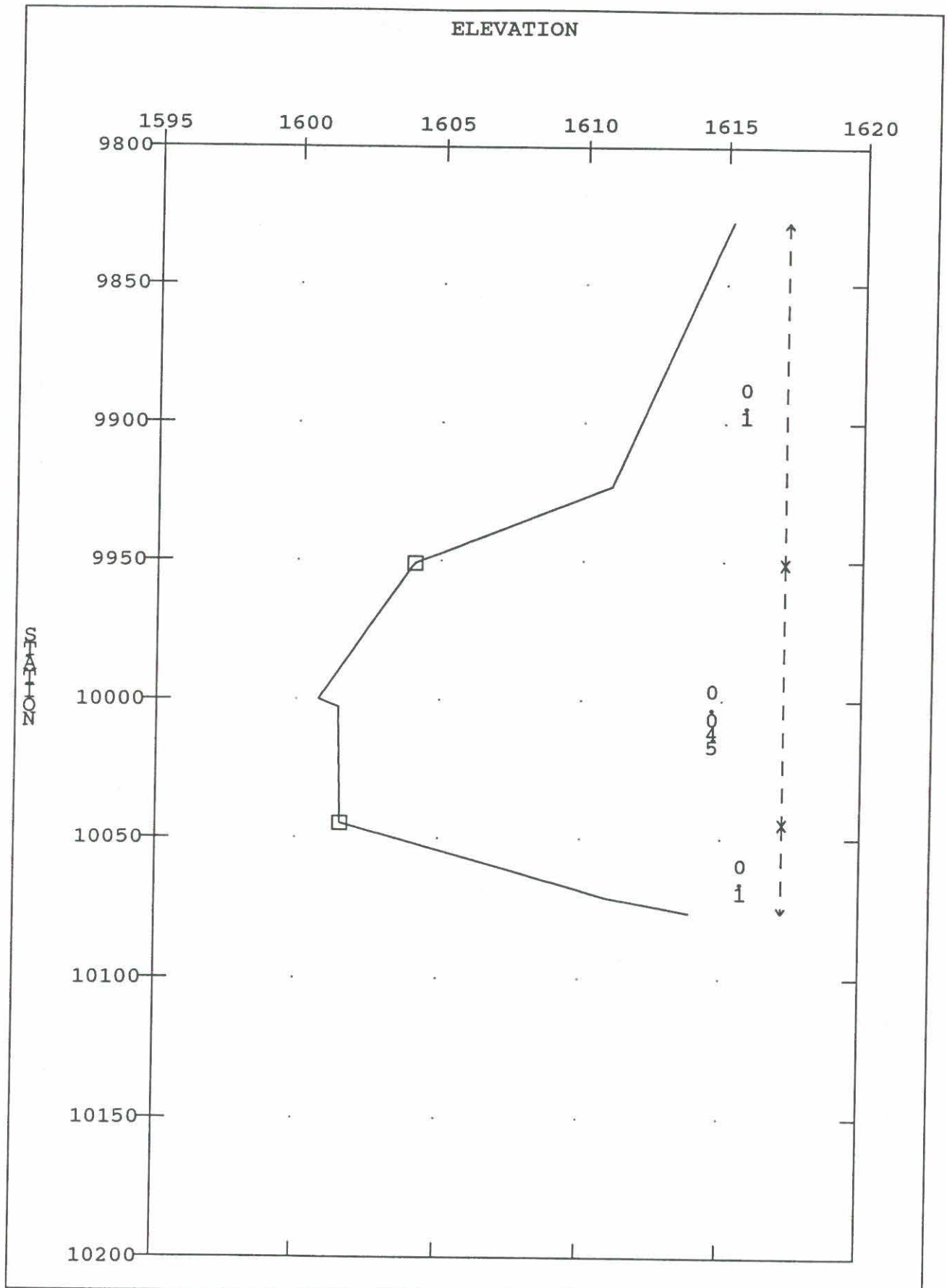
SECTION : 619620

Fountain Hills North FIS



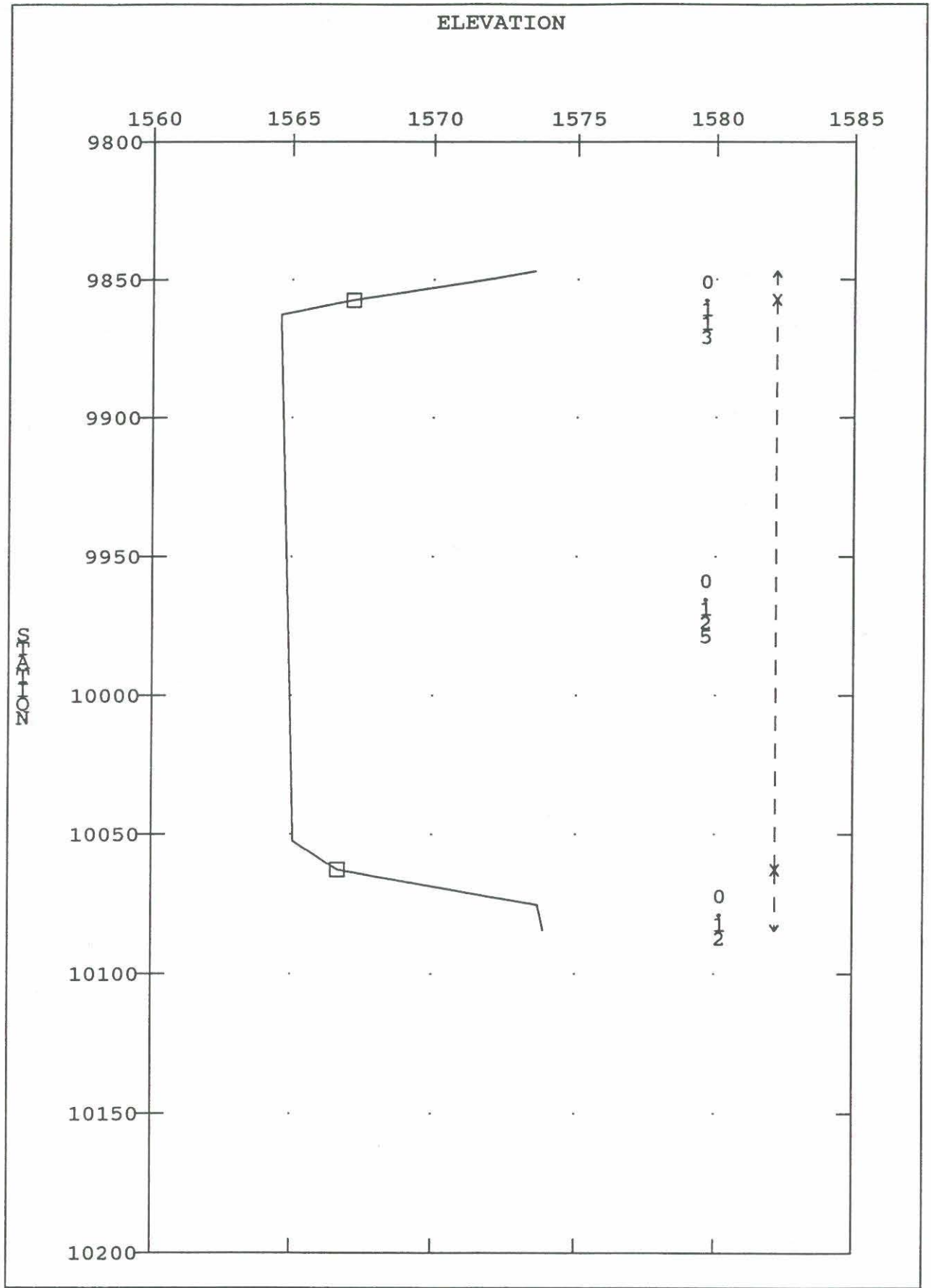
SECTION : 620621

Fountain Hills North FIS



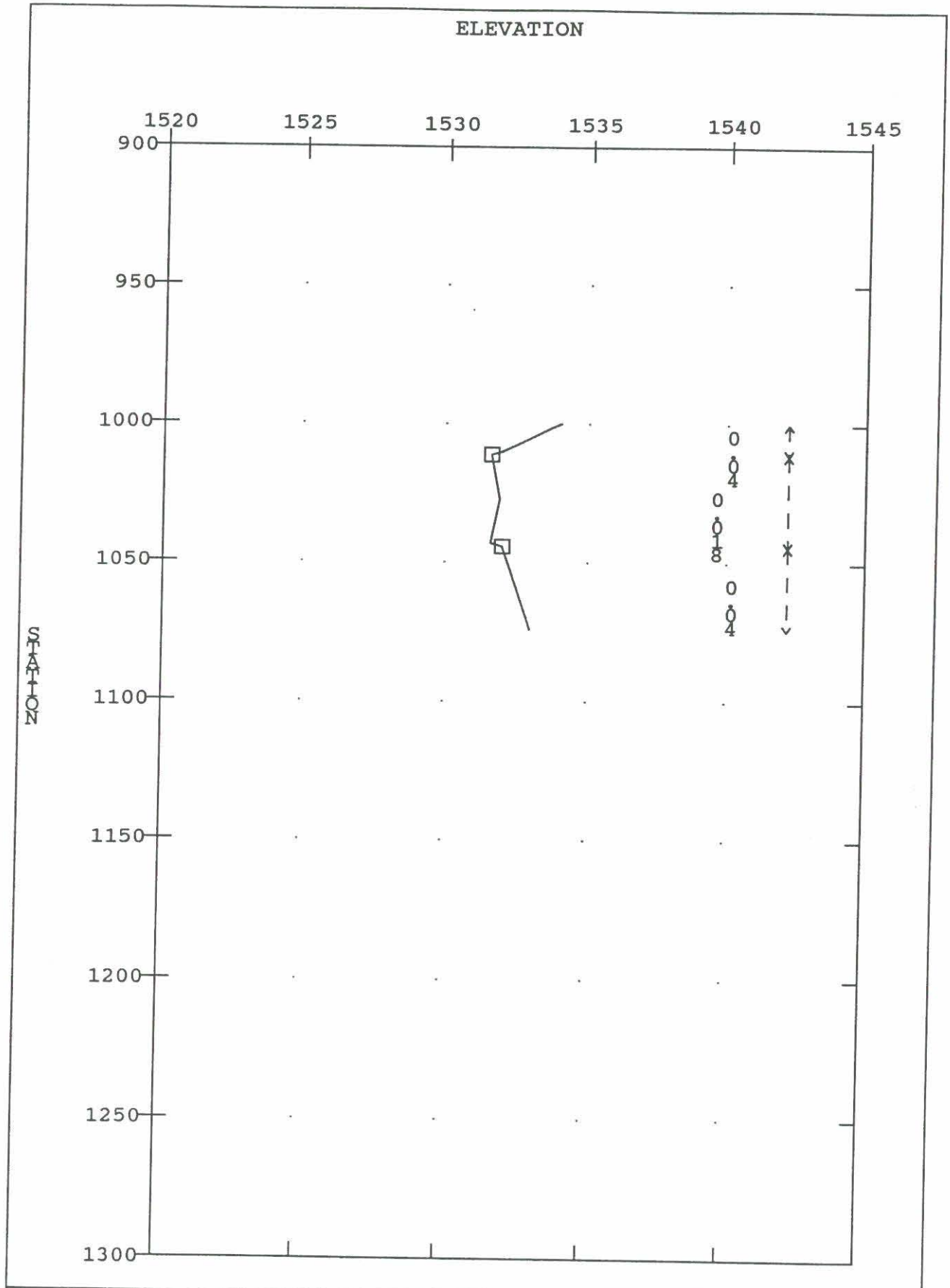
SECTION : 621622

Fountain Hills North FIS



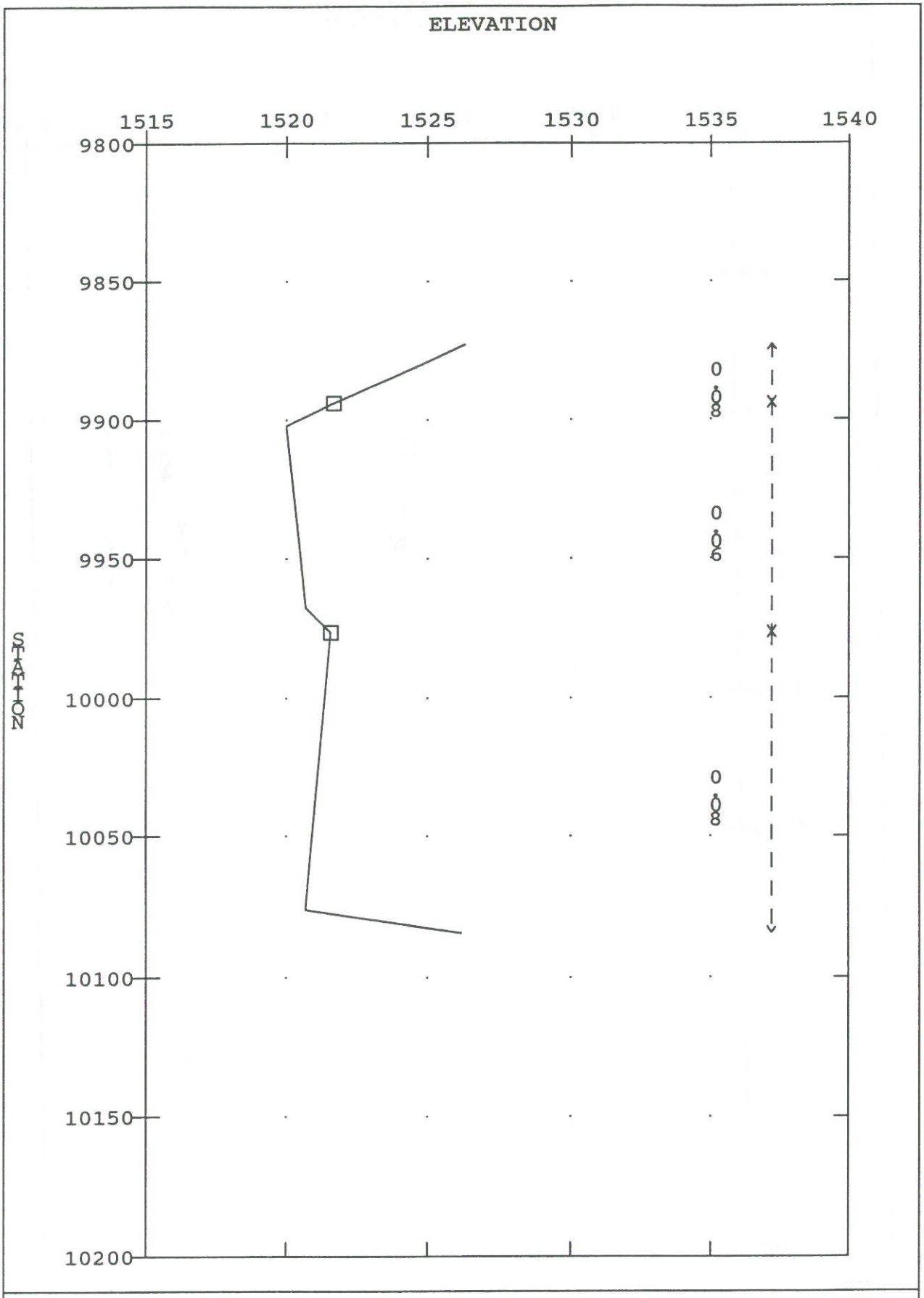
SECTION : 622549

Fountain Hills North FIS



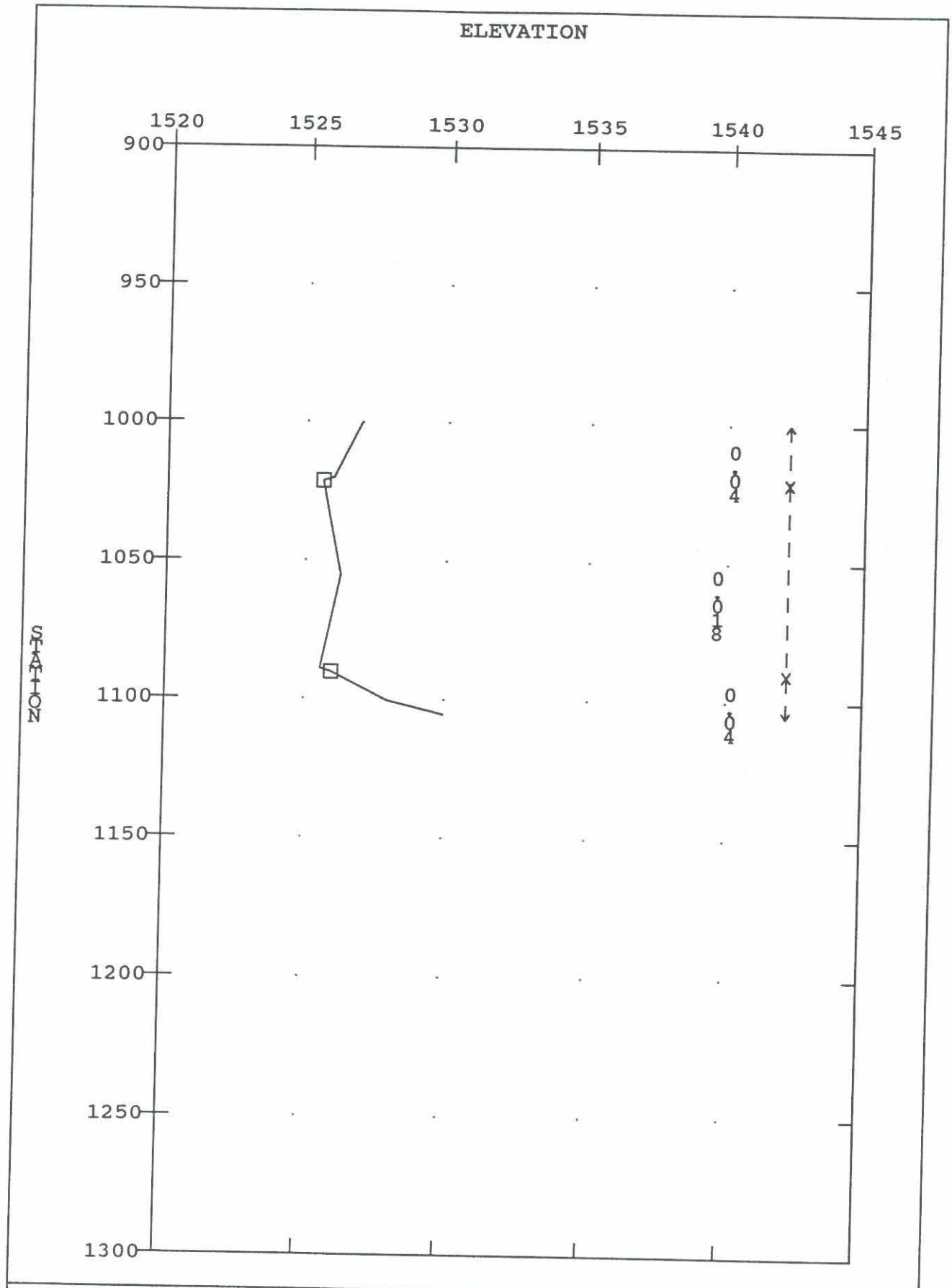
SECTION : 623624

Fountain Hills North FIS



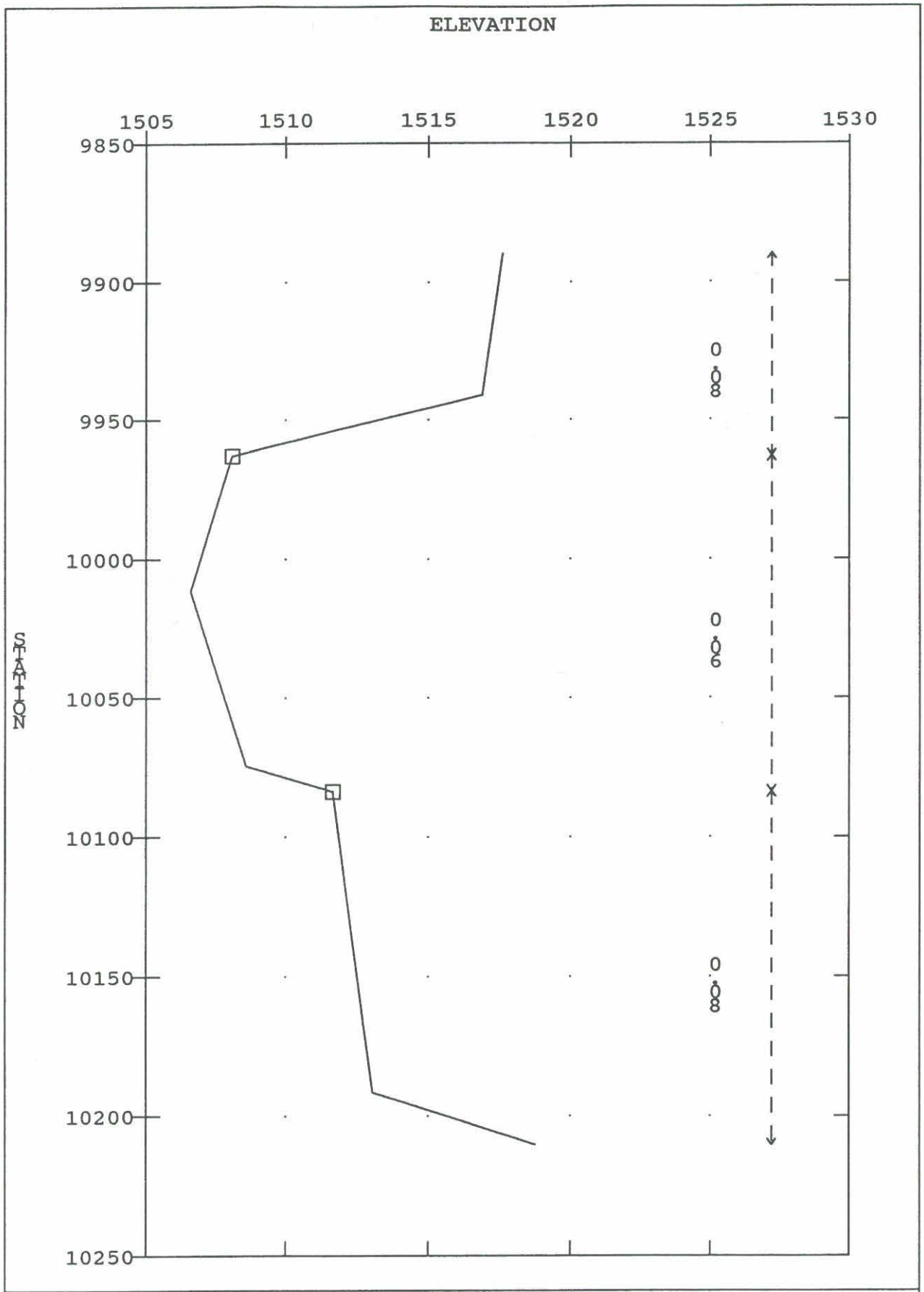
SECTION : 624626

Fountain Hills North FIS



SECTION : 625626

Fountain Hills North FIS



SECTION : 626627

Fountain Hills North FIS

APPENDIX D

100-Year, 6-Hour Storm Existing Condition HEC-1 Output

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              MAY   1991           *
 *           VERSION 4.0.1E          *
 *                                   *
 *  RUN DATE  11/02/94  TIME  08:44:36  *
 *                                   *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                    HEC-1 INPUT                                                    PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID   Fountain Hills North Floodplain Delineation Study
  2           ID        FCD 92-04        by GVSCE                          File:  EX100-6.IH1
  3           ID     Existing Condition                                     Date:    02-25-94   trl
  4           ID     100-Year 6-Hour Storm, Clark Unit Hydrograph      Revised:    09-14-94   trl
              *
  5           IT       1                    1080
  6           IO       5
  7           IN      15
              *DIAGRAM
              *
  8           JD    3.30    0.01
  9           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 11           PC   0.962   0.972   0.983   0.991   1.000
 12           JD    3.28    0.50
 13           JD    3.23    2.80
 14           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
 15           PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
 16           PC   0.950   0.963   0.975   0.988   1.000
 17           JD    3.04    16.0
 18           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 19           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
 20           PC   0.946   0.960   0.973   0.987   1.000
 21           JD    2.67    90.0
 22           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
 23           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
 24           PC   0.927   0.945   0.964   0.982   1.000
 25           JD    1.88   500.0
 26           PC   0.000   0.024   0.043   0.059   0.078   0.098   0.119   0.141   0.162   0.186
 27           PC   0.212   0.239   0.271   0.321   0.408   0.515   0.627   0.735   0.814   0.864
 28           PC   0.907   0.930   0.954   0.977   1.000
              *

 29           KK    201A
 30           KM   Sub-Basin   201A
 31           KM
 32           KM      The Clark Unit Hydrograph is used for this basin.
 33           KM          The Natural time-area relation is used for this basin.
 34           KM
 35           KM      Time of Concentration for this sub-basin is based on the following:
 36           KM          6-Hour Rainfall, Pattern No.  1.00
 37           KM          An rainfall areal reduction factor of 0.997
 38           KM
 39           KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 40           KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 41           KM   .45 .44 .44 .13 .10 .09 .04 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 42           KM
 43           KM          L=   1.269 miles, S=  208 feet/mile, Kb= .10
 44           KM
 45           BA   0.217
 46           LG    0.15    0.39    5.70    0.19    0.00
 47           UC   0.458   0.450
 48           UA       0       3       5       8      12      20      43      75      90      96
 49           UA     100
              *
```

```
1                                    HEC-1 INPUT                                                    PAGE  2

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 50           KK    201B
 51           KM   Sub-Basin   201B
 52           KM
 53           KM      The Clark Unit Hydrograph is used for this basin.
 54           KM          The Natural time-area relation is used for this basin.
 55           KM
```

```
 56          KM      Time of Concentration for this sub-basin is based on the following:
 57          KM          6-Hour Rainfall, Pattern No.  1.00
 58          KM          An rainfall areal reduction factor of 0.999
 59          KM
 60          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 61          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 62          KM   .45 .44 .44 .13 .10 .09 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 63          KM
 64          KM          L=   0.680 miles, S=  223 feet/mile, Kb= .11
 65          KM
 66          BA   0.081
 67          LG    0.15    0.39    5.70    0.20    0.00
 68          UC   0.313   0.314
 69          UA       0       3       5       8      12      20      43      75      90      96
 70          UA     100
             *

 71          KK    C501
 72          KM      Hydrograph combine 201A + 201B at C501
 73          HC       2
             *

 74          KK  501502
 75          KM      Normal depth channel route from C501 to C502
 76          KM      Source:  200 Scale Mapping
 77          RS       7    FLOW      -1
 78          RC   0.055   0.045   0.055  3000.0  0.0203
 79          RX  1000.0  1010.0  1025.0  1045.0  1075.0  1105.0  1125.0  1155.0
 80          RY  1624.0  1622.0  1620.0  1618.0  1618.0  1620.0  1622.0  1624.0
             *

 81          KK    201C
 82          KM   Sub-Basin   201C
 83          KM
 84          KM      The Clark Unit Hydrograph is used for this basin.
 85          KM          The Natural time-area relation is used for this basin.
 86          KM
 87          KM      Time of Concentration for this sub-basin is based on the following:
 88          KM          6-Hour Rainfall, Pattern No.  1.00
 89          KM          An rainfall areal reduction factor of 0.999
 90          KM
 91          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 92          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 93          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 94          KM
 95          KM          L=   0.674 miles, S=  206 feet/mile, Kb= .11
 96          KM
 97          BA   0.079
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 98          LG    0.15    0.39    5.70    0.21    0.00
 99          UC   0.321   0.326
100          UA       0       3       5       8      12      20      43      75      90      96
101          UA     100
             *

102          KK   C502R
103          KM      Hydrograph combine 501502 + 201C at C502 right branch
104          HC       2
             *

105          KK    201D
106          KM   Sub-Basin   201D
107          KM
108          KM      The Clark Unit Hydrograph is used for this basin.
109          KM          The Natural time-area relation is used for this basin.
110          KM
111          KM      Time of Concentration for this sub-basin is based on the following:
112          KM          6-Hour Rainfall, Pattern No.  1.00
113          KM          An rainfall areal reduction factor of 0.999
114          KM
115          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
116          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
117          KM   .45 .44 .44 .13 .10 .09 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
118          KM
119          KM          L=   0.898 miles, S=  207 feet/mile, Kb= .11
120          KM
121          BA   0.071
122          LG    0.15    0.39    5.70    0.20    0.00
123          UC   0.392   0.542
124          UA       0       3       5       8      12      20      43      75      90      96
125          UA     100
             *

126          KK    C502
127          KM      Hydrograph combine 502R + 201D at C502
128          HC       2
             *

129          KK  502503
130          KM      Normal depth channel route from C502 to C503
131          KM      Source:  200 Scale Mapping
132          RS       8    FLOW      -1
133          RC   0.050   0.045   0.050  2453.0  0.0183
134          RX  1000.0  1010.0  1025.0  1095.0  1215.0  1295.0  1305.0  1325.0
135          RY  1554.0  1553.0  1552.0  1550.0  1549.8  1551.0  1552.0  1554.0
             *

136          KK    201E
137          KM   Sub-Basin   201E
138          KM
139          KM      The Clark Unit Hydrograph is used for this basin.
```

```
140          KM          The Natural time-area relation is used for this basin.
141          KM
142          KM      Time of Concentration for this sub-basin is based on the following:
1                                    HEC-1 INPUT                                                    PAGE  4
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

143          KM          6-Hour Rainfall, Pattern No.  1.00
144          KM          An rainfall areal reduction factor of 0.998
145          KM
146          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
147          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
148          KM   .44 .43 .43 .12 .08 .07 .03 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
149          KM
150          KM          L=   1.245 miles, S=  178 feet/mile, Kb= .10
151          KM
152          BA   0.183
153          LG    0.15     0.38     5.60     0.25     0.10
154          UC   0.500    0.538
155          UA       0        3        5        8       12       20       43       75       90       96
156          UA     100
             *

157          KK   C503I
158          KM      Hydrograph combine 502503 + 201E at C503I
159          HC       2
             *

160          KK   C503O
161          KM      Reservoir route at C503.
162          RS       1     ELEV  1535.1
163          SV    0.00     0.67     2.87     7.16    13.82    22.77    34.37    38.00    41.80    32.20
164          SV   44.70    46.10    47.80    49.11    50.90    52.80    54.60    56.40
165          SE  1525.1   1538.0   1540.0   1542.0   1544.0   1546.0   1548.0   1548.5   1549.0   1549.2
166          SE  1549.4   1549.6   1549.8   1550.0   1550.2   1550.4   1550.6   1550.8
167          SQ       0       50      133      210      273      325      367      377      407      441
168          SQ     481      545      612      715      818      971     1115     1268
             *

169          KK   D503R
170          KM      Hydrograph diversion at C503.  Main flow continues in the right branch.
171          KM      Diverted flow is in the left branch.
172          DT   D503L
173          DI       0       50      133      210      273      325      367      377      407      441
174          DI     481      545      612      715      818      971     1115     1268
175          DQ       0       50      133      210      273      325      367      377      386      391
176          DQ     394      398      402      405      408      412      415      418
             *

177          KK  503504
178          KM      Normal depth channel route from C503 to C504
179          KM      Source:  200 Scale Mapping
180          RS       1     FLOW      -1
181          RC   0.050    0.040    0.050   1151.0   0.0098
182          RX   940.0   1060.0   1100.0   1140.0   1190.0   1210.0   1230.0   1242.0
183          RY  1552.0   1548.0   1547.0   1546.2   1546.2   1548.0   1549.0   1552.0
             *
             * *
             * *  End Basin 201.  Start Basin 202
             * *
             *
1                                    HEC-1 INPUT                                                    PAGE  5
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

184          KK    202A
185          KM   Sub-Basin   202A
186          KM
187          KM      The Clark Unit Hydrograph is used for this basin.
188          KM          The Natural time-area relation is used for this basin.
189          KM
190          KM      Time of Concentration for this sub-basin is based on the following:
191          KM          6-Hour Rainfall, Pattern No.  1.00
192          KM          An rainfall areal reduction factor of 1.000
193          KM
194          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
195          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
196          KM   .43 .42 .42 .11 .07 .06 .02 .02 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
197          KM
198          KM          L=   0.409 miles, S=  129 feet/mile, Kb= .12
199          KM
200          BA   0.038
201          LG    0.15     0.35     4.40     0.39     7.00
202          UC   0.304    0.312
203          UA       0        3        5        8       12       20       43       75       90       96
204          UA     100
             *

205          KK   C504I
206          KM      Hydrograph combine D503R + 202A at C504I
207          HC       2
             *

208          KK   C504O
209          KM      Reservoir route at C504.
210          RS       1     ELEV  1538.1
211          SV    0.00     0.17     0.90     1.00     1.10     1.30     1.60     1.80     2.00     2.30
212          SV    2.50     2.70     3.00     3.10
213          SE  1538.1   1540.0   1541.66  1541.80  1542.0   1542.2   1542.4   1542.6   1542.8   1543.0
214          SE  1543.2   1543.4   1543.6   1543.7
215          SQ       0       11       20       22       24       30       41       60       85      121
216          SQ     171      240      322      396
             *
```

```
 217          KK   D504R
 218          KM      Hydrograph diversion at C504.  Main flow continues in the right branch.
 219          KM      Diverted flow is in the left branch.
 220          DT   D504L
 221          DI      0      11      20      22      24      30      41      60      85     121
 222          DI    171     240     322     396
 223          DQ      0      11      20      20      21      22      22      23      23      24
 224          DQ     24      25      26      26
              *
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 225          KK    202B
 226          KM   Sub-Basin   202B
 227          KM
 228          KM      The Clark Unit Hydrograph is used for this basin.
 229          KM          The Natural time-area relation is used for this basin.
 230          KM
 231          KM      Time of Concentration for this sub-basin is based on the following:
 232          KM          6-Hour Rainfall, Pattern No.  1.00
 233          KM          An rainfall areal reduction factor of 1.000
 234          KM
 235          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 236          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 237          KM   .43 .42 .42 .11 .07 .06 .02 .02 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
 238          KM
 239          KM          L=   0.364 miles, S=  322 feet/mile, Kb= .12
 240          KM
 241          BA   0.018
 242          LG    0.15    0.35    4.55    0.36    0.60
 243          UC   0.204   0.280
 244          UA      0       3       5       8      12      20      43      75      90      96
 245          UA    100
              *

 246          KK   C505I
 247          KM      Hydrograph combine D504R + 202B at C505I
 248          HC       2
              *

 249          KK   D505R
 250          KM      Hydrograph diversion at C505.  Main flow continues in the right branch.
 251          KM      Diverted flow is in the left branch.
 252          DT   D505L
 253          DI      0       3       7       9      11      14      15      17      23      31
 254          DI     44      55      75      95     123     134
 255          DQ      0       3       7       9      11      12      12      13      14      14
 256          DQ     15      15      16      16      16      17
              *

 257          KK    202C
 258          KM   Sub-Basin   202C
 259          KM
 260          KM      The Clark Unit Hydrograph is used for this basin.
 261          KM          The Natural time-area relation is used for this basin.
 262          KM
 263          KM      Time of Concentration for this sub-basin is based on the following:
 264          KM          6-Hour Rainfall, Pattern No.  1.00
 265          KM          An rainfall areal reduction factor of 1.000
 266          KM
 267          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 268          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 269          KM   .43 .42 .42 .11 .07 .05 .02 .02 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 270          KM
 271          KM          L=   0.192 miles, S=  363 feet/mile, Kb= .13
 272          KM
1                                          HEC-1 INPUT                                          PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 273          BA   0.008
 274          LG    0.15    0.35    4.35    0.41    7.00
 275          UC   0.150   0.193
 276          UA      0       3       5       8      12      20      43      75      90      96
 277          UA    100
              *

 278          KK    C506
 279          KM      Hydrograph combine C505R + 202C at C506
 280          HC       2
              *

 281          KK   D506R
 282          KM      Hydrograph diversion at C506.  Main flow continues in the right branch.
 283          KM      Diverted flow is in the left branch.
 284          DT   D506L
 285          DI      0       3      13      37      77     100     151     206     276     355
 286          DI    437     532     698     809     928    1104
 287          DQ      0       0       0       0       0       0       4      12      28      52
 288          DQ     85     128     183     249     328     421
              *

 289          KK    202D
 290          KM   Sub-Basin   202D
 291          KM
 292          KM      The Clark Unit Hydrograph is used for this basin.
 293          KM          The Natural time-area relation is used for this basin.
 294          KM
 295          KM      Time of Concentration for this sub-basin is based on the following:
 296          KM          6-Hour Rainfall, Pattern No.  1.00
 297          KM          An rainfall areal reduction factor of 0.999
```

```
298          KM
299          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
300          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
301          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
302          KM
303          KM          L=   0.800 miles, S=  248 feet/mile, Kb= .11
304          KM
305          BA   0.063
306          LG    0.15    0.38    5.60    0.23    7.00
307          UC   0.333   0.444
308          UA       0       3       5       8      12      20      43      75      90      96
309          UA     100
             *

310          KK    202E
311          KM   Sub-Basin   202E
312          KM
313          KM      The Clark Unit Hydrograph is used for this basin.
314          KM          The Natural time-area relation is used for this basin.
315          KM
316          KM      Time of Concentration for this sub-basin is based on the following:
317          KM          6-Hour Rainfall, Pattern No.  1.00
318          KM          An rainfall areal reduction factor of 0.999
319          KM
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

320          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
321          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
322          KM   .44 .44 .43 .13 .09 .08 .03 .03 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
323          KM
324          KM          L=   0.732 miles, S=  270 feet/mile, Kb= .10
325          KM
326          BA   0.104
327          LG    0.15    0.39    5.70    0.22    0.30
328          UC   0.283   0.258
329          UA       0       3       5       8      12      20      43      75      90      96
330          UA     100
             *

331          KK   C508O
332          KM      Reservoir route at C508.
333          RS       1    ELEV  1524.2
334          SV    0.00    0.05    0.09    0.13    0.17    0.21    0.25    0.28    0.36    0.46
335          SV    0.55    0.64    0.72    0.81    0.90    1.00    1.02
336          SE  1524.1  1525.0  1525.5  1526.0  1526.5  1527.0  1527.6  1528.0  1528.2  1528.4
337          SE  1528.6  1528.8  1529.0  1529.2  1529.4  1529.6 1529.64
338          SQ       0       6       9      16      22      28      38      51      58      70
339          SQ      84     100     122     149     183     216     227
             *

340          KK   D508L
341          KM      Hydrograph diversion at C508.  Main flow continues in the left branch.
342          KM      Diverted flow is in the right branch.
343          DT   D508R
344          DI       0       6       9      16      22      28      38      51      58      70
345          DI      84     100     122     149     183     216     227
346          DQ       0       6       9      16      22      28      38      47      52      56
347          DQ      60      63      66      68      71      73      73
             *

348          KK  508507
349          KM      Normal depth channel route from C508 to C507
350          KM      Source:  200 Scale Mapping
351          RS       5    FLOW      -1
352          RC   0.020   0.035   0.055   934.0  0.0028
353          RX   893.0  1014.0  1022.0  1026.0  1040.0  1050.0  1060.0  1066.0
354          RY  1532.0  1529.4  1528.6  1527.6  1529.0  1530.2  1531.3  1532.0
             *

355          KK   C507I
356          KM      Hydrograph combine D506R + 202D + D508L at C507I
357          HC       3
             *

358          KK   C507O
359          KM      Reservoir route at C507
360          RS       1    ELEV  1525.2
361          SV    0.00    0.28    0.46    0.65    0.85    1.03    1.38    1.40    1.44    1.48
362          SV    1.52    1.55    1.59    1.64    1.67    1.70    1.75    1.77
363          SE  1525.2  1526.0  1526.5  1527.0  1527.5  1528.0  1529.0  1529.0  1529.1  1529.2
364          SE  1529.3  1529.4  1529.5  1529.6  1529.7  1529.8  1529.9  1530.0
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

365          SQ       0       2       5       9      13      15      18      20      36      69
366          SQ     118     185     272     378     506     652     816     997
             *

367          KK    202F
368          KM   Sub-Basin   202F
369          KM
370          KM      The Clark Unit Hydrograph is used for this basin.
371          KM          The Natural time-area relation is used for this basin.
372          KM
373          KM      Time of Concentration for this sub-basin is based on the following:
374          KM          6-Hour Rainfall, Pattern No.  1.00
375          KM          An rainfall areal reduction factor of 1.000
376          KM
377          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
378          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
379          KM   .44 .44 .43 .13 .09 .08 .03 .03 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
```

```
 380          KM
 381          KM          L=   0.188 miles, S=  337 feet/mile, Kb= .13
 382          KM
 383          BA   0.013
 384          LG    0.15    0.38    5.60    0.23    1.80
 385          UC   0.150   0.140
 386          UA       0       3       5       8      12      20      43      75      90      96
 387          UA     100
              *

 388          KK    202G
 389          KM   Sub-Basin   202G
 390          KM
 391          KM      The Clark Unit Hydrograph is used for this basin.
 392          KM          The Natural time-area relation is used for this basin.
 393          KM
 394          KM      Time of Concentration for this sub-basin is based on the following:
 395          KM          6-Hour Rainfall, Pattern No.  1.00
 396          KM          An rainfall areal reduction factor of 1.000
 397          KM
 398          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 399          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 400          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 401          KM
 402          KM          L=   0.175 miles, S=  338 feet/mile, Kb= .13
 403          KM
 404          BA   0.013
 405          LG    0.15    0.39    5.70    0.21    1.50
 406          UC   0.142   0.124
 407          UA       0       3       5       8      12      20      43      75      90      96
 408          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 409          KK    202H
 410          KM   Sub-Basin   202H
 411          KM
 412          KM      The Clark Unit Hydrograph is used for this basin.
 413          KM          The Natural time-area relation is used for this basin.
 414          KM
 415          KM      Time of Concentration for this sub-basin is based on the following:
 416          KM          6-Hour Rainfall, Pattern No.  1.00
 417          KM          An rainfall areal reduction factor of 0.998
 418          KM
 419          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 420          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 421          KM   .44 .43 .43 .12 .08 .07 .03 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
 422          KM
 423          KM          L=   0.861 miles, S=  243 feet/mile, Kb= .10
 424          KM
 425          BA   0.179
 426          LG    0.15    0.37    5.20    0.27    0.30
 427          UC   0.338   0.262
 428          UA       0       3       5       8      12      20      43      75      90      96
 429          UA     100
              *

 430          KK   C5110
 431          KM      Reservoir route at C511.
 432          RS       1    ELEV  1535.2
 433          SV    0.00    0.40    0.70    1.19    3.10    3.20    3.55    4.00    4.50    4.90
 434          SV    5.40    5.80    6.30    6.80    7.20    7.70    8.13
 435          SE  1535.2  1537.0  1538.0  1540.0  1541.6  1541.8  1542.0  1542.2  1542.4  1542.6
 436          SE  1542.8  1543.0  1543.2  1543.4  1543.6  1543.8  1544.0
 437          SQ       0      42      88     200     274     286     325     393     491     622
 438          SQ     790    1000    1241    1518    1835    2189    2580
              *

 439          KK  511512
 440          KM      Normal depth channel route from C511 to C512
 441          KM      Source:  200 Scale Mapping
 442          RS       2    FLOW      -1
 443          RC   0.055   0.045   0.055   760.0  0.0112
 444          RX  1000.0  1060.0  1070.0  1090.0  1110.0  1120.0  1180.0  1220.0
 445          RY  1536.0  1534.2  1534.0  1532.0  1532.0  1534.0  1535.0  1536.0
              *

 446          KK    202I
 447          KM   Sub-Basin   202I
 448          KM
 449          KM      The Clark Unit Hydrograph is used for this basin.
 450          KM          The HEC-1 time-area relation is used for this basin.
 451          KM
 452          KM      Time of Concentration for this sub-basin is based on the following:
 453          KM          6-Hour Rainfall, Pattern No.  1.00
 454          KM          An rainfall areal reduction factor of 1.000
 455          KM
 456          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 457          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 458          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
 459          KM
 460          KM          L=   0.247 miles, S=  122 feet/mile, Kb= .12
 461          KM
 462          BA   0.017
 463          LG    0.14    0.35    5.10    0.28    9.30
 464          UC   0.225   0.232
              *
```

```
465          KK   C512I
466          KM      Hydrograph combine 511512 + 202I at C512
467          KM      Inflow to reservoir route at C512
468          KM      This is the inflow to the Stock Tank at the end of Bahia Drive
469          HC       2
             *

470          KK   C512O
471          KM      Reservoir route at C512 (Stock Tank).
472          RS       1    ELEV  1517.0
473          SV    0.00    0.03    0.29    0.75    1.38    2.39    4.17    7.43   10.30   12.20
474          SV   12.70   13.36   14.10   15.10   16.20   17.00   17.90
475          SE  1517.0  1518.0  1520.0  1522.0  1524.0  1526.0  1528.0  1530.0  1531.0  1531.6
476          SE  1531.8  1532.0  1532.2  1532.4  1532.6  1532.8  1533.0
477          SQ       0       0       0       0       0       0       0       0       0      15
478          SQ      35      65     137     244     376     541     725
             *

479          KK   D512L
480          KM      Hydrograph diversion at C512.
481          KM      Main flow continues in the left branch (weir).
482          KM      Diverted flow enters Bahia Drive (channel) and continues to C591.
483          KM      Diverted flow is in the right branch.
484          DT   D512R
485          DI       0      15      35      65     137     244     376     541     725
486          DQ       0       0       4      10      49     112     190     289     395
             *
             * *
             * * Note: 512591 too short to route
             * *
             *
             *
             * *
             * *  End Basin 202.  Start Basin 203.
             * *
             *

487          KK    203A
488          KM   Sub-Basin   203A
489          KM
490          KM      The Clark Unit Hydrograph is used for this basin.
491          KM          The HEC-1 time-area relation is used for this basin.
492          KM
493          KM      Time of Concentration for this sub-basin is based on the following:
494          KM          6-Hour Rainfall, Pattern No.  1.00
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

495          KM          An rainfall areal reduction factor of 0.996
496          KM
497          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
498          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
499          KM   .45 .44 .44 .13 .10 .09 .04 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
500          KM
501          KM          L=   1.569 miles, S=  229 feet/mile, Kb= .08
502          KM
503          BA   0.279
504          LG    0.14    0.37    5.70    0.21    4.20
505          UC   0.438   0.439
             *

506          KK   C513O
507          KM      Reservoir route at C513.
508          RS       1    ELEV  1789.0
509          SV    0.00    0.35    0.97    2.05    3.54    5.54    8.17
510          SE  1789.0  1794.0  1796.0  1798.0  1800.0  1802.0  1804.0
511          SQ       0       0      20      70     135     315    1995
             *

512          KK  513514
513          KM      Normal depth channel route from C513 to C514
514          KM      Source:  200 Scale Mapping
515          RS       7    FLOW      -1
516          RC   0.050   0.045   0.050  2403.0  0.0240
517          RX  1000.0  1010.0  1035.0  1080.0  1100.0  1120.0  1135.0  1145.0
518          RY  1780.0  1778.0  1770.0  1768.0  1768.0  1770.0  1778.0  1780.0
             *

519          KK    203B
520          KM   Sub-Basin   203B
521          KM
522          KM      The Clark Unit Hydrograph is used for this basin.
523          KM          The HEC-1 time-area relation is used for this basin.
524          KM
525          KM      Time of Concentration for this sub-basin is based on the following:
526          KM          6-Hour Rainfall, Pattern No.  1.00
527          KM          An rainfall areal reduction factor of 0.999
528          KM
529          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
530          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
531          KM   .45 .44 .44 .13 .10 .09 .04 .04 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
532          KM
533          KM          L=   0.484 miles, S=  236 feet/mile, Kb= .10
534          KM
535          BA   0.044
536          LG    0.14    0.37    5.70    0.21    5.00
537          UC   0.233   0.243
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
538          KK   C514R
539          KM      Hydrograph combine 513514 + 203B at C514 right channel
540          HC       2
             *

541          KK    203C
542          KM   Sub-Basin   203C
543          KM
544          KM      The Clark Unit Hydrograph is used for this basin.
545          KM          The HEC-1 time-area relation is used for this basin.
546          KM
547          KM      Time of Concentration for this sub-basin is based on the following:
548          KM          6-Hour Rainfall, Pattern No.  1.00
549          KM          An rainfall areal reduction factor of 0.999
550          KM
551          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
552          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
553          KM   .45 .44 .44 .13 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
554          KM
555          KM          L=   0.988 miles, S=  258 feet/mile, Kb= .10
556          KM
557          BA   0.103
558          LG    0.15    0.39    5.70    0.21    9.30
559          UC   0.354   0.423
             *

560          KK    C514
561          KM      Hydrograph combine C514R + 203C at C514
562          HC       2
             *
             * *
             * * Note: 514515 too short to route
             * *
             *

563          KK    203D
564          KM   Sub-Basin   203D
565          KM
566          KM      The Clark Unit Hydrograph is used for this basin.
567          KM          The Natural time-area relation is used for this basin.
568          KM
569          KM      Time of Concentration for this sub-basin is based on the following:
570          KM          6-Hour Rainfall, Pattern No.  1.00
571          KM          An rainfall areal reduction factor of 0.999
572          KM
573          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
574          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
575          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
576          KM
577          KM          L=   1.025 miles, S=  252 feet/mile, Kb= .10
578          KM
579          BA   0.108
580          LG    0.15    0.39    5.70    0.21    0.00
581          UC   0.367   0.441
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

582          UA       0       3       5       8      12      20      43      75      90      96
583          UA     100
             *

584          KK    C515
585          KM      Hydrograph combine C514 + 203D at C515
586          HC       2
             *

587          KK  515517
588          KM      Normal depth channel route from C515 to C517
589          KM      Source:  200 Scale Mapping
590          RS       6    FLOW      -1
591          RC   0.050   0.045   0.060  3340.0  0.0186
592          RX  1000.0  1020.0  1045.0  1065.0  1085.0  1125.0  1135.0  1145.0
593          RY  1708.0  1704.0  1702.0  1698.0  1698.0  1700.0  1705.0  1710.0
             *

594          KK    203E
595          KM   Sub-Basin   203E
596          KM
597          KM      The Clark Unit Hydrograph is used for this basin.
598          KM          The Natural time-area relation is used for this basin.
599          KM
600          KM      Time of Concentration for this sub-basin is based on the following:
601          KM          6-Hour Rainfall, Pattern No.  1.00
602          KM          An rainfall areal reduction factor of 0.999
603          KM
604          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
605          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
606          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .02 .01 .00 .00 .00 .00 .00 .00 .00
607          KM
608          KM          L=   0.640 miles, S=  219 feet/mile, Kb= .11
609          KM
610          BA   0.093
611          LG    0.15    0.37    6.60    0.14    0.00
612          UC   0.296   0.259
613          UA       0       3       5       8      12      20      43      75      90      96
614          UA     100
             *

615          KK   C517R
616          KM      Hydrograph combine 515517 + 203E at C517 right branch
617          HC       2
             *
```

```
618          KK    203F
619          KM   Sub-Basin   203F
620          KM
621          KM      The Clark Unit Hydrograph is used for this basin.
622          KM          The Natural time-area relation is used for this basin.
623          KM
624          KM      Time of Concentration for this sub-basin is based on the following:
625          KM          6-Hour Rainfall, Pattern No.  1.00
626          KM          An rainfall areal reduction factor of 0.996
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

627          KM
628          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
629          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
630          KM   .44 .44 .43 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
631          KM
632          KM          L=   1.460 miles, S=  237 feet/mile, Kb= .09
633          KM
634          BA   0.333
635          LG    0.15     0.39     5.70     0.21     0.00
636          UC   0.450    0.386
637          UA       0        3        5        8       12       20       43       75       90       96
638          UA     100
             *

639          KK  516517
640          KM      Normal depth channel route from C516 to C517
641          KM      Source:  200 Scale Mapping
642          RS      14     FLOW      -1
643          RC   0.065    0.045    0.055   6720.0   0.0213
644          RX  1000.0   1015.0   1020.0   1040.0   1080.0   1095.0   1100.0   1125.0
645          RY  1724.0   1718.0   1716.0   1714.0   1714.0   1716.0   1718.0   1724.0
             *

646          KK    203G
647          KM   Sub-Basin   203G
648          KM
649          KM      The Clark Unit Hydrograph is used for this basin.
650          KM          The Natural time-area relation is used for this basin.
651          KM
652          KM      Time of Concentration for this sub-basin is based on the following:
653          KM          6-Hour Rainfall, Pattern No.  1.00
654          KM          An rainfall areal reduction factor of 0.997
655          KM
656          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
657          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
658          KM   .45 .44 .44 .13 .10 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
659          KM
660          KM          L=   1.424 miles, S=  215 feet/mile, Kb= .09
661          KM
662          BA   0.248
663          LG    0.15     0.40     6.00     0.19     0.00
664          UC   0.458    0.457
665          UA       0        3        5        8       12       20       43       75       90       96
666          UA     100
             *

667          KK   C517L
668          KM      Hydrograph combine 516517 + 203G at C517 left branch
669          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

670          KK    C517
671          KM      Hydrograph combine C517R + C517L at C517
672          HC       2
             *

673          KK  517518
674          KM      Normal depth channel route from C517 to C518
675          KM      Source:  HEC-2 Cross Section: ES 3.522
676          RS       8     FLOW      -1
677          RC   0.055    0.035    0.060   4367.0   0.0174
678          RX  9808.1   9845.6   9957.0   9990.4  10007.0  10015.9  10076.5  10176.0
679          RY  1628.2   1618.6   1617.5   1614.8   1614.7   1619.7   1622.9   1631.3
             *

680          KK    203H
681          KM   Sub-Basin   203H
682          KM
683          KM      The Clark Unit Hydrograph is used for this basin.
684          KM          The Natural time-area relation is used for this basin.
685          KM
686          KM      Time of Concentration for this sub-basin is based on the following:
687          KM          6-Hour Rainfall, Pattern No.  1.00
688          KM          An rainfall areal reduction factor of 0.997
689          KM
690          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
691          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
692          KM   .45 .44 .44 .13 .10 .09 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
693          KM
694          KM          L=   1.035 miles, S=  178 feet/mile, Kb= .10
695          KM
696          BA   0.207
697          LG    0.15     0.38     5.40     0.21     0.00
698          UC   0.429    0.365
699          UA       0        3        5        8       12       20       43       75       90       96
700          UA     100
```

```
                 *

 701             KK    C518
 702             KM      Hydrograph combine 517518 + 203H at C518
 703             HC       2
                 *

 704             KK  518519
 705             KM      Normal depth channel route from C518 to C519
 706             KM      Source:  HEC-2 Cross Section: ES 3.072
 707             RS       2    FLOW      -1
 708             RC   0.090   0.050   0.085  1796.0  0.0217
 709             RX  9851.4  9884.7  9955.8  9983.5 10028.9 10036.3 10057.6 10087.9
 710             RY  1586.3  1569.6  1568.4  1565.8  1565.4  1566.0  1575.0  1589.3
                 *
1                                          HEC-1 INPUT                                          PAGE 17

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 711             KK    203I
 712             KM   Sub-Basin   203I
 713             KM
 714             KM      The Clark Unit Hydrograph is used for this basin.
 715             KM          The HEC-1 time-area relation is used for this basin.
 716             KM
 717             KM      Time of Concentration for this sub-basin is based on the following:
 718             KM          6-Hour Rainfall, Pattern No.  1.00
 719             KM          An rainfall areal reduction factor of 0.998
 720             KM
 721             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 722             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 723             KM   .44 .43 .43 .12 .08 .07 .03 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
 724             KM
 725             KM          L=   1.323 miles, S=  161 feet/mile, Kb= .10
 726             KM
 727             BA   0.171
 728             LG    0.15    0.35    4.80    0.30    0.60
 729             UC   0.546   0.647
                 *

 730             KK    C519
 731             KM      Hydrograph combine 518519 + 203I at C519
 732             HC       2
                 *

 733             KK  519591
 734             KM      Normal depth channel route from C519 to C591
 735             KM      Source:  HEC-2 Cross Section: ES 2.695
 736             RS       2    FLOW      -1
 737             RC   0.090   0.050   0.085  1274.0  0.0181
 738             RX  9851.3  9905.0  9927.9  9949.0 10017.8 10053.7 10096.8 10135.1
 739             RY  1540.3  1537.0  1536.5  1529.2  1528.6  1537.7  1539.6  1540.1
                 *

 740             KK    203J
 741             KM   Sub-Basin   203J
 742             KM
 743             KM      The Clark Unit Hydrograph is used for this basin.
 744             KM          The HEC-1 time-area relation is used for this basin.
 745             KM
 746             KM      Time of Concentration for this sub-basin is based on the following:
 747             KM          6-Hour Rainfall, Pattern No.  1.00
 748             KM          An rainfall areal reduction factor of 0.999
 749             KM
 750             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 751             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 752             KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .01 .01 .01 .00 .00 .00 .00 .00 .00
 753             KM
 754             KM          L=   0.533 miles, S=  237 feet/mile, Kb= .10
 755             KM
 756             BA   0.039
 757             LG    0.14    0.36    5.60    0.21   12.70
 758             UC   0.242   0.294
                 *
1                                          HEC-1 INPUT                                          PAGE 18

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 759             KK  520591
 760             KM      Normal depth channel route from C520 to C591
 761             KM      Source:  Hydrology Field Reconnaissance
 762             RS       4    FLOW      -1
 763             RC   0.050   0.018   0.040  2014.0  0.0248
 764             RX  1000.0  1030.0  1041.2  1057.2  1073.2  1074.4  1086.4  1116.0
 765             RY  1570.0  1566.0  1564.8  1565.2  1564.9  1565.3  1565.9  1568.0
                 *

 766             KK  BB512R
 767             KM      Retrieve previously diverted hydrograph at C512 in the right branch.
 768             DR   D512R
                 *

 769             KK    C591
 770             KM      Hydrograph combine 519591 + 520591 + D512R at C591
 771             HC       3    1.83
                 *

 772             KK  591521
 773             KM      Normal depth channel route from C591 to C521
 774             KM      Source:  HEC-2 Cross Section: ES 2.614
 775             RS       2    FLOW      -1
 776             RC   0.090   0.050   0.085   915.0  0.0142
```

```
 777          RX  9827.7  9921.5  9950.2  9970.7 10046.6 10078.1 10120.0 10177.5
 778          RY  1531.1  1524.8  1524.4  1520.8  1520.0  1530.3  1531.1  1532.3
              *

 779          KK    203K
 780          KM   Sub-Basin   203K
 781          KM
 782          KM      The Clark Unit Hydrograph is used for this basin.
 783          KM          The Urban time-area relation is used for this basin.
 784          KM
 785          KM      Time of Concentration for this sub-basin is based on the following:
 786          KM          6-Hour Rainfall, Pattern No.  1.00
 787          KM          An rainfall areal reduction factor of 0.998
 788          KM
 789          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 790          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 791          KM   .48 .47 .47 .17 .14 .13 .06 .06 .06 .05 .05 .04 .01 .01 .01 .01 .01 .01
 792          KM
 793          KM          L=   0.878 miles, S=  158 feet/mile, Kb= .03
 794          KM
 795          BA   0.160
 796          LG    0.08    0.26    5.60    0.20   41.60
 797          UC   0.183   0.144
 798          UA       0       5      16      30      65      77      84      90      94      97
 799          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 19
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 800          KK    C521
 801          KM      Hydrograph combine 591521 + 203K at C521
 802          HC       2
              *
              * *
              * * C521 is the total flow in Escalante Wash at the Study boundary
              * *
              * * End Basin 203.  Start Basin 204
              * *
              *

 803          KK   CLEAR
 804          KM      Clear hydrographs from stack
 805          HC       5
              *

 806          KK    204A
 807          KM   Sub-Basin   204A
 808          KM
 809          KM      The Clark Unit Hydrograph is used for this basin.
 810          KM          The Natural time-area relation is used for this basin.
 811          KM
 812          KM      Time of Concentration for this sub-basin is based on the following:
 813          KM          6-Hour Rainfall, Pattern No.  1.00
 814          KM          An rainfall areal reduction factor of 0.999
 815          KM
 816          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 817          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 818          KM   .45 .44 .44 .13 .10 .09 .04 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 819          KM
 820          KM          L=   0.687 miles, S=  175 feet/mile, Kb= .10
 821          KM
 822          BA   0.108
 823          LG    0.15    0.39    5.80    0.19    0.00
 824          UC   0.325   0.280
 825          UA       0       3       5       8      12      20      43      75      90      96
 826          UA     100
              *

 827          KK  522523
 828          KM      Normal depth channel route from C522 to C523
 829          KM      Source:  200 Scale Mapping
 830          RS      10    FLOW      -1
 831          RC   0.060   0.050   0.060  3275.0  0.0197
 832          RX  1000.0  1020.0  1035.0  1065.0  1080.0  1120.0  1160.0  1185.0
 833          RY  1678.0  1676.0  1674.0  1672.0  1672.0  1674.0  1676.0  1678.0
              *

 834          KK    204B
 835          KM   Sub-Basin   204B
 836          KM
 837          KM      The Clark Unit Hydrograph is used for this basin.
 838          KM          The Natural time-area relation is used for this basin.
 839          KM
1                                          HEC-1 INPUT                                          PAGE 20
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 840          KM      Time of Concentration for this sub-basin is based on the following:
 841          KM          6-Hour Rainfall, Pattern No.  1.00
 842          KM          An rainfall areal reduction factor of 0.998
 843          KM
 844          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 845          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 846          KM   .44 .44 .43 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
 847          KM
 848          KM          L=   0.775 miles, S=  128 feet/mile, Kb= .10
 849          KM
 850          BA   0.126
 851          LG    0.15    0.39    5.80    0.21    0.20
 852          UC   0.408   0.364
 853          UA       0       3       5       8      12      20      43      75      90      96
 854          UA     100
```

```
                *

855             KK   C523I
856             KM      Hydrograph combine 522523 + 204B at C523I
857             HC       2
                *

858             KK   C523O
859             KM      Reservoir route at C523.
860             RS       1    ELEV  1650.3
861             SV    0.00     0.01     0.12     0.71     2.23     2.50     2.80     3.10     3.20     3.40
862             SV    3.70     4.00     4.30     4.60     4.90     5.20     5.50
863             SE  1650.3  1652.0  1654.0  1656.0  1658.0  1658.2  1658.4  1658.6  1658.7  1658.8
864             SE  1659.0  1659.2  1659.4  1659.6  1659.8  1660.0  1660.2
865             SQ       0       22       78      144      209      214      220      224      226      232
866             SQ     239      249      288      384      529      726      960
                *

867             KK   D523L
868             KM      Hydrograph diversion at C523.  Main flow continues in the left branch.
869             KM      Diverted flow is in the right branch.
870             DT   D523R
871             DI       0       22       78      144      209      214      220      224      226      232
872             DI     239      249      288      384      529      726      960
873             DQ       0        0        0        0        0        0        0        0        0        3
874             DQ       5       10       20       37       61       96      139
                *

875             KK  523524
876             KM      Normal depth channel route from C523 to C524
877             KM      Source:  HEC-2 Cross Section: CA 2.072
878             KM      This is flow in Fountain Hills Blvd. which is routed to C548
879             RS       5    FLOW      -1
880             RC   0.080   0.050   0.075  1732.0  0.0177
881             RX  9827.8  9925.9  9978.5 10000.0 10020.8 10041.9 10110.6 10151.9
882             RY  1639.8  1635.7  1634.3  1629.9  1630.2  1631.8  1633.5  1636.7
                *
1                                          HEC-1 INPUT                                                    PAGE 21

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

883             KK    204C
884             KM   Sub-Basin   204C
885             KM
886             KM      The Clark Unit Hydrograph is used for this basin.
887             KM          The HEC-1 time-area relation is used for this basin.
888             KM
889             KM      Time of Concentration for this sub-basin is based on the following:
890             KM          6-Hour Rainfall, Pattern No.  1.00
891             KM          An rainfall areal reduction factor of 0.999
892             KM
893             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
894             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
895             KM   .46 .46 .46 .15 .12 .11 .05 .05 .04 .03 .02 .02 .01 .01 .01 .01 .01 .01
896             KM
897             KM          L=   0.400 miles, S=  142 feet/mile, Kb= .09
898             KM
899             BA   0.077
900             LG    0.13    0.36    5.70    0.20   25.40
901             UC   0.233   0.153
                *

902             KK    C524
903             KM      Hydrograph combine 523524 + 204C at C524
904             HC       2
                *

905             KK  524525
906             KM      Normal depth channel route from C524 to C525
907             KM      Source:  HEC-2 Cross Section: CA 1.898
908             RS       1    FLOW      -1
909             RC   0.050   0.035   0.060  1045.0  0.0211
910             RX  9823.1  9873.0  9960.0  9986.1 10008.3 10049.7 10070.0 10078.4
911             RY  1617.9  1616.7  1616.3  1609.2  1609.0  1616.4  1616.8  1617.3
                *

912             KK    204D
913             KM   Sub-Basin   204D
914             KM
915             KM      The Clark Unit Hydrograph is used for this basin.
916             KM          The Urban time-area relation is used for this basin.
917             KM
918             KM      Time of Concentration for this sub-basin is based on the following:
919             KM          6-Hour Rainfall, Pattern No.  1.00
920             KM          An rainfall areal reduction factor of 0.999
921             KM
922             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
923             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
924             KM   .48 .47 .47 .17 .13 .13 .06 .06 .06 .05 .04 .04 .01 .01 .01 .01 .01 .01
925             KM
926             KM          L=   0.345 miles, S=   96 feet/mile, Kb= .06
927             KM
928             BA   0.044
929             LG    0.10    0.31    5.70    0.18   40.20
930             UC   0.196   0.153
1                                          HEC-1 INPUT                                                    PAGE 22

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

931             UA       0       5      16      30      65      77      84      90      94      97
932             UA     100
                *
```

```
933          KK    C525
934          KM      Hydrograph combine 524525 + 204D at C525
935          HC       2
             *

936          KK  525526
937          KM      Normal depth channel route from C525 to C526
938          KM      Source:  HEC-2 Cross Section: CA 1.663
939          RS       2    FLOW      -1
940          RC   0.050   0.035   0.060  1520.0  0.0211
941          RX  9915.0  9940.0  9968.0  9992.6 10012.4 10032.0 10049.6 10106.9
942          RY  1592.8  1592.3  1591.8  1585.0  1584.8  1591.3  1592.1  1592.5
             *

943          KK    204E
944          KM   Sub-Basin   204E
945          KM
946          KM      The Clark Unit Hydrograph is used for this basin.
947          KM          The Urban time-area relation is used for this basin.
948          KM
949          KM      Time of Concentration for this sub-basin is based on the following:
950          KM          6-Hour Rainfall, Pattern No.  1.00
951          KM          An rainfall areal reduction factor of 0.999
952          KM
953          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
954          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
955          KM   .48 .47 .47 .17 .13 .13 .06 .06 .06 .05 .04 .04 .01 .01 .01 .01 .01 .01
956          KM
957          KM          L=   0.508 miles, S=  108 feet/mile, Kb= .06
958          KM
959          BA   0.071
960          LG    0.10    0.30    5.70    0.18   38.00
961          UC   0.229   0.190
962          UA       0       5      16      30      65      77      84      90      94      97
963          UA     100
             *

964          KK    C526
965          KM      Hydrograph combine 525526 + 204E at C526
966          HC       2
             *                                                                    *

967          KK  526527
968          KM      Normal depth channel route from C526 to C527
969          KM      Source:  HEC-2 Cross Section: CA 1.186
970          RS       4    FLOW      -1
971          RC   0.050   0.035   0.060  2129.0  0.0183
972          RX  9867.7  9898.1  9967.2  9981.2 10023.8 10035.6 10080.6 10145.3
973          RY  1545.6  1544.4  1539.5  1536.9  1536.7  1539.6  1541.1  1542.3
             *
```

1

HEC-1 INPUT

PAGE 23

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

974          KK    204F
975          KM   Sub-Basin   204F
976          KM
977          KM      The Clark Unit Hydrograph is used for this basin.
978          KM          The Urban time-area relation is used for this basin.
979          KM
980          KM      Time of Concentration for this sub-basin is based on the following:
981          KM          6-Hour Rainfall, Pattern No.  1.00
982          KM          An rainfall areal reduction factor of 0.999
983          KM
984          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
985          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
986          KM   .49 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
987          KM
988          KM          L=   0.495 miles, S=  135 feet/mile, Kb= .03
989          KM
990          BA   0.077
991          LG    0.08    0.15    7.00    0.11   45.00
992          UC   0.146   0.107
993          UA       0       5      16      30      65      77      84      90      94      97
994          UA     100
             *

995          KK    C527
996          KM      Hydrograph combine 526527 + 204F at C527
997          HC       2
             *
             * *
             * * C527 is the total flow in Caliente Wash at the Study boundary
             * *
             * * End Basin 204.  Start Basin 205
             * *
             *

998          KK   CLEAR
999          KM      Clear hydrographs from stack
1000         HC       2
             *

1001         KK    205A
1002         KM   Sub-Basin   205A
1003         KM
1004         KM      The Clark Unit Hydrograph is used for this basin.
1005         KM          The Natural time-area relation is used for this basin.
1006         KM
1007         KM      Time of Concentration for this sub-basin is based on the following:
1008         KM          6-Hour Rainfall, Pattern No.  1.00
1009         KM          An rainfall areal reduction factor of 0.998
1010         KM
```

```
1011          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1012          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1013          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1014          KM
1015          KM          L=   0.870 miles, S=  378 feet/mile, Kb= .14
1                                        HEC-1 INPUT                                          PAGE 24

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1016          KM
1017          BA   0.118
1018          LG    0.25    0.35    4.35    0.40   35.00
1019          UC   0.350   0.350
1020          UA       0       3       5       8      12      20      43      75      90      96
1021          UA     100
              *

1022          KK    205B
1023          KM   Sub-Basin   205B
1024          KM
1025          KM      The Clark Unit Hydrograph is used for this basin.
1026          KM          The Natural time-area relation is used for this basin.
1027          KM
1028          KM      Time of Concentration for this sub-basin is based on the following:
1029          KM          6-Hour Rainfall, Pattern No.  1.00
1030          KM          An rainfall areal reduction factor of 0.997
1031          KM
1032          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1033          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1034          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1035          KM
1036          KM          L=   0.759 miles, S=  373 feet/mile, Kb= .14
1037          KM
1038          BA   0.211
1039          LG    0.25    0.35    4.35    0.40   35.00
1040          UC   0.321   0.204
1041          UA       0       3       5       8      12      20      43      75      90      96
1042          UA     100
              *

1043          KK    C528
1044          KM      Hydrograph combine 205A + 205B at C528
1045          HC       2
              *

1046          KK  528530
1047          KM      Normal depth channel route from C528 to C530
1048          KM      Source:  Hydrology Field Reconnaissance
1049          RS       2    FLOW      -1
1050          RC   0.060   0.043   0.060  2594.0  0.0709
1051          RX  1000.0  1018.0  1031.0  1042.0  1052.0  1066.0  1093.0  1107.0
1052          RY    96.3    92.2    89.9    85.9    85.7    91.5    91.2    96.3
              *

1053          KK    205C
1054          KM   Sub-Basin   205C
1055          KM
1056          KM      The Clark Unit Hydrograph is used for this basin.
1057          KM          The Natural time-area relation is used for this basin.
1058          KM
1059          KM      Time of Concentration for this sub-basin is based on the following:
1060          KM          6-Hour Rainfall, Pattern No.  1.00
1061          KM          An rainfall areal reduction factor of 0.999
1062          KM
1                                        HEC-1 INPUT                                          PAGE 25

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1063          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1064          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1065          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1066          KM
1067          KM          L=   0.618 miles, S=  331 feet/mile, Kb= .15
1068          KM
1069          BA   0.059
1070          LG    0.25    0.35    4.35    0.41   35.00
1071          UC   0.308   0.343
1072          UA       0       3       5       8      12      20      43      75      90      96
1073          UA     100
              *

1074          KK   C530R
1075          KM      Hydrograph combine 528530 + 205C at C530 right branch
1076          HC       2
              *

1077          KK    205D
1078          KM   Sub-Basin   205D
1079          KM
1080          KM      The Clark Unit Hydrograph is used for this basin.
1081          KM          The Natural time-area relation is used for this basin.
1082          KM
1083          KM      Time of Concentration for this sub-basin is based on the following:
1084          KM          6-Hour Rainfall, Pattern No.  1.00
1085          KM          An rainfall areal reduction factor of 0.996
1086          KM
1087          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1088          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1089          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1090          KM
1091          KM          L=   1.020 miles, S=  361 feet/mile, Kb= .13
1092          KM
1093          BA   0.319
1094          LG    0.25    0.35    4.35    0.40   35.00
```

```
1095    UC   0.379   0.246
1096    UA       0       3       5       8      12      20      43      75      90      96
1097    UA     100
        *

1098    KK    205E
1099    KM   Sub-Basin   205E
1100    KM
1101    KM      The Clark Unit Hydrograph is used for this basin.
1102    KM          The Natural time-area relation is used for this basin.
1103    KM
1104    KM      Time of Concentration for this sub-basin is based on the following:
1105    KM          6-Hour Rainfall, Pattern No.  1.00
1106    KM          An rainfall areal reduction factor of 0.997
1107    KM
1108    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1109    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1110    KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1111    KM
```

1

HEC-1 INPUT PAGE 26

```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1112    KM          L=   1.357 miles, S=  358 feet/mile, Kb= .14
1113    KM
1114    BA   0.218
1115    LG    0.25    0.35    4.35    0.40   35.00
1116    UC   0.488   0.508
1117    UA       0       3       5       8      12      20      43      75      90      96
1118    UA     100
        *

1119    KK    C529
1120    KM      Hydrograph combine 205D + 205E at C529
1121    HC       2
        *
        * *
        * * NOTE:  529530 too short to route
        * *
        *

1122    KK    C530
1123    KM      Hydrograph combine C529 + C530R at C530
1124    HC       2
        *

1125    KK  530531
1126    KM      Normal depth channel route from C530 to C531
1127    KM      Source:  Hydrology Field Reconnaissance
1128    RS       3    FLOW      -1
1129    RC   0.060   0.059   0.060  2426.0  0.0404
1130    RX  1000.0  1035.0  1050.0  1060.0  1075.0  1081.0  1088.0  1094.0
1131    RY    95.9    86.5    86.2    83.1    84.0    90.2    95.6    99.3
        *

1132    KK    205F
1133    KM   Sub-Basin   205F
1134    KM
1135    KM      The Clark Unit Hydrograph is used for this basin.
1136    KM          The Natural time-area relation is used for this basin.
1137    KM
1138    KM      Time of Concentration for this sub-basin is based on the following:
1139    KM          6-Hour Rainfall, Pattern No.  1.00
1140    KM          An rainfall areal reduction factor of 0.998
1141    KM
1142    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1143    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1144    KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1145    KM
1146    KM          L=   0.786 miles, S=  326 feet/mile, Kb= .14
1147    KM
1148    BA   0.161
1149    LG    0.25    0.35    4.35    0.41   35.00
1150    UC   0.350   0.269
1151    UA       0       3       5       8      12      20      43      75      90      96
1152    UA     100
        *
```

1

HEC-1 INPUT PAGE 27

```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1153    KK    C531
1154    KM      Hydrograph combine 530531 + 205F at C531
1155    HC       2
        *

1156    KK  531532
1157    KM      Normal depth channel route from C531 to C532
1158    KM      Source:  Hydrology Field Reconnaissance
1159    RS       4    FLOW      -1
1160    RC   0.060   0.065   0.060  3391.0  0.0463
1161    RX  1000.0  1012.0  1022.0  1032.0  1050.0  1056.0  1068.0  1092.0
1162    RY    98.8    93.8    89.1    86.4    86.5    89.1    91.0    97.6
        *

1163    KK    205G
1164    KM   Sub-Basin   205G
1165    KM
1166    KM      The Clark Unit Hydrograph is used for this basin.
1167    KM          The Natural time-area relation is used for this basin.
1168    KM
1169    KM      Time of Concentration for this sub-basin is based on the following:
1170    KM          6-Hour Rainfall, Pattern No.  1.00
```

x used for Reach

```
1171          KM          An rainfall areal reduction factor of 0.998
1172          KM
1173          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1174          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1175          KM   .45 .44 .44 .13 .09 .07 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1176          KM
1177          KM          L=   0.924 miles, S=  338 feet/mile, Kb= .13
1178          KM
1179          BA   0.185
1180          LG    0.24    0.35    4.50    0.40   31.20
1181          UC   0.367   0.298
1182          UA       0       3       5       8      12      20      43      75      90      96
1183          UA     100
              *

1184          KK   C532L
1185          KM      Hydrograph combine 531532 + 205G at C532 left branch
1186          HC       2
              *

1187          KK    205H
1188          KM   Sub-Basin   205H
1189          KM
1190          KM      The Clark Unit Hydrograph is used for this basin.
1191          KM          The Natural time-area relation is used for this basin.
1192          KM
1193          KM      Time of Concentration for this sub-basin is based on the following:
1194          KM          6-Hour Rainfall, Pattern No.  1.00
1195          KM          An rainfall areal reduction factor of 0.997
1196          KM
1197          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1198          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1199          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1200          KM
1201          KM          L=   1.464 miles, S=  325 feet/mile, Kb= .13
1202          KM
1203          BA   0.261
1204          LG    0.24    0.35    4.50    0.39   31.60
1205          UC   0.513   0.514
1206          UA       0       3       5       8      12      20      43      75      90      96
1207          UA     100
              *

1208          KK    C532
1209          KM      Hydrograph combine C532L + 205H at C532
1210          HC       2
              *

1211          KK  532533
1212          KM      Normal depth channel route from C532 to C533
1213          KM      Source:  Hydrology Field Reconnaissance
1214          RS       1    FLOW      -1
1215          RC   0.060   0.045   0.060  1555.0  0.0283
1216          RX  1000.0  1020.0  1030.0  1048.0  1065.0  1077.0  1092.0  1119.0
1217          RY    98.0    89.4    88.1    85.6    85.9    92.2    93.8    97.0
              *

1218          KK    205I
1219          KM   Sub-Basin   205I
1220          KM
1221          KM      The Clark Unit Hydrograph is used for this basin.
1222          KM          The Natural time-area relation is used for this basin.
1223          KM
1224          KM      Time of Concentration for this sub-basin is based on the following:
1225          KM          6-Hour Rainfall, Pattern No.  1.00
1226          KM          An rainfall areal reduction factor of 0.995
1227          KM
1228          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1229          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1230          KM   .44 .44 .43 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
1231          KM
1232          KM          L=   1.487 miles, S=  326 feet/mile, Kb= .11
1233          KM
1234          BA   0.354
1235          LG    0.20    0.37    5.20    0.28   15.20
1236          UC   0.458   0.386
1237          UA       0       3       5       8      12      20      43      75      90      96
1238          UA     100
              *

1239          KK    C533
1240          KM      Hydrograph combine 532533 + 205I at C533
1241          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1242          KK  533534
1243          KM      Normal depth channel route from C533 to C534
1244          KM      Source:  Hydrology Field Reconnaissance
1245          RS      10    FLOW      -1
1246          RC   0.060   0.046   0.060  7145.0  0.0241
1247          RX  1000.0  1010.0  1060.0  1073.0  1160.0  1181.0  1223.0  1237.0
1248          RY    97.8    93.7    94.7    90.8    89.9    92.4    94.0    96.8
              *

1249          KK    205J
1250          KM   Sub-Basin   205J
```

```
1251    KM
1252    KM      The Clark Unit Hydrograph is used for this basin.
1253    KM          The Natural time-area relation is used for this basin.
1254    KM
1255    KM      Time of Concentration for this sub-basin is based on the following:
1256    KM          6-Hour Rainfall, Pattern No.  1.00
1257    KM          An rainfall areal reduction factor of 0.995
1258    KM
1259    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1260    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1261    KM   .44 .43 .42 .12 .08 .06 .03 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
1262    KM
1263    KM          L=   1.633 miles, S=  243 feet/mile, Kb= .08
1264    KM
1265    BA   0.369
1266    LG    0.21    0.35    4.90    0.30    3.50
1267    UC   0.450   0.398
1268    UA       0       3       5       8      12      20      43      75      90      96
1269    UA     100
        *

1270    KK   C534R
1271    KM     Hydrograph combine 533534 + 205J at C534 right branch
1272    HC       2
        *

1273    KK    205K
1274    KM   Sub-Basin   205K
1275    KM
1276    KM      The Clark Unit Hydrograph is used for this basin.
1277    KM          The Natural time-area relation is used for this basin.
1278    KM
1279    KM      Time of Concentration for this sub-basin is based on the following:
1280    KM          6-Hour Rainfall, Pattern No.  1.00
1281    KM          An rainfall areal reduction factor of 0.997
1282    KM
1283    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1284    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1285    KM   .44 .44 .43 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
1286    KM
1287    KM          L=   1.772 miles, S=  249 feet/mile, Kb= .10
1288    KM
1289    BA   0.245
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1290    LG    0.16    0.38    5.60    0.22    1.50
1291    UC   0.546   0.665
1292    UA       0       3       5       8      12      20      43      75      90      96
1293    UA     100
        *

1294    KK    C534
1295    KM     Hydrograph combine C534R + 205K at C534
1296    HC       2
        *

1297    KK  534535
1298    KM      Normal depth channel route from C534 to C535
1299    KM      Source:  Hydrology Field Reconnaissance
1300    RS       3    FLOW      -1
1301    RC   0.065   0.046   0.065  2037.0  0.0221
1302    RX  1000.0  1010.0  1016.0  1075.0  1150.0  1162.0  1174.0  1182.0
1303    RY    97.1    93.4    91.6    89.6    86.9    90.8    92.2    92.3
        *

1304    KK    205L
1305    KM   Sub-Basin   205L
1306    KM
1307    KM      The Clark Unit Hydrograph is used for this basin.
1308    KM          The Natural time-area relation is used for this basin.
1309    KM
1310    KM      Time of Concentration for this sub-basin is based on the following:
1311    KM          6-Hour Rainfall, Pattern No.  1.00
1312    KM          An rainfall areal reduction factor of 0.998
1313    KM
1314    KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1315    KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1316    KM   .44 .43 .42 .12 .08 .06 .02 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
1317    KM
1318    KM          L=   0.701 miles, S=  284 feet/mile, Kb= .09
1319    KM
1320    BA   0.118
1321    LG    0.19    0.36    5.00    0.29    0.00
1322    UC   0.254   0.206
1323    UA       0       3       5       8      12      20      43      75      90      96
1324    UA     100
        *

1325    KK    C535
1326    KM     Hydrograph combine 534535 + 205L at C535
1327    HC       2
        *

1328    KK  535536
1329    KM      Normal depth channel route from C535 to C536
1330    KM      Source:  HEC-2 Cross Section: HE 3.275
1331    RS       8    FLOW      -1
1332    RC   0.075   0.050   0.075  2975.0  0.0236
1333    RX  9852.8  9871.5  9957.7 10000.0 10015.6 10052.4 10142.4 10183.6
1334    RY  1911.6  1904.3  1906.9  1900.8  1900.8  1905.4  1905.2  1912.6
        *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1335          KK    205M
1336          KM   Sub-Basin   205M
1337          KM
1338          KM      The Clark Unit Hydrograph is used for this basin.
1339          KM          The HEC-1 time-area relation is used for this basin.
1340          KM
1341          KM      Time of Concentration for this sub-basin is based on the following:
1342          KM          6-Hour Rainfall, Pattern No.  1.00
1343          KM          An rainfall areal reduction factor of 0.998
1344          KM
1345          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1346          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1347          KM   .46 .46 .45 .15 .11 .11 .05 .05 .04 .02 .02 .02 .00 .00 .00 .00 .00 .00
1348          KM
1349          KM          L=   0.839 miles, S=  230 feet/mile, Kb= .06
1350          KM
1351          BA   0.139
1352          LG    0.15    0.33    5.40    0.22   21.00
1353          UC   0.233   0.197
              *

1354          KK   C536R
1355          KM      Hydrograph combine 535536 + 205M at C536 right branch
1356          HC       2
              *

1357          KK    205N
1358          KM   Sub-Basin   205N
1359          KM
1360          KM      The Clark Unit Hydrograph is used for this basin.
1361          KM          The HEC-1 time-area relation is used for this basin.
1362          KM
1363          KM      Time of Concentration for this sub-basin is based on the following:
1364          KM          6-Hour Rainfall, Pattern No.  1.00
1365          KM          An rainfall areal reduction factor of 0.998
1366          KM
1367          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1368          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1369          KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
1370          KM
1371          KM          L=   1.183 miles, S=  245 feet/mile, Kb= .10
1372          KM
1373          BA   0.156
1374          LG    0.15    0.39    5.70    0.21    0.80
1375          UC   0.413   0.457
              *

1376          KK   C536I
1377          KM      Hydrograph combine C536R + 205N at C536I
1378          HC       2
              *
              * *
              * * C536I is the total flow in Hesperus Wash upstream of Dam 36
              * *
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1379          KK   C536O
1380          KM      Reservoir route at C536 (Dam 36).
1381          RS       1    ELEV  1852.1
1382          SV    0.00   14.41   35.94   67.64  108.61  158.07  218.14  276.00  280.00  289.00
1383          SV  298.02  308.00  317.00  327.00  337.00  346.95  358.00  374.00
1384          SE  1852.1  1866.0  1870.0  1874.0  1878.0  1882.0  1886.0  1889.0  1889.2  1889.6
1385          SE  1890.0  1890.4  1890.8  1891.2  1891.6  1892.0  1892.4  1893.0
1386          SQ       0     108     168     211     245     276     301     320     338     347
1387          SQ     356     459     679     995    1408    1905    2477    3119    3826    5009
1388          SE  1852.1  1858.0  1862.0  1866.0  1870.0  1874.0  1878.0  1882.0  1886.0  1889.0
1389          SE  1889.2  1889.6  1890.0  1890.4  1890.8  1891.2  1891.6  1892.0  1892.4  1893.0
1390          RL                    0.17
              *
              * *
              * * End Basin 205.  Start Basin 206
              * *
              *

1391          KK  536537
1392          KM      Normal depth channel route from C536 to C537
1393          KM      Source:  HEC-2 Cross Section: HE 2.729
1394          RS       3    FLOW      -1
1395          RC   0.075   0.050   0.075  1480.0  0.0209
1396          RX  9900.0  9912.0  9947.3  9979.3 10025.0 10044.5 10051.0 10060.0
1397          RY  1846.5  1845.4  1843.1  1834.3  1833.6  1840.5  1843.3  1843.5
              *

1398          KK    206A
1399          KM   Sub-Basin   206A
1400          KM
1401          KM      The Clark Unit Hydrograph is used for this basin.
1402          KM          The Urban time-area relation is used for this basin.
1403          KM
1404          KM      Time of Concentration for this sub-basin is based on the following:
1405          KM          6-Hour Rainfall, Pattern No.  1.00
1406          KM          An rainfall areal reduction factor of 0.998
1407          KM
1408          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1409          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1410          KM   .47 .46 .46 .16 .13 .12 .05 .05 .05 .04 .03 .03 .01 .01 .01 .01 .01 .01
1411          KM
```

```
1412          KM          L=   0.631 miles, S=  256 feet/mile, Kb= .04
1413          KM
1414          BA   0.128
1415          LG    0.13    0.28    5.30    0.23   32.80
1416          UC   0.158   0.107
1417          UA       0       5      16      30      65      77      84      90      94      97
1418          UA     100
              *
1
                                          HEC-1 INPUT                                                    PAGE 33
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1419          KK    C537
1420          KM      Hydrograph combine 536537 + 206A at C537
1421          HC       2
              *

1422          KK  537538
1423          KM      Normal depth channel route from C537 to C538
1424          KM      Source:  HEC-2 Cross Section: HE 2.493
1425          RS       3    FLOW      -1
1426          RC   0.075   0.050   0.075  2155.0  0.0210
1427          RX  9946.0  9957.6  9984.8  9994.8 10000.0 10036.5 10070.1 10107.3
1428          RY  1817.0  1815.2  1807.4  1803.2  1803.2  1805.5  1814.3  1815.4
              *

1429          KK    206B
1430          KM   Sub-Basin   206B
1431          KM
1432          KM      The Clark Unit Hydrograph is used for this basin.
1433          KM          The Urban time-area relation is used for this basin.
1434          KM
1435          KM      Time of Concentration for this sub-basin is based on the following:
1436          KM          6-Hour Rainfall, Pattern No.  1.00
1437          KM          An rainfall areal reduction factor of 0.999
1438          KM
1439          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1440          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1441          KM   .48 .47 .47 .17 .13 .13 .06 .06 .05 .05 .04 .04 .01 .01 .01 .01 .01 .01
1442          KM
1443          KM          L=   0.570 miles, S=  139 feet/mile, Kb= .03
1444          KM
1445          BA   0.095
1446          LG    0.10    0.26    5.20    0.23   41.30
1447          UC   0.154   0.113
1448          UA       0       5      16      30      65      77      84      90      94      97
1449          UA     100
              *

1450          KK   C538I
1451          KM      Hydrograph combine 537538 + 206B at C538I
1452          HC       2
              *

1453          KK   C538O
1454          KM      Reservoir route at C538.
1455          RS       1    ELEV  1778.2
1456          SV    0.00    0.10    0.57    1.69    2.60    2.70    2.90    3.00    3.20    3.38
1457          SV    3.60    3.90    4.10    4.30    4.60    5.10    5.60    6.10    7.10    8.10
1458          SE  1778.2  1782.0  1784.0  1786.0  1787.1  1787.2  1787.4  1787.6  1787.8  1788.0
1459          SE  1788.2  1788.4  1788.6  1788.8  1789.0  1789.4  1789.8  1790.2  1790.8  1791.4
1460          SQ       0      82     133     185     207     208     212     218     226     235
1461          SQ     249     265     286     310     338     400     482     611     942    1439
              *
1
                                          HEC-1 INPUT                                                    PAGE 34
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1462          KK  538540
1463          KM      Normal depth channel route from C538 to C540
1464          KM      Source:  HEC-2 Cross Section: HE 1.990
1465          RS       5    FLOW      -1
1466          RC   0.075   0.050   0.075  2176.0  0.0210
1467          RX  9907.7  9931.8  9978.4 10000.0 10041.1 10056.9 10143.7 10164.9
1468          RY  1767.5  1754.9  1755.2  1753.2  1753.1  1755.1  1757.3  1769.4
              *

1469          KK    206C
1470          KM   Sub-Basin   206C
1471          KM
1472          KM      The Clark Unit Hydrograph is used for this basin.
1473          KM          The HEC-1 time-area relation is used for this basin.
1474          KM
1475          KM      Time of Concentration for this sub-basin is based on the following:
1476          KM          6-Hour Rainfall, Pattern No.  1.00
1477          KM          An rainfall areal reduction factor of 1.000
1478          KM
1479          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1480          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1481          KM   .44 .43 .42 .12 .08 .06 .02 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
1482          KM
1483          KM          L=   0.427 miles, S=  138 feet/mile, Kb= .07
1484          KM
1485          BA   0.024
1486          LG    0.21    0.32    4.35    0.40   12.40
1487          UC   0.217   0.289
              *

1488          KK   C540R
1489          KM      Hydrograph combine 538540 + 206C at C540 right branch
1490          HC       2
              *
```

```
1491          KK    206D
1492          KM   Sub-Basin   206D
1493          KM
1494          KM      The Clark Unit Hydrograph is used for this basin.
1495          KM          The Urban time-area relation is used for this basin.
1496          KM
1497          KM      Time of Concentration for this sub-basin is based on the following:
1498          KM          6-Hour Rainfall, Pattern No.  1.00
1499          KM          An rainfall areal reduction factor of 0.999
1500          KM
1501          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1502          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1503          KM   .48 .48 .47 .17 .14 .13 .06 .06 .06 .05 .05 .04 .01 .01 .01 .01 .01 .01
1504          KM
1505          KM          L=   0.531 miles, S=  236 feet/mile, Kb= .04
1506          KM
1507          BA   0.062
1508          LG    0.08    0.26    5.70    0.18   41.20
1509          UC   0.146   0.129
1                                          HEC-1 INPUT                                          PAGE 35

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1510          UA       0       5      16      30      65      77      84      90      94      97
1511          UA     100
              *

1512          KK  539540
1513          KM      Normal depth channel route from C539 to C540
1514          KM      Source:  200 Scale Mapping
1515          RS       4    FLOW      -1
1516          RC   0.060   0.050   0.055  1872.0  0.0256
1517          RX  1000.0  1007.0  1016.0  1036.0  1046.0  1080.0  1150.0  1210.0
1518          RY  1750.0  1748.0  1746.0  1744.0  1744.0  1746.0  1748.0  1750.0
              *

1519          KK    206E
1520          KM   Sub-Basin   206E
1521          KM
1522          KM      The Clark Unit Hydrograph is used for this basin.
1523          KM          The HEC-1 time-area relation is used for this basin.
1524          KM
1525          KM      Time of Concentration for this sub-basin is based on the following:
1526          KM          6-Hour Rainfall, Pattern No.  1.00
1527          KM          An rainfall areal reduction factor of 1.000
1528          KM
1529          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1530          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1531          KM   .42 .42 .41 .10 .06 .04 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
1532          KM
1533          KM          L=   0.343 miles, S=  175 feet/mile, Kb= .09
1534          KM
1535          BA   0.023
1536          LG    0.23    0.35    4.30    0.40    1.70
1537          UC   0.208   0.238
              *

1538          KK   C540L
1539          KM      Hydrograph combine 539540 + 206E at C540 left branch
1540          HC       2
              *

1541          KK    C540
1542          KM      Hydrograph combine C540R + C540L at C540
1543          HC       2
              *
              * *
              * * C540 is the end of Hesperus Wash and the start of Balboa Wash
              * *
              *

1544          KK  540541
1545          KM      Normal depth channel route from C540 to C541
1546          KM      Source:  HEC-2 Cross Section: BA 1.645
1547          RS      12    FLOW      -1
1548          RC   0.065   0.035   0.065  4207.0  0.0204
1549          RX  9960.8  9968.0  9975.1  9975.7  9993.2 10018.2 10297.5 10343.9
1550          RY  1725.2  1721.8  1718.4  1716.2  1716.4  1718.4  1719.8  1730.5
              *
1                                          HEC-1 INPUT                                          PAGE 36

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1551          KK    206F
1552          KM   Sub-Basin   206F
1553          KM
1554          KM      The Clark Unit Hydrograph is used for this basin.
1555          KM          The HEC-1 time-area relation is used for this basin.
1556          KM
1557          KM      Time of Concentration for this sub-basin is based on the following:
1558          KM          6-Hour Rainfall, Pattern No.  1.00
1559          KM          An rainfall areal reduction factor of 0.998
1560          KM
1561          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1562          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1563          KM   .43 .42 .42 .11 .07 .06 .02 .02 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
1564          KM
1565          KM          L=   0.975 miles, S=  217 feet/mile, Kb= .08
1566          KM
1567          BA   0.157
1568          LG    0.21    0.35    4.60    0.35    5.10
1569          UC   0.333   0.308
```

```
                *

1570            KK    C541
1571            KM      Hydrograph combine 540541 + 206F at C541
1572            HC       2
                *

1573            KK  541548
1574            KM      Normal depth channel route from C541 to C548
1575            KM      Source:  HEC-2 Cross Section: BA 0.905
1576            RS       1    FLOW      -1
1577            RC   0.060   0.045   0.060  1138.0  0.0316
1578            RX  9761.7  9936.7  9955.2  9986.9  9994.7 10039.2 10065.3 10066.0
1579            RY  1647.4  1644.1  1638.1  1637.3  1636.2  1637.5  1652.9  1653.0
                *

1580            KK    206G
1581            KM   Sub-Basin   206G
1582            KM
1583            KM      The Clark Unit Hydrograph is used for this basin.
1584            KM          The HEC-1 time-area relation is used for this basin.
1585            KM
1586            KM      Time of Concentration for this sub-basin is based on the following:
1587            KM          6-Hour Rainfall, Pattern No.  1.00
1588            KM          An rainfall areal reduction factor of 0.999
1589            KM
1590            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1591            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1592            KM   .45 .44 .44 .13 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
1593            KM
1594            KM          L=   0.950 miles, S=  132 feet/mile, Kb= .09
1595            KM
1596            BA   0.089
1597            LG    0.16    0.35    5.20    0.25   12.50
1598            UC   0.425   0.544
                *
1
                                          HEC-1 INPUT                                                    PAGE 37
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1599            KK  BB523R
1600            KM      Retrieve previously diverted hydrograph at C523 in the right branch.
1601            DR   D523R
                *

1602            KK  523548
1603            KM      Normal depth channel route from C523 to C548
1604            KM      Source:  200 Scale Mapping
1605            RS      15    FLOW      -1
1606            RC   0.040   0.018   0.040  2680.0  0.0189
1607            RX  1000.0  1040.0  1090.0  1130.0  1170.0  1171.2  1181.2  1196.2
1608            RY  1646.0  1645.0  1643.8  1644.7  1644.0  1644.4  1646.0  1648.0
                *

1609            KK   C548L
1610            KM      Hydrograph combine 541548 + 206G + BB523R at C548 left branch
1611            HC       3    3.72
                *
                * *
                * * C548L is the total flow in Balboa Wash above confluence with Oxford Wash
                * *
                *

1612            KK    206H
1613            KM   Sub-Basin   206H
1614            KM
1615            KM      The Clark Unit Hydrograph is used for this basin.
1616            KM          The Urban time-area relation is used for this basin.
1617            KM
1618            KM      Time of Concentration for this sub-basin is based on the following:
1619            KM          6-Hour Rainfall, Pattern No.  1.00
1620            KM          An rainfall areal reduction factor of 0.999
1621            KM
1622            KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1623            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1624            KM   .47 .46 .46 .16 .13 .12 .05 .05 .05 .04 .03 .02 .01 .01 .01 .01 .01 .01
1625            KM
1626            KM          L=   0.515 miles, S=  183 feet/mile, Kb= .07
1627            KM
1628            BA   0.059
1629            LG    0.11    0.31    5.70    0.19   26.10
1630            UC   0.213   0.196
1631            UA       0       5      16      30      65      77      84      90      94      97
1632            UA     100
                *

1633            KK  542543
1634            KM      Normal depth channel route from C542 to C543
1635            KM      Source:  HEC-2 Cross Section: OX 0.931
1636            RS       1    FLOW      -1
1637            RC   0.075   0.040   0.050   686.0  0.0066
1638            RX  9846.9  9881.6  9967.5  9983.2 10010.0 10025.0 10033.8 10039.6
1639            RY  1732.3  1723.5  1724.1  1717.8  1717.0  1724.0  1728.2  1730.7
                *
1
                                          HEC-1 INPUT                                                    PAGE 38
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1640            KK    206I
1641            KM   Sub-Basin   206I
1642            KM
1643            KM      The Clark Unit Hydrograph is used for this basin.
```

```
1644        KM          The HEC-1 time-area relation is used for this basin.
1645        KM
1646        KM      Time of Concentration for this sub-basin is based on the following:
1647        KM          6-Hour Rainfall, Pattern No.  1.00
1648        KM          An rainfall areal reduction factor of 1.000
1649        KM
1650        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1651        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1652        KM   .47 .47 .47 .16 .13 .12 .06 .06 .05 .04 .04 .03 .01 .01 .01 .01 .01 .01
1653        KM
1654        KM          L=   0.232 miles, S=  286 feet/mile, Kb= .08
1655        KM
1656        BA   0.021
1657        LG    0.11     0.32     5.70     0.19    35.70
1658        UC   0.133    0.112
            *

1659        KK    C543
1660        KM      Hydrograph combine 542543 + 206I at C543
1661        HC       2
            *

1662        KK   D543L
1663        KM      Hydrograph diversion at C543.  Main flow continues in the left branch.
1664        KM      Diverted flow is in the right branch.
1665        DT   D543R
1666        DI       0       38       45       50       65       85       97      122      141      162
1667        DI     194      350      395      432      475      522      570      612
1668        DQ       0       38       45       50       65       85       97      122      141      162
1669        DQ     194      350      395      425      460      500      540      575
            *

1670        KK  543544
1671        KM      Normal depth channel route from C543 to C544
1672        KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1673        RS       1    FLOW      -1
1674        RC   0.040    0.018    0.040    597.0   0.0277
1675        RX  1000.0   1020.0   1045.0   1075.0   1105.0   1106.2   1146.2   1266.2
1676        RY  1720.0   1718.0   1712.0   1712.3   1712.0   1712.4   1714.0   1720.0
            *

1677        KK    206K
1678        KM   Sub-Basin   206K
1679        KM
1680        KM      The Clark Unit Hydrograph is used for this basin.
1681        KM          The HEC-1 time-area relation is used for this basin.
1682        KM
1683        KM      Time of Concentration for this sub-basin is based on the following:
1684        KM          6-Hour Rainfall, Pattern No.  1.00
1685        KM          An rainfall areal reduction factor of 0.999
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1686        KM
1687        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1688        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1689        KM   .45 .44 .44 .13 .10 .09 .04 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
1690        KM
1691        KM          L=   0.615 miles, S=  255 feet/mile, Kb= .11
1692        KM
1693        BA   0.056
1694        LG    0.15     0.38     5.70     0.21     5.60
1695        UC   0.275    0.310
            *

1696        KK    C544
1697        KM      Hydrograph combine 543544 + 206K at C544
1698        HC       2
            *

1699        KK  544545
1700        KM      Normal depth channel route from C544 to C545
1701        KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1702        RS       2    FLOW      -1
1703        RC   0.040    0.018    0.040    985.0   0.0234
1704        RX  1000.0   1008.0   1018.0   1048.0   1078.0   1079.2   1089.2   1109.2
1705        RY  1690.0   1688.0   1686.0   1686.3   1686.0   1686.4   1688.0   1689.0
            *

1706        KK   D545L
1707        KM      Hydrograph diversion at C545.  Main flow continues in the left branch.
1708        KM      Diverted flow is in the right branch.
1709        DT   D545R
1710        DI       0       50      100      200      400      800     1600     3200     5000
1711        DQ       0       25       50      100      200      400      800     1600     2500
            *

1712        KK  545546
1713        KM      Normal depth channel route from C545 to C546
1714        KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1715        RS       2    FLOW      -1
1716        RC   0.040    0.018    0.040    428.0   0.0164
1717        RX  1000.0   1020.0   1050.0   1080.0   1110.0   1111.2   1121.2   1151.2
1718        RY  1680.0   1678.0   1676.0   1676.3   1676.0   1676.4   1678.0   1678.5
            *

1719        KK    206L
1720        KM   Sub-Basin   206L
1721        KM
1722        KM      The Clark Unit Hydrograph is used for this basin.
1723        KM          The HEC-1 time-area relation is used for this basin.
1724        KM
1725        KM      Time of Concentration for this sub-basin is based on the following:
```

```
1726          KM          6-Hour Rainfall, Pattern No.  1.00
1727          KM          An rainfall areal reduction factor of 0.999
1728          KM
1729          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1730          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                    PAGE 40
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1731          KM   .45 .45 .45 .14 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
1732          KM
1733          KM          L=   0.546 miles, S=  231 feet/mile, Kb= .11
1734          KM
1735          BA   0.060
1736          LG    0.14    0.39    5.80    0.21   14.70
1737          UC   0.263   0.258
              *

1738          KK    C546
1739          KM      Hydrograph combine 545546 + 206L at C546
1740          HC       2
              *

1741          KK  546547
1742          KM      Normal depth channel route from C546 to C547
1743          KM      Source:  200 Scale Mapping
1744          RS       1    FLOW      -1
1745          RC   0.040   0.018   0.040   749.0  0.0327
1746          RX  1000.0  1005.0  1011.0  1013.0  1029.0  1047.0  1052.0  1057.0
1747          RY  1666.0  1664.0  1662.0  1661.9  1662.4  1662.0  1664.0  1666.0
              *

1748          KK  BB543R
1749          KM      Retrieve previously diverted hydrograph at C543 in the right branch.
1750          DR   D543R
              *

1751          KK  543547
1752          KM      Normal depth channel route from C543 to C547
1753          KM      Source:  HEC-2 Cross Section: OX 0.638
1754          RS       5    FLOW      -1
1755          RC   0.075   0.040   0.050  2395.0  0.0278
1756          RX  9720.9  9769.0  9970.7  9985.5 10020.0 10038.1 10097.0 10102.0
1757          RY  1690.4  1681.2  1683.1  1676.2  1677.0  1687.1  1687.4  1690.0
              *

1758          KK  BB545R
1759          KM      Retrieve previously diverted hydrograph at C545 in the right branch.
1760          DR   D545R
              *

1761          KK  545547
1762          KM      Normal depth channel route from C545 to C547
1763          KM      Source:  HEC-2 Cross Section: OX 0.542
1764          RS       4    FLOW      -1
1765          RC   0.075   0.040   0.050  1216.0  0.0259
1766          RX  9668.2  9778.4  9957.9  9986.0 10012.7 10043.6 10067.6 10163.4
1767          RY  1674.1  1674.1  1673.3  1662.1  1662.2  1680.4  1680.9  1681.1
              *
1                                          HEC-1 INPUT                                                    PAGE 41
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1768          KK    206J
1769          KM   Sub-Basin   206J
1770          KM
1771          KM      The Clark Unit Hydrograph is used for this basin.
1772          KM          The Urban time-area relation is used for this basin.
1773          KM
1774          KM      Time of Concentration for this sub-basin is based on the following:
1775          KM          6-Hour Rainfall, Pattern No.  1.00
1776          KM          An rainfall areal reduction factor of 0.999
1777          KM
1778          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1779          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1780          KM   .48 .48 .48 .17 .14 .14 .06 .06 .06 .05 .05 .05 .01 .01 .01 .01 .01 .01
1781          KM
1782          KM          L=   0.502 miles, S=  214 feet/mile, Kb= .03
1783          KM
1784          BA   0.060
1785          LG    0.08    0.25    5.70    0.18   44.60
1786          UC   0.125   0.105
1787          UA       0       5      16      30      65      77      84      90      94      97
1788          UA     100
              *

1789          KK    C547
1790          KM      Hydrograph combine 546547 + 543547 + 545547 + 206J at C547
1791          HC       4    0.26
              *

1792          KK  547548
1793          KM      Normal depth channel route from C547 to C548
1794          KM      Source:  HEC-2 Cross Section: OX 0.235
1795          RS       4    FLOW      -1
1796          RC   0.075   0.040   0.050  2165.0  0.0182
1797          RX  9910.0  9911.4  9968.5  9987.6 10017.4 10032.3 10077.4 10080.0
1798          RY  1639.0  1638.9  1637.9  1635.7  1635.8  1641.7  1642.9  1643.0
              *

1799          KK    206M
1800          KM   Sub-Basin   206M
1801          KM
```

```
1802          KM      The Clark Unit Hydrograph is used for this basin.
1803          KM          The Urban time-area relation is used for this basin.
1804          KM
1805          KM      Time of Concentration for this sub-basin is based on the following:
1806          KM          6-Hour Rainfall, Pattern No.  1.00
1807          KM          An rainfall areal reduction factor of 0.999
1808          KM
1809          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1810          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1811          KM   .48 .47 .47 .17 .14 .13 .06 .06 .06 .05 .05 .04 .01 .01 .01 .01 .01 .01
1812          KM
1813          KM          L=   0.465 miles, S=  166 feet/mile, Kb= .03
1814          KM
1815          BA   0.060
1                                          HEC-1 INPUT                                          PAGE 42

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1816          LG    0.08    0.25    5.20    0.23   46.20
1817          UC   0.133   0.107
1818          UA       0       5      16      30      65      77      84      90      94      97
1819          UA     100
              *

1820          KK   C548R
1821          KM      Hydrograph combine 547548 + 206M at C548 right branch
1822          HC       2
              *
              * *
              * * C548R is the total flow in Oxford Wash above confluence with Balboa Wash
              * *
              *

1823          KK    C548
1824          KM      Hydrograph combine C548L + C548R at C548
1825          HC       2
              *
              * *
              * * C548 is the total flow in Balboa Wash below the confluence of Balboa Wash
              * * and Oxford Wash
              * *
              *

1826          KK  548549
1827          KM      Normal depth channel route from C548 to C549
1828          KM      Source:  HEC-2 Cross Section: BA0.246
1829          RS       9     FLOW      -1
1830          RC   0.070   0.080   0.070  3258.0  0.0172
1831          RX  9889.1  9912.5  9940.2  9960.0 10026.1 10046.8 10067.8 10079.3
1832          RY  1586.2  1585.7  1577.5  1573.6  1573.2  1579.5  1585.7  1586.2
              *

1833          KK    206N
1834          KM   Sub-Basin   206N
1835          KM
1836          KM      The Clark Unit Hydrograph is used for this basin.
1837          KM          The Urban time-area relation is used for this basin.
1838          KM
1839          KM      Time of Concentration for this sub-basin is based on the following:
1840          KM          6-Hour Rainfall, Pattern No.  1.00
1841          KM          An rainfall areal reduction factor of 0.998
1842          KM
1843          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1844          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1845          KM   .48 .47 .47 .17 .13 .13 .06 .06 .06 .05 .04 .04 .01 .01 .01 .01 .01 .01
1846          KM
1847          KM          L=   0.767 miles, S=  120 feet/mile, Kb= .03
1848          KM
1849          BA   0.152
1850          LG    0.12    0.27    4.65    0.29   51.60
1851          UC   0.188   0.137
1852          UA       0       5      16      30      65      77      84      90      94      97
1853          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 43

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1854          KK   C549L
1855          KM      Hydrograph combine 548549 + 206N at C549 left branch
1856          HC       2
              *
              * *
              * * C549L is the total flow in Balboa Wash above confluence with Ashbrook Wash
              * *
              * * End Basin 206.  Start Basin 207
              * *
              *

1857          KK    207A
1858          KM   Sub-Basin   207A
1859          KM
1860          KM      The Clark Unit Hydrograph is used for this basin.
1861          KM          The Natural time-area relation is used for this basin.
1862          KM
1863          KM      Time of Concentration for this sub-basin is based on the following:
1864          KM          6-Hour Rainfall, Pattern No.  1.00
1865          KM          An rainfall areal reduction factor of 0.997
1866          KM
1867          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1868          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1869          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1870          KM
```

```
KM          L=   1.356 miles, S=  351 feet/mile, Kb= .13
KM
BA   0.256
LG    0.24    0.35    4.55    0.37   29.80
UC   0.467   0.440
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK    207B
KM   Sub-Basin   207B
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          6-Hour Rainfall, Pattern No.  1.00
KM          An rainfall areal reduction factor of 0.997
KM
KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
KM
KM          L=   1.312 miles, S=  359 feet/mile, Kb= .13
KM
BA   0.208
LG    0.24    0.35    4.45    0.38   32.40
UC   0.450   0.463
UA       0       3       5       8      12      20      43      75      90      96
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

UA     100
*

KK    C550
KM      Hydrograph combine 207A + 207B at C550
HC       2
*

KK  S50552
KM      Normal depth channel route from C550 to C552
KM      Source:  Hydrology Field Reconnaissance
RS       4    FLOW      -1
RC   0.050   0.045   0.050  4410.0  0.0528
RX  1000.0  1005.0  1018.0  1028.0  1038.0  1043.0  1048.0  1055.0
RY  2188.0  2184.0  2180.0  2176.0  2176.0  2180.0  2184.0  2188.0
*

KK    207C
KM   Sub-Basin   207C
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          6-Hour Rainfall, Pattern No.  1.00
KM          An rainfall areal reduction factor of 0.998
KM
KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.974 miles, S=  297 feet/mile, Kb= .11
KM
BA   0.173
LG    0.19    0.37    5.30    0.26   13.70
UC   0.354   0.311
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK   C552L
KM      Hydrograph combine S50552 + 207C at C552 left branch
HC       2
*

KK    207D
KM   Sub-Basin   207D
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          6-Hour Rainfall, Pattern No.  1.00
KM          An rainfall areal reduction factor of 0.997
KM
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
KM
KM          L=   1.036 miles, S=  373 feet/mile, Kb= .14
KM
BA   0.197
LG    0.25    0.35    4.35    0.40   35.00
UC   0.396   0.343
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
```

```
1954          KK  551552
1955          KM      Normal depth channel route from C551 to C552
1956          KM      Source:  100 Scale 4' CI Mapping.
1957          RS       5    FLOW      -1
1958          RC   0.050   0.045   0.050  4410.0  0.0528
1959          RX  1000.0  1005.0  1018.0  1028.0  1038.0  1043.0  1048.0  1055.0
1960          RY  2188.0  2184.0  2180.0  2176.0  2176.0  2180.0  2184.0  2188.0
              *

1961          KK    207E
1962          KM   Sub-Basin   207E
1963          KM
1964          KM      The Clark Unit Hydrograph is used for this basin.
1965          KM          The Natural time-area relation is used for this basin.
1966          KM
1967          KM      Time of Concentration for this sub-basin is based on the following:
1968          KM          6-Hour Rainfall, Pattern No.  1.00
1969          KM          An rainfall areal reduction factor of 0.998
1970          KM
1971          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1972          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1973          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1974          KM
1975          KM          L=   1.366 miles, S=  315 feet/mile, Kb= .14
1976          KM
1977          BA   0.157
1978          LG    0.25    0.35    4.35    0.42   35.00
1979          UC   0.521   0.663
1980          UA       0       3       5       8      12      20      43      75      90      96
1981          UA     100
              *

1982          KK   C552R
1983          KM      Hydrograph combine 551552 + 207E at C552 right branch
1984          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1985          KK    C552
1986          KM      Hydrograph combine C552L + C552R at C552
1987          HC       2
              *

1988          KK  552553
1989          KM      Normal depth channel route from C552 to C553
1990          KM      Source:  Hydrology Field Reconnaissance
1991          RS       2    FLOW      -1
1992          RC   0.060   0.050   0.060  1336.0  0.0337
1993          RX   993.0  1010.0  1055.0  1061.0  1082.0  1096.0  1105.0  1127.0
1994          RY    98.0    94.3    94.4    94.0    94.3    94.5    96.2    98.0
              *

1995          KK    207F
1996          KM   Sub-Basin   207F
1997          KM
1998          KM      The Clark Unit Hydrograph is used for this basin.
1999          KM          The HEC-1 time-area relation is used for this basin.
2000          KM
2001          KM      Time of Concentration for this sub-basin is based on the following:
2002          KM          6-Hour Rainfall, Pattern No.  1.00
2003          KM          An rainfall areal reduction factor of 0.998
2004          KM
2005          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2006          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2007          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2008          KM
2009          KM          L=   0.794 miles, S=  296 feet/mile, Kb= .14
2010          KM
2011          BA   0.126
2012          LG    0.25    0.35    4.40    0.41   33.70
2013          UC   0.367   0.329
              *

2014          KK    C553
2015          KM      Hydrograph combine 552553 + 207F at C553
2016          HC       2
              *

2017          KK  553556
2018          KM      Normal depth channel route from C553 to C556
2019          KM      Source:  HEC-2 Cross Section: AS 6.118
2020          RS       3    FLOW      -1
2021          RC   0.055   0.045   0.060  2393.0  0.0255
2022          RX  9904.4  9945.9  9974.0  9987.4  9994.9 10008.6 10027.0 10045.3
2023          RY  2004.2  2003.9  1991.7  1990.4  1987.9  1988.2  1997.5  2006.7
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2024          KK    207G
2025          KM   Sub-Basin   207G
2026          KM
2027          KM      The Clark Unit Hydrograph is used for this basin.
2028          KM          The Natural time-area relation is used for this basin.
2029          KM
2030          KM      Time of Concentration for this sub-basin is based on the following:
2031          KM          6-Hour Rainfall, Pattern No.  1.00
2032          KM          An rainfall areal reduction factor of 0.997
```

```
2033        KM
2034        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2035        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2036        KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
2037        KM
2038        KM          L=   1.467 miles, S=  198 feet/mile, Kb= .10
2039        KM
2040        BA   0.236
2041        LG    0.17    0.38    5.60    0.23    8.30
2042        UC   0.525   0.560
2043        UA       0       3       5       8      12      20      43      75      90      96
2044        UA     100
            *

2045        KK   C556L
2046        KM      Hydrograph combine 553556 + 207G at C556 left branch
2047        HC       2
            *

2048        KK    207H
2049        KM   Sub-Basin   207H
2050        KM
2051        KM      The Clark Unit Hydrograph is used for this basin.
2052        KM          The Natural time-area relation is used for this basin.
2053        KM
2054        KM      Time of Concentration for this sub-basin is based on the following:
2055        KM          6-Hour Rainfall, Pattern No.  1.00
2056        KM          An rainfall areal reduction factor of 0.998
2057        KM
2058        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2059        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2060        KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2061        KM
2062        KM          L=   1.044 miles, S=  371 feet/mile, Kb= .14
2063        KM
2064        BA   0.124
2065        LG    0.25    0.35    4.35    0.40   35.00
2066        UC   0.400   0.454
2067        UA       0       3       5       8      12      20      43      75      90      96
2068        UA     100
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2069        KK  554555
2070        KM      Normal depth channel route from C554 to C555
2071        KM      Source:  100 Scale 4' CI Mapping.
2072        RS       4    FLOW      -1
2073        RC   0.050   0.045   0.050  2497.0  0.0649
2074        RX  1000.0  1025.0  1080.0  1100.0  1120.0  1130.0  1140.0  1155.0
2075        RY  2192.0  2188.0  2186.0  2184.0  2184.0  2188.0  2192.0  2194.0
            *

2076        KK    207I
2077        KM   Sub-Basin   207I
2078        KM
2079        KM      The Clark Unit Hydrograph is used for this basin.
2080        KM          The Natural time-area relation is used for this basin.
2081        KM
2082        KM      Time of Concentration for this sub-basin is based on the following:
2083        KM          6-Hour Rainfall, Pattern No.  1.00
2084        KM          An rainfall areal reduction factor of 0.999
2085        KM
2086        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2087        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2088        KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2089        KM
2090        KM          L=   0.810 miles, S=  320 feet/mile, Kb= .15
2091        KM
2092        BA   0.073
2093        LG    0.25    0.35    4.40    0.40   35.00
2094        UC   0.375   0.468
2095        UA       0       3       5       8      12      20      43      75      90      96
2096        UA     100
            *

2097        KK    C555
2098        KM      Hydrograph combine 554555 + 207I at C555
2099        HC       2
            *

2100        KK  555556
2101        KM      Normal depth channel route from C555 to C556
2102        KM      Source:  200 Scale Mapping
2103        RS       8    FLOW      -1
2104        RC   0.050   0.050   0.055  3353.0  0.0480
2105        RX  1000.0  1050.0  1090.0  1095.0  1130.0  1150.0  1160.0  1185.0
2106        RY  2020.0  2016.5  2006.0  2004.0  2005.0  2006.0  2010.0  2020.0
            *

2107        KK    207J
2108        KM   Sub-Basin   207J
2109        KM
2110        KM      The Clark Unit Hydrograph is used for this basin.
2111        KM          The HEC-1 time-area relation is used for this basin.
2112        KM
2113        KM      Time of Concentration for this sub-basin is based on the following:
2114        KM          6-Hour Rainfall, Pattern No.  1.00
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
2115          KM          An rainfall areal reduction factor of 0.999
2116          KM
2117          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2118          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2119          KM   .45 .45 .45 .14 .10 .09 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2120          KM
2121          KM          L=   0.714 miles, S=  248 feet/mile, Kb= .13
2122          KM
2123          BA   0.093
2124          LG    0.22    0.33    4.40    0.39   37.00
2125          UC   0.346   0.337
              *

2126          KK   C556R
2127          KM      Hydrograph combine 555556 + 207J at C556 right branch
2128          HC       2
              *

2129          KK    C556
2130          KM      Hydrograph combine C556L + C556R at C556
2131          HC       2
              *

2132          KK  556557
2133          KM      Normal depth channel route from C556 to C557
2134          KM      Source:  HEC-2 Cross Section: AS 5.765
2135          RS       3    FLOW      -1
2136          RC   0.055   0.045   0.060  2298.0  0.0260
2137          RX  9957.1  9995.6 10000.0 10010.0 10040.4 10084.4 10104.2 10180.7
2138          RY  1949.3  1935.9  1935.8  1936.7  1936.7  1938.2  1947.1  1949.9
              *

2139          KK    207K
2140          KM   Sub-Basin   207K
2141          KM
2142          KM      The Clark Unit Hydrograph is used for this basin.
2143          KM          The HEC-1 time-area relation is used for this basin.
2144          KM
2145          KM      Time of Concentration for this sub-basin is based on the following:
2146          KM          6-Hour Rainfall, Pattern No.  1.00
2147          KM          An rainfall areal reduction factor of 0.998
2148          KM
2149          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2150          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2151          KM   .47 .46 .46 .15 .12 .11 .05 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
2152          KM
2153          KM          L=   0.859 miles, S=  294 feet/mile, Kb= .09
2154          KM
2155          BA   0.130
2156          LG    0.15    0.33    5.40    0.22   31.70
2157          UC   0.275   0.251
              *
1                                        HEC-1 INPUT                                          PAGE 50

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2158          KK   C557R
2159          KM      Hydrograph combine 556557 + 207K at C557
2160          HC       2
              *

2161          KK    207L
2162          KM   Sub-Basin   207L
2163          KM
2164          KM      The Clark Unit Hydrograph is used for this basin.
2165          KM          The Urban time-area relation is used for this basin.
2166          KM
2167          KM      Time of Concentration for this sub-basin is based on the following:
2168          KM          6-Hour Rainfall, Pattern No.  1.00
2169          KM          An rainfall areal reduction factor of 0.999
2170          KM
2171          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2172          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2173          KM   .47 .47 .47 .16 .13 .12 .06 .06 .05 .04 .03 .03 .01 .01 .01 .01 .01 .01
2174          KM
2175          KM          L=   0.667 miles, S=  236 feet/mile, Kb= .07
2176          KM
2177          BA   0.080
2178          LG    0.11    0.32    6.00    0.17   29.60
2179          UC   0.221   0.211
2180          UA       0       5      16      30      65      77      84      90      94      97
2181          UA     100
              *

2182          KK    C557
2183          KM      Hydrograph combine C557R + 207L at C557
2184          HC       2
              *
              * *
              * * C557 is the total flow in Ashbrook Wash downstream of Golden Eagle Blvd.
              * * at fire station
              * *
              *

2185          KK  557558
2186          KM      Normal depth channel route from C557 to C558
2187          KM      Source:  HEC-2 Cross Section: AS 5.254
2188          RS       4    FLOW      -1
2189          RC   0.055   0.045   0.060  2652.0  0.0242
2190          RX  9662.0  9965.0  9967.0 10000.0 10072.0 10095.0 10122.0 10175.0
2191          RY  1890.0  1885.9  1884.0  1878.0  1880.0  1886.0  1888.0  1890.0
              *
```

```
2192        KK    207M
2193        KM   Sub-Basin   207M
2194        KM
2195        KM      The Clark Unit Hydrograph is used for this basin.
2196        KM          The HEC-1 time-area relation is used for this basin.
2197        KM
2198        KM      Time of Concentration for this sub-basin is based on the following:
1                                        HEC-1 INPUT                                          PAGE 51

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2199        KM          6-Hour Rainfall, Pattern No.  1.00
2200        KM          An rainfall areal reduction factor of 0.998
2201        KM
2202        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2203        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2204        KM   .45 .44 .44 .13 .10 .09 .04 .04 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
2205        KM
2206        KM          L=   0.636 miles, S=  295 feet/mile, Kb= .10
2207        KM
2208        BA   0.116
2209        LG    0.15    0.40    6.00    0.19    4.50
2210        UC   0.250   0.189
            *

2211        KK    C558
2212        KM      Hydrograph combine 557558 + 207M at C558
2213        HC       2
            *

2214        KK  558560
2215        KM      Normal depth channel route from C558 to C560
2216        KM      Source:  HEC-2 Cross Section: AS 4.839
2217        RS       2    FLOW      -1
2218        RC   0.055   0.045   0.060  1986.0  0.0185
2219        RX  9777.0  9897.0  9933.1  9970.6 10042.2 10063.4 10121.6 10204.9
2220        RY  1840.3  1837.3  1836.3  1824.3  1822.7  1828.5  1827.7  1842.7
            *

2221        KK    2070
2222        KM   Sub-Basin   2070
2223        KM
2224        KM      The Clark Unit Hydrograph is used for this basin.
2225        KM          The Natural time-area relation is used for this basin.
2226        KM
2227        KM      Time of Concentration for this sub-basin is based on the following:
2228        KM          6-Hour Rainfall, Pattern No.  1.00
2229        KM          An rainfall areal reduction factor of 0.998
2230        KM
2231        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2232        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2233        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
2234        KM
2235        KM          L=   0.643 miles, S=  275 feet/mile, Kb= .09
2236        KM
2237        BA   0.131
2238        LG    0.17    0.38    5.60    0.23    9.20
2239        UC   0.242   0.171
2240        UA       0       3       5       8      12      20      43      75      90      96
2241        UA     100
            *
1                                        HEC-1 INPUT                                          PAGE 52

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2242        KK   C560R
2243        KM      Hydrograph combine 558560 + 2070 at C560 right branch
2244        HC       2
            *

2245        KK    207N
2246        KM   Sub-Basin   207N
2247        KM
2248        KM      The Clark Unit Hydrograph is used for this basin.
2249        KM          The HEC-1 time-area relation is used for this basin.
2250        KM
2251        KM      Time of Concentration for this sub-basin is based on the following:
2252        KM          6-Hour Rainfall, Pattern No.  1.00
2253        KM          An rainfall areal reduction factor of 0.999
2254        KM
2255        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2256        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2257        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .02 .02 .02 .00 .00 .00 .00 .00 .00
2258        KM
2259        KM          L=   0.431 miles, S=  190 feet/mile, Kb= .10
2260        KM
2261        BA   0.049
2262        LG    0.19    0.35    4.80    0.32   21.60
2263        UC   0.238   0.213
            *

2264        KK  559560
2265        KM      Normal depth channel route from C559 to C560
2266        KM      Source:  200 Scale Mapping
2267        RS       7    FLOW      -1
2268        RC   0.050   0.045   0.050  2170.0  0.0230
2269        RX  1000.0  1050.0  1080.0  1100.0  1110.0  1140.0  1170.0  1205.0
2270        RY  1854.0  1852.0  1850.0  1848.0  1848.0  1850.0  1852.0  1854.0
            *

2271        KK   C560I
2272        KM      Hydrograph combine C560R + 559560 at C560I
2273        HC       2
```

```
                    *
                    * *
                    * * C560I is the total flow in Ashbrook Wash upstream of Dam 6
                    * *
                    *

2274                KK   C5600
2275                KM      Reservoir route at C560 (Dam 6).
2276                RS       1    ELEV  1808.8
2277                SV    0.00    1.71   14.81   34.65   60.43   93.47  135.64  183.00  186.00  191.44
2278                SV  197.00  205.00  212.00  219.00  226.40  234.00  242.00  246.00  250.00  254.00
2279                SE  1808.8  1812.0  1816.0  1820.0  1824.0  1828.0  1832.0  1835.4  1835.6  1836.0
2280                SE  1836.4  1836.8  1837.2  1837.6  1838.0  1838.4  1838.8  1839.0  1839.2  1839.4
2281                SQ       0      57     136     184     224     257     285     303     319     440
2282                SQ     691    1055    1500    2018    2600    3243    3944    4315    4699    5097
2283                RL                     0.40
                    *
                    * *
                    * * End Basin 207.  Start Basin 210 temporarily
                    * *
                    *
1                                                HEC-1 INPUT                                          PAGE 53

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2284                KK  560585
2285                KM      Normal depth channel route from C560 to C585
2286                KM      Source:  HEC-2 Cross Section: AS4.311
2287                RS       6    FLOW      -1
2288                RC   0.050   0.025   0.050  3127.0  0.0272
2289                RX  9850.4  9950.4  9974.4 10000.0 10035.5 10059.8 10080.4 10104.4
2290                RY  1772.0  1771.7  1765.3  1765.3  1765.9  1768.5  1773.3  1773.7
                    *

2291                KK    210A
2292                KM   Sub-Basin   210A
2293                KM
2294                KM      The Clark Unit Hydrograph is used for this basin.
2295                KM          The Natural time-area relation is used for this basin.
2296                KM
2297                KM      Time of Concentration for this sub-basin is based on the following:
2298                KM          6-Hour Rainfall, Pattern No.  1.00
2299                KM          An rainfall areal reduction factor of 0.998
2300                KM
2301                KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2302                KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2303                KM   .44 .44 .43 .12 .09 .07 .03 .03 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
2304                KM
2305                KM          L=   0.631 miles, S=  233 feet/mile, Kb= .09
2306                KM
2307                BA   0.123
2308                LG    0.20    0.36    5.00    0.27    5.50
2309                UC   0.254   0.185
2310                UA       0       3       5       8      12      20      43      75      90      96
2311                UA     100
                    *

2312                KK    C585
2313                KM      Hydrograph combine 560585 + 210A at C585
2314                HC       2
                    *
                    * *
                    * * C585 is the total flow in Ashbrook Wash at Golden Eagle Blvd. just
                    * * upstream of DAM 4
                    * *
                    * * Temporarily stop Basin 210.  Start Basin 208
                    * *
                    * * Start Bristol Wash
                    * *
                    *

2315                KK    208A
2316                KM   Sub-Basin   208A
2317                KM
2318                KM      The Clark Unit Hydrograph is used for this basin.
2319                KM          The Natural time-area relation is used for this basin.
2320                KM
2321                KM      Time of Concentration for this sub-basin is based on the following:
2322                KM          6-Hour Rainfall, Pattern No.  1.00
1                                                HEC-1 INPUT                                          PAGE 54

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2323                KM          An rainfall areal reduction factor of 0.998
2324                KM
2325                KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2326                KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2327                KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2328                KM
2329                KM          L=   0.626 miles, S=  366 feet/mile, Kb= .14
2330                KM
2331                BA   0.139
2332                LG    0.25    0.35    4.35    0.40   35.00
2333                UC   0.283   0.194
2334                UA       0       3       5       8      12      20      43      75      90      96
2335                UA     100
                    *

2336                KK  561563
2337                KM      Normal depth channel route from C561 to C563
2338                KM      Source:  100 Scale 4'CI Mapping
2339                RS       3    FLOW      -1
2340                RC   0.050   0.045   0.050  2335.0  0.0856
```

```
2341        RX  1000.0  1004.0  1009.0  1019.0  1037.0  1045.0  1060.0  1075.0
2342        RY  2280.0  2276.0  2272.0  2268.0  2268.0  2272.0  2274.0  2276.0
            *

2343        KK    208B
2344        KM   Sub-Basin   208B
2345        KM
2346        KM      The Clark Unit Hydrograph is used for this basin.
2347        KM          The Natural time-area relation is used for this basin.
2348        KM
2349        KM      Time of Concentration for this sub-basin is based on the following:
2350        KM          6-Hour Rainfall, Pattern No.  1.00
2351        KM          An rainfall areal reduction factor of 1.000
2352        KM
2353        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2354        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2355        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2356        KM
2357        KM          L=   0.491 miles, S=  325 feet/mile, Kb= .16
2358        KM
2359        BA   0.027
2360        LG    0.25    0.35    4.35    0.42   35.00
2361        UC   0.279   0.399
2362        UA       0       3       5       8      12      20      43      75      90      96
2363        UA     100
            *

2364        KK   C563R
2365        KM      Hydrograph combine 561563 + 206B at C563 right branch
2366        HC       2
            *
```

1 HEC-1 INPUT PAGE 55

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2367        KK    208C
2368        KM   Sub-Basin   208C
2369        KM
2370        KM      The Clark Unit Hydrograph is used for this basin.
2371        KM          The Natural time-area relation is used for this basin.
2372        KM
2373        KM      Time of Concentration for this sub-basin is based on the following:
2374        KM          6-Hour Rainfall, Pattern No.  1.00
2375        KM          An rainfall areal reduction factor of 0.999
2376        KM
2377        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2378        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2379        KM   .45 .44 .44 .13 .10 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2380        KM
2381        KM          L=   0.639 miles, S=  387 feet/mile, Kb= .15
2382        KM
2383        BA   0.066
2384        LG    0.25    0.35    4.35    0.40   35.00
2385        UC   0.296   0.314
2386        UA       0       3       5       8      12      20      43      75      90      96
2387        UA     100
            *

2388        KK  562563
2389        KM      Normal depth channel route from C562 to C563
2390        KM      Source:  100 Scale 4' CI Mapping
2391        RS       4    FLOW      -1
2392        RC   0.050   0.045   0.050  3745.0  0.1106
2393        RX  1000.0  1007.0  1012.0  1017.0  1022.0  1027.0  1044.0  1064.0
2394        RY  2420.0  2416.0  2412.0  2411.8  2411.8  2412.0  2416.0  2420.0
            *

2395        KK    208D
2396        KM   Sub-Basin   208D
2397        KM
2398        KM      The Clark Unit Hydrograph is used for this basin.
2399        KM          The Natural time-area relation is used for this basin.
2400        KM
2401        KM      Time of Concentration for this sub-basin is based on the following:
2402        KM          6-Hour Rainfall, Pattern No.  1.00
2403        KM          An rainfall areal reduction factor of 0.999
2404        KM
2405        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2406        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2407        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2408        KM
2409        KM          L=   0.772 miles, S=  327 feet/mile, Kb= .15
2410        KM
2411        BA   0.075
2412        LG    0.25    0.35    4.35    0.42   35.00
2413        UC   0.363   0.428
2414        UA       0       3       5       8      12      20      43      75      90      96
2415        UA     100
            *
```

1 HEC-1 INPUT PAGE 56

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2416        KK   C563L
2417        KM      Hydrograph combine 562563 + 208D at C563 left branch
2418        HC       2
            *

2419        KK    C563
2420        KM      Hydrograph combine C563R + C563L at C563
2421        HC       2
            *
```

```
2422          KK  563564
2423          KM      Normal depth channel route from C563 to C564
2424          KM      Source:  HEC-2 Cross Section: BR 2.667
2425          RS       3    FLOW      -1
2426          RC   0.080   0.080   0.080  2762.0  0.0540
2427          RX  9947.0  9980.4  9986.4  9995.5 10000.0 10005.8 10021.9 10037.2
2428          RY  2103.4  2089.5  2089.2  2084.5  2084.4  2084.3  2098.5  2100.6
              *

2429          KK   208E
2430          KM  Sub-Basin   208E
2431          KM
2432          KM      The Clark Unit Hydrograph is used for this basin.
2433          KM          The Natural time-area relation is used for this basin.
2434          KM
2435          KM      Time of Concentration for this sub-basin is based on the following:
2436          KM          6-Hour Rainfall, Pattern No.  1.00
2437          KM          An rainfall areal reduction factor of 0.999
2438          KM
2439          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2440          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2441          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2442          KM
2443          KM          L=   0.644 miles, S=  306 feet/mile, Kb= .15
2444          KM
2445          BA   0.062
2446          LG    0.25    0.35    4.35    0.41   35.00
2447          UC   0.329   0.370
2448          UA       0       3       5       8      12      20      43      75      90      96
2449          UA     100
              *

2450          KK   C564R
2451          KM      Hydrograph combine 563564 + 208E at C564 right branch
2452          HC       2
              *

2453          KK   208F
2454          KM  Sub-Basin   208F
2455          KM
2456          KM      The Clark Unit Hydrograph is used for this basin.
2457          KM          The Natural time-area relation is used for this basin.
2458          KM
2459          KM      Time of Concentration for this sub-basin is based on the following:
```

1 HEC-1 INPUT PAGE 57

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2460          KM          6-Hour Rainfall, Pattern No.  1.00
2461          KM          An rainfall areal reduction factor of 0.999
2462          KM
2463          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2464          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2465          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2466          KM
2467          KM          L=   0.582 miles, S=  293 feet/mile, Kb= .15
2468          KM
2469          BA   0.069
2470          LG    0.25    0.35    4.35    0.41   35.00
2471          UC   0.313   0.303
2472          UA       0       3       5       8      12      20      43      75      90      96
2473          UA     100
              *

2474          KK    C564
2475          KM      Hydrograph combine C564R + 208F at C564
2476          HC       2
              *

2477          KK  564565
2478          KM      Normal depth channel route from C564 to C565
2479          KM      Source:  HEC-2 Cross Section: BR 2.236
2480          RS       6    FLOW      -1
2481          RC   0.080   0.080   0.080  3243.0  0.0398
2482          RX  9937.7  9965.8  9985.5 10000.0 10008.6 10016.4 10037.5 10054.4
2483          RY  1998.7  1998.1  1988.9  1988.8  1989.0  1990.4  1990.6  1999.1
              *

2484          KK   208G
2485          KM  Sub-Basin   208G
2486          KM
2487          KM      The Clark Unit Hydrograph is used for this basin.
2488          KM          The HEC-1 time-area relation is used for this basin.
2489          KM
2490          KM      Time of Concentration for this sub-basin is based on the following:
2491          KM          6-Hour Rainfall, Pattern No.  1.00
2492          KM          An rainfall areal reduction factor of 0.998
2493          KM
2494          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2495          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2496          KM   .46 .45 .45 .14 .10 .09 .04 .04 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
2497          KM
2498          KM          L=   0.772 miles, S=  299 feet/mile, Kb= .13
2499          KM
2500          BA   0.129
2501          LG    0.22    0.34    4.60    0.34   34.30
2502          UC   0.338   0.289
              *
```

1 HEC-1 INPUT PAGE 58

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
2503        KK    C565
2504        KM      Hydrograph combine 564565 + 208G at C565
2505        HC       2
            *

2506        KK  565568
2507        KM      Normal depth channel route from C565 to C568
2508        KM      Source:  HEC-2 Cross Section: BR 1.853
2509        RS       3    FLOW      -1
2510        RC   0.050   0.060   0.045  2254.0  0.0333
2511        RX  9966.2  9975.6  9985.0 10000.0 10017.9 10027.6 10040.1 10052.5
2512        RY  1929.1  1924.5  1919.8  1918.3  1918.4  1919.6  1925.2  1930.8
            *

2513        KK    208H
2514        KM   Sub-Basin   208H
2515        KM
2516        KM      The Clark Unit Hydrograph is used for this basin.
2517        KM          The Natural time-area relation is used for this basin.
2518        KM
2519        KM      Time of Concentration for this sub-basin is based on the following:
2520        KM          6-Hour Rainfall, Pattern No.  1.00
2521        KM          An rainfall areal reduction factor of 0.999
2522        KM
2523        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2524        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2525        KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
2526        KM
2527        KM          L=   0.632 miles, S=  283 feet/mile, Kb= .12
2528        KM
2529        BA   0.043
2530        LG    0.17    0.38    5.60    0.23    8.60
2531        UC   0.288   0.387
2532        UA      0       3       5       8      12      20      43      75      90      96
2533        UA    100
            *

2534        KK   C568L
2535        KM      Hydrograph combine 565568 + 208H at C568 left branch
2536        HC       2
            *
            * *
            * * Start Cholula Wash
            * *
            *

2537        KK    208I
2538        KM   Sub-Basin   208I
2539        KM
2540        KM      The Clark Unit Hydrograph is used for this basin.
2541        KM          The Natural time-area relation is used for this basin.
2542        KM
2543        KM      Time of Concentration for this sub-basin is based on the following:
2544        KM          6-Hour Rainfall, Pattern No.  1.00
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2545        KM          An rainfall areal reduction factor of 0.998
2546        KM
2547        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2548        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2549        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2550        KM
2551        KM          L=   0.823 miles, S=  363 feet/mile, Kb= .14
2552        KM
2553        BA   0.117
2554        LG    0.25    0.35    4.35    0.42   35.00
2555        UC   0.346   0.331
2556        UA      0       3       5       8      12      20      43      75      90      96
2557        UA    100
            *

2558        KK    208J
2559        KM   Sub-Basin   208J
2560        KM
2561        KM      The Clark Unit Hydrograph is used for this basin.
2562        KM          The Natural time-area relation is used for this basin.
2563        KM
2564        KM      Time of Concentration for this sub-basin is based on the following:
2565        KM          6-Hour Rainfall, Pattern No.  1.00
2566        KM          An rainfall areal reduction factor of 0.999
2567        KM
2568        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2569        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2570        KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2571        KM
2572        KM          L=   0.974 miles, S=  353 feet/mile, Kb= .15
2573        KM
2574        BA   0.081
2575        LG    0.25    0.35    4.35    0.42   35.00
2576        UC   0.413   0.568
2577        UA      0       3       5       8      12      20      43      75      90      96
2578        UA    100
            *

2579        KK    C566
2580        KM      Hydrograph combine 208I + 208J at C566
2581        HC       2
            *

2582        KK  566567
2583        KM      Normal depth channel route from C566 to C567
2584        KM      Source:  HEC-2 Cross Section: CH 0.766
```

```
2585          RS       4    FLOW      -1
2586          RC   0.080   0.080   0.080  1463.0  0.0410
2587          RX  9925.3  9949.0  9965.7  9988.3 10000.0 10016.2 10029.5 10042.7
2588          RY  2047.9  2043.7  2035.3  2033.3  2031.4  2033.0  2040.1  2047.2
              *
1                                        HEC-1 INPUT                                                    PAGE 60

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2589          KK    208K
2590          KM   Sub-Basin   208K
2591          KM
2592          KM      The Clark Unit Hydrograph is used for this basin.
2593          KM          The Natural time-area relation is used for this basin.
2594          KM
2595          KM      Time of Concentration for this sub-basin is based on the following:
2596          KM          6-Hour Rainfall, Pattern No.  1.00
2597          KM          An rainfall areal reduction factor of 0.999
2598          KM
2599          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2600          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2601          KM   .45 .44 .44 .13 .09 .07 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2602          KM
2603          KM          L=   0.431 miles, S=  317 feet/mile, Kb= .16
2604          KM
2605          BA   0.048
2606          LG    0.25    0.35    4.35    0.43   35.00
2607          UC   0.258   0.238
2608          UA       0       3       5       8      12      20      43      75      90      96
2609          UA     100
              *

2610          KK   C567L
2611          KM      Hydrograph combine 566567 + 208K at C567 left branch
2612          HC       2
              *

2613          KK    208L
2614          KM   Sub-Basin   208L
2615          KM
2616          KM      The Clark Unit Hydrograph is used for this basin.
2617          KM          The Natural time-area relation is used for this basin.
2618          KM
2619          KM      Time of Concentration for this sub-basin is based on the following:
2620          KM          6-Hour Rainfall, Pattern No.  1.00
2621          KM          An rainfall areal reduction factor of 0.999
2622          KM
2623          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2624          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2625          KM   .45 .44 .44 .13 .09 .07 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2626          KM
2627          KM          L=   0.655 miles, S=  334 feet/mile, Kb= .15
2628          KM
2629          BA   0.059
2630          LG    0.25    0.35    4.40    0.43   35.00
2631          UC   0.321   0.375
2632          UA       0       3       5       8      12      20      43      75      90      96
2633          UA     100
              *
1                                        HEC-1 INPUT                                                    PAGE 61

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2634          KK    C567
2635          KM      Hydrograph combine C567L + 208L at C567
2636          HC       2
              *

2637          KK  567568
2638          KM      Normal depth channel route from C567 to C568
2639          KM      Source:  HEC-2 Cross Section: CH 0.129
2640          RS       6    FLOW      -1
2641          RC   0.050   0.060   0.045  3650.0  0.0389
2642          RX  9945.7  9958.4  9989.8 10000.0 10016.4 10028.3 10045.4 10059.8
2643          RY  1912.1  1905.9  1899.0  1899.3  1898.9  1899.5  1907.1  1911.9
              *

2644          KK    208M
2645          KM   Sub-Basin   208M
2646          KM
2647          KM      The Clark Unit Hydrograph is used for this basin.
2648          KM          The Natural time-area relation is used for this basin.
2649          KM
2650          KM      Time of Concentration for this sub-basin is based on the following:
2651          KM          6-Hour Rainfall, Pattern No.  1.00
2652          KM          An rainfall areal reduction factor of 0.998
2653          KM
2654          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2655          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2656          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2657          KM
2658          KM          L=   1.031 miles, S=  321 feet/mile, Kb= .14
2659          KM
2660          BA   0.159
2661          LG    0.25    0.35    4.40    0.42   35.50
2662          UC   0.425   0.418
2663          UA       0       3       5       8      12      20      43      75      90      96
2664          UA     100
              *

2665          KK   C568R
2666          KM      Hydrograph combine 567568 + 208M at C568 right branch
```

```
2667          HC       2
              *

2668          KK    C568
2669          KM      Hydrograph combine C568L + C568R at C568
2670          HC       2
              *

2671          KK  568573
2672          KM      Normal depth channel route from C568 to C573
2673          KM      Source:  HEC-2 Cross Section: BR 1.340
2674          RS       4    FLOW      -1
2675          RC   0.098   0.075   0.075  2067.0  0.0324
2676          RX  9921.8  9954.1  9968.9  9991.3 10000.0 10006.9 10025.2 10050.4
2677          RY  1843.8  1840.4  1835.1  1834.7  1832.7  1833.3  1838.1  1854.0
              *
1                                        HEC-1 INPUT                                                    PAGE 62

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2678          KK    208N
2679          KM   Sub-Basin   208N
2680          KM
2681          KM      The Clark Unit Hydrograph is used for this basin.
2682          KM          The Natural time-area relation is used for this basin.
2683          KM
2684          KM      Time of Concentration for this sub-basin is based on the following:
2685          KM          6-Hour Rainfall, Pattern No.  1.00
2686          KM          An rainfall areal reduction factor of 0.999
2687          KM
2688          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2689          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2690          KM   .47 .46 .46 .16 .12 .12 .05 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
2691          KM
2692          KM          L=   0.589 miles, S=  160 feet/mile, Kb= .11
2693          KM
2694          BA   0.047
2695          LG    0.15    0.39    6.20    0.17   34.00
2696          UC   0.317   0.386
2697          UA       0       3       5       8      12      20      43      75      90      96
2698          UA     100
              *

2699          KK   C573L
2700          KM      Hydrograph combine 568573 + 208N at C573 left branch
2701          HC       2
              *
              * *
              * * C573L is the total flow in Bristol Wash upstream of the confluence with
              * * Zapata Wash
              * *
              * * Start Zapata Wash
              * *
              *

2702          KK    208O
2703          KM   Sub-Basin   208O
2704          KM
2705          KM      The Clark Unit Hydrograph is used for this basin.
2706          KM          The Natural time-area relation is used for this basin.
2707          KM
2708          KM      Time of Concentration for this sub-basin is based on the following:
2709          KM          6-Hour Rainfall, Pattern No.  1.00
2710          KM          An rainfall areal reduction factor of 0.997
2711          KM
2712          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2713          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2714          KM   .45 .44 .44 .13 .10 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2715          KM
2716          KM          L=   1.174 miles, S=  347 feet/mile, Kb= .13
2717          KM
2718          BA   0.230
2719          LG    0.23    0.35    4.60    0.37   33.50
2720          UC   0.425   0.376
1                                        HEC-1 INPUT                                                    PAGE 63

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2721          UA       0       3       5       8      12      20      43      75      90      96
2722          UA     100
              *

2723          KK  569570
2724          KM      Normal depth channel route from C569 to C570
2725          KM      Source:  HEC-2 Cross Section: ZA 0.493
2726          RS       2    FLOW      -1
2727          RC   0.050   0.035   0.055  1696.0  0.0404
2728          RX  9965.3  9985.5  9998.4 10000.0 10010.6 10019.1 10038.5 10038.5
2729          RY  1919.3  1912.3  1908.1  1907.8  1905.2  1908.1  1920.1  1920.1
              *

2730          KK    208P
2731          KM   Sub-Basin   208P
2732          KM
2733          KM      The Clark Unit Hydrograph is used for this basin.
2734          KM          The Natural time-area relation is used for this basin.
2735          KM
2736          KM      Time of Concentration for this sub-basin is based on the following:
2737          KM          6-Hour Rainfall, Pattern No.  1.00
2738          KM          An rainfall areal reduction factor of 0.999
2739          KM
2740          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2741          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
```

```
2742          KM   .46 .46 .45 .15 .11 .10 .05 .05 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
2743          KM
2744          KM          L=   0.471 miles, S=  312 feet/mile, Kb= .12
2745          KM
2746          BA   0.058
2747          LG    0.18    0.39    5.70    0.21   27.90
2748          UC   0.229   0.199
2749          UA       0       3       5       8      12      20      43      75      90      96
2750          UA     100
              *

2751          KK   C570R
2752          KM      Hydrograph combine 569570 + 208P at C570 right branch
2753          HC       2
              *

2754          KK    208Q
2755          KM   Sub-Basin   208Q
2756          KM
2757          KM      The Clark Unit Hydrograph is used for this basin.
2758          KM          The Natural time-area relation is used for this basin.
2759          KM
2760          KM      Time of Concentration for this sub-basin is based on the following:
2761          KM          6-Hour Rainfall, Pattern No.  1.00
2762          KM          An rainfall areal reduction factor of 0.999
2763          KM
2764          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2765          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2766          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
2767          KM
```

1 HEC-1 INPUT PAGE 64

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2768          KM          L=   0.823 miles, S=  324 feet/mile, Kb= .13
2769          KM
2770          BA   0.094
2771          LG    0.21    0.36    5.00    0.28   31.50
2772          UC   0.338   0.364
2773          UA       0       3       5       8      12      20      43      75      90      96
2774          UA     100
              *

2775          KK    C570
2776          KM      Hydrograph combine C570R + 208Q at C570
2777          HC       2
              *
              * *
              * * NOTE: 570572 is too short to route
              * *
              *

2778          KK    208R
2779          KM   Sub-Basin   208R
2780          KM
2781          KM      The Clark Unit Hydrograph is used for this basin.
2782          KM          The Natural time-area relation is used for this basin.
2783          KM
2784          KM      Time of Concentration for this sub-basin is based on the following:
2785          KM          6-Hour Rainfall, Pattern No.  1.00
2786          KM          An rainfall areal reduction factor of 1.000
2787          KM
2788          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2789          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2790          KM   .47 .46 .46 .15 .12 .11 .05 .05 .04 .03 .02 .02 .01 .01 .01 .01 .01 .01
2791          KM
2792          KM          L=   0.238 miles, S=  327 feet/mile, Kb= .13
2793          KM
2794          BA   0.010
2795          LG    0.15    0.39    6.20    0.17   25.30
2796          UC   0.167   0.216
2797          UA       0       3       5       8      12      20      43      75      90      96
2798          UA     100
              *

2799          KK  571572
2800          KM      Normal depth channel route from C571 to C572
2801          KM      Source:  200 Scale Mapping
2802          RS       3    FLOW     -1
2803          RC   0.040   0.020   0.055  1379.0  0.0566
2804          RX  1000.0  1020.0  1040.0  1090.0  1122.0  1125.0  1135.0  1140.0
2805          RY  1894.0  1893.0  1892.0  1891.0  1891.0  1892.0  1894.0  1896.0
              *
```

1 HEC-1 INPUT PAGE 65

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2806          KK    C572
2807          KM      Hydrograph combine C570 + 571572 at C572
2808          HC       2
              *

2809          KK  572573
2810          KM      Normal depth channel route from C572 to C573
2811          KM      Source:  HEC-2 Cross Section: ZA 0.142
2812          RS       1    FLOW     -1
2813          RC   0.050   0.035   0.055  1285.0  0.0335
2814          RX  9961.8  9976.8  9982.5  9987.0 10009.5 10014.3 10022.1 10029.3
2815          RY  1840.3  1832.1  1831.2  1829.5  1829.2  1830.6  1831.2  1835.6
              *

2816          KK    208S
2817          KM   Sub-Basin   208S
```

```
2818          KM
2819          KM      The Clark Unit Hydrograph is used for this basin.
2820          KM          The Natural time-area relation is used for this basin.
2821          KM
2822          KM      Time of Concentration for this sub-basin is based on the following:
2823          KM          6-Hour Rainfall, Pattern No.  1.00
2824          KM          An rainfall areal reduction factor of 0.999
2825          KM
2826          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2827          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2828          KM   .47 .47 .47 .16 .13 .12 .06 .06 .05 .04 .03 .03 .01 .01 .01 .01 .01 .01
2829          KM
2830          KM          L=   0.568 miles, S=  234 feet/mile, Kb= .11
2831          KM
2832          BA   0.068
2833          LG    0.14    0.39    6.20    0.17   38.30
2834          UC   0.263   0.246
2835          UA       0       3       5       8      12      20      43      75      90      96
2836          UA     100
              *

2837          KK   C573R
2838          KM      Hydrograph combine 572573 + 208S at C573 right branch
2839          HC       2
              *

2840          KK    C573
2841          KM      Hydrograph combine C573L + C573R at C573
2842          HC       2
              *
              * *
              * * NOTE: 573577 is too short to route
              * *
              * * C573 is the total flow in Bristol Wash upstream of the confluence
              * * with Montezuna Wash
              * *
              * * Start Montezuna Wash
              * *
              *
```

1 HEC-1 INPUT PAGE 66

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2843          KK    208T
2844          KM   Sub-Basin   208T
2845          KM
2846          KM      The Clark Unit Hydrograph is used for this basin.
2847          KM          The Natural time-area relation is used for this basin.
2848          KM
2849          KM      Time of Concentration for this sub-basin is based on the following:
2850          KM          6-Hour Rainfall, Pattern No.  1.00
2851          KM          An rainfall areal reduction factor of 0.998
2852          KM
2853          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2854          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2855          KM   .46 .45 .45 .14 .11 .09 .04 .04 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
2856          KM
2857          KM          L=   0.787 miles, S=  340 feet/mile, Kb= .12
2858          KM
2859          BA   0.132
2860          LG    0.20    0.37    5.20    0.27   29.80
2861          UC   0.304   0.259
2862          UA       0       3       5       8      12      20      43      75      90      96
2863          UA     100
              *

2864          KK    208U
2865          KM   Sub-Basin   208U
2866          KM
2867          KM      The Clark Unit Hydrograph is used for this basin.
2868          KM          The Natural time-area relation is used for this basin.
2869          KM
2870          KM      Time of Concentration for this sub-basin is based on the following:
2871          KM          6-Hour Rainfall, Pattern No.  1.00
2872          KM          An rainfall areal reduction factor of 0.998
2873          KM
2874          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2875          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2876          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
2877          KM
2878          KM          L=   0.507 miles, S=  360 feet/mile, Kb= .12
2879          KM
2880          BA   0.134
2881          LG    0.19    0.37    5.30    0.26   29.20
2882          UC   0.229   0.132
2883          UA       0       3       5       8      12      20      43      75      90      96
2884          UA     100
              *

2885          KK    C574
2886          KM      Hydrograph combine 208T + 208U at C574
2887          HC       2
              *
```

1 HEC-1 INPUT PAGE 67

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2888          KK  574575
2889          KM      Normal depth channel route from C574 to C575
2890          KM      Source:  HEC-2 Cross Section: MO 0.587
2891          RS       1    FLOW      -1
2892          RC   0.070   0.050   0.055   823.0  0.0365
```

```
2893          RX  9945.0  9970.6  9986.7  9995.9 10002.3 10019.0 10036.7 10055.5
2894          RY  1932.6  1928.5  1922.9  1917.8  1917.7  1924.0  1931.1  1934.1
              *

2895          KK    208V
2896          KM   Sub-Basin   208V
2897          KM
2898          KM      The Clark Unit Hydrograph is used for this basin.
2899          KM          The Natural time-area relation is used for this basin.
2900          KM
2901          KM      Time of Concentration for this sub-basin is based on the following:
2902          KM          6-Hour Rainfall, Pattern No.  1.00
2903          KM          An rainfall areal reduction factor of 1.000
2904          KM
2905          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2906          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2907          KM   .47 .46 .46 .15 .12 .11 .05 .05 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
2908          KM
2909          KM          L=   0.354 miles, S=  319 feet/mile, Kb= .12
2910          KM
2911          BA   0.028
2912          LG    0.15    0.38    6.40    0.17   25.00
2913          UC   0.196   0.203
2914          UA       0       3       5       8      12      20      43      75      90      96
2915          UA     100
              *

2916          KK    C575
2917          KM      Hydrograph combine 574575 + 208V at C575
2918          HC       2
              *

2919          KK  575576
2920          KM      Normal depth channel route from C575 to C576
2921          KM      Source:  HEC-2 Cross Section: MO 0.307
2922          RS       2    FLOW      -1
2923          RC   0.070   0.050   0.055  2342.0  0.0423
2924          RX  9973.7  9974.0  9986.7 10000.0 10000.5 10009.7 10026.7 10037.3
2925          RY  1861.6  1861.5  1855.0  1853.0  1853.1  1854.8  1863.0  1867.1
              *

2926          KK    208W
2927          KM   Sub-Basin   208W
2928          KM
2929          KM      The Clark Unit Hydrograph is used for this basin.
2930          KM          The Natural time-area relation is used for this basin.
2931          KM
2932          KM      Time of Concentration for this sub-basin is based on the following:
2933          KM          6-Hour Rainfall, Pattern No.  1.00
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2934          KM          An rainfall areal reduction factor of 0.999
2935          KM
2936          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2937          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2938          KM   .46 .46 .45 .15 .11 .11 .05 .05 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
2939          KM
2940          KM          L=   0.475 miles, S=  288 feet/mile, Kb= .11
2941          KM
2942          BA   0.050
2943          LG    0.15    0.39    6.20    0.18   22.70
2944          UC   0.225   0.214
2945          UA       0       3       5       8      12      20      43      75      90      96
2946          UA     100
              *

2947          KK    C576
2948          KM      Hydrograph combine 575576 + 208W at C576
2949          HC       2
              *

2950          KK  576577
2951          KM      Normal depth channel route from C576 to C577
2952          KM      Source:  HEC-2 Cross Section: MO 0.116
2953          RS       1    FLOW      -1
2954          RC   0.070   0.050   0.055   740.0  0.0338
2955          RX  9915.1  9960.0  9985.5 10000.0 10000.1 10007.0 10023.3 10023.4
2956          RY  1826.5  1826.4  1814.5  1812.3  1812.3  1814.8  1830.3  1830.4
              *
              * *
              * * 576577 is the total flow in Montezuna Wash just upstream of the confluence
              * * with Bristol Wash
              * *
              *

2957          KK    C577
2958          KM      Hydrograph combine C577L + 576577 at C570
2959          HC       2
              *
              * *
              * * C577 is the total flow in Bristol Wash downstream of the confluence
              * * with Montezuma Wash
              * *
              *

2960          KK  577578
2961          KM      Normal depth channel route from C577 to C578
2962          KM      Source:  HEC-2 Cross Section: BR 1.099
2963          RS       2    FLOW      -1
2964          RC   0.055   0.045   0.055  1078.0  0.0147
2965          RX  9865.3  9956.6  9991.1 10010.2 10034.3 10063.4 10139.7 10201.7
2966          RY  1821.8  1810.8  1793.2  1792.5  1795.5  1796.1  1813.8  1822.8
```

```
                  *
LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 2967             KK    208X
 2968             KM   Sub-Basin   208X
 2969             KM
 2970             KM      The Clark Unit Hydrograph is used for this basin.
 2971             KM          The Natural time-area relation is used for this basin.
 2972             KM
 2973             KM      Time of Concentration for this sub-basin is based on the following:
 2974             KM          6-Hour Rainfall, Pattern No.  1.00
 2975             KM          An rainfall areal reduction factor of 0.999
 2976             KM
 2977             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 2978             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 2979             KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
 2980             KM
 2981             KM          L=   0.417 miles, S=  223 feet/mile, Kb= .10
 2982             KM
 2983             BA   0.075
 2984             LG    0.17    0.38    5.60    0.23   23.90
 2985             UC   0.217   0.147
 2986             UA       0       3       5       8      12      20      43      75      90      96
 2987             UA     100
                  *

 2988             KK   C578I
 2989             KM      Hydrograph combine 577578 + 208X at C578I
 2990             HC       2
                  *
                  * *
                  * * C578I is the total flow in Bristol Wash upstream of Dam 11
                  * *
                  *

 2991             KK   C578O
 2992             KM      Reservoir route at C578 (Dam 11).
 2993             RS       1    ELEV  1779.2
 2994             SV    0.00   16.38   31.30   53.65   84.39  126.17  138.00  143.00  147.00  154.47
 2995             SV  161.00  167.00  174.00  181.00  187.43  194.00  202.00  205.00
 2996             SE  1779.2  1794.0  1798.0  1802.0  1806.0  1810.0  1810.8  1811.2  1811.6  1812.0
 2997             SE  1812.4  1812.8  1813.2  1813.6  1814.0  1814.4  1814.8  1815.0
 2998             SQ       0     131     181     221     254     283     305     325     328     366
 2999             SQ     522     812    1194    1651    2176    2763    3406    4104    4855    5250
 3000             SE  1779.2  1786.0  1790.0  1794.0  1798.0  1802.0  1806.0  1810.0  1810.8  1811.2
 3001             SE  1811.6  1812.0  1812.4  1812.8  1813.2  1813.6  1814.0  1814.4  1814.8  1815.0
 3002             RL                   0.97
                  *
                  * *
                  * * End Basin 208.  Rejoin Basin 210
                  * *
                  *
```



```
LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 3003             KK  578587
 3004             KM      Normal depth channel route from C578 to C587
 3005             KM      Source:  HEC-2 Cross Section: BR 0.697
 3006             RS       3    FLOW      -1
 3007             RC   0.055   0.045   0.055  1628.0  0.0191
 3008             RX  9926.4  9949.5  9960.1  9984.7 10000.0 10014.1 10031.5 10049.4
 3009             RY  1763.0  1762.6  1761.8  1757.0  1757.1  1756.9  1761.4  1768.1
                  *

 3010             KK    210B
 3011             KM   Sub-Basin   210B
 3012             KM
 3013             KM      The Clark Unit Hydrograph is used for this basin.
 3014             KM          The HEC-1 time-area relation is used for this basin.
 3015             KM
 3016             KM      Time of Concentration for this sub-basin is based on the following:
 3017             KM          6-Hour Rainfall, Pattern No.  1.00
 3018             KM          An rainfall areal reduction factor of 0.999
 3019             KM
 3020             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 3021             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 3022             KM   .45 .45 .44 .14 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
 3023             KM
 3024             KM          L=   0.930 miles, S=  251 feet/mile, Kb= .10
 3025             KM
 3026             BA   0.107
 3027             LG    0.15    0.39    5.80    0.20    9.50
 3028             UC   0.342   0.379
                  *

 3029             KK   C586O
 3030             KM      Reservoir route at C586.
 3031             RS       1    ELEV  1804.4
 3032             SV    0.00    0.05    0.36    1.09    2.45    4.45    7.00    9.50    9.60   10.00
 3033             SV   10.34   10.70   11.20   11.60   12.10   12.50
 3034             SE  1804.4  1806.0  1808.0  1810.0  1812.0  1814.0  1816.0 1817.55  1817.6  1817.8
 3035             SE  1818.0  1818.2  1818.4  1818.6  1818.8  1819.0
 3036             SQ       0      37     130     219     284     322     353     375     377     393
 3037             SQ     432     492     574     680     808     959
                  *

 3038             KK  586587
 3039             KM      Normal depth channel route from C586 to C587
 3040             KM      Source:  200 Scale Mapping
```

```
3041          RS       3    FLOW      -1
3042          RC   0.040   0.035   0.040  1905.0  0.0313
3043          RX  1000.0  1020.0  1050.0  1055.0  1065.0  1070.0  1130.0  1150.0
3044          RY  1782.0  1780.0  1772.0  1771.0  1771.0  1772.0  1778.0  1782.0
              *
1                                          HEC-1 INPUT                                                    PAGE 71

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3045          KK    C587
3046          KM      Hydrograph combine 578587 + 586587 at C578
3047          HC       2
              *

3048          KK  587595
3049          KM      Normal depth channel route from C587 to C595
3050          KM      Source:  HEC-2 Cross Section: BR 0.533
3051          RS       2    FLOW      -1
3052          RC   0.055   0.045   0.055  1039.0  0.0173
3053          RX  9977.2  9980.4  9983.6  9989.9 10009.9 10020.3 10028.8 10037.3
3054          RY  1745.2  1744.0  1742.8  1740.3  1740.3  1742.4  1743.0  1743.6
              *

3055          KK    210C
3056          KM   Sub-Basin   210C
3057          KM
3058          KM      The Clark Unit Hydrograph is used for this basin.
3059          KM          The Natural time-area relation is used for this basin.
3060          KM
3061          KM      Time of Concentration for this sub-basin is based on the following:
3062          KM          6-Hour Rainfall, Pattern No.  1.00
3063          KM          An rainfall areal reduction factor of 0.999
3064          KM
3065          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3066          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3067          KM   .44 .43 .43 .12 .08 .06 .03 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
3068          KM
3069          KM          L=   0.637 miles, S=  198 feet/mile, Kb= .09
3070          KM
3071          BA   0.082
3072          LG    0.21    0.35    4.80    0.32    7.00
3073          UC   0.275   0.257
3074          UA       0       3       5       8      12      20      43      75      90      96
3075          UA     100
              *

3076          KK   C595L
3077          KM      Hydrograph combine 587595 + 210C at C595 left branch
3078          HC       2
              *
              * *
              * * C595L is the total flow in Bristol Wash upstream of the confluence
              * * with Longmont Wash
              * *
              * * Start Longmont Wash Left Branch
              * *
              *
1                                          HEC-1 INPUT                                                    PAGE 72

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3079          KK    210D
3080          KM   Sub-Basin   210D
3081          KM
3082          KM      The Clark Unit Hydrograph is used for this basin.
3083          KM          The Natural time-area relation is used for this basin.
3084          KM
3085          KM      Time of Concentration for this sub-basin is based on the following:
3086          KM          6-Hour Rainfall, Pattern No.  1.00
3087          KM          An rainfall areal reduction factor of 0.998
3088          KM
3089          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3090          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3091          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .02 .02 .02 .00 .00 .00 .00 .00 .00
3092          KM
3093          KM          L=   0.832 miles, S=  325 feet/mile, Kb= .11
3094          KM
3095          BA   0.140
3096          LG    0.18    0.39    5.80    0.20   18.70
3097          UC   0.300   0.258
3098          UA       0       3       5       8      12      20      43      75      90      96
3099          UA     100
              *

3100          KK  588590
3101          KM      Normal depth channel route from C588 to C590
3102          KM      Source:  HEC-2 Cross Section: LO-LB1 0.128
3103          RS       2    FLOW      -1
3104          RC   0.065   0.050   0.060  1117.0  0.0340
3105          RX  9931.7  9960.6  9984.9 10005.7 10019.1 10033.8 10151.6 10172.9
3106          RY  1839.3  1833.5  1825.9  1824.7  1825.9  1828.8  1832.9  1838.0
              *

3107          KK    210E
3108          KM   Sub-Basin   210E
3109          KM
3110          KM      The Clark Unit Hydrograph is used for this basin.
3111          KM          The Natural time-area relation is used for this basin.
3112          KM
3113          KM      Time of Concentration for this sub-basin is based on the following:
3114          KM          6-Hour Rainfall, Pattern No.  1.00
3115          KM          An rainfall areal reduction factor of 1.000
```

```
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .02 .01 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.339 miles, S=  151 feet/mile, Kb= .12
KM
BA   0.028
LG    0.15    0.36    6.80    0.14    0.00
UC   0.246   0.254
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
```

1

HEC-1 INPUT PAGE 73

```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   C590L
KM      Hydrograph combine 588590 + 210E at C590 left branch
HC       2
*
* *
* * C590L is the total flow in Longmont Wash Left Branch upstream of the
* * confluence with Longmont Wash
* *
* * Start Longmont Wash
* *
*

KK    210F
KM   Sub-Basin   210F
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          6-Hour Rainfall, Pattern No.  1.00
KM          An rainfall areal reduction factor of 0.999
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .45 .44 .44 .13 .10 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
KM
KM          L=   0.668 miles, S=  349 feet/mile, Kb= .15
KM
BA   0.093
LG    0.25    0.35    4.40    0.39   34.40
UC   0.317   0.290
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK  589590
KM      Normal depth channel route from C589 to C590
KM      Source:  HEC-2 Cross Section: LO 0.813
RS       2    FLOW      -1
RC   0.065   0.050   0.060  1751.0  0.0423
RX  9957.0  9963.5  9984.5  9996.1 10008.8 10017.4 10040.1 10060.8
RY  1843.8  1842.9  1837.0  1831.2  1830.6  1836.1  1838.3  1842.1
*

KK    210G
KM   Sub-Basin   210G
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          6-Hour Rainfall, Pattern No.  1.00
KM          An rainfall areal reduction factor of 0.998
KM
```

1

HEC-1 INPUT PAGE 74

```
LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .45 .45 .45 .14 .10 .09 .04 .04 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
KM
KM          L=   0.969 miles, S=  333 feet/mile, Kb= .13
KM
BA   0.162
LG    0.22    0.37    5.30    0.25   24.20
UC   0.375   0.343
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK   C590R
KM      Hydrograph combine 589590 + 210G at C590 right branch
HC       2
*
* * NOTE: 590593 is too short to route
* *
* * C590R is the total flow in Longmont Wash upstream of the confluence
* * with Longmont Wash Left Branch
* *
*

KK    C590
KM      Hydrograph combine C590L + C590R at C590
HC       2
*
```

```
                    * * C590 is the total flow in Longmont Wash upstream of the confluence
                    * * Longmont Wash Right Branch
                    * *
                    * * Start Longmont Wash Right Branch
                    * *
                    *

3186                KK    210H
3187                KM   Sub-Basin   210H
3188                KM
3189                KM      The Clark Unit Hydrograph is used for this basin.
3190                KM          The Natural time-area relation is used for this basin.
3191                KM
3192                KM      Time of Concentration for this sub-basin is based on the following:
3193                KM          6-Hour Rainfall, Pattern No.  1.00
3194                KM          An rainfall areal reduction factor of 0.999
3195                KM
3196                KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3197                KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3198                KM   .45 .44 .44 .13 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
3199                KM
3200                KM          L=   0.565 miles, S=  340 feet/mile, Kb= .11
3201                KM
3202                BA   0.070
3203                LG    0.16    0.39    6.20    0.19    6.70
3204                UC   0.238   0.217
3205                UA       0       3       5       8      12      20      43      75      90      96
1                                                HEC-1 INPUT                                          PAGE 75

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3206                UA     100
                    *

3207                KK  592593
3208                KM      Normal depth channel route from C592 to C593
3209                KM      Source:  HEC-2 Cross Section: LO-RB1 0.027
3210                RS       3    FLOW      -1
3211                RC   0.065   0.050   0.060  2062.0  0.0412
3212                RX  9920.6  9964.0  9984.7  9996.1 10003.9 10025.4 10041.1 10057.9
3213                RY  1820.0  1804.5  1801.2  1797.3  1797.3  1808.5  1818.3  1820.1
                    *
                    * *
                    * * 592593 is the total flow in Longmont Wash Right Branch upstream
                    * * of the confluence with Longmont Wash
                    * *
                    *

3214                KK    C593
3215                KM      Hydrograph combine C590 + C593R at C593
3216                HC       2
                    *
                    * *
                    * * C593 is the total flow in Longmont Wash below the confluence with
                    * * Longmont Wash Right Branch
                    * *
                    *

3217                KK  593594
3218                KM      Normal depth channel route from C593 to C594
3219                KM      Source:  HEC-2 Cross Section: LO0.413
3220                RS       2    FLOW      -1
3221                RC   0.065   0.050   0.060   988.0  0.0202
3222                RX  9937.2  9958.5  9981.7  9992.8 10007.7 10024.4 10041.9 10067.8
3223                RY  1783.6  1773.5  1773.9  1771.3  1771.2  1774.5  1778.7  1788.7
                    *

3224                KK    210I
3225                KM   Sub-Basin   210I
3226                KM
3227                KM      The Clark Unit Hydrograph is used for this basin.
3228                KM          The Natural time-area relation is used for this basin.
3229                KM
3230                KM      Time of Concentration for this sub-basin is based on the following:
3231                KM          6-Hour Rainfall, Pattern No.  1.00
3232                KM          An rainfall areal reduction factor of 0.999
3233                KM
3234                KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3235                KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3236                KM   .47 .46 .46 .15 .12 .11 .05 .05 .04 .03 .02 .01 .00 .00 .00 .00 .00 .00
3237                KM
3238                KM          L=   0.634 miles, S=  250 feet/mile, Kb= .11
3239                KM
3240                BA   0.049
3241                LG    0.15    0.32    7.60    0.11    0.00
3242                UC   0.279   0.347
1                                                HEC-1 INPUT                                          PAGE 76

LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3243                UA       0       3       5       8      12      20      43      75      90      96
3244                UA     100
                    *

3245                KK    C594
3246                KM      Hydrograph combine 593594 + 210I at C594
3247                HC       2
                    *

3248                KK  594595
3249                KM      Normal depth channel route from C594 to C595
3250                KM      Source:  HEC-2 Cross Section: LO 0.184
3251                RS       6    FLOW      -1
3252                RC   0.065   0.050   0.060  2093.0  0.0201
```

```
3253          RX  9814.0  9836.5  9878.5  9988.2  9994.1 10010.9 10030.4 10030.5
3254          RY  1769.3  1766.6  1752.8  1750.6  1747.9  1749.2  1770.5  1770.6
              *

3255          KK    210J
3256          KM   Sub-Basin   210J
3257          KM
3258          KM      The Clark Unit Hydrograph is used for this basin.
3259          KM          The Natural time-area relation is used for this basin.
3260          KM
3261          KM      Time of Concentration for this sub-basin is based on the following:
3262          KM          6-Hour Rainfall, Pattern No.  1.00
3263          KM          An rainfall areal reduction factor of 0.999
3264          KM
3265          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3266          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3267          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .01 .00 .00 .00 .00 .00 .00 .00 .00
3268          KM
3269          KM          L=   0.684 miles, S=  187 feet/mile, Kb= .10
3270          KM
3271          BA   0.103
3272          LG    0.15    0.37    6.60    0.15    0.00
3273          UC   0.313   0.274
3274          UA      0       3       5       8      12      20      43      75      90      96
3275          UA    100
              *

3276          KK   C595R
3277          KM      Hydrograph combine 594595 + 210J at C595
3278          HC       2
              *
              * *
              * * C595R is the total flow in Longmont Wash upstream of the confluence
              * * with Bristol Wash
              * *
              *
1                                          HEC-1 INPUT                                                    PAGE 77
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3279          KK    C595
3280          KM      Hydrograph combine C595L + C595R at C595
3281          HC       2
              *
              * *
              * * C595 is the total flow in Bristol Wash just downstream of the
              * * confluence with Longmont Wash
              * *
              *

3282          KK  595596
3283          KM      Normal depth channel route from C595 to C596
3284          KM      Source:  HEC-2 Cross Section: BR0.290
3285          RS       3    FLOW      -1
3286          RC   0.055   0.045   0.055  1095.0  0.0110
3287          RX  9886.8  9904.8  9948.0 10000.0 10032.4 10081.5 10107.3 10130.4
3288          RY  1727.2  1724.1  1725.9  1720.2  1725.6  1725.3  1721.3  1731.4
              *

3289          KK    210K
3290          KM   Sub-Basin   210K
3291          KM
3292          KM      The Clark Unit Hydrograph is used for this basin.
3293          KM          The Natural time-area relation is used for this basin.
3294          KM
3295          KM      Time of Concentration for this sub-basin is based on the following:
3296          KM          6-Hour Rainfall, Pattern No.  1.00
3297          KM          An rainfall areal reduction factor of 0.999
3298          KM
3299          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3300          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3301          KM   .46 .45 .45 .14 .11 .10 .04 .04 .04 .01 .00 .00 .00 .00 .00 .00 .00 .00
3302          KM
3303          KM          L=   0.425 miles, S=  207 feet/mile, Kb= .10
3304          KM
3305          BA   0.077
3306          LG    0.18    0.37    6.60    0.15    0.10
3307          UC   0.225   0.154
3308          UA      0       3       5       8      12      20      43      75      90      96
3309          UA    100
              *

3310          KK    C596
3311          KM      Hydrograph combine 595596 + 210K at C596
3312          HC       2
              *
              * *
              * * C596 is the total flow in Bristol Wash at Golden Eagle Blvd.
              * * upstream of DAM 4
              * *
              * * Leave Basin 210 temporarily and move to Basin 209
              * *
              * * Start Cloudburst Wash
              *
1                                          HEC-1 INPUT                                                    PAGE 78
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3313          KK    209A
3314          KM   Sub-Basin   209A
3315          KM
3316          KM      The Clark Unit Hydrograph is used for this basin.
```

```
3317        KM          The Natural time-area relation is used for this basin.
3318        KM
3319        KM      Time of Concentration for this sub-basin is based on the following:
3320        KM          6-Hour Rainfall, Pattern No.  1.00
3321        KM          An rainfall areal reduction factor of 0.995
3322        KM
3323        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3324        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3325        KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3326        KM
3327        KM          L=   1.028 miles, S=  367 feet/mile, Kb= .13
3328        KM
3329        BA   0.368
3330        LG    0.25    0.35    4.35    0.40   35.00
3331        UC   0.379   0.228
3332        UA       0       3       5       8      12      20      43      75      90      96
3333        UA     100
            *

3334        KK  579580
3335        KM      Normal depth channel route from C579 to C580
3336        KM      Source:  100 Scale 4' CI Mapping
3337        RS       2    FLOW     -1
3338        RC   0.050   0.045   0.050  1751.0  0.0600
3339        RX  1000.0  1010.0  1025.0  1030.0  1035.0  1040.0  1045.0  1048.0
3340        RY  2336.0  2332.0  2328.0  2327.5  2327.5  2328.0  2332.0  2336.0
            *

3341        KK    209C
3342        KM   Sub-Basin   209C
3343        KM
3344        KM      The Clark Unit Hydrograph is used for this basin.
3345        KM          The Natural time-area relation is used for this basin.
3346        KM
3347        KM      Time of Concentration for this sub-basin is based on the following:
3348        KM          6-Hour Rainfall, Pattern No.  1.00
3349        KM          An rainfall areal reduction factor of 0.999
3350        KM
3351        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3352        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3353        KM   .45 .44 .44 .13 .10 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3354        KM
3355        KM          L=   0.723 miles, S=  342 feet/mile, Kb= .15
3356        KM
3357        BA   0.064
3358        LG    0.25    0.35    4.35    0.40   35.00
3359        UC   0.338   0.410
3360        UA       0       3       5       8      12      20      43      75      90      96
3361        UA     100
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3362        KK   C580R
3363        KM      Hydrograph combine 579580 + 209C at C580 right branch
3364        HC       2
            *

3365        KK    209B
3366        KM   Sub-Basin   209B
3367        KM
3368        KM      The Clark Unit Hydrograph is used for this basin.
3369        KM          The Natural time-area relation is used for this basin.
3370        KM
3371        KM      Time of Concentration for this sub-basin is based on the following:
3372        KM          6-Hour Rainfall, Pattern No.  1.00
3373        KM          An rainfall areal reduction factor of 0.999
3374        KM
3375        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3376        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3377        KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3378        KM
3379        KM          L=   0.716 miles, S=  403 feet/mile, Kb= .15
3380        KM
3381        BA   0.083
3382        LG    0.25    0.35    4.35    0.40   35.00
3383        UC   0.313   0.321
3384        UA       0       3       5       8      12      20      43      75      90      96
3385        UA     100
            *

3386        KK    C580
3387        KM      Hydrograph combine 580R + 209B at C580
3388        HC       2
            *

3389        KK  580581
3390        KM      Normal depth channel route from C580 to C581
3391        KM      Source:  100 Scale 4' CI Mapping
3392        RS       3    FLOW     -1
3393        RC   0.050   0.045   0.050  2339.0  0.0440
3394        RX  1000.0  1010.0  1025.0  1030.0  1040.0  1045.0  1070.0  1075.0
3395        RY  2452.0  2448.0  2444.0  2443.5  2443.5  2444.0  2448.0  2452.0
            *

3396        KK    209D
3397        KM   Sub-Basin   209D
3398        KM
3399        KM      The Clark Unit Hydrograph is used for this basin.
3400        KM          The Natural time-area relation is used for this basin.
3401        KM
3402        KM      Time of Concentration for this sub-basin is based on the following:
```

```
3403          KM          6-Hour Rainfall, Pattern No.  1.00
3404          KM          An rainfall areal reduction factor of 0.997
3405          KM
3406          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3407          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                                    PAGE 80
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3408          KM   .45 .44 .44 .13 .09 .08 .04 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3409          KM
3410          KM          L=   0.800 miles, S=  354 feet/mile, Kb= .13
3411          KM
3412          BA   0.244
3413          LG    0.25    0.35    4.35    0.42   35.00
3414          UC   0.325   0.199
3415          UA      0       3       5       8      12      20      43      75      90      96
3416          UA    100
              *

3417          KK   C581R
3418          KM      Hydrograph combine 580581 + 209D at C581 right branch
3419          HC       2
              *

3420          KK    209E
3421          KM   Sub-Basin   209E
3422          KM
3423          KM      The Clark Unit Hydrograph is used for this basin.
3424          KM          The Natural time-area relation is used for this basin.
3425          KM
3426          KM      Time of Concentration for this sub-basin is based on the following:
3427          KM          6-Hour Rainfall, Pattern No.  1.00
3428          KM          An rainfall areal reduction factor of 0.998
3429          KM
3430          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3431          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3432          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3433          KM
3434          KM          L=   1.018 miles, S=  341 feet/mile, Kb= .14
3435          KM
3436          BA   0.149
3437          LG    0.25    0.35    4.35    0.40   35.00
3438          UC   0.408   0.411
3439          UA      0       3       5       8      12      20      43      75      90      96
3440          UA    100
              *

3441          KK    C581
3442          KM      Hydrograph combine 581R + 209E at C581
3443          HC       2
              *

3444          KK  581582
3445          KM      Normal depth channel route from C581 to C582
3446          KM      Source:  100 Scale 4' CI Mapping
3447          RS       3    FLOW      -1
3448          RC   0.050   0.045   0.050  4012.0  0.0459
3449          RX  1000.0  1010.0  1025.0  1030.0  1035.0  1040.0  1050.0  1065.0
3450          RY  2100.0  2096.0  2092.0  2091.5  2091.5  2092.0  2096.0  2100.0
              *
1                                          HEC-1 INPUT                                                                    PAGE 81
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3451          KK    209F
3452          KM   Sub-Basin   209F
3453          KM
3454          KM      The Clark Unit Hydrograph is used for this basin.
3455          KM          The Natural time-area relation is used for this basin.
3456          KM
3457          KM      Time of Concentration for this sub-basin is based on the following:
3458          KM          6-Hour Rainfall, Pattern No.  1.00
3459          KM          An rainfall areal reduction factor of 0.997
3460          KM
3461          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3462          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3463          KM   .45 .44 .44 .13 .09 .07 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3464          KM
3465          KM          L=   1.191 miles, S=  332 feet/mile, Kb= .13
3466          KM
3467          BA   0.226
3468          LG    0.24    0.35    4.50    0.39   30.90
3469          UC   0.438   0.397
3470          UA      0       3       5       8      12      20      43      75      90      96
3471          UA    100
              *

3472          KK   C582R
3473          KM      Hydrograph combine 581582 + 209F at C582 right branch
3474          HC       2
              *

3475          KK    209G
3476          KM   Sub-Basin   209G
3477          KM
3478          KM      The Clark Unit Hydrograph is used for this basin.
3479          KM          The Natural time-area relation is used for this basin.
3480          KM
3481          KM      Time of Concentration for this sub-basin is based on the following:
3482          KM          6-Hour Rainfall, Pattern No.  1.00
3483          KM          An rainfall areal reduction factor of 0.997
3484          KM
```

```
3485          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3486          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3487          KM   .45 .44 .44 .13 .09 .08 .04 .04 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
3488          KM
3489          KM          L=   1.050 miles, S=  306 feet/mile, Kb= .14
3490          KM
3491          BA   0.204
3492          LG    0.25    0.35    4.35    0.40   35.00
3493          UC   0.438   0.381
3494          UA      0       3       5       8      12      20      43      75      90      96
3495          UA    100
              *
1                                          HEC-1 INPUT                                          PAGE 82

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3496          KK    C582
3497          KM      Hydrograph combine C582R + 209G at C582
3498          HC       2
              *

3499          KK  582583
3500          KM      Normal depth channel route from C582 to C583
3501          KM      Source:  100 Scale 4' CI Mapping.
3502          RS       2    FLOW      -1
3503          RC   0.060   0.050   0.060  1725.0  0.0232
3504          RX   960.0  1020.0  1035.0  1040.0  1050.0  1055.0  1065.0  1073.0
3505          RY  2024.0  2018.0  2016.0  2015.5  2015.5  2016.0  2020.0  2024.0
              *

3506          KK    209H
3507          KM   Sub-Basin   209H
3508          KM
3509          KM      The Clark Unit Hydrograph is used for this basin.
3510          KM          The Natural time-area relation is used for this basin.
3511          KM
3512          KM      Time of Concentration for this sub-basin is based on the following:
3513          KM          6-Hour Rainfall, Pattern No.  1.00
3514          KM          An rainfall areal reduction factor of 0.999
3515          KM
3516          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3517          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3518          KM   .45 .45 .44 .13 .10 .09 .04 .04 .03 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
3519          KM
3520          KM          L=   0.542 miles, S=  343 feet/mile, Kb= .12
3521          KM
3522          BA   0.083
3523          LG    0.18    0.38    5.60    0.24   18.30
3524          UC   0.242   0.193
3525          UA      0       3       5       8      12      20      43      75      90      96
3526          UA    100
              *

3527          KK    C583
3528          KM      Hydrograph combine 582583 + 209H at C583
3529          HC       2
              *

3530          KK  583584
3531          KM      Normal depth channel route from C583 to C584
3532          KM      Source:  HEC-2 Cross Section: CL 1.664
3533          RS       4    FLOW      -1
3534          RC   0.055   0.070   0.055  3107.0  0.0356
3535          RX  9859.8  9910.3  9933.5  9995.6 10021.7 10051.0 10083.0 10127.8
3536          RY  1948.3  1944.2  1943.7  1930.9  1932.4  1941.6  1937.3  1945.2
              *
1                                          HEC-1 INPUT                                          PAGE 83

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3537          KK    209I
3538          KM   Sub-Basin   209I
3539          KM
3540          KM      The Clark Unit Hydrograph is used for this basin.
3541          KM          The Natural time-area relation is used for this basin.
3542          KM
3543          KM      Time of Concentration for this sub-basin is based on the following:
3544          KM          6-Hour Rainfall, Pattern No.  1.00
3545          KM          An rainfall areal reduction factor of 0.998
3546          KM
3547          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3548          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3549          KM   .45 .45 .44 .14 .10 .09 .04 .04 .03 .01 .00 .00 .00 .00 .00 .00 .00 .00
3550          KM
3551          KM          L=   0.691 miles, S=  347 feet/mile, Kb= .10
3552          KM
3553          BA   0.182
3554          LG    0.15    0.40    6.00    0.18    5.30
3555          UC   0.246   0.153
3556          UA      0       3       5       8      12      20      43      75      90      96
3557          UA    100
              *

3558          KK    C584I
3559          KM      Hydrograph combine 583584 + 209I at C584I
3560          HC       2
              *
              * *
              * * C584I is the total flow in Cloudburst Wash upstream of Dam 7
              * *
              *
```

```
3561        KK   C5840
3562        KM      Reservoir route at C584 (Dam 7).
3563        RS       1    ELEV  1884.8
3564        SV    0.00   14.55   37.17   57.52   86.65   94.00   97.00  101.00  104.90  109.00
3565        SV  113.00  118.00  122.00  126.25  131.00  133.00  136.00  139.00
3566        SE  1884.8  1908.0  1916.0  1920.0  1924.0  1924.8  1925.2  1925.6  1926.0  1926.4
3567        SE  1926.8  1927.2  1927.6  1928.0  1928.4  1928.6  1928.8  1929.0
3568        SQ       0     135     223     285     326     341     355     358     385     493
3569        SQ     704    1007    1394    1852    2374    2956    3596    3937    4292    4661
3570        SE  1884.8  1892.0  1900.0  1908.0  1916.0  1920.0  1924.0  1924.8  1925.2  1925.6
3571        SE  1926.0  1926.4  1926.8  1927.2  1927.6  1928.0  1928.4  1928.6  1928.8  1929.0
3572        RL                    0.15
            *
            * *
            * * End Basin 209.  Rejoin Basin 210
            * *
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3573        KK  584597
3574        KM      Normal depth channel route from C584 to C597
3575        KM      Source:  HEC-2 Cross Section: CL 1.032
3576        RS       8    FLOW      -1
3577        RC   0.065   0.050   0.065  3704.0  0.0261
3578        RX  9902.1  9923.0  9938.7  9984.6 10049.3 10056.0 10091.7 10120.0
3579        RY  1839.1  1830.1  1826.6  1824.1  1824.9  1826.7  1828.5  1838.8
            *

3580        KK    210L
3581        KM   Sub-Basin   210L
3582        KM
3583        KM      The Clark Unit Hydrograph is used for this basin.
3584        KM          The HEC-1 time-area relation is used for this basin.
3585        KM
3586        KM      Time of Concentration for this sub-basin is based on the following:
3587        KM          6-Hour Rainfall, Pattern No.  1.00
3588        KM          An rainfall areal reduction factor of 0.998
3589        KM
3590        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3591        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3592        KM   .43 .43 .42 .11 .08 .06 .02 .02 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00
3593        KM
3594        KM          L=   0.820 miles, S=  251 feet/mile, Kb= .09
3595        KM
3596        BA   0.137
3597        LG    0.18    0.37    5.20    0.28    0.00
3598        UC   0.300   0.257
            *

3599        KK    C597
3600        KM      Hydrograph combine 584597 + 210L at C597
3601        HC       2
            *

3602        KK  597598
3603        KM      Normal depth channel route from C597 to C598
3604        KM      Source:  HEC-2 Cross Section: CL 0.328
3605        RS       5    FLOW      -1
3606        RC   0.065   0.050   0.065  2822.0  0.0252
3607        RX  9961.0  9961.9  9969.1  9986.3 10018.5 10082.6 10155.2 10278.8
3608        RY  1740.2  1740.2  1738.1  1731.6  1732.3  1737.1  1740.0  1740.8
            *

3609        KK    210M
3610        KM   Sub-Basin   210M
3611        KM
3612        KM      The Clark Unit Hydrograph is used for this basin.
3613        KM          The Natural time-area relation is used for this basin.
3614        KM
3615        KM      Time of Concentration for this sub-basin is based on the following:
3616        KM          6-Hour Rainfall, Pattern No.  1.00
3617        KM          An rainfall areal reduction factor of 0.998
3618        KM
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3619        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3620        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3621        KM   .45 .44 .44 .13 .09 .08 .03 .03 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
3622        KM
3623        KM          L=   1.022 miles, S=  232 feet/mile, Kb= .09
3624        KM
3625        BA   0.162
3626        LG    0.18    0.39    5.80    0.20    0.10
3627        UC   0.354   0.335
3628        UA       0       3       5       8      12      20      43      75      90      96
3629        UA     100
            *

3630        KK    C598
3631        KM      Hydrograph combine 597598 + 210M at C598
3632        HC       2
            *
            * *
            * * C598 is the total flow in Cloudburst Wash at Golden Eagle Blvd.
            * * upstream of DAM 4
            * *
            *

3633        KK    210N
```

```
3634          KM   Sub-Basin   210N
3635          KM
3636          KM      The Clark Unit Hydrograph is used for this basin.
3637          KM          The Natural time-area relation is used for this basin.
3638          KM
3639          KM      Time of Concentration for this sub-basin is based on the following:
3640          KM          6-Hour Rainfall, Pattern No.  1.00
3641          KM          An rainfall areal reduction factor of 0.999
3642          KM
3643          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3644          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3645          KM   .42 .42 .41 .10 .06 .04 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3646          KM
3647          KM          L=   0.309 miles, S=  178 feet/mile, Kb= .08
3648          KM
3649          BA   0.049
3650          LG    0.26    0.35    4.10    0.46   10.40
3651          UC   0.183   0.123
3652          UA       0       3       5       8      12      20      43      75      90      96
3653          UA     100
              *

3654          KK   C599I
3655          KM      Hydrograph combine C585 + C596 + C598 + 210N at C599I
3656          HC       4
              *
              * *
              * * C599I is the total flow in Ashbrook Wash upstream of DAM 4
              * *
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3657          KK   C599O
3658          KM      Reservoir route at C599 (Dam 4).
3659          RS       1    ELEV  1694.7
3660          SV    0.00   16.85   31.66   52.71   80.85   95.00   98.00  102.00  105.00  109.00
3661          SV  113.00  116.14  120.00  124.00  128.00  136.00  139.00  144.00  148.00  152.00
3662          SE  1694.7  1708.0  1710.0  1712.0  1714.0  1714.8  1715.0  1715.2  1715.4  1715.6
3663          SE  1715.8  1716.0  1716.2  1716.4  1716.6  1717.0  1717.2  1717.4  1717.6  1717.8
3664          SQ       0      38     214     312     384     443     497     543     587     628
3665          SQ     642     754     957    1262    1665    2182    2483    2811    3164    3540
3666          SE  1694.7  1696.0  1700.0  1702.0  1704.0  1706.0  1708.0  1710.0  1712.0  1714.0
3667          SE  1714.8  1715.4  1715.8  1716.2  1716.6  1717.0  1717.2  1717.4  1717.6  1717.8
3668          RL                    0.97
              *
              * * End Basin 210.  Start Basin 211
              * *
              *

3669          KK  599608
3670          KM      Normal depth channel route from C599 to C608
3671          KM      Source:  HEC-2 Cross Section: AS 3.621
3672          RS       3    FLOW      -1
3673          RC   0.055   0.045   0.025  1476.0  0.0148
3674          RX  9675.4  9726.8  9929.0  9990.7 10005.9 10033.3 10061.9 10082.2
3675          RY  1691.3  1687.2  1685.5  1678.6  1678.1  1682.1  1689.8  1691.8
              *

3676          KK    211K
3677          KM   Sub-Basin   211K
3678          KM
3679          KM      The Clark Unit Hydrograph is used for this basin.
3680          KM          The HEC-1 time-area relation is used for this basin.
3681          KM
3682          KM      Time of Concentration for this sub-basin is based on the following:
3683          KM          6-Hour Rainfall, Pattern No.  1.00
3684          KM          An rainfall areal reduction factor of 0.999
3685          KM
3686          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3687          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3688          KM   .46 .45 .45 .15 .11 .10 .05 .04 .04 .02 .02 .02 .00 .00 .00 .00 .00 .00
3689          KM
3690          KM          L=   0.376 miles, S=  157 feet/mile, Kb= .08
3691          KM
3692          BA   0.102
3693          LG    0.18    0.38    6.00    0.18   17.80
3694          UC   0.204   0.107
              *

3695          KK   C608L
3696          KM      Hydrograph combine 599608 + 211K at C608 left branch
3697          HC       2
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3698          KK    211G
3699          KM   Sub-Basin   211G
3700          KM
3701          KM      The Clark Unit Hydrograph is used for this basin.
3702          KM          The Urban time-area relation is used for this basin.
3703          KM
3704          KM      Time of Concentration for this sub-basin is based on the following:
3705          KM          6-Hour Rainfall, Pattern No.  1.00
3706          KM          An rainfall areal reduction factor of 1.000
3707          KM
3708          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3709          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3710          KM   .50 .50 .50 .19 .16 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .02 .02 .02
```

```
3711          KM
3712          KM          L=   0.448 miles, S=  190 feet/mile, Kb= .04
3713          KM
3714          BA   0.008
3715          LG    0.06    0.25    5.70    0.18   90.00
3716          UC   0.142   0.359
3717          UA       0       5      16      30      65      77      84      90      94      97
3718          UA     100
              *

3719          KK  604606
3720          KM      Normal depth channel route from C604 to C606
3721          KM      Source:  200 Scale Mapping
3722          RS      11    FLOW     -1
3723          RC   0.040   0.018   0.040  2784.0  0.0647
3724          RX  1000.0  1040.0  1060.0  1076.0  1092.0  1093.2  1098.2  1113.2
3725          RY  1814.0  1811.0  1810.8  1811.1  1810.8  1811.2  1812.0  1816.0
              *

3726          KK    211I
3727          KM   Sub-Basin   211I
3728          KM
3729          KM      The Clark Unit Hydrograph is used for this basin.
3730          KM          The Natural time-area relation is used for this basin.
3731          KM
3732          KM      Time of Concentration for this sub-basin is based on the following:
3733          KM          6-Hour Rainfall, Pattern No.  1.00
3734          KM          An rainfall areal reduction factor of 0.999
3735          KM
3736          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3737          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3738          KM   .47 .46 .46 .16 .12 .11 .05 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
3739          KM
3740          KM          L=   0.626 miles, S=  257 feet/mile, Kb= .11
3741          KM
3742          BA   0.041
3743          LG    0.13    0.39    5.70    0.20   35.00
3744          UC   0.271   0.370
3745          UA       0       3       5       8      12      20      43      75      90      96
3746          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3747          KK   C606R
3748          KM      Hydrograph combine 604606 + 211I at C606 right branch
3749          HC       2
              *

3750          KK    211H
3751          KM   Sub-Basin   211H
3752          KM
3753          KM      The Clark Unit Hydrograph is used for this basin.
3754          KM          The Natural time-area relation is used for this basin.
3755          KM
3756          KM      Time of Concentration for this sub-basin is based on the following:
3757          KM          6-Hour Rainfall, Pattern No.  1.00
3758          KM          An rainfall areal reduction factor of 0.999
3759          KM
3760          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3761          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3762          KM   .45 .45 .44 .14 .10 .09 .04 .04 .03 .00 .00 .00 .00 .00 .00 .00 .00 .00
3763          KM
3764          KM          L=   0.501 miles, S=  289 feet/mile, Kb= .11
3765          KM
3766          BA   0.073
3767          LG    0.15    0.40    6.00    0.18    3.40
3768          UC   0.233   0.187
3769          UA       0       3       5       8      12      20      43      75      90      96
3770          UA     100
              *

3771          KK   C605O
3772          KM      Reservoir route at C605.
3773          RS       1    ELEV  1722.5
3774          SV    0.00    0.20    0.20    0.20    0.20    0.30    0.30    0.30    0.40    0.60
3775          SV    0.70    0.90    1.00    1.20    1.40    1.60    1.90    2.80    3.40    4.10
3776          SE  1722.5  1726.8  1727.0  1727.2  1727.4  1727.6  1727.8  1728.0  1728.2  1728.4
3777          SE  1728.6  1728.8  1729.0  1729.2  1729.4  1729.6  1730.0  1730.4  1730.7  1731.0
3778          SQ       0       0       5      10      20      43      63      73      78      85
3779          SQ      91      96     101     105     109     113     122     130     136     200
              *

3780          KK    C606
3781          KM      Hydrograph combine C606R + C605O at C606
3782          HC       2
              *

3783          KK  606607
3784          KM      Normal depth channel route from C606 to C607
3785          KM      Source:  200 Scale Mapping
3786          RS       2    FLOW     -1
3787          RC   0.020   0.055   0.035  1061.0  0.0286
3788          RX  1000.0  1032.0  1082.0  1095.0  1105.0  1117.0  1123.0  1153.0
3789          RY  1704.3  1704.0  1703.5  1700.0  1700.0  1703.0  1704.0  1706.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3790          KK    211J
```

```
3791          KM   Sub-Basin   211J
3792          KM
3793          KM      The Clark Unit Hydrograph is used for this basin.
3794          KM          The HEC-1 time-area relation is used for this basin.
3795          KM
3796          KM      Time of Concentration for this sub-basin is based on the following:
3797          KM          6-Hour Rainfall, Pattern No.  1.00
3798          KM          An rainfall areal reduction factor of 1.000
3799          KM
3800          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3801          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3802          KM   .47 .46 .46 .16 .12 .12 .05 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
3803          KM
3804          KM          L=   0.249 miles, S=  166 feet/mile, Kb= .11
3805          KM
3806          BA   0.015
3807          LG    0.13    0.37    6.20    0.18   32.40
3808          UC   0.192   0.215
              *

3809          KK    C607
3810          KM      Hydrograph combine 606607 + 211J at C607
3811          HC       2
              *

3812          KK  607608
3813          KM      Normal depth channel route from C607 to C608
3814          KM      Source:  200 Scale Mapping
3815          RS       2    FLOW      -1
3816          RC   0.040   0.050   0.035  1008.0  0.0145
3817          RX  1000.0  1060.0  1070.0  1082.0  1083.0  1095.0  1115.0  1133.0
3818          RY  1688.0  1686.0  1684.0  1681.0  1681.0  1684.0  1685.0  1685.4
              *

3819          KK    C608
3820          KM      Hydrograph combine C608L + 607608 at C608
3821          HC       2
              *

3822          KK  608613
3823          KM      Normal depth channel route from C608 to C613
3824          KM      Source:  HEC-2 Cross Section: AS 3.421
3825          RS       2    FLOW      -1
3826          RC   0.100   0.045   0.100  1338.0  0.0202
3827          RX  9885.0  9887.9  9957.3  9986.7 10012.9 10054.7 10086.3 10122.2
3828          RY  1670.2  1670.1  1668.0  1660.0  1659.9  1661.6  1669.9  1670.8
              *
              * *
              * * Move to the top of Sunflower Wash
              * *
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3829          KK    211M
3830          KM   Sub-Basin   211M
3831          KM
3832          KM      The Clark Unit Hydrograph is used for this basin.
3833          KM          The Natural time-area relation is used for this basin.
3834          KM
3835          KM      Time of Concentration for this sub-basin is based on the following:
3836          KM          6-Hour Rainfall, Pattern No.  1.00
3837          KM          An rainfall areal reduction factor of 0.999
3838          KM
3839          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3840          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3841          KM   .46 .46 .46 .15 .12 .11 .05 .05 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
3842          KM
3843          KM          L=   0.541 miles, S=  266 feet/mile, Kb= .11
3844          KM
3845          BA   0.081
3846          LG    0.13    0.39    5.70    0.21   30.30
3847          UC   0.246   0.199
3848          UA       0       3       5       8      12      20      43      75      90      96
3849          UA     100
              *

3850          KK  610611
3851          KM      Normal depth channel route from C610 to 1611
3852          KM      Source:  HEC-2 Cross Section: SU 0.216
3853          RS       2    FLOW      -1
3854          RC   0.050   0.045   0.050  1090.0  0.0211
3855          RX  9911.9  9948.1  9973.6  9988.6 10007.1 10027.0 10049.8 10143.7
3856          RY  1699.3  1691.7  1686.3  1680.1  1679.7  1686.6  1687.3  1698.6
              *

3857          KK    211N
3858          KM   Sub-Basin   211N
3859          KM
3860          KM      The Clark Unit Hydrograph is used for this basin.
3861          KM          The HEC-1 time-area relation is used for this basin.
3862          KM
3863          KM      Time of Concentration for this sub-basin is based on the following:
3864          KM          6-Hour Rainfall, Pattern No.  1.00
3865          KM          An rainfall areal reduction factor of 1.000
3866          KM
3867          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3868          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3869          KM   .46 .45 .45 .15 .11 .10 .05 .04 .04 .02 .02 .02 .00 .00 .00 .00 .00 .00
3870          KM
3871          KM          L=   0.261 miles, S=  235 feet/mile, Kb= .12
3872          KM
```

```
3873          BA   0.020
3874          LG    0.14    0.39    5.70    0.20   20.20
3875          UC   0.188   0.181
              *
1                                        HEC-1 INPUT                                                    PAGE 91
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3876          KK   C611R
3877          KM      Hydrograph combine 610611 + 211N at C611 right branch
3878          HC       2
              *

3879          KK    211O
3880          KM   Sub-Basin   211O
3881          KM
3882          KM      The Clark Unit Hydrograph is used for this basin.
3883          KM          The HEC-1 time-area relation is used for this basin.
3884          KM
3885          KM      Time of Concentration for this sub-basin is based on the following:
3886          KM          6-Hour Rainfall, Pattern No.  1.00
3887          KM          An rainfall areal reduction factor of 0.999
3888          KM
3889          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3890          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3891          KM   .47 .46 .46 .15 .12 .11 .05 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
3892          KM
3893          KM          L=   0.371 miles, S=  257 feet/mile, Kb= .11
3894          KM
3895          BA   0.041
3896          LG    0.13    0.39    5.70    0.20   34.60
3897          UC   0.204   0.177
              *

3898          KK   C609O
3899          KM      Reservoir route at C609.
3900          RS       1    ELEV  1694.0
3901          SV    0.00    0.10    0.21    0.50    0.86    1.40    1.93    2.60    3.10    3.20
3902          SV    3.39    3.60    3.80    4.00    4.10    4.30    4.50    4.70    4.90    5.10
3903          SE  1694.0  1695.0  1696.0  1697.0  1698.0  1699.0  1700.0  1701.0  1701.6  1701.8
3904          SE  1702.0  1702.2  1702.4  1702.6  1702.8  1703.0  1703.2  1703.4  1703.6  1703.8
3905          SQ       0       6      16      33      48      59      68      75      79      85
3906          SQ     108     149     209     289     390     512     658     829    1025    1247
              *

3907          KK  609611
3908          KM      Normal depth channel route from C609 to C611
3909          KM      Source:  200 Scale Mapping
3910          RS       2    FLOW      -1
3911          RC   0.035   0.050   0.035   470.0  0.0200
3912          RX  1000.0  1025.0  1050.0  1054.0  1064.0  1068.0  1088.0  1103.0
3913          RY  1690.0  1688.0  1684.0  1682.0  1682.0  1684.0  1688.0  1690.0
              *

3914          KK   C611I
3915          KM      Hydrograph combine 609611 + C611R at C611I
3916          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 92
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3917          KK   C611O
3918          KM      Reservoir route at C611.
3919          RS       1    ELEV  1668.4
3920          SV    0.00    0.41    1.10    2.49    4.34    6.64    6.72    6.81    6.89    6.97
3921          SV    7.06    7.14    7.22    7.31    7.39    7.47    7.56    7.64    7.72    7.81
3922          SE  1674.0  1676.0  1678.0  1680.0  1682.0  1684.0  1684.2  1684.4  1684.6  1684.8
3923          SE  1685.0  1685.2  1685.4  1685.6  1685.8  1686.0  1686.2  1686.4  1686.6  1686.8
3924          SQ       0       0      86     117     141     162     164     170     181     199
3925          SQ     225     262     313     378     460     558     673     807     958    1118
              *

3926          KK   D611L
3927          KM      Hydrograph diversion at C611.  Main flow continues in the left branch.
3928          KM      Diverted flow is in the right branch.
3929          DT   D611R
3930          DI       0       0      86     117     141     162     164     170     181     199
3931          DI     225     262     313     378     460     558     673     807     958    1118
3932          DQ       0       0      86     117     141     162     164     165     167     169
3933          DQ     171     173     175     176     178     180     182     183     185     187
              *

3934          KK  611612
3935          KM      Normal depth channel route from C611 to C612
3936          KM      Source:  200 Scale Mapping
3937          RS       1    FLOW      -1
3938          RC   0.040   0.018   0.040   925.0  0.0270
3939          RX  1000.0  1020.0  1023.0  1041.0  1059.0  1060.2  1071.2  1136.2
3940          RY  1666.0  1664.0  1663.5  1663.9  1663.5  1663.9  1664.0  1666.0
              *

3941          KK    211P
3942          KM   Sub-Basin   211P
3943          KM
3944          KM      The Clark Unit Hydrograph is used for this basin.
3945          KM          The Urban time-area relation is used for this basin.
3946          KM
3947          KM      Time of Concentration for this sub-basin is based on the following:
3948          KM          6-Hour Rainfall, Pattern No.  1.00
3949          KM          An rainfall areal reduction factor of 1.000
3950          KM
```

```
3951          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3952          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3953          KM   .49 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
3954          KM
3955          KM          L=   0.307 miles, S=  192 feet/mile, Kb= .03
3956          KM
3957          BA   0.033
3958          LG    0.08    0.15    7.00    0.11   44.90
3959          UC   0.100   0.077
3960          UA       0       5      16      30      65      77      84      90      94      97
3961          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 93

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3962          KK    C612
3963          KM      Hydrograph combine 611612 + 211P at C612
3964          HC       2
              *
              * *
              * * NOTE: 612613 is too short to route
              * *
              *

3965          KK    C613
3966          KM      Hydrograph combine 608613 + C612 at C613
3967          HC       2
              *

3968          KK  613621
3969          KM      Normal depth channel route from C613 to C621
3970          KM      Source:  HEC-2 Cross Section: AS 3.241
3971          RS       2    FLOW      -1
3972          RC   0.100   0.045   0.100   718.0  0.0251
3973          RX  9695.4  9884.0  9985.0  9991.1 10033.8 10062.8 10097.5 10165.1
3974          RY  1655.5  1647.5  1645.8  1641.1  1640.6  1642.1  1648.7  1654.3
              *

3975          KK    211L
3976          KM   Sub-Basin   211L
3977          KM
3978          KM      The Clark Unit Hydrograph is used for this basin.
3979          KM          The Urban time-area relation is used for this basin.
3980          KM
3981          KM      Time of Concentration for this sub-basin is based on the following:
3982          KM          6-Hour Rainfall, Pattern No.  1.00
3983          KM          An rainfall areal reduction factor of 0.999
3984          KM
3985          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3986          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3987          KM   .46 .46 .46 .15 .12 .11 .05 .05 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
3988          KM
3989          KM          L=   0.508 miles, S=  181 feet/mile, Kb= .04
3990          KM
3991          BA   0.096
3992          LG    0.16    0.28    4.35    0.36   37.80
3993          UC   0.158   0.106
3994          UA       0       5      16      30      65      77      84      90      94      97
3995          UA     100
              *

3996          KK   C621L
3997          KM      Hydrograph combine 613621 + 211L at C621 left branch
3998          HC       2
              *
              * *
              * * Move to the top of Arrow Wash
              * *
              *
1                                          HEC-1 INPUT                                          PAGE 94

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3999          KK    211Q
4000          KM   Sub-Basin   211Q
4001          KM
4002          KM      The Clark Unit Hydrograph is used for this basin.
4003          KM          The HEC-1 time-area relation is used for this basin.
4004          KM
4005          KM      Time of Concentration for this sub-basin is based on the following:
4006          KM          6-Hour Rainfall, Pattern No.  1.00
4007          KM          An rainfall areal reduction factor of 1.000
4008          KM
4009          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4010          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4011          KM   .45 .45 .45 .14 .10 .09 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
4012          KM
4013          KM          L=   0.255 miles, S=  295 feet/mile, Kb= .12
4014          KM
4015          BA   0.021
4016          LG    0.14    0.38    5.70    0.20    8.50
4017          UC   0.171   0.157
              *

4018          KK  616617
4019          KM      Normal depth channel route from C616 to C617
4020          KM      Source:  200 Scale Mapping
4021          RS       4    FLOW      -1
4022          RC   0.070   0.060   0.070  1131.0  0.0553
4023          RX  1000.0  1008.0  1015.0  1045.0  1050.0  1080.0  1100.0  1110.0
4024          RY  1834.0  1832.0  1830.0  1826.0  1826.0  1830.0  1834.0  1836.0
```

```
                *
4025            KK    211R
4026            KM   Sub-Basin   211R
4027            KM
4028            KM      The Clark Unit Hydrograph is used for this basin.
4029            KM          The HEC-1 time-area relation is used for this basin.
4030            KM
4031            KM      Time of Concentration for this sub-basin is based on the following:
4032            KM          6-Hour Rainfall, Pattern No.  1.00
4033            KM          An rainfall areal reduction factor of 0.999
4034            KM
4035            KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4036            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4037            KM   .46 .46 .45 .15 .11 .11 .05 .05 .04 .02 .02 .02 .01 .01 .01 .01 .01 .01
4038            KM
4039            KM          L=   0.572 miles, S=  271 feet/mile, Kb= .10
4040            KM
4041            BA   0.084
4042            LG    0.13    0.38    5.70    0.20   22.00
4043            UC   0.242   0.200
                *
1                                          HEC-1 INPUT                                                    PAGE 95
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4044            KK   C617L
4045            KM      Hydrograph combine 616617 + 211R at C617 left branch
4046            HC       2
                *

4047            KK    211U
4048            KM   Sub-Basin   211U
4049            KM
4050            KM      The Clark Unit Hydrograph is used for this basin.
4051            KM          The Urban time-area relation is used for this basin.
4052            KM
4053            KM      Time of Concentration for this sub-basin is based on the following:
4054            KM          6-Hour Rainfall, Pattern No.  1.00
4055            KM          An rainfall areal reduction factor of 1.000
4056            KM
4057            KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4058            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4059            KM   .49 .49 .49 .18 .15 .15 .07 .07 .07 .07 .06 .06 .02 .02 .02 .02 .02 .02
4060            KM
4061            KM          L=   0.831 miles, S=  214 feet/mile, Kb= .04
4062            KM
4063            BA   0.027
4064            LG    0.07    0.26    5.70    0.18   65.50
4065            UC   0.188   0.386
4066            UA       0       5      16      30      65      77      84      90      94      97
4067            UA     100
                *

4068            KK   D614L
4069            KM      Hydrograph diversion at C614.  Main flow continues in the left branch.
4070            KM      Diverted flow is in the right branch.
4071            DT   D614R
4072            DI       0     4.3     8.5    20.0    49.0    85.5
4073            DQ       0     2.5     5.0    13.5    35.0    60.0
                *

4074            KK    C617
4075            KM      Hydrograph combine C617L + D614L at C617
4076            HC       2
                *

4077            KK  617618
4078            KM      Normal depth channel route from C617 to C618
4079            KM      Source:  HEC-2 Cross Section: AR 0.836
4080            RS       5    FLOW     -1
4081            RC   0.070   0.060   0.070  1912.0  0.0345
4082            RX  9983.3  9987.2  9989.2  9991.1 10031.5 10053.5 10070.6 10097.7
4083            RY  1766.5  1762.3  1760.2  1758.1  1757.8  1760.8  1764.2  1770.6
                *
1                                          HEC-1 INPUT                                                    PAGE 96
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4084            KK    211S
4085            KM   Sub-Basin   211S
4086            KM
4087            KM      The Clark Unit Hydrograph is used for this basin.
4088            KM          The HEC-1 time-area relation is used for this basin.
4089            KM
4090            KM      Time of Concentration for this sub-basin is based on the following:
4091            KM          6-Hour Rainfall, Pattern No.  1.00
4092            KM          An rainfall areal reduction factor of 0.999
4093            KM
4094            KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4095            KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4096            KM   .46 .46 .46 .15 .12 .11 .05 .05 .04 .03 .02 .02 .01 .01 .01 .01 .01 .01
4097            KM
4098            KM          L=   0.445 miles, S=  272 feet/mile, Kb= .10
4099            KM
4100            BA   0.050
4101            LG    0.13    0.36    5.70    0.20   26.10
4102            UC   0.213   0.190
                *

4103            KK   C618I
4104            KM      Hydrograph combine 617618 + 211S at C618I
```

```
4105          HC       2
              *

4106          KK   C618O
4107          KM      Reservoir route at C618.
4108          RS       1    ELEV  1730.6
4109          SV    0.00    0.01    0.06    0.24    0.50    0.75    1.20    1.66    2.30    2.94
4110          SV    3.20    3.30    3.40    3.60    3.80    3.90    4.10    4.30    4.50    4.65
4111          SE  1730.6  1734.0  1736.0  1738.0  1739.0  1740.0  1741.0  1742.0  1743.0  1744.0
4112          SE  1744.3  1744.4  1744.6  1744.8  1745.0  1745.2  1745.4  1745.6  1745.8  1746.0
4113          SQ       0     2.2     2.6     3.0     3.1     3.2     3.3     3.5     3.6     3.7
4114          SQ     3.7     3.8       8      21      48      88     143     212     295     390
              *

4115          KK  BB614R
4116          KM      Retrieve previously diverted hydrograph at C614 in the right branch.
4117          DR   D614R
              *

4118          KK  614615
4119          KM      Normal depth channel route from C614 to C615
4120          KM      Source:  Hydrology Field Reconnaissance
4121          RS       3    FLOW     -1
4122          RC   0.040   0.018   0.040  1114.0  0.0397
4123          RX  1000.0  1020.0  1025.0  1059.0  1091.0  1093.0  1098.0  1103.0
4124          RY  1828.0  1822.0  1821.5  1822.2  1821.8  1822.0  1824.0  1826.0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4125          KK    211V
4126          KM   Sub-Basin   211V
4127          KM
4128          KM      The Clark Unit Hydrograph is used for this basin.
4129          KM          The Urban time-area relation is used for this basin.
4130          KM
4131          KM      Time of Concentration for this sub-basin is based on the following:
4132          KM          6-Hour Rainfall, Pattern No.  1.00
4133          KM          An rainfall areal reduction factor of 1.000
4134          KM
4135          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4136          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4137          KM   .50 .50 .50 .19 .16 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .02 .02 .02
4138          KM
4139          KM          L=   0.222 miles, S=  212 feet/mile, Kb= .04
4140          KM
4141          BA   0.005
4142          LG    0.06    0.25    5.80    0.18   90.00
4143          UC   0.096   0.170
4144          UA       0       5      16      30      65      77      84      90      94      97
4145          UA     100
              *

4146          KK    C615
4147          KM      Hydrograph combine 614615 + 211V at C615
4148          HC       2    0.03
              *

4149          KK   D615L
4150          KM      Hydrograph diversion at C615.  Main flow continues in the left branch.
4151          KM      Diverted flow is in the right branch.
4152          DT   D615R
4153          DI       0     1.3     2.5     5.3     8.6    14.2    23.0    36.8    55.5    77.5
4154          DQ       0       0       0     1.3     2.6     4.2     7.0    12.8    19.5    29.5
              *

4155          KK  615618
4156          KM      Normal depth channel route from C615 to C618
4157          KM      Source:  Hydrology Field Reconnaissance
4158          RS       1    FLOW     -1
4159          RC   0.040   0.018   0.040   499.0  0.1338
4160          RX  1000.0  1008.0  1009.2  1013.2  1027.2  1028.4  1036.4  1045.4
4161          RY  1800.4  1799.6  1799.2  1798.8  1798.3  1798.7  1798.9  1800.4
              *

4162          KK    C618
4163          KM      Hydrograph combine C618O + 615618 at C618
4164          HC       2    0.19
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4165          KK  618619
4166          KM      Normal depth channel route from C618 to C619
4167          KM      Source:  HEC-2 Cross Section: AR 0.441
4168          RS       4    FLOW     -1
4169          RC   0.070   0.060   0.070  1837.0  0.0285
4170          RX  9870.6  9928.6  9957.1  9996.9 10004.9 10022.1 10062.0 10116.4
4171          RY  1709.2  1700.9  1698.8  1690.0  1689.8  1699.6  1700.3  1711.3
              *

4172          KK    211T
4173          KM   Sub-Basin   211T
4174          KM
4175          KM      The Clark Unit Hydrograph is used for this basin.
4176          KM          The HEC-1 time-area relation is used for this basin.
4177          KM
4178          KM      Time of Concentration for this sub-basin is based on the following:
4179          KM          6-Hour Rainfall, Pattern No.  1.00
4180          KM          An rainfall areal reduction factor of 0.999
```

```
4181        KM
4182        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4183        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4184        KM   .46 .46 .45 .15 .11 .11 .05 .05 .04 .02 .02 .02 .00 .00 .00 .00 .00 .00
4185        KM
4186        KM          L=   0.488 miles, S=  250 feet/mile, Kb= .10
4187        KM
4188        BA   0.066
4189        LG    0.13    0.37    5.70    0.20   21.00
4190        UC   0.229   0.191
            *

4191        KK   C619L
4192        KM      Hydrograph combine 618619 + 211T at C619 left branch
4193        HC       2
            *

4194        KK  BB615R
4195        KM      Retrieve previously diverted hydrograph at C615 in the right branch.
4196        DR   D615R
            *

4197        KK  615619
4198        KM      Normal depth channel route from C615 to C619
4199        KM      Source:  Hydrology Field Reconnaissance
4200        RS       5    FLOW      -1
4201        RC   0.045   0.024   0.025  2444.0  0.0493
4202        RX  1000.0  1009.3  1018.5  1037.0  1039.3  1053.0  1065.0  1065.0
4203        RY  1727.2  1726.5  1725.8  1724.4  1724.6  1725.8  1725.9  1725.9
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4204        KK   C619I
4205        KM      Hydrograph combine C619L + 615619 at C619I
4206        HC       2    0.25
            *

4207        KK   C619O
4208        KM      Reservoir route at C619.
4209        RS       1    ELEV  1675.6
4210        SV    0.00    1.72    2.98    4.70    7.00    7.08    7.17    7.26    7.34    7.43
4211        SV    7.51    7.60    7.69    7.77    7.86
4212        SE  1675.6  1686.0  1688.0  1690.0  1692.0  1692.2  1692.4  1692.6  1692.8  1693.0
4213        SE  1693.2  1693.4  1693.6  1693.8  1694.0
4214        SQ       0       4      25      72     128     155     163     172     178     187
4215        SQ     195     213     238     273     318     374     441     518     606     706
4216        SE  1675.6  1676.0  1678.0  1680.0  1682.0  1684.0  1686.0  1688.0  1690.0  1692.0
4217        SE  1692.2  1692.4  1692.6  1692.8  1693.0  1693.2  1693.4  1693.6  1693.8  1694.0
            *

4218        KK   D619R
4219        KM      Hydrograph diversion at C619.  Main flow continues in the right branch.
4220        KM      Diverted flow is in the left branch.
4221        DT   D619L
4222        DI       0       4      25      72     128     155     163     172     178     187
4223        DI     195     213     238     273     318     374     441     518     606     706
4224        DQ       0       0       0       0       0       0       0       0       0       0
4225        DQ       8      24      49      83     128     182     249     326     412     512
            *

4226        KK  619620
4227        KM                 Lag route through Palisades Plaza storm drain
4228        RT       0              1
            *

4229        KK  BB619L
4230        KM      Retrieve previously diverted hydrograph at C619 in the left branch.
4231        DR   D619L
            *

4232        KK  619620
4233        KM   Normal depth channel route from C619 to C620 in Fountain Hills Blvd.
4234        KM   Source:  200 Scale Mapping. Similiar to 523548
4235        RS       1    FLOW      -1
4236        RC   0.040   0.024   0.040   800.0  0.0288
4237        RX   918.0   940.0   960.0  1000.0  1040.0  1040.1  1044.1  1088.1
4238        RY  1648.0  1645.8  1643.8  1644.7  1644.0  1644.5  1644.5  1648.0
            *

4239        KK    211W
4240        KM   Sub-Basin   211W
4241        KM
4242        KM      The Clark Unit Hydrograph is used for this basin.
4243        KM          The Urban time-area relation is used for this basin.
4244        KM
4245        KM      Time of Concentration for this sub-basin is based on the following:
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4246        KM          6-Hour Rainfall, Pattern No.  1.00
4247        KM          An rainfall areal reduction factor of 1.000
4248        KM
4249        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4250        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4251        KM   .49 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .06 .02 .02 .02 .02 .02 .02
4252        KM
4253        KM          L=   0.289 miles, S=  173 feet/mile, Kb= .04
4254        KM
4255        BA   0.030
4256        LG    0.07    0.27    5.70    0.18   69.90
```

```
4257          UC   0.117   0.094
4258          UA       0       5      16      30      65      77      84      90      94      97
4259          UA     100
              *

4260          KK   C620R
4261          KM      Hydrograph combine 619620 + R619L + 211W at C620 right branch
4262          HC       3    0.28
              *

4263          KK  BB611R
4264          KM      Retrieve previously diverted hydrograph at C611 in the right branch.
4265          DR   D611R
              *

4266          KK  611620
4267          KM                 Lag route through Palisades Plaza storm drain
4268          RT       0               1
              *

4269          KK    C620
4270          KM      Hydrograph combine 611620 + C620R at C620
4271          HC       2    0.42
              *

4272          KK  620621
4273          KM      Normal depth channel route from C620 to C621
4274          KM      Source:  HEC-2 Cross Section: AR 0.081
4275          RS       2    FLOW      -1
4276          RC   0.050   0.050   0.050   915.0  0.0394
4277          RX  9790.0  9790.1  9972.2  9994.8 10004.9 10029.7 10048.6 10125.0
4278          RY  1657.9  1657.5  1656.4  1646.8  1646.8  1657.8  1657.0  1657.9
              *

4279          KK    C621
4280          KM      Hydrograph combine C621L + 620621 at C621
4281          HC       2    7.93
              *
1                                          HEC-1 INPUT                                          PAGE101

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4282          KK  621622
4283          KM      Normal depth channel route from C621 to C622
4284          KM      Source:  HEC-2 Cross Section: AS 2.785
4285          RS       6    FLOW      -1
4286          RC   0.100   0.045   0.100  3830.0  0.0144
4287          RX  9827.3  9922.9  9951.0 10000.0 10002.7 10044.7 10071.6 10076.8
4288          RY  1615.2  1611.0  1604.1  1600.8  1601.5  1601.6  1611.0  1613.9
              *

4289          KK    211X
4290          KM   Sub-Basin   211X
4291          KM
4292          KM      The Clark Unit Hydrograph is used for this basin.
4293          KM          The HEC-1 time-area relation is used for this basin.
4294          KM
4295          KM      Time of Concentration for this sub-basin is based on the following:
4296          KM          6-Hour Rainfall, Pattern No.  1.00
4297          KM          An rainfall areal reduction factor of 0.997
4298          KM
4299          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4300          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4301          KM   .47 .47 .46 .16 .13 .12 .06 .05 .05 .04 .04 .04 .01 .01 .01 .01 .01 .01
4302          KM
4303          KM          L=   0.929 miles, S=  111 feet/mile, Kb= .05
4304          KM
4305          BA   0.214
4306          LG    0.16    0.30    4.90    0.27   43.20
4307          UC   0.288   0.211
              *

4308          KK   C622R
4309          KM      Hydrograph combine 621622 + 211X at C622 right branch
4310          HC       2
              *
              * *
              * * Move to the top of Tulip Wash
              * *
              *

4311          KK    211A
4312          KM   Sub-Basin   211A
4313          KM
4314          KM      The Clark Unit Hydrograph is used for this basin.
4315          KM          The HEC-1 time-area relation is used for this basin.
4316          KM
4317          KM      Time of Concentration for this sub-basin is based on the following:
4318          KM          6-Hour Rainfall, Pattern No.  1.00
4319          KM          An rainfall areal reduction factor of 0.998
4320          KM
4321          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4322          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4323          KM   .45 .45 .45 .14 .10 .10 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
4324          KM
4325          KM          L=   0.820 miles, S=  248 feet/mile, Kb= .10
1                                          HEC-1 INPUT                                          PAGE102

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4326          KM
4327          BA   0.143
4328          LG    0.14    0.38    5.70    0.21   13.80
```

```
4329        UC   0.313   0.263
            *

4330        KK   C6000
4331        KM      Reservoir route at C600.
4332        RS       1    ELEV  1754.0
4333        SV    0.00    0.14    0.62    1.52    2.95    5.06    7.98   11.80   16.61   22.67
4334        SV   30.07   38.71   40.50   40.60   41.60   42.70   43.70   44.60   45.70
4335        SE  1754.0  1756.0  1758.0  1760.0  1762.0  1764.0  1766.0  1768.0  1770.0  1772.0
4336        SE  1774.0  1776.0 1776.36  1776.4  1776.6  1776.8  1777.0  1777.2  1777.4
4337        SQ       0      55     183     320     427     513     570     620     665     709
4338        SQ     750     789     795     795     812     849     906     984    1084
            *

4339        KK  600601
4340        KM      Normal depth channel route from C600 to C601
4341        KM      Source:  HEC-2 Cross Section: TU 1.538
4342        RS       4    FLOW      -1
4343        RC   0.040   0.025   0.040  2406.0  0.0176
4344        RX  9945.6  9959.4  9968.3  9985.9 10000.0 10017.2 10038.7 10058.8
4345        RY  1734.5  1732.3  1727.9  1726.2  1725.0  1727.7  1735.2  1736.0
            *

4346        KK    211B
4347        KM   Sub-Basin   211B
4348        KM
4349        KM      The Clark Unit Hydrograph is used for this basin.
4350        KM          The HEC-1 time-area relation is used for this basin.
4351        KM
4352        KM      Time of Concentration for this sub-basin is based on the following:
4353        KM          6-Hour Rainfall, Pattern No.  1.00
4354        KM          An rainfall areal reduction factor of 0.999
4355        KM
4356        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4357        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4358        KM   .45 .45 .45 .14 .11 .10 .04 .04 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
4359        KM
4360        KM          L=   0.618 miles, S=  244 feet/mile, Kb= .10
4361        KM
4362        BA   0.109
4363        LG    0.14    0.37    5.80    0.21   13.40
4364        UC   0.263   0.202
            *

4365        KK    C601
4366        KM      Hydrograph combine 600601 + 211B at C601
4367        HC       2
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4368        KK  601602
4369        KM      Normal depth channel route from C601 to C602
4370        KM      Source:  HEC-2 Cross Section: TU 1.102
4371        RS       3    FLOW      -1
4372        RC   0.065   0.040   0.055  1765.0  0.0146
4373        RX  9916.9  9959.1  9965.8  9980.2 10004.0 10019.5 10047.3 10094.1
4374        RY  1699.9  1699.8  1696.4  1689.8  1688.9  1695.7  1698.2  1698.4
            *

4375        KK    211C
4376        KM   Sub-Basin   211C
4377        KM
4378        KM      The Clark Unit Hydrograph is used for this basin.
4379        KM          The Urban time-area relation is used for this basin.
4380        KM
4381        KM      Time of Concentration for this sub-basin is based on the following:
4382        KM          6-Hour Rainfall, Pattern No.  1.00
4383        KM          An rainfall areal reduction factor of 0.999
4384        KM
4385        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4386        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4387        KM   .48 .48 .48 .17 .14 .14 .06 .06 .06 .05 .05 .05 .01 .01 .01 .01 .01 .01
4388        KM
4389        KM          L=   0.479 miles, S=  154 feet/mile, Kb= .03
4390        KM
4391        BA   0.043
4392        LG    0.08    0.25    5.70    0.18   44.50
4393        UC   0.138   0.137
4394        UA       0       5      16      30      65      77      84      90      94      97
4395        UA     100
            *

4396        KK   C602L
4397        KM      Hydrograph combine 601602 + 211C at C602 left branch
4398        HC       2
            *

4399        KK    211D
4400        KM   Sub-Basin   211D
4401        KM
4402        KM      The Clark Unit Hydrograph is used for this basin.
4403        KM          The Urban time-area relation is used for this basin.
4404        KM
4405        KM      Time of Concentration for this sub-basin is based on the following:
4406        KM          6-Hour Rainfall, Pattern No.  1.00
4407        KM          An rainfall areal reduction factor of 0.999
4408        KM
4409        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4410        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4411        KM   .44 .44 .43 .13 .09 .07 .03 .03 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
4412        KM
```

```
4413          KM          L=   0.686 miles, S=  115 feet/mile, Kb= .04
4414          KM
4415          BA   0.071
1                                        HEC-1 INPUT                                                    PAGE104

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4416          LG    0.21    0.30    3.85    0.49   28.30
4417          UC   0.217   0.227
4418          UA       0       5      16      30      65      77      84      90      94      97
4419          UA     100
              *

4420          KK    C602
4421          KM      Hydrograph combine C602L + 211D at C602
4422          HC       2
              *

4423          KK  602603
4424          KM      Normal depth channel route from C602 to C603
4425          KM      Source:  HEC-2 Cross Section: LE 0.672
4426          RS       4    FLOW     -1
4427          RC   0.060   0.045   0.060  2610.0  0.0211
4428          RX  9891.9  9963.9  9986.5 10000.0 10012.7 10023.8 10085.0 10176.4
4429          RY  1653.5  1653.5  1644.4  1644.1  1645.0  1649.8  1651.7  1656.7
              *

4430          KK    211E
4431          KM   Sub-Basin   211E
4432          KM
4433          KM      The Clark Unit Hydrograph is used for this basin.
4434          KM          The Urban time-area relation is used for this basin.
4435          KM
4436          KM      Time of Concentration for this sub-basin is based on the following:
4437          KM          6-Hour Rainfall, Pattern No.  1.00
4438          KM          An rainfall areal reduction factor of 0.998
4439          KM
4440          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4441          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4442          KM   .47 .47 .47 .16 .13 .13 .06 .06 .05 .04 .04 .04 .01 .01 .01 .01 .01 .01
4443          KM
4444          KM          L=   0.609 miles, S=  118 feet/mile, Kb= .03
4445          KM
4446          BA   0.156
4447          LG    0.11    0.27    5.10    0.24   42.20
4448          UC   0.171   0.101
4449          UA       0       5      16      30      65      77      84      90      94      97
4450          UA     100
              *

4451          KK    C603
4452          KM      Hydrograph combine 602603 + 211E at C603
4453          HC       2
              *

4454          KK  603622
4455          KM      Normal depth channel route from C603 to C622
4456          KM      Source:  HEC-2 Cross Section: LE 0.287
4457          RS       5    FLOW     -1
4458          RC   0.060   0.045   0.060  2745.0  0.0204
4459          RX  9883.0  9929.7  9967.3  9991.6 10042.2 10073.6 10177.6 10194.5
4460          RY  1619.4  1618.7  1611.8  1602.1  1603.3  1609.4  1610.5  1610.6
              *
1                                        HEC-1 INPUT                                                    PAGE105

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4461          KK    211F
4462          KM   Sub-Basin   211F
4463          KM
4464          KM      The Clark Unit Hydrograph is used for this basin.
4465          KM          The Urban time-area relation is used for this basin.
4466          KM
4467          KM      Time of Concentration for this sub-basin is based on the following:
4468          KM          6-Hour Rainfall, Pattern No.  1.00
4469          KM          An rainfall areal reduction factor of 0.999
4470          KM
4471          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4472          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4473          KM   .48 .48 .48 .17 .14 .14 .06 .06 .06 .05 .05 .05 .01 .01 .01 .01 .01 .01
4474          KM
4475          KM          L=   0.770 miles, S=  134 feet/mile, Kb= .03
4476          KM
4477          BA   0.113
4478          LG    0.08    0.25    4.30    0.36   62.70
4479          UC   0.183   0.158
4480          UA       0       5      16      30      65      77      84      90      94      97
4481          UA     100
              *

4482          KK   C622L
4483          KM      Hydrograph combine 603622 + 211F at C622 left branch
4484          HC       2
              *

4485          KK    C622
4486          KM      Hydrograph combine C622R + C622L at C622
4487          HC       2
              *

4488          KK  622549
4489          KM      Normal depth channel route from C622 to C549
4490          KM      Source:  HEC-2 Cross Section: AS 2.279
```

```
4491   RS       6    FLOW      -1
4492   RC   0.113   0.125   0.120  1697.0  0.0118
4493   RX  9847.1  9851.0  9857.5  9862.8 10052.6 10062.8 10075.6 10084.6
4494   RY  1573.5  1571.3  1567.2  1564.6  1565.1  1566.7  1573.7  1573.9
       *

4495   KK    211Y
4496   KM   Sub-Basin   211Y
4497   KM
4498   KM      The Clark Unit Hydrograph is used for this basin.
4499   KM          The HEC-1 time-area relation is used for this basin.
4500   KM
4501   KM      Time of Concentration for this sub-basin is based on the following:
4502   KM          6-Hour Rainfall, Pattern No.  1.00
4503   KM          An rainfall areal reduction factor of 0.999
4504   KM
4505   KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4506   KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                                    PAGE106
LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4507   KM   .47 .47 .46 .16 .13 .12 .05 .05 .05 .04 .03 .02 .00 .00 .00 .00 .00 .00
4508   KM
4509   KM          L=   0.606 miles, S=  147 feet/mile, Kb= .07
4510   KM
4511   BA   0.089
4512   LG    0.13    0.30    6.60    0.14   16.80
4513   UC   0.246   0.207
       *

4514   KK   C549R
4515   KM      Hydrograph combine 622549 + 211Y at C549 right branch
4516   HC       2
       *

4517   KK    C549
4518   KM      Hydrograph combine C549L + C549R at C549
4519   HC       2
       *

4520   KK  549626
4521   KM      Normal depth channel route from C549 to C626
4522   KM      Source:  HEC-2 Cross Section: AS 1.855
4523   RS       5    FLOW      -1
4524   RC   0.113   0.125   0.120  2044.0  0.0171
4525   RX  9943.2  9963.0  9985.6  9994.1 10007.6 10029.2 10150.5 10171.3
4526   RY  1539.3  1534.5  1531.2  1528.3  1528.2  1531.7  1532.5  1537.4
       *

4527   KK    211Z
4528   KM   Sub-Basin   211Z
4529   KM
4530   KM      The Clark Unit Hydrograph is used for this basin.
4531   KM          The Urban time-area relation is used for this basin.
4532   KM
4533   KM      Time of Concentration for this sub-basin is based on the following:
4534   KM          6-Hour Rainfall, Pattern No.  1.00
4535   KM          An rainfall areal reduction factor of 0.999
4536   KM
4537   KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4538   KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4539   KM   .46 .46 .46 .15 .12 .11 .05 .05 .04 .03 .03 .03 .01 .01 .01 .01 .01 .01
4540   KM
4541   KM          L=   0.509 miles, S=  147 feet/mile, Kb= .04
4542   KM
4543   BA   0.083
4544   LG    0.14    0.27    4.50    0.34   34.40
4545   UC   0.171   0.126
4546   UA      0       5      16      30      65      77      84      90      94      97
4547   UA    100
       *
1                                          HEC-1 INPUT                                                                    PAGE107
LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4548   KK   C626C
4549   KM      Hydrograph combine 549626 + 211Z at C626 main branch
4550   HC       2
       *

4551   KK   211AA
4552   KM   Sub-Basin  211AA
4553   KM
4554   KM      The Clark Unit Hydrograph is used for this basin.
4555   KM          The Urban time-area relation is used for this basin.
4556   KM
4557   KM      Time of Concentration for this sub-basin is based on the following:
4558   KM          6-Hour Rainfall, Pattern No.  1.00
4559   KM          An rainfall areal reduction factor of 1.000
4560   KM
4561   KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4562   KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4563   KM   .48 .48 .48 .17 .14 .14 .07 .06 .06 .06 .05 .05 .01 .01 .01 .01 .01 .01
4564   KM
4565   KM          L=   0.480 miles, S=   85 feet/mile, Kb= .06
4566   KM
4567   BA   0.034
4568   LG    0.09    0.24    6.60    0.14   38.80
4569   UC   0.238   0.287
4570   UA      0       5      16      30      65      77      84      90      94      97
4571   UA    100
       *
```

```
4572          KK  625626
4573          KM      Normal depth channel route from C625 to C626
4574          KM      Source:  200 Scale Mapping
4575          RS       3    FLOW      -1
4576          RC   0.040   0.018   0.040  1350.0  0.0252
4577          RX  1000.0  1020.0  1021.2  1055.2  1089.2  1090.4  1100.4  1105.4
4578          RY  1527.0  1526.0  1525.6  1526.3  1525.6  1526.0  1528.0  1530.0
              *

4579          KK   211AB
4580          KM   Sub-Basin  211AB
4581          KM
4582          KM      The Clark Unit Hydrograph is used for this basin.
4583          KM          The Urban time-area relation is used for this basin.
4584          KM
4585          KM      Time of Concentration for this sub-basin is based on the following:
4586          KM          6-Hour Rainfall, Pattern No.  1.00
4587          KM          An rainfall areal reduction factor of 0.999
4588          KM
4589          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4590          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4591          KM   .48 .47 .47 .17 .13 .13 .06 .06 .06 .05 .04 .04 .01 .01 .01 .01 .01 .01
4592          KM
4593          KM          L=   0.293 miles, S=  321 feet/mile, Kb= .07
4594          KM
4595          BA   0.040
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4596          LG    0.11    0.26    6.80    0.13   23.10
4597          UC   0.133   0.093
4598          UA       0       5      16      30      65      77      84      90      94      97
4599          UA     100
              *

4600          KK  623624
4601          KM      Normal depth channel route from C623 to C624
4602          KM      Source:  200 Scale Mapping
4603          RS       1    FLOW      -1
4604          RC   0.040   0.018   0.040   701.0  0.0114
4605          RX  1000.0  1010.0  1011.2  1027.2  1043.2  1044.4  1059.4  1074.4
4606          RY  1534.0  1532.0  1531.6  1531.9  1531.6  1532.0  1532.5  1533.0
              *

4607          KK   211AC
4608          KM   Sub-Basin  211AC
4609          KM
4610          KM      The Clark Unit Hydrograph is used for this basin.
4611          KM          The Urban time-area relation is used for this basin.
4612          KM
4613          KM      Time of Concentration for this sub-basin is based on the following:
4614          KM          6-Hour Rainfall, Pattern No.  1.00
4615          KM          An rainfall areal reduction factor of 1.000
4616          KM
4617          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4618          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4619          KM   .49 .49 .49 .19 .16 .15 .08 .08 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
4620          KM
4621          KM          L=   0.306 miles, S=   82 feet/mile, Kb= .03
4622          KM
4623          BA   0.027
4624          LG    0.08    0.15    8.40    0.07   44.80
4625          UC   0.133   0.119
4626          UA       0       5      16      30      65      77      84      90      94      97
4627          UA     100
              *

4628          KK    C624
4629          KM      Hydrograph combine 623624 + 211AC at C624
4630          HC       2
              *

4631          KK  624626
4632          KM      Normal depth channel route from C624 to C626
4633          KM      Source:  HEC-2 Cross Section: AS 1.727
4634          RS       2    FLOW      -1
4635          RC   0.080   0.060   0.080   637.0  0.0235
4636          RX  9872.9  9881.0  9893.9  9902.2  9967.6  9976.4 10076.1 10084.3
4637          RY  1526.3  1524.6  1521.7  1520.0  1520.7  1521.6  1520.7  1526.2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4638          KK   211AD
4639          KM   Sub-Basin  211AD
4640          KM
4641          KM      The Clark Unit Hydrograph is used for this basin.
4642          KM          The Urban time-area relation is used for this basin.
4643          KM
4644          KM      Time of Concentration for this sub-basin is based on the following:
4645          KM          6-Hour Rainfall, Pattern No.  1.00
4646          KM          An rainfall areal reduction factor of 0.999
4647          KM
4648          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4649          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4650          KM   .49 .49 .49 .18 .15 .15 .07 .07 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
4651          KM
4652          KM          L=   0.489 miles, S=  280 feet/mile, Kb= .04
4653          KM
4654          BA   0.041
```

```
4655          LG    0.08    0.16    8.00    0.08   42.40
4656          UC   0.133   0.137
4657          UA       0       5      16      30      65      77      84      90      94      97
4658          UA     100
              *

4659          KK   C626R
4660          KM      Hydrograph combine 624626 + 211AD at C626 right branch
4661          HC       2
              *

4662          KK    C626
4663          KM      Hydrograph combine C626C + 625626 at C626R
4664          HC       3
              *

4665          KK  626627
4666          KM      Normal depth channel route from C626 to C627
4667          KM      Source:  HEC-2 Cross Section: AS 1.602
4668          RS       1    FLOW      -1
4669          RC   0.080   0.060   0.080   625.0  0.0208
4670          RX  9889.8  9941.2  9963.0 10011.6 10074.8 10083.9 10191.7 10210.4
4671          RY  1517.6  1516.9  1508.1  1506.6  1508.6  1511.7  1513.1  1518.8
              *

4672          KK   211AE
4673          KM   Sub-Basin  211AE
4674          KM
4675          KM      The Clark Unit Hydrograph is used for this basin.
4676          KM          The Urban time-area relation is used for this basin.
4677          KM
4678          KM      Time of Concentration for this sub-basin is based on the following:
4679          KM          6-Hour Rainfall, Pattern No.  1.00
4680          KM          An rainfall areal reduction factor of 1.000
4681          KM
4682          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4683          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                    PAGE110

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4684          KM   .48 .48 .48 .17 .14 .13 .06 .06 .06 .05 .05 .05 .01 .01 .01 .01 .01 .01
4685          KM
4686          KM          L=   0.313 miles, S=  153 feet/mile, Kb= .04
4687          KM
4688          BA   0.034
4689          LG    0.12    0.24    6.40    0.15   38.20
4690          UC   0.129   0.103
4691          UA       0       5      16      30      65      77      84      90      94      97
4692          UA     100
              *

4693          KK    C627
4694          KM      Hydrograph combine 626627 + 211AE at C627
4695          HC       2
              *
              * *
              * * C627 is the total flow in Ashbrook Wash at the Study boundary
              * *
              *

4696          KK   211AF
4697          KM   Sub-Basin  211AF
4698          KM
4699          KM      The Clark Unit Hydrograph is used for this basin.
4700          KM          The Urban time-area relation is used for this basin.
4701          KM
4702          KM      Time of Concentration for this sub-basin is based on the following:
4703          KM          6-Hour Rainfall, Pattern No.  1.00
4704          KM          An rainfall areal reduction factor of 0.999
4705          KM
4706          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4707          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4708          KM   .47 .47 .47 .16 .13 .12 .06 .06 .05 .04 .03 .03 .01 .01 .01 .01 .01 .01
4709          KM
4710          KM          L=   0.332 miles, S=  292 feet/mile, Kb= .06
4711          KM
4712          BA   0.053
4713          LG    0.10    0.30    5.80    0.18   28.30
4714          UC   0.138   0.091
4715          UA       0       5      16      30      65      77      84      90      94      97
4716          UA     100
              *
              * *
              * * End Basin 211.
              * *
              *
4717          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   29       201A
             .
             .
   50        .        201B
             .          .
             .          .
   71       C501............
              V
              V
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 74      501502
              .
              .
 81           .        201C
              .           .
              .           .
102       C502R............
              .
              .
105           .        201D
              .           .
              .           .
126        C502............
              V
              V
129      502503
              .
              .
136           .        201E
              .           .
              .           .
157       C503I............
              V
              V
160       C503O
              .
              .
172           .-------->   D503L
169       D503R
              V
              V
177      503504
              .
              .
184           .        202A
              .           .
              .           .
205       C504I............
              V
              V
208       C504O
              .
              .
220           .-------->   D504L
217       D504R
              .
              .
225           .        202B
              .           .
              .           .
246       C505I............
              .
              .
252           .-------->   D505L
249       D505R
              .
              .
257           .        202C
              .           .
              .           .
278        C506............
              .
              .
284           .-------->   D506L
281       D506R
              .
              .
289           .        202D
              .           .
              .           .
310           .           .       202E
              .           .          V
              .           .          V
331           .           .      C508O
              .           .          .
              .           .          .
343           .           .          .-------->   D508R
340           .           .      D508L
              .           .          V
              .           .          V
348           .           .     508507
              .           .          .
              .           .          .
355       C507I........................
              V
              V
358       C507O
              .
              .
367           .        202F
              .           .
              .           .
388           .           .       202G
              .           .          .
              .           .          .
409           .           .          .       202H
              .           .          .          V
              .           .          .          V
430           .           .          .      C511O
              .           .          .          V
              .           .          .          V
439           .           .          .     511512
              .           .          .          .
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446                                  202I
465                            C512I............
                                  V
                                  V
470                            C512O
484                                  .-------->  D512R
479                            D512L
487                                  203A
                                        V
                                        V
506                                  C513O
                                        V
                                        V
512                                 513514
519                                                 203B
538                                 C514R............
541                                                 203C
560                                  C514............
563                                                 203D
584                                  C515............
                                        V
                                        V
587                                 515517
594                                                 203E
615                                 C517R............
618                                                 203F
                                                       V
                                                       V
639                                               516517
646                                                                 203G
667                                               C517L............
670                                 C517............
                                        V
                                        V
673                                 517518
680                                                 203H
701                                 C518............
                                        V
                                        V
704                                 518519
711                                                 203I
730                                 C519............
                                        V
                                        V
733                                 519591
740                                                 203J
                                                       V
                                                       V
759                                               520591
768                                                                 .<-------  D512R
766                                                           BB512R
769                                 C591........................
                                        V
                                        V
772                                 591521
779                                                 203K
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 800          .          .          .          .        C521............
              .          .          .          .           .
              .          .          .          .           .
 803      CLEAR..............................................
              .
              .
 806          .       204A
              .          V
              .          V
              .
 827          .     522523
              .          .
              .          .
 834          .          .        204B
              .          .           .
              .          .           .
 855          .      C523I............
              .          V
              .          V
 858          .      C523O
              .          .
              .          .
 870          .          .-------->   D523R
 867          .      D523L
              .          V
              .          V
 875          .     523524
              .          .
              .          .
 883          .          .        204C
              .          .           .
              .          .           .
 902          .       C524............
              .          V
              .          V
 905          .     524525
              .          .
              .          .
 912          .          .        204D
              .          .           .
              .          .           .
 933          .       C525............
              .          V
              .          V
 936          .     525526
              .          .
              .          .
 943          .          .        204E
              .          .           .
              .          .           .
 964          .       C526............
              .          V
              .          V
 967          .     526527
              .          .
              .          .
 974          .          .        204F
              .          .           .
              .          .           .
 995          .       C527............
              .          .
              .          .
 998      CLEAR............
              .
              .
1001          .       205A
              .          .
              .          .
1022          .          .        205B
              .          .           .
              .          .           .
1043          .       C528............
              .          V
              .          V
1046          .     528530
              .          .
              .          .
1053          .          .        205C
              .          .           .
              .          .           .
1074          .      C530R............
              .          .
              .          .
1077          .          .        205D
              .          .           .
              .          .           .
1098          .          .           .        205E
              .          .           .           .
              .          .           .           .
1119          .          .        C529............
              .          .           .
              .          .           .
1122          .       C530............
              .          V
              .          V
1125          .     530531
              .          .
              .          .
1132          .          .        205F
              .          .           .
              .          .           .
1153          .       C531............
              .          V
              .          V
1156          .     531532
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                .          .
                .          .
1163            .          .       205G
                .          .          .
                .          .          .
1184            .      C532L...........
                .          .
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1187            .          .       205H
                .          .          .
                .          .          .
1208            .       C532...........
                .          V
                .          V
1211            .     532533
                .          .
                .          .
1218            .          .       205I
                .          .          .
                .          .          .
1239            .       C533...........
                .          V
                .          V
1242            .     533534
                .          .
                .          .
1249            .          .       205J
                .          .          .
                .          .          .
1270            .      C534R...........
                .          .
                .          .
1273            .          .       205K
                .          .          .
                .          .          .
1294            .       C534...........
                .          V
                .          V
1297            .     534535
                .          .
                .          .
1304            .          .       205L
                .          .          .
                .          .          .
1325            .       C535...........
                .          V
                .          V
1328            .     535536
                .          .
                .          .
1335            .          .       205M
                .          .          .
                .          .          .
1354            .      C536R...........
                .          .
                .          .
1357            .          .       205N
                .          .          .
                .          .          .
1376            .      C536I...........
                .          V
                .          V
1379            .      C536O
                .          V
                .          V
1391            .     536537
                .          .
                .          .
1398            .          .       206A
                .          .          .
                .          .          .
1419            .       C537...........
                .          V
                .          V
1422            .     537538
                .          .
                .          .
1429            .          .       206B
                .          .          .
                .          .          .
1450            .      C538I...........
                .          V
                .          V
1453            .      C538O
                .          V
                .          V
1462            .     538540
                .          .
                .          .
1469            .          .       206C
                .          .          .
                .          .          .
1488            .      C540R...........
                .          .
                .          .
1491            .          .       206D
                .          .          V
                .          .          V
1512            .          .     539540
                .          .          .
                .          .          .
1519            .          .          .       206E
                .          .          .          .
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1538          .           .      C540L............
              .           .          .
              .           .          .
1541          .       C540............
              .           V
              .           V
1544          .     540541
              .           .
              .           .
1551          .           .       206F
              .           .          .
              .           .          .
1570          .       C541............
              .           V
              .           V
1573          .     541548
              .           .
              .           .
1580          .           .       206G
              .           .          .
              .           .          .
1601          .           .          .          .<-------   D523R
1599          .           .          .     BB523R
              .           .          .          V
              .           .          .          V
1602          .           .          .     523548
              .           .          .          .
              .           .          .          .
1609          .      C548L........................
              .           .
              .           .
1612          .           .       206H
              .           .          V
              .           .          V
1633          .           .     542543
              .           .          .
              .           .          .
1640          .           .          .       206I
              .           .          .          .
              .           .          .          .
1659          .           .       C543............
              .           .          .
              .           .          .
1665          .           .          .------->   D543R
1662          .           .      D543L
              .           .          V
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1670          .           .     543544
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1696          .           .       C544............
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1709          .           .          .------->   D545R
1706          .           .      D545L
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1712          .           .     545546
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1719          .           .          .       206L
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1738          .           .       C546............
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1741          .           .     546547
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1750          .           .          .          .<-------   D543R
1748          .           .          .     BB543R
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1751          .           .          .     543547
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1760          .           .          .          .          .<-------   D545R
1758          .           .          .          .     BB545R
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1761          .           .          .          .     545547
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1768          .           .          .          .          .       206J
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1789          .           .       C547.................................
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1792          .           .     547548
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1961          .          .          .          .       207E
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1982          .          .          .      C552R...........
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1988          .          .     552553
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2017          .          .     553556
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2221                    207O
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2242            C560R...........
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2245                    207N
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2264                 559560
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2271            C560I...........
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                   V
2274            C560O
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2284            560585
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2291                    210A
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2315                    208A
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2343                            208B
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2364                  C563R............
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2367                            208C
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2395                                      208D
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2416                          C563L............
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2419                    C563............
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2429                            208E
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2450                  C564R............
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2474                    C564............
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2503                    C565............
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2534                  C568L............
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2558                                      208J
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2610                                         C567L.............
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2634                                          C567.............
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2916                                           C575............
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2957          .         .         .     C577............
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2991          .         .         .    C578O
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3003          .         .         .    578587
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3010          .         .         .         .       210B
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3076          .         .         .    C595L............
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3128          .         .         .         .     C590L............
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3362                                C580R............
3365                                                    209B
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3389                                    V
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3496                                 C582............
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3654                    C599I...................................
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3657                        V
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3669                        V
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3676                                211K
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3726             .          .          .          .       211I
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3747             .          .          .     C606R...........
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3771             .          .          .          .      C605O
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3857             .          .          .          .       211N
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3876             .          .          .     C611R...........
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3879             .          .          .          .       211O
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4025             .          .          .          .       211R
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              .          .           .
4517          .       C549............
              .          V
              .          V
4520          .     549626
              .          .
              .          .
4527          .          .        211Z
              .          .           .
              .          .           .
4548          .      C626C............
              .          .
              .          .
4551          .          .       211AA
              .          .           V
              .          .           V
4572          .          .      625626
              .          .           .
              .          .           .
4579          .          .           .       211AB
              .          .           .           V
              .          .           .           V
4600          .          .           .      623624
              .          .           .          .
              .          .           .          .
4607          .          .           .          .        211AC
              .          .           .          .          .
              .          .           .          .          .
4628          .          .           .        C624............
              .          .           .           V
              .          .           .           V
4631          .          .           .      624626
              .          .           .          .
```

```
4638          .          .          .          .
              .          .          .          .      211AD
              .          .          .          .        .
4659          .          .          .      C626R.............
              .          .          .          .
4662          .          .          .          .
              .       C626.........................
              .          V
              .          V
4665          .      626627
              .          .
              .          .
4672          .          .       211AE
              .          .         .
              .          .         .
4693          .       C627............
              .          .
              .          .
4696          .          .       211AF
```

```
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
*                                         *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *
*              MAY   1991                 *
*            VERSION 4.0.1E               *
*                                         *
*  RUN DATE  11/02/94  TIME  08:44:36     *
*                                         *
*****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

Fountain Hills North Floodplain Delineation Study
FCD 92-04 by GVSCE
Existing Condition
100-Year 6-Hour Storm, Clark Unit Hydrograph

File: EX100-6.IH1
Date: 02-25-94 trl
Revised: 09-14-94 trl

```
 6 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                   NMIN          1  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1   0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ       1080  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      1   0  ENDING DATE
                 NDTIME       1759  ENDING TIME
                  ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL    0.02 HOURS
                 TOTAL TIME BASE   17.98 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT

 8 JD        INDEX STORM NO. 1
                  STRM        3.30  PRECIPITATION DEPTH
                  TRDA        0.01  TRANSPOSITION DRAINAGE AREA

 9 PI         PRECIPITATION PATTERN
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

12 JD INDEX STORM NO. 2
STRM 3.28 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.03	0.03	0.03
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

13 JD INDEX STORM NO. 3
STRM 3.23 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

17 JD INDEX STORM NO. 4
STRM 3.04 PRECIPITATION DEPTH
TRDA 16.00 TRANSPOSITION DRAINAGE AREA

18 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

21 JD INDEX STORM NO. 5

STRM 2.67 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

22 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

25 JD INDEX STORM NO. 6

STRM 1.88 PRECIPITATION DEPTH
TRDA 500.00 TRANSPOSITION DRAINAGE AREA

26 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	201A	318.	4.30	41.	14.	14.	0.22		
+	HYDROGRAPH AT	201B	151.	4.20	15.	5.	5.	0.08		
+	2 COMBINED AT	C501	446.	4.27	56.	19.	19.	0.30		
+	ROUTED TO	501502	437.	4.38	56.	19.	19.	0.30		
+	HYDROGRAPH AT	201C	143.	4.20	14.	5.	5.	0.08		
+	2 COMBINED AT	C502R	537.	4.37	70.	23.	23.	0.38		
+	HYDROGRAPH AT	201D	93.	4.27	13.	4.	4.	0.07		
+	2 COMBINED AT	C502	622.	4.35	83.	28.	28.	0.45		
+	ROUTED TO	502503	609.	4.48	83.	28.	28.	0.45		
+	HYDROGRAPH AT	201E	225.	4.33	32.	11.	11.	0.18		
+	2 COMBINED AT	C503I	769.	4.47	113.	38.	38.	0.63		
+	ROUTED TO	C503O	323.	5.02	113.	38.	38.	0.63		
+	DIVERSION TO	D503L	323.	5.02	113.	38.	38.	0.63		
+	HYDROGRAPH AT	D503R	0.	0.02	0.	0.	0.	0.63		
+	ROUTED TO	503504	0.	0.02	0.	0.	0.	0.63		
+	HYDROGRAPH AT	202A	67.	4.18	7.	2.	2.	0.04		
+	2 COMBINED AT	C504I	62.	4.18	6.	2.	2.	0.67		
+	ROUTED TO	C504O	30.	4.48	6.	2.	2.	0.67		
+	DIVERSION TO	D504L	22.	4.43	6.	2.	2.	0.67		
+	HYDROGRAPH AT	D504R	8.	4.48	1.	0.	0.	0.67		
+	HYDROGRAPH AT	202B	35.	4.12	3.	1.	1.	0.02		
+	2 COMBINED AT	C505I	32.	4.12	3.	1.	1.	0.69		
+	DIVERSION TO	D505L	14.	4.12	2.	1.	1.	0.69		
+	HYDROGRAPH AT	D505R	18.	4.12	1.	0.	0.	0.69		
+	HYDROGRAPH AT	202C	19.	4.08	1.	0.	0.	0.01		
+	2 COMBINED AT	C506	34.	4.10	2.	1.	1.	0.69		
+	DIVERSION TO	D506L	0.	0.02	0.	0.	0.	0.69		
+	HYDROGRAPH AT	D506R	34.	4.10	2.	1.	1.	0.69		

+	HYDROGRAPH AT	202D	96.	4.22	12.	4.	4.	0.06
+	HYDROGRAPH AT	202E	214.	4.17	19.	6.	6.	0.10
+	ROUTED TO	C508O	208.	4.20	19.	6.	6.	0.10
+	DIVERSION TO	D508R	72.	4.20	11.	4.	4.	0.10
+	HYDROGRAPH AT	D508L	135.	4.20	8.	3.	3.	0.10
+	ROUTED TO	508507	130.	4.28	8.	3.	3.	0.10
+	3 COMBINED AT	C507I	203.	4.27	20.	7.	7.	0.86
+	ROUTED TO	C507O	203.	4.27	20.	7.	7.	0.86
+	HYDROGRAPH AT	202F	36.	4.07	2.	1.	1.	0.01
+	HYDROGRAPH AT	202G	38.	4.07	2.	1.	1.	0.01
+	HYDROGRAPH AT	202H	351.	4.20	31.	10.	10.	0.18
+	ROUTED TO	C511O	263.	4.33	31.	10.	10.	0.18
+	ROUTED TO	511512	263.	4.37	31.	10.	10.	0.18
+	HYDROGRAPH AT	202I	36.	4.10	3.	1.	1.	0.02
+	2 COMBINED AT	C512I	280.	4.35	35.	12.	12.	0.20
+	ROUTED TO	C512O	102.	4.77	14.	5.	5.	0.20
+	DIVERSION TO	D512R	30.	4.77	2.	1.	1.	0.20
+	HYDROGRAPH AT	D512L	72.	4.77	12.	4.	4.	0.20
+	HYDROGRAPH AT	203A	389.	4.27	53.	18.	18.	0.28
+	ROUTED TO	C513O	369.	4.35	53.	18.	18.	0.28
+	ROUTED TO	513514	355.	4.47	53.	18.	18.	0.28
+	HYDROGRAPH AT	203B	93.	4.10	9.	3.	3.	0.04
+	2 COMBINED AT	C514R	388.	4.45	61.	20.	20.	0.32
+	HYDROGRAPH AT	203C	154.	4.20	20.	7.	7.	0.10
+	2 COMBINED AT	C514	496.	4.43	81.	27.	27.	0.43
+	HYDROGRAPH AT	203D	161.	4.23	20.	7.	7.	0.11
+	2 COMBINED AT	C515	609.	4.42	101.	34.	34.	0.53
+	ROUTED TO	515517	600.	4.52	101.	34.	34.	0.53
+	HYDROGRAPH AT	203E	201.	4.18	19.	6.	6.	0.09
+	2 COMBINED AT	C517R	661.	4.48	117.	39.	39.	0.63
+	HYDROGRAPH AT	203F	524.	4.28	61.	20.	20.	0.33
+	ROUTED TO	516517	495.	4.52	61.	20.	20.	0.33
+	HYDROGRAPH AT	203G	356.	4.30	46.	15.	15.	0.25
+	2 COMBINED AT	C517L	741.	4.50	105.	35.	35.	0.58
+	2 COMBINED AT	C517	1227.	4.50	208.	70.	70.	1.21

ESCPLANTE

+	ROUTED TO	517518	1211.	4.63	208.	70.	70.	1.21
+	HYDROGRAPH AT	203H	343.	4.27	38.	13.	13.	0.21
+	2 COMBINED AT	C518	1331.	4.62	240.	80.	80.	1.41
+	ROUTED TO	518519	1323.	4.65	240.	80.	80.	1.41
+	HYDROGRAPH AT	203I	170.	4.37	30.	10.	10.	0.17
+	2 COMBINED AT	C519	1406.	4.65	263.	88.	88.	1.59
+	ROUTED TO	519591	1402.	4.68	263.	88.	88.	1.59
+	HYDROGRAPH AT	203J	77.	4.12	8.	3.	3.	0.04
+	ROUTED TO	520591	76.	4.17	8.	3.	3.	0.04
+	HYDROGRAPH AT	BB512R	30.	4.77	2.	1.	1.	0.20
+	3 COMBINED AT	C591	1402.	4.68	268.	90.	90.	1.83
+	ROUTED TO	591521	1390.	4.72	267.	89.	89.	1.83
+	HYDROGRAPH AT	203K	478.	4.05	42.	14.	14.	0.16
+	2 COMBINED AT	C521	1407.	4.70	304.	102.	102.	1.99
+	5 COMBINED AT	CLEAR	1364.	4.70	315.	106.	106.	3.07
+	HYDROGRAPH AT	204A	214.	4.20	20.	7.	7.	0.11
+	ROUTED TO	522523	201.	4.37	20.	7.	7.	0.11
+	HYDROGRAPH AT	204B	208.	4.27	23.	8.	8.	0.13
+	2 COMBINED AT	C523I	386.	4.33	43.	14.	14.	0.23
+	ROUTED TO	C523O	286.	4.52	43.	14.	14.	0.23
+	DIVERSION TO	D523R	19.	4.52	1.	0.	0.	0.23
+	HYDROGRAPH AT	D523L	266.	4.52	42.	14.	14.	0.23
+	ROUTED TO	523524	263.	4.60	42.	14.	14.	0.23
+	HYDROGRAPH AT	204C	205.	4.08	18.	6.	6.	0.08
+	2 COMBINED AT	C524	282.	4.58	60.	20.	20.	0.31
+	ROUTED TO	524525	280.	4.60	60.	20.	20.	0.31
+	HYDROGRAPH AT	204D	128.	4.05	12.	4.	4.	0.04
+	2 COMBINED AT	C525	358.	4.12	71.	24.	24.	0.35
+	ROUTED TO	525526	355.	4.15	71.	24.	24.	0.35
+	HYDROGRAPH AT	204E	189.	4.07	18.	6.	6.	0.07
+	2 COMBINED AT	C526	523.	4.10	90.	30.	30.	0.43
+	ROUTED TO	526527	517.	4.17	90.	30.	30.	0.43
+	HYDROGRAPH AT	204F	260.	4.02	22.	7.	7.	0.08
+	2 COMBINED AT	C527	665.	4.12	111.	37.	37.	0.50
+	2 COMBINED AT	CLEAR	1646.	4.67	406.	137.	137.	3.58

+	HYDROGRAPH AT	205A	210.	4.22	26.	9.	9.	0.12
+	HYDROGRAPH AT	205B	486.	4.18	47.	16.	16.	0.21
+	2 COMBINED AT	C528	690.	4.20	73.	25.	25.	0.33
+	ROUTED TO	528530	680.	4.23	73.	25.	25.	0.33
+	HYDROGRAPH AT	205C	107.	4.20	13.	4.	4.	0.06
+	2 COMBINED AT	C530R	785.	4.22	86.	29.	29.	0.39
+	HYDROGRAPH AT	205D	665.	4.23	71.	24.	24.	0.32
+	HYDROGRAPH AT	205E	301.	4.33	48.	16.	16.	0.22
+	2 COMBINED AT	C529	917.	4.25	119.	40.	40.	0.54
+	2 COMBINED AT	C530	1472.	4.23	197.	66.	66.	0.93
+	ROUTED TO	530531	1455.	4.28	197.	66.	66.	0.93
+	HYDROGRAPH AT	205F	325.	4.22	36.	12.	12.	0.16
+	2 COMBINED AT	C531	1639.	4.27	228.	77.	77.	1.09
+	ROUTED TO	531532	1619.	4.33	228.	77.	77.	1.09
+	HYDROGRAPH AT	205G	349.	4.23	40.	13.	13.	0.19
+	2 COMBINED AT	C532L	1791.	4.32	262.	88.	88.	1.27
+	HYDROGRAPH AT	205H	350.	4.35	56.	19.	19.	0.26
+	2 COMBINED AT	C532	1970.	4.33	310.	104.	104.	1.53
+	ROUTED TO	532533	1956.	4.35	310.	104.	104.	1.53
+	HYDROGRAPH AT	205I	559.	4.30	70.	23.	23.	0.35
+	2 COMBINED AT	C533	2232.	4.35	367.	123.	123.	1.89
+	ROUTED TO	533534	2189.	4.52	367.	123.	123.	1.89
+	HYDROGRAPH AT	205J	551.	4.28	65.	22.	22.	0.37
+	2 COMBINED AT	C534R	2392.	4.50	416.	140.	140.	2.25
+	HYDROGRAPH AT	205K	266.	4.38	45.	15.	15.	0.25
+	2 COMBINED AT	C534	2507.	4.52	450.	151.	151.	2.50
+	ROUTED TO	534535	2495.	4.55	450.	151.	151.	2.50
+	HYDROGRAPH AT	205L	263.	4.15	20.	7.	7.	0.12
+	2 COMBINED AT	C535	2520.	4.55	465.	156.	156.	2.62
+	ROUTED TO	535536	2496.	4.68	464.	156.	156.	2.62
+	HYDROGRAPH AT	205M	335.	4.10	31.	10.	10.	0.14
+	2 COMBINED AT	C536R	2516.	4.67	489.	165.	165.	2.76
+	HYDROGRAPH AT	205N	211.	4.25	29.	10.	10.	0.16
+	2 COMBINED AT	C536I	2586.	4.67	510.	172.	172.	2.91
+	ROUTED TO	C536O	326.	6.03	312.	172.	172.	2.91

BALCOA / HESPERUS

DAM #36

+	ROUTED TO 536537	326.	6.08	312.	172.	172.	2.91
+	HYDROGRAPH AT 206A	408.	4.03	31.	10.	10.	0.13
+	2 COMBINED AT C537	344.	4.28	317.	181.	181.	3.04
+	ROUTED TO 537538	339.	4.33	316.	181.	181.	3.04
+	HYDROGRAPH AT 206B	304.	4.03	25.	8.	8.	0.09
+	2 COMBINED AT C538I	463.	4.08	329.	188.	188.	3.14
+	ROUTED TO C538O	434.	4.28	327.	188.	188.	3.14
+	ROUTED TO 538540	433.	4.37	327.	188.	188.	3.14
+	HYDROGRAPH AT 206C	45.	4.10	4.	1.	1.	0.02
+	2 COMBINED AT C540R	452.	4.35	329.	189.	189.	3.16
+	HYDROGRAPH AT 206D	195.	4.03	17.	6.	6.	0.06
+	ROUTED TO 539540	185.	4.10	17.	6.	6.	0.06
+	HYDROGRAPH AT 206E	45.	4.08	4.	1.	1.	0.02
+	2 COMBINED AT C540L	230.	4.10	20.	7.	7.	0.09
+	2 COMBINED AT C540	545.	4.30	341.	194.	194.	3.24
+	ROUTED TO 540541	541.	4.50	340.	194.	194.	3.24
+	HYDROGRAPH AT 206F	259.	4.17	27.	9.	9.	0.16
+	2 COMBINED AT C541	651.	4.43	357.	200.	200.	3.40
+	ROUTED TO 541548	649.	4.45	357.	200.	200.	3.40
+	HYDROGRAPH AT 206G	112.	4.27	18.	6.	6.	0.09
+	HYDROGRAPH AT BB523R	19.	4.52	1.	0.	0.	0.23
+	ROUTED TO 523548	16.	4.77	1.	0.	0.	0.23
+	3 COMBINED AT C548L	713.	4.45	369.	203.	203.	3.72
+	HYDROGRAPH AT 206H	153.	4.07	14.	5.	5.	0.06
+	ROUTED TO 542543	149.	4.08	14.	5.	5.	0.06
+	HYDROGRAPH AT 206I	67.	4.03	5.	2.	2.	0.02
+	2 COMBINED AT C543	210.	4.07	19.	6.	6.	0.08
+	DIVERSION TO D543R	210.	4.07	19.	6.	6.	0.08
+	HYDROGRAPH AT D543L	0.	0.02	0.	0.	0.	0.08
+	ROUTED TO 543544	0.	0.02	0.	0.	0.	0.08
+	HYDROGRAPH AT 206K	103.	4.13	11.	4.	4.	0.06
+	2 COMBINED AT C544	102.	4.13	11.	4.	4.	0.14
+	ROUTED TO 544545	102.	4.17	11.	4.	4.	0.14
+	DIVERSION TO D545R	51.	4.17	5.	2.	2.	0.14
+	HYDROGRAPH AT D545L	51.	4.17	5.	2.	2.	0.14

BALBOA / HESPERUS

+	ROUTED TO 545546	51.	4.18	5.	2.	2.	0.14
+	HYDROGRAPH AT 206L	123.	4.12	12.	4.	4.	0.06
+	2 COMBINED AT C546	171.	4.15	18.	6.	6.	0.20
+	ROUTED TO 546547	170.	4.17	18.	6.	6.	0.20
+	HYDROGRAPH AT BB543R	210.	4.07	19.	6.	6.	0.08
+	ROUTED TO 543547	202.	4.15	19.	6.	6.	0.08
+	HYDROGRAPH AT BB545R	51.	4.17	5.	2.	2.	0.14
+	ROUTED TO 545547	50.	4.23	5.	2.	2.	0.14
+	HYDROGRAPH AT 206J	200.	4.02	16.	5.	5.	0.06
+	4 COMBINED AT C547	525.	4.10	59.	20.	20.	0.26
+	ROUTED TO 547548	521.	4.17	59.	20.	20.	0.26
+	HYDROGRAPH AT 206M	198.	4.02	16.	5.	5.	0.06
+	2 COMBINED AT C548R	635.	4.12	75.	25.	25.	0.32
+	2 COMBINED AT C548	1038.	4.30	421.	224.	224.	4.04
+	ROUTED TO 548549	1028.	4.45	421.	224.	224.	4.04
+	HYDROGRAPH AT 206N	458.	4.05	41.	14.	14.	0.15
+	2 COMBINED AT C549L	1128.	4.40	443.	235.	235.	4.19
+	HYDROGRAPH AT 207A	382.	4.30	55.	18.	18.	0.26
+	HYDROGRAPH AT 207B	306.	4.30	46.	15.	15.	0.21
+	2 COMBINED AT C550	687.	4.30	101.	34.	34.	0.46
+	ROUTED TO 550552	675.	4.37	100.	34.	34.	0.46
+	HYDROGRAPH AT 207C	321.	4.22	34.	11.	11.	0.17
+	2 COMBINED AT C552L	878.	4.35	132.	44.	44.	0.64
+	HYDROGRAPH AT 207D	349.	4.25	44.	15.	15.	0.20
+	ROUTED TO 551552	341.	4.33	44.	15.	15.	0.20
+	HYDROGRAPH AT 207E	180.	4.37	34.	12.	12.	0.16
+	2 COMBINED AT C552R	518.	4.33	78.	26.	26.	0.35
+	2 COMBINED AT C552	1244.	4.35	202.	68.	68.	0.99
+	ROUTED TO 552553	1236.	4.38	202.	68.	68.	0.99
+	HYDROGRAPH AT 207F	213.	4.20	28.	9.	9.	0.13
+	2 COMBINED AT C553	1345.	4.37	226.	76.	76.	1.12
+	ROUTED TO 553556	1338.	4.42	226.	76.	76.	1.12
+	HYDROGRAPH AT 207G	294.	4.35	45.	15.	15.	0.24
+	2 COMBINED AT C556L	1513.	4.40	264.	89.	89.	1.35
+	HYDROGRAPH AT 207H	188.	4.27	28.	9.	9.	0.12

OKTRAD WASH

BALBOA/ HESPERUS SYSTEM

+	ROUTED TO	554555	184.	4.33	28.	9.	9.	0.12
+	HYDROGRAPH AT	207I	109.	4.25	16.	5.	5.	0.07
+	2 COMBINED AT	C555	285.	4.32	44.	15.	15.	0.20
+	ROUTED TO	555556	279.	4.45	44.	15.	15.	0.20
+	HYDROGRAPH AT	207J	162.	4.18	21.	7.	7.	0.09
+	2 COMBINED AT	C556R	385.	4.40	65.	22.	22.	0.29
+	2 COMBINED AT	C556	1752.	4.42	319.	108.	108.	1.64
+	ROUTED TO	556557	1744.	4.47	319.	108.	108.	1.64
+	HYDROGRAPH AT	207K	283.	4.13	31.	10.	10.	0.13
+	2 COMBINED AT	C557R	1833.	4.45	346.	117.	117.	1.77
+	HYDROGRAPH AT	207L	203.	4.07	20.	7.	7.	0.08
+	2 COMBINED AT	C557	1879.	4.43	363.	122.	122.	1.85
+	ROUTED TO	557558	1871.	4.50	363.	122.	122.	1.85
+	HYDROGRAPH AT	207M	270.	4.10	22.	7.	7.	0.12
+	2 COMBINED AT	C558	1918.	4.48	381.	128.	128.	1.97
+	ROUTED TO	558560	1908.	4.52	381.	128.	128.	1.97
+	HYDROGRAPH AT	207O	330.	4.13	26.	9.	9.	0.13
+	2 COMBINED AT	C560R	1953.	4.52	401.	135.	135.	2.10
+	HYDROGRAPH AT	207N	109.	4.10	10.	3.	3.	0.05
+	ROUTED TO	559560	106.	4.22	10.	3.	3.	0.05
+	2 COMBINED AT	C560I	1989.	4.50	409.	138.	138.	2.15
+	ROUTED TO	C560O	287.	5.93	264.	138.	138.	2.15
+	ROUTED TO	560585	287.	6.03	264.	138.	138.	2.15
+	HYDROGRAPH AT	210A	294.	4.13	23.	8.	8.	0.12
+	2 COMBINED AT	C585	295.	4.18	270.	144.	144.	2.27
+	HYDROGRAPH AT	208A	331.	4.15	31.	10.	10.	0.14
+	ROUTED TO	561563	327.	4.20	31.	10.	10.	0.14
+	HYDROGRAPH AT	208B	45.	4.18	6.	2.	2.	0.03
+	2 COMBINED AT	C563R	372.	4.18	37.	12.	12.	0.17
+	HYDROGRAPH AT	208C	127.	4.18	15.	5.	5.	0.07
+	ROUTED TO	562563	123.	4.25	15.	5.	5.	0.07
+	HYDROGRAPH AT	208D	118.	4.23	17.	6.	6.	0.08
+	2 COMBINED AT	C563L	240.	4.25	31.	10.	10.	0.14
+	2 COMBINED AT	C563	599.	4.22	68.	23.	23.	0.31
+	ROUTED TO	563564	584.	4.27	68.	23.	23.	0.31

+	HYDROGRAPH AT	208E	107.	4.22	14.	5.	5.	0.06
+	2 COMBINED AT	C564R	684.	4.27	82.	27.	27.	0.37
+	HYDROGRAPH AT	208F	133.	4.18	15.	5.	5.	0.07
+	2 COMBINED AT	C564	804.	4.25	97.	33.	33.	0.44
+	ROUTED TO	564565	783.	4.35	97.	33.	33.	0.44
+	HYDROGRAPH AT	208G	244.	4.17	30.	10.	10.	0.13
+	2 COMBINED AT	C565	938.	4.33	125.	42.	42.	0.57
+	ROUTED TO	565568	927.	4.38	125.	42.	42.	0.57
+	HYDROGRAPH AT	208H	72.	4.18	8.	3.	3.	0.04
+	2 COMBINED AT	C568L	961.	4.38	133.	45.	45.	0.61
+	HYDROGRAPH AT	208I	213.	4.22	26.	9.	9.	0.12
+	HYDROGRAPH AT	208J	106.	4.28	18.	6.	6.	0.08
+	2 COMBINED AT	C566	313.	4.23	43.	15.	15.	0.20
+	ROUTED TO	566567	308.	4.30	43.	15.	15.	0.20
+	HYDROGRAPH AT	208K	106.	4.15	11.	4.	4.	0.05
+	2 COMBINED AT	C567L	383.	4.27	54.	18.	18.	0.25
+	HYDROGRAPH AT	208L	101.	4.20	13.	4.	4.	0.06
+	2 COMBINED AT	C567	478.	4.25	67.	22.	22.	0.31
+	ROUTED TO	567568	468.	4.35	67.	22.	22.	0.31
+	HYDROGRAPH AT	208M	249.	4.28	35.	12.	12.	0.16
+	2 COMBINED AT	C568R	701.	4.33	102.	34.	34.	0.46
+	2 COMBINED AT	C568	1428.	4.37	224.	75.	75.	1.07
+	ROUTED TO	568573	1420.	4.43	224.	75.	75.	1.07
+	HYDROGRAPH AT	208N	86.	4.20	11.	4.	4.	0.05
+	2 COMBINED AT	C573L	1460.	4.43	234.	79.	79.	1.12
+	HYDROGRAPH AT	208O	386.	4.27	51.	17.	17.	0.23
+	ROUTED TO	569570	382.	4.30	51.	17.	17.	0.23
+	HYDROGRAPH AT	208P	145.	4.13	13.	4.	4.	0.06
+	2 COMBINED AT	C570R	467.	4.28	64.	22.	22.	0.29
+	HYDROGRAPH AT	208Q	169.	4.22	21.	7.	7.	0.09
+	2 COMBINED AT	C570	628.	4.25	86.	29.	29.	0.38
+	HYDROGRAPH AT	208R	25.	4.10	2.	1.	1.	0.01
+	ROUTED TO	571572	24.	4.15	2.	1.	1.	0.01
+	2 COMBINED AT	C572	647.	4.25	88.	29.	29.	0.39
+	ROUTED TO	572573	644.	4.27	88.	29.	29.	0.39

+	HYDROGRAPH AT	208S	160.	4.15	17.	6.	6.	0.07
+	2 COMBINED AT	C573R	772.	4.23	105.	35.	35.	0.46
+	2 COMBINED AT	C573	1872.	4.40	325.	110.	110.	1.58
+	HYDROGRAPH AT	208T	283.	4.18	30.	10.	10.	0.13
+	HYDROGRAPH AT	208U	379.	4.12	30.	10.	10.	0.13
+	2 COMBINED AT	C574	643.	4.13	60.	20.	20.	0.27
+	ROUTED TO	574575	638.	4.15	60.	20.	20.	0.27
+	HYDROGRAPH AT	208V	71.	4.12	6.	2.	2.	0.03
+	2 COMBINED AT	C575	704.	4.15	66.	22.	22.	0.29
+	ROUTED TO	575576	691.	4.18	66.	22.	22.	0.29
+	HYDROGRAPH AT	208W	122.	4.13	11.	4.	4.	0.05
+	2 COMBINED AT	C576	803.	4.17	77.	26.	26.	0.34
+	ROUTED TO	576577	800.	4.18	77.	26.	26.	0.34
+	2 COMBINED AT	C577	2187.	4.37	391.	132.	132.	1.92
+	ROUTED TO	577578	2184.	4.40	391.	132.	132.	1.92
+	HYDROGRAPH AT	208X	206.	4.12	17.	6.	6.	0.08
+	2 COMBINED AT	C578I	2231.	4.38	405.	136.	136.	2.00
+	ROUTED TO	C578O	381.	5.15	310.	136.	136.	2.00
+	ROUTED TO	578587	381.	5.20	310.	136.	136.	2.00
+	HYDROGRAPH AT	210B	172.	4.18	21.	7.	7.	0.11
+	ROUTED TO	C586O	162.	4.27	21.	7.	7.	0.11
+	ROUTED TO	586587	161.	4.32	21.	7.	7.	0.11
+	2 COMBINED AT	C587	401.	4.47	324.	142.	142.	2.11
+	ROUTED TO	587595	401.	4.50	324.	142.	142.	2.11
+	HYDROGRAPH AT	210C	165.	4.17	15.	5.	5.	0.08
+	2 COMBINED AT	C595L	468.	4.40	333.	146.	146.	2.19
+	HYDROGRAPH AT	210D	301.	4.18	30.	10.	10.	0.14
+	ROUTED TO	588590	297.	4.22	30.	10.	10.	0.14
+	HYDROGRAPH AT	210E	62.	4.15	6.	2.	2.	0.03
+	2 COMBINED AT	C590L	353.	4.20	36.	12.	12.	0.17
+	HYDROGRAPH AT	210F	184.	4.20	21.	7.	7.	0.09
+	ROUTED TO	589590	180.	4.23	21.	7.	7.	0.09
+	HYDROGRAPH AT	210G	293.	4.23	35.	12.	12.	0.16
+	2 COMBINED AT	C590R	472.	4.23	56.	19.	19.	0.25
+	2 COMBINED AT	C590	819.	4.22	91.	31.	31.	0.42

+	HYDROGRAPH AT	210H	163.	4.13	14.	5.	5.	0.07
+	ROUTED TO	592593	158.	4.18	14.	5.	5.	0.07
+	2 COMBINED AT	C593	972.	4.22	105.	35.	35.	0.49
+	ROUTED TO	593594	963.	4.25	105.	35.	35.	0.49
+	HYDROGRAPH AT	210I	94.	4.17	10.	3.	3.	0.05
+	2 COMBINED AT	C594	1030.	4.23	115.	38.	38.	0.54
+	ROUTED TO	594595	1007.	4.33	115.	38.	38.	0.54
+	HYDROGRAPH AT	210J	213.	4.18	20.	7.	7.	0.10
+	2 COMBINED AT	C595R	1119.	4.32	133.	44.	44.	0.64
+	2 COMBINED AT	C595	1205.	4.35	438.	183.	183.	2.83
+	ROUTED TO	595596	1201.	4.40	438.	183.	183.	2.83
+	HYDROGRAPH AT	210K	207.	4.12	15.	5.	5.	0.08
+	2 COMBINED AT	C596	1268.	4.38	448.	187.	187.	2.91
+	HYDROGRAPH AT	209A	792.	4.22	82.	27.	27.	0.37
+	ROUTED TO	579580	787.	4.25	82.	27.	27.	0.37
+	HYDROGRAPH AT	209C	105.	4.22	14.	5.	5.	0.06
+	2 COMBINED AT	C580R	889.	4.25	96.	32.	32.	0.43
+	HYDROGRAPH AT	209B	156.	4.20	19.	6.	6.	0.08
+	2 COMBINED AT	C580	1031.	4.23	114.	38.	38.	0.51
+	ROUTED TO	580581	1019.	4.28	114.	38.	38.	0.51
+	HYDROGRAPH AT	209D	563.	4.18	54.	18.	18.	0.24
+	2 COMBINED AT	C581R	1368.	4.23	163.	55.	55.	0.76
+	HYDROGRAPH AT	209E	238.	4.27	33.	11.	11.	0.15
+	2 COMBINED AT	C581	1511.	4.25	193.	65.	65.	0.91
+	ROUTED TO	581582	1488.	4.30	193.	65.	65.	0.91
+	HYDROGRAPH AT	209F	360.	4.28	49.	16.	16.	0.23
+	2 COMBINED AT	C582R	1698.	4.30	235.	79.	79.	1.13
+	HYDROGRAPH AT	209G	337.	4.28	45.	15.	15.	0.20
+	2 COMBINED AT	C582	1886.	4.30	275.	92.	92.	1.34
+	ROUTED TO	582583	1867.	4.33	275.	92.	92.	1.34
+	HYDROGRAPH AT	209H	203.	4.13	17.	6.	6.	0.08
+	2 COMBINED AT	C583	1928.	4.33	289.	97.	97.	1.42
+	ROUTED TO	583584	1903.	4.40	289.	97.	97.	1.42
+	HYDROGRAPH AT	209I	481.	4.13	36.	12.	12.	0.18
+	2 COMBINED AT	C584I	1999.	4.40	319.	107.	107.	1.60

+	ROUTED TO C584O	469.	4.95	305.	107.	107.	1.60
+	ROUTED TO 584597	466.	5.08	305.	107.	107.	1.60
+	HYDROGRAPH AT 210L	255.	4.15	24.	8.	8.	0.14
+	2 COMBINED AT C597	460.	5.07	321.	113.	113.	1.74
+	ROUTED TO 597598	458.	5.15	321.	113.	113.	1.74
+	HYDROGRAPH AT 210M	286.	4.22	30.	10.	10.	0.16
+	2 COMBINED AT C598	587.	4.37	344.	121.	121.	1.90
+	HYDROGRAPH AT 210N	130.	4.08	8.	3.	3.	0.05
+	4 COMBINED AT C599I	1917.	4.40	981.	408.	408.	7.13
+	ROUTED TO C599O	954.	6.13	823.	408.	408.	7.13
+	ROUTED TO 599608	954.	6.18	823.	408.	408.	7.13
+	HYDROGRAPH AT 211K	302.	4.05	22.	7.	7.	0.10
+	2 COMBINED AT C608L	954.	6.13	823.	413.	413.	7.24
+	HYDROGRAPH AT 211G	18.	4.05	3.	1.	1.	0.01
+	ROUTED TO 604606	17.	4.23	3.	1.	1.	0.01
+	HYDROGRAPH AT 211I	78.	4.17	10.	3.	3.	0.04
+	2 COMBINED AT C606R	94.	4.18	13.	4.	4.	0.05
+	HYDROGRAPH AT 211H	181.	4.13	14.	5.	5.	0.07
+	ROUTED TO C605O	115.	4.27	14.	5.	5.	0.07
+	2 COMBINED AT C606	206.	4.20	26.	9.	9.	0.12
+	ROUTED TO 606607	204.	4.23	26.	9.	9.	0.12
+	HYDROGRAPH AT 211J	37.	4.08	4.	1.	1.	0.01
+	2 COMBINED AT C607	230.	4.22	30.	10.	10.	0.14
+	ROUTED TO 607608	228.	4.25	30.	10.	10.	0.14
+	2 COMBINED AT C608	957.	6.12	839.	420.	420.	7.37
+	ROUTED TO 608613	957.	6.17	839.	420.	420.	7.37
+	HYDROGRAPH AT 211M	203.	4.13	19.	6.	6.	0.08
+	ROUTED TO 610611	200.	4.17	19.	6.	6.	0.08
+	HYDROGRAPH AT 211N	51.	4.07	4.	1.	1.	0.02
+	2 COMBINED AT C611R	241.	4.15	23.	8.	8.	0.10
+	HYDROGRAPH AT 211O	107.	4.07	10.	3.	3.	0.04
+	ROUTED TO C609O	61.	4.25	10.	3.	3.	0.04
+	ROUTED TO 609611	61.	4.28	10.	3.	3.	0.04
+	2 COMBINED AT C611I	299.	4.17	33.	11.	11.	0.14
+	ROUTED TO C611O	151.	4.45	33.	11.	11.	0.14

+	DIVERSION TO	D611R	151.	4.45	33.	11.	11.	0.14
+	HYDROGRAPH AT	D611L	0.	0.02	0.	0.	0.	0.14
+	ROUTED TO	611612	0.	0.02	0.	0.	0.	0.14
+	HYDROGRAPH AT	211P	119.	4.00	10.	3.	3.	0.03
+	2 COMBINED AT	C612	119.	4.00	10.	3.	3.	0.17
+	2 COMBINED AT	C613	956.	6.15	840.	422.	422.	7.55
+	ROUTED TO	613621	956.	6.17	840.	422.	422.	7.55
+	HYDROGRAPH AT	211L	301.	4.03	23.	8.	8.	0.10
+	2 COMBINED AT	C621L	957.	6.07	848.	428.	428.	7.64
+	HYDROGRAPH AT	211Q	56.	4.05	4.	1.	1.	0.02
+	ROUTED TO	616617	55.	4.12	4.	1.	1.	0.02
+	HYDROGRAPH AT	211R	200.	4.10	19.	6.	6.	0.08
+	2 COMBINED AT	C617L	255.	4.10	23.	8.	8.	0.10
+	HYDROGRAPH AT	211U	56.	4.07	8.	3.	3.	0.03
+	DIVERSION TO	D614R	39.	4.07	5.	2.	2.	0.03
+	HYDROGRAPH AT	D614L	16.	4.07	3.	1.	1.	0.03
+	2 COMBINED AT	C617	270.	4.10	26.	9.	9.	0.13
+	ROUTED TO	617618	263.	4.18	26.	9.	9.	0.13
+	HYDROGRAPH AT	211S	125.	4.08	12.	4.	4.	0.05
+	2 COMBINED AT	C618I	370.	4.15	37.	12.	12.	0.18
+	ROUTED TO	C618O	367.	4.17	31.	12.	12.	0.18
+	HYDROGRAPH AT	BB614R	39.	4.07	5.	2.	2.	0.03
+	ROUTED TO	614615	39.	4.12	5.	2.	2.	0.03
+	HYDROGRAPH AT	211V	16.	4.02	2.	1.	1.	0.00
+	2 COMBINED AT	C615	51.	4.08	7.	2.	2.	0.03
+	DIVERSION TO	D615R	18.	4.08	2.	1.	1.	0.03
+	HYDROGRAPH AT	D615L	33.	4.08	5.	2.	2.	0.03
+	ROUTED TO	615618	33.	4.08	5.	2.	2.	0.03
+	2 COMBINED AT	C618	398.	4.17	36.	14.	14.	0.19
+	ROUTED TO	618619	389.	4.25	36.	14.	14.	0.19
+	HYDROGRAPH AT	211T	162.	4.08	15.	5.	5.	0.07
+	2 COMBINED AT	C619L	503.	4.22	50.	19.	19.	0.26
+	HYDROGRAPH AT	BB615R	18.	4.08	2.	1.	1.	0.03
+	ROUTED TO	615619	18.	4.17	2.	1.	1.	0.03
+	2 COMBINED AT	C619I	520.	4.22	52.	20.	20.	0.25

+	ROUTED TO	C619O	363.	4.40	52.	20.	20.	0.25
+	DIVERSION TO	D619L	171.	4.40	4.	1.	1.	0.25
+	HYDROGRAPH AT	D619R	192.	4.40	48.	18.	18.	0.25
+	ROUTED TO	619620	192.	4.42	48.	18.	18.	0.25
+	HYDROGRAPH AT	BB619L	171.	4.40	4.	1.	1.	0.25
+	ROUTED TO	619620	136.	4.45	4.	1.	1.	0.25
+	HYDROGRAPH AT	211W	105.	4.02	9.	3.	3.	0.03
+	3 COMBINED AT	C620R	335.	4.43	61.	23.	23.	0.28
+	HYDROGRAPH AT	BB611R	151.	4.45	33.	11.	11.	0.14
+	ROUTED TO	611620	151.	4.47	33.	11.	11.	0.14
+	2 COMBINED AT	C620	485.	4.43	94.	34.	34.	0.42
+	ROUTED TO	620621	482.	4.47	94.	33.	33.	0.42
+	2 COMBINED AT	C621	1184.	4.30	913.	454.	454.	7.93
+	ROUTED TO	621622	1175.	4.40	912.	454.	454.	7.93
+	HYDROGRAPH AT	211X	503.	4.12	55.	18.	18.	0.21
+	2 COMBINED AT	C622R	1376.	4.37	941.	468.	468.	8.14
+	HYDROGRAPH AT	211A	283.	4.15	30.	10.	10.	0.14
+	ROUTED TO	C600O	266.	4.22	30.	10.	10.	0.14
+	ROUTED TO	600601	263.	4.28	30.	10.	10.	0.14
+	HYDROGRAPH AT	211B	249.	4.12	23.	8.	8.	0.11
+	2 COMBINED AT	C601	462.	4.18	52.	17.	17.	0.25
+	ROUTED TO	601602	458.	4.23	52.	17.	17.	0.25
+	HYDROGRAPH AT	211C	134.	4.03	12.	4.	4.	0.04
+	2 COMBINED AT	C602L	515.	4.20	64.	21.	21.	0.30
+	HYDROGRAPH AT	211D	159.	4.07	15.	5.	5.	0.07
+	2 COMBINED AT	C602	635.	4.15	78.	26.	26.	0.37
+	ROUTED TO	602603	632.	4.22	78.	26.	26.	0.37
+	HYDROGRAPH AT	211E	507.	4.03	41.	14.	14.	0.16
+	2 COMBINED AT	C603	936.	4.07	118.	40.	40.	0.52
+	ROUTED TO	603622	918.	4.15	118.	40.	40.	0.52
+	HYDROGRAPH AT	211F	332.	4.05	32.	11.	11.	0.11
+	2 COMBINED AT	C622L	1121.	4.13	149.	50.	50.	0.63
+	2 COMBINED AT	C622	1965.	4.33	1039.	506.	506.	8.78
+	ROUTED TO	622549	1954.	4.43	1038.	506.	506.	8.78
+	HYDROGRAPH AT	211Y	216.	4.10	21.	7.	7.	0.09

+	2 COMBINED AT	C549R	2026.	4.42	1050.	511.	511.	8.87
+	2 COMBINED AT	C549	2880.	4.43	1427.	698.	698.	13.06
+	ROUTED TO	549626	2865.	4.52	1426.	698.	698.	13.06
+	HYDROGRAPH AT	211Z	249.	4.03	20.	7.	7.	0.08
+	2 COMBINED AT	C626C	2895.	4.52	1433.	703.	703.	13.14
+	HYDROGRAPH AT	211AA	78.	4.08	9.	3.	3.	0.03
+	ROUTED TO	625626	76.	4.13	9.	3.	3.	0.03
+	HYDROGRAPH AT	211AB	135.	4.02	10.	3.	3.	0.04
+	ROUTED TO	623624	133.	4.03	10.	3.	3.	0.04
+	HYDROGRAPH AT	211AC	90.	4.02	8.	3.	3.	0.03
+	2 COMBINED AT	C624	223.	4.03	18.	6.	6.	0.07
+	ROUTED TO	624626	215.	4.07	18.	6.	6.	0.07
+	HYDROGRAPH AT	211AD	132.	4.03	12.	4.	4.	0.04
+	2 COMBINED AT	C626R	342.	4.05	30.	10.	10.	0.11
+	3 COMBINED AT	C626	2983.	4.50	1452.	713.	713.	13.28
+	ROUTED TO	626627	2981.	4.52	1452.	713.	713.	13.28
+	HYDROGRAPH AT	211AE	114.	4.02	9.	3.	3.	0.03
+	2 COMBINED AT	C627	2996.	4.52	1456.	715.	715.	13.32
+	HYDROGRAPH AT	211AF	177.	4.02	13.	4.	4.	0.05

*** NORMAL END OF HEC-1 ***

APPENDIX E

100-Year, 24-Hour Storm Existing Condition HEC-1 Output

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991           *
*           VERSION 4.0.1E          *
*                                   *
*  RUN DATE  11/02/94  TIME  08:22:52  *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                    HEC-1 INPUT                                                    PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID   Fountain Hills North Floodplain Delineation Study
    2           ID        FCD 92-04        by GVSCE
    3           ID    Existing Condition Model                                File:  EX100-24.IH1
    4           ID    100-Year 24-Hour Storm, Clark Unit Hydrograph          Date:    07-21-94   dtp
                *                                                        Revised:    09-14-94   trl
    5           IT       1                    1800
    6           IO       5
    7           IN      15
                *
                * Point precipitation values are are based on Hydro-40 DARF.
                *   0.01    5.00   10.00   50.00   80.00  100.00  200.00
                *  1.000   0.980   0.949   0.883   0.861   0.850   0.819
                *
    8           JD    4.20    0.01
                * The following PC records are a 24-hour SCS Type II rainfall distribution.
    9           PC   0.000   0.002   0.005   0.008   0.011   0.013   0.016   0.019   0.022   0.025
   10           PC   0.028   0.032   0.035   0.038   0.041   0.044   0.048   0.053   0.056   0.060
   11           PC   0.063   0.067   0.071   0.075   0.080   0.084   0.089   0.093   0.098   0.103
   12           PC   0.109   0.114   0.120   0.127   0.133   0.140   0.147   0.155   0.163   0.172
   13           PC   0.181   0.192   0.204   0.220   0.235   0.259   0.283   0.473   0.663   0.699
   14           PC   0.735   0.754   0.772   0.785   0.799   0.810   0.820   0.829   0.838   0.846
   15           PC   0.854   0.861   0.868   0.874   0.880   0.885   0.891   0.900   0.902   0.910
   16           PC   0.912   0.920   0.921   0.926   0.929   0.930   0.937   0.941   0.945   0.950
   17           PC   0.952   0.957   0.959   0.962   0.965   0.970   0.972   0.973   0.978   0.981
   18           PC   0.984   0.987   0.989   0.992   0.995   0.998   1.000
   19           JD    4.12    5.00
   20           JD    3.99   10.00
   21           JD    3.71   50.00
   22           JD    3.62   80.00
                *

   23           KK    201A
   24           KM   Sub-Basin   201A
   25           KM
   26           KM      The Clark Unit Hydrograph is used for this basin.
   27           KM          The Natural time-area relation is used for this basin.
   28           KM
   29           KM      Time of Concentration for this sub-basin is based on the following:
   30           KM          An rainfall areal reduction factor of 1.000
   31           KM
   32           KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
   33           KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   34           KM   .25 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
   35           KM
   36           KM          L=   1.269 miles, S=  208 feet/mile, Kb= .10
   37           KM
   38           BA   0.217
   39           LG    0.15    0.39    5.70    0.19    0.00
   40           UC   0.488   0.482
   41           UA       0       3       5       8      12      20      43      75      90      96
   42           UA     100
                *
```

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1                                    HEC-1 INPUT                                                    PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   43           KK    201B
   44           KM   Sub-Basin   201B
   45           KM
   46           KM      The Clark Unit Hydrograph is used for this basin.
   47           KM          The Natural time-area relation is used for this basin.
   48           KM
   49           KM      Time of Concentration for this sub-basin is based on the following:
   50           KM          An rainfall areal reduction factor of 1.000
   51           KM
```

```
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.680 miles, S=  223 feet/mile, Kb= .11
KM
BA   0.081
LG    0.15    0.39    5.70    0.20    0.00
UC   0.367   0.375
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK    C501
KM      Hydrograph combine 201A + 201B at C501
HC       2
*

KK  501502
KM      Normal depth channel route from C501 to C502
KM      Source:  200 Scale Mapping
RS       8    FLOW      -1
RC   0.055   0.045   0.055  3000.0  0.0203
RX  1000.0  1010.0  1025.0  1045.0  1075.0  1105.0  1125.0  1155.0
RY  1624.0  1622.0  1620.0  1618.0  1618.0  1620.0  1622.0  1624.0
*

KK    201C
KM   Sub-Basin   201C
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.674 miles, S=  206 feet/mile, Kb= .11
KM
BA   0.079
LG    0.15    0.39    5.70    0.21    0.00
UC   0.375   0.387
```

1


```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK   C502R
KM      Hydrograph combine 501502 + 201C at C502 right branch
HC       2
*

KK    201D
KM   Sub-Basin   201D
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.898 miles, S=  207 feet/mile, Kb= .11
KM
BA   0.071
LG    0.15    0.39    5.70    0.20    0.00
UC   0.433   0.606
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK    C502
KM      Hydrograph combine 502R + 201D at C502
HC       2
*

KK  502503
KM      Normal depth channel route from C502 to C503
KM      Source:  200 Scale Mapping
RS       9    FLOW      -1
RC   0.050   0.045   0.050  2453.0  0.0183
RX  1000.0  1010.0  1025.0  1095.0  1215.0  1295.0  1305.0  1325.0
RY  1554.0  1553.0  1552.0  1550.0  1549.8  1551.0  1552.0  1554.0
*

KK    201E
KM   Sub-Basin   201E
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 136          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 137          KM   .24 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
 138          KM
 139          KM          L=   1.245 miles, S=  178 feet/mile, Kb= .10
 140          KM
 141          BA   0.183
 142          LG    0.15    0.38    5.60    0.25    0.10
 143          UC   0.525   0.567
 144          UA       0       3       5       8      12      20      43      75      90      96
 145          UA     100
              *

 146          KK   C503I
 147          KM      Hydrograph combine 502503 + 201E at C503I
 148          HC       2
              *

 149          KK   C503O
 150          KM      Reservoir route at C503.
 151          RS       1    ELEV  1535.1
 152          SV    0.00    0.67    2.87    7.16   13.82   22.77   34.37   38.00   41.80   32.20
 153          SV   44.70   46.10   47.80   49.11   50.90   52.80   54.60   56.40
 154          SE  1525.1  1538.0  1540.0  1542.0  1544.0  1546.0  1548.0  1548.5  1549.0  1549.2
 155          SE  1549.4  1549.6  1549.8  1550.0  1550.2  1550.4  1550.6  1550.8
 156          SQ       0      50     133     210     273     325     367     377     407     441
 157          SQ     481     545     612     715     818     971    1115    1268
              *

 158          KK   D503R
 159          KM      Hydrograph diversion at C503.  Main flow continues in the right branch.
 160          KM      Diverted flow is in the left branch.
 161          DT   D503L
 162          DI       0      50     133     210     273     325     367     377     407     441
 163          DI     481     545     612     715     818     971    1115    1268
 164          DQ       0      50     133     210     273     325     367     377     386     391
 165          DQ     394     398     402     405     408     412     415     418
              *

 166          KK  503504
 167          KM      Normal depth channel route from C503 to C504
 168          KM      Source:  200 Scale Mapping
 169          RS       1    FLOW      -1
 170          RC   0.050   0.040   0.050  1151.0  0.0098
 171          RX   940.0  1060.0  1100.0  1140.0  1190.0  1210.0  1230.0  1242.0
 172          RY  1552.0  1548.0  1547.0  1546.2  1546.2  1548.0  1549.0  1552.0
              *
              * *
              * *  End Basin 201.  Start Basin 202
              * *
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 173          KK    202A
 174          KM   Sub-Basin   202A
 175          KM
 176          KM      The Clark Unit Hydrograph is used for this basin.
 177          KM          The Natural time-area relation is used for this basin.
 178          KM
 179          KM      Time of Concentration for this sub-basin is based on the following:
 180          KM          An rainfall areal reduction factor of 1.000
 181          KM
 182          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 183          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 184          KM   .23 .23 .23 .23 .23 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
 185          KM
 186          KM          L=   0.409 miles, S=  129 feet/mile, Kb= .12
 187          KM
 188          BA   0.038
 189          LG    0.15    0.35    4.40    0.39    7.00
 190          UC   0.363   0.380
 191          UA       0       3       5       8      12      20      43      75      90      96
 192          UA     100
              *

 193          KK   C504I
 194          KM      Hydrograph combine D503R + 202A at C504I
 195          HC       2
              *

 196          KK   C504O
 197          KM      Reservoir route at C504.
 198          RS       1    ELEV  1538.1
 199          SV    0.00    0.17    0.90    1.00    1.10    1.30    1.60    1.80    2.00    2.30
 200          SV    2.50    2.70    3.00    3.10
 201          SE  1538.1  1540.0  1541.66 1541.80 1542.0  1542.2  1542.4  1542.6  1542.8  1543.0
 202          SE  1543.2  1543.4  1543.6  1543.7
 203          SQ       0      11      20      22      24      30      41      60      85     121
 204          SQ     171     240     322     396
              *

 205          KK   D504R
 206          KM      Hydrograph diversion at C504.  Main flow continues in the right branch.
 207          KM      Diverted flow is in the left branch.
 208          DT   D504L
 209          DI       0      11      20      22      24      30      41      60      85     121
 210          DI     171     240     322     396
 211          DQ       0      11      20      20      21      22      22      23      23      24
```

```
212          DQ      24      25      26      26
             *

213          KK    202B
214          KM   Sub-Basin   202B
215          KM
216          KM      The Clark Unit Hydrograph is used for this basin.
217          KM          The Natural time-area relation is used for this basin.
218          KM
1                                        HEC-1 INPUT                                                          PAGE  6
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

219          KM      Time of Concentration for this sub-basin is based on the following:
220          KM          An rainfall areal reduction factor of 1.000
221          KM
222          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
223          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
224          KM   .23 .23 .23 .23 .23 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
225          KM
226          KM          L=   0.364 miles, S=  322 feet/mile, Kb= .12
227          KM
228          BA   0.018
229          LG    0.15    0.35    4.55    0.36    0.60
230          UC   0.258   0.363
231          UA      0       3       5       8      12      20      43      75      90      96
232          UA    100
             *

233          KK   C505I
234          KM      Hydrograph combine D504R + 202B at C505I
235          HC       2
             *

236          KK   D505R
237          KM      Hydrograph diversion at C505.  Main flow continues in the right branch.
238          KM      Diverted flow is in the left branch.
239          DT   D505L
240          DI      0       3       7       9      11      14      15      17      23      31
241          DI     44      55      75      95     123     134
242          DQ      0       3       7       9      11      12      12      13      14      14
243          DQ     15      15      16      16      16      17
             *

244          KK    202C
245          KM   Sub-Basin   202C
246          KM
247          KM      The Clark Unit Hydrograph is used for this basin.
248          KM          The Natural time-area relation is used for this basin.
249          KM
250          KM      Time of Concentration for this sub-basin is based on the following:
251          KM          An rainfall areal reduction factor of 1.000
252          KM
253          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
254          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
255          KM   .23 .23 .23 .23 .22 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
256          KM
257          KM          L=   0.192 miles, S=  363 feet/mile, Kb= .13
258          KM
259          BA   0.008
260          LG    0.15    0.35    4.35    0.41    7.00
261          UC   0.188   0.248
262          UA      0       3       5       8      12      20      43      75      90      96
263          UA    100
             *
1                                        HEC-1 INPUT                                                          PAGE  7
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

264          KK    C506
265          KM      Hydrograph combine C505R + 202C at C506
266          HC       2
             *

267          KK   D506R
268          KM      Hydrograph diversion at C506.  Main flow continues in the right branch.
269          KM      Diverted flow is in the left branch.
270          DT   D506L
271          DI      0       3      13      37      77     100     151     206     276     355
272          DI    437     532     698     809     928    1104
273          DQ      0       0       0       0       0       0       4      12      28      52
274          DQ     85     128     183     249     328     421
             *

275          KK    202D
276          KM   Sub-Basin   202D
277          KM
278          KM      The Clark Unit Hydrograph is used for this basin.
279          KM          The Natural time-area relation is used for this basin.
280          KM
281          KM      Time of Concentration for this sub-basin is based on the following:
282          KM          An rainfall areal reduction factor of 1.000
283          KM
284          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
285          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
286          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
287          KM
288          KM          L=   0.800 miles, S=  248 feet/mile, Kb= .11
289          KM
290          BA   0.063
291          LG    0.15    0.38    5.60    0.23    7.00
292          UC   0.388   0.524
293          UA      0       3       5       8      12      20      43      75      90      96
```

```
 294          UA     100
              *

 295          KK    202E
 296          KM   Sub-Basin   202E
 297          KM
 298          KM      The Clark Unit Hydrograph is used for this basin.
 299          KM          The Natural time-area relation is used for this basin.
 300          KM
 301          KM      Time of Concentration for this sub-basin is based on the following:
 302          KM          An rainfall areal reduction factor of 1.000
 303          KM
 304          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 305          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 306          KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
 307          KM
 308          KM          L=   0.732 miles, S=  270 feet/mile, Kb= .10
 309          KM
 310          BA   0.104
 311          LG    0.15    0.39    5.70    0.22    0.30
1                                          HEC-1 INPUT                                                    PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 312          UC   0.346   0.322
 313          UA       0       3       5       8      12      20      43      75      90      96
 314          UA     100
              *

 315          KK   C508O
 316          KM      Reservoir route at C508.
 317          RS       1    ELEV  1524.2
 318          SV    0.00    0.05    0.09    0.13    0.17    0.21    0.25    0.28    0.36    0.46
 319          SV    0.55    0.64    0.72    0.81    0.90    1.00    1.02
 320          SE  1524.1  1525.0  1525.5  1526.0  1526.5  1527.0  1527.6  1528.0  1528.2  1528.4
 321          SE  1528.6  1528.8  1529.0  1529.2  1529.4  1529.6 1529.64
 322          SQ       0       6       9      16      22      28      38      51      58      70
 323          SQ      84     100     122     149     183     216     227
              *

 324          KK   D508L
 325          KM      Hydrograph diversion at C508.  Main flow continues in the left branch.
 326          KM      Diverted flow is in the right branch.
 327          DT   D508R
 328          DI       0       6       9      16      22      28      38      51      58      70
 329          DI      84     100     122     149     183     216     227
 330          DQ       0       6       9      16      22      28      38      47      52      56
 331          DQ      60      63      66      68      71      73      73
              *

 332          KK  508507
 333          KM      Normal depth channel route from C508 to C507
 334          KM      Source:  200 Scale Mapping
 335          RS       6    FLOW      -1
 336          RC   0.020   0.035   0.055   934.0  0.0028
 337          RX   893.0  1014.0  1022.0  1026.0  1040.0  1050.0  1060.0  1066.0
 338          RY  1532.0  1529.4  1528.6  1527.6  1529.0  1530.2  1531.3  1532.0
              *

 339          KK   C507I
 340          KM      Hydrograph combine D506R + 202D + D508L at C507I
 341          HC       3
              *

 342          KK   C507O
 343          KM      Reservoir route at C507
 344          RS       1    ELEV  1525.2
 345          SV    0.00    0.28    0.46    0.65    0.85    1.03    1.38    1.40    1.44    1.48
 346          SV    1.52    1.55    1.59    1.64    1.67    1.70    1.75    1.77
 347          SE  1525.2  1526.0  1526.5  1527.0  1527.5  1528.0  1529.0  1529.0  1529.1  1529.2
 348          SE  1529.3  1529.4  1529.5  1529.6  1529.7  1529.8  1529.9  1530.0
 349          SQ       0       2       5       9      13      15      18      20      36      69
 350          SQ     118     185     272     378     506     652     816     997
              *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 351          KK    202F
 352          KM   Sub-Basin   202F
 353          KM
 354          KM      The Clark Unit Hydrograph is used for this basin.
 355          KM          The Natural time-area relation is used for this basin.
 356          KM
 357          KM      Time of Concentration for this sub-basin is based on the following:
 358          KM          An rainfall areal reduction factor of 1.000
 359          KM
 360          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 361          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 362          KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
 363          KM
 364          KM          L=   0.188 miles, S=  337 feet/mile, Kb= .13
 365          KM
 366          BA   0.013
 367          LG    0.15    0.38    5.60    0.23    1.80
 368          UC   0.188   0.179
 369          UA       0       3       5       8      12      20      43      75      90      96
 370          UA     100
              *

 371          KK    202G
 372          KM   Sub-Basin   202G
 373          KM
```

```
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM    .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.175 miles, S=  338 feet/mile, Kb= .13
KM
BA    0.013
LG     0.15     0.39     5.70     0.21     1.50
UC    0.179    0.161
UA        0        3        5        8       12       20       43       75       90       96
UA      100
*

KK    202H
KM    Sub-Basin   202H
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```



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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM    .24 .24 .24 .24 .24 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.861 miles, S=  243 feet/mile, Kb= .10
KM
BA    0.179
LG     0.15     0.37     5.20     0.27     0.30
UC    0.392    0.309
UA        0        3        5        8       12       20       43       75       90       96
UA      100
*

KK    C511O
KM      Reservoir route at C511.
RS        1     ELEV  1535.2
SV     0.00     0.40     0.70     1.19     3.10     3.20     3.55     4.00     4.50     4.90
SV     5.40     5.80     6.30     6.80     7.20     7.70     8.13
SE   1535.2   1537.0   1538.0   1540.0   1541.6   1541.8   1542.0   1542.2   1542.4   1542.6
SE   1542.8   1543.0   1543.2   1543.4   1543.6   1543.8   1544.0
SQ        0       42       88      200      274      286      325      393      491      622
SQ      790     1000     1241     1518     1835     2189     2580
*

KK   511512
KM      Normal depth channel route from C511 to C512
KM      Source:  200 Scale Mapping
RS        2     FLOW      -1
RC    0.055    0.045    0.055    760.0   0.0112
RX   1000.0   1060.0   1070.0   1090.0   1110.0   1120.0   1180.0   1220.0
RY   1536.0   1534.2   1534.0   1532.0   1532.0   1534.0   1535.0   1536.0
*

KK    202I
KM    Sub-Basin   202I
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The HEC-1 time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM    .25 .25 .24 .24 .24 .24 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.247 miles, S=  122 feet/mile, Kb= .12
KM
BA    0.017
LG     0.14     0.35     5.10     0.28     9.30
UC    0.279    0.295
*
```



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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    C512I
KM      Hydrograph combine 511512 + 202I at C512
KM      Inflow to reservoir route at C512
KM      This is the inflow to the Stock Tank at the end of Bahia Drive
HC        2
*

KK    C512O
KM      Reservoir route at C512 (Stock Tank).
RS        1     ELEV  1517.0
SV     0.00     0.03     0.29     0.75     1.38     2.39     4.17     7.43    10.30    12.20
SV    12.70    13.36    14.10    15.10    16.20    17.00    17.90
SE   1517.0   1518.0   1520.0   1522.0   1524.0   1526.0   1528.0   1530.0   1531.0   1531.6
SE   1531.8   1532.0   1532.2   1532.4   1532.6   1532.8   1533.0
SQ        0        0        0        0        0        0        0        0        0       15
```

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 458          SQ      35      65     137     244     376     541     725
              *

 459          KK   D512L
 460          KM      Hydrograph diversion at C512.
 461          KM      Main flow continues in the left branch (weir).
 462          KM      Diverted flow enters Bahia Drive (channel) and continues to C591.
 463          KM      Diverted flow is in the right branch.
 464          DT   D512R
 465          DI       0      15      35      65     137     244     376     541     725
 466          DQ       0       0       4      10      49     112     190     289     395
              *
              * *
              * *  Note:  512591 too short to route
              * *
              *
              * *
              * *  End Basin 202.  Start Basin 203.
              * *
              *

 467          KK    203A
 468          KM   Sub-Basin   203A
 469          KM
 470          KM      The Clark Unit Hydrograph is used for this basin.
 471          KM          The HEC-1 time-area relation is used for this basin.
 472          KM
 473          KM      Time of Concentration for this sub-basin is based on the following:
 474          KM          An rainfall areal reduction factor of 1.000
 475          KM
 476          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 477          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 478          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 479          KM
 480          KM          L=   1.569 miles, S=  229 feet/mile, Kb= .08
 481          KM
 482          BA   0.279
 483          LG    0.14    0.37    5.70    0.21    4.20
 484          UC   0.471   0.476
              *
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 485          KK   C513O
 486          KM      Reservoir route at C513.
 487          RS       1    ELEV  1789.0
 488          SV    0.00    0.35    0.97    2.05    3.54    5.54    8.17
 489          SE  1789.0  1794.0  1796.0  1798.0  1800.0  1802.0  1804.0
 490          SQ       0       0      20      70     135     315    1995
              *

 491          KK  513514
 492          KM      Normal depth channel route from C513 to C514
 493          KM      Source:  200 Scale Mapping
 494          RS       7    FLOW      -1
 495          RC   0.050   0.045   0.050  2403.0  0.0240
 496          RX  1000.0  1010.0  1035.0  1080.0  1100.0  1120.0  1135.0  1145.0
 497          RY  1780.0  1778.0  1770.0  1768.0  1768.0  1770.0  1778.0  1780.0
              *

 498          KK    203B
 499          KM   Sub-Basin   203B
 500          KM
 501          KM      The Clark Unit Hydrograph is used for this basin.
 502          KM          The HEC-1 time-area relation is used for this basin.
 503          KM
 504          KM      Time of Concentration for this sub-basin is based on the following:
 505          KM          An rainfall areal reduction factor of 1.000
 506          KM
 507          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 508          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 509          KM   .25 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 510          KM
 511          KM          L=   0.484 miles, S=  236 feet/mile, Kb= .10
 512          KM
 513          BA   0.044
 514          LG    0.14    0.37    5.70    0.21    5.00
 515          UC   0.288   0.306
              *

 516          KK   C514R
 517          KM      Hydrograph combine 513514 + 203B at C514 right channel
 518          HC       2
              *

 519          KK    203C
 520          KM   Sub-Basin   203C
 521          KM
 522          KM      The Clark Unit Hydrograph is used for this basin.
 523          KM          The HEC-1 time-area relation is used for this basin.
 524          KM
 525          KM      Time of Concentration for this sub-basin is based on the following:
 526          KM          An rainfall areal reduction factor of 1.000
 527          KM
 528          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 529          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 530          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1                                          HEC-1 INPUT                                          PAGE 13

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 531          KM
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532          KM          L=   0.988 miles, S=  258 feet/mile, Kb= .10
533          KM
534          BA   0.103
535          LG    0.15    0.39    5.70    0.21    9.30
536          UC   0.404   0.490
             *

537          KK    C514
538          KM      Hydrograph combine C514R + 203C at C514
539          HC       2
             *
             * *
             * * Note: 514515 too short to route
             * *
             *

540          KK    203D
541          KM   Sub-Basin   203D
542          KM
543          KM      The Clark Unit Hydrograph is used for this basin.
544          KM          The Natural time-area relation is used for this basin.
545          KM
546          KM      Time of Concentration for this sub-basin is based on the following:
547          KM          An rainfall areal reduction factor of 1.000
548          KM
549          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
550          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
551          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00
552          KM
553          KM          L=   1.025 miles, S=  252 feet/mile, Kb= .10
554          KM
555          BA   0.108
556          LG    0.15    0.39    5.70    0.21    0.00
557          UC   0.417   0.508
558          UA       0       3       5       8      12      20      43      75      90      96
559          UA     100
             *

560          KK    C515
561          KM      Hydrograph combine C514 + 203D at C515
562          HC       2
             *

563          KK  515517
564          KM      Normal depth channel route from C515 to C517
565          KM      Source:  200 Scale Mapping
566          RS       9    FLOW      -1
567          RC   0.050   0.045   0.060  3340.0  0.0186
568          RX  1000.0  1020.0  1045.0  1065.0  1085.0  1125.0  1135.0  1145.0
569          RY  1708.0  1704.0  1702.0  1698.0  1698.0  1700.0  1705.0  1710.0
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

570          KK    203E
571          KM   Sub-Basin   203E
572          KM
573          KM      The Clark Unit Hydrograph is used for this basin.
574          KM          The Natural time-area relation is used for this basin.
575          KM
576          KM      Time of Concentration for this sub-basin is based on the following:
577          KM          An rainfall areal reduction factor of 1.000
578          KM
579          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
580          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
581          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
582          KM
583          KM          L=   0.640 miles, S=  219 feet/mile, Kb= .11
584          KM
585          BA   0.093
586          LG    0.15    0.37    6.60    0.14    0.00
587          UC   0.354   0.316
588          UA       0       3       5       8      12      20      43      75      90      96
589          UA     100
             *

590          KK   C517R
591          KM      Hydrograph combine 515517 + 203E at C517 right branch
592          HC       2
             *

593          KK    203F
594          KM   Sub-Basin   203F
595          KM
596          KM      The Clark Unit Hydrograph is used for this basin.
597          KM          The Natural time-area relation is used for this basin.
598          KM
599          KM      Time of Concentration for this sub-basin is based on the following:
600          KM          An rainfall areal reduction factor of 1.000
601          KM
602          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
603          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
604          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00
605          KM
606          KM          L=   1.460 miles, S=  237 feet/mile, Kb= .09
607          KM
608          BA   0.333
609          LG    0.15    0.39    5.70    0.21    0.00
610          UC   0.479   0.414
611          UA       0       3       5       8      12      20      43      75      90      96
612          UA     100
             *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 613          KK  516517
 614          KM      Normal depth channel route from C516 to C517
 615          KM      Source:  200 Scale Mapping
 616          RS      14    FLOW      -1
 617          RC   0.065   0.045   0.055  6720.0  0.0213
 618          RX  1000.0  1015.0  1020.0  1040.0  1080.0  1095.0  1100.0  1125.0
 619          RY  1724.0  1718.0  1716.0  1714.0  1714.0  1716.0  1718.0  1724.0
              *

 620          KK    203G
 621          KM   Sub-Basin   203G
 622          KM
 623          KM      The Clark Unit Hydrograph is used for this basin.
 624          KM          The Natural time-area relation is used for this basin.
 625          KM
 626          KM      Time of Concentration for this sub-basin is based on the following:
 627          KM          An rainfall areal reduction factor of 1.000
 628          KM
 629          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 630          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 631          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 632          KM
 633          KM          L=   1.424 miles, S=  215 feet/mile, Kb= .09
 634          KM
 635          BA   0.248
 636          LG    0.15    0.40    6.00    0.19    0.00
 637          UC   0.488   0.489
 638          UA       0       3       5       8      12      20      43      75      90      96
 639          UA     100
              *

 640          KK   C517L
 641          KM      Hydrograph combine 516517 + 203G at C517 left branch
 642          HC       2
              *

 643          KK    C517
 644          KM      Hydrograph combine C517R + C517L at C517
 645          HC       2
              *

 646          KK  517518
 647          KM      Normal depth channel route from C517 to C518
 648          KM      Source:  HEC-2 Cross Section: ES 3.522
 649          RS       8    FLOW      -1
 650          RC   0.055   0.035   0.060  4367.0  0.0174
 651          RX  9808.1  9845.6  9957.0  9990.4 10007.0 10015.9 10076.5 10176.0
 652          RY  1628.2  1618.6  1617.5  1614.8  1614.7  1619.7  1622.9  1631.3
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 653          KK    203H
 654          KM   Sub-Basin   203H
 655          KM
 656          KM      The Clark Unit Hydrograph is used for this basin.
 657          KM          The Natural time-area relation is used for this basin.
 658          KM
 659          KM      Time of Concentration for this sub-basin is based on the following:
 660          KM          An rainfall areal reduction factor of 1.000
 661          KM
 662          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 663          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 664          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
 665          KM
 666          KM          L=   1.035 miles, S=  178 feet/mile, Kb= .10
 667          KM
 668          BA   0.207
 669          LG    0.15    0.38    5.40    0.21    0.00
 670          UC   0.463   0.397
 671          UA       0       3       5       8      12      20      43      75      90      96
 672          UA     100
              *

 673          KK    C518
 674          KM      Hydrograph combine 517518 + 203H at C518
 675          HC       2
              *

 676          KK  518519
 677          KM      Normal depth channel route from C518 to C519
 678          KM      Source:  HEC-2 Cross Section: ES 3.072
 679          RS       3    FLOW      -1
 680          RC   0.090   0.050   0.085  1796.0  0.0217
 681          RX  9851.4  9884.7  9955.8  9983.5 10028.9 10036.3 10057.6 10087.9
 682          RY  1586.3  1569.6  1568.4  1565.8  1565.4  1566.0  1575.0  1589.3
              *

 683          KK    203I
 684          KM   Sub-Basin   203I
 685          KM
 686          KM      The Clark Unit Hydrograph is used for this basin.
 687          KM          The HEC-1 time-area relation is used for this basin.
 688          KM
 689          KM      Time of Concentration for this sub-basin is based on the following:
 690          KM          An rainfall areal reduction factor of 1.000
 691          KM
```

```
692          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
693          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
694          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
695          KM
696          KM          L=   1.323 miles, S=  161 feet/mile, Kb= .10
697          KM
698          BA   0.171
699          LG    0.15    0.35    4.80    0.30    0.60
700          UC   0.583   0.697
             *
1                                          HEC-1 INPUT                                                    PAGE 17
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

701          KK    C519
702          KM      Hydrograph combine 518519 + 203I at C519
703          HC       2
             *

704          KK  519591
705          KM      Normal depth channel route from C519 to C591
706          KM      Source:  HEC-2 Cross Section: ES 2.695
707          RS       2    FLOW      -1
708          RC   0.090   0.050   0.085  1274.0  0.0181
709          RX  9851.3  9905.0  9927.9  9949.0 10017.8 10053.7 10096.8 10135.1
710          RY  1540.3  1537.0  1536.5  1529.2  1528.6  1537.7  1539.6  1540.1
             *

711          KK    203J
712          KM   Sub-Basin   203J
713          KM
714          KM      The Clark Unit Hydrograph is used for this basin.
715          KM          The HEC-1 time-area relation is used for this basin.
716          KM
717          KM      Time of Concentration for this sub-basin is based on the following:
718          KM          An rainfall areal reduction factor of 1.000
719          KM
720          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
721          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
722          KM   .26 .26 .26 .25 .25 .25 .02 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
723          KM
724          KM          L=   0.533 miles, S=  237 feet/mile, Kb= .10
725          KM
726          BA   0.039
727          LG    0.14    0.36    5.60    0.21   12.70
728          UC   0.300   0.374
             *

729          KK  520591
730          KM      Normal depth channel route from C520 to C591
731          KM      Source:  Hydrology Field Reconnaissance
732          RS       5    FLOW      -1
733          RC   0.050   0.018   0.040  2014.0  0.0248
734          RX  1000.0  1030.0  1041.2  1057.2  1073.2  1074.4  1086.4  1116.0
735          RY  1570.0  1566.0  1564.8  1565.2  1564.9  1565.3  1565.9  1568.0
             *

736          KK  BB512R
737          KM      Retrieve previously diverted hydrograph at C512 in the right branch.
738          DR   D512R
             *

739          KK    C591
740          KM      Hydrograph combine 519591 + 520591 + D512R at C591
741          HC       3    1.83
             *
1                                          HEC-1 INPUT                                                    PAGE 18
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

742          KK  591521
743          KM      Normal depth channel route from C591 to C521
744          KM      Source:  HEC-2 Cross Section: ES 2.614
745          RS       1    FLOW      -1
746          RC   0.090   0.050   0.085   915.0  0.0142
747          RX  9827.7  9921.5  9950.2  9970.7 10046.6 10078.1 10120.0 10177.5
748          RY  1531.1  1524.8  1524.4  1520.8  1520.0  1530.3  1531.1  1532.3
             *

749          KK    203K
750          KM   Sub-Basin   203K
751          KM
752          KM      The Clark Unit Hydrograph is used for this basin.
753          KM          The Urban time-area relation is used for this basin.
754          KM
755          KM      Time of Concentration for this sub-basin is based on the following:
756          KM          An rainfall areal reduction factor of 1.000
757          KM
758          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
759          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
760          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
761          KM
762          KM          L=   0.878 miles, S=  158 feet/mile, Kb= .03
763          KM
764          BA   0.160
765          LG    0.08    0.26    5.60    0.20   41.60
766          UC   0.229   0.185
767          UA       0       5      16      30      65      77      84      90      94      97
768          UA     100
             *

769          KK    C521
```

```
KM      Hydrograph combine 591521 + 203K at C521
HC       2
*
* *
* * C521 is the total flow in Escalante Wash at the Study boundary
* *
* * End Basin 203.  Start Basin 204
* *
*

KK   CLEAR
KM      Clear hydrographs from stack
HC       5
*

KK    204A
KM   Sub-Basin   204A
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.687 miles, S=  175 feet/mile, Kb= .10
KM
BA   0.108
LG    0.15    0.39    5.80    0.19    0.00
UC   0.379   0.333
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK  522523
KM      Normal depth channel route from C522 to C523
KM      Source:  200 Scale Mapping
RS      12    FLOW     -1
RC   0.060   0.050   0.060  3275.0  0.0197
RX  1000.0  1020.0  1035.0  1065.0  1080.0  1120.0  1160.0  1185.0
RY  1678.0  1676.0  1674.0  1672.0  1672.0  1674.0  1676.0  1678.0
*

KK    204B
KM   Sub-Basin   204B
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Natural time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .25 .25 .25 .24 .24 .24 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00
KM
KM          L=   0.775 miles, S=  128 feet/mile, Kb= .10
KM
BA   0.126
LG    0.15    0.39    5.80    0.21    0.20
UC   0.446   0.401
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*

KK   C523I
KM      Hydrograph combine 522523 + 204B at C523I
HC       2
*
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK   C523O
KM      Reservoir route at C523.
RS       1    ELEV  1650.3
SV    0.00    0.01    0.12    0.71    2.23    2.50    2.80    3.10    3.20    3.40
SV    3.70    4.00    4.30    4.60    4.90    5.20    5.50
SE  1650.3  1652.0  1654.0  1656.0  1658.0  1658.2  1658.4  1658.6  1658.7  1658.8
SE  1659.0  1659.2  1659.4  1659.6  1659.8  1660.0  1660.2
SQ       0      22      78     144     209     214     220     224     226     232
SQ     239     249     288     384     529     726     960
*

KK   D523L
KM      Hydrograph diversion at C523.  Main flow continues in the left branch.
KM      Diverted flow is in the right branch.
DT   D523R
DI       0      22      78     144     209     214     220     224     226     232
DI     239     249     288     384     529     726     960
DQ       0       0       0       0       0       0       0       0       0       3
DQ       5      10      20      37      61      96     139
*

KK  523524
KM      Normal depth channel route from C523 to C524
```

```
844          KM      Source:  HEC-2 Cross Section: CA 2.072
845          KM      This is flow in Fountain Hills Blvd. which is routed to C548
846          RS       4    FLOW      -1
847          RC   0.080   0.050   0.075  1732.0  0.0177
848          RX  9827.8  9925.9  9978.5 10000.0 10020.8 10041.9 10110.6 10151.9
849          RY  1639.8  1635.7  1634.3  1629.9  1630.2  1631.8  1633.5  1636.7
             *

850          KK    204C
851          KM   Sub-Basin   204C
852          KM
853          KM      The Clark Unit Hydrograph is used for this basin.
854          KM          The HEC-1 time-area relation is used for this basin.
855          KM
856          KM      Time of Concentration for this sub-basin is based on the following:
857          KM          An rainfall areal reduction factor of 1.000
858          KM
859          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
860          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
861          KM   .27 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
862          KM
863          KM          L=   0.400 miles, S=  142 feet/mile, Kb= .09
864          KM
865          BA   0.077
866          LG    0.13    0.36    5.70    0.20   25.40
867          UC   0.288   0.193
             *
1                                          HEC-1 INPUT                                                    PAGE 21
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

868          KK    C524
869          KM      Hydrograph combine 523524 + 204C at C524
870          HC       2
             *

871          KK  524525
872          KM      Normal depth channel route from C524 to C525
873          KM      Source:  HEC-2 Cross Section: CA 1.898
874          RS       3    FLOW      -1
875          RC   0.050   0.035   0.060  1045.0  0.0211
876          RX  9823.1  9873.0  9960.0  9986.1 10008.3 10049.7 10070.0 10078.4
877          RY  1617.9  1616.7  1616.3  1609.2  1609.0  1616.4  1616.8  1617.3
             *

878          KK    204D
879          KM   Sub-Basin   204D
880          KM
881          KM      The Clark Unit Hydrograph is used for this basin.
882          KM          The Urban time-area relation is used for this basin.
883          KM
884          KM      Time of Concentration for this sub-basin is based on the following:
885          KM          An rainfall areal reduction factor of 1.000
886          KM
887          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
888          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
889          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
890          KM
891          KM          L=   0.345 miles, S=   96 feet/mile, Kb= .06
892          KM
893          BA   0.044
894          LG    0.10    0.31    5.70    0.18   40.20
895          UC   0.238   0.190
896          UA       0       5      16      30      65      77      84      90      94      97
897          UA     100
             *

898          KK    C525
899          KM      Hydrograph combine 524525 + 204D at C525
900          HC       2
             *

901          KK  525526
902          KM      Normal depth channel route from C525 to C526
903          KM      Source:  HEC-2 Cross Section: CA 1.663
904          RS       2    FLOW      -1
905          RC   0.050   0.035   0.060  1520.0  0.0211
906          RX  9915.0  9940.0  9968.0  9992.6 10012.4 10032.0 10049.6 10106.9
907          RY  1592.8  1592.3  1591.8  1585.0  1584.8  1591.3  1592.1  1592.5
             *
1                                          HEC-1 INPUT                                                    PAGE 22
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

908          KK    204E
909          KM   Sub-Basin   204E
910          KM
911          KM      The Clark Unit Hydrograph is used for this basin.
912          KM          The Urban time-area relation is used for this basin.
913          KM
914          KM      Time of Concentration for this sub-basin is based on the following:
915          KM          An rainfall areal reduction factor of 1.000
916          KM
917          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
918          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
919          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
920          KM
921          KM          L=   0.508 miles, S=  108 feet/mile, Kb= .06
922          KM
923          BA   0.071
924          LG    0.10    0.30    5.70    0.18   38.00
925          UC   0.279   0.237
```

```
 926          UA       0       5      16      30      65      77      84      90      94      97
 927          UA     100
              *

 928          KK    C526
 929          KM      Hydrograph combine 525526 + 204E at C526
 930          HC       2
              *

 931          KK  526527
 932          KM      Normal depth channel route from C526 to C527
 933          KM      Source:  HEC-2 Cross Section: CA 1.186
 934          RS       4    FLOW     -1
 935          RC   0.050   0.035   0.060  2129.0  0.0183
 936          RX  9867.7  9898.1  9967.2  9981.2 10023.8 10035.6 10080.6 10145.3
 937          RY  1545.6  1544.4  1539.5  1536.9  1536.7  1539.6  1541.1  1542.3
              *

 938          KK    204F
 939          KM   Sub-Basin   204F
 940          KM
 941          KM      The Clark Unit Hydrograph is used for this basin.
 942          KM          The Urban time-area relation is used for this basin.
 943          KM
 944          KM      Time of Concentration for this sub-basin is based on the following:
 945          KM          An rainfall areal reduction factor of 1.000
 946          KM
 947          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 948          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 949          KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
 950          KM
 951          KM          L=   0.495 miles, S=  135 feet/mile, Kb= .03
 952          KM
 953          BA   0.077
 954          LG    0.08    0.15    7.00    0.11   45.00
 955          UC   0.175   0.131
1                                        HEC-1 INPUT                                          PAGE 23

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 956          UA       0       5      16      30      65      77      84      90      94      97
 957          UA     100
              *

 958          KK    C527
 959          KM      Hydrograph combine 526527 + 204F at C527
 960          HC       2
              *
              * *
              * * C527 is the total flow in Caliente Wash at the Study boundary
              * *
              * * End Basin 204.  Start Basin 205
              * *
              *

 961          KK   CLEAR
 962          KM      Clear hydrographs from stack
 963          HC       2
              *

 964          KK    205A
 965          KM   Sub-Basin   205A
 966          KM
 967          KM      The Clark Unit Hydrograph is used for this basin.
 968          KM          The Natural time-area relation is used for this basin.
 969          KM
 970          KM      Time of Concentration for this sub-basin is based on the following:
 971          KM          An rainfall areal reduction factor of 1.000
 972          KM
 973          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 974          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 975          KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
 976          KM
 977          KM          L=   0.870 miles, S=  378 feet/mile, Kb= .14
 978          KM
 979          BA   0.118
 980          LG    0.25    0.35    4.35    0.40   35.00
 981          UC   0.400   0.406
 982          UA       0       3       5       8      12      20      43      75      90      96
 983          UA     100
              *

 984          KK    205B
 985          KM   Sub-Basin   205B
 986          KM
 987          KM      The Clark Unit Hydrograph is used for this basin.
 988          KM          The Natural time-area relation is used for this basin.
 989          KM
 990          KM      Time of Concentration for this sub-basin is based on the following:
 991          KM          An rainfall areal reduction factor of 1.000
 992          KM
 993          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
 994          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
 995          KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
 996          KM
1                                        HEC-1 INPUT                                          PAGE 24

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 997          KM          L=   0.759 miles, S=  373 feet/mile, Kb= .14
 998          KM
 999          BA   0.211
1000          LG    0.25    0.35    4.35    0.40   35.00
1001          UC   0.375   0.242
```

```
1002        UA       0       3       5       8      12      20      43      75      90      96
1003        UA     100
            *

1004        KK    C528
1005        KM      Hydrograph combine 205A + 205B at C528
1006        HC       2
            *

1007        KK  528530
1008        KM      Normal depth channel route from C528 to C530
1009        KM      Source:  Hydrology Field Reconnaissance
1010        RS       2    FLOW      -1
1011        RC   0.060   0.043   0.060  2594.0  0.0709
1012        RX  1000.0  1018.0  1031.0  1042.0  1052.0  1066.0  1093.0  1107.0
1013        RY    96.3    92.2    89.9    85.9    85.7    91.5    91.2    96.3
            *

1014        KK    205C
1015        KM   Sub-Basin   205C
1016        KM
1017        KM      The Clark Unit Hydrograph is used for this basin.
1018        KM          The Natural time-area relation is used for this basin.
1019        KM
1020        KM      Time of Concentration for this sub-basin is based on the following:
1021        KM          An rainfall areal reduction factor of 1.000
1022        KM
1023        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1024        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1025        KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1026        KM
1027        KM          L=   0.618 miles, S=  331 feet/mile, Kb= .15
1028        KM
1029        BA   0.059
1030        LG    0.25    0.35    4.35    0.41   35.00
1031        UC   0.367   0.416
1032        UA       0       3       5       8      12      20      43      75      90      96
1033        UA     100
            *

1034        KK   C530R
1035        KM      Hydrograph combine 528530 + 205C at C530 right branch
1036        HC       2
            *
```

1

HEC-1 INPUT PAGE 25

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1037        KK    205D
1038        KM   Sub-Basin   205D
1039        KM
1040        KM      The Clark Unit Hydrograph is used for this basin.
1041        KM          The Natural time-area relation is used for this basin.
1042        KM
1043        KM      Time of Concentration for this sub-basin is based on the following:
1044        KM          An rainfall areal reduction factor of 1.000
1045        KM
1046        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1047        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1048        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1049        KM
1050        KM          L=   1.020 miles, S=  361 feet/mile, Kb= .13
1051        KM
1052        BA   0.319
1053        LG    0.25    0.35    4.35    0.40   35.00
1054        UC   0.425   0.279
1055        UA       0       3       5       8      12      20      43      75      90      96
1056        UA     100
            *

1057        KK    205E
1058        KM   Sub-Basin   205E
1059        KM
1060        KM      The Clark Unit Hydrograph is used for this basin.
1061        KM          The Natural time-area relation is used for this basin.
1062        KM
1063        KM      Time of Concentration for this sub-basin is based on the following:
1064        KM          An rainfall areal reduction factor of 1.000
1065        KM
1066        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1067        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1068        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1069        KM
1070        KM          L=   1.357 miles, S=  358 feet/mile, Kb= .14
1071        KM
1072        BA   0.218
1073        LG    0.25    0.35    4.35    0.40   35.00
1074        UC   0.517   0.541
1075        UA       0       3       5       8      12      20      43      75      90      96
1076        UA     100
            *

1077        KK    C529
1078        KM      Hydrograph combine 205D + 205E at C529
1079        HC       2
            *
            * *
            * * NOTE:  529530 too short to route
            * *
            *
```

1

HEC-1 INPUT PAGE 26

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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
1080          KK    C530
1081          KM      Hydrograph combine C529 + C530R at C530
1082          HC       2
              *

1083          KK  530531
1084          KM      Normal depth channel route from C530 to C531
1085          KM      Source:  Hydrology Field Reconnaissance
1086          RS       3    FLOW      -1
1087          RC   0.060   0.059   0.060  2426.0  0.0404
1088          RX  1000.0  1035.0  1050.0  1060.0  1075.0  1081.0  1088.0  1094.0
1089          RY    95.9    86.5    86.2    83.1    84.0    90.2    95.6    99.3
              *

1090          KK    205F
1091          KM   Sub-Basin   205F
1092          KM
1093          KM      The Clark Unit Hydrograph is used for this basin.
1094          KM          The Natural time-area relation is used for this basin.
1095          KM
1096          KM      Time of Concentration for this sub-basin is based on the following:
1097          KM          An rainfall areal reduction factor of 1.000
1098          KM
1099          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1100          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1101          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1102          KM
1103          KM          L=   0.786 miles, S=  326 feet/mile, Kb= .14
1104          KM
1105          BA   0.161
1106          LG    0.25    0.35    4.35    0.41   35.00
1107          UC   0.400   0.312
1108          UA       0       3       5       8      12      20      43      75      90      96
1109          UA     100
              *

1110          KK    C531
1111          KM      Hydrograph combine 530531 + 205F at C531
1112          HC       2
              *

1113          KK  531532
1114          KM      Normal depth channel route from C531 to C532
1115          KM      Source:  Hydrology Field Reconnaissance
1116          RS       4    FLOW      -1
1117          RC   0.060   0.065   0.060  3391.0  0.0463
1118          RX  1000.0  1012.0  1022.0  1032.0  1050.0  1056.0  1068.0  1092.0
1119          RY    98.8    93.8    89.1    86.4    86.5    89.1    91.0    97.6
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1120          KK    205G
1121          KM   Sub-Basin   205G
1122          KM
1123          KM      The Clark Unit Hydrograph is used for this basin.
1124          KM          The Natural time-area relation is used for this basin.
1125          KM
1126          KM      Time of Concentration for this sub-basin is based on the following:
1127          KM          An rainfall areal reduction factor of 1.000
1128          KM
1129          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1130          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1131          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1132          KM
1133          KM          L=   0.924 miles, S=  338 feet/mile, Kb= .13
1134          KM
1135          BA   0.185
1136          LG    0.24    0.35    4.50    0.40   31.20
1137          UC   0.417   0.343
1138          UA       0       3       5       8      12      20      43      75      90      96
1139          UA     100
              *

1140          KK   C532L
1141          KM      Hydrograph combine 531532 + 205G at C532 left branch
1142          HC       2
              *

1143          KK    205H
1144          KM   Sub-Basin   205H
1145          KM
1146          KM      The Clark Unit Hydrograph is used for this basin.
1147          KM          The Natural time-area relation is used for this basin.
1148          KM
1149          KM      Time of Concentration for this sub-basin is based on the following:
1150          KM          An rainfall areal reduction factor of 1.000
1151          KM
1152          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1153          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1154          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1155          KM
1156          KM          L=   1.464 miles, S=  325 feet/mile, Kb= .13
1157          KM
1158          BA   0.261
1159          LG    0.24    0.35    4.50    0.39   31.60
1160          UC   0.542   0.547
1161          UA       0       3       5       8      12      20      43      75      90      96
1162          UA     100
              *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1163          KK    C532
1164          KM      Hydrograph combine C532L + 205H at C532
1165          HC       2
              *

1166          KK  532533
1167          KM      Normal depth channel route from C532 to C533
1168          KM      Source:  Hydrology Field Reconnaissance
1169          RS       2    FLOW      -1
1170          RC  0.060   0.045   0.060  1555.0  0.0283
1171          RX  1000.0  1020.0  1030.0  1048.0  1065.0  1077.0  1092.0  1119.0
1172          RY    98.0    89.4    88.1    85.6    85.9    92.2    93.8    97.0
              *

1173          KK    205I
1174          KM   Sub-Basin   205I
1175          KM
1176          KM      The Clark Unit Hydrograph is used for this basin.
1177          KM          The Natural time-area relation is used for this basin.
1178          KM
1179          KM      Time of Concentration for this sub-basin is based on the following:
1180          KM          An rainfall areal reduction factor of 1.000
1181          KM
1182          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1183          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1184          KM   .25 .25 .24 .24 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
1185          KM
1186          KM          L=   1.487 miles, S=  326 feet/mile, Kb= .11
1187          KM
1188          BA   0.354
1189          LG    0.20    0.37    5.20    0.28   15.20
1190          UC   0.488   0.414
1191          UA       0       3       5       8      12      20      43      75      90      96
1192          UA     100
              *

1193          KK    C533
1194          KM      Hydrograph combine 532533 + 205I at C533
1195          HC       2
              *

1196          KK  533534
1197          KM      Normal depth channel route from C533 to C534
1198          KM      Source:  Hydrology Field Reconnaissance
1199          RS       9    FLOW      -1
1200          RC  0.060   0.046   0.060  7145.0  0.0241
1201          RX  1000.0  1010.0  1060.0  1073.0  1160.0  1181.0  1223.0  1237.0
1202          RY    97.8    93.7    94.7    90.8    89.9    92.4    94.0    96.8
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1203          KK    205J
1204          KM   Sub-Basin   205J
1205          KM
1206          KM      The Clark Unit Hydrograph is used for this basin.
1207          KM          The Natural time-area relation is used for this basin.
1208          KM
1209          KM      Time of Concentration for this sub-basin is based on the following:
1210          KM          An rainfall areal reduction factor of 1.000
1211          KM
1212          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1213          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1214          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1215          KM
1216          KM          L=   1.633 miles, S=  243 feet/mile, Kb= .08
1217          KM
1218          BA   0.369
1219          LG    0.21    0.35    4.90    0.30    3.50
1220          UC   0.479   0.427
1221          UA       0       3       5       8      12      20      43      75      90      96
1222          UA     100
              *

1223          KK   C534R
1224          KM      Hydrograph combine 533534 + 205J at C534 right branch
1225          HC       2
              *

1226          KK    205K
1227          KM   Sub-Basin   205K
1228          KM
1229          KM      The Clark Unit Hydrograph is used for this basin.
1230          KM          The Natural time-area relation is used for this basin.
1231          KM
1232          KM      Time of Concentration for this sub-basin is based on the following:
1233          KM          An rainfall areal reduction factor of 1.000
1234          KM
1235          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1236          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1237          KM   .25 .25 .25 .24 .24 .24 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00
1238          KM
1239          KM          L=   1.772 miles, S=  249 feet/mile, Kb= .10
1240          KM
1241          BA   0.245
1242          LG    0.16    0.38    5.60    0.22    1.50
1243          UC   0.579   0.710
1244          UA       0       3       5       8      12      20      43      75      90      96
1245          UA     100
```

```
                  *
LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1246              KK    C534
1247              KM      Hydrograph combine C534R + 205K at C534
1248              HC       2
                  *

1249              KK  534535
1250              KM      Normal depth channel route from C534 to C535
1251              KM      Source:  Hydrology Field Reconnaissance
1252              RS       3    FLOW      -1
1253              RC   0.065   0.046   0.065  2037.0  0.0221
1254              RX  1000.0  1010.0  1016.0  1075.0  1150.0  1162.0  1174.0  1182.0
1255              RY    97.1    93.4    91.6    89.6    86.9    90.8    92.2    92.3
                  *

1256              KK    205L
1257              KM   Sub-Basin   205L
1258              KM
1259              KM      The Clark Unit Hydrograph is used for this basin.
1260              KM          The Natural time-area relation is used for this basin.
1261              KM
1262              KM      Time of Concentration for this sub-basin is based on the following:
1263              KM          An rainfall areal reduction factor of 1.000
1264              KM
1265              KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1266              KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1267              KM   .24 .24 .23 .23 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1268              KM
1269              KM          L=   0.701 miles, S=  284 feet/mile, Kb= .09
1270              KM
1271              BA   0.118
1272              LG    0.19    0.36    5.00    0.29    0.00
1273              UC   0.317   0.263
1274              UA       0       3       5       8      12      20      43      75      90      96
1275              UA     100
                  *

1276              KK    C535
1277              KM      Hydrograph combine 534535 + 205L at C535
1278              HC       2
                  *

1279              KK  535536
1280              KM      Normal depth channel route from C535 to C536
1281              KM      Source:  HEC-2 Cross Section: HE 3.275
1282              RS       8    FLOW      -1
1283              RC   0.075   0.050   0.075  2975.0  0.0236
1284              RX  9852.8  9871.5  9957.7 10000.0 10015.6 10052.4 10142.4 10183.6
1285              RY  1911.6  1904.3  1906.9  1900.8  1900.8  1905.4  1905.2  1912.6
                  *
```



```
LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1286              KK    205M
1287              KM   Sub-Basin   205M
1288              KM
1289              KM      The Clark Unit Hydrograph is used for this basin.
1290              KM          The HEC-1 time-area relation is used for this basin.
1291              KM
1292              KM      Time of Concentration for this sub-basin is based on the following:
1293              KM          An rainfall areal reduction factor of 1.000
1294              KM
1295              KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1296              KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1297              KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1298              KM
1299              KM          L=   0.839 miles, S=  230 feet/mile, Kb= .06
1300              KM
1301              BA   0.139
1302              LG    0.15    0.33    5.40    0.22   21.00
1303              UC   0.292   0.253
                  *

1304              KK   C536R
1305              KM      Hydrograph combine 535536 + 205M at C536 right branch
1306              HC       2
                  *

1307              KK    205N
1308              KM   Sub-Basin   205N
1309              KM
1310              KM      The Clark Unit Hydrograph is used for this basin.
1311              KM          The HEC-1 time-area relation is used for this basin.
1312              KM
1313              KM      Time of Concentration for this sub-basin is based on the following:
1314              KM          An rainfall areal reduction factor of 1.000
1315              KM
1316              KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1317              KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1318              KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00 .00
1319              KM
1320              KM          L=   1.183 miles, S=  245 feet/mile, Kb= .10
1321              KM
1322              BA   0.156
1323              LG    0.15    0.39    5.70    0.21    0.80
1324              UC   0.450   0.503
                  *
```

```
1325          KK   C536I
1326          KM      Hydrograph combine C536R + 205N at C536I
1327          HC       2
              *
              * *
              * * C536I is the total flow in Hesperus Wash upstream of Dam 36
              * *
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1328          KK   C536O
1329          KM      Reservoir route at C536 (Dam 36).
1330          RS       1    ELEV  1852.1
1331          SV    0.00   14.41   35.94   67.64  108.61  158.07  218.14  276.00  280.00  289.00
1332          SV  298.02  308.00  317.00  327.00  337.00  346.95  358.00  374.00
1333          SE  1852.1  1866.0  1870.0  1874.0  1878.0  1882.0  1886.0  1889.0  1889.2  1889.6
1334          SE  1890.0  1890.4  1890.8  1891.2  1891.6  1892.0  1892.4  1893.0
1335          SQ       0     108     168     211     245     276     301     320     338     347
1336          SQ     356     459     679     995    1408    1905    2477    3119    3826    5009
1337          SE  1852.1  1858.0  1862.0  1866.0  1870.0  1874.0  1878.0  1882.0  1886.0  1889.0
1338          SE  1889.2  1889.6  1890.0  1890.4  1890.8  1891.2  1891.6  1892.0  1892.4  1893.0
1339          RL                   0.17
              *
              * *
              * * End Basin 205.  Start Basin 206
              * *
              *

1340          KK  536537
1341          KM      Normal depth channel route from C536 to C537
1342          KM      Source:  HEC-2 Cross Section: HE 2.729
1343          RS       4    FLOW     -1
1344          RC   0.075   0.050   0.075  1480.0  0.0209
1345          RX  9900.0  9912.0  9947.3  9979.3 10025.0 10044.5 10051.0 10060.0
1346          RY  1846.5  1845.4  1843.1  1834.3  1833.6  1840.5  1843.3  1843.5
              *

1347          KK    206A
1348          KM   Sub-Basin   206A
1349          KM
1350          KM      The Clark Unit Hydrograph is used for this basin.
1351          KM          The Urban time-area relation is used for this basin.
1352          KM
1353          KM      Time of Concentration for this sub-basin is based on the following:
1354          KM          An rainfall areal reduction factor of 1.000
1355          KM
1356          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1357          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1358          KM   .27 .27 .27 .27 .27 .26 .03 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1359          KM
1360          KM          L=   0.631 miles, S=  256 feet/mile, Kb= .04
1361          KM
1362          BA   0.128
1363          LG    0.13    0.28    5.30    0.23   32.80
1364          UC   0.196   0.135
1365          UA       0       5      16      30      65      77      84      90      94      97
1366          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1367          KK    C537
1368          KM      Hydrograph combine 536537 + 206A at C537
1369          HC       2
              *

1370          KK  537538
1371          KM      Normal depth channel route from C537 to C538
1372          KM      Source:  HEC-2 Cross Section: HE 2.493
1373          RS       3    FLOW     -1
1374          RC   0.075   0.050   0.075  2155.0  0.0210
1375          RX  9946.0  9957.6  9984.8  9994.8 10000.0 10036.5 10070.1 10107.3
1376          RY  1817.0  1815.2  1807.4  1803.2  1803.2  1805.5  1814.3  1815.4
              *

1377          KK    206B
1378          KM   Sub-Basin   206B
1379          KM
1380          KM      The Clark Unit Hydrograph is used for this basin.
1381          KM          The Urban time-area relation is used for this basin.
1382          KM
1383          KM      Time of Concentration for this sub-basin is based on the following:
1384          KM          An rainfall areal reduction factor of 1.000
1385          KM
1386          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1387          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1388          KM   .28 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1389          KM
1390          KM          L=   0.570 miles, S=  139 feet/mile, Kb= .03
1391          KM
1392          BA   0.095
1393          LG    0.10    0.26    5.20    0.23   41.30
1394          UC   0.192   0.144
1395          UA       0       5      16      30      65      77      84      90      94      97
1396          UA     100
              *

1397          KK   C538I
```

```
1398          KM      Hydrograph combine 537538 + 206B at C538I
1399          HC       2
              *

1400          KK   C538O
1401          KM      Reservoir route at C538.
1402          RS       1    ELEV  1778.2
1403          SV    0.00    0.10    0.57    1.69    2.60    2.70    2.90    3.00    3.20    3.38
1404          SV    3.60    3.90    4.10    4.30    4.60    5.10    5.60    6.10    7.10    8.10
1405          SE  1778.2  1782.0  1784.0  1786.0  1787.1  1787.2  1787.4  1787.6  1787.8  1788.0
1406          SE  1788.2  1788.4  1788.6  1788.8  1789.0  1789.4  1789.8  1790.2  1790.8  1791.4
1407          SQ       0      82     133     185     207     208     212     218     226     235
1408          SQ     249     265     286     310     338     400     482     611     942    1439
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1409          KK  538540
1410          KM      Normal depth channel route from C538 to C540
1411          KM      Source:  HEC-2 Cross Section: HE 1.990
1412          RS       6    FLOW      -1
1413          RC   0.075   0.050   0.075  2176.0  0.0210
1414          RX  9907.7  9931.8  9978.4 10000.0 10041.1 10056.9 10143.7 10164.9
1415          RY  1767.5  1754.9  1755.2  1753.2  1753.1  1755.1  1757.3  1769.4
              *

1416          KK    206C
1417          KM   Sub-Basin   206C
1418          KM
1419          KM      The Clark Unit Hydrograph is used for this basin.
1420          KM          The HEC-1 time-area relation is used for this basin.
1421          KM
1422          KM      Time of Concentration for this sub-basin is based on the following:
1423          KM          An rainfall areal reduction factor of 1.000
1424          KM
1425          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1426          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1427          KM   .24 .24 .23 .23 .23 .23 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1428          KM
1429          KM          L=   0.427 miles, S=  138 feet/mile, Kb= .07
1430          KM
1431          BA   0.024
1432          LG    0.21    0.32    4.35    0.40   12.40
1433          UC   0.275   0.376
              *

1434          KK   C540R
1435          KM      Hydrograph combine 538540 + 206C at C540 right branch
1436          HC       2
              *

1437          KK    206D
1438          KM   Sub-Basin   206D
1439          KM
1440          KM      The Clark Unit Hydrograph is used for this basin.
1441          KM          The Urban time-area relation is used for this basin.
1442          KM
1443          KM      Time of Concentration for this sub-basin is based on the following:
1444          KM          An rainfall areal reduction factor of 1.000
1445          KM
1446          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1447          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1448          KM   .28 .28 .28 .28 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1449          KM
1450          KM          L=   0.531 miles, S=  236 feet/mile, Kb= .04
1451          KM
1452          BA   0.062
1453          LG    0.08    0.26    5.70    0.18   41.20
1454          UC   0.179   0.162
1455          UA       0       5      16      30      65      77      84      90      94      97
1456          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1457          KK  539540
1458          KM      Normal depth channel route from C539 to C540
1459          KM      Source:  200 Scale Mapping
1460          RS       5    FLOW      -1
1461          RC   0.060   0.050   0.055  1872.0  0.0256
1462          RX  1000.0  1007.0  1016.0  1036.0  1046.0  1080.0  1150.0  1210.0
1463          RY  1750.0  1748.0  1746.0  1744.0  1744.0  1746.0  1748.0  1750.0
              *

1464          KK    206E
1465          KM   Sub-Basin   206E
1466          KM
1467          KM      The Clark Unit Hydrograph is used for this basin.
1468          KM          The HEC-1 time-area relation is used for this basin.
1469          KM
1470          KM      Time of Concentration for this sub-basin is based on the following:
1471          KM          An rainfall areal reduction factor of 1.000
1472          KM
1473          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1474          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1475          KM   .23 .23 .22 .22 .22 .21 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1476          KM
1477          KM          L=   0.343 miles, S=  175 feet/mile, Kb= .09
1478          KM
1479          BA   0.023
```

```
1480          LG    0.23    0.35    4.30    0.40    1.70
1481          UC   0.263   0.308
              *

1482          KK   C540L
1483          KM      Hydrograph combine 539540 + 206E at C540 left branch
1484          HC       2
              *

1485          KK    C540
1486          KM      Hydrograph combine C540R + C540L at C540
1487          HC       2
              *
              * *
              * * C540 is the end of Hesperus Wash and the start of Balboa Wash
              * *
              *

1488          KK  540541
1489          KM      Normal depth channel route from C540 to C541
1490          KM      Source:  HEC-2 Cross Section: BA 1.645
1491          RS      11    FLOW      -1
1492          RC   0.065   0.035   0.065  4207.0  0.0204
1493          RX  9960.8  9968.0  9975.1  9975.7  9993.2 10018.2 10297.5 10343.9
1494          RY  1725.2  1721.8  1718.4  1716.2  1716.4  1718.4  1719.8  1730.5
              *
1                                        HEC-1 INPUT                                                    PAGE 36
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1495          KK    206F
1496          KM   Sub-Basin   206F
1497          KM
1498          KM      The Clark Unit Hydrograph is used for this basin.
1499          KM          The HEC-1 time-area relation is used for this basin.
1500          KM
1501          KM      Time of Concentration for this sub-basin is based on the following:
1502          KM          An rainfall areal reduction factor of 1.000
1503          KM
1504          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1505          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1506          KM   .24 .23 .23 .23 .23 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
1507          KM
1508          KM          L=   0.975 miles, S=  217 feet/mile, Kb= .08
1509          KM
1510          BA   0.157
1511          LG    0.21    0.35    4.60    0.35    5.10
1512          UC   0.388   0.364
              *

1513          KK    C541
1514          KM      Hydrograph combine 540541 + 206F at C541
1515          HC       2
              *

1516          KK  541548
1517          KM      Normal depth channel route from C541 to C548
1518          KM      Source:  HEC-2 Cross Section: BA 0.905
1519          RS       1    FLOW      -1
1520          RC   0.060   0.045   0.060  1138.0  0.0316
1521          RX  9761.7  9936.7  9955.2  9986.9  9994.7 10039.2 10065.3 10066.0
1522          RY  1647.4  1644.1  1638.1  1637.3  1636.2  1637.5  1652.9  1653.0
              *

1523          KK    206G
1524          KM   Sub-Basin   206G
1525          KM
1526          KM      The Clark Unit Hydrograph is used for this basin.
1527          KM          The HEC-1 time-area relation is used for this basin.
1528          KM
1529          KM      Time of Concentration for this sub-basin is based on the following:
1530          KM          An rainfall areal reduction factor of 1.000
1531          KM
1532          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1533          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1534          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1535          KM
1536          KM          L=   0.950 miles, S=  132 feet/mile, Kb= .09
1537          KM
1538          BA   0.089
1539          LG    0.16    0.35    5.20    0.25   12.50
1540          UC   0.463   0.597
              *
1                                        HEC-1 INPUT                                                    PAGE 37
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1541          KK  BB523R
1542          KM      Retrieve previously diverted hydrograph at C523 in the right branch.
1543          DR   D523R
              *

1544          KK  523548
1545          KM      Normal depth channel route from C523 to C548
1546          KM      Source:  200 Scale Mapping
1547          RS       1    FLOW      -1
1548          RC   0.040   0.018   0.040  2680.0  0.0189
1549          RX  1000.0  1040.0  1090.0  1130.0  1170.0  1171.2  1181.2  1196.2
1550          RY  1646.0  1645.0  1643.8  1644.7  1644.0  1644.4  1646.0  1648.0
              *

1551          KK   C548L
```

```
1552          KM      Hydrograph combine 541548 + 206G + BB523R at C548 left branch
1553          HC       3    3.72
              *
              * *
              * * C548L is the total flow in Balboa Wash above confluence with Oxford Wash
              * *
              *

1554          KK    206H
1555          KM   Sub-Basin   206H
1556          KM
1557          KM      The Clark Unit Hydrograph is used for this basin.
1558          KM          The Urban time-area relation is used for this basin.
1559          KM
1560          KM      Time of Concentration for this sub-basin is based on the following:
1561          KM          An rainfall areal reduction factor of 1.000
1562          KM
1563          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1564          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1565          KM   .27 .27 .27 .27 .27 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1566          KM
1567          KM          L=   0.515 miles, S=  183 feet/mile, Kb= .07
1568          KM
1569          BA   0.059
1570          LG    0.11    0.31    5.70    0.19   26.10
1571          UC   0.263   0.248
1572          UA       0       5      16      30      65      77      84      90      94      97
1573          UA     100
              *

1574          KK  542543
1575          KM      Normal depth channel route from C542 to C543
1576          KM      Source:  HEC-2 Cross Section: OX 0.931
1577          RS       2    FLOW      -1
1578          RC   0.075   0.040   0.050   686.0  0.0066
1579          RX  9846.9  9881.6  9967.5  9983.2 10010.0 10025.0 10033.8 10039.6
1580          RY  1732.3  1723.5  1724.1  1717.8  1717.0  1724.0  1728.2  1730.7
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1581          KK    206I
1582          KM   Sub-Basin   206I
1583          KM
1584          KM      The Clark Unit Hydrograph is used for this basin.
1585          KM          The HEC-1 time-area relation is used for this basin.
1586          KM
1587          KM      Time of Concentration for this sub-basin is based on the following:
1588          KM          An rainfall areal reduction factor of 1.000
1589          KM
1590          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1591          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1592          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1593          KM
1594          KM          L=   0.232 miles, S=  286 feet/mile, Kb= .08
1595          KM
1596          BA   0.021
1597          LG    0.11    0.32    5.70    0.19   35.70
1598          UC   0.163   0.139
              *

1599          KK    C543
1600          KM      Hydrograph combine 542543 + 206I at C543
1601          HC       2
              *

1602          KK   D543L
1603          KM      Hydrograph diversion at C543.  Main flow continues in the left branch.
1604          KM      Diverted flow is in the right branch.
1605          DT   D543R
1606          DI       0      38      45      50      65      85      97     122     141     162
1607          DI     194     350     395     432     475     522     570     612
1608          DQ       0      38      45      50      65      85      97     122     141     162
1609          DQ     194     350     395     425     460     500     540     575
              *

1610          KK  543544
1611          KM      Normal depth channel route from C543 to C544
1612          KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1613          RS       1    FLOW      -1
1614          RC   0.040   0.018   0.040   597.0  0.0277
1615          RX  1000.0  1020.0  1045.0  1075.0  1105.0  1106.2  1146.2  1266.2
1616          RY  1720.0  1718.0  1712.0  1712.3  1712.0  1712.4  1714.0  1720.0
              *

1617          KK    206K
1618          KM   Sub-Basin   206K
1619          KM
1620          KM      The Clark Unit Hydrograph is used for this basin.
1621          KM          The HEC-1 time-area relation is used for this basin.
1622          KM
1623          KM      Time of Concentration for this sub-basin is based on the following:
1624          KM          An rainfall areal reduction factor of 1.000
1625          KM
1626          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1627          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1628          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1629          KM
```

```
1630        KM          L=   0.615 miles, S=  255 feet/mile, Kb= .11
1631        KM
1632        BA   0.056
1633        LG    0.15    0.38    5.70    0.21    5.60
1634        UC   0.333   0.384
            *

1635        KK    C544
1636        KM      Hydrograph combine 543544 + 206K at C544
1637        HC       2
            *

1638        KK  544545
1639        KM      Normal depth channel route from C544 to C545
1640        KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1641        RS       3    FLOW      -1
1642        RC   0.040   0.018   0.040   985.0  0.0234
1643        RX  1000.0  1008.0  1018.0  1048.0  1078.0  1079.2  1089.2  1109.2
1644        RY  1690.0  1688.0  1686.0  1686.3  1686.0  1686.4  1688.0  1689.0
            *

1645        KK   D545L
1646        KM      Hydrograph diversion at C545.  Main flow continues in the left branch.
1647        KM      Diverted flow is in the right branch.
1648        DT   D545R
1649        DI       0      50     100     200     400     800    1600    3200    5000
1650        DQ       0      25      50     100     200     400     800    1600    2500
            *

1651        KK  545546
1652        KM      Normal depth channel route from C545 to C546
1653        KM      Source:  200 Scale Mapping & Hydrology Field Reconnaissance
1654        RS       1    FLOW      -1
1655        RC   0.040   0.018   0.040   428.0  0.0164
1656        RX  1000.0  1020.0  1050.0  1080.0  1110.0  1111.2  1121.2  1151.2
1657        RY  1680.0  1678.0  1676.0  1676.3  1676.0  1676.4  1678.0  1678.5
            *

1658        KK    206L
1659        KM   Sub-Basin   206L
1660        KM
1661        KM      The Clark Unit Hydrograph is used for this basin.
1662        KM          The HEC-1 time-area relation is used for this basin.
1663        KM
1664        KM      Time of Concentration for this sub-basin is based on the following:
1665        KM          An rainfall areal reduction factor of 1.000
1666        KM
1667        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1668        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1669        KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1670        KM
1671        KM          L=   0.546 miles, S=  231 feet/mile, Kb= .11
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1672        KM
1673        BA   0.060
1674        LG    0.14    0.39    5.80    0.21   14.70
1675        UC   0.325   0.327
            *

1676        KK    C546
1677        KM      Hydrograph combine 545546 + 206L at C546
1678        HC       2
            *

1679        KK  546547
1680        KM      Normal depth channel route from C546 to C547
1681        KM      Source:  200 Scale Mapping
1682        RS       2    FLOW      -1
1683        RC   0.040   0.018   0.040   749.0  0.0327
1684        RX  1000.0  1005.0  1011.0  1013.0  1029.0  1047.0  1052.0  1057.0
1685        RY  1666.0  1664.0  1662.0  1661.9  1662.4  1662.0  1664.0  1666.0
            *

1686        KK  BB543R
1687        KM      Retrieve previously diverted hydrograph at C543 in the right branch.
1688        DR   D543R
            *

1689        KK  543547
1690        KM      Normal depth channel route from C543 to C547
1691        KM      Source:  HEC-2 Cross Section: OX 0.638
1692        RS       5    FLOW      -1
1693        RC   0.075   0.040   0.050  2395.0  0.0278
1694        RX  9720.9  9769.0  9970.7  9985.5 10020.0 10038.1 10097.0 10102.0
1695        RY  1690.4  1681.2  1683.1  1676.2  1677.0  1687.1  1687.4  1690.0
            *

1696        KK  BB545R
1697        KM      Retrieve previously diverted hydrograph at C545 in the right branch.
1698        DR   D545R
            *

1699        KK  545547
1700        KM      Normal depth channel route from C545 to C547
1701        KM      Source:  HEC-2 Cross Section: OX 0.542
1702        RS       3    FLOW      -1
1703        RC   0.075   0.040   0.050  1216.0  0.0259
1704        RX  9668.2  9778.4  9957.9  9986.0 10012.7 10043.6 10067.6 10163.4
1705        RY  1674.1  1674.1  1673.3  1662.1  1662.2  1680.4  1680.9  1681.1
            *
```

```
1706          KK    206J
1707          KM   Sub-Basin   206J
1708          KM
1709          KM      The Clark Unit Hydrograph is used for this basin.
1710          KM          The Urban time-area relation is used for this basin.
1711          KM
1712          KM      Time of Concentration for this sub-basin is based on the following:
1
                                        HEC-1 INPUT                                                    PAGE 41

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1713          KM          An rainfall areal reduction factor of 1.000
1714          KM
1715          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1716          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1717          KM   .28 .28 .28 .28 .28 .28 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
1718          KM
1719          KM          L=   0.502 miles, S=  214 feet/mile, Kb= .03
1720          KM
1721          BA   0.060
1722          LG    0.08    0.25    5.70    0.18   44.60
1723          UC   0.154   0.133
1724          UA      0       5      16      30      65      77      84      90      94      97
1725          UA    100
              *

1726          KK    C547
1727          KM      Hydrograph combine 546547 + 543547 + 545547 + 206J at C547
1728          HC       4    0.26
              *

1729          KK  547548
1730          KM      Normal depth channel route from C547 to C548
1731          KM      Source:  HEC-2 Cross Section: OX 0.235
1732          RS       4    FLOW      -1
1733          RC   0.075   0.040   0.050  2165.0  0.0182
1734          RX  9910.0  9911.4  9968.5  9987.6 10017.4 10032.3 10077.4 10080.0
1735          RY  1639.0  1638.9  1637.9  1635.7  1635.8  1641.7  1642.9  1643.0
              *

1736          KK    206M
1737          KM   Sub-Basin   206M
1738          KM
1739          KM      The Clark Unit Hydrograph is used for this basin.
1740          KM          The Urban time-area relation is used for this basin.
1741          KM
1742          KM      Time of Concentration for this sub-basin is based on the following:
1743          KM          An rainfall areal reduction factor of 1.000
1744          KM
1745          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1746          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1747          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .02 .02 .02 .02 .02 .02
1748          KM
1749          KM          L=   0.465 miles, S=  166 feet/mile, Kb= .03
1750          KM
1751          BA   0.060
1752          LG    0.08    0.25    5.20    0.23   46.20
1753          UC   0.163   0.133
1754          UA      0       5      16      30      65      77      84      90      94      97
1755          UA    100
              *
1
                                        HEC-1 INPUT                                                    PAGE 42

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1756          KK   C548R
1757          KM      Hydrograph combine 547548 + 206M at C548 right branch
1758          HC       2
              *
              * *
              * * C548R is the total flow in Oxford Wash above confluence with Balboa Wash
              * *
              *

1759          KK    C548
1760          KM      Hydrograph combine C548L + C548R at C548
1761          HC       2
              *
              * *
              * * C548 is the total flow in Balboa Wash below the confluence of Balboa Wash
              * * and Oxford Wash
              * *
              *

1762          KK  548549
1763          KM      Normal depth channel route from C548 to C549
1764          KM      Source:  HEC-2 Cross Section: BA0.246
1765          RS       7    FLOW      -1
1766          RC   0.070   0.080   0.070  3258.0  0.0172
1767          RX  9889.1  9912.5  9940.2  9960.0 10026.1 10046.8 10067.8 10079.3
1768          RY  1586.2  1585.7  1577.5  1573.6  1573.2  1579.5  1585.7  1586.2
              *

1769          KK    206N
1770          KM   Sub-Basin   206N
1771          KM
1772          KM      The Clark Unit Hydrograph is used for this basin.
1773          KM          The Urban time-area relation is used for this basin.
1774          KM
1775          KM      Time of Concentration for this sub-basin is based on the following:
1776          KM          An rainfall areal reduction factor of 1.000
1777          KM
1778          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```

```
1779        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1780        KM   .28 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .02 .02 .02 .02 .02 .02
1781        KM
1782        KM          L=   0.767 miles, S=  120 feet/mile, Kb= .03
1783        KM
1784        BA   0.152
1785        LG    0.12    0.27    4.65    0.29   51.60
1786        UC   0.233   0.174
1787        UA       0       5      16      30      65      77      84      90      94      97
1788        UA     100
            *
1
                                          HEC-1 INPUT                                                    PAGE 43
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1789        KK   C549L
1790        KM      Hydrograph combine 548549 + 206N at C549 left branch
1791        HC       2
            *
            * *
            * * C549L is the total flow in Balboa Wash above confluence with Ashbrook Wash
            * *
            * * End Basin 206.  Start Basin 207
            * *
            *

1792        KK    207A
1793        KM   Sub-Basin   207A
1794        KM
1795        KM      The Clark Unit Hydrograph is used for this basin.
1796        KM          The Natural time-area relation is used for this basin.
1797        KM
1798        KM      Time of Concentration for this sub-basin is based on the following:
1799        KM          An rainfall areal reduction factor of 1.000
1800        KM
1801        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1802        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1803        KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1804        KM
1805        KM          L=   1.356 miles, S=  351 feet/mile, Kb= .13
1806        KM
1807        BA   0.256
1808        LG    0.24    0.35    4.55    0.37   29.80
1809        UC   0.496   0.471
1810        UA       0       3       5       8      12      20      43      75      90      96
1811        UA     100
            *

1812        KK    207B
1813        KM   Sub-Basin   207B
1814        KM
1815        KM      The Clark Unit Hydrograph is used for this basin.
1816        KM          The Natural time-area relation is used for this basin.
1817        KM
1818        KM      Time of Concentration for this sub-basin is based on the following:
1819        KM          An rainfall areal reduction factor of 1.000
1820        KM
1821        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1822        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1823        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1824        KM
1825        KM          L=   1.312 miles, S=  359 feet/mile, Kb= .13
1826        KM
1827        BA   0.208
1828        LG    0.24    0.35    4.45    0.38   32.40
1829        UC   0.483   0.502
1830        UA       0       3       5       8      12      20      43      75      90      96
1831        UA     100
            *
1
                                          HEC-1 INPUT                                                    PAGE 44
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1832        KK    C550
1833        KM      Hydrograph combine 207A + 207B at C550
1834        HC       2
            *

1835        KK  550552
1836        KM      Normal depth channel route from C550 to C552
1837        KM      Source:  Hydrology Field Reconnaissance
1838        RS       4    FLOW     -1
1839        RC   0.050   0.045   0.050  4410.0  0.0528
1840        RX  1000.0  1005.0  1018.0  1028.0  1038.0  1043.0  1048.0  1055.0
1841        RY  2188.0  2184.0  2180.0  2176.0  2176.0  2180.0  2184.0  2188.0
            *

1842        KK    207C
1843        KM   Sub-Basin   207C
1844        KM
1845        KM      The Clark Unit Hydrograph is used for this basin.
1846        KM          The Natural time-area relation is used for this basin.
1847        KM
1848        KM      Time of Concentration for this sub-basin is based on the following:
1849        KM          An rainfall areal reduction factor of 1.000
1850        KM
1851        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1852        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1853        KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1854        KM
1855        KM          L=   0.974 miles, S=  297 feet/mile, Kb= .11
1856        KM
```

```
1857          BA   0.173
1858          LG    0.19    0.37    5.30    0.26   13.70
1859          UC   0.404   0.360
1860          UA       0       3       5       8      12      20      43      75      90      96
1861          UA     100
              *

1862          KK   C552L
1863          KM      Hydrograph combine 550552 + 207C at C552 left branch
1864          HC       2
              *

1865          KK    207D
1866          KM   Sub-Basin   207D
1867          KM
1868          KM      The Clark Unit Hydrograph is used for this basin.
1869          KM          The Natural time-area relation is used for this basin.
1870          KM
1871          KM      Time of Concentration for this sub-basin is based on the following:
1872          KM          An rainfall areal reduction factor of 1.000
1873          KM
1874          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1875          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1876          KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1877          KM
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1878          KM          L=   1.036 miles, S=  373 feet/mile, Kb= .14
1879          KM
1880          BA   0.197
1881          LG    0.25    0.35    4.35    0.40   35.00
1882          UC   0.442   0.388
1883          UA       0       3       5       8      12      20      43      75      90      96
1884          UA     100
              *

1885          KK  551552
1886          KM      Normal depth channel route from C551 to C552
1887          KM      Source:  100 Scale 4' CI Mapping
1888          RS       6    FLOW      -1
1889          RC   0.050   0.045   0.050  4410.0  0.0528
1890          RX  1000.0  1005.0  1018.0  1028.0  1038.0  1043.0  1048.0  1055.0
1891          RY  2188.0  2184.0  2180.0  2176.0  2176.0  2180.0  2184.0  2188.0
              *

1892          KK    207E
1893          KM   Sub-Basin   207E
1894          KM
1895          KM      The Clark Unit Hydrograph is used for this basin.
1896          KM          The Natural time-area relation is used for this basin.
1897          KM
1898          KM      Time of Concentration for this sub-basin is based on the following:
1899          KM          An rainfall areal reduction factor of 1.000
1900          KM
1901          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1902          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1903          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1904          KM
1905          KM          L=   1.366 miles, S=  315 feet/mile, Kb= .14
1906          KM
1907          BA   0.157
1908          LG    0.25    0.35    4.35    0.42   35.00
1909          UC   0.554   0.710
1910          UA       0       3       5       8      12      20      43      75      90      96
1911          UA     100
              *

1912          KK   C552R
1913          KM      Hydrograph combine 551552 + 207E at C552 right branch
1914          HC       2
              *

1915          KK    C552
1916          KM      Hydrograph combine C552L + C552R at C552
1917          HC       2
              *
```

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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1918          KK  552553
1919          KM      Normal depth channel route from C552 to C553
1920          KM      Source:  Hydrology Field Reconnaissance
1921          RS       2    FLOW      -1
1922          RC   0.060   0.050   0.060  1336.0  0.0337
1923          RX   993.0  1010.0  1055.0  1061.0  1082.0  1096.0  1105.0  1127.0
1924          RY    98.0    94.3    94.4    94.0    94.3    94.5    96.2    98.0
              *

1925          KK    207F
1926          KM   Sub-Basin   207F
1927          KM
1928          KM      The Clark Unit Hydrograph is used for this basin.
1929          KM          The HEC-1 time-area relation is used for this basin.
1930          KM
1931          KM      Time of Concentration for this sub-basin is based on the following:
1932          KM          An rainfall areal reduction factor of 1.000
1933          KM
1934          KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1935          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1936          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
```

```
1937        KM
1938        KM          L=   0.794 miles, S=  296 feet/mile, Kb= .14
1939        KM
1940        BA   0.126
1941        LG    0.25    0.35    4.40    0.41   33.70
1942        UC   0.417   0.379
            *

1943        KK    C553
1944        KM      Hydrograph combine 552553 + 207F at C553
1945        HC       2
            *

1946        KK  553556
1947        KM      Normal depth channel route from C553 to C556
1948        KM      Source:  HEC-2 Cross Section: AS 6.118
1949        RS       3    FLOW      -1
1950        RC   0.055   0.045   0.060  2393.0  0.0255
1951        RX  9904.4  9945.9  9974.0  9987.4  9994.9 10008.6 10027.0 10045.3
1952        RY  2004.2  2003.9  1991.7  1990.4  1987.9  1988.2  1997.5  2006.7
            *

1953        KK    207G
1954        KM   Sub-Basin   207G
1955        KM
1956        KM      The Clark Unit Hydrograph is used for this basin.
1957        KM          The Natural time-area relation is used for this basin.
1958        KM
1959        KM      Time of Concentration for this sub-basin is based on the following:
1960        KM          An rainfall areal reduction factor of 1.000
1961        KM
1962        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1963        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                          PAGE 47

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1964        KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
1965        KM
1966        KM          L=   1.467 miles, S=  198 feet/mile, Kb= .10
1967        KM
1968        BA   0.236
1969        LG    0.17    0.38    5.60    0.23    8.30
1970        UC   0.554   0.594
1971        UA       0       3       5       8      12      20      43      75      90      96
1972        UA     100
            *

1973        KK   C556L
1974        KM      Hydrograph combine 553556 + 207G at C556 left branch
1975        HC       2
            *

1976        KK    207H
1977        KM   Sub-Basin   207H
1978        KM
1979        KM      The Clark Unit Hydrograph is used for this basin.
1980        KM          The Natural time-area relation is used for this basin.
1981        KM
1982        KM      Time of Concentration for this sub-basin is based on the following:
1983        KM          An rainfall areal reduction factor of 1.000
1984        KM
1985        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
1986        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1987        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
1988        KM
1989        KM          L=   1.044 miles, S=  371 feet/mile, Kb= .14
1990        KM
1991        BA   0.124
1992        LG    0.25    0.35    4.35    0.40   35.00
1993        UC   0.442   0.507
1994        UA       0       3       5       8      12      20      43      75      90      96
1995        UA     100
            *

1996        KK  554555
1997        KM      Normal depth channel route from C554 to C555
1998        KM      Source:  100 Scale 4' CI Mapping
1999        RS       4    FLOW      -1
2000        RC   0.050   0.045   0.050  2497.0  0.0649
2001        RX  1000.0  1025.0  1080.0  1100.0  1120.0  1130.0  1140.0  1155.0
2002        RY  2192.0  2188.0  2186.0  2184.0  2184.0  2188.0  2192.0  2194.0
            *

2003        KK    207I
2004        KM   Sub-Basin   207I
2005        KM
2006        KM      The Clark Unit Hydrograph is used for this basin.
2007        KM          The Natural time-area relation is used for this basin.
2008        KM
2009        KM      Time of Concentration for this sub-basin is based on the following:
2010        KM          An rainfall areal reduction factor of 1.000
1                                          HEC-1 INPUT                                          PAGE 48

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2011        KM
2012        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2013        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2014        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2015        KM
2016        KM          L=   0.810 miles, S=  320 feet/mile, Kb= .15
2017        KM
2018        BA   0.073
```

```
2019          LG    0.25    0.35    4.40    0.40   35.00
2020          UC   0.425   0.538
2021          UA       0       3       5       8      12      20      43      75      90      96
2022          UA     100
              *

2023          KK    C555
2024          KM      Hydrograph combine 554555 + 207I at C555
2025          HC       2
              *

2026          KK  555556
2027          KM      Normal depth channel route from C555 to C556
2028          KM      Source:  200 Scale Mapping
2029          RS       8    FLOW      -1
2030          RC   0.050   0.050   0.055  3353.0  0.0480
2031          RX  1000.0  1050.0  1090.0  1095.0  1130.0  1150.0  1160.0  1185.0
2032          RY  2020.0  2016.5  2006.0  2004.0  2005.0  2006.0  2010.0  2020.0
              *

2033          KK    207J
2034          KM   Sub-Basin   207J
2035          KM
2036          KM      The Clark Unit Hydrograph is used for this basin.
2037          KM          The HEC-1 time-area relation is used for this basin.
2038          KM
2039          KM      Time of Concentration for this sub-basin is based on the following:
2040          KM          An rainfall areal reduction factor of 1.000
2041          KM
2042          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2043          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2044          KM   .26 .25 .25 .25 .25 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2045          KM
2046          KM          L=   0.714 miles, S=  248 feet/mile, Kb= .13
2047          KM
2048          BA   0.093
2049          LG    0.22    0.33    4.40    0.39   37.00
2050          UC   0.396   0.392
              *

2051          KK   C556R
2052          KM      Hydrograph combine 555556 + 207J at C556 right branch
2053          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2054          KK    C556
2055          KM      Hydrograph combine C556L + C556R at C556
2056          HC       2
              *

2057          KK  556557
2058          KM      Normal depth channel route from C556 to C557
2059          KM      Source:  HEC-2 Cross Section: AS 5.765
2060          RS       3    FLOW      -1
2061          RC   0.055   0.045   0.060  2298.0  0.0260
2062          RX  9957.1  9995.6 10000.0 10010.0 10040.4 10084.4 10104.2 10180.7
2063          RY  1949.3  1935.9  1935.8  1936.7  1936.7  1938.2  1947.1  1949.9
              *

2064          KK    207K
2065          KM   Sub-Basin   207K
2066          KM
2067          KM      The Clark Unit Hydrograph is used for this basin.
2068          KM          The HEC-1 time-area relation is used for this basin.
2069          KM
2070          KM      Time of Concentration for this sub-basin is based on the following:
2071          KM          An rainfall areal reduction factor of 1.000
2072          KM
2073          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2074          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2075          KM   .27 .27 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2076          KM
2077          KM          L=   0.859 miles, S=  294 feet/mile, Kb= .09
2078          KM
2079          BA   0.130
2080          LG    0.15    0.33    5.40    0.22   31.70
2081          UC   0.333   0.310
              *

2082          KK   C557R
2083          KM      Hydrograph combine 556557 + 207K at C557
2084          HC       2
              *

2085          KK    207L
2086          KM   Sub-Basin   207L
2087          KM
2088          KM      The Clark Unit Hydrograph is used for this basin.
2089          KM          The Urban time-area relation is used for this basin.
2090          KM
2091          KM      Time of Concentration for this sub-basin is based on the following:
2092          KM          An rainfall areal reduction factor of 1.000
2093          KM
2094          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2095          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2096          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2097          KM
2098          KM          L=   0.667 miles, S=  236 feet/mile, Kb= .07
2099          KM
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2100          BA   0.080
2101          LG    0.11    0.32    6.00    0.17   29.60
2102          UC   0.275   0.269
2103          UA       0       5      16      30      65      77      84      90      94      97
2104          UA     100
              *

2105          KK    C557
2106          KM      Hydrograph combine C557R + 207L at C557
2107          HC       2
              *
              * *
              * * C557 is the total flow in Ashbrook Wash downstream of Golden Eagle Blvd.
              * * at fire station
              * *
              *

2108          KK  557558
2109          KM      Normal depth channel route from C557 to C558
2110          KM      Source:  HEC-2 Cross Section: AS 5.254
2111          RS       4    FLOW     -1
2112          RC   0.055   0.045   0.060  2652.0  0.0242
2113          RX  9662.0  9965.0  9967.0 10000.0 10072.0 10095.0 10122.0 10175.0
2114          RY  1890.0  1885.9  1884.0  1878.0  1880.0  1886.0  1888.0  1890.0
              *

2115          KK    207M
2116          KM   Sub-Basin   207M
2117          KM
2118          KM      The Clark Unit Hydrograph is used for this basin.
2119          KM          The HEC-1 time-area relation is used for this basin.
2120          KM
2121          KM      Time of Concentration for this sub-basin is based on the following:
2122          KM          An rainfall areal reduction factor of 1.000
2123          KM
2124          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2125          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2126          KM   .25 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2127          KM
2128          KM          L=   0.636 miles, S=  295 feet/mile, Kb= .10
2129          KM
2130          BA   0.116
2131          LG    0.15    0.40    6.00    0.19    4.50
2132          UC   0.308   0.238
              *

2133          KK    C558
2134          KM      Hydrograph combine 557558 + 207M at C558
2135          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2136          KK  558560
2137          KM      Normal depth channel route from C558 to C560
2138          KM      Source:  HEC-2 Cross Section: AS 4.839
2139          RS       3    FLOW     -1
2140          RC   0.055   0.045   0.060  1986.0  0.0185
2141          RX  9777.0  9897.0  9933.1  9970.6 10042.2 10063.4 10121.6 10204.9
2142          RY  1840.3  1837.3  1836.3  1824.3  1822.7  1828.5  1827.7  1842.7
              *

2143          KK    207O
2144          KM   Sub-Basin   207O
2145          KM
2146          KM      The Clark Unit Hydrograph is used for this basin.
2147          KM          The Natural time-area relation is used for this basin.
2148          KM
2149          KM      Time of Concentration for this sub-basin is based on the following:
2150          KM          An rainfall areal reduction factor of 1.000
2151          KM
2152          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2153          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2154          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2155          KM
2156          KM          L=   0.643 miles, S=  275 feet/mile, Kb= .09
2157          KM
2158          BA   0.131
2159          LG    0.17    0.38    5.60    0.23    9.20
2160          UC   0.304   0.221
2161          UA       0       3       5       8      12      20      43      75      90      96
2162          UA     100
              *

2163          KK   C560R
2164          KM      Hydrograph combine 558560 + 207O at C560 right branch
2165          HC       2
              *

2166          KK    207N
2167          KM   Sub-Basin   207N
2168          KM
2169          KM      The Clark Unit Hydrograph is used for this basin.
2170          KM          The HEC-1 time-area relation is used for this basin.
2171          KM
2172          KM      Time of Concentration for this sub-basin is based on the following:
2173          KM          An rainfall areal reduction factor of 1.000
2174          KM
2175          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2176          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
```

```
2177          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
2178          KM
2179          KM          L=   0.431 miles, S=  190 feet/mile, Kb= .10
2180          KM
2181          BA   0.049
2182          LG    0.19    0.35    4.80    0.32   21.60
2183          UC   0.292   0.268
              *
1                                        HEC-1 INPUT                                                PAGE 52

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2184          KK  559560
2185          KM      Normal depth channel route from C559 to C560
2186          KM      Source:  200 Scale Mapping
2187          RS       8    FLOW     -1
2188          RC   0.050   0.045   0.050  2170.0  0.0230
2189          RX  1000.0  1050.0  1080.0  1100.0  1110.0  1140.0  1170.0  1205.0
2190          RY  1854.0  1852.0  1850.0  1848.0  1848.0  1850.0  1852.0  1854.0
              *

2191          KK   C560I
2192          KM      Hydrograph combine C560R + 559560 at C560I
2193          HC       2
              *
              * *
              * * C560I is the total flow in Ashbrook Wash upstream of Dam 6
              * *
              *

2194          KK   C560O
2195          KM      Reservoir route at C560 (Dam 6).
2196          RS       1    ELEV  1808.8
2197          SV    0.00    1.71   14.81   34.65   60.43   93.47  135.64  183.00  186.00  191.44
2198          SV  197.00  205.00  212.00  219.00  226.40  234.00  242.00  246.00  250.00  254.00
2199          SE  1808.8  1812.0  1816.0  1820.0  1824.0  1828.0  1832.0  1835.4  1835.6  1836.0
2200          SE  1836.4  1836.8  1837.2  1837.6  1838.0  1838.4  1838.8  1839.0  1839.2  1839.4
2201          SQ       0      57     136     184     224     257     285     303     319     440
2202          SQ     691    1055    1500    2018    2600    3243    3944    4315    4699    5097
2203          RL                    0.40
              *
              * *
              * * End Basin 207.  Start Basin 210 temporarily
              * *
              *

2204          KK  560585
2205          KM      Normal depth channel route from C560 to C585
2206          KM      Source:  HEC-2 Cross Section: AS4.311
2207          RS       5    FLOW     -1
2208          RC   0.050   0.025   0.050  3127.0  0.0272
2209          RX  9850.4  9950.4  9974.4 10000.0 10035.5 10059.8 10080.4 10104.4
2210          RY  1772.0  1771.7  1765.3  1765.3  1765.9  1768.5  1773.3  1773.7
              *

2211          KK    210A
2212          KM   Sub-Basin   210A
2213          KM
2214          KM      The Clark Unit Hydrograph is used for this basin.
2215          KM          The Natural time-area relation is used for this basin.
2216          KM
2217          KM      Time of Concentration for this sub-basin is based on the following:
2218          KM          An rainfall areal reduction factor of 1.000
2219          KM
2220          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2221          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                        HEC-1 INPUT                                                PAGE 53

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2222          KM   .25 .24 .24 .24 .24 .24 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2223          KM
2224          KM          L=   0.631 miles, S=  233 feet/mile, Kb= .09
2225          KM
2226          BA   0.123
2227          LG    0.20    0.36    5.00    0.27    5.50
2228          UC   0.317   0.236
2229          UA       0       3       5       8      12      20      43      75      90      96
2230          UA     100
              *

2231          KK    C585
2232          KM      Hydrograph combine 560585 + 210A at C585
2233          HC       2
              *
              * *
              * * C585 is the total flow in Ashbrook Wash at Golden Eagle Blvd. just
              * * upstream of DAM 4
              * *
              * * Temporarily stop Basin 210.  Start Basin 208
              * *
              * * Start Bristol Wash
              * *
              *

2234          KK    208A
2235          KM   Sub-Basin   208A
2236          KM
2237          KM      The Clark Unit Hydrograph is used for this basin.
2238          KM          The Natural time-area relation is used for this basin.
2239          KM
2240          KM      Time of Concentration for this sub-basin is based on the following:
2241          KM          An rainfall areal reduction factor of 1.000
```

```
2242        KM
2243        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2244        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2245        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2246        KM
2247        KM          L=   0.626 miles, S=  366 feet/mile, Kb= .14
2248        KM
2249        BA   0.139
2250        LG    0.25    0.35    4.35    0.40   35.00
2251        UC   0.346   0.241
2252        UA      0       3       5       8      12      20      43      75      90      96
2253        UA    100
            *

2254        KK  561563
2255        KM      Normal depth channel route from C561 to C563
2256        KM      Source:  100 Scale 4' CI Mapping
2257        RS       3    FLOW      -1
2258        RC   0.050   0.045   0.050  2335.0  0.0856
2259        RX  1000.0  1004.0  1009.0  1019.0  1037.0  1045.0  1060.0  1075.0
2260        RY  2280.0  2276.0  2272.0  2268.0  2268.0  2272.0  2274.0  2276.0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2261        KK    208B
2262        KM   Sub-Basin   208B
2263        KM
2264        KM      The Clark Unit Hydrograph is used for this basin.
2265        KM          The Natural time-area relation is used for this basin.
2266        KM
2267        KM      Time of Concentration for this sub-basin is based on the following:
2268        KM          An rainfall areal reduction factor of 1.000
2269        KM
2270        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2271        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2272        KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2273        KM
2274        KM          L=   0.491 miles, S=  325 feet/mile, Kb= .16
2275        KM
2276        BA   0.027
2277        LG    0.25    0.35    4.35    0.42   35.00
2278        UC   0.342   0.499
2279        UA      0       3       5       8      12      20      43      75      90      96
2280        UA    100
            *

2281        KK   C563R
2282        KM      Hydrograph combine 561563 + 206B at C563 right branch
2283        HC       2
            *

2284        KK    208C
2285        KM   Sub-Basin   208C
2286        KM
2287        KM      The Clark Unit Hydrograph is used for this basin.
2288        KM          The Natural time-area relation is used for this basin.
2289        KM
2290        KM      Time of Concentration for this sub-basin is based on the following:
2291        KM          An rainfall areal reduction factor of 1.000
2292        KM
2293        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2294        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2295        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2296        KM
2297        KM          L=   0.639 miles, S=  387 feet/mile, Kb= .15
2298        KM
2299        BA   0.066
2300        LG    0.25    0.35    4.35    0.40   35.00
2301        UC   0.354   0.383
2302        UA      0       3       5       8      12      20      43      75      90      96
2303        UA    100
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2304        KK  562563
2305        KM      Normal depth channel route from C562 to C563
2306        KM      Source:  100 Scale 4' CI Mapping
2307        RS       5    FLOW      -1
2308        RC   0.050   0.045   0.050  3745.0  0.1106
2309        RX  1000.0  1007.0  1012.0  1017.0  1022.0  1027.0  1044.0  1064.0
2310        RY  2420.0  2416.0  2412.0  2411.8  2411.8  2412.0  2416.0  2420.0
            *

2311        KK    208D
2312        KM   Sub-Basin   208D
2313        KM
2314        KM      The Clark Unit Hydrograph is used for this basin.
2315        KM          The Natural time-area relation is used for this basin.
2316        KM
2317        KM      Time of Concentration for this sub-basin is based on the following:
2318        KM          An rainfall areal reduction factor of 1.000
2319        KM
2320        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2321        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2322        KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2323        KM
2324        KM          L=   0.772 miles, S=  327 feet/mile, Kb= .15
2325        KM
```

```
2326          BA   0.075
2327          LG    0.25    0.35    4.35    0.42   35.00
2328          UC   0.413   0.495
2329          UA       0       3       5       8      12      20      43      75      90      96
2330          UA     100
              *

2331          KK   C563L
2332          KM      Hydrograph combine 562563 + 208D at C563 left branch
2333          HC       2
              *

2334          KK    C563
2335          KM      Hydrograph combine C563R + C563L at C563
2336          HC       2
              *

2337          KK  563564
2338          KM      Normal depth channel route from C563 to C564
2339          KM      Source:  HEC-2 Cross Section: BR 2.667
2340          RS       4    FLOW      -1
2341          RC   0.080   0.080   0.080  2762.0  0.0540
2342          RX  9947.0  9980.4  9986.4  9995.5 10000.0 10005.8 10021.9 10037.2
2343          RY  2103.4  2089.5  2089.2  2084.5  2084.4  2084.3  2098.5  2100.6
              *
1                                          HEC-1 INPUT                                                    PAGE 56

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2344          KK    208E
2345          KM   Sub-Basin   208E
2346          KM
2347          KM      The Clark Unit Hydrograph is used for this basin.
2348          KM          The Natural time-area relation is used for this basin.
2349          KM
2350          KM      Time of Concentration for this sub-basin is based on the following:
2351          KM          An rainfall areal reduction factor of 1.000
2352          KM
2353          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2354          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2355          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2356          KM
2357          KM          L=   0.644 miles, S=  306 feet/mile, Kb= .15
2358          KM
2359          BA   0.062
2360          LG    0.25    0.35    4.35    0.41   35.00
2361          UC   0.383   0.438
2362          UA       0       3       5       8      12      20      43      75      90      96
2363          UA     100
              *

2364          KK   C564R
2365          KM      Hydrograph combine 563564 + 208E at C564 right branch
2366          HC       2
              *

2367          KK    208F
2368          KM   Sub-Basin   208F
2369          KM
2370          KM      The Clark Unit Hydrograph is used for this basin.
2371          KM          The Natural time-area relation is used for this basin.
2372          KM
2373          KM      Time of Concentration for this sub-basin is based on the following:
2374          KM          An rainfall areal reduction factor of 1.000
2375          KM
2376          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2377          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2378          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2379          KM
2380          KM          L=   0.582 miles, S=  293 feet/mile, Kb= .15
2381          KM
2382          BA   0.069
2383          LG    0.25    0.35    4.35    0.41   35.00
2384          UC   0.371   0.366
2385          UA       0       3       5       8      12      20      43      75      90      96
2386          UA     100
              *
1                                          HEC-1 INPUT                                                    PAGE 57

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2387          KK    C564
2388          KM      Hydrograph combine C564R + 208F at C564
2389          HC       2
              *

2390          KK  564565
2391          KM      Normal depth channel route from C564 to C565
2392          KM      Source:  HEC-2 Cross Section: BR 2.236
2393          RS       7    FLOW      -1
2394          RC   0.080   0.080   0.080  3243.0  0.0398
2395          RX  9937.7  9965.8  9985.5 10000.0 10008.6 10016.4 10037.5 10054.4
2396          RY  1998.7  1998.1  1988.9  1988.8  1989.0  1990.4  1990.6  1999.1
              *

2397          KK    208G
2398          KM   Sub-Basin   208G
2399          KM
2400          KM      The Clark Unit Hydrograph is used for this basin.
2401          KM          The HEC-1 time-area relation is used for this basin.
2402          KM
2403          KM      Time of Concentration for this sub-basin is based on the following:
```

```
2404          KM          An rainfall areal reduction factor of 1.000
2405          KM
2406          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2407          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2408          KM   .26 .25 .25 .25 .25 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01
2409          KM
2410          KM          L=   0.772 miles, S=  299 feet/mile, Kb= .13
2411          KM
2412          BA   0.129
2413          LG    0.22    0.34    4.60    0.34   34.30
2414          UC   0.388   0.337
              *

2415          KK    C565
2416          KM      Hydrograph combine 564565 + 208G at C565
2417          HC       2
              *

2418          KK  565568
2419          KM      Normal depth channel route from C565 to C568
2420          KM      Source:  HEC-2 Cross Section: BR 1.853
2421          RS       3    FLOW      -1
2422          RC   0.050   0.060   0.045  2254.0  0.0333
2423          RX  9966.2  9975.6  9985.0 10000.0 10017.9 10027.6 10040.1 10052.5
2424          RY  1929.1  1924.5  1919.8  1918.3  1918.4  1919.6  1925.2  1930.8
              *

2425          KK    208H
2426          KM   Sub-Basin   208H
2427          KM
2428          KM      The Clark Unit Hydrograph is used for this basin.
2429          KM          The Natural time-area relation is used for this basin.
2430          KM
1                                          HEC-1 INPUT                                          PAGE 58

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2431          KM      Time of Concentration for this sub-basin is based on the following:
2432          KM          An rainfall areal reduction factor of 1.000
2433          KM
2434          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2435          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2436          KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2437          KM
2438          KM          L=   0.632 miles, S=  283 feet/mile, Kb= .12
2439          KM
2440          BA   0.043
2441          LG    0.17    0.38    5.60    0.23    8.60
2442          UC   0.346   0.476
2443          UA       0       3       5       8      12      20      43      75      90      96
2444          UA     100
              *

2445          KK   C568L
2446          KM      Hydrograph combine 565568 + 208H at C568 left branch
2447          HC       2
              *
              * *
              * * Start Cholula Wash
              * *
              *

2448          KK    208I
2449          KM   Sub-Basin   208I
2450          KM
2451          KM      The Clark Unit Hydrograph is used for this basin.
2452          KM          The Natural time-area relation is used for this basin.
2453          KM
2454          KM      Time of Concentration for this sub-basin is based on the following:
2455          KM          An rainfall areal reduction factor of 1.000
2456          KM
2457          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2458          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2459          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2460          KM
2461          KM          L=   0.823 miles, S=  363 feet/mile, Kb= .14
2462          KM
2463          BA   0.117
2464          LG    0.25    0.35    4.35    0.42   35.00
2465          UC   0.396   0.384
2466          UA       0       3       5       8      12      20      43      75      90      96
2467          UA     100
              *

2468          KK    208J
2469          KM   Sub-Basin   208J
2470          KM
2471          KM      The Clark Unit Hydrograph is used for this basin.
2472          KM          The Natural time-area relation is used for this basin.
2473          KM
2474          KM      Time of Concentration for this sub-basin is based on the following:
2475          KM          An rainfall areal reduction factor of 1.000
1                                          HEC-1 INPUT                                          PAGE 59

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2476          KM
2477          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2478          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2479          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2480          KM
2481          KM          L=   0.974 miles, S=  353 feet/mile, Kb= .15
2482          KM
2483          BA   0.081
```

```
2484          LG    0.25    0.35    4.35    0.42   35.00
2485          UC   0.454   0.632
2486          UA       0       3       5       8      12      20      43      75      90      96
2487          UA     100
              *

2488          KK    C566
2489          KM      Hydrograph combine 208I + 208J at C566
2490          HC       2
              *

2491          KK  566567
2492          KM      Normal depth channel route from C566 to C567
2493          KM      Source:  HEC-2 Cross Section: CH 0.766
2494          RS       4    FLOW      -1
2495          RC   0.080   0.080   0.080  1463.0  0.0410
2496          RX  9925.3  9949.0  9965.7  9988.3 10000.0 10016.2 10029.5 10042.7
2497          RY  2047.9  2043.7  2035.3  2033.3  2031.4  2033.0  2040.1  2047.2
              *

2498          KK    208K
2499          KM   Sub-Basin   208K
2500          KM
2501          KM      The Clark Unit Hydrograph is used for this basin.
2502          KM          The Natural time-area relation is used for this basin.
2503          KM
2504          KM      Time of Concentration for this sub-basin is based on the following:
2505          KM          An rainfall areal reduction factor of 1.000
2506          KM
2507          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2508          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2509          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2510          KM
2511          KM          L=   0.431 miles, S=  317 feet/mile, Kb= .16
2512          KM
2513          BA   0.048
2514          LG    0.25    0.35    4.35    0.43   35.00
2515          UC   0.321   0.303
2516          UA       0       3       5       8      12      20      43      75      90      96
2517          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2518          KK   C567L
2519          KM      Hydrograph combine 566567 + 208K at C567 left branch
2520          HC       2
              *

2521          KK    208L
2522          KM   Sub-Basin   208L
2523          KM
2524          KM      The Clark Unit Hydrograph is used for this basin.
2525          KM          The Natural time-area relation is used for this basin.
2526          KM
2527          KM      Time of Concentration for this sub-basin is based on the following:
2528          KM          An rainfall areal reduction factor of 1.000
2529          KM
2530          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2531          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2532          KM   .25 .25 .24 .24 .24 .23 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2533          KM
2534          KM          L=   0.655 miles, S=  334 feet/mile, Kb= .15
2535          KM
2536          BA   0.059
2537          LG    0.25    0.35    4.40    0.43   35.00
2538          UC   0.379   0.452
2539          UA       0       3       5       8      12      20      43      75      90      96
2540          UA     100
              *

2541          KK    C567
2542          KM      Hydrograph combine C567L + 208L at C567
2543          HC       2
              *

2544          KK  567568
2545          KM      Normal depth channel route from C567 to C568
2546          KM      Source:  HEC-2 Cross Section: CH 0.129
2547          RS       6    FLOW      -1
2548          RC   0.050   0.060   0.045  3650.0  0.0389
2549          RX  9945.7  9958.4  9989.8 10000.0 10016.4 10028.3 10045.4 10059.8
2550          RY  1912.1  1905.9  1899.0  1899.3  1898.9  1899.5  1907.1  1911.9
              *

2551          KK    208M
2552          KM   Sub-Basin   208M
2553          KM
2554          KM      The Clark Unit Hydrograph is used for this basin.
2555          KM          The Natural time-area relation is used for this basin.
2556          KM
2557          KM      Time of Concentration for this sub-basin is based on the following:
2558          KM          An rainfall areal reduction factor of 1.000
2559          KM
2560          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2561          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2562          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2563          KM
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
2564          KM          L=   1.031 miles, S=  321 feet/mile, Kb= .14
2565          KM
2566          BA   0.159
2567          LG    0.25    0.35    4.40    0.42   35.50
2568          UC   0.463   0.459
2569          UA       0       3       5       8      12      20      43      75      90      96
2570          UA     100
              *

2571          KK   C568R
2572          KM      Hydrograph combine 567568 + 208M at C568 right branch
2573          HC       2
              *

2574          KK    C568
2575          KM      Hydrograph combine C568L + C568R at C568
2576          HC       2
              *

2577          KK  568573
2578          KM      Normal depth channel route from C568 to C573
2579          KM      Source:  HEC-2 Cross Section: BR 1.340
2580          RS       3    FLOW      -1
2581          RC   0.098   0.075   0.075  2067.0  0.0324
2582          RX  9921.8  9954.1  9968.9  9991.3 10000.0 10006.9 10025.2 10050.4
2583          RY  1843.8  1840.4  1835.1  1834.7  1832.7  1833.3  1838.1  1854.0
              *

2584          KK    208N
2585          KM   Sub-Basin   208N
2586          KM
2587          KM      The Clark Unit Hydrograph is used for this basin.
2588          KM          The Natural time-area relation is used for this basin.
2589          KM
2590          KM      Time of Concentration for this sub-basin is based on the following:
2591          KM          An rainfall areal reduction factor of 1.000
2592          KM
2593          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2594          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2595          KM   .27 .27 .27 .27 .27 .26 .03 .03 .03 .02 .02 .02 .01 .01 .01 .01 .01 .01
2596          KM
2597          KM          L=   0.589 miles, S=  160 feet/mile, Kb= .11
2598          KM
2599          BA   0.047
2600          LG    0.15    0.39    6.20    0.17   34.00
2601          UC   0.371   0.460
2602          UA       0       3       5       8      12      20      43      75      90      96
2603          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2604          KK   C573L
2605          KM      Hydrograph combine 568573 + 208N at C573 left branch
2606          HC       2
              *
              * *
              * * C573L is the total flow in Bristol Wash upstream of the confluence with
              * * Zapata Wash
              * *
              * * Start Zapata Wash
              * *
              *

2607          KK    208O
2608          KM   Sub-Basin   208O
2609          KM
2610          KM      The Clark Unit Hydrograph is used for this basin.
2611          KM          The Natural time-area relation is used for this basin.
2612          KM
2613          KM      Time of Concentration for this sub-basin is based on the following:
2614          KM          An rainfall areal reduction factor of 1.000
2615          KM
2616          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2617          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2618          KM   .25 .25 .25 .25 .25 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2619          KM
2620          KM          L=   1.174 miles, S=  347 feet/mile, Kb= .13
2621          KM
2622          BA   0.230
2623          LG    0.23    0.35    4.60    0.37   33.50
2624          UC   0.463   0.413
2625          UA       0       3       5       8      12      20      43      75      90      96
2626          UA     100
              *

2627          KK  569570
2628          KM      Normal depth channel route from C569 to C570
2629          KM      Source:  HEC-2 Cross Section: ZA 0.493
2630          RS       2    FLOW      -1
2631          RC   0.050   0.035   0.055  1696.0  0.0404
2632          RX  9965.3  9985.5  9998.4 10000.0 10010.6 10019.1 10038.5 10038.5
2633          RY  1919.3  1912.3  1908.1  1907.8  1905.2  1908.1  1920.1  1920.1
              *

2634          KK    208P
2635          KM   Sub-Basin   208P
2636          KM
2637          KM      The Clark Unit Hydrograph is used for this basin.
2638          KM          The Natural time-area relation is used for this basin.
2639          KM
2640          KM      Time of Concentration for this sub-basin is based on the following:
```

```
2641          KM          An rainfall areal reduction factor of 1.000
2642          KM
2643          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2644          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                    PAGE 63

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2645          KM   .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2646          KM
2647          KM          L=   0.471 miles, S=  312 feet/mile, Kb= .12
2648          KM
2649          BA   0.058
2650          LG    0.18    0.39    5.70    0.21   27.90
2651          UC   0.283   0.252
2652          UA       0       3       5       8      12      20      43      75      90      96
2653          UA     100
              *

2654          KK   C570R
2655          KM      Hydrograph combine 569570 + 208P at C570 right branch
2656          HC       2
              *

2657          KK    208Q
2658          KM   Sub-Basin   208Q
2659          KM
2660          KM      The Clark Unit Hydrograph is used for this basin.
2661          KM          The Natural time-area relation is used for this basin.
2662          KM
2663          KM      Time of Concentration for this sub-basin is based on the following:
2664          KM          An rainfall areal reduction factor of 1.000
2665          KM
2666          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2667          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2668          KM   .26 .26 .26 .25 .25 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2669          KM
2670          KM          L=   0.823 miles, S=  324 feet/mile, Kb= .13
2671          KM
2672          BA   0.094
2673          LG    0.21    0.36    5.00    0.28   31.50
2674          UC   0.388   0.425
2675          UA       0       3       5       8      12      20      43      75      90      96
2676          UA     100
              *

2677          KK    C570
2678          KM      Hydrograph combine C570R + 208Q at C570
2679          HC       2
              *
              * *
              * * NOTE: 570572 is too short to route
              * *
              *

2680          KK    208R
2681          KM   Sub-Basin   208R
2682          KM
2683          KM      The Clark Unit Hydrograph is used for this basin.
2684          KM          The Natural time-area relation is used for this basin.
2685          KM
2686          KM      Time of Concentration for this sub-basin is based on the following:
2687          KM          An rainfall areal reduction factor of 1.000
1                                          HEC-1 INPUT                                                    PAGE 64

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2688          KM
2689          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2690          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2691          KM   .27 .27 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2692          KM
2693          KM          L=   0.238 miles, S=  327 feet/mile, Kb= .13
2694          KM
2695          BA   0.010
2696          LG    0.15    0.39    6.20    0.17   25.30
2697          UC   0.204   0.271
2698          UA       0       3       5       8      12      20      43      75      90      96
2699          UA     100
              *

2700          KK  571572
2701          KM      Normal depth channel route from C571 to C572
2702          KM      Source:  200 Scale Mapping
2703          RS       3    FLOW      -1
2704          RC   0.040   0.020   0.055  1379.0  0.0566
2705          RX  1000.0  1020.0  1040.0  1090.0  1122.0  1125.0  1135.0  1140.0
2706          RY  1894.0  1893.0  1892.0  1891.0  1891.0  1892.0  1894.0  1896.0
              *

2707          KK    C572
2708          KM      Hydrograph combine C570 + 571572 at C572
2709          HC       2
              *

2710          KK  572573
2711          KM      Normal depth channel route from C572 to C573
2712          KM      Source:  HEC-2 Cross Section: ZA 0.142
2713          RS       2    FLOW      -1
2714          RC   0.050   0.035   0.055  1285.0  0.0335
2715          RX  9961.8  9976.8  9982.5  9987.0 10009.5 10014.3 10022.1 10029.3
2716          RY  1840.3  1832.1  1831.2  1829.5  1829.2  1830.6  1831.2  1835.6
              *
```

```
2717          KK    208S
2718          KM   Sub-Basin   208S
2719          KM
2720          KM      The Clark Unit Hydrograph is used for this basin.
2721          KM          The Natural time-area relation is used for this basin.
2722          KM
2723          KM      Time of Concentration for this sub-basin is based on the following:
2724          KM          An rainfall areal reduction factor of 1.000
2725          KM
2726          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2727          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2728          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
2729          KM
2730          KM          L=   0.568 miles, S=  234 feet/mile, Kb= .11
2731          KM
2732          BA   0.068
2733          LG    0.14    0.39    6.20    0.17   38.30
2734          UC   0.321   0.308
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2735          UA       0       3       5       8      12      20      43      75      90      96
2736          UA     100
              *

2737          KK   C573R
2738          KM      Hydrograph combine 572573 + 208S at C573 right branch
2739          HC       2
              *

2740          KK    C573
2741          KM      Hydrograph combine C573L + C573R at C573
2742          HC       2
              *
              * *
              * * NOTE: 573577 is too short to route
              * *
              * * C573 is the total flow in Bristol Wash upstream of the confluence
              * * with Montezuna Wash
              * *
              * * Start Montezuna Wash
              * *
              *

2743          KK    208T
2744          KM   Sub-Basin   208T
2745          KM
2746          KM      The Clark Unit Hydrograph is used for this basin.
2747          KM          The Natural time-area relation is used for this basin.
2748          KM
2749          KM      Time of Concentration for this sub-basin is based on the following:
2750          KM          An rainfall areal reduction factor of 1.000
2751          KM
2752          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2753          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2754          KM   .26 .26 .25 .25 .25 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2755          KM
2756          KM          L=   0.787 miles, S=  340 feet/mile, Kb= .12
2757          KM
2758          BA   0.132
2759          LG    0.20    0.37    5.20    0.27   29.80
2760          UC   0.358   0.310
2761          UA       0       3       5       8      12      20      43      75      90      96
2762          UA     100
              *

2763          KK    208U
2764          KM   Sub-Basin   208U
2765          KM
2766          KM      The Clark Unit Hydrograph is used for this basin.
2767          KM          The Natural time-area relation is used for this basin.
2768          KM
2769          KM      Time of Concentration for this sub-basin is based on the following:
2770          KM          An rainfall areal reduction factor of 1.000
2771          KM
2772          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2773          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2774          KM   .26 .26 .26 .25 .25 .25 .02 .02 .02 .01 .01 .01 .01 .01 .01 .01 .01 .01
2775          KM
2776          KM          L=   0.507 miles, S=  360 feet/mile, Kb= .12
2777          KM
2778          BA   0.134
2779          LG    0.19    0.37    5.30    0.26   29.20
2780          UC   0.283   0.167
2781          UA       0       3       5       8      12      20      43      75      90      96
2782          UA     100
              *

2783          KK    C574
2784          KM      Hydrograph combine 208T + 208U at C574
2785          HC       2
              *

2786          KK  574575
2787          KM      Normal depth channel route from C574 to C575
2788          KM      Source:  HEC-2 Cross Section: MO 0.587
2789          RS       1    FLOW     -1
2790          RC   0.070   0.050   0.055   823.0  0.0365
2791          RX  9945.0  9970.6  9986.7  9995.9 10002.3 10019.0 10036.7 10055.5
```

```
2792          RY  1932.6  1928.5  1922.9  1917.8  1917.7  1924.0  1931.1  1934.1
              *

2793          KK    208V
2794          KM   Sub-Basin   208V
2795          KM
2796          KM      The Clark Unit Hydrograph is used for this basin.
2797          KM          The Natural time-area relation is used for this basin.
2798          KM
2799          KM      Time of Concentration for this sub-basin is based on the following:
2800          KM          An rainfall areal reduction factor of 1.000
2801          KM
2802          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2803          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2804          KM   .27 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2805          KM
2806          KM          L=   0.354 miles, S=  319 feet/mile, Kb= .12
2807          KM
2808          BA   0.028
2809          LG    0.15    0.38    6.40    0.17   25.00
2810          UC   0.242   0.257
2811          UA       0       3       5       8      12      20      43      75      90      96
2812          UA     100
              *

2813          KK    C575
2814          KM      Hydrograph combine 574575 + 208V at C575
2815          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2816          KK  575576
2817          KM      Normal depth channel route from C575 to C576
2818          KM      Source:  HEC-2 Cross Section: MO 0.307
2819          RS       2    FLOW      -1
2820          RC   0.070   0.050   0.055  2342.0  0.0423
2821          RX  9973.7  9974.0  9986.7 10000.0 10000.5 10009.7 10026.7 10037.3
2822          RY  1861.6  1861.5  1855.0  1853.0  1853.1  1854.8  1863.0  1867.1
              *

2823          KK    208W
2824          KM   Sub-Basin   208W
2825          KM
2826          KM      The Clark Unit Hydrograph is used for this basin.
2827          KM          The Natural time-area relation is used for this basin.
2828          KM
2829          KM      Time of Concentration for this sub-basin is based on the following:
2830          KM          An rainfall areal reduction factor of 1.000
2831          KM
2832          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2833          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2834          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
2835          KM
2836          KM          L=   0.475 miles, S=  288 feet/mile, Kb= .11
2837          KM
2838          BA   0.050
2839          LG    0.15    0.39    6.20    0.18   22.70
2840          UC   0.279   0.272
2841          UA       0       3       5       8      12      20      43      75      90      96
2842          UA     100
              *

2843          KK    C576
2844          KM      Hydrograph combine 575576 + 208W at C576
2845          HC       2
              *

2846          KK  576577
2847          KM      Normal depth channel route from C576 to C577
2848          KM      Source:  HEC-2 Cross Section: MO 0.116
2849          RS       1    FLOW      -1
2850          RC   0.070   0.050   0.055   740.0  0.0338
2851          RX  9915.1  9960.0  9985.5 10000.0 10000.1 10007.0 10023.3 10023.4
2852          RY  1826.5  1826.4  1814.5  1812.3  1812.3  1814.8  1830.3  1830.4
              *
              * *
              * * 576577 is the total flow in Montezuna Wash just upstream of the confluence
              * * with Bristol Wash
              * *
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2853          KK    C577
2854          KM      Hydrograph combine C577L + 576577 at C570
2855          HC       2
              *
              * *
              * * C577 is the total flow in Bristol Wash downstream of the confluence
              * * with Montezuma Wash
              * *
              *

2856          KK  577578
2857          KM      Normal depth channel route from C577 to C578
2858          KM      Source:  HEC-2 Cross Section: BR 1.099
2859          RS       1    FLOW      -1
2860          RC   0.055   0.045   0.055  1078.0  0.0147
2861          RX  9865.3  9956.6  9991.1 10010.2 10034.3 10063.4 10139.7 10201.7
```

```
2862   RY  1821.8  1810.8  1793.2  1792.5  1795.5  1796.1  1813.8  1822.8
       *

2863   KK    208X
2864   KM   Sub-Basin   208X
2865   KM
2866   KM      The Clark Unit Hydrograph is used for this basin.
2867   KM          The Natural time-area relation is used for this basin.
2868   KM
2869   KM      Time of Concentration for this sub-basin is based on the following:
2870   KM          An rainfall areal reduction factor of 1.000
2871   KM
2872   KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2873   KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2874   KM   .26 .26 .26 .25 .25 .25 .02 .02 .02 .01 .01 .01 .01 .01 .01 .01 .01 .01
2875   KM
2876   KM          L=   0.417 miles, S=  223 feet/mile, Kb= .10
2877   KM
2878   BA   0.075
2879   LG    0.17    0.38    5.60    0.23   23.90
2880   UC   0.271   0.188
2881   UA       0       3       5       8      12      20      43      75      90      96
2882   UA     100
       *

2883   KK   C578I
2884   KM      Hydrograph combine 577578 + 208X at C578I
2885   HC       2
       *
       * *
       * * C578I is the total flow in Bristol Wash upstream of Dam 11
       * *
       *
```



```
LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2886   KK   C578O
2887   KM      Reservoir route at C578 (Dam 11).
2888   RS       1    ELEV  1779.2
2889   SV    0.00   16.38   31.30   53.65   84.39  126.17  138.00  143.00  147.00  154.47
2890   SV  161.00  167.00  174.00  181.00  187.43  194.00  202.00  205.00
2891   SE  1779.2  1794.0  1798.0  1802.0  1806.0  1810.0  1810.8  1811.2  1811.6  1812.0
2892   SE  1812.4  1812.8  1813.2  1813.6  1814.0  1814.4  1814.8  1815.0
2893   SQ       0     131     181     221     254     283     305     325     328     366
2894   SQ     522     812    1194    1651    2176    2763    3406    4104    4855    5250
2895   SE  1779.2  1786.0  1790.0  1794.0  1798.0  1802.0  1806.0  1810.0  1810.8  1811.2
2896   SE  1811.6  1812.0  1812.4  1812.8  1813.2  1813.6  1814.0  1814.4  1814.8  1815.0
2897   RL                   0.97
       *
       * *
       * * End Basin 208.  Rejoin Basin 210
       * *
       *

2898   KK  578587
2899   KM      Normal depth channel route from C578 to C587
2900   KM      Source:  HEC-2 Cross Section: BR 0.697
2901   RS       4    FLOW      -1
2902   RC   0.055   0.045   0.055  1628.0  0.0191
2903   RX  9926.4  9949.5  9960.1  9984.7 10000.0 10014.1 10031.5 10049.4
2904   RY  1763.0  1762.6  1761.8  1757.0  1757.1  1756.9  1761.4  1768.1
       *

2905   KK    210B
2906   KM   Sub-Basin   210B
2907   KM
2908   KM      The Clark Unit Hydrograph is used for this basin.
2909   KM          The HEC-1 time-area relation is used for this basin.
2910   KM
2911   KM      Time of Concentration for this sub-basin is based on the following:
2912   KM          An rainfall areal reduction factor of 1.000
2913   KM
2914   KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2915   KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2916   KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
2917   KM
2918   KM          L=   0.930 miles, S=  251 feet/mile, Kb= .10
2919   KM
2920   BA   0.107
2921   LG    0.15    0.39    5.80    0.20    9.50
2922   UC   0.392   0.442
       *

2923   KK   C586O
2924   KM      Reservoir route at C586.
2925   RS       1    ELEV  1804.4
2926   SV    0.00    0.05    0.36    1.09    2.45    4.45    7.00    9.50    9.60   10.00
2927   SV   10.34   10.70   11.20   11.60   12.10   12.50
2928   SE  1804.4  1806.0  1808.0  1810.0  1812.0  1814.0  1816.0 1817.55  1817.6  1817.8
2929   SE  1818.0  1818.2  1818.4  1818.6  1818.8  1819.0
```



```
LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2930   SQ       0      37     130     219     284     322     353     375     377     393
2931   SQ     432     492     574     680     808     959
       *

2932   KK  586587
2933   KM      Normal depth channel route from C586 to C587
2934   KM      Source:  200 Scale Mapping
2935   RS       4    FLOW      -1
```

```
2936          RC   0.040   0.035   0.040  1905.0  0.0313
2937          RX  1000.0  1020.0  1050.0  1055.0  1065.0  1070.0  1130.0  1150.0
2938          RY  1782.0  1780.0  1772.0  1771.0  1771.0  1772.0  1778.0  1782.0
              *

2939          KK    C587
2940          KM      Hydrograph combine 578587 + 586587 at C578
2941          HC       2
              *

2942          KK  587595
2943          KM      Normal depth channel route from C587 to C595
2944          KM      Source:  HEC-2 Cross Section: BR 0.533
2945          RS       2    FLOW      -1
2946          RC   0.055   0.045   0.055  1039.0  0.0173
2947          RX  9977.2  9980.4  9983.6  9989.9 10009.9 10020.3 10028.8 10037.3
2948          RY  1745.2  1744.0  1742.8  1740.3  1740.3  1742.4  1743.0  1743.6
              *

2949          KK    210C
2950          KM   Sub-Basin   210C
2951          KM
2952          KM      The Clark Unit Hydrograph is used for this basin.
2953          KM          The Natural time-area relation is used for this basin.
2954          KM
2955          KM      Time of Concentration for this sub-basin is based on the following:
2956          KM          An rainfall areal reduction factor of 1.000
2957          KM
2958          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2959          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2960          KM   .24 .24 .24 .24 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
2961          KM
2962          KM          L=   0.637 miles, S=  198 feet/mile, Kb= .09
2963          KM
2964          BA   0.082
2965          LG    0.21    0.35    4.80    0.32    7.00
2966          UC   0.338   0.322
2967          UA       0       3       5       8      12      20      43      75      90      96
2968          UA     100
              *

2969          KK   C595L
2970          KM      Hydrograph combine 587595 + 210C at C595 left branch
2971          HC       2
              *
              * *
              * * C595L is the total flow in Bristol Wash upstream of the confluence
              * * with Longmont Wash
              * *
              * * Start Longmont Wash Left Branch
              * *
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2972          KK    210D
2973          KM   Sub-Basin   210D
2974          KM
2975          KM      The Clark Unit Hydrograph is used for this basin.
2976          KM          The Natural time-area relation is used for this basin.
2977          KM
2978          KM      Time of Concentration for this sub-basin is based on the following:
2979          KM          An rainfall areal reduction factor of 1.000
2980          KM
2981          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
2982          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
2983          KM   .26 .26 .26 .26 .25 .25 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01 .01 .01
2984          KM
2985          KM          L=   0.832 miles, S=  325 feet/mile, Kb= .11
2986          KM
2987          BA   0.140
2988          LG    0.18    0.39    5.80    0.20   18.70
2989          UC   0.358   0.314
2990          UA       0       3       5       8      12      20      43      75      90      96
2991          UA     100
              *

2992          KK  588590
2993          KM      Normal depth channel route from C588 to C590
2994          KM      Source:  HEC-2 Cross Section: LO-LB1 0.128
2995          RS       1    FLOW      -1
2996          RC   0.065   0.050   0.060  1117.0  0.0340
2997          RX  9931.7  9960.6  9984.9 10005.7 10019.1 10033.8 10151.6 10172.9
2998          RY  1839.3  1833.5  1825.9  1824.7  1825.9  1828.8  1832.9  1838.0
              *

2999          KK    210E
3000          KM   Sub-Basin   210E
3001          KM
3002          KM      The Clark Unit Hydrograph is used for this basin.
3003          KM          The Natural time-area relation is used for this basin.
3004          KM
3005          KM      Time of Concentration for this sub-basin is based on the following:
3006          KM          An rainfall areal reduction factor of 1.000
3007          KM
3008          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3009          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3010          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
3011          KM
3012          KM          L=   0.339 miles, S=  151 feet/mile, Kb= .12
3013          KM
3014          BA   0.028
```

```
3015        LG    0.15    0.36    6.80    0.14    0.00
3016        UC   0.300   0.317
3017        UA       0       3       5       8      12      20      43      75      90      96
3018        UA     100
            *
1                                          HEC-1 INPUT                                                    PAGE 72
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3019        KK   C590L
3020        KM      Hydrograph combine 588590 + 210E at C590 left branch
3021        HC       2
            *
            * *
            * * C590L is the total flow in Longmont Wash Left Branch upstream of the
            * * confluence with Longmont Wash
            * *
            * * Start Longmont Wash
            * *
            *

3022        KK    210F
3023        KM   Sub-Basin   210F
3024        KM
3025        KM      The Clark Unit Hydrograph is used for this basin.
3026        KM          The Natural time-area relation is used for this basin.
3027        KM
3028        KM      Time of Concentration for this sub-basin is based on the following:
3029        KM          An rainfall areal reduction factor of 1.000
3030        KM
3031        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3032        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3033        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3034        KM
3035        KM          L=   0.668 miles, S=  349 feet/mile, Kb= .15
3036        KM
3037        BA   0.093
3038        LG    0.25    0.35    4.40    0.39   34.40
3039        UC   0.375   0.350
3040        UA       0       3       5       8      12      20      43      75      90      96
3041        UA     100
            *

3042        KK  589590
3043        KM      Normal depth channel route from C589 to C590
3044        KM      Source:  HEC-2 Cross Section: LO 0.813
3045        RS       3    FLOW      -1
3046        RC   0.065   0.050   0.060  1751.0  0.0423
3047        RX  9957.0  9963.5  9984.5  9996.1 10008.8 10017.4 10040.1 10060.8
3048        RY  1843.8  1842.9  1837.0  1831.2  1830.6  1836.1  1838.3  1842.1
            *

3049        KK    210G
3050        KM   Sub-Basin   210G
3051        KM
3052        KM      The Clark Unit Hydrograph is used for this basin.
3053        KM          The Natural time-area relation is used for this basin.
3054        KM
3055        KM      Time of Concentration for this sub-basin is based on the following:
3056        KM          An rainfall areal reduction factor of 1.000
3057        KM
3058        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3059        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
1                                          HEC-1 INPUT                                                    PAGE 73
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3060        KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
3061        KM
3062        KM          L=   0.969 miles, S=  333 feet/mile, Kb= .13
3063        KM
3064        BA   0.162
3065        LG    0.22    0.37    5.30    0.25   24.20
3066        UC   0.421   0.390
3067        UA       0       3       5       8      12      20      43      75      90      96
3068        UA     100
            *

3069        KK   C590R
3070        KM      Hydrograph combine 589590 + 210G at C590 right branch
3071        HC       2
            *
            * * NOTE: 590593 is too short to route
            * *
            * * C590R is the total flow in Longmont Wash upstream of the confluence
            * * with Longmont Wash Left Branch
            * *
            *

3072        KK    C590
3073        KM      Hydrograph combine C590L + C590R at C590
3074        HC       2
            *
            * * C590 is the total flow in Longmont Wash upstream of the confluence
            * * Longmont Wash Right Branch
            * *
            * * Start Longmont Wash Right Branch
            * *
            *

3075        KK    210H
3076        KM   Sub-Basin   210H
3077        KM
```

```
3078          KM      The Clark Unit Hydrograph is used for this basin.
3079          KM          The Natural time-area relation is used for this basin.
3080          KM
3081          KM      Time of Concentration for this sub-basin is based on the following:
3082          KM          An rainfall areal reduction factor of 1.000
3083          KM
3084          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3085          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3086          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3087          KM
3088          KM          L=   0.565 miles, S=  340 feet/mile, Kb= .11
3089          KM
3090          BA   0.070
3091          LG    0.16    0.39    6.20    0.19    6.70
3092          UC   0.292   0.272
3093          UA      0       3       5       8      12      20      43      75      90      96
3094          UA    100
              *
1                                          HEC-1 INPUT                                          PAGE 74

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3095          KK  592593
3096          KM      Normal depth channel route from C592 to C593
3097          KM      Source:  HEC-2 Cross Section: LO-RB1 0.027
3098          RS       3    FLOW      -1
3099          RC   0.065   0.050   0.060  2062.0  0.0412
3100          RX  9920.6  9964.0  9984.7  9996.1 10003.9 10025.4 10041.1 10057.9
3101          RY  1820.0  1804.5  1801.2  1797.3  1797.3  1808.5  1818.3  1820.1
              *
              * *
              * * 592593 is the total flow in Longmont Wash Right Branch upstream
              * * of the confluence with Longmont Wash
              * *
              *

3102          KK    C593
3103          KM      Hydrograph combine C590 + C593R at C593
3104          HC       2
              *
              * *
              * * C593 is the total flow in Longmont Wash below the confluence with
              * * Longmont Wash Right Branch
              * *
              *

3105          KK  593594
3106          KM      Normal depth channel route from C593 to C594
3107          KM      Source:  HEC-2 Cross Section: LO0.413
3108          RS       2    FLOW      -1
3109          RC   0.065   0.050   0.060   988.0  0.0202
3110          RX  9937.2  9958.5  9981.7  9992.8 10007.7 10024.4 10041.9 10067.8
3111          RY  1783.6  1773.5  1773.9  1771.3  1771.2  1774.5  1778.7  1788.7
              *

3112          KK    210I
3113          KM   Sub-Basin   210I
3114          KM
3115          KM      The Clark Unit Hydrograph is used for this basin.
3116          KM          The Natural time-area relation is used for this basin.
3117          KM
3118          KM      Time of Concentration for this sub-basin is based on the following:
3119          KM          An rainfall areal reduction factor of 1.000
3120          KM
3121          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3122          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3123          KM   .27 .27 .27 .27 .27 .26 .02 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
3124          KM
3125          KM          L=   0.634 miles, S=  250 feet/mile, Kb= .11
3126          KM
3127          BA   0.049
3128          LG    0.15    0.32    7.60    0.11    0.00
3129          UC   0.333   0.423
3130          UA      0       3       5       8      12      20      43      75      90      96
3131          UA    100
              *
1                                          HEC-1 INPUT                                          PAGE 75

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3132          KK    C594
3133          KM      Hydrograph combine 593594 + 210I at C594
3134          HC       2
              *

3135          KK  594595
3136          KM      Normal depth channel route from C594 to C595
3137          KM      Source:  HEC-2 Cross Section: LO 0.184
3138          RS       5    FLOW      -1
3139          RC   0.065   0.050   0.060  2093.0  0.0201
3140          RX  9814.0  9836.5  9878.5  9988.2  9994.1 10010.9 10030.4 10030.5
3141          RY  1769.3  1766.6  1752.8  1750.6  1747.9  1749.2  1770.5  1770.6
              *

3142          KK    210J
3143          KM   Sub-Basin   210J
3144          KM
3145          KM      The Clark Unit Hydrograph is used for this basin.
3146          KM          The Natural time-area relation is used for this basin.
3147          KM
3148          KM      Time of Concentration for this sub-basin is based on the following:
3149          KM          An rainfall areal reduction factor of 1.000
```

```
3150        KM
3151        KM        EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3152        KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3153        KM    .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .01 .01 .00 .00 .00 .00 .00 .00
3154        KM
3155        KM           L=   0.684 miles, S=  187 feet/mile, Kb= .10
3156        KM
3157        BA    0.103
3158        LG     0.15     0.37     6.60     0.15     0.00
3159        UC    0.367    0.327
3160        UA        0        3        5        8       12       20       43       75       90       96
3161        UA      100
            *

3162        KK    C595R
3163        KM      Hydrograph combine 594595 + 210J at C595
3164        HC        2
            *
            * *
            * * C595R is the total flow in Longmont Wash upstream of the confluence
            * * with Bristol Wash
            * *
            *

3165        KK     C595
3166        KM      Hydrograph combine C595L + C595R at C595
3167        HC        2
            *
            * *
            * * C595 is the total flow in Bristol Wash just downstream of the
            * * confluence with Longmont Wash
            * *
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3168        KK  595596
3169        KM      Normal depth channel route from C595 to C596
3170        KM      Source:  HEC-2 Cross Section: BR0.290
3171        RS        3     FLOW       -1
3172        RC   0.055    0.045    0.055   1095.0   0.0110
3173        RX  9886.8   9904.8   9948.0  10000.0  10032.4  10081.5  10107.3  10130.4
3174        RY  1727.2   1724.1   1725.9   1720.2   1725.6   1725.3   1721.3   1731.4
            *

3175        KK     210K
3176        KM   Sub-Basin    210K
3177        KM
3178        KM      The Clark Unit Hydrograph is used for this basin.
3179        KM          The Natural time-area relation is used for this basin.
3180        KM
3181        KM      Time of Concentration for this sub-basin is based on the following:
3182        KM          An rainfall areal reduction factor of 1.000
3183        KM
3184        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3185        KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3186        KM    .26 .26 .26 .26 .25 .25 .02 .02 .02 .02 .01 .01 .00 .00 .00 .00 .00 .00
3187        KM
3188        KM           L=   0.425 miles, S=  207 feet/mile, Kb= .10
3189        KM
3190        BA    0.077
3191        LG     0.18     0.37     6.60     0.15     0.10
3192        UC    0.279    0.195
3193        UA        0        3        5        8       12       20       43       75       90       96
3194        UA      100
            *

3195        KK     C596
3196        KM      Hydrograph combine 595596 + 210K at C596
3197        HC        2
            *
            * *
            * * C596 is the total flow in Bristol Wash at Golden Eagle Blvd.
            * * upstream of DAM 4
            * *
            * * Leave Basin 210 temporarily and move to Basin 209
            * *
            * * Start Cloudburst Wash
            *

3198        KK     209A
3199        KM   Sub-Basin    209A
3200        KM
3201        KM      The Clark Unit Hydrograph is used for this basin.
3202        KM          The Natural time-area relation is used for this basin.
3203        KM
3204        KM      Time of Concentration for this sub-basin is based on the following:
3205        KM          An rainfall areal reduction factor of 1.000
3206        KM
3207        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3208        KM      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3209        KM    .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3210        KM
3211        KM           L=   1.028 miles, S=  367 feet/mile, Kb= .13
3212        KM
3213        BA    0.368
3214        LG     0.25     0.35     4.35     0.40    35.00
3215        UC    0.425    0.259
```

```
3216          UA       0       3       5       8      12      20      43      75      90      96
3217          UA     100
              *

3218          KK  579580
3219          KM      Normal depth channel route from C579 to C580
3220          KM      Source:  100 Scale 4' CI Mapping
3221          RS       2    FLOW      -1
3222          RC   0.050   0.045   0.050  1751.0  0.0600
3223          RX  1000.0  1010.0  1025.0  1030.0  1035.0  1040.0  1045.0  1048.0
3224          RY  2336.0  2332.0  2328.0  2327.5  2327.5  2328.0  2332.0  2336.0
              *

3225          KK    209C
3226          KM   Sub-Basin   209C
3227          KM
3228          KM      The Clark Unit Hydrograph is used for this basin.
3229          KM          The Natural time-area relation is used for this basin.
3230          KM
3231          KM      Time of Concentration for this sub-basin is based on the following:
3232          KM          An rainfall areal reduction factor of 1.000
3233          KM
3234          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3235          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3236          KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3237          KM
3238          KM          L=   0.723 miles, S=  342 feet/mile, Kb= .15
3239          KM
3240          BA   0.064
3241          LG    0.25    0.35    4.35    0.40   35.00
3242          UC   0.392   0.484
3243          UA       0       3       5       8      12      20      43      75      90      96
3244          UA     100
              *

3245          KK   C580R
3246          KM      Hydrograph combine 579580 + 209C at C580 right branch
3247          HC       2
              *

3248          KK    209B
3249          KM   Sub-Basin   209B
3250          KM
3251          KM      The Clark Unit Hydrograph is used for this basin.
3252          KM          The Natural time-area relation is used for this basin.
3253          KM
3254          KM      Time of Concentration for this sub-basin is based on the following:
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3255          KM          An rainfall areal reduction factor of 1.000
3256          KM
3257          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3258          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3259          KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3260          KM
3261          KM          L=   0.716 miles, S=  403 feet/mile, Kb= .15
3262          KM
3263          BA   0.083
3264          LG    0.25    0.35    4.35    0.40   35.00
3265          UC   0.371   0.389
3266          UA       0       3       5       8      12      20      43      75      90      96
3267          UA     100
              *

3268          KK    C580
3269          KM      Hydrograph combine 580R + 209B at C580
3270          HC       2
              *

3271          KK  580581
3272          KM      Normal depth channel route from C580 to C581
3273          KM      Source:  100 Scale 4' CI Mapping
3274          RS       3    FLOW      -1
3275          RC   0.050   0.045   0.050  2339.0  0.0440
3276          RX  1000.0  1010.0  1025.0  1030.0  1040.0  1045.0  1070.0  1075.0
3277          RY  2452.0  2448.0  2444.0  2443.5  2443.5  2444.0  2448.0  2452.0
              *

3278          KK    209D
3279          KM   Sub-Basin   209D
3280          KM
3281          KM      The Clark Unit Hydrograph is used for this basin.
3282          KM          The Natural time-area relation is used for this basin.
3283          KM
3284          KM      Time of Concentration for this sub-basin is based on the following:
3285          KM          An rainfall areal reduction factor of 1.000
3286          KM
3287          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3288          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3289          KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3290          KM
3291          KM          L=   0.800 miles, S=  354 feet/mile, Kb= .13
3292          KM
3293          BA   0.244
3294          LG    0.25    0.35    4.35    0.42   35.00
3295          UC   0.379   0.236
3296          UA       0       3       5       8      12      20      43      75      90      96
3297          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
3298        KK   C581R
3299        KM      Hydrograph combine 580581 + 209D at C581 right branch
3300        HC       2
            *

3301        KK    209E
3302        KM   Sub-Basin   209E
3303        KM
3304        KM      The Clark Unit Hydrograph is used for this basin.
3305        KM          The Natural time-area relation is used for this basin.
3306        KM
3307        KM      Time of Concentration for this sub-basin is based on the following:
3308        KM          An rainfall areal reduction factor of 1.000
3309        KM
3310        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3311        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3312        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3313        KM
3314        KM          L=   1.018 miles, S=  341 feet/mile, Kb= .14
3315        KM
3316        BA   0.149
3317        LG    0.25    0.35    4.35    0.40   35.00
3318        UC   0.450   0.458
3319        UA      0       3       5       8      12      20      43      75      90      96
3320        UA    100
            *

3321        KK    C581
3322        KM      Hydrograph combine 581R + 209E at C581
3323        HC       2
            *

3324        KK  581582
3325        KM      Normal depth channel route from C581 to C582
3326        KM      Source:  100 Scale 4' CI Mapping
3327        RS       4    FLOW      -1
3328        RC   0.050   0.045   0.050  4012.0  0.0459
3329        RX  1000.0  1010.0  1025.0  1030.0  1035.0  1040.0  1050.0  1065.0
3330        RY  2100.0  2096.0  2092.0  2091.5  2091.5  2092.0  2096.0  2100.0
            *

3331        KK    209F
3332        KM   Sub-Basin   209F
3333        KM
3334        KM      The Clark Unit Hydrograph is used for this basin.
3335        KM          The Natural time-area relation is used for this basin.
3336        KM
3337        KM      Time of Concentration for this sub-basin is based on the following:
3338        KM          An rainfall areal reduction factor of 1.000
3339        KM
3340        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3341        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3342        KM   .25 .25 .24 .24 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3343        KM
```

1


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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3344        KM          L=   1.191 miles, S=  332 feet/mile, Kb= .13
3345        KM
3346        BA   0.226
3347        LG    0.24    0.35    4.50    0.39   30.90
3348        UC   0.475   0.435
3349        UA      0       3       5       8      12      20      43      75      90      96
3350        UA    100
            *

3351        KK   C582R
3352        KM      Hydrograph combine 581582 + 209F at C582 right branch
3353        HC       2
            *

3354        KK    209G
3355        KM   Sub-Basin   209G
3356        KM
3357        KM      The Clark Unit Hydrograph is used for this basin.
3358        KM          The Natural time-area relation is used for this basin.
3359        KM
3360        KM      Time of Concentration for this sub-basin is based on the following:
3361        KM          An rainfall areal reduction factor of 1.000
3362        KM
3363        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3364        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3365        KM   .25 .25 .25 .25 .24 .24 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3366        KM
3367        KM          L=   1.050 miles, S=  306 feet/mile, Kb= .14
3368        KM
3369        BA   0.204
3370        LG    0.25    0.35    4.35    0.40   35.00
3371        UC   0.471   0.413
3372        UA      0       3       5       8      12      20      43      75      90      96
3373        UA    100
            *

3374        KK    C582
3375        KM      Hydrograph combine C582R + 209G at C582
3376        HC       2
            *

3377        KK  582583
3378        KM      Normal depth channel route from C582 to C583
3379        KM      Source:  100 Scale 4' CI Mapping.
3380        RS       2    FLOW      -1
```

```
3381          RC   0.060   0.050   0.060  1725.0  0.0232
3382          RX   960.0  1020.0  1035.0  1040.0  1050.0  1055.0  1065.0  1073.0
3383          RY  2024.0  2018.0  2016.0  2015.5  2015.5  2016.0  2020.0  2024.0
              *
1                                        HEC-1 INPUT                                                    PAGE 81

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3384          KK    209H
3385          KM   Sub-Basin   209H
3386          KM
3387          KM      The Clark Unit Hydrograph is used for this basin.
3388          KM          The Natural time-area relation is used for this basin.
3389          KM
3390          KM      Time of Concentration for this sub-basin is based on the following:
3391          KM          An rainfall areal reduction factor of 1.000
3392          KM
3393          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3394          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3395          KM   .25 .25 .25 .25 .25 .24 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
3396          KM
3397          KM          L=   0.542 miles, S=  343 feet/mile, Kb= .12
3398          KM
3399          BA   0.083
3400          LG    0.18    0.38    5.60    0.24   18.30
3401          UC   0.300   0.245
3402          UA       0       3       5       8      12      20      43      75      90      96
3403          UA     100
              *

3404          KK    C583
3405          KM      Hydrograph combine 582583 + 209H at C583
3406          HC       2
              *

3407          KK  583584
3408          KM      Normal depth channel route from C583 to C584
3409          KM      Source:  HEC-2 Cross Section: CL 1.664
3410          RS       5    FLOW      -1
3411          RC   0.055   0.070   0.055  3107.0  0.0356
3412          RX  9859.8  9910.3  9933.5  9995.6 10021.7 10051.0 10083.0 10127.8
3413          RY  1948.3  1944.2  1943.7  1930.9  1932.4  1941.6  1937.3  1945.2
              *

3414          KK    209I
3415          KM   Sub-Basin   209I
3416          KM
3417          KM      The Clark Unit Hydrograph is used for this basin.
3418          KM          The Natural time-area relation is used for this basin.
3419          KM
3420          KM      Time of Concentration for this sub-basin is based on the following:
3421          KM          An rainfall areal reduction factor of 1.000
3422          KM
3423          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3424          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3425          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3426          KM
3427          KM          L=   0.691 miles, S=  347 feet/mile, Kb= .10
3428          KM
3429          BA   0.182
3430          LG    0.15    0.40    6.00    0.18    5.30
3431          UC   0.304   0.194
1                                        HEC-1 INPUT                                                    PAGE 82

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3432          UA       0       3       5       8      12      20      43      75      90      96
3433          UA     100
              *

3434          KK   C584I
3435          KM      Hydrograph combine 583584 + 209I at C584I
3436          HC       2
              *
              * *
              * * C584I is the total flow in Cloudburst Wash upstream of Dam 7
              * *
              *

3437          KK   C584O
3438          KM      Reservoir route at C584 (Dam 7).
3439          RS       1    ELEV  1884.8
3440          SV    0.00   14.55   37.17   57.52   86.65   94.00   97.00  101.00  104.90  109.00
3441          SV  113.00  118.00  122.00  126.25  131.00  133.00  136.00  139.00
3442          SE  1884.8  1908.0  1916.0  1920.0  1924.0  1924.8  1925.2  1925.6  1926.0  1926.4
3443          SE  1926.8  1927.2  1927.6  1928.0  1928.4  1928.6  1928.8  1929.0
3444          SQ       0     135     223     285     326     341     355     358     385     493
3445          SQ     704    1007    1394    1852    2374    2956    3596    3937    4292    4661
3446          SE  1884.8  1892.0  1900.0  1908.0  1916.0  1920.0  1924.0  1924.8  1925.2  1925.6
3447          SE  1926.0  1926.4  1926.8  1927.2  1927.6  1928.0  1928.4  1928.6  1928.8  1929.0
3448          RL                   0.15
              *
              * *
              * * End Basin 209.  Rejoin Basin 210
              * *
              *

3449          KK  584597
3450          KM      Normal depth channel route from C584 to C597
3451          KM      Source:  HEC-2 Cross Section: CL 1.032
3452          RS      10    FLOW      -1
3453          RC   0.065   0.050   0.065  3704.0  0.0261
3454          RX  9902.1  9923.0  9938.7  9984.6 10049.3 10056.0 10091.7 10120.0
```

```
3455        RY  1839.1  1830.1  1826.6  1824.1  1824.9  1826.7  1828.5  1838.8
            *

3456        KK    210L
3457        KM   Sub-Basin   210L
3458        KM
3459        KM      The Clark Unit Hydrograph is used for this basin.
3460        KM          The HEC-1 time-area relation is used for this basin.
3461        KM
3462        KM      Time of Concentration for this sub-basin is based on the following:
3463        KM          An rainfall areal reduction factor of 1.000
3464        KM
3465        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3466        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3467        KM   .24 .24 .23 .23 .23 .23 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3468        KM
3469        KM          L=   0.820 miles, S=  251 feet/mile, Kb= .09
3470        KM
1                                          HEC-1 INPUT                                                    PAGE 83
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3471        BA   0.137
3472        LG    0.18    0.37    5.20    0.28    0.00
3473        UC   0.358   0.313
            *

3474        KK    C597
3475        KM      Hydrograph combine 584597 + 210L at C597
3476        HC       2
            *

3477        KK  597598
3478        KM      Normal depth channel route from C597 to C598
3479        KM      Source:  HEC-2 Cross Section: CL 0.328
3480        RS       7    FLOW      -1
3481        RC   0.065   0.050   0.065  2822.0  0.0252
3482        RX  9961.0  9961.9  9969.1  9986.3 10018.5 10082.6 10155.2 10278.8
3483        RY  1740.2  1740.2  1738.1  1731.6  1732.3  1737.1  1740.0  1740.8
            *

3484        KK    210M
3485        KM   Sub-Basin   210M
3486        KM
3487        KM      The Clark Unit Hydrograph is used for this basin.
3488        KM          The Natural time-area relation is used for this basin.
3489        KM
3490        KM      Time of Concentration for this sub-basin is based on the following:
3491        KM          An rainfall areal reduction factor of 1.000
3492        KM
3493        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3494        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3495        KM   .25 .25 .25 .25 .24 .24 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3496        KM
3497        KM          L=   1.022 miles, S=  232 feet/mile, Kb= .09
3498        KM
3499        BA   0.162
3500        LG    0.18    0.39    5.80    0.20    0.10
3501        UC   0.404   0.388
3502        UA       0       3       5       8      12      20      43      75      90      96
3503        UA     100
            *

3504        KK    C598
3505        KM      Hydrograph combine 597598 + 210M at C598
3506        HC       2
            *
            * *
            * * C598 is the total flow in Cloudburst Wash at Golden Eagle Blvd.
            * * upstream of DAM 4
            * *
            *
1                                          HEC-1 INPUT                                                    PAGE 84
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3507        KK    210N
3508        KM   Sub-Basin   210N
3509        KM
3510        KM      The Clark Unit Hydrograph is used for this basin.
3511        KM          The Natural time-area relation is used for this basin.
3512        KM
3513        KM      Time of Concentration for this sub-basin is based on the following:
3514        KM          An rainfall areal reduction factor of 1.000
3515        KM
3516        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3517        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3518        KM   .23 .22 .22 .22 .22 .21 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3519        KM
3520        KM          L=   0.309 miles, S=  178 feet/mile, Kb= .08
3521        KM
3522        BA   0.049
3523        LG    0.26    0.35    4.10    0.46   10.40
3524        UC   0.233   0.161
3525        UA       0       3       5       8      12      20      43      75      90      96
3526        UA     100
            *

3527        KK   C599I
3528        KM      Hydrograph combine C585 + C596 + C598 + 210N at C599I
3529        HC       4
            *
            * *
```

```
                 * * C599I is the total flow in Ashbrook Wash upstream of DAM 4
                 * *
                 *

3530             KK   C599O
3531             KM      Reservoir route at C599 (Dam 4).
3532             RS       1    ELEV  1694.7
3533             SV    0.00   16.85   31.66   52.71   80.85   95.00   98.00  102.00  105.00  109.00
3534             SV  113.00  116.14  120.00  124.00  128.00  136.00  139.00  144.00  148.00  152.00
3535             SE  1694.7  1708.0  1710.0  1712.0  1714.0  1714.8  1715.0  1715.2  1715.4  1715.6
3536             SE  1715.8  1716.0  1716.2  1716.4  1716.6  1717.0  1717.2  1717.4  1717.6  1717.8
3537             SQ       0      38     214     312     384     443     497     543     587     628
3538             SQ     642     754     957    1262    1665    2182    2483    2811    3164    3540
3539             SE  1694.7  1696.0  1700.0  1702.0  1704.0  1706.0  1708.0  1710.0  1712.0  1714.0
3540             SE  1714.8  1715.4  1715.8  1716.2  1716.6  1717.0  1717.2  1717.4  1717.6  1717.8
3541             RL                    0.97
                 *
                 * * End Basin 210.  Start Basin 211
                 * *
                 *

3542             KK  599608
3543             KM      Normal depth channel route from C599 to C608
3544             KM      Source:  HEC-2 Cross Section: AS 3.621
3545             RS       2    FLOW      -1
3546             RC   0.055   0.045   0.025  1476.0  0.0148
3547             RX  9675.4  9726.8  9929.0  9990.7 10005.9 10033.3 10061.9 10082.2
1                                          HEC-1 INPUT                                                    PAGE 85

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3548             RY  1691.3  1687.2  1685.5  1678.6  1678.1  1682.1  1689.8  1691.8
                 *

3549             KK    211K
3550             KM   Sub-Basin   211K
3551             KM
3552             KM      The Clark Unit Hydrograph is used for this basin.
3553             KM          The HEC-1 time-area relation is used for this basin.
3554             KM
3555             KM      Time of Concentration for this sub-basin is based on the following:
3556             KM          An rainfall areal reduction factor of 1.000
3557             KM
3558             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3559             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3560             KM   .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3561             KM
3562             KM          L=   0.376 miles, S=  157 feet/mile, Kb= .08
3563             KM
3564             BA   0.102
3565             LG    0.18    0.38    6.00    0.18   17.80
3566             UC   0.254   0.136
                 *

3567             KK   C608L
3568             KM      Hydrograph combine 599608 + 211K at C608 left branch
3569             HC       2
                 *

3570             KK    211G
3571             KM   Sub-Basin   211G
3572             KM
3573             KM      The Clark Unit Hydrograph is used for this basin.
3574             KM          The Urban time-area relation is used for this basin.
3575             KM
3576             KM      Time of Concentration for this sub-basin is based on the following:
3577             KM          An rainfall areal reduction factor of 1.000
3578             KM
3579             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3580             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3581             KM   .30 .30 .29 .29 .29 .29 .05 .05 .05 .05 .05 .05 .03 .03 .03 .03 .03 .03
3582             KM
3583             KM          L=   0.448 miles, S=  190 feet/mile, Kb= .04
3584             KM
3585             BA   0.008
3586             LG    0.06    0.25    5.70    0.18   90.00
3587             UC   0.175   0.454
3588             UA       0       5      16      30      65      77      84      90      94      97
3589             UA     100
                 *
1                                          HEC-1 INPUT                                                    PAGE 86

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3590             KK  604606
3591             KM      Normal depth channel route from C604 to C606
3592             KM      Source:  200 Scale Mapping
3593             RS      11    FLOW      -1
3594             RC   0.040   0.018   0.040  2784.0  0.0647
3595             RX  1000.0  1040.0  1060.0  1076.0  1092.0  1093.2  1098.2  1113.2
3596             RY  1814.0  1811.0  1810.8  1811.1  1810.8  1811.2  1812.0  1816.0
                 *

3597             KK    211I
3598             KM   Sub-Basin   211I
3599             KM
3600             KM      The Clark Unit Hydrograph is used for this basin.
3601             KM          The Natural time-area relation is used for this basin.
3602             KM
3603             KM      Time of Concentration for this sub-basin is based on the following:
3604             KM          An rainfall areal reduction factor of 1.000
3605             KM
3606             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
```

```
3607        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3608        KM   .27 .27 .27 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3609        KM
3610        KM          L=   0.626 miles, S=  257 feet/mile, Kb= .11
3611        KM
3612        BA   0.041
3613        LG    0.13    0.39    5.70    0.20   35.00
3614        UC   0.329   0.459
3615        UA       0       3       5       8      12      20      43      75      90      96
3616        UA     100
            *

3617        KK   C606R
3618        KM      Hydrograph combine 604606 + 211I at C606 right branch
3619        HC       2
            *

3620        KK    211H
3621        KM   Sub-Basin   211H
3622        KM
3623        KM      The Clark Unit Hydrograph is used for this basin.
3624        KM          The Natural time-area relation is used for this basin.
3625        KM
3626        KM      Time of Concentration for this sub-basin is based on the following:
3627        KM          An rainfall areal reduction factor of 1.000
3628        KM
3629        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3630        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3631        KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3632        KM
3633        KM          L=   0.501 miles, S=  289 feet/mile, Kb= .11
3634        KM
3635        BA   0.073
3636        LG    0.15    0.40    6.00    0.18    3.40
3637        UC   0.288   0.236
```



```
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3638        UA       0       3       5       8      12      20      43      75      90      96
3639        UA     100
            *

3640        KK   C605O
3641        KM      Reservoir route at C605.
3642        RS       1    ELEV  1722.5
3643        SV    0.00    0.20    0.20    0.20    0.20    0.30    0.30    0.30    0.40    0.60
3644        SV    0.70    0.90    1.00    1.20    1.40    1.60    1.90    2.80    3.40    4.10
3645        SE  1722.5  1726.8  1727.0  1727.2  1727.4  1727.6  1727.8  1728.0  1728.2  1728.4
3646        SE  1728.6  1728.8  1729.0  1729.2  1729.4  1729.6  1730.0  1730.4  1730.7  1731.0
3647        SQ       0       0       5      10      20      43      63      73      78      85
3648        SQ      91      96     101     105     109     113     122     130     136     200
            *

3649        KK    C606
3650        KM      Hydrograph combine C606R + C605O at C606
3651        HC       2
            *

3652        KK  606607
3653        KM      Normal depth channel route from C606 to C607
3654        KM      Source:  200 Scale Mapping
3655        RS       2    FLOW      -1
3656        RC   0.020   0.055   0.035  1061.0  0.0286
3657        RX  1000.0  1032.0  1082.0  1095.0  1105.0  1117.0  1123.0  1153.0
3658        RY  1704.3  1704.0  1703.5  1700.0  1700.0  1703.0  1704.0  1706.0
            *

3659        KK    211J
3660        KM   Sub-Basin   211J
3661        KM
3662        KM      The Clark Unit Hydrograph is used for this basin.
3663        KM          The HEC-1 time-area relation is used for this basin.
3664        KM
3665        KM      Time of Concentration for this sub-basin is based on the following:
3666        KM          An rainfall areal reduction factor of 1.000
3667        KM
3668        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3669        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3670        KM   .27 .27 .27 .27 .26 .26 .03 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3671        KM
3672        KM          L=   0.249 miles, S=  166 feet/mile, Kb= .11
3673        KM
3674        BA   0.015
3675        LG    0.13    0.37    6.20    0.18   32.40
3676        UC   0.238   0.272
            *

3677        KK    C607
3678        KM      Hydrograph combine 606607 + 211J at C607
3679        HC       2
            *
```



```
            LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3680        KK  607608
3681        KM      Normal depth channel route from C607 to C608
3682        KM      Source:  200 Scale Mapping
3683        RS       2    FLOW      -1
3684        RC   0.040   0.050   0.035  1008.0  0.0145
3685        RX  1000.0  1060.0  1070.0  1082.0  1083.0  1095.0  1115.0  1133.0
3686        RY  1688.0  1686.0  1684.0  1681.0  1681.0  1684.0  1685.0  1685.4
```

```
                 *
3687             KK    C608
3688             KM      Hydrograph combine C608L + 607608 at C608
3689             HC       2
                 *

3690             KK  608613
3691             KM      Normal depth channel route from C608 to C613
3692             KM      Source:  HEC-2 Cross Section: AS 3.421
3693             RS       1    FLOW     -1
3694             RC   0.100   0.045   0.100  1338.0  0.0202
3695             RX  9885.0  9887.9  9957.3  9986.7 10012.9 10054.7 10086.3 10122.2
3696             RY  1670.2  1670.1  1668.0  1660.0  1659.9  1661.6  1669.9  1670.8
                 *
                 * *
                 * * Move to the top of Sunflower Wash
                 * *
                 *

3697             KK    211M
3698             KM   Sub-Basin   211M
3699             KM
3700             KM      The Clark Unit Hydrograph is used for this basin.
3701             KM          The Natural time-area relation is used for this basin.
3702             KM
3703             KM      Time of Concentration for this sub-basin is based on the following:
3704             KM          An rainfall areal reduction factor of 1.000
3705             KM
3706             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3707             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3708             KM   .27 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3709             KM
3710             KM          L=   0.541 miles, S=  266 feet/mile, Kb= .11
3711             KM
3712             BA   0.081
3713             LG    0.13    0.39    5.70    0.21   30.30
3714             UC   0.304   0.252
3715             UA       0       3       5       8      12      20      43      75      90      96
3716             UA     100
                 *
1                                          HEC-1 INPUT                                          PAGE 89

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3717             KK  610611
3718             KM      Normal depth channel route from C610 to 1611
3719             KM      Source:  HEC-2 Cross Section: SU 0.216
3720             RS       2    FLOW     -1
3721             RC   0.050   0.045   0.050  1090.0  0.0211
3722             RX  9911.9  9948.1  9973.6  9988.6 10007.1 10027.0 10049.8 10143.7
3723             RY  1699.3  1691.7  1686.3  1680.1  1679.7  1686.6  1687.3  1698.6
                 *

3724             KK    211N
3725             KM   Sub-Basin   211N
3726             KM
3727             KM      The Clark Unit Hydrograph is used for this basin.
3728             KM          The HEC-1 time-area relation is used for this basin.
3729             KM
3730             KM      Time of Concentration for this sub-basin is based on the following:
3731             KM          An rainfall areal reduction factor of 1.000
3732             KM
3733             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3734             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3735             KM   .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3736             KM
3737             KM          L=   0.261 miles, S=  235 feet/mile, Kb= .12
3738             KM
3739             BA   0.020
3740             LG    0.14    0.39    5.70    0.20   20.20
3741             UC   0.229   0.226
                 *

3742             KK   C611R
3743             KM      Hydrograph combine 610611 + 211N at C611 right branch
3744             HC       2
                 *

3745             KK    211O
3746             KM   Sub-Basin   211O
3747             KM
3748             KM      The Clark Unit Hydrograph is used for this basin.
3749             KM          The HEC-1 time-area relation is used for this basin.
3750             KM
3751             KM      Time of Concentration for this sub-basin is based on the following:
3752             KM          An rainfall areal reduction factor of 1.000
3753             KM
3754             KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3755             KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3756             KM   .27 .27 .27 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3757             KM
3758             KM          L=   0.371 miles, S=  257 feet/mile, Kb= .11
3759             KM
3760             BA   0.041
3761             LG    0.13    0.39    5.70    0.20   34.60
3762             UC   0.254   0.225
                 *
1                                          HEC-1 INPUT                                          PAGE 90

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
3763        KK   C609O
3764        KM      Reservoir route at C609.
3765        RS       1    ELEV  1694.0
3766        SV    0.00    0.10    0.21    0.50    0.86    1.40    1.93    2.60    3.10    3.20
3767        SV    3.39    3.60    3.80    4.00    4.10    4.30    4.50    4.70    4.90    5.10
3768        SE  1694.0  1695.0  1696.0  1697.0  1698.0  1699.0  1700.0  1701.0  1701.6  1701.8
3769        SE  1702.0  1702.2  1702.4  1702.6  1702.8  1703.0  1703.2  1703.4  1703.6  1703.8
3770        SQ       0       6      16      33      48      59      68      75      79      85
3771        SQ     108     149     209     289     390     512     658     829    1025    1247
            *

3772        KK  609611
3773        KM      Normal depth channel route from C609 to C611
3774        KM      Source:  200 Scale Mapping
3775        RS       1    FLOW      -1
3776        RC   0.035   0.050   0.035   470.0  0.0200
3777        RX  1000.0  1025.0  1050.0  1054.0  1064.0  1068.0  1088.0  1103.0
3778        RY  1690.0  1688.0  1684.0  1682.0  1682.0  1684.0  1688.0  1690.0
            *

3779        KK   C611I
3780        KM      Hydrograph combine 609611 + C611R at C611I
3781        HC       2
            *

3782        KK   C611O
3783        KM      Reservoir route at C611.
3784        RS       1    ELEV  1668.4
3785        SV    0.00    0.41    1.10    2.49    4.34    6.64    6.72    6.81    6.89    6.97
3786        SV    7.06    7.14    7.22    7.31    7.39    7.47    7.56    7.64    7.72    7.81
3787        SE  1674.0  1676.0  1678.0  1680.0  1682.0  1684.0  1684.2  1684.4  1684.6  1684.8
3788        SE  1685.0  1685.2  1685.4  1685.6  1685.8  1686.0  1686.2  1686.4  1686.6  1686.8
3789        SQ       0       0      86     117     141     162     164     170     181     199
3790        SQ     225     262     313     378     460     558     673     807     958    1118
            *

3791        KK   D611L
3792        KM      Hydrograph diversion at C611.  Main flow continues in the left branch.
3793        KM      Diverted flow is in the right branch.
3794        DT   D611R
3795        DI       0       0      86     117     141     162     164     170     181     199
3796        DI     225     262     313     378     460     558     673     807     958    1118
3797        DQ       0       0      86     117     141     162     164     165     167     169
3798        DQ     171     173     175     176     178     180     182     183     185     187
            *

3799        KK  611612
3800        KM      Normal depth channel route from C611 to C612
3801        KM      Source:  200 Scale Mapping
3802        RS       1    FLOW      -1
3803        RC   0.040   0.018   0.040   925.0  0.0270
3804        RX  1000.0  1020.0  1023.0  1041.0  1059.0  1060.2  1071.2  1136.2
3805        RY  1666.0  1664.0  1663.5  1663.9  1663.5  1663.9  1664.0  1666.0
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3806        KK    211P
3807        KM   Sub-Basin   211P
3808        KM
3809        KM      The Clark Unit Hydrograph is used for this basin.
3810        KM          The Urban time-area relation is used for this basin.
3811        KM
3812        KM      Time of Concentration for this sub-basin is based on the following:
3813        KM          An rainfall areal reduction factor of 1.000
3814        KM
3815        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3816        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3817        KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
3818        KM
3819        KM          L=   0.307 miles, S=  192 feet/mile, Kb= .03
3820        KM
3821        BA   0.033
3822        LG    0.08    0.15    7.00    0.11   44.90
3823        UC   0.125   0.099
3824        UA       0       5      16      30      65      77      84      90      94      97
3825        UA     100
            *

3826        KK    C612
3827        KM      Hydrograph combine 611612 + 211P at C612
3828        HC       2
            *
            * *
            * * NOTE: 612613 is too short to route
            * *
            *

3829        KK    C613
3830        KM      Hydrograph combine 608613 + C612 at C613
3831        HC       2
            *

3832        KK  613621
3833        KM      Normal depth channel route from C613 to C621
3834        KM      Source:  HEC-2 Cross Section: AS 3.241
3835        RS       1    FLOW      -1
3836        RC   0.100   0.045   0.100   718.0  0.0251
3837        RX  9695.4  9884.0  9985.0  9991.1 10033.8 10062.8 10097.5 10165.1
3838        RY  1655.5  1647.5  1645.8  1641.1  1640.6  1642.1  1648.7  1654.3
            *
```

```
3839          KK    211L
3840          KM   Sub-Basin   211L
3841          KM
3842          KM      The Clark Unit Hydrograph is used for this basin.
3843          KM          The Urban time-area relation is used for this basin.
3844          KM
3845          KM      Time of Concentration for this sub-basin is based on the following:
3846          KM          An rainfall areal reduction factor of 1.000
3847          KM
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3848          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3849          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3850          KM   .26 .26 .26 .26 .26 .25 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3851          KM
3852          KM          L=   0.508 miles, S=  181 feet/mile, Kb= .04
3853          KM
3854          BA   0.096
3855          LG    0.16    0.28    4.35    0.36   37.80
3856          UC   0.196   0.134
3857          UA       0       5      16      30      65      77      84      90      94      97
3858          UA     100
              *

3859          KK   C621L
3860          KM      Hydrograph combine 613621 + 211L at C621 left branch
3861          HC       2
              *
              * *
              * * Move to the top of Arrow Wash
              * *
              *

3862          KK    211Q
3863          KM   Sub-Basin   211Q
3864          KM
3865          KM      The Clark Unit Hydrograph is used for this basin.
3866          KM          The HEC-1 time-area relation is used for this basin.
3867          KM
3868          KM      Time of Concentration for this sub-basin is based on the following:
3869          KM          An rainfall areal reduction factor of 1.000
3870          KM
3871          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3872          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3873          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
3874          KM
3875          KM          L=   0.255 miles, S=  295 feet/mile, Kb= .12
3876          KM
3877          BA   0.021
3878          LG    0.14    0.38    5.70    0.20    8.50
3879          UC   0.213   0.201
              *

3880          KK  616617
3881          KM      Normal depth channel route from C616 to C617
3882          KM      Source:  200 Scale Mapping
3883          RS       3    FLOW      -1
3884          RC   0.070   0.060   0.070  1131.0  0.0553
3885          RX  1000.0  1008.0  1015.0  1045.0  1050.0  1080.0  1100.0  1110.0
3886          RY  1834.0  1832.0  1830.0  1826.0  1826.0  1830.0  1834.0  1836.0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3887          KK    211R
3888          KM   Sub-Basin   211R
3889          KM
3890          KM      The Clark Unit Hydrograph is used for this basin.
3891          KM          The HEC-1 time-area relation is used for this basin.
3892          KM
3893          KM      Time of Concentration for this sub-basin is based on the following:
3894          KM          An rainfall areal reduction factor of 1.000
3895          KM
3896          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3897          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
3898          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
3899          KM
3900          KM          L=   0.572 miles, S=  271 feet/mile, Kb= .10
3901          KM
3902          BA   0.084
3903          LG    0.13    0.38    5.70    0.20   22.00
3904          UC   0.296   0.251
              *

3905          KK   C617L
3906          KM      Hydrograph combine 616617 + 211R at C617 left branch
3907          HC       2
              *

3908          KK    211U
3909          KM   Sub-Basin   211U
3910          KM
3911          KM      The Clark Unit Hydrograph is used for this basin.
3912          KM          The Urban time-area relation is used for this basin.
3913          KM
3914          KM      Time of Concentration for this sub-basin is based on the following:
3915          KM          An rainfall areal reduction factor of 1.000
3916          KM
3917          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
3918          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
```

```
KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
KM
KM          L=   0.831 miles, S=  214 feet/mile, Kb= .04
KM
BA   0.027
LG    0.07    0.26    5.70    0.18   65.50
UC   0.229   0.483
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*

KK   D614L
KM      Hydrograph diversion at C614.  Main flow continues in the left branch.
KM      Diverted flow is in the right branch.
DT   D614R
DI       0     4.3     8.5    20.0    49.0    85.5
DQ       0     2.5     5.0    13.5    35.0    60.0
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    C617
KM      Hydrograph combine C617L + D614L at C617
HC       2
*

KK  617618
KM      Normal depth channel route from C617 to C618
KM      Source:  HEC-2 Cross Section: AR 0.836
RS       5    FLOW      -1
RC   0.070   0.060   0.070  1912.0  0.0345
RX  9983.3  9987.2  9989.2  9991.1 10031.5 10053.5 10070.6 10097.7
RY  1766.5  1762.3  1760.2  1758.1  1757.8  1760.8  1764.2  1770.6
*

KK    211S
KM   Sub-Basin   211S
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The HEC-1 time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .27 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
KM
KM          L=   0.445 miles, S=  272 feet/mile, Kb= .10
KM
BA   0.050
LG    0.13    0.36    5.70    0.20   26.10
UC   0.263   0.241
*

KK   C618I
KM      Hydrograph combine 617618 + 211S at C618I
HC       2
*

KK   C618O
KM      Reservoir route at C618.
RS       1    ELEV  1730.6
SV    0.00    0.01    0.06    0.24    0.50    0.75    1.20    1.66    2.30    2.94
SV    3.20    3.30    3.40    3.60    3.80    3.90    4.10    4.30    4.50    4.65
SE  1730.6  1734.0  1736.0  1738.0  1739.0  1740.0  1741.0  1742.0  1743.0  1744.0
SE  1744.3  1744.4  1744.6  1744.8  1745.0  1745.2  1745.4  1745.6  1745.8  1746.0
SQ       0     2.2     2.6     3.0     3.1     3.2     3.3     3.5     3.6     3.7
SQ     3.7     3.8       8      21      48      88     143     212     295     390
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  BB614R
KM      Retrieve previously diverted hydrograph at C614 in the right branch.
DR   D614R
*

KK  614615
KM      Normal depth channel route from C614 to C615
KM      Source:  Hydrology Field Reconnaissance
RS       2    FLOW      -1
RC   0.040   0.018   0.040  1114.0  0.0397
RX  1000.0  1020.0  1025.0  1059.0  1091.0  1093.0  1098.0  1103.0
RY  1828.0  1822.0  1821.5  1822.2  1821.8  1822.0  1824.0  1826.0
*

KK    211V
KM   Sub-Basin   211V
KM
KM      The Clark Unit Hydrograph is used for this basin.
KM          The Urban time-area relation is used for this basin.
KM
KM      Time of Concentration for this sub-basin is based on the following:
KM          An rainfall areal reduction factor of 1.000
KM
KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
KM   .30 .30 .29 .29 .29 .29 .05 .05 .05 .05 .05 .05 .03 .03 .03 .03 .03 .03
KM
```

```
3997          KM          L=   0.222 miles, S=  212 feet/mile, Kb= .04
3998          KM
3999          BA   0.005
4000          LG    0.06    0.25    5.80    0.18   90.00
4001          UC   0.117   0.212
4002          UA       0       5      16      30      65      77      84      90      94      97
4003          UA     100
              *

4004          KK    C615
4005          KM      Hydrograph combine 614615 + 211V at C615
4006          HC       2    0.03
              *

4007          KK   D615L
4008          KM      Hydrograph diversion at C615.  Main flow continues in the left branch.
4009          KM      Diverted flow is in the right branch.
4010          DT   D615R
4011          DI       0     1.3     2.5     5.3     8.6    14.2    23.0    36.8    55.5    77.5
4012          DQ       0       0       0     1.3     2.6     4.2     7.0    12.8    19.5    29.5
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4013          KK  615618
4014          KM      Normal depth channel route from C615 to C618
4015          KM      Source:  Hydrology Field Reconnaissance
4016          RS       1    FLOW     -1
4017          RC   0.040   0.018   0.040   499.0  0.1338
4018          RX  1000.0  1008.0  1009.2  1013.2  1027.2  1028.4  1036.4  1045.4
4019          RY  1800.4  1799.6  1799.2  1798.8  1798.3  1798.7  1798.9  1800.4
              *

4020          KK    C618
4021          KM      Hydrograph combine C618O + 615618 at C618
4022          HC       2    0.19
              *

4023          KK  618619
4024          KM      Normal depth channel route from C618 to C619
4025          KM      Source:  HEC-2 Cross Section: AR 0.441
4026          RS       4    FLOW     -1
4027          RC   0.070   0.060   0.070  1837.0  0.0285
4028          RX  9870.6  9928.6  9957.1  9996.9 10004.9 10022.1 10062.0 10116.4
4029          RY  1709.2  1700.9  1698.8  1690.0  1689.8  1699.6  1700.3  1711.3
              *

4030          KK    211T
4031          KM   Sub-Basin   211T
4032          KM
4033          KM      The Clark Unit Hydrograph is used for this basin.
4034          KM          The HEC-1 time-area relation is used for this basin.
4035          KM
4036          KM      Time of Concentration for this sub-basin is based on the following:
4037          KM          An rainfall areal reduction factor of 1.000
4038          KM
4039          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4040          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4041          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
4042          KM
4043          KM          L=   0.488 miles, S=  250 feet/mile, Kb= .10
4044          KM
4045          BA   0.066
4046          LG    0.13    0.37    5.70    0.20   21.00
4047          UC   0.283   0.241
              *

4048          KK   C619L
4049          KM      Hydrograph combine 618619 + 211T at C619 left branch
4050          HC       2
              *

4051          KK  BB615R
4052          KM      Retrieve previously diverted hydrograph at C615 in the right branch.
4053          DR   D615R
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4054          KK  615619
4055          KM      Normal depth channel route from C615 to C619
4056          KM      Source:  Hydrology Field Reconnaissance
4057          RS       7    FLOW     -1
4058          RC   0.045   0.024   0.025  2444.0  0.0493
4059          RX  1000.0  1009.3  1018.5  1037.0  1039.3  1053.0  1065.0  1065.0
4060          RY  1727.2  1726.5  1725.8  1724.4  1724.6  1725.8  1725.9  1725.9
              *

4061          KK   C619I
4062          KM      Hydrograph combine C619L + 615619 at C619I
4063          HC       2    0.25
              *

4064          KK   C619O
4065          KM      Reservoir route at C619.
4066          RS       1    ELEV  1675.6
4067          SV    0.00    1.72    2.98    4.70    7.00    7.08    7.17    7.26    7.34    7.43
4068          SV    7.51    7.60    7.69    7.77    7.86
4069          SE  1675.6  1686.0  1688.0  1690.0  1692.0  1692.2  1692.4  1692.6  1692.8  1693.0
4070          SE  1693.2  1693.4  1693.6  1693.8  1694.0
```

```
4071        SQ       0       4      25      72     128     155     163     172     178     187
4072        SQ     195     213     238     273     318     374     441     518     606     706
4073        SE  1675.6  1676.0  1678.0  1680.0  1682.0  1684.0  1686.0  1688.0  1690.0  1692.0
4074        SE  1692.2  1692.4  1692.6  1692.8  1693.0  1693.2  1693.4  1693.6  1693.8  1694.0
            *

4075        KK   D619R
4076        KM      Hydrograph diversion at C619.  Main flow continues in the right branch.
4077        KM      Diverted flow is in the left branch.
4078        DT   D619L
4079        DI       0       4      25      72     128     155     163     172     178     187
4080        DI     195     213     238     273     318     374     441     518     606     706
4081        DQ       0       0       0       0       0       0       0       0       0       0
4082        DQ       8      24      49      83     128     182     249     326     412     512
            *

4083        KK  619620
4084        KM                  Lag route through Palisades Plaza storm drain
4085        RT       0                1
            *

4086        KK  BB619L
4087        KM      Retrieve previously diverted hydrograph at C619 in the left branch.
4088        DR   D619L
            *

4089        KK  619620
4090        KM   Normal depth channel route from C619 to C620 in Fountain Hills Blvd.
4091        KM   Source:  200 Scale Mapping. Similiar to 523548
4092        RS       1    FLOW      -1
4093        RC   0.040   0.024   0.040   800.0  0.0288
4094        RX   918.0   940.0   960.0  1000.0  1040.0  1040.1  1044.1  1088.1
4095        RY  1648.0  1645.8  1643.8  1644.7  1644.0  1644.5  1644.5  1648.0
            *
```

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```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4096        KK    211W
4097        KM   Sub-Basin   211W
4098        KM
4099        KM      The Clark Unit Hydrograph is used for this basin.
4100        KM          The Urban time-area relation is used for this basin.
4101        KM
4102        KM      Time of Concentration for this sub-basin is based on the following:
4103        KM          An rainfall areal reduction factor of 1.000
4104        KM
4105        KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4106        KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4107        KM   .29 .29 .28 .28 .28 .28 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
4108        KM
4109        KM          L=   0.289 miles, S=  173 feet/mile, Kb= .04
4110        KM
4111        BA   0.030
4112        LG    0.07    0.27    5.70    0.18   69.90
4113        UC   0.146   0.120
4114        UA       0       5      16      30      65      77      84      90      94      97
4115        UA     100
            *

4116        KK   C620R
4117        KM      Hydrograph combine 619620 + R619L + 211W at C620 right branch
4118        HC       3    0.28
            *

4119        KK  BB611R
4120        KM      Retrieve previously diverted hydrograph at C611 in the right branch.
4121        DR   D611R
            *

4122        KK  611620
4123        KM                  Lag route through Palisades Plaza storm drain
4124        RT       0                1
            *

4125        KK    C620
4126        KM      Hydrograph combine 611620 + C620R at C620
4127        HC       2    0.42
            *

4128        KK  620621
4129        KM      Normal depth channel route from C620 to C621
4130        KM      Source:  HEC-2 Cross Section: AR 0.081
4131        RS       1    FLOW      -1
4132        RC   0.050   0.050   0.050   915.0  0.0394
4133        RX  9790.0  9790.1  9972.2  9994.8 10004.9 10029.7 10048.6 10125.0
4134        RY  1657.9  1657.5  1656.4  1646.8  1646.8  1657.8  1657.0  1657.9
            *
```

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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4135        KK    C621
4136        KM      Hydrograph combine C621L + 620621 at C621
4137        HC       2    7.93
            *

4138        KK  621622
4139        KM      Normal depth channel route from C621 to C622
4140        KM      Source:  HEC-2 Cross Section: AS 2.785
4141        RS       6    FLOW      -1
4142        RC   0.100   0.045   0.100  3830.0  0.0144
```

```
4143          RX  9827.3  9922.9  9951.0 10000.0 10002.7 10044.7 10071.6 10076.8
4144          RY  1615.2  1611.0  1604.1  1600.8  1601.5  1601.6  1611.0  1613.9
              *

4145          KK    211X
4146          KM   Sub-Basin   211X
4147          KM
4148          KM      The Clark Unit Hydrograph is used for this basin.
4149          KM          The HEC-1 time-area relation is used for this basin.
4150          KM
4151          KM      Time of Concentration for this sub-basin is based on the following:
4152          KM          An rainfall areal reduction factor of 1.000
4153          KM
4154          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4155          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4156          KM   .27 .27 .27 .27 .27 .26 .03 .03 .03 .02 .02 .02 .01 .01 .01 .01 .01 .01
4157          KM
4158          KM          L=   0.929 miles, S=  111 feet/mile, Kb= .05
4159          KM
4160          BA   0.214
4161          LG    0.16    0.30    4.90    0.27   43.20
4162          UC   0.346   0.259
              *

4163          KK   C622R
4164          KM      Hydrograph combine 621622 + 211X at C622 right branch
4165          HC       2
              *
              * *
              * * Move to the top of Tulip Wash
              * *
              *

4166          KK    211A
4167          KM   Sub-Basin   211A
4168          KM
4169          KM      The Clark Unit Hydrograph is used for this basin.
4170          KM          The HEC-1 time-area relation is used for this basin.
4171          KM
4172          KM      Time of Concentration for this sub-basin is based on the following:
4173          KM          An rainfall areal reduction factor of 1.000
4174          KM
4175          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4176          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4177          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
4178          KM
4179          KM          L=   0.820 miles, S=  248 feet/mile, Kb= .10
4180          KM
4181          BA   0.143
4182          LG    0.14    0.38    5.70    0.21   13.80
4183          UC   0.371   0.318
              *

4184          KK   C6000
4185          KM      Reservoir route at C600.
4186          RS       1    ELEV  1754.0
4187          SV    0.00    0.14    0.62    1.52    2.95    5.06    7.98   11.80   16.61   22.67
4188          SV   30.07   38.71   40.50   40.60   41.60   42.70   43.70   44.60   45.70
4189          SE  1754.0  1756.0  1758.0  1760.0  1762.0  1764.0  1766.0  1768.0  1770.0  1772.0
4190          SE  1774.0  1776.0 1776.36  1776.4  1776.6  1776.8  1777.0  1777.2  1777.4
4191          SQ       0      55     183     320     427     513     570     620     665     709
4192          SQ     750     789     795     795     812     849     906     984    1084
              *

4193          KK  600601
4194          KM      Normal depth channel route from C600 to C601
4195          KM      Source:  HEC-2 Cross Section: TU 1.538
4196          RS       4    FLOW      -1
4197          RC   0.040   0.025   0.040  2406.0  0.0176
4198          RX  9945.6  9959.4  9968.3  9985.9 10000.0 10017.2 10038.7 10058.8
4199          RY  1734.5  1732.3  1727.9  1726.2  1725.0  1727.7  1735.2  1736.0
              *

4200          KK    211B
4201          KM   Sub-Basin   211B
4202          KM
4203          KM      The Clark Unit Hydrograph is used for this basin.
4204          KM          The HEC-1 time-area relation is used for this basin.
4205          KM
4206          KM      Time of Concentration for this sub-basin is based on the following:
4207          KM          An rainfall areal reduction factor of 1.000
4208          KM
4209          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4210          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4211          KM   .26 .25 .25 .25 .25 .25 .01 .01 .01 .01 .01 .01 .00 .00 .00 .00 .00 .00
4212          KM
4213          KM          L=   0.618 miles, S=  244 feet/mile, Kb= .10
4214          KM
4215          BA   0.109
4216          LG    0.14    0.37    5.80    0.21   13.40
4217          UC   0.321   0.253
              *

4218          KK    C601
4219          KM      Hydrograph combine 600601 + 211B at C601
4220          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
4221          KK  601602
4222          KM      Normal depth channel route from C601 to C602
4223          KM      Source:  HEC-2 Cross Section: TU 1.102
4224          RS       4     FLOW     -1
4225          RC   0.065    0.040    0.055  1765.0  0.0146
4226          RX  9916.9   9959.1   9965.8  9980.2 10004.0 10019.5 10047.3 10094.1
4227          RY  1699.9   1699.8   1696.4  1689.8  1688.9  1695.7  1698.2  1698.4
              *

4228          KK    211C
4229          KM   Sub-Basin   211C
4230          KM
4231          KM      The Clark Unit Hydrograph is used for this basin.
4232          KM          The Urban time-area relation is used for this basin.
4233          KM
4234          KM      Time of Concentration for this sub-basin is based on the following:
4235          KM          An rainfall areal reduction factor of 1.000
4236          KM
4237          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4238          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4239          KM   .28 .28 .28 .28 .28 .28 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4240          KM
4241          KM          L=   0.479 miles, S=  154 feet/mile, Kb= .03
4242          KM
4243          BA   0.043
4244          LG    0.08    0.25    5.70    0.18   44.50
4245          UC   0.167   0.169
4246          UA       0       5      16      30      65      77      84      90      94      97
4247          UA     100
              *

4248          KK   C602L
4249          KM      Hydrograph combine 601602 + 211C at C602 left branch
4250          HC       2
              *

4251          KK    211D
4252          KM   Sub-Basin   211D
4253          KM
4254          KM      The Clark Unit Hydrograph is used for this basin.
4255          KM          The Urban time-area relation is used for this basin.
4256          KM
4257          KM      Time of Concentration for this sub-basin is based on the following:
4258          KM          An rainfall areal reduction factor of 1.000
4259          KM
4260          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4261          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4262          KM   .24 .24 .24 .24 .24 .23 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01 .01
4263          KM
4264          KM          L=   0.686 miles, S=  115 feet/mile, Kb= .04
4265          KM
4266          BA   0.071
4267          LG    0.21    0.30    3.85    0.49   28.30
4268          UC   0.271   0.291
1                                        HEC-1 INPUT                                          PAGE102
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
4269          UA       0       5      16      30      65      77      84      90      94      97
4270          UA     100
              *

4271          KK    C602
4272          KM      Hydrograph combine C602L + 211D at C602
4273          HC       2
              *

4274          KK  602603
4275          KM      Normal depth channel route from C602 to C603
4276          KM      Source:  HEC-2 Cross Section: LE 0.672
4277          RS       4     FLOW     -1
4278          RC   0.060    0.045    0.060  2610.0  0.0211
4279          RX  9891.9   9963.9   9986.5 10000.0 10012.7 10023.8 10085.0 10176.4
4280          RY  1653.5   1653.5   1644.4  1644.1  1645.0  1649.8  1651.7  1656.7
              *

4281          KK    211E
4282          KM   Sub-Basin   211E
4283          KM
4284          KM      The Clark Unit Hydrograph is used for this basin.
4285          KM          The Urban time-area relation is used for this basin.
4286          KM
4287          KM      Time of Concentration for this sub-basin is based on the following:
4288          KM          An rainfall areal reduction factor of 1.000
4289          KM
4290          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4291          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4292          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4293          KM
4294          KM          L=   0.609 miles, S=  118 feet/mile, Kb= .03
4295          KM
4296          BA   0.156
4297          LG    0.11    0.27    5.10    0.24   42.20
4298          UC   0.208   0.126
4299          UA       0       5      16      30      65      77      84      90      94      97
4300          UA     100
              *

4301          KK    C603
4302          KM      Hydrograph combine 602603 + 211E at C603
4303          HC       2
              *
```

```
4304          KK  603622
4305          KM      Normal depth channel route from C603 to C622
4306          KM      Source:  HEC-2 Cross Section: LE 0.287
4307          RS       5    FLOW      -1
4308          RC   0.060   0.045   0.060  2745.0  0.0204
4309          RX  9883.0  9929.7  9967.3  9991.6 10042.2 10073.6 10177.6 10194.5
4310          RY  1619.4  1618.7  1611.8  1602.1  1603.3  1609.4  1610.5  1610.6
              *
1                                        HEC-1 INPUT                                                    PAGE103

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


4311          KK    211F
4312          KM   Sub-Basin   211F
4313          KM
4314          KM      The Clark Unit Hydrograph is used for this basin.
4315          KM          The Urban time-area relation is used for this basin.
4316          KM
4317          KM      Time of Concentration for this sub-basin is based on the following:
4318          KM          An rainfall areal reduction factor of 1.000
4319          KM
4320          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4321          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4322          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .02 .02 .02 .02 .02 .02
4323          KM
4324          KM          L=   0.770 miles, S=  134 feet/mile, Kb= .03
4325          KM
4326          BA   0.113
4327          LG    0.08    0.25    4.30    0.36   62.70
4328          UC   0.225   0.199
4329          UA       0       5      16      30      65      77      84      90      94      97
4330          UA     100
              *

4331          KK   C622L
4332          KM      Hydrograph combine 603622 + 211F at C622 left branch
4333          HC       2
              *

4334          KK    C622
4335          KM      Hydrograph combine C622R + C622L at C622
4336          HC       2
              *

4337          KK  622549
4338          KM      Normal depth channel route from C622 to C549
4339          KM      Source:  HEC-2 Cross Section: AS 2.279
4340          RS       6    FLOW      -1
4341          RC   0.113   0.125   0.120  1697.0  0.0118
4342          RX  9847.1  9851.0  9857.5  9862.8 10052.6 10062.8 10075.6 10084.6
4343          RY  1573.5  1571.3  1567.2  1564.6  1565.1  1566.7  1573.7  1573.9
              *

4344          KK    211Y
4345          KM   Sub-Basin   211Y
4346          KM
4347          KM      The Clark Unit Hydrograph is used for this basin.
4348          KM          The HEC-1 time-area relation is used for this basin.
4349          KM
4350          KM      Time of Concentration for this sub-basin is based on the following:
4351          KM          An rainfall areal reduction factor of 1.000
4352          KM
4353          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4354          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4355          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4356          KM
1                                        HEC-1 INPUT                                                    PAGE104

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4357          KM          L=   0.606 miles, S=  147 feet/mile, Kb= .07
4358          KM
4359          BA   0.089
4360          LG    0.13    0.30    6.60    0.14   16.80
4361          UC   0.304   0.262
              *

4362          KK   C549R
4363          KM      Hydrograph combine 622549 + 211Y at C549 right branch
4364          HC       2
              *

4365          KK    C549
4366          KM      Hydrograph combine C549L + C549R at C549
4367          HC       2
              *

4368          KK  549626
4369          KM      Normal depth channel route from C549 to C626
4370          KM      Source:  HEC-2 Cross Section: AS 1.855
4371          RS       6    FLOW      -1
4372          RC   0.113   0.125   0.120  2044.0  0.0171
4373          RX  9943.2  9963.0  9985.6  9994.1 10007.6 10029.2 10150.5 10171.3
4374          RY  1539.3  1534.5  1531.2  1528.3  1528.2  1531.7  1532.5  1537.4
              *

4375          KK    211Z
4376          KM   Sub-Basin   211Z
4377          KM
4378          KM      The Clark Unit Hydrograph is used for this basin.
4379          KM          The Urban time-area relation is used for this basin.
4380          KM
4381          KM      Time of Concentration for this sub-basin is based on the following:
```

```
4382          KM          An rainfall areal reduction factor of 1.000
4383          KM
4384          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4385          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4386          KM   .26 .26 .26 .26 .26 .26 .02 .02 .02 .02 .02 .02 .01 .01 .01 .01 .01 .01
4387          KM
4388          KM          L=   0.509 miles, S=  147 feet/mile, Kb= .04
4389          KM
4390          BA   0.083
4391          LG    0.14    0.27    4.50    0.34   34.40
4392          UC   0.208   0.157
4393          UA       0       5      16      30      65      77      84      90      94      97
4394          UA     100
              *

4395          KK   C626C
4396          KM     Hydrograph combine 549626 + 211Z at C626 main branch
4397          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE105

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4398          KK   211AA
4399          KM   Sub-Basin  211AA
4400          KM
4401          KM     The Clark Unit Hydrograph is used for this basin.
4402          KM         The Urban time-area relation is used for this basin.
4403          KM
4404          KM     Time of Concentration for this sub-basin is based on the following:
4405          KM         An rainfall areal reduction factor of 1.000
4406          KM
4407          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4408          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4409          KM   .28 .28 .28 .28 .28 .28 .04 .03 .03 .03 .03 .03 .02 .02 .02 .01 .01 .01
4410          KM
4411          KM          L=   0.480 miles, S=   85 feet/mile, Kb= .06
4412          KM
4413          BA   0.034
4414          LG    0.09    0.24    6.60    0.14   38.80
4415          UC   0.292   0.360
4416          UA       0       5      16      30      65      77      84      90      94      97
4417          UA     100
              *

4418          KK  625626
4419          KM     Normal depth channel route from C625 to C626
4420          KM     Source:  200 Scale Mapping
4421          RS       4    FLOW     -1
4422          RC   0.040   0.018   0.040  1350.0  0.0252
4423          RX  1000.0  1020.0  1021.2  1055.2  1089.2  1090.4  1100.4  1105.4
4424          RY  1527.0  1526.0  1525.6  1526.3  1525.6  1526.0  1528.0  1530.0
              *

4425          KK   211AB
4426          KM   Sub-Basin  211AB
4427          KM
4428          KM     The Clark Unit Hydrograph is used for this basin.
4429          KM         The Urban time-area relation is used for this basin.
4430          KM
4431          KM     Time of Concentration for this sub-basin is based on the following:
4432          KM         An rainfall areal reduction factor of 1.000
4433          KM
4434          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4435          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4436          KM   .28 .28 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4437          KM
4438          KM          L=   0.293 miles, S=  321 feet/mile, Kb= .07
4439          KM
4440          BA   0.040
4441          LG    0.11    0.26    6.80    0.13   23.10
4442          UC   0.163   0.116
4443          UA       0       5      16      30      65      77      84      90      94      97
4444          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE106

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4445          KK  623624
4446          KM     Normal depth channel route from C623 to C624
4447          KM     Source:  200 Scale Mapping
4448          RS       1    FLOW     -1
4449          RC   0.040   0.018   0.040   701.0  0.0114
4450          RX  1000.0  1010.0  1011.2  1027.2  1043.2  1044.4  1059.4  1074.4
4451          RY  1534.0  1532.0  1531.6  1531.9  1531.6  1532.0  1532.5  1533.0
              *

4452          KK   211AC
4453          KM   Sub-Basin  211AC
4454          KM
4455          KM     The Clark Unit Hydrograph is used for this basin.
4456          KM         The Urban time-area relation is used for this basin.
4457          KM
4458          KM     Time of Concentration for this sub-basin is based on the following:
4459          KM         An rainfall areal reduction factor of 1.000
4460          KM
4461          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4462          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4463          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .03 .03 .03 .03 .03 .03
4464          KM
4465          KM          L=   0.306 miles, S=   82 feet/mile, Kb= .03
```

```
4466          KM
4467          BA   0.027
4468          LG    0.08    0.15    8.40    0.07   44.80
4469          UC   0.163   0.148
4470          UA      0       5      16      30      65      77      84      90      94      97
4471          UA    100
              *

4472          KK    C624
4473          KM      Hydrograph combine 623624 + 211AC at C624
4474          HC       2
              *

4475          KK  624626
4476          KM      Normal depth channel route from C624 to C626
4477          KM      Source:  HEC-2 Cross Section: AS 1.727
4478          RS       3    FLOW      -1
4479          RC   0.080   0.060   0.080   637.0  0.0235
4480          RX  9872.9  9881.0  9893.9  9902.2  9967.6  9976.4 10076.1 10084.3
4481          RY  1526.3  1524.6  1521.7  1520.0  1520.7  1521.6  1520.7  1526.2
              *

4482          KK   211AD
4483          KM   Sub-Basin  211AD
4484          KM
4485          KM      The Clark Unit Hydrograph is used for this basin.
4486          KM          The Urban time-area relation is used for this basin.
4487          KM
4488          KM      Time of Concentration for this sub-basin is based on the following:
4489          KM          An rainfall areal reduction factor of 1.000
4490          KM
1                                          HEC-1 INPUT                                          PAGE107

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4491          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4492          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4493          KM   .29 .29 .29 .29 .29 .29 .04 .04 .04 .04 .04 .04 .02 .02 .02 .02 .02 .02
4494          KM
4495          KM          L=   0.489 miles, S=  280 feet/mile, Kb= .04
4496          KM
4497          BA   0.041
4498          LG    0.08    0.16    8.00    0.08   42.40
4499          UC   0.163   0.171
4500          UA      0       5      16      30      65      77      84      90      94      97
4501          UA    100
              *

4502          KK   C626R
4503          KM      Hydrograph combine 624626 + 211AD at C626 right branch
4504          HC       2
              *

4505          KK    C626
4506          KM      Hydrograph combine C626C + 625626 at C626R
4507          HC       3
              *

4508          KK  626627
4509          KM      Normal depth channel route from C626 to C627
4510          KM      Source:  HEC-2 Cross Section: AS 1.602
4511          RS       1    FLOW      -1
4512          RC   0.080   0.060   0.080   625.0  0.0208
4513          RX  9889.8  9941.2  9963.0 10011.6 10074.8 10083.9 10191.7 10210.4
4514          RY  1517.6  1516.9  1508.1  1506.6  1508.6  1511.7  1513.1  1518.8
              *

4515          KK   211AE
4516          KM   Sub-Basin  211AE
4517          KM
4518          KM      The Clark Unit Hydrograph is used for this basin.
4519          KM          The Urban time-area relation is used for this basin.
4520          KM
4521          KM      Time of Concentration for this sub-basin is based on the following:
4522          KM          An rainfall areal reduction factor of 1.000
4523          KM
4524          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4525          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4526          KM   .28 .28 .28 .28 .28 .28 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4527          KM
4528          KM          L=   0.313 miles, S=  153 feet/mile, Kb= .04
4529          KM
4530          BA   0.034
4531          LG    0.12    0.24    6.40    0.15   38.20
4532          UC   0.158   0.129
4533          UA      0       5      16      30      65      77      84      90      94      97
4534          UA    100
              *
1                                          HEC-1 INPUT                                          PAGE108

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4535          KK    C627
4536          KM      Hydrograph combine 626627 + 211AE at C627
4537          HC       2
              *
              * *
              * * C627 is the total flow in Ashbrook Wash at the Study boundary
              * *
              *

4538          KK   211AF
4539          KM   Sub-Basin  211AF
```

```
4540          KM
4541          KM      The Clark Unit Hydrograph is used for this basin.
4542          KM          The Urban time-area relation is used for this basin.
4543          KM
4544          KM      Time of Concentration for this sub-basin is based on the following:
4545          KM          An rainfall areal reduction factor of 1.000
4546          KM
4547          KM       EXCESS RAINFALL VALUES EXCEEDED IN 5-MINUTE INTERVALS
4548          KM     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
4549          KM   .27 .27 .27 .27 .27 .27 .03 .03 .03 .03 .03 .03 .01 .01 .01 .01 .01 .01
4550          KM
4551          KM          L=   0.332 miles, S=  292 feet/mile, Kb= .06
4552          KM
4553          BA   0.053
4554          LG    0.10    0.30    5.80    0.18   28.30
4555          UC   0.167   0.112
4556          UA       0       5      16      30      65      77      84      90      94      97
4557          UA     100
              *
              * *
              * * End Basin 211.
              * *
              *
4558          ZZ
1*****************************************
*                                        *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*              MAY   1991                *
*           VERSION 4.0.1E               *
*                                        *
*  RUN DATE  11/02/94  TIME  08:22:52    *
*                                        *
******************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
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                    Fountain Hills North Floodplain Delineation Study
                         FCD 92-04        by GVSCE                          File:  EX100-24.IH1
                    Existing Condition Model                                 Date:    07-21-94   dtp
                    100-Year 24-Hour Storm, Clark Unit Hydrograph          Revised:   09-14-94   trl

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT          HYDROGRAPH TIME DATA
                     NMIN          1  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       1800  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0559  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL    0.02 HOURS
                   TOTAL TIME BASE   29.98 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

  8 JD        INDEX STORM NO. 1
                    STRM        4.20  PRECIPITATION DEPTH
                    TRDA        0.01  TRANSPOSITION DRAINAGE AREA

  9 PI         PRECIPITATION PATTERN
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
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                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
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                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

19 JD INDEX STORM NO. 2
STRM 4.12 PRECIPITATION DEPTH
TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

20 JD INDEX STORM NO. 3

STRM 3.99 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

21 JD INDEX STORM NO. 4

STRM 3.71 PRECIPITATION DEPTH
TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE

					6-HOUR	24-HOUR	72-HOUR	
+	HYDROGRAPH AT	201A	213.	12.30	32.	8.	6.	0.22
+	HYDROGRAPH AT	201B	92.	12.20	12.	3.	2.	0.08
+	2 COMBINED AT	C501	298.	12.25	43.	11.	9.	0.30
+	ROUTED TO	501502	294.	12.38	43.	11.	9.	0.30
+	HYDROGRAPH AT	201C	87.	12.22	11.	3.	2.	0.08
+	2 COMBINED AT	C502R	361.	12.35	54.	14.	11.	0.38
+	HYDROGRAPH AT	201D	61.	12.27	10.	3.	2.	0.07
+	2 COMBINED AT	C502	419.	12.33	64.	16.	13.	0.45
+	ROUTED TO	502503	412.	12.48	64.	16.	13.	0.45
+	HYDROGRAPH AT	201E	153.	12.32	24.	6.	5.	0.18
+	2 COMBINED AT	C503I	543.	12.45	88.	22.	18.	0.63
+	ROUTED TO	C503O	278.	12.95	88.	22.	18.	0.63
+	DIVERSION TO	D503L	278.	12.95	88.	22.	18.	0.63
+	HYDROGRAPH AT	D503R	0.	0.02	0.	0.	0.	0.63
+	ROUTED TO	503504	0.	0.02	0.	0.	0.	0.63
+	HYDROGRAPH AT	202A	39.	12.20	5.	1.	1.	0.04
+	2 COMBINED AT	C504I	39.	12.20	5.	1.	1.	0.67
+	ROUTED TO	C504O	20.	12.52	5.	1.	1.	0.67
+	DIVERSION TO	D504L	20.	12.52	5.	1.	1.	0.67
+	HYDROGRAPH AT	D504R	0.	12.52	0.	0.	0.	0.67
+	HYDROGRAPH AT	202B	19.	12.13	2.	1.	0.	0.02
+	2 COMBINED AT	C505I	19.	12.13	2.	1.	0.	0.69
+	DIVERSION TO	D505L	13.	12.13	2.	0.	0.	0.69
+	HYDROGRAPH AT	D505R	6.	12.13	0.	0.	0.	0.69
+	HYDROGRAPH AT	202C	10.	12.08	1.	0.	0.	0.01
+	2 COMBINED AT	C506	15.	12.12	1.	0.	0.	0.69
+	DIVERSION TO	D506L	0.	0.02	0.	0.	0.	0.69
+	HYDROGRAPH AT	D506R	15.	12.12	1.	0.	0.	0.69
+	HYDROGRAPH AT	202D	60.	12.23	9.	3.	2.	0.06
+	HYDROGRAPH AT	202E	124.	12.18	14.	4.	3.	0.10
+	ROUTED TO	C508O	122.	12.22	14.	4.	3.	0.10
+	DIVERSION TO	D508R	66.	12.22	11.	3.	2.	0.10
+	HYDROGRAPH AT	D508L	56.	12.22	4.	1.	1.	0.10
+	ROUTED TO	508507	54.	12.32	4.	1.	1.	0.10

+	3 COMBINED AT	C507I	118.	12.27	14.	4.	3.	0.86
+	ROUTED TO	C507O	118.	12.27	14.	4.	3.	0.86
+	HYDROGRAPH AT	202F	20.	12.07	2.	0.	0.	0.01
+	HYDROGRAPH AT	202G	20.	12.05	2.	0.	0.	0.01
+	HYDROGRAPH AT	202H	208.	12.22	24.	6.	5.	0.18
+	ROUTED TO	C511O	201.	12.27	24.	6.	5.	0.18
+	ROUTED TO	511512	200.	12.30	24.	6.	5.	0.18
+	HYDROGRAPH AT	202I	21.	12.08	3.	1.	1.	0.02
+	2 COMBINED AT	C512I	215.	12.27	26.	7.	5.	0.20
+	ROUTED TO	C512O	14.	13.33	5.	1.	1.	0.20
+	DIVERSION TO	D512R	0.	13.32	0.	0.	0.	0.20
+	HYDROGRAPH AT	D512L	14.	13.33	5.	1.	1.	0.20
+	HYDROGRAPH AT	203A	262.	12.22	42.	11.	9.	0.28
+	ROUTED TO	C513O	232.	12.38	42.	11.	9.	0.28
+	ROUTED TO	513514	229.	12.50	42.	11.	9.	0.28
+	HYDROGRAPH AT	203B	55.	12.10	7.	2.	1.	0.04
+	2 COMBINED AT	C514R	251.	12.48	48.	12.	10.	0.32
+	HYDROGRAPH AT	203C	99.	12.18	16.	4.	3.	0.10
+	2 COMBINED AT	C514	321.	12.43	64.	17.	13.	0.43
+	HYDROGRAPH AT	203D	103.	12.25	15.	4.	3.	0.11
+	2 COMBINED AT	C515	405.	12.37	79.	20.	16.	0.53
+	ROUTED TO	515517	402.	12.52	79.	20.	16.	0.53
+	HYDROGRAPH AT	203E	120.	12.18	15.	4.	3.	0.09
+	2 COMBINED AT	C517R	462.	12.47	94.	24.	19.	0.63
+	HYDROGRAPH AT	203F	345.	12.28	47.	12.	9.	0.33
+	ROUTED TO	516517	333.	12.52	47.	12.	9.	0.33
+	HYDROGRAPH AT	203G	238.	12.30	35.	9.	7.	0.25
+	2 COMBINED AT	C517L	516.	12.45	82.	20.	16.	0.58
+	2 COMBINED AT	C517	975.	12.45	175.	44.	36.	1.21
+	ROUTED TO	517518	967.	12.58	175.	44.	36.	1.21
+	HYDROGRAPH AT	203H	223.	12.27	30.	7.	6.	0.21
+	2 COMBINED AT	C518	1091.	12.55	204.	52.	41.	1.41
+	ROUTED TO	518519	1087.	12.60	204.	52.	41.	1.41
+	HYDROGRAPH AT	203I	116.	12.32	23.	6.	5.	0.17
+	2 COMBINED AT	C519	1177.	12.60	226.	57.	46.	1.59

+	ROUTED TO 519591	1174.	12.63	226.	57.	46.	1.59
+	HYDROGRAPH AT 203J	46.	12.12	7.	2.	1.	0.04
+	ROUTED TO 520591	45.	12.20	7.	2.	1.	0.04
+	HYDROGRAPH AT BB512R	0.	13.32	0.	0.	0.	0.20
+	3 COMBINED AT C591	1193.	12.63	233.	59.	47.	1.83
+	ROUTED TO 591521	1188.	12.65	233.	59.	47.	1.83
+	HYDROGRAPH AT 203K	272.	12.03	36.	11.	9.	0.16
+	2 COMBINED AT C521	1230.	12.65	267.	70.	56.	1.99
+	5 COMBINED AT CLEAR	1278.	12.63	289.	76.	61.	3.07
+	HYDROGRAPH AT 204A	130.	12.20	16.	4.	3.	0.11
+	ROUTED TO 522523	126.	12.40	16.	4.	3.	0.11
+	HYDROGRAPH AT 204B	134.	12.25	18.	4.	4.	0.13
+	2 COMBINED AT C523I	248.	12.30	33.	8.	7.	0.23
+	ROUTED TO C523O	202.	12.50	33.	8.	7.	0.23
+	DIVERSION TO D523R	0.	0.02	0.	0.	0.	0.23
+	HYDROGRAPH AT D523L	202.	12.50	33.	8.	7.	0.23
+	ROUTED TO 523524	201.	12.57	33.	8.	7.	0.23
+	HYDROGRAPH AT 204C	119.	12.07	15.	4.	3.	0.08
+	2 COMBINED AT C524	228.	12.50	48.	13.	10.	0.31
+	ROUTED TO 524525	228.	12.55	48.	13.	10.	0.31
+	HYDROGRAPH AT 204D	74.	12.03	10.	3.	2.	0.04
+	2 COMBINED AT C525	249.	12.18	57.	16.	12.	0.35
+	ROUTED TO 525526	248.	12.23	57.	16.	12.	0.35
+	HYDROGRAPH AT 204E	111.	12.07	15.	5.	4.	0.07
+	2 COMBINED AT C526	343.	12.13	73.	20.	16.	0.43
+	ROUTED TO 526527	340.	12.20	73.	20.	16.	0.43
+	HYDROGRAPH AT 204F	147.	12.02	19.	6.	5.	0.08
+	2 COMBINED AT C527	426.	12.12	92.	26.	21.	0.50
+	2 COMBINED AT CLEAR	1570.	12.62	379.	101.	81.	3.58
+	HYDROGRAPH AT 205A	130.	12.23	22.	7.	6.	0.12
+	HYDROGRAPH AT 205B	284.	12.18	40.	12.	10.	0.21
+	2 COMBINED AT C528	411.	12.20	62.	19.	15.	0.33
+	ROUTED TO 528530	408.	12.23	62.	19.	15.	0.33
+	HYDROGRAPH AT 205C	65.	12.22	11.	3.	3.	0.06
+	2 COMBINED AT C530R	472.	12.23	73.	23.	18.	0.39

+	HYDROGRAPH AT	205D	405.	12.22	60.	19.	15.	0.32
+	HYDROGRAPH AT	205E	203.	12.32	41.	13.	10.	0.22
+	2 COMBINED AT	C529	596.	12.25	100.	31.	25.	0.54
+	2 COMBINED AT	C530	1064.	12.23	173.	54.	43.	0.93
+	ROUTED TO	530531	1056.	12.28	173.	54.	43.	0.93
+	HYDROGRAPH AT	205F	197.	12.22	30.	9.	8.	0.16
+	2 COMBINED AT	C531	1241.	12.27	202.	63.	50.	1.09
+	ROUTED TO	531532	1230.	12.33	202.	63.	50.	1.09
+	HYDROGRAPH AT	205G	214.	12.23	33.	10.	8.	0.19
+	2 COMBINED AT	C532L	1420.	12.32	235.	73.	59.	1.27
+	HYDROGRAPH AT	205H	237.	12.33	47.	14.	12.	0.26
+	2 COMBINED AT	C532	1654.	12.32	282.	87.	70.	1.53
+	ROUTED TO	532533	1649.	12.35	282.	87.	70.	1.53
+	HYDROGRAPH AT	205I	367.	12.28	56.	16.	13.	0.35
+	2 COMBINED AT	C533	2000.	12.33	337.	103.	82.	1.89
+	ROUTED TO	533534	1959.	12.48	337.	103.	82.	1.89
+	HYDROGRAPH AT	205J	361.	12.28	50.	13.	10.	0.37
+	2 COMBINED AT	C534R	2220.	12.47	386.	115.	93.	2.25
+	HYDROGRAPH AT	205K	183.	12.37	35.	9.	7.	0.25
+	2 COMBINED AT	C534	2390.	12.47	420.	124.	100.	2.50
+	ROUTED TO	534535	2378.	12.52	420.	124.	100.	2.50
+	HYDROGRAPH AT	205L	147.	12.17	15.	4.	3.	0.12
+	2 COMBINED AT	C535	2425.	12.50	435.	128.	103.	2.62
+	ROUTED TO	535536	2397.	12.63	435.	128.	103.	2.62
+	HYDROGRAPH AT	205M	195.	12.08	25.	7.	6.	0.14
+	2 COMBINED AT	C536R	2443.	12.63	460.	135.	108.	2.76
+	HYDROGRAPH AT	205N	141.	12.22	22.	6.	4.	0.16
+	2 COMBINED AT	C536I	2520.	12.62	481.	140.	113.	2.91
+	ROUTED TO	C536O	321.	14.02	307.	140.	113.	2.91
+	ROUTED TO	536537	321.	14.08	307.	140.	113.	2.91
+	HYDROGRAPH AT	206A	224.	12.02	26.	8.	6.	0.13
+	2 COMBINED AT	C537	348.	12.07	312.	148.	119.	3.04
+	ROUTED TO	537538	341.	12.12	312.	148.	119.	3.04
+	HYDROGRAPH AT	206B	168.	12.02	21.	6.	5.	0.09
+	2 COMBINED AT	C538I	489.	12.07	327.	154.	124.	3.14

+	ROUTED TO	C538O	446.	12.15	324.	154.	124.	3.14
+	ROUTED TO	538540	438.	12.25	324.	154.	124.	3.14
+	HYDROGRAPH AT	206C	26.	12.10	4.	1.	1.	0.02
+	2 COMBINED AT	C540R	459.	12.25	326.	155.	125.	3.16
+	HYDROGRAPH AT	206D	110.	12.02	14.	4.	3.	0.06
+	ROUTED TO	539540	108.	12.10	14.	4.	3.	0.06
+	HYDROGRAPH AT	206E	25.	12.08	3.	1.	1.	0.02
+	2 COMBINED AT	C540L	133.	12.10	17.	5.	4.	0.09
+	2 COMBINED AT	C540	560.	12.22	338.	160.	129.	3.24
+	ROUTED TO	540541	545.	12.40	338.	160.	129.	3.24
+	HYDROGRAPH AT	206F	159.	12.15	21.	6.	4.	0.16
+	2 COMBINED AT	C541	655.	12.37	354.	165.	133.	3.40
+	ROUTED TO	541548	654.	12.38	354.	165.	133.	3.40
+	HYDROGRAPH AT	206G	75.	12.23	14.	4.	3.	0.09
+	HYDROGRAPH AT	BB523R	0.	0.02	0.	0.	0.	0.23
+	ROUTED TO	523548	0.	0.02	0.	0.	0.	0.23
+	3 COMBINED AT	C548L	721.	12.37	367.	169.	136.	3.72
+	HYDROGRAPH AT	206H	89.	12.07	12.	3.	3.	0.06
+	ROUTED TO	542543	88.	12.10	12.	3.	3.	0.06
+	HYDROGRAPH AT	206I	37.	12.02	4.	1.	1.	0.02
+	2 COMBINED AT	C543	122.	12.07	16.	5.	4.	0.08
+	DIVERSION TO	D543R	122.	12.07	16.	5.	4.	0.08
+	HYDROGRAPH AT	D543L	0.	0.02	0.	0.	0.	0.08
+	ROUTED TO	543544	0.	0.02	0.	0.	0.	0.08
+	HYDROGRAPH AT	206K	62.	12.13	9.	2.	2.	0.06
+	2 COMBINED AT	C544	62.	12.13	8.	2.	2.	0.14
+	ROUTED TO	544545	61.	12.18	8.	2.	2.	0.14
+	DIVERSION TO	D545R	31.	12.18	4.	1.	1.	0.14
+	HYDROGRAPH AT	D545L	31.	12.18	4.	1.	1.	0.14
+	ROUTED TO	545546	31.	12.20	4.	1.	1.	0.14
+	HYDROGRAPH AT	206L	73.	12.12	10.	3.	2.	0.06
+	2 COMBINED AT	C546	102.	12.13	14.	4.	3.	0.20
+	ROUTED TO	546547	102.	12.17	14.	4.	3.	0.20
+	HYDROGRAPH AT	BB543R	122.	12.07	16.	5.	4.	0.08
+	ROUTED TO	543547	121.	12.15	16.	5.	4.	0.08

+	HYDROGRAPH AT	BB545R	31.	12.18	4.	1.	1.	0.14
+	ROUTED TO	545547	30.	12.23	4.	1.	1.	0.14
+	HYDROGRAPH AT	206J	111.	12.02	14.	4.	3.	0.06
+	4 COMBINED AT	C547	335.	12.07	48.	14.	11.	0.26
+	ROUTED TO	547548	330.	12.13	48.	14.	11.	0.26
+	HYDROGRAPH AT	206M	109.	12.02	14.	4.	3.	0.06
+	2 COMBINED AT	C548R	412.	12.08	62.	18.	15.	0.32
+	2 COMBINED AT	C548	1038.	12.27	420.	186.	151.	4.04
+	ROUTED TO	548549	1025.	12.38	419.	186.	150.	4.04
+	HYDROGRAPH AT	206N	259.	12.03	35.	11.	9.	0.15
+	2 COMBINED AT	C549L	1105.	12.35	443.	197.	159.	4.19
+	HYDROGRAPH AT	207A	254.	12.30	46.	14.	11.	0.26
+	HYDROGRAPH AT	207B	202.	12.30	38.	12.	9.	0.21
+	2 COMBINED AT	C550	455.	12.30	84.	26.	21.	0.46
+	ROUTED TO	550552	450.	12.37	84.	26.	21.	0.46
+	HYDROGRAPH AT	207C	197.	12.22	27.	8.	6.	0.17
+	2 COMBINED AT	C552L	617.	12.32	111.	33.	27.	0.64
+	HYDROGRAPH AT	207D	219.	12.25	37.	11.	9.	0.20
+	ROUTED TO	551552	216.	12.35	37.	11.	9.	0.20
+	HYDROGRAPH AT	207E	123.	12.35	29.	9.	7.	0.16
+	2 COMBINED AT	C552R	339.	12.35	66.	21.	16.	0.35
+	2 COMBINED AT	C552	951.	12.33	176.	53.	43.	0.99
+	ROUTED TO	552553	947.	12.37	176.	53.	43.	0.99
+	HYDROGRAPH AT	207F	135.	12.18	23.	7.	6.	0.13
+	2 COMBINED AT	C553	1057.	12.35	199.	61.	49.	1.12
+	ROUTED TO	553556	1053.	12.40	199.	61.	49.	1.12
+	HYDROGRAPH AT	207G	201.	12.35	36.	10.	8.	0.24
+	2 COMBINED AT	C556L	1249.	12.38	234.	70.	56.	1.35
+	HYDROGRAPH AT	207H	122.	12.27	23.	7.	6.	0.12
+	ROUTED TO	554555	120.	12.33	23.	7.	6.	0.12
+	HYDROGRAPH AT	207I	70.	12.27	14.	4.	3.	0.07
+	2 COMBINED AT	C555	187.	12.30	37.	11.	9.	0.20
+	ROUTED TO	555556	184.	12.43	37.	11.	9.	0.20
+	HYDROGRAPH AT	207J	102.	12.17	18.	6.	5.	0.09
+	2 COMBINED AT	C556R	260.	12.37	55.	17.	14.	0.29

+	2 COMBINED AT	C556	1505.	12.38	289.	87.	70.	1.64
+	ROUTED TO	556557	1498.	12.43	289.	87.	70.	1.64
+	HYDROGRAPH AT	207K	171.	12.12	26.	8.	6.	0.13
+	2 COMBINED AT	C557R	1595.	12.42	314.	94.	76.	1.77
+	HYDROGRAPH AT	207L	119.	12.07	16.	5.	4.	0.08
+	2 COMBINED AT	C557	1647.	12.40	330.	99.	80.	1.85
+	ROUTED TO	557558	1640.	12.47	330.	99.	80.	1.85
+	HYDROGRAPH AT	207M	158.	12.08	18.	5.	4.	0.12
+	2 COMBINED AT	C558	1696.	12.45	347.	104.	83.	1.97
+	ROUTED TO	558560	1691.	12.50	347.	104.	83.	1.97
+	HYDROGRAPH AT	207O	183.	12.15	20.	5.	4.	0.13
+	2 COMBINED AT	C560R	1745.	12.48	367.	109.	88.	2.10
+	HYDROGRAPH AT	207N	64.	12.08	8.	2.	2.	0.05
+	ROUTED TO	559560	62.	12.22	8.	2.	2.	0.05
+	2 COMBINED AT	C560I	1781.	12.48	375.	111.	89.	2.15
+	ROUTED TO	C560O	275.	13.95	254.	111.	89.	2.15
+	ROUTED TO	560585	275.	14.03	254.	111.	89.	2.15
+	HYDROGRAPH AT	210A	164.	12.15	18.	5.	4.	0.12
+	2 COMBINED AT	C585	282.	12.20	259.	116.	93.	2.27
+	HYDROGRAPH AT	208A	189.	12.17	26.	8.	7.	0.14
+	ROUTED TO	561563	187.	12.22	26.	8.	7.	0.14
+	HYDROGRAPH AT	208B	27.	12.20	5.	2.	1.	0.03
+	2 COMBINED AT	C563R	214.	12.22	31.	10.	8.	0.17
+	HYDROGRAPH AT	208C	76.	12.20	12.	4.	3.	0.07
+	ROUTED TO	562563	74.	12.28	12.	4.	3.	0.07
+	HYDROGRAPH AT	208D	74.	12.25	14.	4.	3.	0.08
+	2 COMBINED AT	C563L	148.	12.27	26.	8.	7.	0.14
+	2 COMBINED AT	C563	359.	12.23	57.	18.	14.	0.31
+	ROUTED TO	563564	355.	12.30	57.	18.	14.	0.31
+	HYDROGRAPH AT	208E	66.	12.22	12.	4.	3.	0.06
+	2 COMBINED AT	C564R	417.	12.28	69.	21.	17.	0.37
+	HYDROGRAPH AT	208F	80.	12.20	13.	4.	3.	0.07
+	2 COMBINED AT	C564	492.	12.27	82.	25.	20.	0.44
+	ROUTED TO	564565	484.	12.38	82.	25.	20.	0.44
+	HYDROGRAPH AT	208G	153.	12.15	25.	8.	6.	0.13

+	2 COMBINED AT	C565	598.	12.35	106.	33.	26.	0.57
+	ROUTED TO	565568	593.	12.40	106.	33.	26.	0.57
+	HYDROGRAPH AT	208H	44.	12.20	7.	2.	1.	0.04
+	2 COMBINED AT	C568L	625.	12.40	113.	35.	28.	0.61
+	HYDROGRAPH AT	208I	131.	12.23	22.	7.	5.	0.12
+	HYDROGRAPH AT	208J	70.	12.28	15.	5.	4.	0.08
+	2 COMBINED AT	C566	198.	12.25	37.	11.	9.	0.20
+	ROUTED TO	566567	196.	12.32	37.	11.	9.	0.20
+	HYDROGRAPH AT	208K	60.	12.17	9.	3.	2.	0.05
+	2 COMBINED AT	C567L	245.	12.27	46.	14.	11.	0.25
+	HYDROGRAPH AT	208L	61.	12.22	11.	3.	3.	0.06
+	2 COMBINED AT	C567	305.	12.25	57.	18.	14.	0.31
+	ROUTED TO	567568	301.	12.35	57.	18.	14.	0.31
+	HYDROGRAPH AT	208M	162.	12.28	30.	9.	7.	0.16
+	2 COMBINED AT	C568R	455.	12.32	86.	27.	22.	0.46
+	2 COMBINED AT	C568	1067.	12.37	198.	61.	49.	1.07
+	ROUTED TO	568573	1060.	12.42	198.	61.	49.	1.07
+	HYDROGRAPH AT	208N	54.	12.22	10.	3.	2.	0.05
+	2 COMBINED AT	C573L	1101.	12.42	208.	64.	52.	1.12
+	HYDROGRAPH AT	208O	249.	12.27	43.	13.	11.	0.23
+	ROUTED TO	569570	248.	12.30	43.	13.	11.	0.23
+	HYDROGRAPH AT	208P	84.	12.13	11.	3.	3.	0.06
+	2 COMBINED AT	C570R	310.	12.23	54.	16.	13.	0.29
+	HYDROGRAPH AT	208Q	106.	12.23	18.	5.	4.	0.09
+	2 COMBINED AT	C570	414.	12.23	71.	22.	17.	0.38
+	HYDROGRAPH AT	208R	15.	12.10	2.	1.	0.	0.01
+	ROUTED TO	571572	14.	12.15	2.	1.	0.	0.01
+	2 COMBINED AT	C572	427.	12.22	73.	22.	18.	0.39
+	ROUTED TO	572573	426.	12.25	73.	22.	18.	0.39
+	HYDROGRAPH AT	208S	95.	12.17	14.	4.	4.	0.07
+	2 COMBINED AT	C573R	514.	12.23	88.	27.	21.	0.46
+	2 COMBINED AT	C573	1532.	12.38	294.	91.	73.	1.58
+	HYDROGRAPH AT	208T	170.	12.18	25.	7.	6.	0.13
+	HYDROGRAPH AT	208U	209.	12.10	25.	7.	6.	0.13
+	2 COMBINED AT	C574	372.	12.13	49.	15.	12.	0.27

+	ROUTED TO	574575	371.	12.15	49.	15.	12.	0.27
+	HYDROGRAPH AT	208V	41.	12.12	5.	2.	1.	0.03
+	2 COMBINED AT	C575	411.	12.15	55.	16.	13.	0.29
+	ROUTED TO	575576	407.	12.18	55.	16.	13.	0.29
+	HYDROGRAPH AT	208W	71.	12.13	9.	3.	2.	0.05
+	2 COMBINED AT	C576	475.	12.18	64.	19.	15.	0.34
+	ROUTED TO	576577	474.	12.20	64.	19.	15.	0.34
+	2 COMBINED AT	C577	1879.	12.35	357.	109.	88.	1.92
+	ROUTED TO	577578	1874.	12.37	357.	109.	88.	1.92
+	HYDROGRAPH AT	208X	115.	12.12	13.	4.	3.	0.08
+	2 COMBINED AT	C578I	1922.	12.35	370.	113.	91.	2.00
+	ROUTED TO	C578O	319.	13.52	298.	113.	91.	2.00
+	ROUTED TO	578587	319.	13.58	298.	113.	91.	2.00
+	HYDROGRAPH AT	210B	110.	12.18	17.	5.	4.	0.11
+	ROUTED TO	C586O	108.	12.22	17.	5.	4.	0.11
+	ROUTED TO	586587	108.	12.28	17.	5.	4.	0.11
+	2 COMBINED AT	C587	375.	12.42	311.	118.	95.	2.11
+	ROUTED TO	587595	374.	12.45	311.	118.	95.	2.11
+	HYDROGRAPH AT	210C	95.	12.18	12.	3.	2.	0.08
+	2 COMBINED AT	C595L	436.	12.30	320.	121.	97.	2.19
+	HYDROGRAPH AT	210D	180.	12.20	24.	7.	6.	0.14
+	ROUTED TO	588590	178.	12.22	24.	7.	6.	0.14
+	HYDROGRAPH AT	210E	37.	12.17	4.	1.	1.	0.03
+	2 COMBINED AT	C590L	212.	12.20	29.	8.	6.	0.17
+	HYDROGRAPH AT	210F	110.	12.20	17.	5.	4.	0.09
+	ROUTED TO	589590	109.	12.25	17.	5.	4.	0.09
+	HYDROGRAPH AT	210G	185.	12.23	29.	8.	7.	0.16
+	2 COMBINED AT	C590R	293.	12.25	46.	14.	11.	0.25
+	2 COMBINED AT	C590	502.	12.23	75.	22.	17.	0.42
+	HYDROGRAPH AT	210H	94.	12.15	11.	3.	2.	0.07
+	ROUTED TO	592593	93.	12.20	11.	3.	2.	0.07
+	2 COMBINED AT	C593	593.	12.22	85.	25.	20.	0.49
+	ROUTED TO	593594	590.	12.25	85.	25.	20.	0.49
+	HYDROGRAPH AT	210I	58.	12.20	8.	2.	2.	0.05
+	2 COMBINED AT	C594	645.	12.25	93.	27.	21.	0.54

+	ROUTED TO 594595	635.	12.33	93.	27.	21.	0.54
+	HYDROGRAPH AT 210J	130.	12.20	16.	4.	3.	0.10
+	2 COMBINED AT C595R	741.	12.32	109.	31.	24.	0.64
+	2 COMBINED AT C595	1172.	12.32	423.	151.	121.	2.83
+	ROUTED TO 595596	1167.	12.37	423.	151.	121.	2.83
+	HYDROGRAPH AT 210K	117.	12.12	12.	3.	2.	0.08
+	2 COMBINED AT C596	1221.	12.33	433.	154.	124.	2.91
+	HYDROGRAPH AT 209A	478.	12.22	69.	21.	17.	0.37
+	ROUTED TO 579580	477.	12.25	69.	21.	17.	0.37
+	HYDROGRAPH AT 209C	65.	12.23	12.	4.	3.	0.06
+	2 COMBINED AT C580R	541.	12.25	81.	25.	20.	0.43
+	HYDROGRAPH AT 209B	94.	12.22	16.	5.	4.	0.08
+	2 COMBINED AT C580	633.	12.23	96.	30.	24.	0.51
+	ROUTED TO 580581	629.	12.28	96.	30.	24.	0.51
+	HYDROGRAPH AT 209D	327.	12.18	45.	14.	11.	0.24
+	2 COMBINED AT C581R	935.	12.23	141.	44.	35.	0.76
+	HYDROGRAPH AT 209E	153.	12.27	28.	9.	7.	0.15
+	2 COMBINED AT C581	1085.	12.23	169.	53.	42.	0.91
+	ROUTED TO 581582	1076.	12.30	169.	53.	42.	0.91
+	HYDROGRAPH AT 209F	233.	12.28	41.	12.	10.	0.23
+	2 COMBINED AT C582R	1306.	12.30	209.	65.	52.	1.13
+	HYDROGRAPH AT 209G	219.	12.27	38.	12.	10.	0.20
+	2 COMBINED AT C582	1521.	12.30	247.	77.	61.	1.34
+	ROUTED TO 582583	1510.	12.33	247.	77.	61.	1.34
+	HYDROGRAPH AT 209H	115.	12.15	14.	4.	3.	0.08
+	2 COMBINED AT C583	1580.	12.32	261.	80.	65.	1.42
+	ROUTED TO 583584	1568.	12.40	261.	80.	65.	1.42
+	HYDROGRAPH AT 209I	270.	12.13	28.	7.	6.	0.18
+	2 COMBINED AT C584I	1683.	12.37	289.	88.	70.	1.60
+	ROUTED TO C584O	351.	13.23	283.	88.	70.	1.60
+	ROUTED TO 584597	351.	13.40	283.	88.	70.	1.60
+	HYDROGRAPH AT 210L	153.	12.13	18.	4.	4.	0.14
+	2 COMBINED AT C597	388.	12.35	300.	92.	74.	1.74
+	ROUTED TO 597598	387.	12.47	299.	92.	74.	1.74
+	HYDROGRAPH AT 210M	178.	12.23	23.	6.	5.	0.16

+	2 COMBINED AT	C598	517.	12.37	321.	98.	78.	1.90
+	HYDROGRAPH AT	210N	66.	12.08	7.	2.	1.	0.05
+	4 COMBINED AT	C599I	1967.	12.33	1000.	360.	290.	7.13
+	ROUTED TO	C599O	966.	14.10	834.	360.	290.	7.13
+	ROUTED TO	599608	966.	14.13	834.	360.	290.	7.13
+	HYDROGRAPH AT	211K	169.	12.03	18.	5.	4.	0.10
+	2 COMBINED AT	C608L	967.	14.15	835.	364.	293.	7.24
+	HYDROGRAPH AT	211G	11.	12.05	2.	1.	1.	0.01
+	ROUTED TO	604606	11.	12.23	2.	1.	1.	0.01
+	HYDROGRAPH AT	211I	47.	12.20	8.	3.	2.	0.04
+	2 COMBINED AT	C606R	58.	12.20	11.	3.	3.	0.05
+	HYDROGRAPH AT	211H	103.	12.13	11.	3.	2.	0.07
+	ROUTED TO	C605O	89.	12.23	11.	3.	2.	0.07
+	2 COMBINED AT	C606	146.	12.22	22.	6.	5.	0.12
+	ROUTED TO	606607	145.	12.25	22.	6.	5.	0.12
+	HYDROGRAPH AT	211J	22.	12.07	3.	1.	1.	0.01
+	2 COMBINED AT	C607	161.	12.23	25.	7.	6.	0.14
+	ROUTED TO	607608	160.	12.27	25.	7.	6.	0.14
+	2 COMBINED AT	C608	972.	14.13	850.	371.	298.	7.37
+	ROUTED TO	608613	972.	14.17	850.	371.	298.	7.37
+	HYDROGRAPH AT	211M	117.	12.15	16.	5.	4.	0.08
+	ROUTED TO	610611	116.	12.18	16.	5.	4.	0.08
+	HYDROGRAPH AT	211N	30.	12.05	4.	1.	1.	0.02
+	2 COMBINED AT	C611R	142.	12.15	19.	6.	5.	0.10
+	HYDROGRAPH AT	211O	62.	12.07	8.	3.	2.	0.04
+	ROUTED TO	C609O	48.	12.22	8.	3.	2.	0.04
+	ROUTED TO	609611	48.	12.23	8.	3.	2.	0.04
+	2 COMBINED AT	C611I	188.	12.17	28.	8.	7.	0.14
+	ROUTED TO	C611O	126.	12.38	28.	8.	6.	0.14
+	DIVERSION TO	D611R	126.	12.38	28.	8.	6.	0.14
+	HYDROGRAPH AT	D611L	0.	0.02	0.	0.	0.	0.14
+	ROUTED TO	611612	0.	0.02	0.	0.	0.	0.14
+	HYDROGRAPH AT	211P	65.	12.00	8.	3.	2.	0.03
+	2 COMBINED AT	C612	64.	12.00	8.	3.	2.	0.17
+	2 COMBINED AT	C613	972.	14.17	852.	373.	300.	7.55

+	ROUTED TO	613621	972.	14.18	852.	373.	300.	7.55
+	HYDROGRAPH AT	211L	162.	12.02	19.	6.	5.	0.10
+	2 COMBINED AT	C621L	975.	14.18	861.	378.	304.	7.64
+	HYDROGRAPH AT	211Q	32.	12.05	3.	1.	1.	0.02
+	ROUTED TO	616617	31.	12.10	3.	1.	1.	0.02
+	HYDROGRAPH AT	211R	118.	12.08	15.	4.	4.	0.08
+	2 COMBINED AT	C617L	149.	12.08	19.	5.	4.	0.10
+	HYDROGRAPH AT	211U	34.	12.08	7.	2.	2.	0.03
+	DIVERSION TO	D614R	24.	12.08	5.	1.	1.	0.03
+	HYDROGRAPH AT	D614L	10.	12.08	2.	1.	1.	0.03
+	2 COMBINED AT	C617	159.	12.08	21.	6.	5.	0.13
+	ROUTED TO	617618	157.	12.17	21.	6.	5.	0.13
+	HYDROGRAPH AT	211S	73.	12.07	10.	3.	2.	0.05
+	2 COMBINED AT	C618I	225.	12.13	31.	9.	7.	0.18
+	ROUTED TO	C618O	220.	12.18	24.	8.	7.	0.18
+	HYDROGRAPH AT	BB614R	24.	12.08	5.	1.	1.	0.03
+	ROUTED TO	614615	24.	12.12	5.	1.	1.	0.03
+	HYDROGRAPH AT	211V	9.	12.02	2.	1.	0.	0.00
+	2 COMBINED AT	C615	31.	12.07	6.	2.	2.	0.03
+	DIVERSION TO	D615R	11.	12.07	1.	0.	0.	0.03
+	HYDROGRAPH AT	D615L	21.	12.07	5.	2.	1.	0.03
+	ROUTED TO	615618	21.	12.08	5.	2.	1.	0.03
+	2 COMBINED AT	C618	239.	12.18	29.	10.	8.	0.19
+	ROUTED TO	618619	235.	12.25	29.	10.	8.	0.19
+	HYDROGRAPH AT	211T	95.	12.08	12.	3.	3.	0.07
+	2 COMBINED AT	C619L	307.	12.23	41.	13.	11.	0.26
+	HYDROGRAPH AT	BB615R	11.	12.07	1.	0.	0.	0.03
+	ROUTED TO	615619	10.	12.18	1.	0.	0.	0.03
+	2 COMBINED AT	C619I	317.	12.23	42.	14.	11.	0.25
+	ROUTED TO	C619O	176.	12.53	42.	14.	11.	0.25
+	DIVERSION TO	D619L	0.	0.02	0.	0.	0.	0.25
+	HYDROGRAPH AT	D619R	176.	12.53	42.	14.	11.	0.25
+	ROUTED TO	619620	176.	12.55	42.	14.	11.	0.25
+	HYDROGRAPH AT	BB619L	0.	0.02	0.	0.	0.	0.25
+	ROUTED TO	619620	0.	0.02	0.	0.	0.	0.25

+	HYDROGRAPH AT 211W	58.	12.00	8.	3.	2.	0.03
+	3 COMBINED AT C620R	187.	12.33	50.	16.	13.	0.28
+	HYDROGRAPH AT BB611R	126.	12.38	28.	8.	6.	0.14
+	ROUTED TO 611620	126.	12.40	28.	8.	6.	0.14
+	2 COMBINED AT C620	312.	12.40	77.	24.	20.	0.42
+	ROUTED TO 620621	312.	12.42	77.	24.	20.	0.42
+	2 COMBINED AT C621	1152.	12.22	928.	400.	323.	7.93
+	ROUTED TO 621622	1147.	12.32	928.	400.	323.	7.93
+	HYDROGRAPH AT 211X	304.	12.10	46.	15.	12.	0.21
+	2 COMBINED AT C622R	1384.	12.23	960.	413.	333.	8.14
+	HYDROGRAPH AT 211A	173.	12.13	24.	7.	5.	0.14
+	ROUTED TO C600O	171.	12.18	24.	7.	5.	0.14
+	ROUTED TO 600601	169.	12.25	24.	7.	5.	0.14
+	HYDROGRAPH AT 211B	147.	12.10	18.	5.	4.	0.11
+	2 COMBINED AT C601	300.	12.17	42.	12.	9.	0.25
+	ROUTED TO 601602	298.	12.23	42.	12.	9.	0.25
+	HYDROGRAPH AT 211C	77.	12.02	10.	3.	2.	0.04
+	2 COMBINED AT C602L	338.	12.18	51.	15.	12.	0.30
+	HYDROGRAPH AT 211D	89.	12.07	12.	4.	3.	0.07
+	2 COMBINED AT C602	418.	12.13	64.	18.	15.	0.37
+	ROUTED TO 602603	415.	12.20	64.	18.	15.	0.37
+	HYDROGRAPH AT 211E	279.	12.02	34.	11.	9.	0.16
+	2 COMBINED AT C603	617.	12.08	97.	29.	23.	0.52
+	ROUTED TO 603622	605.	12.17	97.	29.	23.	0.52
+	HYDROGRAPH AT 211F	190.	12.03	28.	9.	7.	0.11
+	2 COMBINED AT C622L	753.	12.13	125.	38.	31.	0.63
+	2 COMBINED AT C622	2053.	12.20	1065.	448.	361.	8.78
+	ROUTED TO 622549	2028.	12.32	1063.	448.	361.	8.78
+	HYDROGRAPH AT 211Y	128.	12.10	17.	5.	4.	0.09
+	2 COMBINED AT C549R	2112.	12.30	1075.	452.	364.	8.87
+	2 COMBINED AT C549	3095.	12.32	1483.	628.	507.	13.06
+	ROUTED TO 549626	3072.	12.42	1481.	628.	507.	13.06
+	HYDROGRAPH AT 211Z	137.	12.02	16.	5.	4.	0.08
+	2 COMBINED AT C626C	3096.	12.42	1487.	632.	510.	13.14
+	HYDROGRAPH AT 211AA	47.	12.08	8.	2.	2.	0.03

+	ROUTED TO	625626	46.	12.15	8.	2.	2.	0.03
+	HYDROGRAPH AT	211AB	74.	12.02	8.	2.	2.	0.04
+	ROUTED TO	623624	73.	12.02	8.	2.	2.	0.04
+	HYDROGRAPH AT	211AC	51.	12.02	7.	2.	2.	0.03
+	2 COMBINED AT	C624	125.	12.02	15.	5.	4.	0.07
+	ROUTED TO	624626	124.	12.07	15.	5.	4.	0.07
+	HYDROGRAPH AT	211AD	76.	12.02	10.	3.	3.	0.04
+	2 COMBINED AT	C626R	198.	12.03	26.	8.	6.	0.11
+	3 COMBINED AT	C626	3180.	12.40	1506.	641.	517.	13.28
+	ROUTED TO	626627	3176.	12.42	1506.	641.	517.	13.28
+	HYDROGRAPH AT	211AE	63.	12.02	8.	2.	2.	0.03
+	2 COMBINED AT	C627	3187.	12.42	1509.	643.	519.	13.32
+	HYDROGRAPH AT	211AF	96.	12.02	11.	3.	3.	0.05

*** NORMAL END OF HEC-1 ***