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CENTER STREET

At Wittmann Wash

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Limited Scope Design Concept Report

W.O.# 16083-3

APPENDIX

July 1996

Maricopa County

Department of Transportation

Prepared By:

SVERDRUP CIVIL, INC.

for

Transportation Planning Division

Registered Professional Engineer (Civil)
CERTIFICATE NO.
33955
BRADFORD D.
OLBERT
Date Signed 7/24/96
ARIZONA, U.S.A.

Bradford D. Olbert

A344.601

CENTER STREET

At Wittmann Wash

WITTMAN
WASH
HEC-II
ANALYSIS.
MCDOT PROJECT

INTIAL

Limited Scope Design Concept Report

W.O.# 16083-3

APPENDIX

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BRADFORD D.
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ARIZONA, U.S.A.

Bradford D. Olbert

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East Branch of Wittmann Wash

Subcritical File ALT2EAST.IH2

Registered Professional Engineer (Civil)
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BRADFORD D. OLBERT
Date Signed 7/2/96
ARIZONA U.S.A.

Bradford D. Olbert

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East Branch of Wittmann Wash

Subcritical File **ALT3EAST.IH2**

Subcritical and Supercritical Runs for Existing Conditions

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    24JUN96    TIME   15:40:20 *
 *******************************************
```

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

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THIS RUN EXECUTED 24JUN96 15:40:20

```
*************************************
 HEC-2 WATER SURFACE PROFILES

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

SPLIT FLOW BEING PERFORMED

SF SPLIT FLOW INTO EAST CHANNEL; RETURNS AT SECTION 1154

TW OVERFLOW ON LOWER LEFT BANK, DOWNSTREAM LIMIT;
    Wc BASED ON 0.3m DEPTH

```
WS    5    1652    1674    1154    1.56
WC    0   516.7      12   516.6      17   515.6      25   515.7      28   516.6
```

1

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Subcritical flow

Is this existing channel slope?

```
T1    MCDOT; WITTMANN-CENTER STREET CULVERTS                    6/24/96
T2    EXISTING WEST CHANNEL; 10-YEAR FLOW
T3    SUBCRITICAL FLOW,  FILE:  EXWEST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL      FQ

              2                  0      .0099      1                      510.15

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC     IBW      CHNIM     ITRACE

    1                  -1                                   -1                          15
```

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

```
    38        43         1        13        14        15        55        26        56        33
     4         5        42
    38        43         3         2        68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

QT       2     20.37     62.26

NC    .100      .050      .035        .1        .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     971         7     988.2    1015.3         0         0         0
X3      10
GR   511.8     982.1     511.8     988.2     509.4     991.9     509.6    1000.4     509.7    1009.5
GR   511.4    1015.3     511.5    1023.5

       SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE

NC    .025      .025      .035        .3        .5

       DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
       NEGLECT SKEW OF 10 DEGREES
       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     995        14     981.4    1024.7      10.7      35.7      22.9
X3      10
GR   513.1     981.4     511.6     981.7     511.5     981.7     511.1     984.7     509.9     987.8
GR   509.5     990.2     509.7     998.7     509.8    1007.3     510.2    1015.8     510.0    1020.4
GR   511.5    1023.7     511.5    1024.3     511.9    1024.3     513.5    1024.7

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SB    1.05       1.6      1.66                17.1       1.2      68.1       5.4     509.6     509.5

       UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
       NEGLECT SKEW OF 10 DEGREES

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1000        14     981.7    1024.3       5.5       5.5       5.5
X2                          1     511.9     513.1
X3      10                TOR        LC                 TOR        LC
BT      -2     981.7     513.1     511.6    1024.3     513.5     511.9
GR   513.1     981.1     511.6     981.7     511.5     981.7     511.1     984.7     510.0     987.8
GR   509.6     990.2     509.7     998.7     509.9    1007.3     510.2    1015.8     510.0    1020.4
GR   511.5    1023.7     511.5    1024.3     511.9    1024.3     513.5    1024.3

       SHOTCRETE SLOPE PROTECTION ON RIGHT

NC    .100      .025      .035        .1        .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1020        11     982.4    1007.7      35.1       0.9      19.8
X3      10
GR   512.4     961.1     511.5     964.1     510.8     967.2     510.9     982.4     510.2     994.6
GR   509.8     997.6     509.9    1001.3     509.8    1003.7     510.8    1005.9     513.5    1007.7
     513.5    1009.0

       SHOTCRETE SLOPE PROTECTION ON RIGHT

NH       5      .060     985.4      .100     988.0      .035    1001.3      .025    1005.3      .040
NH    1013
```

```
        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1030        11     978.0    1009.8      16.8       7.6      10.0
X3       10
       512.2     950.0     511.9     978.0     511.5     985.4     510.8     988.0     510.8     994.6
GR     509.9     996.7     509.9    1000.0     509.9    1001.3     512.1    1005.3     512.9    1009.8
GR     512.9    1013.0

        SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT

NH       5       .060    986.43      .100    994.11      .035   1003.49      .030   1007.33      .040
NH    1011.0

X1     1060         9    986.43   1007.33        16        18     30.57
X3       10
GR     512.5    915.00    511.55    966.98     511.5    978.97    512.14    986.43    510.02    994.11
GR     510.2   1003.49    511.50   1005.35    512.88   1007.33     512.9    1011.0

1
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NH       4       .060    979.44      .080    992.04      .040   1003.63      .080   1021.00

        CALCULATED SPLIT FLOW TO BE USED IN EXEAST.IH2 FOR EAST CHANNEL
        REMAINDER OF SPLIT FLOW USED AT CENTER STREET WEST CHANNEL CROSSING
        (east and west flows are re-combined at section 1154)

X1     1154         9    979.44   1016.60        94        93     93.71
X3       10
GR     512.7    950.00    512.58    979.44    511.55    987.29    510.76    992.04    510.71   1003.63
       510.7   1005.90    510.73   1008.00    512.90   1016.60    513.00   1021.00


NH       4       .060    994.25      .080    998.82      .033   1003.39      .060   1010.00

X1     1191        10    994.25   1006.67        42        35     37.24
X3       10
GR    512.72    983.92    512.65    989.13    512.33    994.25    511.00    998.82    510.98    998.89
GR     510.9   1003.19    511.00   1003.39    512.01   1005.44    513.14   1006.67     513.2   1010.00


NH       4       .060    992.06      .080    998.48      .048   1002.02      .060   1032.48

X1     1246         8    992.06   1005.06        56        55     55.38
X3       10
GR     513.2    950.00    513.01    958.67    513.12    965.78    513.18    992.06    511.57    998.48
GR     511.4   1002.02    513.85   1005.06     513.9   1032.48


NH       5       .060    996.07      .080    999.11      .048   1002.81      .080   1012.47      .060
NH    1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1291         7    996.07   1007.14        39        49     44.03
X3       10
GR    513.33    987.59    513.18    996.07    512.06    999.11    511.90   1002.81     513.4   1007.14
GR    514.05   1012.47    514.23    1038.2


NH       4       .060    988.37      .080    996.03      .038   1006.19      .060   1027.15

X1     1345        11    986.22   1007.90        60        49        54
X3       10
GR     514.1    950.00    513.95    974.18    513.93    986.22    513.16    988.37    512.95    994.56
```

```
GR    513.1     996.03     512.72    1000.55     512.61    1006.19     513.1    1006.79     514.00     1007.90
GR   514.23    1027.15

       4        .060     985.66       .080     996.28       .038    999.49       .080    1025.59
```



```
X1    1422         8     985.66    1002.43         69         85     77.06
X3      10
GR   514.5    950.00     514.14     969.33     514.12     985.66    513.14     996.28     513.18     999.49
GR   514.1   1001.27      514.7    1002.43     514.81    1025.59

NH       5      .060     991.48       .080     999.00       .040   1001.52       .080    1006.87       .060
NH  1022.3

X1    1464         9     991.48    1006.87         43         42     42.09
X3      10
GR  514.94    965.75     514.74     991.48      514.0     997.60    513.84     998.92      513.4     999.00
GR  513.39   1001.52      513.9    1003.30      515.0    1006.87     515.1     1022.3

NC    .060      .060      .050         .3         .5

X1    1483         9     987.08    1005.82         27         15     18.67
X3      10
GR   515.3    965.00     515.28     984.37     515.12     987.08    513.56     987.72     513.56    1000.69
GR   515.0   1005.82     514.96    1024.05     514.73    1027.39     515.0    1030.38

     DOWNSTREAM FACE OF RCP CULVERTS

X1    1486        10     989.96    1003.77        3.3        3.3      3.38
X3      10
GR   515.5    968.00     515.44     987.30     515.16     989.96    514.20     990.43     513.58     991.41
GR  513.58    996.99     513.58     999.47     515.08    1003.77    515.25    1010.64      515.3    1031.65

     6-1220 MM DIAMETER RCP (old condition);
     90-DEG HEADWALL WITH GROOVED END INLET

SC   6.015       0.5       1.66                 1.22          0      12.8        1.2     513.81     513.58

X1    1499         8     986.71    1001.70       12.8       12.8      12.8
X2                            2                515.44
X3      10                                                          515.47     515.44
BT      -2    965.00     515.51               1030.38     515.41
GR  515.51    965.00     515.34     986.71     513.81     988.67    513.81     996.02     513.81     999.78
GR   515.3   1001.70     515.39    1003.34     515.41    1030.38

NC    .100      .100      .040         .1         .3

     DWELLINGS ON RIGHT OVERBANK (INEFFECTIVE FLOW)
X1    1503         7     987.03    1000.38        3.3        3.3      3.38
X3      10
GR   515.4    978.00     515.33     987.03     513.86     989.34    513.86     993.22     515.13    1000.38
GR   515.4   1014.95     515.39    1030.65
```



```
NH       4      .080     994.00       .040     998.71       .080   1012.48       .060    1033.60
```

```
        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1545        8     991.70    1000.82        36        42     42.13
X3       10                         988.0
GR    515.6   967.00     515.54     991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR    515.5  1012.48     515.46    1022.45    515.53   1033.60


NH        3     .080     996.69       .033   1000.26      .080   1029.59

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1598        7     991.58    1004.53        53        54     53.64
X3       10                         989.0
GR   516.15   968.00     516.15     987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR    516.1  1004.53      516.2    1029.59


NH        3     .080     994.01       .037   1001.83      .080   1034.97

        BIFURCATION SECTION; DOWNSTREAM LIMIT
X1     1652        6     989.93    1005.58        53        54     53.18
X3       10
GR    516.7   980.00     516.58     989.93    515.42    994.01    515.38   1001.83    516.34   1005.58
GR    516.5  1034.97


NH        4     .080     958.00       .045    979.00      .035   1002.48      .080   1020.00

        BIFURCATION SECTION; UPSTREAM LIMIT
X1     1674        8     955.00    1006.40        24        20        22
X3       10
GR    516.6   950.00     516.58     955.00    515.55    958.00    515.55    979.00    515.55    980.00
GR    515.6  1002.48      516.6    1006.40     517.0   1020.00


NH        4     .080     966.50       .050    975.00      .035   1003.00      .080   1025.00

X1     1694        8     964.00    1006.40        32        20        20
X3       10
GR    516.7   950.00     516.68     964.00     515.9    966.50     515.9    975.00     515.7    976.00
GR    515.7  1003.00      516.9    1006.40     517.0   1025.00


NH        4     .080     983.00       .035    992.50      .080   1006.50      .060   1060.00

X1     1703        8     980.00    1006.50         9         9         9
X3       10
GR    516.9   935.00     516.7     980.00    515.75    983.00    515.75    992.50     515.9    994.00
GR    516.0  1003.00      516.9    1006.50     517.1   1060.00
```



```
NH        6     .080     972.00       .035    975.00      .080    993.00      .035    997.00     .080
NH   1007.0     .060    1040.00

X1     1715       11     970.00    1007.00        14        13        12
X3       10
GR    517.0   935.00     516.7     970.00     515.9    972.00     515.9    975.00     516.2    984.00
GR    515.8   993.00     515.8     997.00     516.1   1001.00     516.1   1003.00     517.1    1007.0
GR    517.3  1040.00


NH        8     .080     942.86       .040     943.5      .080    969.43      .040    975.29     .080
```

```
NH   998.39      .035     1003.1      .080     1009.03      .060     1050.00

        BRAIDED AREA UPSTREAM FROM CONFLUENCE
X1     1772        18     993.95    1009.03        72        56        57
        10
GR    517.9    900.00      517.7    923.00     517.42    938.76    516.60    942.86    516.60     943.5
GR   517.21    945.11     517.26    955.13      517.5    965.61    516.50    969.43    516.55    975.29
GR   517.63    982.11     517.71    993.95      516.3    998.39     516.3   1001.94    516.95    1003.1
GR   517.48   1009.03      517.5   1032.08      517.6   1050.00
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTION$

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000       .75    510.15    510.08    510.15    510.33       .18       .00       .00    511.80
      20.4        .0      20.4        .0        .0      10.9        .0        .0        .0    511.40
       .00       .00      1.87       .00      .000      .035      .000      .000    509.40    990.74
   .010027        0.        0.        0.         0        11         3       .00     20.30   1011.04


FLOW DISTRIBUTION FOR SECNO=    971.00          CWSEL=    510.15

STA=     991.    1015.
  PER Q=    100.0
   AREA=     10.9
    VEL=      1.9
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000       .92    510.42    510.15       .00    510.47       .05       .11       .04    513.10
      20.4        .0      20.4        .0        .0      20.0        .0        .4        .6    513.50
       .01       .00      1.02       .00      .000      .035      .000      .000    509.50    986.46
   .002676       11.       23.       36.         2        12         0       .00     34.87   1021.32


FLOW DISTRIBUTION FOR SECNO=    995.00          CWSEL=    510.42

STA=     986.    1025.
  PER Q=    100.0
   AREA=     20.0
    VEL=      1.0
  DEPTH=       .6

1
   24JUN96      15:40:20                                                                          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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 510.46 BRIDGE VELOCITY= 1.07 CALCULATED CHANNEL AREA= 18.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.49	.01	0.	20.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	.83	510.43	.00	.00	510.49	.06	.01	.00	511.60
20.4	.0	20.4	.0	.0	18.7	.0	.5	.8	513.50
.01	.00	1.09	.00	.000	.035	.000	.000	509.60	986.59
.003354	6.	6.	6.	0	0	0	.00	34.75	1021.34

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 510.43

STA= 987. 1024.
PER Q= 100.0
AREA= 18.7
VEL= 1.1
DEPTH= .5

CCHV= .100 CEHV= .300
*SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

1020.000	.84	510.64	510.64	.00	510.89	.25	.12	.06	510.90
20.4	.0	20.4	.0	.0	9.2	.0	.7	1.4	513.50
.01	.00	2.21	.00	.000	.035	.000	.000	509.80	986.91
.015487	35.	20.	1.	0	5	0	.00	18.64	1005.55

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

FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 510.64

```
STA=     987.    1008.
  PER Q=    100.0
   AREA=      9.2
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.08    510.98    510.98       .00    511.27       .28       .17       .01    511.90
      20.4        .0      20.4        .0        .0      8.6        .0        .8       1.5    512.90
       .01       .00      2.36       .00      .000      .038      .000      .000    509.90    987.32
   .018381       17.       10.        8.         0        18         0       .00     15.95   1003.27


FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    510.98

STA=     987.    1005.
  PER Q=    100.0
   AREA=      8.6
    VEL=      2.4
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      1.45    511.47    510.83       .00    511.53       .07       .25       .02    512.14
      20.4        .0      20.4        .0        .0      17.5        .0       1.2       2.0    512.88
       .02       .00      1.16       .00      .000      .059      .000      .000    510.02    988.91
   .004534       16.       31.       18.         2        15         0       .00     16.38   1005.29


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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


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    511.47

STA=     989.    1005.
  PER Q=    100.0
   AREA=     17.5
    VEL=      1.2
  DEPTH=      1.1

1490 NH CARD USED
*SECNO 1154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.09    511.79    511.25       .00    511.84       .04       .30       .00    512.58
      20.4        .0      20.4        .0        .0      22.5        .0       3.1       4.0    512.90
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      .05       .00       .90       .00      .000      .048      .000      .000    510.70    985.43
   .002358       94.       94.       93.         3        18         0       .00     26.79   1012.22


W DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.79

STA=     985.     992.    1004.    1017.
  PER Q=      6.0     76.0     17.9
   AREA=      3.3     12.3      7.0
    VEL=       .4      1.3       .5
  DEPTH=       .5      1.1       .8

1490 NH CARD USED
*SECNO 1191.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .21


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000       .97    511.87    511.63       .00    511.99       .12       .13       .02    512.33
       9.7        .0       9.7        .0        .0       6.4        .0       3.6       4.7    513.14
       .05       .00      1.53       .00      .000      .056      .000      .000    510.90    995.82
   .012789       42.       37.       35.         2        14         0       .00      9.35   1005.16


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.87

STA=     996.    1005.
  PER Q=    100.0
   AREA=      6.4
    VEL=      1.5
  DEPTH=       .7

1490 NH CARD USED
*SECNO 1246.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.20    512.60    512.26       .00    512.70       .10       .71       .00    513.18
       9.7        .0       9.7        .0        .0       7.0        .0       4.0       5.2    513.85
       .07       .00      1.39       .00      .000      .065      .000      .000    511.40    994.36
   .012749       56.       55.       55.         2        11         0       .00      9.16   1003.51


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.60

STA=     994.    1005.
  PER Q=    100.0
   AREA=      7.0
    VEL=      1.4
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1291.000
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.40

  1291.000      1.24    513.14    512.71       .00    513.21       .08       .51       .00    513.18
      9.7        .0       9.7        .0        .0       8.0        .0       4.3       5.7    513.40
      .08       .00      1.22       .00      .000      .070      .000      .000    511.90    996.21
  .010523       39.       44.       49.         1        14         0       .00     10.14   1006.35


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    513.14

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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


STA=     996.    1007.
  PER Q=    100.0
   AREA=      8.0
    VEL=      1.2
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1345.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .92    513.53    513.19       .00    513.56       .03       .35       .00    513.93
      9.7        .0       9.7        .0        .0      12.1        .0       4.9       6.5    514.00
      .09       .00       .80       .00      .000      .058      .000      .000    512.61    987.33
  .004362       60.       54.       49.         3        14         0       .00     20.00   1007.32


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    513.53

STA=     987.    1008.
  PER Q=    100.0
   AREA=     12.1
    VEL=       .8
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000       .94    514.08    513.80       .00    514.15       .07       .57       .01    514.12
      9.7        .0       9.7        .0        .0       8.5        .0       5.7       7.8    514.70
      .11       .00      1.15       .00      .000      .072      .000      .000    513.14    986.14
  .015325       69.       77.       85.         1        19         0       .00     15.08   1001.22


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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

FLOW DISTRIBUTION FOR SECNO=   1422.00         CWSEL=    514.08

STA=     986.    1001.
  PER Q=    100.0
   AREA=      8.5
    VEL=      1.2
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1464.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1464.000      1.27    514.66    514.28       .00    514.72       .06       .57       .00    514.74
      9.7        .0       9.7        .0        .0       8.9        .0       6.0       8.4    515.00
      .12       .00      1.09       .00      .000      .074      .000      .000    513.39    992.06
   .012190       43.       42.       42.         2        11         0       .00     13.74   1005.80


FLOW DISTRIBUTION FOR SECNO=   1464.00         CWSEL=    514.66

STA=     992.    1007.
  PER Q=    100.0
   AREA=      8.9
    VEL=      1.1
  DEPTH=       .6

CEHV=     .300 CEHV=     .500
*SECNO 1483.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.11


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.00

  1483.000      1.19    514.75    513.94       .00    514.77       .01       .03       .01    515.12
      9.7        .0       9.7        .0        .0      18.3        .0       6.3       8.7    515.00
      .13       .00       .53       .00      .000      .050      .000      .000    513.56    987.23
   .000723       27.       19.       15.         2        17         0       .00     17.72   1004.95


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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


FLOW DISTRIBUTION FOR SECNO=   1483.00         CWSEL=    514.75

STA=     987.    1006.
  PER Q=    100.0
   AREA=     18.3
    VEL=       .5
  DEPTH=      1.0

*SECNO 1486.000
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.16 ELREA= 515.08

1486.000	1.17	514.75	514.08	.00	514.78	.03	.00	.01	515.16
9.7	.0	9.7	.0	.0	12.3	.0	6.3	8.8	515.08
.13	.00	.79	.00	.000	.050	.000	.000	513.58	990.16
.001748	3.	3.	3.	2	14	0	.00	12.66	1002.82

FLOW DISTRIBUTION FOR SECNO= 1486.00 CWSEL= 514.75

STA= 990. 1004.
PER Q= 100.0
AREA= 12.3
VEL= .8
DEPTH= 1.0

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	6	.015	.50	1.66	.00	1.22	.00	12.80	1	2	513.81	513.58

CHART 1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE 2 - GROOVE END ENTRANCE WITH HEADWALL

*SECNO 1499.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 514.826 EGOC = 514.961 PCWSE= 514.750 ELTRD= 515.440

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
514.83	514.96	.18	0.	10.	.688	7.0	515.44	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.47 ELREA= 515.44

1499.000	1.13	514.94	.00	.00	514.96	.02	.18	.00	515.34
9.7	.0	9.7	.0	.0	14.1	.0	6.5	8.9	515.30
.14	.00	.69	.00	.000	.050	.000	.000	513.81	987.23
.001254	13.	13.	13.	2	0	0	.00	14.00	1001.23

FLOW DISTRIBUTION FOR SECNO= 1499.00 CWSEL= 514.94

STA= 987. 1002.
PER Q= 100.0
AREA= 14.1
VEL= .7
DEPTH= 1.0

```
CCHV=     .100 CEHV=     .300
*SECNO 1503.000

 2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .56


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.13

  1503.000      1.05    514.91    514.55       .00    514.98       .07       .01       .02    515.33
      9.7        .0       9.7        .0        .0       8.0        .0       6.6       9.0    515.13
      .14       .00      1.21       .00      .000      .040      .000      .000    513.86    987.69
   .003933       3.        3.        3.         2        14         0       .00     11.44    999.13


FLOW DISTRIBUTION FOR SECNO=   1503.00         CWSEL=    514.91

STA=     988.    1000.
  PER Q=    100.0
   AREA=      8.0
    VEL=      1.2
  DEPTH=       .7

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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


1490 NH CARD USED
*SECNO 1545.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .37


3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.31

  1545.000       .80    515.17    515.09       .00    515.38       .21       .36       .04    515.54
      9.7        .0       9.7        .0        .0       4.8        .0       6.8       9.4    515.31
      .15       .00      2.01       .00      .000      .059      .000      .000    514.37    992.48
   .029478       36.       42.       42.         3        19         0       .00      8.03   1000.51


FLOW DISTRIBUTION FOR SECNO=   1545.00         CWSEL=    515.17

STA=     992.    1001.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.0
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1598.000

 2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10
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  1598.000      1.19    516.04    515.57       .00    516.09       .05       .70       .02    516.12
      9.7        .0       9.7        .0        .0       9.5        .0       7.2       9.9    516.10
      .16       .00      1.02       .00      .000      .069      .000      .000    514.85    991.88
  .007337       53.       54.       54.         2        11         0       .00     12.46   1004.34


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.04

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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


STA=     992.    1005.
  PER Q=    100.0
   AREA=      9.5
    VEL=      1.0
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1652.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34

  1652.000       .98    516.36    515.90       .00    516.40       .04       .30       .00    516.58
      9.7        .0       9.7        .0        .0      10.8        .0       7.7      10.7    516.34
      .18       .00       .90       .01      .000      .060      .080      .000    515.38    990.73
  .004511       53.       53.       54.         2        14         0       .00     16.94   1007.68


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.36

STA=     991.    1006.    1008.
  PER Q=    100.0       .0
   AREA=     10.8       .0
    VEL=       .9       .0
  DEPTH=       .7       .0

1490 NH CARD USED
*SECNO 1674.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.22


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60

  1674.000       .86    516.41    515.84       .00    516.42       .01       .02       .00    516.58
     20.4        .0      20.4        .0        .0      40.1        .0       8.3      11.5    516.60
      .19       .00       .51       .00      .000      .045      .000      .000    515.55    955.49
  .000725       24.       22.       20.         2        14         0       .00     50.16   1005.66


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.41

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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
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```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=     955.    1006.
  PER Q=    100.0
   AREA=     40.1
    VEL=       .5
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .72    516.42    516.06       .00    516.45       .03       .02       .01    516.68
      20.4        .0      20.4        .0        .0      25.7        .0       9.0      12.4    516.90
       .20       .00       .79       .00      .000      .044      .000      .000    515.70    964.83
   .002174       32.       20.       20.         2        18         0       .00     40.22   1005.04


FLOW DISTRIBUTION FOR SECNO=   1694.00         CWSEL=    516.42

STA=     965.    1006.
  PER Q=    100.0
   AREA=     25.7
    VEL=       .8
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1703.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .37


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      516.90

  1703.000       .62    516.37    516.30       .00    516.53       .16       .04       .04    516.70
      20.4        .0      20.4        .0        .0      11.6        .0       9.1      12.7    516.90
       .20       .00      1.76       .00      .000      .044      .000      .000    515.75    981.01
   .015560        9.        9.        9.         2        15         0       .00     23.46   1004.47


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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


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.37

STA=     981.     983.     993.    1007.
  PER Q=      2.1     76.7     21.1
   AREA=       .6      6.0      5.0
    VEL=       .7      2.6       .9
  DEPTH=       .3       .6       .4

1490 NH CARD USED
*SECNO 1715.000
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.70 ELREA= 517.10

1715.000	.81	516.61	516.33	.00	516.66	.05	.11	.01	516.70
20.4	.0	20.4	.0	.0	20.6	.0	9.3	13.0	517.10
.20	.00	.99	.00	.000	.056	.000	.000	515.80	970.23
.006337	14.	12.	13.	2	15	0	.00	34.79	1005.03

FLOW DISTRIBUTION FOR SECNO= 1715.00 CWSEL= 516.61

STA=	970.	972.	975.	993.	997.	1007.
PER Q=	1.4	18.8	35.6	31.2	13.0	
AREA=	.6	2.1	10.5	3.2	4.2	
VEL=	.5	1.8	.7	2.0	.6	
DEPTH=	.4	.7	.6	.8	.5	

1490 NH CARD USED
*SECNO 1772.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 517.71 ELREA= 517.48

1772.000	1.11	517.41	517.41	.00	517.74	.33	.82	.08	517.71
20.4	.0	20.4	.0	.0	8.0	.0	10.1	14.4	517.48
.21	.00	2.55	.00	.000	.066	.000	.000	516.30	994.89
.058047	72.	57.	56.	0	14	0	.00	13.37	1008.26

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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

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.41

STA=	995.	1009.
PER Q=	100.0	
AREA=	8.0	
VEL=	2.5	
DEPTH=	.6	

1

TW OVERFLOW ON LOWER LEFT BANK, DOWNSTREAM LIMIT;

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
10.64	10.64	.02	10.64	10.64	.02	4	516.355	516.411	1652.000	1674.000

1

T1 MCDOT; WITTMANN-CENTER STREET CULVERTS

```
T2      EXISTING WEST CHANNEL; 100-YEAR FLOW
T3      SUBCRITICAL FLOW,  FILE:  EXWEST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                  0      .0099      1                        510.68

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                   -1                          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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      1.28    510.68    510.61    510.68    511.08       .39       .00       .00    511.80
      62.3        .0      62.3        .0        .0      22.4        .0        .0        .0    511.40
       .00       .00      2.78       .00      .000      .035      .000      .000    509.40    989.92
   .010043        0.        0.        0.         0        11         3       .00     22.94   1012.86


FLOW DISTRIBUTION FOR SECNO=    971.00         CWSEL=    510.68

STA=     990.    1015.
  PER Q=    100.0
   AREA=     22.4
    VEL=      2.8
  DEPTH=      1.0

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000      1.66    511.16    510.53       .00    511.25       .09       .08       .09    513.10
      62.3        .0      62.3        .0        .0      47.0        .0        .8        .7    513.50
       .00       .00      1.32       .00      .000      .035      .000      .000    509.50    984.27
   .001682       11.       23.       36.         3        15         0       .00     38.67   1022.95


FLOW DISTRIBUTION FOR SECNO=    995.00         CWSEL=    511.16

STA=     984.    1025.
  PER Q=    100.0
   AREA=     47.0
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   VEL=      1.3
 DEPTH=      1.2
```



```
   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


SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
    1.05     1.60     1.66     .00      17.10    1.20     68.10    5.40     509.60   509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.=     511.19 BRIDGE VELOCITY=      1.53     CALCULATED CHANNEL AREA=       39.

 EGPRS     EGLWC     H3       QWEIR    QLOW     BAREA    TRAPEZOID     ELLC     ELTRD    WEIRLN
                                                          AREA
     .00   511.26    .01      0.       62.      68.      65.      511.90   513.10   0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

 1000.000    1.57   511.17    .00      .00      511.26   .09      .01      .00      511.60
    62.3      .0     62.3     .0       .0       45.7     .0       1.1      .9       513.50
     .01     .00     1.36     .00      .000     .035     .000     .000     509.60   984.21
  .001855     6.      6.       6.       0        0        0       .00      38.76    1022.96


FLOW DISTRIBUTION FOR SECNO=   1000.00         CWSEL=    511.17

STA=     984.    1024.
  PER Q=    100.0
   AREA=     45.7
    VEL=      1.4
  DEPTH=      1.2

CCHV=     .100 CEHV=     .300
*SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      513.50

 1020.000    1.37   511.17   511.17    .00      511.56   .39      .08      .09      510.90
    62.3     2.6     59.7     .0       5.2      21.2     .0       1.8      1.8      513.50
     .01     .50     2.82     .00      .100     .035     .000     .000     509.80   965.55
  .011639    35.     20.      1.       0        15       0       .00      40.60    1006.15
```



```
   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


FLOW DISTRIBUTION FOR SECNO=   1020.00         CWSEL=    511.17

STA=     966.     967.     982.    1008.
  PER Q=       .2      4.0     95.8
   AREA=       .3      4.9     21.2
    VEL=       .3       .5      2.8
  DEPTH=       .2       .3       .9

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.73    511.63    511.63       .00    512.11       .48       .16       .03    511.90
      62.3        .0      62.3        .0        .0      20.3        .0       2.1       2.2    512.90
       .01       .00      3.06       .00      .000      .047      .000      .000    509.90    982.94
   .023033       17.       10.        8.         0        11         0       .00     21.51   1004.45


FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    511.63

STA=     983.    1005.
  PER Q=    100.0
   AREA=     20.3
    VEL=      3.1
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.48


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      2.28    512.30    511.53       .00    512.37       .07       .22       .04    512.14
      62.3      18.6      43.6        .0      28.5      33.2        .0       3.1       3.3    512.88
       .02       .65      1.32       .00      .060      .063      .000      .000    510.02    925.69
   .003741       16.       31.       18.         3        11         0       .00     80.82   1006.50


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


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    512.30

STA=     926.     967.     979.     986.    1007.
  PER Q=     13.3     13.0      3.6     70.1
   AREA=     15.6      9.3      3.6     33.2
    VEL=       .5       .9       .6      1.3
  DEPTH=       .4       .8       .5      1.7

1490 NH CARD USED
*SECNO 1154.000
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.90    512.60    511.77       .00    512.68       .09       .31       .01    512.58
      62.3        .0      62.3        .0        .0      47.4        .0       8.2       8.9    512.90
       .04       .01      1.31       .00      .000      .049      .000      .000    510.70    978.02
   .002933       94.       94.       93.         2        14         0       .00     37.34   1015.35


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    512.60

STA=     978.     992.    1004.    1017.
  PER Q=      10.7     70.3     19.0
   AREA=      10.9     21.5     15.0
    VEL=        .6      2.0       .8
  DEPTH=        .9      1.9      1.3

1490 NH CARD USED
*SECNO 1191.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .25


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      1.77    512.67    512.26       .00    512.88       .21       .16       .04    512.33
      31.4        .5      30.8        .0        .9      15.1        .0       9.4       9.9    513.14
       .04       .56      2.04       .00      .060      .060      .000      .000    510.90    987.60
   .011558       42.       37.       35.         2        20         0       .00     18.56   1006.16


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    512.67

STA=     988.     994.    1007.
  PER Q=       1.7     98.3
   AREA=        .9     15.1
    VEL=        .6      2.0
  DEPTH=        .1      1.3

1490 NH CARD USED
*SECNO 1246.000
3280 CROSS SECTION   1246.00 EXTENDED       .17 METERS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.96    513.36    513.21       .00    513.47       .11       .59       .01    513.18
      31.4       6.4      24.9        .0      10.1      15.4        .0      10.6      12.0    513.85
       .05       .64      1.62       .00      .060      .067      .000      .000    511.40    950.00
   .009759       56.       55.       55.         2         8         0       .00     54.46   1004.46


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    513.36

STA=     950.     959.     966.     992.    1005.
  PER Q=       4.8      5.0     10.7     79.4
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```
   AREA=      2.3      2.1      5.7     15.4
    VEL=       .7       .7       .6      1.6
  DEPTH=       .3       .3       .2      1.2

    0 NH CARD USED
*SECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .45 METERS

  1291.000      1.88    513.78    513.43       .00    513.92       .14       .44       .01    513.18
      31.4       4.8      26.3        .3       4.5      15.1        .6      11.5      13.5    513.40
       .06      1.08      1.74       .42      .060      .071      .080      .000    511.90    987.59
   .010542       39.       44.       49.         2        15         0       .00     22.68   1010.27


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    513.78

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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


STA=     988.     996.    1007.    1010.
  PER Q=     15.3     83.9       .8
   AREA=      4.5     15.1       .6
    VEL=      1.1      1.7       .4
  DEPTH=       .5      1.4       .2

    0 NH CARD USED
*SECNO 1345.000
3280 CROSS SECTION   1345.00 EXTENDED       .08 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

  1345.000      1.57    514.18    513.55       .00    514.24       .06       .31       .01    513.93
      31.4       2.2      28.9        .3       6.6      25.8       1.3      13.0      16.2    514.00
       .07       .33      1.12       .20      .060      .058      .060      .000    512.61    950.00
   .003539       60.       54.       49.         3         8         0       .00     72.90   1022.90


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    514.18

STA=     950.     974.     986.    1008.    1023.
  PER Q=      3.4      3.5     92.3       .9
   AREA=      3.7      2.9     25.8      1.3
    VEL=       .3       .4      1.1       .2
  DEPTH=       .2       .2      1.2       .1

1490 NH CARD USED
*SECNO 1422.000
3280 CROSS SECTION   1422.00 EXTENDED       .08 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.12 ELREA=       514.70

  1422.000      1.44    514.58    514.37       .00    514.65       .07       .41       .00    514.12
      31.4      10.0      21.3        .0      12.3      16.5        .0      15.3      20.8    514.70
       .09       .82      1.29       .00      .060      .073      .000      .000    513.14    950.00
```

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   .009229      69.      77.      85.       2      14       0     .00    52.19  1002.19


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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


 FLOW DISTRIBUTION FOR SECNO=   1422.00         CWSEL=    514.58

 STA=     950.     969.     986.    1002.
   PER Q=     10.2     21.8     68.0
    AREA=      5.0      7.3     16.5
     VEL=       .6       .9      1.3
   DEPTH=       .3       .4      1.0

 1490 NH CARD USED
 *SECNO 1464.000
 3280 CROSS SECTION   1464.00 EXTENDED       .13 METERS

   1464.000     1.68   515.07   514.99      .00   515.21      .14      .54      .02   514.74
      31.4      5.1     26.1       .1      6.0     14.9       .4     16.4     23.0   515.00
       .10      .86     1.75      .25     .060     .074     .060     .000   513.39   965.75
   .018705      43.      42.      42.        2        9        0      .00    52.32  1018.07


 FLOW DISTRIBUTION FOR SECNO=   1464.00         CWSEL=    515.07

 STA=     966.     991.    1007.    1018.
   PER Q=     16.4     83.3       .3
    AREA=      6.0     14.9       .4
     VEL=       .9      1.7       .2
   DEPTH=       .2      1.0       .0

 CCHV=     .300 CEHV=     .500
 *SECNO 1483.000
 3280 CROSS SECTION   1483.00 EXTENDED       .25 METERS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.22

   1483.000     1.70   515.26   514.37      .00   515.31      .05      .08      .03   515.12
      31.4       .0     28.9      2.4       .1     27.5      7.5     16.9     24.0   515.00
       .10      .12     1.05      .32     .060     .050     .060     .000   513.56   984.84
   .001804      27.      19.      15.        1       11        0      .00    45.54  1030.38


 FLOW DISTRIBUTION FOR SECNO=   1483.00         CWSEL=    515.26

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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


 STA=     985.     987.    1006.    1024.    1027.    1030.
   PER Q=       .1     92.3      4.7      1.7      1.3
```

```
   AREA=       .1     27.5      5.0      1.4      1.2
    VEL=       .1      1.1       .3       .4       .4
  DEPTH=       .1      1.5       .3       .4       .4

*SECNO 1486.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

  1486.000      1.65    515.23    514.62       .00    515.37       .14       .01       .04    515.16
      31.4        .0      31.3        .1        .0      18.7        .4      17.0      24.1    515.08
       .11       .01      1.67       .21      .060      .050      .060      .000    513.58    989.33
   .005147        3.        3.        3.         2        14         0       .00     20.35   1009.68


FLOW DISTRIBUTION FOR SECNO=   1486.00          CWSEL=    515.23

STA=     989.     990.    1004.    1010.
  PER Q=       .0     99.7       .3
   AREA=       .0     18.7       .4
    VEL=       .0      1.7       .2
  DEPTH=       .0      1.4       .1


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6         .015      .50      1.66       .00      1.22       .00      12.80      1         2       513.81    513.58

CHART  1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE  2 - GROOVE END ENTRANCE WITH HEADWALL

*SECNO 1499.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG =    515.73
3280 CROSS SECTION   1499.00 EXTENDED       .26 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.74

SPECIAL CULVERT

    EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  516.62    517.03       .36       15.       17.     1.106       7.0    515.44       65.


  1499.000      1.86    515.67       .00       .00    515.73       .06       .36       .00    515.34
      31.4       1.4      27.6       2.3       5.4      25.0       7.9      17.4      24.7    515.30
       .11       .27      1.11       .29      .060      .050      .060      .000    513.81    965.00
   .001692       13.       13.       13.         2         0         0       .00     65.38   1030.38


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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


FLOW DISTRIBUTION FOR SECNO=   1499.00          CWSEL=    515.67

STA=     965.     987.    1002.    1003.    1030.
  PER Q=       4.6     88.1       .6      6.7
   AREA=       5.4     25.0       .5      7.4
```

```
   VEL=       .3      1.1       .3       .3
 DEPTH=       .2      1.7       .3       .3

CCHV=     .100 CEHV=     .300
*SECNO 1503.000
3280 CROSS SECTION   1503.00 EXTENDED       .24 METERS

  1503.000      1.77    515.63    515.14       .00    515.76       .12       .01       .02    515.33
     31.4        .6      28.5       2.3       2.4      17.4       9.1      17.5      24.8    515.13
       .11       .23      1.63       .26      .100      .040      .100      .000    513.86    978.00
   .003150       3.        3.        3.         2        15         0       .00     52.65   1030.65


FLOW DISTRIBUTION FOR SECNO=   1503.00          CWSEL=    515.63

STA=     978.     987.    1000.    1015.    1031.
  PER Q=      1.8     90.7      4.9      2.5
   AREA=      2.4     17.4      5.4      3.7
    VEL=       .2      1.6       .3       .2
  DEPTH=       .3      1.3       .4       .2

1490 NH CARD USED
*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .33 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.49    515.86    515.76       .00    515.98       .12       .22       .00    515.54
     31.4        .7      19.8      10.9       1.2      10.9      13.2      18.6      26.9    515.31
       .12       .56      1.81       .83      .080      .062      .067      .000    514.37    988.00
   .010472       36.       42.       42.         3        14         0       .00     45.60   1033.60


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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


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.86

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      2.1     63.1     12.8     10.9     11.1
   AREA=      1.2     10.9      5.3      3.8      4.1
    VEL=       .6      1.8       .8       .9       .9
  DEPTH=       .3      1.2       .5       .4       .4

1490 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION   1598.00 EXTENDED       .26 METERS


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
  1598.000      1.62    516.47    516.30       .00    516.60       .13       .62       .00    516.12
     31.4        .5      25.9       4.9        .8      14.8       7.7      20.0      29.2    516.10
       .13       .62      1.75       .64      .080      .069      .080      .000    514.85    989.00
   .012634       53.       54.       54.         1         8         0       .00     40.59   1029.59
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FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.47

STA=     989.     992.    1005.    1030.
 PER Q=      1.7     82.7     15.6
  AREA=       .8     14.8      7.7
   VEL=       .6      1.8       .6
 DEPTH=       .3      1.1       .3

1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION   1652.00 EXTENDED       .40 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.74

  1652.000      1.53    516.91    516.52       .00    516.96       .06       .36       .01    516.58
      31.4        .9      23.5       7.0       2.6      19.4      14.2      21.5      31.8    516.34
       .14       .33      1.21       .49      .080      .061      .080      .000    515.38    980.00
   .004182       53.       53.       54.         2        17         0       .00     54.97   1034.97


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   24JUN96      15:40:20                                                                                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


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.91

STA=     980.     990.    1006.    1035.
 PER Q=      2.8     74.8     22.5
  AREA=      2.6     19.4     14.2
   VEL=       .3      1.2       .5
 DEPTH=       .3      1.2       .5

1490 NH CARD USED
*SECNO 1674.000
3280 CROSS SECTION   1674.00 EXTENDED       .36 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.70

  1674.000      1.41    516.96    516.14       .00    517.00       .04       .04       .00    516.58
      62.3        .4      61.6        .3       1.9      68.3       2.2      22.7      33.1    516.60
       .15       .21       .90       .14      .080      .046      .080      .000    515.55    950.00
   .001207       24.       22.       20.         2        18         0       .00     68.72   1018.72


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.96

STA=     950.     955.    1006.    1019.
 PER Q=       .6     98.9       .5
  AREA=      1.9     68.3      2.2
   VEL=       .2       .9       .1
 DEPTH=       .4      1.3       .2

0 NH CARD USED
*SECNO 1694.000
3280 CROSS SECTION   1694.00 EXTENDED       .27 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66
```

1694.000	1.27	516.97	516.40	.00	517.05	.08	.04	.01	516.68
62.3	1.1	61.1	.0	3.9	48.6	.5	24.0	34.6	516.90
.15	.28	1.26	.07	.080	.046	.080	.000	515.70	950.00
.002795	32.	20.	20.	2	8	0	.00	69.80	1019.80

1

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

FLOW DISTRIBUTION FOR SECNO= 1694.00 CWSEL= 516.97

STA=	950.	964.	1006.	1020.
PER Q=	1.8	98.2	.1	
AREA=	3.9	48.6	.5	
VEL=	.3	1.3	.1	
DEPTH=	.3	1.1	.0	

1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION 1703.00 EXTENDED .01 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1703.000	1.16	516.91	516.91	.00	517.19	.28	.06	.06	516.70
62.3	2.3	59.9	.0	4.9	24.9	.0	24.4	35.2	516.90
.15	.47	2.40	.03	.080	.066	.060	.000	515.75	935.00
.027583	9.	9.	9.	0	8	0	.00	73.98	1008.98

FLOW DISTRIBUTION FOR SECNO= 1703.00 CWSEL= 516.91

STA=	935.	980.	1007.	1009.
PER Q=	3.7	96.2	.0	
AREA=	4.9	24.9	.0	
VEL=	.5	2.4	.0	
DEPTH=	.1	.9	.0	

1490 NH CARD USED
*SECNO 1715.000
3280 CROSS SECTION 1715.00 EXTENDED .29 METERS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.21

1715.000	1.48	517.28	516.70	.00	517.35	.06	.13	.02	516.70
62.3	8.2	53.3	.8	15.3	45.3	2.9	25.0	36.4	517.10
.16	.54	1.18	.26	.080	.073	.060	.000	515.80	935.00
.005645	14.	12.	13.	2	15	0	.00	102.97	1037.97

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

FLOW DISTRIBUTION FOR SECNO= 1715.00 CWSEL= 517.28

STA=	935.	970.	1007.	1038.
PER Q=	13.2	85.5	1.2	
AREA=	15.3	45.3	2.9	
VEL=	.5	1.2	.3	
DEPTH=	.4	1.2	.1	

1490 NH CARD USED
*SECNO 1772.000
3280 CROSS SECTION 1772.00 EXTENDED .14 METERS

1772.000	1.43	517.73	517.72	.00	517.81	.08	.46	.00	517.71
62.3	40.5	16.3	5.5	31.9	12.8	9.1	28.7	43.9	517.48
.17	1.27	1.28	.61	.058	.068	.060	.000	516.30	918.61
.009662	72.	57.	56.	1	13	0	.00	131.39	1050.00

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.73

STA=	919.	943.	944.	955.	966.	969.	975.	982.	994.	1009.	1032.	1050.
PER Q=	6.5	3.1	8.5	3.7	4.4	31.9	6.5	.3	26.2	5.9	2.9	
AREA=	5.9	.7	6.4	3.8	2.8	7.1	4.4	.8	12.8	5.7	3.4	
VEL=	.7	2.7	.8	.6	1.0	2.8	.9	.2	1.3	.6	.5	
DEPTH=	.2	1.1	.5	.4	.7	1.2	.6	.1	.8	.2	.2	

TW OVERFLOW ON LOWER LEFT BANK, DOWNSTREAM LIMIT;

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
30.90	30.84	.17	30.90	30.84	.17	4	516.906	516.962	1652.000	1674.000

THIS RUN EXECUTED 24JUN96 15:40:25

****
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

SUBCRITICAL FLOW, FILE:

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	971.000	20.37	510.15	.00	20.37	.00	.00	1.87	.00	.00	20.30	100.27	509.40
	971.000	62.26	510.68	.00	62.26	.00	.00	2.78	.00	.00	22.94	100.43	509.40
*	995.000	20.37	510.42	.00	20.37	.00	.00	1.02	.00	4.37	34.87	26.76	509.50

*	995.000	62.26	511.16	.00	62.26	.00	.00	1.32	.00	4.37	38.67	16.82	509.50
	1000.000	20.37	510.43	.00	20.37	.00	.00	1.09	.00	18.18	34.75	33.54	509.60
	1000.000	62.26	511.17	.00	62.26	.00	.00	1.36	.00	18.18	38.76	18.55	509.60
*	1020.000	20.37	510.64	.00	20.37	.00	.00	2.21	.00	10.10	18.64	154.87	509.80
*	1020.000	62.26	511.17	2.61	59.65	.00	.50	2.82	.00	10.10	40.60	116.39	509.80
*	1030.000	20.37	510.98	.00	20.37	.00	.00	2.36	.00	10.00	15.95	183.81	509.90
*	1030.000	62.26	511.63	.00	62.26	.00	.00	3.06	.00	10.00	21.51	230.33	509.90
*	1060.000	20.37	511.47	.00	20.37	.00	.00	1.16	.00	3.93	16.38	45.34	510.02
*	1060.000	62.26	512.30	18.63	43.62	.00	.65	1.32	.00	3.93	80.82	37.41	510.02
	1154.000	20.37	511.79	.00	20.37	.00	.00	.90	.00	7.26	26.79	23.58	510.70
	1154.000	62.26	512.60	.00	62.26	.00	.01	1.31	.00	7.26	37.34	29.33	510.70
*	1191.000	9.73	511.87	.00	9.73	.00	.00	1.53	.00	5.37	9.35	127.89	510.90
*	1191.000	31.36	512.67	.53	30.83	.00	.56	2.04	.00	5.37	18.56	115.58	510.90
	1246.000	9.73	512.60	.00	9.73	.00	.00	1.39	.00	9.03	9.16	127.49	511.40
	1246.000	31.36	513.36	6.45	24.91	.00	.64	1.62	.00	9.03	54.46	97.59	511.40
	1291.000	9.73	513.14	.00	9.73	.00	.00	1.22	.00	11.36	10.14	105.23	511.90
	1291.000	31.36	513.78	4.81	26.30	.25	1.08	1.74	.42	11.36	22.68	105.42	511.90
*	1345.000	9.73	513.53	.00	9.73	.00	.00	.80	.00	13.15	20.00	43.62	512.61
*	1345.000	31.36	514.18	2.16	28.93	.27	.33	1.12	.20	13.15	72.90	35.39	512.61

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1422.000	9.73	514.08	.00	9.73	.00	.00	1.15	.00	6.88	15.08	153.25	513.14
*	1422.000	31.36	514.58	10.03	21.33	.00	.82	1.29	.00	6.88	52.19	92.29	513.14
	1464.000	9.73	514.66	.00	9.73	.00	.00	1.09	.00	5.94	13.74	121.90	513.39
	1464.000	31.36	515.07	5.14	26.12	.10	.86	1.75	.25	5.94	52.32	187.05	513.39
*	1483.000	9.73	514.75	.00	9.73	.00	.00	.53	.00	9.10	17.72	7.23	513.56
*	1483.000	31.36	515.26	.02	28.93	2.41	.12	1.05	.32	9.10	45.54	18.04	513.56
*	1486.000	9.73	514.75	.00	9.73	.00	.00	.79	.00	5.92	12.66	17.48	513.58
*	1486.000	31.36	515.23	.00	31.27	.09	.01	1.67	.21	5.92	20.35	51.47	513.58
	1499.000	9.73	514.94	.00	9.73	.00	.00	.69	.00	17.97	14.00	12.54	513.81
*	1499.000	31.36	515.67	1.44	27.64	2.28	.27	1.11	.29	17.97	65.38	16.92	513.81
*	1503.000	9.73	514.91	.00	9.73	.00	.00	1.21	.00	14.79	11.44	39.33	513.86
	1503.000	31.36	515.63	.56	28.46	2.35	.23	1.63	.26	14.79	52.65	31.50	513.86
*	1545.000	9.73	515.17	.00	9.73	.00	.00	2.01	.00	12.11	8.03	294.78	514.37
*	1545.000	31.36	515.86	.66	19.78	10.92	.56	1.81	.83	12.11	45.60	104.72	514.37
*	1598.000	9.73	516.04	.00	9.73	.00	.00	1.02	.00	8.95	12.46	73.37	514.85
	1598.000	31.36	516.47	.53	25.94	4.90	.62	1.75	.64	8.95	40.59	126.34	514.85
	1652.000	9.73	516.36	.00	9.73	.00	.00	.90	.01	9.97	16.94	45.11	515.38
	1652.000	31.36	516.91	.86	23.46	7.04	.33	1.21	.49	9.97	54.97	41.82	515.38
*	1674.000	20.37	516.41	.00	20.37	.00	.00	.51	.00	7.73	50.16	7.25	515.55
*	1674.000	62.26	516.96	.40	61.55	.31	.21	.90	.14	7.73	68.72	12.07	515.55
*	1694.000	20.37	516.42	.00	20.37	.00	.00	.79	.00	7.50	40.22	21.74	515.70

*	1694.000	62.26	516.97	1.11	61.12	.03	.28	1.26	.07	7.50	69.80	27.95	515.70
*	1703.000	20.37	516.37	.00	20.37	.00	.00	1.76	.00	5.55	23.46	155.60	515.75
*	1703.000	62.26	516.91	2.33	59.92	.00	.47	2.40	.03	5.55	73.98	275.83	515.75
*	1715.000	20.37	516.61	.00	20.37	.00	.00	.99	.00	4.17	34.79	63.37	515.80
*	1715.000	62.26	517.28	8.25	53.26	.75	.54	1.18	.26	4.17	102.97	56.45	515.80
*	1772.000	20.37	517.41	.00	20.37	.00	.00	2.55	.00	8.77	13.37	580.47	516.30
	1772.000	62.26	517.73	40.45	16.30	5.51	1.27	1.28	.61	8.77	131.39	96.62	516.30

SUBCRITICAL FLOW, FILE:

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	971.000	20.37	510.33	510.08	.82
	971.000	62.26	511.08	510.61	.90
*	995.000	20.37	510.47	510.15	.43
*	995.000	62.26	511.25	510.53	.38
	1000.000	20.37	510.49	.00	.47
	1000.000	62.26	511.26	.00	.40
*	1020.000	20.37	510.89	510.64	1.00
	1020.000	62.26	511.56	511.17	.95
*	1030.000	20.37	511.27	510.98	1.02
*	1030.000	62.26	512.11	511.63	1.01
*	1060.000	20.37	511.53	510.83	.36
*	1060.000	62.26	512.37	511.53	.33
	1154.000	20.37	511.84	511.25	.31
	1154.000	62.26	512.68	511.77	.37
*	1191.000	9.73	511.99	511.63	.59
*	1191.000	31.36	512.88	512.26	.58
	1246.000	9.73	512.70	512.26	.51
	1246.000	31.36	513.47	513.21	.46
	1291.000	9.73	513.21	512.71	.44
	1291.000	31.36	513.92	513.43	.48
*	1345.000	9.73	513.56	513.19	.33
*	1345.000	31.36	514.24	513.55	.33
*	1422.000	9.73	514.15	513.80	.49
*	1422.000	31.36	514.65	514.37	.41
	1464.000	9.73	514.72	514.28	.43
	1464.000	31.36	515.21	514.99	.57
*	1483.000	9.73	514.77	513.94	.17
*	1483.000	31.36	515.31	514.37	.28
*	1486.000	9.73	514.78	514.08	.26
*	1486.000	31.36	515.37	514.62	.46

	1499.000	9.73	514.96	.00	.22
*	1499.000	31.36	515.73	.00	.27

	SECNO	Q	EG	CRIWS	FRCH
*	1503.000	9.73	514.98	514.55	.46
	1503.000	31.36	515.76	515.14	.46
*	1545.000	9.73	515.38	515.09	.83
*	1545.000	31.36	515.98	515.76	.53
*	1598.000	9.73	516.09	515.57	.37
	1598.000	31.36	516.60	516.30	.52
	1652.000	9.73	516.40	515.90	.34
*	1652.000	31.36	516.96	516.52	.35
*	1674.000	20.37	516.42	515.84	.18
*	1674.000	62.26	517.00	516.14	.25
*	1694.000	20.37	516.45	516.06	.32
*	1694.000	62.26	517.05	516.40	.37
*	1703.000	20.37	516.53	516.30	.80
*	1703.000	62.26	517.19	516.91	.79
*	1715.000	20.37	516.66	516.33	.41
	1715.000	62.26	517.35	516.70	.34
*	1772.000	20.37	517.74	517.41	1.05
	1772.000	62.26	517.81	517.72	.44

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SUBCRITICAL FLOW, FILE:

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	971.000	.00	.00	.00	509.40	20.37	510.15	510.08	510.33	100.27	1.87	10.89	2.03
	971.000	.00	.00	.00	509.40	62.26	510.68	510.61	511.08	100.43	2.78	22.42	6.21
*	995.000	22.90	.00	.00	509.50	20.37	510.42	510.15	510.47	26.76	1.02	20.03	3.94
*	995.000	22.90	.00	.00	509.50	62.26	511.16	510.53	511.25	16.82	1.32	47.05	15.18
	1000.000	5.50	513.10	511.90	509.60	20.37	510.43	.00	510.49	33.54	1.09	18.69	3.52
	1000.000	5.50	513.10	511.90	509.60	62.26	511.17	.00	511.26	18.55	1.36	45.71	14.46
*	1020.000	19.80	.00	.00	509.80	20.37	510.64	510.64	510.89	154.87	2.21	9.23	1.64
*	1020.000	19.80	.00	.00	509.80	62.26	511.17	511.17	511.56	116.39	2.82	26.39	5.77
	1030.000	10.00	.00	.00	509.90	20.37	510.98	510.98	511.27	183.81	2.36	8.65	1.50
*	1030.000	10.00	.00	.00	509.90	62.26	511.63	511.63	512.11	230.33	3.06	20.32	4.10
*	1060.000	30.57	.00	.00	510.02	20.37	511.47	510.83	511.53	45.34	1.16	17.50	3.03
*	1060.000	30.57	.00	.00	510.02	62.26	512.30	511.53	512.37	37.41	1.32	61.71	10.18

	1154.000	93.71	.00	.00	510.70	20.37	511.79	511.25	511.84	23.58	.90	22.52	4.20
	1154.000	93.71	.00	.00	510.70	62.26	512.60	511.77	512.68	29.33	1.31	47.36	11.50
*	1191.000	37.24	.00	.00	510.90	9.73	511.87	511.63	511.99	127.89	1.53	6.35	.86
	1191.000	37.24	.00	.00	510.90	31.36	512.67	512.26	512.88	115.58	2.04	16.06	2.92
	1246.000	55.38	.00	.00	511.40	9.73	512.60	512.26	512.70	127.49	1.39	6.99	.86
	1246.000	55.38	.00	.00	511.40	31.36	513.36	513.21	513.47	97.59	1.62	25.50	3.17
	1291.000	44.03	.00	.00	511.90	9.73	513.14	512.71	513.21	105.23	1.22	7.96	.95
	1291.000	44.03	.00	.00	511.90	31.36	513.78	513.43	513.92	105.42	1.74	20.15	3.05
*	1345.000	54.00	.00	.00	512.61	9.73	513.53	513.19	513.56	43.62	.80	12.13	1.47
*	1345.000	54.00	.00	.00	512.61	31.36	514.18	513.55	514.24	35.39	1.12	33.74	5.27
*	1422.000	77.06	.00	.00	513.14	9.73	514.08	513.80	514.15	153.25	1.15	8.45	.79
*	1422.000	77.06	.00	.00	513.14	31.36	514.58	514.37	514.65	92.29	1.29	28.76	3.26
	1464.000	42.09	.00	.00	513.39	9.73	514.66	514.28	514.72	121.90	1.09	8.92	.88
	1464.000	42.09	.00	.00	513.39	31.36	515.07	514.99	515.21	187.05	1.75	21.32	2.29
*	1483.000	18.67	.00	.00	513.56	9.73	514.75	513.94	514.77	7.23	.53	18.33	3.62
*	1483.000	18.67	.00	.00	513.56	31.36	515.26	514.37	515.31	18.04	1.05	35.14	7.38
*	1486.000	3.38	.00	.00	513.58	9.73	514.75	514.08	514.78	17.48	.79	12.31	2.33
*	1486.000	3.38	.00	.00	513.58	31.36	515.23	514.62	515.37	51.47	1.67	19.14	4.37
	1499.000	12.80	515.44	.00	513.81	9.73	514.94	.00	514.96	12.54	.69	14.15	2.75
*	1499.000	12.80	515.44	.00	513.81	31.36	515.67	.00	515.73	16.92	1.11	38.26	7.63

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1503.000	3.38	.00	.00	513.86	9.73	514.91	514.55	514.98	39.33	1.21	8.04	1.55
	1503.000	3.38	.00	.00	513.86	31.36	515.63	515.14	515.76	31.50	1.63	28.97	5.59
*	1545.000	42.13	.00	.00	514.37	9.73	515.17	515.09	515.38	294.78	2.01	4.83	.57
*	1545.000	42.13	.00	.00	514.37	31.36	515.86	515.76	515.98	104.72	1.81	25.31	3.06
*	1598.000	53.64	.00	.00	514.85	9.73	516.04	515.57	516.09	73.37	1.02	9.50	1.14
	1598.000	53.64	.00	.00	514.85	31.36	516.47	516.30	516.60	126.34	1.75	23.37	2.79
	1652.000	53.18	.00	.00	515.38	9.73	516.36	515.90	516.40	45.11	.90	10.82	1.45
*	1652.000	53.18	.00	.00	515.38	31.36	516.91	516.52	516.96	41.82	1.21	36.25	4.85
*	1674.000	22.00	.00	.00	515.55	20.37	516.41	515.84	516.42	7.25	.51	40.07	7.57
*	1674.000	22.00	.00	.00	515.55	62.26	516.96	516.14	517.00	12.07	.90	72.42	17.92
*	1694.000	20.00	.00	.00	515.70	20.37	516.42	516.06	516.45	21.74	.79	25.71	4.37
*	1694.000	20.00	.00	.00	515.70	62.26	516.97	516.40	517.05	27.95	1.26	53.05	11.78
*	1703.000	9.00	.00	.00	515.75	20.37	516.37	516.30	516.53	155.60	1.76	11.57	1.63
*	1703.000	9.00	.00	.00	515.75	62.26	516.91	516.91	517.19	275.83	2.40	29.86	3.75
*	1715.000	12.00	.00	.00	515.80	20.37	516.61	516.33	516.66	63.37	.99	20.58	2.56
*	1715.000	12.00	.00	.00	515.80	62.26	517.28	516.70	517.35	56.45	1.18	63.52	8.29
	1772.000	57.00	.00	.00	516.30	20.37	517.41	517.41	517.74	580.47	2.55	7.99	.85
	1772.000	57.00	.00	.00	516.30	62.26	517.73	517.72	517.81	96.62	1.28	53.74	6.33

SUBCRITICAL FLOW, FILE:

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	971.000	20.37	510.15	.00	.00	.00	20.30	.00
	971.000	62.26	510.68	.53	.00	.00	22.94	.00
*	995.000	20.37	510.42	.00	.27	.00	34.87	22.90
*	995.000	62.26	511.16	.74	.47	.00	38.67	22.90
	1000.000	20.37	510.43	.00	.01	.00	34.75	5.50
	1000.000	62.26	511.17	.74	.01	.00	38.76	5.50
*	1020.000	20.37	510.64	.00	.21	.00	18.64	19.80
*	1020.000	62.26	511.17	.53	.01	.00	40.60	19.80
*	1030.000	20.37	510.98	.00	.34	.00	15.95	10.00
*	1030.000	62.26	511.63	.65	.46	.00	21.51	10.00
*	1060.000	20.37	511.47	.00	.48	.00	16.38	30.57
*	1060.000	62.26	512.30	.83	.67	.00	80.82	30.57
	1154.000	20.37	511.79	.00	.33	.00	26.79	93.71
	1154.000	62.26	512.60	.80	.30	.00	37.34	93.71
*	1191.000	9.73	511.87	.00	.08	.00	9.35	37.24
*	1191.000	31.36	512.67	.80	.07	.00	18.56	37.24
	1246.000	9.73	512.60	.00	.73	.00	9.16	55.38
	1246.000	31.36	513.36	.76	.70	.00	54.46	55.38
	1291.000	9.73	513.14	.00	.53	.00	10.14	44.03
	1291.000	31.36	513.78	.65	.42	.00	22.68	44.03
*	1345.000	9.73	513.53	.00	.40	.00	20.00	54.00
*	1345.000	31.36	514.18	.65	.40	.00	72.90	54.00
*	1422.000	9.73	514.08	.00	.55	.00	15.08	77.06
*	1422.000	31.36	514.58	.50	.40	.00	52.19	77.06
	1464.000	9.73	514.66	.00	.58	.00	13.74	42.09
	1464.000	31.36	515.07	.41	.49	.00	52.32	42.09
*	1483.000	9.73	514.75	.00	.09	.00	17.72	18.67
*	1483.000	31.36	515.26	.51	.19	.00	45.54	18.67
*	1486.000	9.73	514.75	.00	-.01	.00	12.66	3.38
*	1486.000	31.36	515.23	.48	-.04	.00	20.35	3.38
	1499.000	9.73	514.94	.00	.19	.00	14.00	12.80
*	1499.000	31.36	515.67	.74	.45	.00	65.38	12.80

1

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1503.000	9.73	514.91	.00	-.03	.00	11.44	3.38
	1503.000	31.36	515.63	.72	-.04	.00	52.65	3.38
*	1545.000	9.73	515.17	.00	.26	.00	8.03	42.13

*	1545.000	31.36	515.86	.69	.23	.00	45.60	42.13
*	1598.000	9.73	516.04	.00	.87	.00	12.46	53.64
	1598.000	31.36	516.47	.42	.61	.00	40.59	53.64
	1652.000	9.73	516.36	.00	.31	.00	16.94	53.18
*	1652.000	31.36	516.91	.55	.44	.00	54.97	53.18
*	1674.000	20.37	516.41	.00	.06	.00	50.16	22.00
*	1674.000	62.26	516.96	.55	.06	.00	68.72	22.00
*	1694.000	20.37	516.42	.00	.01	.00	40.22	20.00
*	1694.000	62.26	516.97	.55	.01	.00	69.80	20.00
*	1703.000	20.37	516.37	.00	-.05	.00	23.46	9.00
*	1703.000	62.26	516.91	.54	-.06	.00	73.98	9.00
*	1715.000	20.37	516.61	.00	.23	.00	34.79	12.00
*	1715.000	62.26	517.28	.68	.37	.00	102.97	12.00
*	1772.000	20.37	517.41	.00	.80	.00	13.37	57.00
	1772.000	62.26	517.73	.32	.45	.00	131.39	57.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

```
 NING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1020.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1020.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1060.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1060.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1191.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1191.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1345.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1345.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1422.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1422.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1483.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1483.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 NING SECNO=   1486.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1486.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1499.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1503.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1545.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1545.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1598.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1652.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1674.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1674.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1694.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1703.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
1
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WARNING SECNO=   1715.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    24JUN96    TIME   14:11:49 *
 *****************************************
```

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

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THIS RUN EXECUTED 24JUN96 14:11:49

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************************************
 HEC-2 WATER SURFACE PROFILES

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

6/24/96

super critical slope area method

```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      EXISTING WEST CHANNEL; 10-YEAR FLOW
T3      SUPERCRITICAL FLOW,  FILE:  EXWESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 1        .0099    1                         517.44

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                 -1                                  -1                          15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

QT       2      20.37     62.26
                 10yr      100-yr

      CHANNEL n-VALUE IS WEIGHTED MEAN OF OVERBANK n-VALUES
      AND SUPERCRITICAL STREAMBED VALUES
      OVERBANK n-VALUES ARE UNCHANGED FROM SUBCRITICAL CASE (TYP)
NC    .080      .080      .071       .1        .3
```

```
X1     1772        18     993.95    1009.03        72        56        57
X3       10
GR    517.9    900.00      517.7     923.00    517.42    938.76    516.60    942.86    516.60     943.5
GR   517.21    945.11     517.26     955.13     517.5    965.61    516.50    969.43    516.55    975.29
GR   517.63    982.11     517.71     993.95     516.3    998.39     516.3   1001.94    516.95    1003.1
GR   517.48   1009.03      517.5    1032.08     517.6   1050.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
   24JUN96      14:11:49                                                                          PAGE    2


NH       6      .080     972.00      .030    975.00      .080    993.00      .030    997.00      .080
NH  1007.0      .060    1040.00

X1    1715        11     970.00    1007.00        14        13        12
X3      10
GR    517.0   935.00      516.7     970.00    515.9    972.00    515.9   975.00     516.2   984.00
GR    515.8   993.00      515.8     997.00    516.1   1001.00    516.1  1003.00     517.1   1007.0
GR    517.3  1040.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     983.00      .030    992.50      .080   1006.50      .060   1060.00

X1    1703         8     980.00    1006.50         9         9         9
X3      10
GR    516.9   935.00      516.7     980.00   515.75    983.00   515.75    992.50     515.9   994.00
GR    516.0  1003.00      516.9    1006.50    517.1   1060.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     966.50      .050    975.00      .030   1003.00      .080   1025.00

X1    1694         8     964.00    1006.40        32        20        20
X3      10
GR    516.7   950.00      516.68     964.00    515.9    966.50    515.9   975.00     515.7   976.00
GR    515.7  1003.00      516.9    1006.40    517.0   1025.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     958.00      .050    979.00      .030   1002.48      .080   1020.00

        BIFURCATION SECTION; UPSTREAM LIMIT
X1    1674         8     955.00    1006.40        24        20        22
X3      10
GR    516.6   950.00      516.58     955.00   515.55    958.00   515.55    979.00    515.55   980.00
GR    515.6  1002.48      516.6    1006.40    517.0   1020.00


        FLOW IN WEST CHANNEL (based on subcritical split flow model)

QT       2      9.72      31.36

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NH       3      .080     994.01      .032   1001.83      .080   1034.97

        BIFURCATION SECTION; DOWNSTREAM LIMIT
      1652         6     989.93    1005.58        53        54     53.18
X3      10
GR    516.7   980.00      516.58     989.93   515.42    994.01   515.38   1001.83    516.34  1005.58
GR    516.5  1034.97

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
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        3      .080     996.69      .028    1000.26      .080    1029.59

      DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1598         7     991.58   1004.53        53        54      53.64
X3      10                          989.0
GR  516.15    968.00     516.15    987.05    516.12    991.58     514.87    996.69     514.85    1000.26
GR   516.1   1004.53      516.2   1029.59

      SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     994.00      .035    998.71      .080    1012.48      .060    1033.60

      DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1545         8     991.70   1000.82        36        42      42.13
X3      10                          988.0
GR   515.6    967.00     515.54    991.70    514.46    994.00     514.37    998.71     515.31    1000.82
GR   515.5   1012.48     515.46   1022.45    515.53   1033.60

      SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .100      .100       .035

      DWELLINGS ON RIGHT OVERBANK (INEFFECTIVE FLOW)
X1    1503         7     987.03   1000.38       3.3       3.3      3.38
X3      10
GR   515.4    978.00     515.33    987.03    513.86    989.34     513.86    993.22     515.13    1000.38
GR   515.4   1014.95     515.39   1030.65

      SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .060      .060       .045        .3        .5

      UPSTREAM FACE OF CULVERTS
X1    1499         8     986.71   1001.70      12.8      12.8      12.8
X3      10                                                        515.47     515.44
GR  515.51    965.00     515.34    986.71    513.81    988.67     513.81    996.02     513.81     999.78
GR   515.3   1001.70     515.39   1003.34    515.41   1030.38

      6-1220 MM DIAMETER RCP (old condition);
      90-DEG HEADWALL WITH GROOVED END INLET
      SPECIAL BRIDGE RECORD MUST BE USED IN LIEU OF SPECIAL CULVERT RECORD

SB    2.00       1.6       1.66                5.87      1.72      7.01       1.3     513.58     513.81

      DOWNSTREAM FACE OF RCP CULVERTS
X1    1486        10     989.96   1003.77       3.3       3.3      3.38
X2                           1    514.80    515.41
X3      10
BT      -2    968.00      515.5              1031.65    515.41
GR   515.5    968.00     515.44    987.30    515.16    989.96     514.20    990.43     513.58     991.41
GR  513.58    996.99     513.58    999.47    515.08   1003.77     515.25   1010.64     515.41    1031.65
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```
NC    .060      .060       .045        .1        .3

X1    1483         9     987.08   1005.82        27        15      18.67
X3      10
```

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GR    515.3     965.00     515.28     984.37     515.12     987.08     513.56     987.72     513.56     1000.69
GR    515.0    1005.82     514.96    1024.05     514.73    1027.39      515.0    1030.38

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        5       .060     991.48       .080     999.00       .035    1001.52       .080    1006.87       .060
NH   1022.3

X1     1464          9     991.48    1006.87         43         42      42.09
X3       10
GR   514.94     965.75     514.74     991.48      514.0     997.60     513.84     998.92      513.4     999.00
GR   513.39    1001.52      513.9    1003.30      515.0    1006.87      515.1    1022.3

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4       .060     985.66       .080     996.28       .033     999.49       .080    1025.59

X1     1422          8     985.66    1002.43         69         85      77.06
X3       10
GR    514.5     950.00     514.14     969.33     514.12     985.66     513.14     996.28     513.18     999.49
GR    514.1    1001.27      514.7    1002.43     514.81    1025.59

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4       .060     988.37       .080     996.03       .033    1006.19       .060    1027.15

X1     1345         11     986.22    1007.90         60         49         54
X3       10
GR    514.1     950.00     513.95     974.18     513.93     986.22     513.16     988.37     512.95     994.56
GR    513.1     996.03     512.72    1000.55     512.61    1006.19      513.1    1006.79     514.00    1007.90
GR   514.23    1027.15

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        5       .060     996.07       .080     999.11       .043    1002.81       .080    1012.47       .060
NH   1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1291          7     996.07    1007.14         39         49      44.03
X3       10
GR   513.33     987.59     513.18     996.07     512.06     999.11     511.90    1002.81      513.4    1007.14
GR   514.05    1012.47     514.23     1038.2

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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NH        4       .060     992.06       .080     998.48       .043    1002.02       .060    1032.48

X1     1246          8     992.06    1005.06         56         55      55.38
X3       10
GR    513.2     950.00     513.01     958.67     513.12     965.78     513.18     992.06     511.57     998.48
GR    511.4    1002.02     513.85    1005.06      513.9    1032.48

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4       .060     994.25       .080     998.82       .028    1003.39       .060    1010.00

       1191         10     994.25    1006.67         42         35      37.24
NH       10
GR   512.72     983.92     512.65     989.13     512.33     994.25     511.00     998.82     510.98     998.89
GR    510.9    1003.19     511.00    1003.39     512.01    1005.44     513.14    1006.67      513.2    1010.00

        CONFLUENCE WITH EAST CHANNEL
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QT       2      20.37      62.26

         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
         4       .060     979.44       .080     992.04       .035    1003.63       .080    1021.00


X1    1154         9     979.44    1016.60         94         93      93.71
X3      10
GR   512.7    950.00     512.58     979.44     511.55     987.29     510.76     992.04     510.71    1003.63
GR   510.7   1005.90     510.73    1008.00     512.90    1016.60     513.00    1021.00

         SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       5       .060     986.43       .100     994.11       .030    1003.49       .030    1007.33       .040
NH  1011.0

X1    1060         9     986.43    1007.33         16         18      30.57
X3      10
GR   512.5    915.00     511.55     966.98      511.5     978.97     512.14     986.43     510.02     994.11
GR   510.2   1003.49     511.50    1005.35     512.88    1007.33      512.9     1011.0

         SHOTCRETE SLOPE PROTECTION ON RIGHT
         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       5       .060      985.4       .100      988.0       .030     1001.3       .025     1005.3       .040
NH    1013

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1030        11      978.0     1009.8       16.8        7.6       10.0
X3      10
GR   512.2     950.0      511.9      978.0      511.5     985.4      510.8      988.0      510.8      994.6
GR   509.9     996.7      509.9     1000.0      509.9    1001.3      512.1     1005.3      512.9     1009.8
GR   512.9    1013.0
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         SHOTCRETE SLOPE PROTECTION ON RIGHT
         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       3       .100      967.2       .030    1005.9       .025    1009.0

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1020        11      982.4     1007.7       35.1        0.9       19.8
X3      10
GR   512.4     961.1      511.5      964.1      510.8     967.2      510.9      982.4      510.2      994.6
GR   509.8     997.6      509.9     1001.3      509.8    1003.7      510.8     1005.9      513.5     1007.7
GR   513.5    1009.0

         SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .025       .025       .030         .3         .5

         UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
         NEGLECT SKEW OF 10 DEGREES

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1000        14      981.7     1024.3        5.5        5.5        5.5
X3      10
GR   513.1     981.1      511.6      981.7      511.5     981.7      511.1      984.7      510.0      987.8
GR   509.6     990.2      509.7      998.7      509.9    1007.3      510.2     1015.8      510.0     1020.4
GR   511.5    1023.7      511.5     1024.3      511.9    1024.3      513.5     1024.3
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SB     1.05       1.6       1.66                    17.1        1.2       68.1        5.4      509.5      509.6

       DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
       NEGLECT SKEW OF 10 DEGREES
       SECTION FROM PREVIOUS SURVEY, US60 (1994)

X1     995        14      981.4     1024.7       10.7       35.7       22.9
X2                            1      511.9      513.1
X3      10
BT      -2     981.4      513.1      511.6     1024.3      513.5      511.9
GR   513.1     981.4      511.6      981.7      511.5      981.7      511.1      984.7      509.9      987.8
GR   509.5     990.2      509.7      998.7      509.8     1007.3      510.2     1015.8      510.0     1020.4
GR   511.5    1023.7      511.5     1024.3      511.9     1024.3      513.5     1024.7


       SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .100      .050       .030        .1         .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     971         7      988.2     1015.3         24         24         24
X3      10
GR   511.8     982.1      511.8      988.2      509.4      991.9      509.6     1000.4      509.7     1009.5
GR   511.4    1015.3      511.5     1023.5
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
7230 SLOPE-AREA TRIALS EXCEED 100
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.12    517.42    517.42    517.44    517.74       .32       .00       .00    517.71
      20.4        .0      20.4        .0        .0       8.2        .0        .0        .0    517.48
       .00       .00      2.49       .00      .000      .071      .000      .000    516.30    994.85
   .063758        0.        0.        0.         0         8       101       .00     13.56   1008.41


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.42

STA=     995.    1009.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

1790 NH CARD USED
*SECNO 1715.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000      .53    516.33    516.33      .00    516.50      .17      2.54      1.54    516.70
      20.4       .0      20.4       .0       .0      11.1       .0        .5       1.3    517.10
       .01      .00      1.84      .00     .000      .047     .000      .000    515.80    970.94
   .032866      72.       57.       56.       20        14        0       .00     32.97   1003.90


FLOW DISTRIBUTION FOR SECNO=   1715.00         CWSEL=    516.33

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


STA=     971.     972.     975.     993.     997.    1007.
  PER Q=       .9     21.4     27.0     40.6     10.2
   AREA=       .2      1.3      5.4      2.1      2.1
    VEL=       .8      3.4      1.0      3.9      1.0
  DEPTH=       .2       .4       .3       .5       .3

1490 NH CARD USED
*SECNO 1703.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      516.90

  1703.000      .55    516.30    516.30      .00    516.52      .22       .30       .18    516.70
      20.4       .0      20.4       .0       .0       9.8       .0        .7       1.7    516.90
       .01      .00      2.07      .00     .000      .038     .000      .000    515.75    981.25
   .019428      14.       12.       13.       20         8        0       .00     22.93   1004.18


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.30

STA=     981.     983.     993.    1007.
  PER Q=      1.7     81.0     17.3
   AREA=       .5      5.3      4.1
    VEL=       .7      3.1       .9
  DEPTH=       .3       .6       .3

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000      .28    515.98    516.06      .00    516.25      .27       .27       .01    516.68
      20.4       .0      20.4       .0       .0       8.8       .0        .8       1.9    516.90
       .01      .00      2.30      .00     .000      .037     .000      .000    515.70    966.22
   .049860       9.        9.        9.        5        14        0       .00     37.60   1003.82


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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

FLOW DISTRIBUTION FOR SECNO= 1694.00 CWSEL= 515.98

STA= 966. 1006.
PER Q= 100.0
AREA= 8.8
VEL= 2.3
DEPTH= .2

1490 NH CARD USED
*SECNO 1674.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.60

1674.000	.29	515.84	515.84	.00	515.97	.14	.72	.33	516.58
20.4	.0	20.4	.0	.0	12.5	.0	1.0	2.8	516.60
.01	.00	1.63	.00	.000	.042	.000	.000	515.55	957.16
.026892	32.	20.	20.	20	5	0	.00	46.25	1003.41

FLOW DISTRIBUTION FOR SECNO= 1674.00 CWSEL= 515.84

STA= 957. 1006.
PER Q= 100.0
AREA= 12.5
VEL= 1.6
DEPTH= .3

1490 NH CARD USED
*SECNO 1652.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.34

1652.000	.51	515.89	515.89	.00	516.10	.21	.64	.15	516.58
9.7	.0	9.7	.0	.0	4.8	.0	1.2	3.4	516.34
.02	.00	2.03	.00	.000	.050	.000	.000	515.38	992.34
.034123	24.	22.	20.	20	14	0	.00	11.50	1003.84

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

FLOW DISTRIBUTION FOR SECNO= 1652.00 CWSEL= 515.89

STA= 992. 1006.
PER Q= 100.0
AREA= 4.8

```
   VEL=      2.0
  DEPTH=      .4

1490 NH CARD USED
*SECNO 1598.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000       .72    515.57    515.57       .00    515.82       .25      2.18       .80    516.12
      9.7        .0       9.7       .0        .0       4.4        .0       1.4       3.9    516.10
      .02       .00      2.21       .00      .000      .062      .000      .000    514.85    993.84
   .049927       53.       53.       54.        20        11         0       .00      8.86   1002.71


FLOW DISTRIBUTION FOR SECNO=   1598.00         CWSEL=    515.57

STA=     994.    1005.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1545.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.31

  1545.000       .72    515.09    515.09       .00    515.36       .27      2.37      1.00    515.54
      9.7        .0       9.7       .0        .0       4.2        .0       1.6       4.4    515.31
      .03       .00      2.32       .00      .000      .056      .000      .000    514.37    992.66
   .039408       53.       54.       54.        20         5         0       .00      7.67   1000.33


FLOW DISTRIBUTION FOR SECNO=   1545.00         CWSEL=    515.09

STA=     993.    1001.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

*SECNO 1503.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.33 ELREA= 515.13

1503.000	.69	514.55	514.55	.00	514.80	.25	1.00	.59	515.33
9.7	.0	9.7	.0	.0	4.4	.0	1.8	4.7	515.13
.04	.00	2.21	.00	.000	.035	.000	.000	513.86	988.26
.015828	36.	42.	42.	20	8	0	.00	8.86	997.11

FLOW DISTRIBUTION FOR SECNO= 1503.00 CWSEL= 514.55

STA= 988. 1000.
PER Q= 100.0
AREA= 4.4
VEL= 2.2
DEPTH= .5

CCHV= .300 CEHV= .500
*SECNO 1499.000
1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.89

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.47 ELREA= 515.44

1499.000	.26	514.07	514.23	.00	514.60	.53	.12	.08	515.34
9.7	.0	9.7	.0	.0	3.0	.0	1.8	4.8	515.30
.04	.00	3.22	.00	.000	.045	.000	.000	513.81	988.33
.132066	3.	3.	3.	13	14	0	.00	11.79	1000.12

FLOW DISTRIBUTION FOR SECNO= 1499.00 CWSEL= 514.07

STA= 988. 1002.
PER Q= 100.0
AREA= 3.0
VEL= 3.2
DEPTH= .3

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 514.65 ,NOT 514.07 NEW BACKWATER REQUIRED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
2.00	1.60	1.66	.00	5.87	1.72	7.01	1.30	513.58	513.81

*SECNO 1486.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .28

CLASS B LOW FLOW

3420 BRIDGE W.S.= 514.45 BRIDGE VELOCITY= 2.50 CALCULATED CHANNEL AREA= 5.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN

```
      .00    514.37      .00       0.       10.       7.       7.     514.80    515.41       0.


5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.16 ELREA=      515.08

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


  1486.000      .67    514.25       .00       .00    514.37       .12       .23       .00    515.16
      9.7       .0       9.7       .0        .0       6.4        .0       1.9       4.9    515.08
      .04      .00      1.53       .00      .000      .045      .000      .000    513.58    990.41
   .010155      13.       13.       13.        0         0         0       .00     10.97   1001.38


FLOW DISTRIBUTION FOR SECNO=   1486.00          CWSEL=    514.25

STA=     990.    1004.
  PER Q=    100.0
   AREA=      6.4
    VEL=      1.5
  DEPTH=       .6

CCHV=     .100 CEHV=     .300
*SECNO 1483.000

02 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.00

  1483.000      .25    513.81    513.94       .00    514.25       .44       .08       .03    515.12
      9.7       .0       9.7       .0        .0       3.3        .0       1.9       5.0    515.00
      .04      .00      2.95       .00      .000      .045      .000      .000    513.56    987.62
   .123626       3.        3.        3.         6        11         0       .00     13.94   1001.56


FLOW DISTRIBUTION FOR SECNO=   1483.00          CWSEL=    513.81

STA=     988.    1006.
  PER Q=    100.0
   AREA=      3.3
    VEL=      3.0
  DEPTH=       .2

1490 NH CARD USED
*SECNO 1464.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.74 ELREA= 515.00

1464.000	.89	514.28	514.28	.00	514.52	.24	1.65	.97	514.74
9.7	.0	9.7	.0	.0	4.5	.0	2.0	5.2	515.00
.04	.00	2.18	.00	.000	.070	.000	.000	513.39	995.28
.066522	27.	19.	15.	20	20	0	.00	9.25	1004.53

FLOW DISTRIBUTION FOR SECNO= 1464.00 CWSEL= 514.28

STA= 995. 1007.
PER Q= 100.0
AREA= 4.5
VEL= 2.2
DEPTH= .5

1490 NH CARD USED
*SECNO 1422.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.12 ELREA= 514.70

1422.000	.66	513.80	513.80	.00	514.01	.21	2.76	1.30	514.12
9.7	.0	9.7	.0	.0	4.8	.0	2.2	5.6	514.70
.05	.00	2.03	.00	.000	.069	.000	.000	513.14	989.13
.064829	43.	42.	42.	20	19	0	.00	11.56	1000.69

FLOW DISTRIBUTION FOR SECNO= 1422.00 CWSEL= 513.80

STA= 989. 1001.
PER Q= 100.0
AREA= 4.8
VEL= 2.0
DEPTH= .4

1490 NH CARD USED
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 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.93 ELREA= 514.00

1345.000	.58	513.19	513.19	.00	513.35	.16	4.33	2.80	513.93
9.7	.0	9.7	.0	.0	5.5	.0	2.6	6.8	514.00
.06	.00	1.75	.00	.000	.056	.000	.000	512.61	988.28
.049146	69.	77.	85.	20	15	0	.00	18.62	1006.90

FLOW DISTRIBUTION FOR SECNO= 1345.00 CWSEL= 513.19

```
STA=     988.    1008.
  PER Q=    100.0
   AREA=      5.5
    VEL=      1.8
  DEPTH=       .3

1490 NH CARD USED
*SECNO 1291.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.40

  1291.000       .81    512.71    512.71       .00    512.98       .27      2.74      1.22    513.18
      9.7        .0       9.7        .0        .0       4.2        .0       2.8       7.5    513.40
      .07       .00      2.31       .00      .000      .064      .000      .000    511.90    997.35
   .052549       60.       54.       49.        20        11         0       .00      7.79   1005.14


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    512.71

STA=     997.    1007.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .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


1490 NH CARD USED
*SECNO 1246.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000       .85    512.25    512.25       .00    512.54       .29      2.21       .98    513.18
      9.7        .0       9.7        .0        .0       4.1        .0       3.0       7.8    513.85
      .07       .00      2.37       .00      .000      .061      .000      .000    511.40    995.75
   .047786       39.       44.       49.        20         8         0       .00      7.33   1003.08


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.25

STA=     996.    1005.
  PER Q=    100.0
   AREA=      4.1
    VEL=      2.4
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      .73    511.63    511.63      .00    511.90      .27      2.16      .89    512.33
      9.7       .0       9.7       .0       .0       4.3       .0       3.2      8.3    513.14
      .08      .00      2.29      .00     .000      .050     .000      .000   510.90    996.65
  .032315      56.       55.       55.       20        11        0       .00     8.03   1004.67


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.63

STA=     997.    1005.
  PER Q=    100.0
   AREA=      4.3
    VEL=      2.3
  DEPTH=       .5

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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


1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      .55    511.25    511.25      .00    511.48      .23      1.45      .75    512.58
      20.4       .0      20.4       .0       .0       9.6       .0       3.5      8.8    512.90
       .08      .00      2.13      .00     .000      .057     .000      .000   510.70    989.10
  .042858      42.       37.       35.       20        15        0       .00    20.96   1010.06


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.25

STA=     989.    1017.
  PER Q=    100.0
   AREA=      9.6
    VEL=      2.1
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      .81    510.83    510.83      .00    511.14      .31      3.30     1.48    512.14
      20.4       .0      20.4       .0       .0       8.2       .0       4.3     10.4    512.88
       .09      .00      2.47      .00     .000      .050     .000      .000   510.02    991.17
  .029478      94.       94.       93.       20        11        0       .00    13.22   1004.39


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    510.83

STA=     991.    1005.
  PER Q=    100.0
```

```
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .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

1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000     1.09   510.99   510.99      .00   511.27      .28      .61      .25   511.90
      20.4       .0     20.4       .0       .0      8.7       .0      4.6     10.8   512.90
       .10      .00     2.34      .00     .000     .034     .000     .000   509.90   987.31
   .014495      16.      31.      18.       20       11        0      .00    15.97  1003.28


FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    510.99

STA=     987.    1005.
  PER Q=    100.0
   AREA=      8.7
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1020.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      513.50

  1020.000      .64   510.44   510.64      .00   511.02      .58      .21      .03   510.90
      20.4       .0     20.4       .0       .0      6.0       .0      4.7     11.0   513.50
       .10      .00     3.37      .00     .000     .030     .000     .000   509.80   990.22
   .034683      17.      10.       8.        5       11        0      .00    14.92  1005.13


FLOW DISTRIBUTION FOR SECNO=   1020.00         CWSEL=    510.44

STA=     990.    1006.
  PER Q=    100.0
   AREA=      6.0
    VEL=      3.4
  DEPTH=       .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
```

```
CCHV=     .300 CEHV=     .500
*SECNO 1000.000

3305 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000       .58    510.18    510.21       .00    510.38       .20       .45       .19    511.60
      20.4        .0      20.4        .0        .0      10.4        .0       4.8      11.5    513.50
       .10       .00      1.96       .00      .000      .030      .000      .000    509.60    987.28
   .016113       35.       20.        1.         2        11         0       .00     32.69   1020.80


FLOW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    510.18

STA=     987.    1024.
  PER Q=    100.0
   AREA=     10.4
    VEL=      2.0
  DEPTH=       .3


SPECIAL BRIDGE


5470 ERROR DS DEPTH WRONG SIDE CRITICAL        .50       .66       1       3
    XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
   1.05      1.60      1.66       .00     17.10      1.20     68.10     5.40    509.50    509.60

*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

CLASS C LOW FLOW

3420 BRIDGE W.S.=     510.21 BRIDGE VELOCITY=       1.49     CALCULATED CHANNEL AREA=       14.
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
       .00    510.36      .00        0.       20.       68.       69.     511.90    513.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000       .76    510.26       .00       .00    510.36       .10       .02       .00    513.10
      20.4        .0      20.4        .0        .0      14.6        .0       4.9      11.6    513.50
       .10       .00      1.40       .00      .000      .030      .000      .000    509.50    986.87
   .005526        6.        6.        6.         0         0         0       .00     34.11   1020.97
```

```
FLOW DISTRIBUTION FOR SECNO=    995.00          CWSEL=    510.26

STA=     987.    1025.
  PER Q=    100.0
   AREA=     14.6
    VEL=      1.4
  DEPTH=       .4

CCHV=     .100 CEHV=     .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000       .68    510.08    510.08       .00    510.32       .24       .18       .12    511.80
      20.4        .0      20.4        .0        .0       9.4        .0       5.2      12.3    511.40
       .10       .00      2.17       .00      .000      .030      .000      .000    509.40    990.86
   .011718       11.       23.       36.        20        11         0       .00     19.93   1010.79


FLOW DISTRIBUTION FOR SECNO=    971.00          CWSEL=    510.08

STA=     991.    1015.
  PER Q=    100.0
   AREA=      9.4
    VEL=      2.2
  DEPTH=       .5
```



```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      EXISTING WEST CHANNEL; 100-YEAR FLOW
T3      SUPERCRITICAL FLOW,  FILE:  EXWESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                 1      .0099       1                    517.73

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                  -1                         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
```



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CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
```

```
3280 CROSS SECTION   1772.00 EXTENDED       .12 METERS

3720 CRITICAL DEPTH ASSUMED
  1772.000      1.42    517.72    517.72    517.73    517.81       .09       .00       .00    517.71
      62.3      37.5      20.0       4.8      30.6      12.5       8.4        .0        .0    517.48
       .00      1.23      1.60       .57      .080      .071      .080      .000    516.30    920.68
   .017169        0.        0.        0.         0         8         5       .00    129.32   1050.00


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.72

STA=     921.     943.     945.     955.     966.     969.     975.     982.     994.    1009.    1032.    1050.
  PER Q=      8.0      4.9      7.9      4.6      5.7     20.8      8.2       .2     32.0      5.2      2.5
   AREA=      5.5      2.0      4.9      3.6      2.8      7.0      4.3       .6     12.5      5.3      3.1
    VEL=       .9      1.5      1.0       .8      1.3      1.8      1.2       .2      1.6       .6       .5
  DEPTH=       .2       .9       .5       .3       .7      1.2       .6       .1       .8       .2       .2

1490 NH CARD USED
*SECNO 1715.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .90    516.70    516.70       .00    517.05       .35      1.79       .20    516.70
      62.3        .0      62.3        .0        .0      23.9        .0       2.4       5.2    517.10
       .01       .00      2.61       .00      .000      .072      .000      .000    515.80    969.95
   .059610       72.       57.       56.        20        14         0       .00     35.45   1005.40


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.70

STA=     970.    1007.
  PER Q=    100.0
   AREA=     23.9
    VEL=      2.6
  DEPTH=       .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


1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION   1703.00 EXTENDED       .00 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1703.000      1.15    516.90    516.90       .00    517.19       .29       .47       .02    516.70
      62.3       2.0      60.2        .0       4.5      24.7        .0       2.7       5.9    516.90
       .01       .45      2.44       .00      .080      .065      .000      .000    515.75    935.00
   .027596       14.       12.       13.        20        11         0       .00     71.78   1006.78


FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.90

STA=     935.     980.    1007.
  PER Q=      3.3     96.7
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```
   AREA=      4.5     24.7
    VEL=       .5      2.4
  DEPTH=       .1       .9

[illegible]0 NH CARD USED
[illegible]CNO 1694.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .53    516.23    516.40       .00    516.83       .61       .33       .03    516.68
      62.3        .0      62.3        .0        .0      18.1        .0       2.9       6.4    516.90
       .01       .00      3.45       .00      .000      .039      .000      .000    515.70    965.45
   .050760        9.        9.        9.         5        14         0       .00     39.05   1004.50


FLOW DISTRIBUTION FOR SECNO=   1694.00         CWSEL=    516.23

STA=     965.    1006.
  PER Q=    100.0
   AREA=     18.1
    VEL=      3.4
  DEPTH=       .5

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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


[illegible]90 NH CARD USED
*SECNO 1674.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60

  1674.000       .59    516.14    516.14       .00    516.42       .28       .67       .38    516.58
      62.3        .0      62.3        .0        .0      26.6        .0       3.4       7.3    516.60
       .01       .00      2.34       .00      .000      .044      .000      .000    515.55    956.29
   .023457       32.       20.       20.        20         8         0       .00     48.30   1004.59


FLOW DISTRIBUTION FOR SECNO=   1674.00         CWSEL=    516.14

STA=     956.    1006.
  PER Q=    100.0
   AREA=     26.6
    VEL=      2.3
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION   1652.00 EXTENDED       .01 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
[illegible]3 PROBABLE MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34

  1652.000      1.13    516.51    516.51       .00    516.77       .26       .51       .17    516.58
```

```
     31.4        .0      30.3       1.0        .0      13.2       2.7       3.8       8.3    516.34
      .01       .00      2.29       .38      .000      .059      .080      .000    515.38    990.17
  .022727       24.       22.       20.        20        17         0       .00     44.80   1034.97


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.51

STA=     990.    1006.    1035.
  PER Q=     96.8      3.2
   AREA=     13.2      2.7
    VEL=      2.3       .4
  DEPTH=       .9       .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


1490 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION   1598.00 EXTENDED       .09 METERS

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

3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
  1598.000      1.44    516.29    516.29       .00    516.54       .25      1.29       .81    516.12
      31.4        .3      29.1       2.0        .4      12.7       3.6       4.7      10.6    516.10
       .02       .58      2.29       .55      .080      .068      .080      .000    514.85    989.00
  .025872       53.       53.       54.        20        15         0       .00     40.59   1029.59


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.29

STA=     989.     992.    1005.    1030.
  PER Q=       .8     92.8      6.4
   AREA=       .4     12.7      3.6
    VEL=       .6      2.3       .6
  DEPTH=       .2      1.0       .1

1490 NH CARD USED
*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .23 METERS

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

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.39    515.76    515.76       .00    515.95       .19      1.12      1.22    515.54
      31.4        .4      22.4       8.5        .8      10.0       9.8       5.7      12.9    515.31
       .03       .56      2.24       .87      .080      .060      .068      .000    514.37    988.00
  .017046       53.       54.       54.        20        10         0       .00     45.60   1033.60


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.76

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      1.4     71.5     10.7      8.2      8.2
   AREA=       .8     10.0      4.1      2.8      2.9
```

```
   VEL=      .6      2.2      .8      .9      .9
 DEPTH=      .2      1.1      .4      .3      .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

*SECNO 1503.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.13

  1503.000     1.28   515.14   515.14      .00   515.56      .43      .64      .41   515.33
     31.4       .0     31.4       .0       .0     10.8       .0      6.4     14.1   515.13
      .03      .00     2.90      .01     .000     .035     .000     .000   513.86   987.33
  .013830      36.      42.      42.       20       11        0      .00    13.40  1000.74


FLOW DISTRIBUTION FOR SECNO=   1503.00         CWSEL=    515.14

STA=     987.    1000.
  PER Q=    100.0
   AREA=     10.8
    VEL=      2.9
  DEPTH=       .8

CCHV=     .300 CEHV=     .500
*SECNO 1499.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.35


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.47 ELREA=      515.44

  1499.000      .62   514.43   514.71      .00   515.33      .90      .09      .14   515.34
     31.4       .0     31.4       .0       .0      7.5       .0      6.4     14.2   515.30
      .03      .00     4.20      .00     .000     .045     .000     .000   513.81   987.87
  .076092       3.       3.       3.        5       19        0      .00    12.72  1000.59


FLOW DISTRIBUTION FOR SECNO=   1499.00         CWSEL=    514.43

STA=     988.    1002.
  PER Q=    100.0
   AREA=      7.5
    VEL=      4.2
  DEPTH=       .6
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST
```

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 515.63 ,NOT 514.43 NEW BACKWATER REQUIRED

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
2.00	1.60	1.66	.00	5.87	1.72	7.01	1.30	513.58	513.81

*SECNO 1486.000
6180 SUPERCRITICAL FLOW, PRESSURE FLOW
3280 CROSS SECTION 1486.00 EXTENDED .10 METERS

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .16

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
516.06	515.08	.00	5.	26.	7.	7.	514.80	515.41	64.

1486.000	1.93	515.51	.00	.00	515.59	.08	.26	.00	515.16
31.4	.2	29.4	1.7	1.3	22.6	6.1	6.6	14.7	515.08
.04	.16	1.30	.28	.060	.045	.060	.000	513.58	968.00
.001973	13.	13.	13.	2	0	4	.00	63.65	1031.65

W DISTRIBUTION FOR SECNO= 1486.00 CWSEL= 515.51

STA=	968.	987.	990.	1004.	1011.	1032.
PER Q=	.2	.5	93.9	2.7	2.8	
AREA=	.7	.6	22.6	2.3	3.7	
VEL=	.1	.3	1.3	.4	.2	
DEPTH=	.0	.2	1.6	.3	.2	

CCHV= .100 CEHV= .300
*SECNO 1483.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 10.06

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.12 ELREA= 515.00

1483.000	.43	513.99	514.36	.00	515.43	1.44	.02	.14	515.12
31.4	.0	31.4	.0	.0	5.9	.0	6.7	14.8	515.00
.04	.00	5.32	.00	.000	.045	.000	.000	513.56	987.55
.199777	3.	3.	3.	6	18	0	.00	14.66	1002.21

```
FLOW DISTRIBUTION FOR SECNO=   1483.00          CWSEL=    513.99

STA=     988.    1006.
 PER Q=    100.0
 AREA=      5.9
  VEL=      5.3
DEPTH=       .4

1490 NH CARD USED
*SECNO 1464.000
3280 CROSS SECTION   1464.00 EXTENDED       .05 METERS


3301 HV CHANGED MORE THAN HVINS

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1464.000      1.60    514.99    514.99       .00    515.19       .20      1.16      1.81    514.74
      31.4       3.1      28.3        .0       3.8      13.6        .0       6.9      15.4    515.00
       .04       .80      2.08       .00      .060      .074      .000      .000    513.39    965.75
   .029130       27.       19.       15.        20        24         0       .00     41.08   1006.83


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


FLOW DISTRIBUTION FOR SECNO=   1464.00          CWSEL=    514.99

STA=     966.     991.    1007.
 PER Q=      9.7     90.3
 AREA=       3.8     13.6
  VEL=        .8      2.1
DEPTH=        .1       .9

1490 NH CARD USED
*SECNO 1422.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.21    514.35    514.35       .00    514.55       .20      1.30      1.04    514.12
      31.4       4.6      26.8        .0       4.7      12.7        .0       7.7      17.2    514.70
       .04       .98      2.11       .00      .060      .072      .000      .000    513.14    958.28
   .032431       43.       42.       42.        20        20         0       .00     43.47   1001.75


W DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    514.35

STA=     958.     969.     986.    1002.
 PER Q=      2.4     12.1     85.5
 AREA=       1.1      3.5     12.7
  VEL=        .7      1.1      2.1
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  DEPTH=       .1       .2       .8

1490 NH CARD USED
*SECNO 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000      .94    513.55    513.55       .00    513.87       .32      2.69      1.41    513.93
      31.4       .0      31.4        .0        .0      12.5        .0       8.8      19.6    514.00
       .05      .00      2.51       .00      .000      .056      .000      .000    512.61    987.28
   .038406      69.       77.       85.        20        15         0       .00     20.07   1007.35


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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


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    513.55

STA=     987.    1008.
  PER Q=    100.0
   AREA=     12.5
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .09 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1291.000      1.52    513.42    513.42       .00    513.78       .36      2.04      1.15    513.18
      31.4       1.3      30.0        .0       1.4      11.1        .0       9.5      20.7    513.40
       .06       .96      2.71       .02      .060      .069      .000      .000    511.90    987.59
   .036997       60.       54.       49.        20        14         0       .00     19.71   1007.30


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    513.42

STA=     988.     996.    1007.    1007.
  PER Q=      4.3     95.7       .0
   AREA=      1.4     11.1       .0
    VEL=      1.0      2.7       .0
  DEPTH=       .2      1.0       .0

1490 NH CARD USED
*SECNO 1246.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.53    512.93    512.93       .00    513.41       .48      1.83       .80    513.18
      31.4        .0      31.4        .0        .0      10.3        .0      10.0      21.3    513.85
       .06       .00      3.06       .00      .000      .065      .000      .000    511.40    993.06
```

.047156	39.	44.	49.	20	5	0	.00	10.86	1003.92

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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

FLOW DISTRIBUTION FOR SECNO= 1246.00 CWSEL= 512.93

STA= 993. 1005.
PER Q= 100.0
AREA= 10.3
VEL= 3.1
DEPTH= .9

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.33 ELREA= 513.14

1191.000	1.36	512.26	512.26	.00	512.73	.47	2.27	1.03	512.33
31.4	.0	31.4	.0	.0	10.4	.0	10.5	21.9	513.14
.07	.00	3.03	.00	.000	.058	.000	.000	510.90	994.48
.036016	56.	55.	55.	20	11	0	.00	11.23	1005.71

FLOW DISTRIBUTION FOR SECNO= 1191.00 CWSEL= 512.26

STA= 994. 1007.
PER Q= 100.0
AREA= 10.4
VEL= 3.0
DEPTH= .9

1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.58 ELREA= 512.90

1154.000	1.07	511.77	511.77	.00	512.18	.42	.88	.68	512.58
62.3	.0	62.3	.0	.0	21.7	.0	11.1	22.6	512.90
.07	.00	2.86	.00	.000	.043	.000	.000	510.70	985.65
.019771	42.	37.	35.	20	15	0	.00	26.45	1012.10

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

```
FLOW DISTRIBUTION FOR SECNO=   1154.00          CWSEL=    511.77

STA=     986.     992.    1004.    1017.
 PER Q=      5.3     78.6     16.1
  AREA=      3.1     11.9      6.7
   VEL=      1.1      4.1      1.5
 DEPTH=       .5      1.0       .8

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      1.51    511.53    511.53       .00    512.09       .56      2.36       .78    512.14
      62.3        .0      62.3        .0        .0      18.7        .0      13.0      24.6    512.88
       .08       .00      3.32       .00      .000      .058      .000      .000    510.02    988.63
   .033135       94.       94.       93.        20        11         0       .00     16.76   1005.40


FLOW DISTRIBUTION FOR SECNO=   1060.00          CWSEL=    511.53

STA=     989.    1007.
 PER Q=    100.0
  AREA=     18.7
   VEL=      3.3
 DEPTH=      1.1

1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.74    511.64    511.64       .00    512.11       .47       .78       .44    511.90
      62.3        .0      62.3        .0        .0      20.4        .0      13.6      25.2    512.90
       .08       .00      3.04       .00      .000      .044      .000      .000    509.90    982.82
   .020351       16.       31.       18.        20         8         0       .00     21.64   1004.46


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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


FLOW DISTRIBUTION FOR SECNO=   1030.00          CWSEL=    511.64

STA=     983.    1005.
 PER Q=    100.0
  AREA=     20.4
   VEL=      3.0
 DEPTH=       .9

1490 NH CARD USED
*SECNO 1020.000
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

1020.000	1.09	510.89	511.17	.00	511.82	.93	.25	.05	510.90
62.3	.0	62.3	.0	.0	14.6	.0	13.8	25.5	513.50
.08	.00	4.26	.00	.000	.030	.000	.000	509.80	982.47
.031369	17.	10.	8.	6	19	0	.00	23.49	1005.96

FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 510.89

STA= 982. 1008.
PER Q= 100.0
AREA= 14.6
VEL= 4.3
DEPTH= .6

CCHV= .300 CEHV= .500
*SECNO 1000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	.76	510.36	510.58	.00	511.07	.70	.64	.11	511.60
62.3	.0	62.3	.0	.0	16.7	.0	14.1	26.0	513.50
.08	.00	3.72	.00	.000	.030	.000	.000	509.60	986.75
.032889	35.	20.	1.	3	11	0	.00	34.46	1021.22

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 510.36

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

STA= 987. 1024.
PER Q= 100.0
AREA= 16.7
VEL= 3.7
DEPTH= .5

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 510.73 ,NOT 510.36 NEW BACKWATER REQUIRED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.50	509.60

*SECNO 995.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

CLASS B LOW FLOW

3420 BRIDGE W.S.= 510.58 BRIDGE VELOCITY= 2.83 CALCULATED CHANNEL AREA= 23.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.89	.00	0.	62.	68.	69.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.95	510.45	.00	.00	510.89	.44	.18	.00	513.10
62.3	.0	62.3	.0	.0	21.1	.0	14.2	26.2	513.50
.08	.00	2.95	.00	.000	.030	.000	.000	509.50	986.38
.015565	6.	6.	6.	0	0	0	.00	35.01	1021.39

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.45

STA= 986. 1025.
PER Q= 100.0
AREA= 21.1
VEL= 3.0
DEPTH= .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

CCHV= .100 CEHV= .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.80 ELREA= 511.40

971.000	1.21	510.61	510.61	.00	511.07	.46	.27	.20	511.80
62.3	.0	62.3	.0	.0	20.6	.0	14.7	26.9	511.40
.09	.00	3.02	.00	.000	.030	.000	.000	509.40	990.04
.009525	11.	23.	36.	20	11	0	.00	22.55	1012.59

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.61

STA= 990. 1015.
PER Q= 100.0
AREA= 20.6
VEL= 3.0
DEPTH= .9

THIS RUN EXECUTED 24JUN96 14:11:52

****
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

SUPERCRITICAL FLOW, FIL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1772.000	20.37	517.42	.00	20.37	.00	.00	2.49	.00	.00	13.56	637.58	516.30
*	1772.000	62.26	517.72	37.52	19.95	4.79	1.23	1.60	.57	.00	129.32	171.69	516.30
*	1715.000	20.37	516.33	.00	20.37	.00	.00	1.84	.00	-8.77	32.97	328.66	515.80
*	1715.000	62.26	516.70	.00	62.26	.00	.00	2.61	.00	-8.77	35.45	596.10	515.80
*	1703.000	20.37	516.30	.00	20.37	.00	.00	2.07	.00	-4.17	22.93	194.28	515.75
*	1703.000	62.26	516.90	2.05	60.21	.00	.45	2.44	.00	-4.17	71.78	275.96	515.75
*	1694.000	20.37	515.98	.00	20.37	.00	.00	2.30	.00	-5.55	37.60	498.60	515.70
	1694.000	62.26	516.23	.00	62.26	.00	.00	3.45	.00	-5.55	39.05	507.60	515.70
*	1674.000	20.37	515.84	.00	20.37	.00	.00	1.63	.00	-7.50	46.25	268.92	515.55
*	1674.000	62.26	516.14	.00	62.26	.00	.00	2.34	.00	-7.50	48.30	234.57	515.55
*	1652.000	9.72	515.89	.00	9.72	.00	.00	2.03	.00	-7.73	11.50	341.23	515.38
*	1652.000	31.36	516.51	.00	30.34	1.02	.00	2.29	.38	-7.73	44.80	227.27	515.38
*	1598.000	9.72	515.57	.00	9.72	.00	.00	2.21	.00	-9.97	8.86	499.27	514.85
*	1598.000	31.36	516.29	.25	29.11	2.00	.58	2.29	.55	-9.97	40.59	258.72	514.85
*	1545.000	9.72	515.09	.00	9.72	.00	.00	2.32	.00	-8.95	7.67	394.08	514.37
*	1545.000	31.36	515.76	.44	22.42	8.49	.56	2.24	.87	-8.95	45.60	170.46	514.37
*	1503.000	9.72	514.55	.00	9.72	.00	.00	2.21	.00	-12.11	8.86	158.28	513.86
	1503.000	31.36	515.14	.00	31.36	.00	.00	2.90	.01	-12.11	13.40	138.30	513.86
*	1499.000	9.72	514.07	.00	9.72	.00	.00	3.22	.00	-14.79	11.79	1320.66	513.81
*	1499.000	31.36	514.43	.00	31.36	.00	.00	4.20	.00	-14.79	12.72	760.92	513.81
*	1486.000	9.72	514.25	.00	9.72	.00	.00	1.53	.00	-17.97	10.97	101.55	513.58
*	1486.000	31.36	515.51	.20	29.44	1.71	.16	1.30	.28	-17.97	63.65	19.73	513.58

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1483.000	9.72	513.81	.00	9.72	.00	.00	2.95	.00	-5.92	13.94	1236.26	513.56
*	1483.000	31.36	513.99	.00	31.36	.00	.00	5.32	.00	-5.92	14.66	1997.77	513.56
*	1464.000	9.72	514.28	.00	9.72	.00	.00	2.18	.00	-9.10	9.25	665.22	513.39
*	1464.000	31.36	514.99	3.06	28.30	.00	.80	2.08	.00	-9.10	41.08	291.30	513.39
*	1422.000	9.72	513.80	.00	9.72	.00	.00	2.03	.00	-5.94	11.56	648.29	513.14
*	1422.000	31.36	514.35	4.56	26.80	.00	.98	2.11	.00	-5.94	43.47	324.31	513.14
*	1345.000	9.72	513.19	.00	9.72	.00	.00	1.75	.00	-6.88	18.62	491.46	512.61
*	1345.000	31.36	513.55	.00	31.36	.00	.00	2.51	.00	-6.88	20.07	384.06	512.61
*	1291.000	9.72	512.71	.00	9.72	.00	.00	2.31	.00	-13.15	7.79	525.49	511.90
*	1291.000	31.36	513.42	1.33	30.02	.00	.96	2.71	.02	-13.15	19.71	369.97	511.90
	1246.000	9.72	512.25	.00	9.72	.00	.00	2.37	.00	-11.36	7.33	477.86	511.40
*	1246.000	31.36	512.93	.00	31.36	.00	.00	3.06	.00	-11.36	10.86	471.56	511.40
*	1191.000	9.72	511.63	.00	9.72	.00	.00	2.29	.00	-9.03	8.03	323.15	510.90
*	1191.000	31.36	512.26	.00	31.36	.00	.00	3.03	.00	-9.03	11.23	360.16	510.90

*	1154.000	20.37	511.25	.00	20.37	.00	.00	2.13	.00	-5.37	20.96	428.58	510.70
*	1154.000	62.26	511.77	.00	62.26	.00	.00	2.86	.00	-5.37	26.45	197.71	510.70
	1060.000	20.37	510.83	.00	20.37	.00	.00	2.47	.00	-7.26	13.22	294.78	510.02
	1060.000	62.26	511.53	.00	62.26	.00	.00	3.32	.00	-7.26	16.76	331.35	510.02
*	1030.000	20.37	510.99	.00	20.37	.00	.00	2.34	.00	-3.93	15.97	144.95	509.90
*	1030.000	62.26	511.64	.00	62.26	.00	.00	3.04	.00	-3.93	21.64	203.51	509.90
*	1020.000	20.37	510.44	.00	20.37	.00	.00	3.37	.00	-10.00	14.92	346.83	509.80
	1020.000	62.26	510.89	.00	62.26	.00	.00	4.26	.00	-10.00	23.49	313.69	509.80
*	1000.000	20.37	510.18	.00	20.37	.00	.00	1.96	.00	-10.10	32.69	161.13	509.60
	1000.000	62.26	510.36	.00	62.26	.00	.00	3.72	.00	-10.10	34.46	328.89	509.60
*	995.000	20.37	510.26	.00	20.37	.00	.00	1.40	.00	-18.18	34.11	55.26	509.50
*	995.000	62.26	510.45	.00	62.26	.00	.00	2.95	.00	-18.18	35.01	155.65	509.50
*	971.000	20.37	510.08	.00	20.37	.00	.00	2.17	.00	-4.37	19.93	117.18	509.40
*	971.000	62.26	510.61	.00	62.26	.00	.00	3.02	.00	-4.37	22.55	95.25	509.40

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SUPERCRITICAL FLOW, FIL

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	1772.000	20.37	517.74	517.42	1.02
*	1772.000	62.26	517.81	517.72	.56
*	1715.000	20.37	516.50	516.33	1.01
*	1715.000	62.26	517.05	516.70	1.01
*	1703.000	20.37	516.52	516.30	1.01
*	1703.000	62.26	517.19	516.90	.80
*	1694.000	20.37	516.25	516.06	1.52
	1694.000	62.26	516.83	516.40	1.62
*	1674.000	20.37	515.97	515.84	1.00
*	1674.000	62.26	516.42	516.14	1.00
*	1652.000	9.72	516.10	515.89	1.01
*	1652.000	31.36	516.77	516.51	.79
*	1598.000	9.72	515.82	515.57	1.00
*	1598.000	31.36	516.54	516.29	.74
*	1545.000	9.72	515.36	515.09	1.00
*	1545.000	31.36	515.95	515.76	.68
*	1503.000	9.72	514.80	514.55	1.00
*	1503.000	31.36	515.56	515.14	1.01
	1499.000	9.72	514.60	514.23	2.03
	1499.000	31.36	515.33	514.71	1.75
*	1486.000	9.72	514.37	999999.00	.64
*	1486.000	31.36	515.59	.00	.33

*	1483.000	9.72	514.25	513.94	1.94
*	1483.000	31.36	515.43	514.36	2.68
*	1464.000	9.72	514.52	514.28	1.00
	1464.000	31.36	515.19	514.99	.70
*	1422.000	9.72	514.01	513.80	1.01
*	1422.000	31.36	514.55	514.35	.76
*	1345.000	9.72	513.35	513.19	1.02
*	1345.000	31.36	513.87	513.55	1.01
*	1291.000	9.72	512.98	512.71	1.00
*	1291.000	31.36	513.78	513.42	.86

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	SECNO	Q	EG	CRIWS	FRCH
*	1246.000	9.72	512.54	512.25	1.01
*	1246.000	31.36	513.41	512.93	1.00
*	1191.000	9.72	511.90	511.63	1.00
*	1191.000	31.36	512.73	512.26	1.01
*	1154.000	20.37	511.48	511.25	1.01
*	1154.000	62.26	512.18	511.77	1.01
*	1060.000	20.37	511.14	510.83	1.00
*	1060.000	62.26	512.09	511.53	1.00
	1030.000	20.37	511.27	510.99	1.01
*	1030.000	62.26	512.11	511.64	1.00
*	1020.000	20.37	511.02	510.64	1.69
	1020.000	62.26	511.82	511.17	1.73
*	1000.000	20.37	510.38	510.21	1.13
	1000.000	62.26	511.07	510.58	1.70
*	995.000	20.37	510.36	999999.00	.68
*	995.000	62.26	510.89	999999.00	1.21
*	971.000	20.37	510.32	510.08	1.01
*	971.000	62.26	511.07	510.61	1.01

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SUPERCRITICAL FLOW, FIL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1772.000	.00	.00	.00	516.30	20.37	517.42	517.42	517.74	637.58	2.49	8.17	.81
	1772.000	.00	.00	.00	516.30	62.26	517.72	517.72	517.81	171.69	1.60	51.41	4.75
*	1715.000	57.00	.00	.00	515.80	20.37	516.33	516.33	516.50	328.66	1.84	11.07	1.12
*	1715.000	57.00	.00	.00	515.80	62.26	516.70	516.70	517.05	596.10	2.61	23.89	2.55
*	1703.000	12.00	.00	.00	515.75	20.37	516.30	516.30	516.52	194.28	2.07	9.83	1.46

*	1703.000	12.00	.00	.00	515.75	62.26	516.90	516.90	517.19	275.96	2.44	29.26	3.75
*	1694.000	9.00	.00	.00	515.70	20.37	515.98	516.06	516.25	498.60	2.30	8.84	.91
	1694.000	9.00	.00	.00	515.70	62.26	516.23	516.40	516.83	507.60	3.45	18.05	2.76
	1674.000	20.00	.00	.00	515.55	20.37	515.84	515.84	515.97	268.92	1.63	12.50	1.24
*	1674.000	20.00	.00	.00	515.55	62.26	516.14	516.14	516.42	234.57	2.34	26.64	4.07
*	1652.000	22.00	.00	.00	515.38	9.72	515.89	515.89	516.10	341.23	2.03	4.78	.53
*	1652.000	22.00	.00	.00	515.38	31.36	516.51	516.51	516.77	227.27	2.29	15.89	2.08
*	1598.000	53.18	.00	.00	514.85	9.72	515.57	515.57	515.82	499.27	2.21	4.39	.44
*	1598.000	53.18	.00	.00	514.85	31.36	516.29	516.29	516.54	258.72	2.29	16.76	1.95
*	1545.000	53.64	.00	.00	514.37	9.72	515.09	515.09	515.36	394.08	2.32	4.18	.49
*	1545.000	53.64	.00	.00	514.37	31.36	515.76	515.76	515.95	170.46	2.24	20.60	2.40
*	1503.000	42.13	.00	.00	513.86	9.72	514.55	514.55	514.80	158.28	2.21	4.40	.77
*	1503.000	42.13	.00	.00	513.86	31.36	515.14	515.14	515.56	138.30	2.90	10.83	2.67
*	1499.000	3.38	.00	.00	513.81	9.72	514.07	514.23	514.60	1320.66	3.22	3.02	.27
*	1499.000	3.38	.00	.00	513.81	31.36	514.43	514.71	515.33	760.92	4.20	7.46	1.14
*	1486.000	12.80	515.41	514.80	513.58	9.72	514.25	999999.00	514.37	101.55	1.53	6.36	.96
*	1486.000	12.80	515.41	514.80	513.58	31.36	515.51	.00	515.59	19.73	1.30	29.89	7.06
*	1483.000	3.38	.00	.00	513.56	9.72	513.81	513.94	514.25	1236.26	2.95	3.29	.28
*	1483.000	3.38	.00	.00	513.56	31.36	513.99	514.36	515.43	1997.77	5.32	5.89	.70
*	1464.000	18.67	.00	.00	513.39	9.72	514.28	514.28	514.52	665.22	2.18	4.45	.38
*	1464.000	18.67	.00	.00	513.39	31.36	514.99	514.99	515.19	291.30	2.08	17.47	1.84
	1422.000	42.09	.00	.00	513.14	9.72	513.80	513.80	514.01	648.29	2.03	4.78	.38
	1422.000	42.09	.00	.00	513.14	31.36	514.35	514.35	514.55	324.31	2.11	17.38	1.74
*	1345.000	77.06	.00	.00	512.61	9.72	513.19	513.19	513.35	491.46	1.75	5.55	.44
*	1345.000	77.06	.00	.00	512.61	31.36	513.55	513.55	513.87	384.06	2.51	12.51	1.60
*	1291.000	54.00	.00	.00	511.90	9.72	512.71	512.71	512.98	525.49	2.31	4.20	.42
*	1291.000	54.00	.00	.00	511.90	31.36	513.42	513.42	513.78	369.97	2.71	12.49	1.63

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1246.000	44.03	.00	.00	511.40	9.72	512.25	512.25	512.54	477.86	2.37	4.11	.44
*	1246.000	44.03	.00	.00	511.40	31.36	512.93	512.93	513.41	471.56	3.06	10.25	1.44
*	1191.000	55.38	.00	.00	510.90	9.72	511.63	511.63	511.90	323.15	2.29	4.25	.54
*	1191.000	55.38	.00	.00	510.90	31.36	512.26	512.26	512.73	360.16	3.03	10.37	1.65
*	1154.000	37.24	.00	.00	510.70	20.37	511.25	511.25	511.48	428.58	2.13	9.57	.98
*	1154.000	37.24	.00	.00	510.70	62.26	511.77	511.77	512.18	197.71	2.86	21.75	4.43
*	1060.000	93.71	.00	.00	510.02	20.37	510.83	510.83	511.14	294.78	2.47	8.24	1.19
*	1060.000	93.71	.00	.00	510.02	62.26	511.53	511.53	512.09	331.35	3.32	18.74	3.42
*	1030.000	30.57	.00	.00	509.90	20.37	510.99	510.99	511.27	144.95	2.34	8.71	1.69
	1030.000	30.57	.00	.00	509.90	62.26	511.64	511.64	512.11	203.51	3.04	20.45	4.36
*	1020.000	10.00	.00	.00	509.80	20.37	510.44	510.64	511.02	346.83	3.37	6.04	1.09
	1020.000	10.00	.00	.00	509.80	62.26	510.89	511.17	511.82	313.69	4.26	14.60	3.52
*	1000.000	19.80	.00	.00	509.60	20.37	510.18	510.21	510.38	161.13	1.96	10.37	1.60

	1000.000	19.80	.00	.00	509.60	62.26	510.36	510.58	511.07	328.89	3.72	16.73	3.43
*	995.000	5.50	513.10	511.90	509.50	20.37	510.26	999999.00	510.36	55.26	1.40	14.55	2.74
*	995.000	5.50	513.10	511.90	509.50	62.26	510.45	999999.00	510.89	155.65	2.95	21.09	4.99
	971.000	22.90	.00	.00	509.40	20.37	510.08	510.08	510.32	117.18	2.17	9.40	1.88
*	971.000	22.90	.00	.00	509.40	62.26	510.61	510.61	511.07	95.25	3.02	20.61	6.38

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SUPERCRITICAL FLOW, FIL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1772.000	20.37	517.42	.00	.00	-.02	13.56	.00
*	1772.000	62.26	517.72	.30	.00	-.01	129.32	.00
*	1715.000	20.37	516.33	.00	-1.10	.00	32.97	57.00
*	1715.000	62.26	516.70	.38	-1.02	.00	35.45	57.00
*	1703.000	20.37	516.30	.00	-.02	.00	22.93	12.00
*	1703.000	62.26	516.90	.60	.20	.00	71.78	12.00
*	1694.000	20.37	515.98	.00	-.32	.00	37.60	9.00
	1694.000	62.26	516.23	.25	-.67	.00	39.05	9.00
*	1674.000	20.37	515.84	.00	-.14	.00	46.25	20.00
	1674.000	62.26	516.14	.30	-.09	.00	48.30	20.00
*	1652.000	9.72	515.89	.00	.06	.00	11.50	22.00
*	1652.000	31.36	516.51	.62	.37	.00	44.80	22.00
*	1598.000	9.72	515.57	.00	-.33	.00	8.86	53.18
*	1598.000	31.36	516.29	.73	-.22	.00	40.59	53.18
*	1545.000	9.72	515.09	.00	-.48	.00	7.67	53.64
*	1545.000	31.36	515.76	.67	-.54	.00	45.60	53.64
*	1503.000	9.72	514.55	.00	-.54	.00	8.86	42.13
*	1503.000	31.36	515.14	.59	-.62	.00	13.40	42.13
*	1499.000	9.72	514.07	.00	-.48	.00	11.79	3.38
*	1499.000	31.36	514.43	.36	-.71	.00	12.72	3.38
*	1486.000	9.72	514.25	.00	.18	.00	10.97	12.80
*	1486.000	31.36	515.51	1.26	1.07	.00	63.65	12.80
*	1483.000	9.72	513.81	.00	-.44	.00	13.94	3.38
*	1483.000	31.36	513.99	.18	-1.52	.00	14.66	3.38
*	1464.000	9.72	514.28	.00	.47	.00	9.25	18.67
*	1464.000	31.36	514.99	.71	1.00	.00	41.08	18.67
*	1422.000	9.72	513.80	.00	-.48	.00	11.56	42.09
*	1422.000	31.36	514.35	.55	-.64	.00	43.47	42.09
	1345.000	9.72	513.19	.00	-.61	.00	18.62	77.06
*	1345.000	31.36	513.55	.36	-.79	.00	20.07	77.06
*	1291.000	9.72	512.71	.00	-.48	.00	7.79	54.00
*	1291.000	31.36	513.42	.71	-.13	.00	19.71	54.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1246.000	9.72	512.25	.00	-.45	.00	7.33	44.03
*	1246.000	31.36	512.93	.68	-.49	.00	10.86	44.03
*	1191.000	9.72	511.63	.00	-.62	.00	8.03	55.38
*	1191.000	31.36	512.26	.63	-.67	.00	11.23	55.38
*	1154.000	20.37	511.25	.00	-.38	.00	20.96	37.24
*	1154.000	62.26	511.77	.52	-.50	.00	26.45	37.24
*	1060.000	20.37	510.83	.00	-.42	.00	13.22	93.71
*	1060.000	62.26	511.53	.70	-.23	.00	16.76	93.71
*	1030.000	20.37	510.99	.00	.16	.00	15.97	30.57
*	1030.000	62.26	511.64	.65	.11	.00	21.64	30.57
*	1020.000	20.37	510.44	.00	-.54	.00	14.92	10.00
	1020.000	62.26	510.89	.45	-.75	.00	23.49	10.00
*	1000.000	20.37	510.18	.00	-.26	.00	32.69	19.80
	1000.000	62.26	510.36	.18	-.53	.00	34.46	19.80
*	995.000	20.37	510.26	.00	.08	.00	34.11	5.50
*	995.000	62.26	510.45	.19	.09	.00	35.01	5.50
*	971.000	20.37	510.08	.00	-.18	.00	19.93	22.90
	971.000	62.26	510.61	.53	.16	.00	22.55	22.90

SUMMARY OF ERRORS AND SPECIAL NOTES

No need to run supercritical flow because of "critical depth assumed" message.

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CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=   1715.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1715.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1715.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1715.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1715.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1715.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1703.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1674.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1674.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1674.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
```

```
CAUTION SECNO=   1674.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1652.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1652.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1598.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1598.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1545.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1503.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1503.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1503.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1503.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
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CAUTION SECNO=   1503.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1503.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1499.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1499.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1486.000  PROFILE=  1  BRIDGE DROWNS U.S. PROFILE
                                         NEW BACKWATER REQUIRED
WARNING SECNO=   1486.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1486.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                         NEW BACKWATER REQUIRED
WARNING SECNO=   1486.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1483.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1483.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1464.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1464.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1464.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1464.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1464.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1464.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1422.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1422.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1422.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1422.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1422.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1422.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1345.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1345.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1345.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
```

```
CAUTION SECNO=   1345.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1291.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1291.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1246.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1246.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1246.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1246.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1191.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1191.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
1
```



```
CAUTION SECNO=   1191.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1154.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1154.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1060.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1060.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1020.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1000.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    995.000  PROFILE=  1  DOWNSTREAM DEPTH WRONG SIDE CRITICAL
WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    995.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                        NEW BACKWATER REQUIRED
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    971.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    971.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    24JUN96    TIME   14:11:18 *
 *****************************************
```

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

24JUN96 14:11:18 PAGE 1

THIS RUN EXECUTED 24JUN96 14:11:18

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************************************
 HEC-2 WATER SURFACE PROFILES

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

Sub critical slope area-method

```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS          6/22/96
T2      EXISTING EAST CHANNEL;
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE:  EXEAST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                  0       .0101      1                    511.28

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    1                  -1                                  -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

       REMAINDER OF SPLIT FLOW FROM EXISTING WEST CHANNEL (EXWEST.OH2)
       SEE SPLIT FLOW WIER SUMMARY FOR STATIONS 1+652 TO 1+674
       AT END OF EACH PROFILE (INTERMEDIATE RESULTS; EXWEST.IH2)

        2       10.65     30.90
       WEIGHTED MEAN n-VALUE FOR EXISTING WITTMANN WASH CHANNEL
       (FROM NH RECORD FOR STA 1+154;EXWEST.IH2)
NC     .080      .080      .062       .1        .3
```

```
        USE SECTION 1+154 FROM EXWEST.IH2
X1     2000        9    979.44   1016.60        0        0        0
X3       10
GR    512.7   950.00    512.58    979.44   511.55   987.29   510.76   992.04   510.71  1003.63
      510.7  1005.90    510.73   1008.00   512.90  1016.60   513.00  1021.00
```



```
NH       5     .060    984.69      .080   996.45     .038  1002.34     .080  1010.05     .060
NH  1017.6

X1    2039        9    984.69   1010.05       37       43    38.84
X3      10
GR  512.85   950.00    512.81    984.69   512.39   985.68   511.64   987.49   511.04   996.45
GR   511.2  1002.34    512.27   1007.92   512.71  1010.05   512.72   1017.6

NH       5     .060    992.31      .080   997.72     .035  1003.15     .080  1027.30     .060
NH  1046.2

X1    2125        9    992.31   1027.30       87       85    86.39
X3      10
GR   513.7   950.00    513.59    982.08   513.46   992.31   513.12   994.19    511.8   997.72
GR  511.85  1002.50    512.51   1003.15   513.35  1027.30   513.35   1046.2

NH       5     .060    995.96      .080   999.26     .035  1002.89     .080  1008.18     .060
NH  1041.6

      2231       10    995.96   1008.18      106      105   106.01
X3      10
GR   514.6   950.00    514.37    992.92   514.43   995.96   514.33   996.36   512.48   999.26
GR   512.6  1002.89    514.47   1008.18   514.47  1008.18   514.55  1027.97   514.55   1041.6

NH       5     .060    997.82      .080  1002.30     .035  1005.63     .080  1008.36     .060
NH  1030.6

X1    2291        8    997.82   1008.36       65       59    59.27
X3      10
GR   515.3   950.00    515.08    980.87   514.76   997.82   512.84  1002.30    512.8  1005.63
GR  514.79  1008.05    514.96   1008.36   514.94   1030.6

NH       5     .060    994.05      .080   997.70     .041  1003.57     .080  1011.14     .060
NH  1030.1

X1    2339       11    994.05   1011.14       49       46    48.35
X3      10
GR   515.5   950.00    515.29    981.22   515.09   994.05   513.73   997.70    513.2   997.79
GR  513.09  1003.57    514.79   1006.62   515.24  1007.56   515.38  1011.14    515.3  1022.39
GR  515.40   1030.1

        SECTION JUST DOWNSTREAM FROM EAST CULVERT

NC    .060     .060      .057       .3       .5
```



```
X1    2358        8    990.95   1007.30       19       18    18.85
X3      10
```

```
GR    515.4     950.00     515.14     990.95     514.95     994.31     514.73     995.38     513.55     996.22
GR    513.5    1005.64     514.84    1007.30     515.35    1020.00

        DOWNSTREAM FACE OF EAST CULVERT (90-degree headwall)

X1     2361          7     994.25    1008.28          3          3       3.00
X3       10
GR    515.6     950.00     515.33     994.25     515.23     995.40     513.75     998.05     513.83    1004.06
GR    515.3    1008.28     515.35    1017.24

        6-1220 MM DIAMETER RCP (old condition);
        90-DEG HEADWALL WITH GROOVED END INLET

SC    6.015        0.5       1.66                  1.22          0      12.47        1.2     513.83     513.75

X1     2373         10     995.21    1006.78      12.47      12.47      12.47
X2                             2                 515.52
X3       10                                                                     515.53     515.49
BT       -2     950.00     515.72               1017.24     515.46
GR   515.72     950.00     515.45     993.56     515.42     995.21      515.4     995.21     514.10     997.36
GR   513.83    1002.67     514.01    1004.48     515.35    1005.97     515.44    1006.78     515.46    1017.24


NC     .100       .100       .068         .1         .3

X1     2376          7     998.29    1009.00          3          3          3
X3       10
GR    515.8     950.00     515.48     967.15     515.12     998.29     513.88    1000.35     513.88    1005.25
GR   515.32    1009.00     515.47    1030.00


         4       .080     998.34       .034    1004.94       .100    1008.57       .080    1020.93

X1     2418         10     992.29    1008.57         40         45         42
X3       10
GR    516.0     950.00     515.88     972.39     515.95     992.29     515.92     992.44     514.95     998.34
GR    514.6     999.50      514.6    1004.94     515.88    1008.57     515.88    1008.58     515.97    1020.93


NH       4       .080     997.77       .034    1004.03       .100    1010.09       .080    1020.00

X1     2449          8     994.14    1010.09         31         31      31.12
X3       10
GR    516.3     950.00     516.11     994.14     515.83     994.93     514.98     997.77     514.76    1004.03
GR    515.8    1010.09     515.78    1010.21     516.15    1020.00

        SECTION JUST DOWNSTREAM FROM SPLIT WITH WEST CHANNEL
1
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NH       4       .080     998.19       .053    1003.75       .100    1010.79       .080    1022.06

X1     2496          8     994.87    1010.79         46         46      46.38
X3       10
GR    516.8     950.00     516.69     963.09     516.53     994.87     515.32     998.19      515.4    1003.75
GR   516.46    1010.20     516.56    1010.79      516.7    1022.06
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
```

```
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 2000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000      .60    511.30    511.07    511.28    511.35       .05       .00       .00    512.58
      10.6       .0      10.6       .0       .0      10.6        .0       .0        .0    512.90
       .00      .00      1.01      .00      .000      .062      .000      .000    510.70    988.82
   .010096       0.        0.        0.        0        14         5       .00     21.43   1010.24


FLOW DISTRIBUTION FOR SECNO=   2000.00         CWSEL=    511.30

STA=     989.    1017.
  PER Q=    100.0
   AREA=     10.6
    VEL=      1.0
  DEPTH=       .5

1490 NH CARD USED
*SECNO 2039.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  2039.000      .68    511.72    511.61       .00    511.82       .10       .45       .01    512.81
      10.6       .0      10.6       .0       .0       7.6        .0       .4        .8    512.71
       .01      .00      1.40      .00      .000      .047      .000      .000    511.04    987.30
   .013682      37.       39.       43.        1         8         0       .00     17.74   1005.04


FLOW DISTRIBUTION FOR SECNO=   2039.00         CWSEL=    511.72

STA=     987.     996.    1002.    1008.
  PER Q=     24.0     72.2      3.8
   AREA=      3.4      3.5       .7
    VEL=       .8      2.2       .6
  DEPTH=       .4       .6       .3

1
   24JUN96      14:11:18                                                                                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


1490 NH CARD USED
*SECNO 2125.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.46 ELREA=      513.35

  2125.000     1.14    512.94    512.59       .00    513.00       .05      1.18       .00    513.46
      10.6       .0      10.6       .0       .0      10.4        .0       1.1       2.4    513.35
       .03      .00      1.03      .00      .000      .070      .000      .000    511.80    994.65
   .013526      87.       86.       85.        2        11         0       .00     21.09   1015.74
```

```
FLOW DISTRIBUTION FOR SECNO=   2125.00         CWSEL=    512.94

STA=     995.    1027.
  PER Q=    100.0
   AREA=     10.4
    VEL=      1.0
  DEPTH=       .5

1490 NH CARD USED
*SECNO 2231.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.43 ELREA=      514.47

  2231.000      1.45    513.93    513.35       .00    514.00       .07      1.00       .00    514.43
      10.6        .0      10.6        .0        .0       9.1        .0       2.2       4.1    514.47
       .06       .00      1.16       .00      .000      .066      .000      .000    512.48    996.99
   .006911      106.      106.      105.         1        15         0       .00      9.64   1006.64


FLOW DISTRIBUTION FOR SECNO=   2231.00         CWSEL=    513.93

STA=     997.    1008.
  PER Q=    100.0
   AREA=      9.1
    VEL=      1.2
  DEPTH=       .9

1490 NH CARD USED
*SECNO 2291.000
```



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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.76 ELREA=      514.96

  2291.000      1.53    514.33    513.68       .00    514.40       .07       .40       .00    514.76
      10.6        .0      10.6        .0        .0       9.0        .0       2.7       4.6    514.96
       .07       .00      1.19       .00      .000      .066      .000      .000    512.80    998.84
   .006602       65.       59.       59.         2        14         0       .00      8.64   1007.48


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    514.33

STA=     999.    1008.
  PER Q=    100.0
   AREA=      9.0
    VEL=      1.2
  DEPTH=      1.0

1490 NH CARD USED
*SECNO 2339.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2339.000      1.49    514.58    513.82       .00    514.62       .04       .22       .00    515.09
      10.6        .0      10.6        .0        .0      11.4        .0       3.2       5.1    515.38
       .08       .00       .94       .00      .000      .061      .000      .000    513.09    995.42
   .003421       49.       48.       46.         2        11         0       .00     10.82   1006.24
```

FLOW DISTRIBUTION FOR SECNO= 2339.00 CWSEL= 514.58

STA= 995. 1007.
PER Q= 100.0
AREA= 11.4
VEL= .9
DEPTH= 1.0

CCHV= .300 CEHV= .500
*SECNO 2358.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.14 ELREA= 514.84

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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
2358.000	1.14	514.64	514.02	.00	514.68	.04	.06	.00	515.14
10.6	.0	10.6	.0	.0	11.8	.0	3.4	5.3	514.84
.09	.00	.90	.00	.000	.057	.000	.000	513.50	995.44
.002908	19.	19.	18.	2	22	0	.00	11.61	1007.06

FLOW DISTRIBUTION FOR SECNO= 2358.00 CWSEL= 514.64

STA= 995. 1007.
PER Q= 100.0
AREA= 11.8
VEL= .9
DEPTH= 1.0

*SECNO 2361.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .43

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.33 ELREA= 515.30

2361.000	.86	514.61	514.42	.00	514.75	.14	.02	.05	515.33
10.6	.0	10.6	.0	.0	6.5	.0	3.4	5.3	515.30
.09	.00	1.64	.00	.000	.057	.000	.000	513.75	996.50
.015866	3.	3.	3.	2	11	0	.00	9.80	1006.31

FLOW DISTRIBUTION FOR SECNO= 2361.00 CWSEL= 514.61

STA= 997. 1008.
PER Q= 100.0
AREA= 6.5
VEL= 1.6
DEPTH= .7

CIAL CULVERT

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

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6         .015      .50      1.66       .00      1.22       .00      12.47      1         2       513.83    513.75

CHART  1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE  2 - GROOVE END ENTRANCE WITH HEADWALL

*SECNO 2373.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.916  EGOC =    514.995  PCWSE=    514.613  ELTRD=    515.520

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    514.92    514.99       .25        0.       11.     1.383       7.0    515.52        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.53 ELREA=      515.49

  2373.000      1.07    514.90       .00       .00    514.99       .10       .25       .00    515.42
      10.6        .0      10.6        .0        .0      7.7        .0       3.5       5.4    515.44
       .09       .00      1.38       .00      .000      .057      .000      .000    513.83    996.04
   .008812       12.       12.       12.         2         0         0       .00      9.43   1005.47


FLOW DISTRIBUTION FOR SECNO=   2373.00         CWSEL=    514.90

STA=     996.    1007.
  PER Q=    100.0
   AREA=      7.7
    VEL=      1.4
  DEPTH=       .8

CCHV=     .100 CEHV=     .300
*SECNO 2376.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.32

  2376.000      1.05    514.93    514.58       .00    515.03       .10       .03       .00    515.12
      10.6        .0      10.6        .0        .0      7.5        .0       3.6       5.5    515.32
       .09       .00      1.41       .00      .000      .068      .000      .000    513.88    998.60
   .013247        3.         3.        3.         0        14         0       .00      9.40   1008.00


FLOW DISTRIBUTION FOR SECNO=   2376.00         CWSEL=    514.93

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


STA=     999.    1009.
  PER Q=    100.0
   AREA=      7.5
```

```
    VEL=      1.4
  DEPTH=       .8

1490 NH CARD USED
*SECNO 2418.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.88

  2418.000      .91    515.51    515.24       .00    515.60       .09       .57       .00    515.95
      10.6       .0      10.6        .0        .0       7.9        .0       3.9       5.9    515.88
       .10      .00      1.35       .00      .000      .064      .000      .000    514.60    994.95
   .014010      40.       42.       45.         2        14         0       .00     12.57   1007.51


FLOW DISTRIBUTION FOR SECNO=   2418.00         CWSEL=    515.51

STA=     995.    1009.
  PER Q=    100.0
   AREA=      7.9
    VEL=      1.3
  DEPTH=       .6

1490 NH CARD USED
*SECNO 2449.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.11 ELREA=      515.80

  2449.000     1.11    515.87    515.42       .00    515.92       .05       .31       .00    516.11
      10.6       .0      10.6        .0        .0      11.1        .1       4.2       6.4    515.80
       .11      .00       .95       .13      .000      .073      .080      .000    514.76    994.82
   .007455      31.       31.       31.         2        19         0       .00     17.75   1012.57


FLOW DISTRIBUTION FOR SECNO=   2449.00         CWSEL=    515.87

STA=     995.    1010.    1013.
  PER Q=     99.9       .1
   AREA=     11.1       .1
    VEL=      1.0       .1
  DEPTH=       .7       .0
```



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


1490 NH CARD USED
*SECNO 2496.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.53 ELREA=      516.56

  2496.000     1.00    516.32    515.97       .00    516.39       .07       .47       .01    516.53
      10.6       .0      10.6        .0        .0       9.3        .0       4.7       7.1    516.56
       .12      .00      1.14       .00      .000      .079      .000      .000    515.32    995.44
   .014268      46.       46.       46.         2        14         0       .00     13.91   1009.36


FLOW DISTRIBUTION FOR SECNO=   2496.00         CWSEL=    516.32

STA=     995.    1010.
  PER Q=    100.0
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   AREA=      9.3
    VEL=      1.1
  DEPTH=       .7
```



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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      EXISTING EAST CHANNEL;
T3      100-YEAR SUBCRITICAL FLOW
T4      FILE:  EXEAST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                 0      .0102       1                      511.75

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                   -1                         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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 2000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000      1.06    511.76    511.40    511.75    511.86       .10       .00       .00    512.58
      30.9        .0      30.9        .0        .0      21.6        .0        .0        .0    512.90
       .00       .00      1.43       .00      .000      .062      .000      .000    510.70    985.70
   .010402        0.        0.        0.         0        14         4       .00     26.38   1012.08


FLOW DISTRIBUTION FOR SECNO=   2000.00          CWSEL=    511.76

STA=     986.    1017.
  PER Q=    100.0
   AREA=     21.6
    VEL=      1.4
  DEPTH=       .8

1490 NH CARD USED
*SECNO 2039.000

[illegible]5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  2039.000      1.12    512.16    511.97       .00    512.34       .18       .46       .02    512.81
      30.9        .0      30.9        .0        .0      16.4        .0        .7        .9    512.71
       .01       .00      1.88       .00      .000      .051      .000      .000    511.04    986.21
   .013345       37.       39.       43.         0        15         0       .00     21.19   1007.40
```

FLOW DISTRIBUTION FOR SECNO= 2039.00 CWSEL= 512.16

STA=	986.	996.	1002.	1008.
PER Q=	30.1	62.9	7.0	
AREA=	7.8	6.2	2.5	
VEL=	1.2	3.1	.9	
DEPTH=	.8	1.1	.5	

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

1490 NH CARD USED
*SECNO 2125.000
3280 CROSS SECTION 2125.00 EXTENDED .09 METERS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.46 ELREA= 513.35

2125.000	1.64	513.44	513.08	.00	513.51	.08	1.16	.01	513.46
30.9	.0	30.3	.6	.0	24.5	1.7	2.6	4.1	513.35
.03	.00	1.23	.38	.000	.074	.060	.000	511.80	992.43
.013514	87.	86.	85.	2	8	0	.00	53.77	1046.20

FLOW DISTRIBUTION FOR SECNO= 2125.00 CWSEL= 513.44

STA=	992.	1027.	1046.
PER Q=	97.9	2.1	
AREA=	24.5	1.7	
VEL=	1.2	.4	
DEPTH=	.7	.1	

1490 NH CARD USED
*SECNO 2231.000
3280 CROSS SECTION 2231.00 EXTENDED .05 METERS

2231.000	2.12	514.60	513.99	.00	514.73	.13	1.20	.02	514.43
30.9	2.3	27.8	.8	5.6	16.7	2.5	5.3	11.8	514.47
.04	.41	1.67	.30	.060	.069	.060	.000	512.48	950.00
.009624	106.	106.	105.	3	11	0	.00	91.60	1041.60

FLOW DISTRIBUTION FOR SECNO= 2231.00 CWSEL= 514.60

STA=	950.	993.	996.	1008.	1028.	1042.
PER Q=	6.3	1.1	90.1	2.0	.5	
AREA=	5.0	.6	16.7	1.8	.7	
VEL=	.4	.6	1.7	.3	.2	
DEPTH=	.1	.2	1.4	.1	.1	

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 2291.000
3280 CROSS SECTION   2291.00 EXTENDED       .18 METERS

  2291.000      2.32    515.12    514.38       .00    515.24       .12       .51       .00    514.76
      30.9       1.7      27.5       1.7       3.5      16.9       3.8       6.8      16.4    514.96
       .06       .49      1.63       .45      .060      .069      .060      .000    512.80    975.15
   .007711       65.       59.       59.         2        15         0       .00     55.45   1030.60


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    515.12

STA=     975.     981.     998.    1008.    1031.
  PER Q=       .0      5.5     88.9      5.5
   AREA=       .1      3.4     16.9      3.8
    VEL=       .1       .5      1.6       .4
  DEPTH=       .0       .2      1.6       .2

1490 NH CARD USED
*SECNO 2339.000
3280 CROSS SECTION   2339.00 EXTENDED       .07 METERS

  2339.000      2.38    515.47    514.44       .00    515.54       .07       .29       .01    515.09
      30.9       2.4      27.8        .7       6.1      23.2       2.4       8.1      19.5    515.38
       .07       .39      1.20       .29      .060      .068      .060      .000    513.09    954.26
   .004855       49.       48.       46.         2        11         0       .00     75.84   1030.10


FLOW DISTRIBUTION FOR SECNO=   2339.00         CWSEL=    515.47

STA=     954.     981.     994.    1011.    1022.    1030.
  PER Q=      1.9      5.8     90.0      1.4       .9
   AREA=      2.4      3.6     23.2      1.5       .9
    VEL=       .2       .5      1.2       .3       .3
  DEPTH=       .1       .3      1.4       .1       .1

CCHV=     .300 CEHV=     .500
*SECNO 2358.000
3280 CROSS SECTION   2358.00 EXTENDED       .21 METERS

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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

  2358.000      2.06    515.56    514.52       .00    515.60       .04       .05       .01    515.14
      30.9       3.8      24.6       2.5      11.9      25.2       5.9       8.8      20.9    514.84
       .07       .32       .98       .43      .060      .057      .060      .000    513.50    950.00
   .001901       19.       19.       18.         2        18         0       .00     70.00   1020.00


FLOW DISTRIBUTION FOR SECNO=   2358.00         CWSEL=    515.56

STA=     950.     991.    1007.    1020.
  PER Q=     12.2     79.5      8.2
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   AREA=     11.9     25.2      5.9
    VEL=       .3      1.0       .4
  DEPTH=       .3      1.5       .5

*SECNO 2361.000
3280 CROSS SECTION   2361.00 EXTENDED       .17 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

  2361.000      1.77    515.52    514.97       .00    515.66       .13       .01       .05    515.33
      30.9        .9      29.2        .8       3.1      17.5       1.8       8.9      21.1    515.30
       .07       .30      1.67       .47      .060      .057      .060      .000    513.75    962.59
   .007155        3.        3.        3.         2        14         0       .00     54.65   1017.24


FLOW DISTRIBUTION FOR SECNO=   2361.00         CWSEL=    515.52

STA=     963.     994.    1008.    1017.
  PER Q=      2.9     94.3      2.7
   AREA=      3.1     17.5      1.8
    VEL=       .3      1.7       .5
  DEPTH=       .1      1.2       .2

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


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6         .015      .50      1.66       .00      1.22       .00     12.47      1         2       513.83    513.75

CHART  1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE  2 - GROOVE END ENTRANCE WITH HEADWALL

*SECNO 2373.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG =    515.87
3280 CROSS SECTION   2373.00 EXTENDED       .33 METERS

SPECIAL CULVERT

    EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  516.59    517.27       .22       17.       14.     1.467       7.0    515.52       67.


  2373.000      1.95    515.78       .00       .00    515.87       .09       .22       .00    515.42
      30.9       3.7      25.3       1.9       9.4      17.2       3.5       9.2      21.8    515.44
       .08       .40      1.47       .53      .060      .057      .060      .000    513.83    950.00
   .004545       12.       12.       12.         2         0         0       .00     67.24   1017.24


FLOW DISTRIBUTION FOR SECNO=   2373.00         CWSEL=    515.78

STA=     950.     994.     995.    1007.    1017.
  PER Q=     11.0      1.1     81.9      6.1
   AREA=      8.8       .6     17.2      3.5
    VEL=       .4       .6      1.5       .5
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  DEPTH=       .2       .4      1.5       .3

CCHV=     .100 CEHV=     .300
*SECNO 2376.000
[illegible]0 CROSS SECTION   2376.00 EXTENDED       .37 METERS

  2376.000      1.96    515.84    515.25       .00    515.89       .05       .01       .00    515.12
      30.9       7.6      20.0       3.3      20.4      17.1       9.4       9.3      22.1    515.32
       .08       .37      1.17       .35      .100      .068      .100      .000    513.88    950.00
   .003682        3.        3.        3.         2        18         0       .00     80.00   1030.00


FLOW DISTRIBUTION FOR SECNO=   2376.00          CWSEL=    515.84

STA=     950.     967.     998.    1009.    1030.
  PER Q=      2.4     22.2     64.7     10.7
   AREA=      3.5     16.9     17.1      9.4
    VEL=       .2       .4      1.2       .4
  DEPTH=       .2       .5      1.6       .4

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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


1490 NH CARD USED
*SECNO 2418.000
[illegible]0 CROSS SECTION   2418.00 EXTENDED       .68 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  2418.000      2.05    516.65    516.65       .00    516.83       .18       .20       .04    515.95
      30.9      24.0      39.4       6.9      30.4      25.7       8.9      11.7      25.2    515.88
       .08       .79      1.54       .77      .080      .068      .080      .000    514.60    950.00
   .006320       40.       42.       45.         0         9         0       .00     70.93   1020.93


FLOW DISTRIBUTION FOR SECNO=   2418.00          CWSEL=    516.65

STA=     950.     972.     992.    1009.    1021.
  PER Q=     39.7     38.1    127.7     22.3
   AREA=     15.8     14.6     25.7      8.9
    VEL=       .8       .8      1.5       .8
  DEPTH=       .7       .7      1.6       .7

1490 NH CARD USED
*SECNO 2449.000
3280 CROSS SECTION   2449.00 EXTENDED       .75 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.42

  2449.000      2.14    516.90    515.90       .00    516.92       .01       .07       .02    516.11
      30.9       9.8      17.6       3.5      30.7      27.5       9.3      13.7      27.4    515.80
       .10       .32       .64       .37      .080      .073      .080      .000    514.76    950.00
   .001076       31.       31.       31.         2        11         0       .00     70.00   1020.00


FLOW DISTRIBUTION FOR SECNO=   2449.00          CWSEL=    516.90

STA=     950.     994.    1010.    1010.    1020.
```

PER Q=	31.8	57.0	.2	11.1
AREA=	30.7	27.5	.1	9.2
VEL=	.3	.6	.4	.4
DEPTH=	.7	1.7	1.1	.9

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

1490 NH CARD USED
*SECNO 2496.000
3280 CROSS SECTION 2496.00 EXTENDED .28 METERS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .41

2496.000	1.66	516.98	516.45	.00	517.03	.05	.10	.01	516.53
30.9	7.2	21.8	1.9	14.8	19.5	3.9	16.2	30.6	516.56
.11	.48	1.12	.49	.080	.081	.080	.000	515.32	950.00
.006371	46.	46.	46.	2	11	0	.00	72.06	1022.06

FLOW DISTRIBUTION FOR SECNO= 2496.00 CWSEL= 516.98

STA=	950.	963.	995.	1011.	1022.
PER Q=	3.7	19.5	70.6	6.2	
AREA=	3.1	11.7	19.5	3.9	
VEL=	.4	.5	1.1	.5	
DEPTH=	.2	.4	1.2	.3	

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THIS RUN EXECUTED 24JUN96 14:11:19

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
2000.000	10.65	511.30	.00	10.65	.00	.00	1.01	.00	.00	21.43	100.96	510.70
2000.000	30.90	511.76	.00	30.90	.00	.00	1.43	.00	.00	26.38	104.02	510.70
2039.000	10.65	511.72	.00	10.65	.00	.00	1.40	.00	8.75	17.74	136.82	511.04
2039.000	30.90	512.16	.00	30.90	.00	.00	1.88	.00	8.75	21.19	133.45	511.04

	2125.000	10.65	512.94	.00	10.65	.00	.00	1.03	.00	8.80	21.09	135.26	511.80
	2125.000	30.90	513.44	.00	30.26	.64	.00	1.23	.38	8.80	53.77	135.14	511.80
	2231.000	10.65	513.93	.00	10.65	.00	.00	1.16	.00	6.41	9.64	69.11	512.48
	2231.000	30.90	514.60	2.30	27.84	.76	.41	1.67	.30	6.41	91.60	96.24	512.48
	2291.000	10.65	514.33	.00	10.65	.00	.00	1.19	.00	5.40	8.64	66.02	512.80
	2291.000	30.90	515.12	1.72	27.48	1.70	.49	1.63	.45	5.40	55.45	77.11	512.80
	2339.000	10.65	514.58	.00	10.65	.00	.00	.94	.00	6.00	10.82	34.21	513.09
	2339.000	30.90	515.47	2.37	27.82	.71	.39	1.20	.29	6.00	75.84	48.55	513.09
	2358.000	10.65	514.64	.00	10.65	.00	.00	.90	.00	21.75	11.61	29.08	513.50
*	2358.000	30.90	515.56	3.77	24.58	2.55	.32	.98	.43	21.75	70.00	19.01	513.50
*	2361.000	10.65	514.61	.00	10.65	.00	.00	1.64	.00	83.33	9.80	158.66	513.75
*	2361.000	30.90	515.52	.91	29.15	.84	.30	1.67	.47	83.33	54.65	71.55	513.75
	2373.000	10.65	514.90	.00	10.65	.00	.00	1.38	.00	6.42	9.43	88.12	513.83
	2373.000	30.90	515.78	3.72	25.30	1.88	.40	1.47	.53	6.42	67.24	45.45	513.83
	2376.000	10.65	514.93	.00	10.65	.00	.00	1.41	.00	16.66	9.40	132.47	513.88
	2376.000	30.90	515.84	7.58	20.00	3.31	.37	1.17	.35	16.66	80.00	36.82	513.88
	2418.000	10.65	515.51	.00	10.65	.00	.00	1.35	.00	17.14	12.57	140.10	514.60
*	2418.000	30.90	516.65	24.01	39.45	6.88	.79	1.54	.77	17.14	70.93	63.20	514.60

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	2449.000	10.65	515.87	.00	10.63	.01	.00	.95	.13	5.14	17.75	74.55	514.76
*	2449.000	30.90	516.90	9.81	17.60	3.48	.32	.64	.37	5.14	70.00	10.76	514.76
	2496.000	10.65	516.32	.00	10.65	.00	.00	1.14	.00	12.07	13.91	142.68	515.32
*	2496.000	30.90	516.98	7.16	21.82	1.91	.48	1.12	.49	12.07	72.06	63.71	515.32

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

SECNO	Q	EG	CRIWS	FRCH
2000.000	10.65	511.35	511.07	.46
2000.000	30.90	511.86	511.40	.51
2039.000	10.65	511.82	511.61	.68
2039.000	30.90	512.34	511.97	.68
2125.000	10.65	513.00	512.59	.47
2125.000	30.90	513.51	513.08	.47
2231.000	10.65	514.00	513.35	.38
2231.000	30.90	514.73	513.99	.46
2291.000	10.65	514.40	513.68	.37
2291.000	30.90	515.24	514.38	.41
2339.000	10.65	514.62	513.82	.29

	2339.000	30.90	515.54	514.44	.33
	2358.000	10.65	514.68	514.02	.29
*	2358.000	30.90	515.60	514.52	.25
*	2361.000	10.65	514.75	514.42	.64
*	2361.000	30.90	515.66	514.97	.48
	2373.000	10.65	514.99	.00	.49
	2373.000	30.90	515.87	.00	.38
	2376.000	10.65	515.03	514.58	.50
	2376.000	30.90	515.89	515.25	.30
	2418.000	10.65	515.60	515.24	.54
*	2418.000	30.90	516.83	516.65	.39
	2449.000	10.65	515.92	515.42	.36
*	2449.000	30.90	516.92	515.90	.16
	2496.000	10.65	516.39	515.97	.45
*	2496.000	30.90	517.03	516.45	.32

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	2000.000	.00	.00	.00	510.70	10.65	511.30	511.07	511.35	100.96	1.01	10.57	1.06
	2000.000	.00	.00	.00	510.70	30.90	511.76	511.40	511.86	104.02	1.43	21.58	3.03
	2039.000	38.84	.00	.00	511.04	10.65	511.72	511.61	511.82	136.82	1.40	7.61	.91
	2039.000	38.84	.00	.00	511.04	30.90	512.16	511.97	512.34	133.45	1.88	16.43	2.67
	2125.000	86.39	.00	.00	511.80	10.65	512.94	512.59	513.00	135.26	1.03	10.38	.92
	2125.000	86.39	.00	.00	511.80	30.90	513.44	513.08	513.51	135.14	1.23	26.20	2.66
	2231.000	106.01	.00	.00	512.48	10.65	513.93	513.35	514.00	69.11	1.16	9.15	1.28
	2231.000	106.01	.00	.00	512.48	30.90	514.60	513.99	514.73	96.24	1.67	24.82	3.15
	2291.000	59.27	.00	.00	512.80	10.65	514.33	513.68	514.40	66.02	1.19	8.99	1.31
	2291.000	59.27	.00	.00	512.80	30.90	515.12	514.38	515.24	77.11	1.63	24.18	3.52
	2339.000	48.35	.00	.00	513.09	10.65	514.58	513.82	514.62	34.21	.94	11.35	1.82
	2339.000	48.35	.00	.00	513.09	30.90	515.47	514.44	515.54	48.55	1.20	31.65	4.43
	2358.000	18.85	.00	.00	513.50	10.65	514.64	514.02	514.68	29.08	.90	11.77	1.98
*	2358.000	18.85	.00	.00	513.50	30.90	515.56	514.52	515.60	19.01	.98	42.96	7.09
*	2361.000	3.00	.00	.00	513.75	10.65	514.61	514.42	514.75	158.66	1.64	6.49	.85
*	2361.000	3.00	.00	.00	513.75	30.90	515.52	514.97	515.66	71.55	1.67	22.31	3.65
	2373.000	12.47	515.52	.00	513.83	10.65	514.90	.00	514.99	88.12	1.38	7.70	1.13
	2373.000	12.47	515.52	.00	513.83	30.90	515.78	.00	515.87	45.45	1.47	30.14	4.58
	2376.000	3.00	.00	.00	513.88	10.65	514.93	514.58	515.03	132.47	1.41	7.54	.93
	2376.000	3.00	.00	.00	513.88	30.90	515.84	515.25	515.89	36.82	1.17	46.92	5.09
	2418.000	42.00	.00	.00	514.60	10.65	515.51	515.24	515.60	140.10	1.35	7.90	.90
*	2418.000	42.00	.00	.00	514.60	30.90	516.65	516.65	516.83	63.20	1.54	65.00	3.89

2449.000	31.12	.00	.00	514.76	10.65	515.87	515.42	515.92	74.55	.95	11.26	1.23
* 2449.000	31.12	.00	.00	514.76	30.90	516.90	515.90	516.92	10.76	.64	67.57	9.42
2496.000	46.38	.00	.00	515.32	10.65	516.32	515.97	516.39	142.68	1.14	9.30	.89
* 2496.000	46.38	.00	.00	515.32	30.90	516.98	516.45	517.03	63.71	1.12	38.26	3.87

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2000.000	10.65	511.30	.00	.00	.02	21.43	.00
2000.000	30.90	511.76	.46	.00	.01	26.38	.00
2039.000	10.65	511.72	.00	.42	.00	17.74	38.84
2039.000	30.90	512.16	.45	.40	.00	21.19	38.84
2125.000	10.65	512.94	.00	1.23	.00	21.09	86.39
2125.000	30.90	513.44	.49	1.27	.00	53.77	86.39
2231.000	10.65	513.93	.00	.99	.00	9.64	106.01
2231.000	30.90	514.60	.67	1.16	.00	91.60	106.01
2291.000	10.65	514.33	.00	.40	.00	8.64	59.27
2291.000	30.90	515.12	.79	.52	.00	55.45	59.27
2339.000	10.65	514.58	.00	.25	.00	10.82	48.35
2339.000	30.90	515.47	.89	.35	.00	75.84	48.35
2358.000	10.65	514.64	.00	.06	.00	11.61	18.85
* 2358.000	30.90	515.56	.92	.09	.00	70.00	18.85
* 2361.000	10.65	514.61	.00	-.03	.00	9.80	3.00
* 2361.000	30.90	515.52	.91	-.04	.00	54.65	3.00
2373.000	10.65	514.90	.00	.28	.00	9.43	12.47
2373.000	30.90	515.78	.89	.26	.00	67.24	12.47
2376.000	10.65	514.93	.00	.03	.00	9.40	3.00
2376.000	30.90	515.84	.92	.06	.00	80.00	3.00
2418.000	10.65	515.51	.00	.58	.00	12.57	42.00
* 2418.000	30.90	516.65	1.14	.80	.00	70.93	42.00
2449.000	10.65	515.87	.00	.36	.00	17.75	31.12
* 2449.000	30.90	516.90	1.03	.25	.00	70.00	31.12
2496.000	10.65	516.32	.00	.45	.00	13.91	46.38
* 2496.000	30.90	516.98	.66	.08	.00	72.06	46.38

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=   2358.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2361.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2361.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2418.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   2449.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2496.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    24JUN96    TIME   14:11:26 *
 *****************************************
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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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24JUN96 14:11:26 PAGE 1

THIS RUN EXECUTED 24JUN96 14:11:26

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************
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```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/22/96
T2      EXISTING EAST CHANNEL;
T3      10-YEAR SUPERCRITICAL FLOW
T4      FILE:   EXEASTSU.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                   1      .030         1                            516.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1        13        14        15        55        26        56        33
     4         5        42
    38        43         3         2        68
   150

       REMAINDER OF SPLIT FLOW FROM EXISTING WEST CHANNEL (EXWEST.OH2)
       SEE SPLIT FLOW WIER SUMMARY FOR STATIONS 1+652 TO 1+674
       AT END OF EACH PROFILE (INTERMEDIATE RESULTS; EXWEST.IH2)

        2      10.65      30.90

       SECTION JUST DOWNSTREAM FROM SPLIT WITH WEST CHANNEL
NC     .080       .080       .048         .1         .3

X1    2496          8     994.87    1010.79         46         46      46.38
```

```
X3      10
GR   516.8     950.00     516.69     963.09     516.53     994.87     515.32     998.19      515.4    1003.75
GR  516.46    1010.20     516.56    1010.79      516.7    1022.06
```



```
NH       4       .080     997.77       .029    1004.03       .100    1010.09       .080    1020.00

X1    2449          8     994.14    1010.09         31         31      31.12
X3      10
GR   516.3     950.00     516.11     994.14     515.83     994.93     514.98     997.77     514.76    1004.03
GR   515.8    1010.09     515.78    1010.21     516.15    1020.00


NH       4       .080     998.34       .029    1004.94       .100    1008.57       .080    1020.93

X1    2418         10     992.29    1008.57         40         45         42
X3      10
GR   516.0     950.00     515.88     972.39     515.95     992.29     515.92     992.44     514.95     998.34
GR   514.6     999.50      514.6    1004.94     515.88    1008.57     515.88    1008.58     515.97    1020.93


NC    .100       .100       .063         .3         .5

X1    2376          7     998.29    1009.00          3          3          3
X3      10
GR   515.8     950.00     515.48     967.15     515.12     998.29     513.88    1000.35     513.88    1005.25
GR  515.32    1009.00     515.47    1030.00


NC    .060       .060       .015

        6-1220 MM DIAMETER RCP (old condition);
        90-DEG HEADWALL WITH GROOVED END INLET

X1    2373         10     995.21    1006.78      12.47      12.47      12.47
X3      10                                                            515.53     515.49
GR  515.72     950.00     515.45     993.56     515.42     995.21      515.4     995.21     514.10     997.36
GR  513.83    1002.67     514.01    1004.48     515.35    1005.97     515.44    1006.78     515.46    1017.24

        6-1220 MM DIAMETER RCP (old condition);
        90-DEG HEADWALL WITH GROOVED END INLET
        SPECIAL BRIDGE RECORD MUST BE USED FOR SUPERCRITICAL FLOWS

SB    2.00        1.6       1.66                  5.87       1.72       7.01        1.3     513.75     513.83

        DOWNSTREAM FACE OF EAST CULVERT (90-degree headwall)
X1    2361          7     994.25    1008.28          3          3       3.00
X2                              1     514.97     515.46
X3      10
BT      -2     950.00     515.72               1017.24     515.46
GR  515.72     950.00     515.33     994.25     515.23     995.40     513.75     998.05     513.83    1004.06
GR   515.3    1008.28     515.46    1017.24

        SECTION JUST DOWNSTREAM FROM EAST CULVERT
1
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```
NC    .060       .060       .052         .1         .3

X1    2358          8     990.95    1007.30         19         18      18.85
```

```
X3      10
GR    515.4     950.00     515.14     990.95     514.95     994.31     514.73     995.38     513.55     996.22
GR    513.5    1005.64     514.84    1007.30     515.35    1020.00

NH        5       .060     994.05       .080     997.70       .036    1003.57       .080    1011.14       .060
NH   1030.1

X1     2339         11     994.05    1011.14         49         46      48.35
X3       10
GR    515.5     950.00     515.29     981.22     515.09     994.05     513.73     997.70      513.2     997.79
GR   513.09    1003.57     514.79    1006.62     515.24    1007.56     515.38    1011.14      515.3    1022.39
GR   515.40     1030.1

NH        5       .060     997.82       .080    1002.30       .030    1005.63       .080    1008.36       .060
NH   1030.6

X1     2291          8     997.82    1008.36         65         59      59.27
X3       10
GR    515.3     950.00     515.08     980.87     514.76     997.82     512.84    1002.30      512.8    1005.63
GR   514.79    1008.05     514.96    1008.36     514.94     1030.6

NH        5       .060     995.96       .080     999.26       .030    1002.89       .080    1008.18       .060
NH   1041.6

X1     2231         10     995.96    1008.18        106        105     106.01
X3       10
GR    514.6     950.00     514.37     992.92     514.43     995.96     514.33     996.36     512.48     999.26
GR    512.6    1002.89     514.47    1008.18     514.47    1008.18     514.55    1027.97     514.55     1041.6

          5       .060     992.31       .080     997.72       .030    1003.15       .080    1027.30       .060
NH   1046.2

X1     2125          9     992.31    1027.30         87         85      86.39
X3       10
GR    513.7     950.00     513.59     982.08     513.46     992.31     513.12     994.19      511.8     997.72
GR   511.85    1002.50     512.51    1003.15     513.35    1027.30     513.35     1046.2

NH        5       .060     984.69       .080     996.45       .033    1002.34       .080    1010.05       .060
NH   1017.6

X1     2039          9     984.69    1010.05         37         43      38.84
X3       10
GR   512.85     950.00     512.81     984.69     512.39     985.68     511.64     987.49     511.04     996.45
GR    511.2    1002.34     512.27    1007.92     512.71    1010.05     512.72     1017.6
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WEIGHTED MEAN n-VALUE FOR EXISTING WITTMANN WASH CHANNEL
(FROM NH RECORD FOR STA 1+154;EXWEST.IH2)

NC      .080       .080       .057

USE SECTION 1+154 FROM EXWEST.IH2
      2000          9     979.44    1016.60          0          0          0
        10
GR    512.7     950.00     512.58     979.44     511.55     987.29     510.76     992.04     510.71    1003.63
GR    510.7    1005.90     510.73    1008.00     512.90    1016.60     513.00    1021.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 2496.000
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.53 ELREA= 516.56

2496.000	.65	515.97	515.97	516.00	516.20	.23	.00	.00	516.53
10.6	.0	10.6	.0	.0	5.0	.0	.0	.0	516.56
.00	.00	2.13	.00	.000	.048	.000	.000	515.32	996.40
.029880	0.	0.	0.	0	8	4	.00	10.85	1007.24

FLOW DISTRIBUTION FOR SECNO= 2496.00 CWSEL= 515.97

STA= 996. 1011.
PER Q= 100.0
AREA= 5.0
VEL= 2.1
DEPTH= .5

20 NH CARD USED
ECNO 2449.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.11 ELREA= 515.80

2449.000	.67	515.43	515.43	.00	515.65	.22	1.82	.63	516.11
10.6	.0	10.6	.0	.0	5.1	.0	.2	.5	515.80
.01	.00	2.08	.00	.000	.064	.000	.000	514.76	996.27
.053705	46.	46.	46.	20	5	0	.00	11.65	1007.92

FLOW DISTRIBUTION FOR SECNO= 2449.00 CWSEL= 515.43

STA= 996. 1010.
PER Q= 100.0
AREA= 5.1
VEL= 2.1
DEPTH= .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

1490 NH CARD USED
*SECNO 2418.000

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

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.88

  2418.000      .64    515.24    515.24      .00    515.48      .24      1.42      .52    515.95
      10.6       .0      10.6       .0       .0       4.9       .0        .4       .9    515.88
       .01      .00      2.17      .00     .000      .055     .000      .000   514.60    996.55
   .039357      31.       31.       31.       20         8        0       .00    10.22   1006.77


FLOW DISTRIBUTION FOR SECNO=   2418.00         CWSEL=    515.24

STA=     997.    1009.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.2
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 2376.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.32

  2376.000      .70    514.58    514.58      .00    514.87      .29      1.86      .77    515.12
      10.6       .0      10.6       .0       .0       4.5       .0        .6      1.2    515.32
       .02      .00      2.38      .00     .000      .063     .000      .000   513.88    999.19
   .050402      40.       42.       45.       20         8        0       .00     7.89   1007.07


FLOW DISTRIBUTION FOR SECNO=   2376.00         CWSEL=    514.58

STA=     999.    1009.
  PER Q=    100.0
   AREA=      4.5
    VEL=      2.4
  DEPTH=       .6

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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 2373.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .27


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.53 ELREA=      515.49

  2373.000      .67    514.50    514.55      .00    514.83      .33       .03       .01    515.42
      10.6       .0      10.6       .0       .0       4.2       .0        .6      1.3    515.44
       .02      .00      2.53      .00     .000      .015     .000      .000   513.83    996.69
   .003762       3.        3.        3.        3         8        0       .00     8.34   1005.03


FLOW DISTRIBUTION FOR SECNO=   2373.00         CWSEL=    514.50
```

```
STA=     997.    1007.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.5
  DEPTH=       .5


SPECIAL BRIDGE

5290 UPSTREAM ELEV IS     514.88 ,NOT     514.50 NEW BACKWATER REQUIRED

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    2.00      1.60      1.66       .00      5.87      1.72      7.01      1.30    513.75    513.83

*SECNO 2361.000
CLASS B LOW FLOW

3420 BRIDGE W.S.=     514.59 BRIDGE VELOCITY=      2.56     CALCULATED CHANNEL AREA=        4.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
      .00    514.74     .00        0.       11.        7.        7.      514.97    515.46        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.30

  2361.000      .54    514.29      .00       .00    514.74       .44       .09       .00    515.33
     10.6        .0      10.6       .0        .0       3.6        .0        .6       1.4    515.30
      .02       .00      2.95      .00      .000      .015      .000      .000    513.75    997.07
   .006183      12.       12.      12.         0         0         0       .00      8.32   1005.39
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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


FLOW DISTRIBUTION FOR SECNO=   2361.00          CWSEL=    514.29

STA=     997.    1008.
  PER Q=    100.0
   AREA=      3.6
    VEL=      3.0
  DEPTH=       .4

CCHV=     .100 CEHV=     .300
*SECNO 2358.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.63


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      514.84

  2358.000      .30    513.80    514.02      .00    514.64       .84       .06       .04    515.14
     10.6        .0      10.6       .0        .0       2.6        .0        .7       1.4    514.84
      .02       .00      4.06      .00      .000      .052      .000      .000    513.50    996.05
   .272116       3.        3.       3.        13         8         0       .00      9.96   1006.01
```

```
FLOW DISTRIBUTION FOR SECNO=   2358.00          CWSEL=    513.80

STA=     996.    1007.
  PER Q=    100.0
   AREA=      2.6
    VEL=      4.1
  DEPTH=       .3

1490 NH CARD USED
*SECNO 2339.000

3301 HV CHANGED MORE THAN HVINS

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       515.09 ELREA=       515.38

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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


  2339.000       .73    513.82     513.82       .00    514.12       .30       1.25       .77    515.09
      10.6        .0      10.6        .0        .0       4.4        .0         .7       1.6    515.38
       .02       .00      2.42       .00      .000      .047      .000       .000    513.09    997.47
   .029247       19.       19.       18.        20        17         0        .00      7.41   1004.87


FLOW DISTRIBUTION FOR SECNO=   2339.00          CWSEL=    513.82

STA=     997.    1007.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.4
  DEPTH=       .6

1490 NH CARD USED
*SECNO 2291.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.76 ELREA=       514.96

  2291.000       .88    513.68     513.68       .00    514.01       .33       1.71       .59    514.76
      10.6        .0      10.6        .0        .0       4.2        .0         .9       1.9    514.96
       .02       .00      2.55       .00      .000      .059      .000       .000    512.80   1000.34
   .043390       49.       48.       46.        20        11         0        .00      6.37   1006.70


FLOW DISTRIBUTION FOR SECNO=   2291.00          CWSEL=    513.68

STA=    1000.    1008.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.6
  DEPTH=       .7

1490 NH CARD USED
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*SECNO 2231.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.43 ELREA=      514.47
```

2231.000	.87	513.35	513.35	.00	513.66	.31	2.59	1.06	514.43
10.6	.0	10.6	.0	.0	4.3	.0	1.2	2.3	514.47
.03	.00	2.48	.00	.000	.059	.000	.000	512.48	997.90
.043937	65.	59.	59.	20	5	0	.00	7.10	1005.00

```
FLOW DISTRIBUTION FOR SECNO=   2231.00         CWSEL=    513.35

STA=     998.    1008.
  PER Q=    100.0
   AREA=      4.3
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 2125.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.46 ELREA=      513.35
```

2125.000	.79	512.59	512.59	.00	512.84	.25	4.43	-.25	513.46
10.6	.0	10.6	.0	.0	4.8	.0	1.7	3.2	513.35
.04	.00	2.20	.00	.000	.055	.000	.000	511.80	995.61
.039757	106.	106.	105.	20	8	0	.00	9.82	1005.43

```
FLOW DISTRIBUTION FOR SECNO=   2125.00         CWSEL=    512.59

STA=     996.    1027.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
1
```


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

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*SECNO 2039.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
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3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  2039.000      .57   511.61   511.61      .00   511.78      .18     4.20     1.76   512.81
      10.6       .0     10.6       .0       .0      5.7       .0      2.1      4.3   512.71
       .06      .00     1.86      .00     .000     .065     .000     .000   511.04   987.96
   .060888      87.      86.      85.       20       19        0      .00    16.51  1004.47


FLOW DISTRIBUTION FOR SECNO=   2039.00         CWSEL=    511.61

STA=     988.    1008.
  PER Q=    100.0
   AREA=      5.7
    VEL=      1.9
  DEPTH=       .3

*SECNO 2000.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000      .37   511.07   511.07      .00   511.23      .16     2.09      .97   512.58
      10.6       .0     10.6       .0       .0      6.0       .0      2.4      5.0   512.90
       .06      .00     1.77      .00     .000     .057     .000     .000   510.70   990.16
   .047908      37.      39.      43.       20       14        0      .00    19.20  1009.36


OW DISTRIBUTION FOR SECNO=   2000.00         CWSEL=    511.07

STA=     990.    1017.
  PER Q=    100.0
   AREA=      6.0
    VEL=      1.8
  DEPTH=       .3

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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      EXISTING EAST CHANNEL;
T3      100-YEAR SUPERCRITICAL FLOW
T4      FILE:  EXEASTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

                3                  1     .032       1                      516.45

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     15                 -1                                 -1                          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

OF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS .

CCHV= .100 CEHV= .300
*SECNO 2496.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.53 ELREA= 516.56

2496.000	1.08	516.40	516.46	516.45	516.85	.44	.00	.00	516.53
30.9	.0	30.9	.0	.0	10.5	.0	.0	.0	516.56
.00	.00	2.95	.00	.000	.048	.000	.000	515.32	995.22
.032262	0.	0.	0.	0	5	3	.00	14.63	1009.85

FLOW DISTRIBUTION FOR SECNO= 2496.00 CWSEL= 516.40

STA= 995. 1011.
PER Q= 100.0
AREA= 10.5
VEL= 3.0
DEPTH= .7

1490 NH CARD USED
*SECNO 2449.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

95 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.11 ELREA= 515.80

2449.000	1.14	515.90	515.90	.00	516.26	.36	1.90	.63	516.11
30.9	.0	30.8	.1	.0	11.5	.2	.5	.8	515.80
.00	.00	2.67	.41	.000	.071	.080	.000	514.76	994.75
.054035	46.	46.	46.	20	8	0	.00	18.52	1013.27

FLOW DISTRIBUTION FOR SECNO= 2449.00 CWSEL= 515.90

STA= 995. 1010. 1013.
PER Q= 99.7 .2
AREA= 11.5 .2
VEL= 2.7 .4
DEPTH= .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

1490 NH CARD USED
CNO 2418.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.95 ELREA= 515.88

```
  2418.000      1.15    515.75    515.75       .00    516.14       .38      1.58       .65    515.95
      30.9        .0      30.9        .0        .0      11.3        .0        .9       1.3    515.88
       .01       .00      2.74       .00      .000      .066      .000      .000    514.60    993.45
   .048051       31.       31.       31.        20         5         0       .00     14.76   1008.21


FLOW DISTRIBUTION FOR SECNO=   2418.00          CWSEL=    515.75

STA=     993.    1009.
  PER Q=    100.0
   AREA=     11.3
    VEL=      2.7
  DEPTH=       .8

CCHV=     .300 CEHV=     .500
*SECNO 2376.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       515.12 ELREA=       515.32

  2376.000      1.36    515.24    515.24       .00    515.67       .43      1.73       .91    515.12
      30.9        .2      30.7        .0        .6      10.6        .0       1.3       2.0    515.32
       .01       .29      2.91       .00      .100      .063      .000      .000    513.88    988.13
   .035768       40.       42.       45.        20        11         0       .00     20.65   1008.78


FLOW DISTRIBUTION FOR SECNO=   2376.00          CWSEL=    515.24

STA=     988.     998.    1009.
  PER Q=       .6     99.4
   AREA=       .6     10.6
    VEL=       .3      2.9
  DEPTH=       .1      1.0

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


*SECNO 2373.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .27


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       515.53 ELREA=       515.49

  2373.000      1.29    515.12    515.13       .00    515.62       .51       .02       .02    515.42
      30.9        .0      30.9        .0        .0       9.8        .0      1.4       2.1    515.44
       .01       .00      3.15       .00      .000      .015      .000      .000    513.83    995.68
   .002533        3.        3.        3.         0         8         0       .00     10.03   1005.71


FLOW DISTRIBUTION FOR SECNO=   2373.00          CWSEL=    515.12

STA=     996.    1007.
  PER Q=    100.0
   AREA=      9.8
    VEL=      3.2
```

DEPTH= 1.0

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 515.79 ,NOT 515.12 NEW BACKWATER REQUIRED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	2.00	1.60	1.66	.00	5.87	1.72	7.01	1.30	513.75	513.83

*SECNO 2361.000
6180 SUPERCRITICAL FLOW, PRESSURE FLOW
3280 CROSS SECTION 2361.00 EXTENDED .23 METERS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
516.70	515.51	.00	11.	20.	7.	7.	514.97	515.46	67.

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
2361.000	1.94	515.69	.00	.00	515.80	.11	.18	.00	515.33
30.9	.7	29.8	.4	7.4	19.9	2.8	1.6	2.5	515.30
.01	.10	1.50	.14	.060	.015	.060	.000	513.75	953.14
.000338	12.	12.	12.	2	0	4	.00	64.10	1017.24

FLOW DISTRIBUTION FOR SECNO= 2361.00 CWSEL= 515.69

STA=	953.	994.	1008.	1017.
PER Q=	2.4	96.4	1.3	
AREA=	7.4	19.9	2.8	
VEL=	.1	1.5	.1	
DEPTH=	.2	1.4	.3	

CCHV= .100 CEHV= .300
*SECNO 2358.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 24.71

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.14 ELREA= 514.84

2358.000	.58	514.08	514.51	.00	515.65	1.57	.00	.15	515.14
30.9	.0	30.9	.0	.0	5.6	.0	1.7	2.6	514.84
.01	.00	5.55	.00	.000	.052	.000	.000	513.50	995.84
.206654	3.	3.	3.	7	11	0	.00	10.52	1006.36

```
FLOW DISTRIBUTION FOR SECNO=   2358.00          CWSEL=    514.08

STA=     996.    1007.
  PER Q=    100.0
   AREA=      5.6
    VEL=      5.6
  DEPTH=       .5

1490 NH CARD USED
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 2339.000

3301 HV CHANGED MORE THAN HVINS

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2339.000      1.36    514.45    514.45       .00    514.94       .49      1.37      1.00    515.09
     30.9        .0      30.9        .0        .0      9.9        .0       1.8       2.8    515.38
      .02       .00      3.11       .00      .000      .057      .000      .000    513.09    995.78
  .036858       19.       19.       18.        20        17         0       .00     10.22   1006.00


FLOW DISTRIBUTION FOR SECNO=   2339.00          CWSEL=    514.45

STA=     996.    1007.
  PER Q=    100.0
   AREA=      9.9
    VEL=      3.1
  DEPTH=      1.0

1490 NH CARD USED
*SECNO 2291.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.76 ELREA=      514.96

  2291.000      1.58    514.38    514.38       .00    514.92       .54      1.99       .77    514.76
     30.9        .0      30.9        .0        .0      9.5        .0       2.3       3.3    514.96
      .02       .00      3.25       .00      .000      .065      .000      .000    512.80    998.70
  .046344       49.       48.       46.        20         8         0       .00      8.86   1007.56


FLOW DISTRIBUTION FOR SECNO=   2291.00          CWSEL=    514.38

STA=     999.    1008.
  PER Q=    100.0
   AREA=      9.5
    VEL=      3.2
  DEPTH=      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

1490 NH CARD USED
*SECNO 2231.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.43 ELREA= 514.47

2231.000	1.52	514.00	514.00	.00	514.50	.50	2.73	1.15	514.43
30.9	.0	30.9	.0	.0	9.9	.0	2.9	3.9	514.47
.03	.00	3.12	.00	.000	.065	.000	.000	512.48	996.87
.045905	65.	59.	59.	20	8	0	.00	9.98	1006.86

FLOW DISTRIBUTION FOR SECNO= 2231.00 CWSEL= 514.00

STA= 997. 1008.
PER Q= 100.0
AREA= 9.9
VEL= 3.1
DEPTH= 1.0

1490 NH CARD USED
*SECNO 2125.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.46 ELREA= 513.35

2125.000	1.27	513.07	513.07	.00	513.35	.28	5.77	2.90	513.46
30.9	.0	30.9	.0	.0	13.2	.0	4.1	5.7	513.35
.04	.00	2.34	.00	.000	.070	.000	.000	511.80	994.32
.065460	106.	106.	105.	20	9	0	.00	24.92	1019.25

FLOW DISTRIBUTION FOR SECNO= 2125.00 CWSEL= 513.07

STA= 994. 1027.
PER Q= 100.0
AREA= 13.2
VEL= 2.3
DEPTH= .5

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

1490 NH CARD USED
*SECNO 2039.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.81 ELREA= 512.71

2039.000	.93	511.97	511.97	.00	512.29	.32	3.27	2.00	512.81
30.9	.0	30.9	.0	.0	12.3	.0	5.2	7.6	512.71
.05	.00	2.50	.00	.000	.046	.000	.000	511.04	986.69
.024608	87.	86.	85.	20	19	0	.00	19.66	1006.36

FLOW DISTRIBUTION FOR SECNO= 2039.00 CWSEL= 511.97

STA=	987.	996.	1002.	1008.
PER Q=	25.7	69.1	5.1	
AREA=	5.8	5.0	1.5	
VEL=	1.4	4.3	1.0	
DEPTH=	.6	.9	.4	

*SECNO 2000.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.58 ELREA= 512.90

2000.000	.70	511.40	511.40	.00	511.69	.29	1.19	.44	512.58
30.9	.0	30.9	.0	.0	12.9	.0	5.7	8.4	512.90
.05	.00	2.39	.00	.000	.057	.000	.000	510.70	988.17
.039234	37.	39.	43.	20	15	0	.00	22.50	1010.67

W DISTRIBUTION FOR SECNO= 2000.00 CWSEL= 511.40

STA=	988.	1017.
PER Q=	100.0	
AREA=	12.9	
VEL=	2.4	
DEPTH=	.6	

Since most of the x-sections have critical depth flow assumption, run subcritical flow and check the results!!!

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THIS RUN EXECUTED 24JUN96 14:11:27

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	2496.000	10.65	515.97	.00	10.65	.00	.00	2.13	.00	.00	10.85	298.80	515.32
	2496.000	30.90	516.40	.00	30.90	.00	.00	2.95	.00	.00	14.63	322.62	515.32

*	2449.000	10.65	515.43	.00	10.65	.00	.00	2.08	.00	-12.07	11.65	537.05	514.76
*	2449.000	30.90	515.90	.00	30.82	.08	.00	2.67	.41	-12.07	18.52	540.35	514.76
	2418.000	10.65	515.24	.00	10.65	.00	.00	2.17	.00	-5.14	10.22	393.57	514.60
*	2418.000	30.90	515.75	.00	30.90	.00	.00	2.74	.00	-5.14	14.76	480.51	514.60
*	2376.000	10.65	514.58	.00	10.65	.00	.00	2.38	.00	-17.14	7.89	504.02	513.88
*	2376.000	30.90	515.24	.17	30.73	.00	.29	2.91	.00	-17.14	20.65	357.68	513.88
*	2373.000	10.65	514.50	.00	10.65	.00	.00	2.53	.00	-16.66	8.34	37.62	513.83
*	2373.000	30.90	515.12	.00	30.90	.00	.00	3.15	.00	-16.66	10.03	25.33	513.83
*	2361.000	10.65	514.29	.00	10.65	.00	.00	2.95	.00	-6.42	8.32	61.83	513.75
*	2361.000	30.90	515.69	.73	29.78	.39	.10	1.50	.14	-6.42	64.10	3.38	513.75
*	2358.000	10.65	513.80	.00	10.64	.00	.00	4.06	.00	-83.33	9.96	2721.16	513.50
*	2358.000	30.90	514.08	.00	30.90	.00	.00	5.55	.00	-83.33	10.52	2066.54	513.50
*	2339.000	10.65	513.82	.00	10.65	.00	.00	2.42	.00	-21.75	7.41	292.47	513.09
*	2339.000	30.90	514.45	.00	30.90	.00	.00	3.11	.00	-21.75	10.22	368.58	513.09
*	2291.000	10.65	513.68	.00	10.65	.00	.00	2.55	.00	-6.00	6.37	433.90	512.80
*	2291.000	30.90	514.38	.00	30.90	.00	.00	3.25	.00	-6.00	8.86	463.44	512.80
*	2231.000	10.65	513.35	.00	10.65	.00	.00	2.48	.00	-5.40	7.10	439.37	512.48
*	2231.000	30.90	514.00	.00	30.90	.00	.00	3.12	.00	-5.40	9.98	459.05	512.48
*	2125.000	10.65	512.59	.00	10.65	.00	.00	2.20	.00	-6.41	9.82	397.57	511.80
*	2125.000	30.90	513.07	.00	30.90	.00	.00	2.34	.00	-6.41	24.92	654.60	511.80

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	2039.000	10.65	511.61	.00	10.65	.00	.00	1.86	.00	-8.80	16.51	608.88	511.04
*	2039.000	30.90	511.97	.00	30.90	.00	.00	2.50	.00	-8.80	19.66	246.08	511.04
*	2000.000	10.65	511.07	.00	10.65	.00	.00	1.77	.00	-8.75	19.20	479.08	510.70
*	2000.000	30.90	511.40	.00	30.90	.00	.00	2.39	.00	-8.75	22.50	392.34	510.70

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
*	2496.000	10.65	516.20	515.97	1.00
*	2496.000	30.90	516.85	516.46	1.12
*	2449.000	10.65	515.65	515.43	1.00
*	2449.000	30.90	516.26	515.90	.98
	2418.000	10.65	515.48	515.24	1.00
	2418.000	30.90	516.14	515.75	1.00
*	2376.000	10.65	514.87	514.58	1.01
*	2376.000	30.90	515.67	515.24	.92

*	2373.000	10.65	514.83	514.55	1.14
*	2373.000	30.90	515.62	515.13	1.02
*	2361.000	10.65	514.74	999999.00	1.43
	2361.000	30.90	515.80	.00	.40
*	2358.000	10.65	514.64	514.02	2.52
*	2358.000	30.90	515.65	514.51	2.44
*	2339.000	10.65	514.12	513.82	1.00
*	2339.000	30.90	514.94	514.45	1.01
*	2291.000	10.65	514.01	513.68	1.01
*	2291.000	30.90	514.92	514.38	1.00
*	2231.000	10.65	513.66	513.35	1.01
*	2231.000	30.90	514.50	514.00	1.00
*	2125.000	10.65	512.84	512.59	1.00
*	2125.000	30.90	513.35	513.07	1.03
*	2039.000	10.65	511.78	511.61	1.01
*	2039.000	30.90	512.29	511.97	1.01
*	2000.000	10.65	511.23	511.07	1.01
*	2000.000	30.90	511.69	511.40	1.01

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	2496.000	.00	.00	.00	515.32	10.65	515.97	515.97	516.20	298.80	2.13	5.00	.62
	2496.000	.00	.00	.00	515.32	30.90	516.40	516.46	516.85	322.62	2.95	10.46	1.72
*	2449.000	46.38	.00	.00	514.76	10.65	515.43	515.43	515.65	537.05	2.08	5.13	.46
*	2449.000	46.38	.00	.00	514.76	30.90	515.90	515.90	516.26	540.35	2.67	11.74	1.33
*	2418.000	31.12	.00	.00	514.60	10.65	515.24	515.24	515.48	393.57	2.17	4.90	.54
*	2418.000	31.12	.00	.00	514.60	30.90	515.75	515.75	516.14	480.51	2.74	11.27	1.41
*	2376.000	42.00	.00	.00	513.88	10.65	514.58	514.58	514.87	504.02	2.38	4.48	.47
*	2376.000	42.00	.00	.00	513.88	30.90	515.24	515.24	515.67	357.68	2.91	11.17	1.63
*	2373.000	3.00	.00	.00	513.83	10.65	514.50	514.55	514.83	37.62	2.53	4.21	1.74
*	2373.000	3.00	.00	.00	513.83	30.90	515.12	515.13	515.62	25.33	3.15	9.80	6.14
*	2361.000	12.47	515.46	514.97	513.75	10.65	514.29	999999.00	514.74	61.83	2.95	3.61	1.35
*	2361.000	12.47	515.46	514.97	513.75	30.90	515.69	.00	515.80	3.38	1.50	30.10	16.80
*	2358.000	3.00	.00	.00	513.50	10.65	513.80	514.02	514.64	2721.16	4.06	2.62	.20
*	2358.000	3.00	.00	.00	513.50	30.90	514.08	514.51	515.65	2066.54	5.55	5.57	.68
*	2339.000	18.85	.00	.00	513.09	10.65	513.82	513.82	514.12	292.47	2.42	4.40	.62
	2339.000	18.85	.00	.00	513.09	30.90	514.45	514.45	514.94	368.58	3.11	9.94	1.61
*	2291.000	48.35	.00	.00	512.80	10.65	513.68	513.68	514.01	433.90	2.55	4.17	.51
*	2291.000	48.35	.00	.00	512.80	30.90	514.38	514.38	514.92	463.44	3.25	9.52	1.44
*	2231.000	59.27	.00	.00	512.48	10.65	513.35	513.35	513.66	439.37	2.48	4.30	.51

*	2231.000	59.27	.00	.00	512.48	30.90	514.00	514.00	514.50	459.05	3.12	9.90	1.44
*	2125.000	106.01	.00	.00	511.80	10.65	512.59	512.59	512.84	397.57	2.20	4.84	.53
*	2125.000	106.01	.00	.00	511.80	30.90	513.07	513.07	513.35	654.60	2.34	13.19	1.21
*	2039.000	86.39	.00	.00	511.04	10.65	511.61	511.61	511.78	608.88	1.86	5.73	.43
*	2039.000	86.39	.00	.00	511.04	30.90	511.97	511.97	512.29	246.08	2.50	12.34	1.97
*	2000.000	38.84	.00	.00	510.70	10.65	511.07	511.07	511.23	479.08	1.77	6.02	.49
*	2000.000	38.84	.00	.00	510.70	30.90	511.40	511.40	511.69	392.34	2.39	12.92	1.56

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	2496.000	10.65	515.97	.00	.00	-.03	10.85	.00
	2496.000	30.90	516.40	.43	.00	-.05	14.63	.00
*	2449.000	10.65	515.43	.00	-.55	.00	11.65	46.38
*	2449.000	30.90	515.90	.47	-.51	.00	18.52	46.38
*	2418.000	10.65	515.24	.00	-.18	.00	10.22	31.12
*	2418.000	30.90	515.75	.51	-.14	.00	14.76	31.12
*	2376.000	10.65	514.58	.00	-.66	.00	7.89	42.00
	2376.000	30.90	515.24	.66	-.52	.00	20.65	42.00
*	2373.000	10.65	514.50	.00	-.08	.00	8.34	3.00
*	2373.000	30.90	515.12	.61	-.12	.00	10.03	3.00
*	2361.000	10.65	514.29	.00	-.21	.00	8.32	12.47
*	2361.000	30.90	515.69	1.40	.57	.00	64.10	12.47
*	2358.000	10.65	513.80	.00	-.49	.00	9.96	3.00
*	2358.000	30.90	514.08	.28	-1.61	.00	10.52	3.00
*	2339.000	10.65	513.82	.00	.01	.00	7.41	18.85
*	2339.000	30.90	514.45	.63	.36	.00	10.22	18.85
*	2291.000	10.65	513.68	.00	-.14	.00	6.37	48.35
*	2291.000	30.90	514.38	.70	-.06	.00	8.86	48.35
*	2231.000	10.65	513.35	.00	-.34	.00	7.10	59.27
*	2231.000	30.90	514.00	.66	-.38	.00	9.98	59.27
*	2125.000	10.65	512.59	.00	-.76	.00	9.82	106.01
*	2125.000	30.90	513.07	.48	-.93	.00	24.92	106.01
*	2039.000	10.65	511.61	.00	-.98	.00	16.51	86.39
*	2039.000	30.90	511.97	.36	-1.10	.00	19.66	86.39
*	2000.000	10.65	511.07	.00	-.54	.00	19.20	38.84
*	2000.000	30.90	511.40	.33	-.57	.00	22.50	38.84

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SUMMARY OF ERRORS AND SPECIAL NOTES

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TION SECNO=   2496.000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=   2449.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2449.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2449.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2449.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2449.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2449.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2418.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2418.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2418.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2418.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2376.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2376.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2376.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2376.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2376.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2376.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   2373.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2373.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2361.000  PROFILE=  1  BRIDGE DROWNS U.S. PROFILE
                                         NEW BACKWATER REQUIRED
TION SECNO=   2361.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                         NEW BACKWATER REQUIRED
WARNING SECNO=   2361.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2358.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2358.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2339.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2339.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2339.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2339.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2339.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2339.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2291.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2291.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2291.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2291.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2291.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2291.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2231.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2231.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2231.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2231.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
```



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TION SECNO=   2231.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2231.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2125.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2125.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
```

```
CAUTION SECNO=   2125.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2125.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2125.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2125.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2039.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2039.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2039.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2039.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2039.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2039.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2000.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2000.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2000.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2000.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2000.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2000.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

Subcritical and Supercritical Runs for Alternative 1

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    01JUL96    TIME   10:57:34 *
 *******************************************
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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               *
*****************************************
```

```
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

01JUL96 10:57:34 PAGE 1

THIS RUN EXECUTED 01JUL96 10:57:34

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************
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```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                    6/30/96
T2      ALTERNATIVE 1, WEST CBC CULVERT WITH EXISTING WEST CHANNEL
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE: ALT1WEST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 0      .0099      1                      510.15

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                -1                                    -1                         15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

       2     20.37     62.26

NC    .100      .050      .035       .1        .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
```

```
X1      971        7     988.2    1015.3        0        0        0
X3       10
GR    511.8    982.1    511.8     988.2    509.4    991.9    509.6   1000.4    509.7   1009.5
GR    511.4   1015.3    511.5    1023.5

      SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
1
  01JUL96      10:57:34                                                                    PAGE    2


NC     .025     .025     .035       .3       .5

      DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
      NEGLECT SKEW OF 10 DEGREES
      SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1      995       14    981.4    1024.7     10.7     35.7     22.9
X3       10
GR    513.1    981.4    511.6     981.7    511.5    981.7    511.1    984.7    509.9   987.8
GR    509.5    990.2    509.7     998.7    509.8   1007.3    510.2   1015.8    510.0  1020.4
GR    511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.7


SB     1.05      1.6     1.66                17.1      1.2     68.1      5.4    509.6   509.5

      UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
      NEGLECT SKEW OF 10 DEGREES

      SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1000       14    981.7    1024.3      5.5      5.5      5.5
X2                          1     511.9    513.1
X3       10
        -2    981.7    513.1     511.6   1024.3    513.5    511.9
      513.1    981.1    511.6     981.7    511.5    981.7    511.1    984.7    510.0   987.8
GR    509.6    990.2    509.7     998.7    509.9   1007.3    510.2   1015.8    510.0  1020.4
GR    511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.3

      SHOTCRETE SLOPE PROTECTION ON RIGHT

NC     .100     .025     .035       .1       .3

      SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1020       11    982.4    1007.7     35.1      0.9     19.8
X3       10
GR    512.4    961.1    511.5     964.1    510.8    967.2    510.9    982.4    510.2   994.6
GR    509.8    997.6    509.9    1001.3    509.8   1003.7    510.8   1005.9    513.5  1007.7
GR    513.5   1009.0

      SHOTCRETE SLOPE PROTECTION ON RIGHT

NH       5     .060    985.4      .100    988.0     .035   1001.3     .025   1005.3    .040
NH    1013

      SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1030       11    978.0    1009.8     16.8      7.6     10.0
X3       10
GR    512.2    950.0    511.9     978.0    511.5    985.4    510.8    988.0    510.8   994.6
GR    509.9    996.7    509.9    1000.0    509.9   1001.3    512.1   1005.3    512.9  1009.8
GR    512.9   1013.0

      SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
1
  01JUL96      10:57:34                                                                    PAGE    3
```

```
NH       5      .060     986.43      .100     994.11      .035    1003.49      .030    1007.33      .040
NH  1011.0

X1    1060        9     986.43    1007.33       16        18      30.57
      10
GR   512.5   915.00     511.55     966.98    511.5    978.97     512.14    986.43     510.02    994.11
GR   510.2  1003.49     511.50    1005.35   512.88   1007.33      512.9    1011.0

        FLOW IN WEST CHANNEL

QT       2     9.72      31.36

NH       4      .060     979.44      .080     992.04      .040    1003.63      .080    1021.00

X1    1154        9     979.44    1016.60       94        93      93.71
X3      10
GR   512.7   950.00     512.58     979.44   511.55   987.29     510.76    992.04     510.71   1003.63
GR   510.7  1005.90     510.73    1008.00   512.90  1016.60     513.00   1021.00


NH       4      .060     994.25      .080     998.82      .033    1003.39      .060    1010.00

X1    1191       10     994.25    1006.67       42        35      37.24
X3      10
GR  512.72   983.92     512.65     989.13   512.33   994.25     511.00    998.82     510.98    998.89
GR   510.9  1003.19     511.00    1003.39   512.01  1005.44     513.14   1006.67      513.2   1010.00


NH       4      .060     992.06      .080     998.48      .048    1002.02      .060    1032.48

X1    1246        8     992.06    1005.06       56        55      55.38
X3      10
      513.2   950.00     513.01     958.67   513.12   965.78     513.18    992.06     511.57    998.48
      511.4  1002.02     513.85    1005.06    513.9  1032.48


NH       5      .060     996.07      .080     999.11      .048    1002.81      .080    1012.47      .060
NH  1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1291        7     996.07    1007.14       39        49      44.03
X3      10
GR  513.33   987.59     513.18     996.07   512.06   999.11     511.90   1002.81      513.4   1007.14
GR  514.05  1012.47     514.23     1038.2


NH       4      .060     988.37      .080     996.03      .038    1006.19      .060    1027.15

X1    1345       11     986.22    1007.90       60        49        54
X3      10
GR   514.1   950.00     513.95     974.18   513.93   986.22     513.16    988.37     512.95    994.56
GR   513.1   996.03     512.72    1000.55   512.61  1006.19      513.1   1006.79     514.00   1007.90
GR  514.23  1027.15
1
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NH       4      .060     985.66      .080     996.28      .038     999.49      .080    1025.59

X1    1422        8     985.66    1002.43       69        85      77.06
X3      10
GR   514.5   950.00     514.14     969.33   514.12   985.66     513.14    996.28     513.18    999.49
GR   514.1  1001.27      514.7    1002.43   514.81  1025.59
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NH       5      .060    991.48      .080    999.00      .040   1001.52      .080   1006.87      .060
NH  1022.3

X1    1450         9    991.48   1006.87        29        28     28.09
X3      10
GR  514.94    965.75    514.74    991.48     513.9    997.60    513.74    998.92     513.3    999.00
GR   513.3   1001.52     513.8   1003.30     515.0   1006.87     515.1    1022.3


NC    .080      .080      .040

        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1    1467         9    965.75   1006.87      23.2      23.2     23.20
CI    1000    513.40      .032         2         2       -11
X3      10
GR  514.94    965.75    514.74    991.48     514.0    997.60    513.84    998.92     513.4    999.00
GR  513.39   1001.52     513.9   1003.30     515.0   1006.87     515.1    1022.3


NC    .045      .045      .013        .3        .5

        DOWNSTREAM END OF OUTLET APRON
X1    1477        10    987.15   1002.51        22        10     13.14
CI                                                     .01
X3      10
GR   515.3    965.00    515.28    978.30    514.95    987.15    513.45    987.16    513.45   1002.50
GR  514.95   1002.51     515.0   1005.82    514.96   1024.05    514.73   1027.39    514.89   1030.38
                                (10' x 5')
        DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
        CULVERT SKEW 25 DEGREES

X1    1480         9    987.15   1000.01       3.3       3.3      3.38
X3      10
GR   515.5    968.00    515.44    978.30    514.97    987.15    513.47    987.16    513.47   1000.00
GR  514.97   1000.01    515.08   1003.77    515.25   1010.64    515.41   1031.65

        (4) 3.00m x 1.50m CBC
        SKEWED WINGWALLS WITH 45-DEG BEVEL ON INLET
1
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                                                   5'
                                                        10'
SC   4.013       0.2      1.66                  1.80      3.00     23.16      11.4    513.59    513.47
                (10' x 5')
        UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS      PROVIDE LOW CORD
        CULVERT SKEW 25 DEGREES
        (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1    1504         9    987.15   1000.01      23.2      23.2     23.20
X2                            2                 515.41
X3      10
BT      -2    965.00    515.51                1030.38    515.41
GR  515.51    968.00    515.34    978.30    515.09    987.15    513.59    987.16    513.59   1000.00
GR  515.09   1000.01    515.08   1003.77    515.25   1010.64    515.41   1031.65


NC    .045      .045      .026        .1        .3

X1    1507         8    987.15   1002.51         3         3      3.38
CI      -1    513.62      .032       .01       .01    -15.34
X3      10
GR  515.51    968.00    515.34    978.30    515.12    987.15    513.62    987.16    513.62   1002.50
GR  515.12   1002.51    515.25   1010.64    515.41   1031.65
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```
        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM

     1520         8    991.70   1000.82        13        13     13.00
CI   1000    513.88      .032         2         2       -11
X3     10
GR   515.6    967.00    515.54    991.70    514.30    994.00    514.25    998.71    515.31   1000.82
GR   515.5   1012.48    515.46   1022.45    515.53   1033.60


NC    .080      .080      .040

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1545         8    991.70   1000.82        20        24     24.26
CI                                                       .01
X3     10                         988.0
GR   515.6    967.00    515.54    991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR   515.5   1012.48    515.46   1022.45    515.53   1033.60
  ***************************************************
  ***************************************************


NH       3      .080    996.69      .033   1000.26      .080   1029.59

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1598         7    991.58   1004.53        53        54     53.64
X3     10                         989.0
GR  516.15    968.00    516.15    987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR   516.1   1004.53     516.2   1029.59
```

1


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NH       3      .080    994.01      .037   1001.83      .080   1034.97

        BIFURCATION SECTION; DOWNSTREAM LIMIT
X1    1652         6    989.93   1005.58        53        54     53.18
X3     10
GR   516.7    980.00    516.58    989.93    515.42    994.01    515.38   1001.83    516.34   1005.58
GR   516.5   1034.97

        FLOW IN CHANNEL UPSTREAM FROM BIFURCATION

QT       2     20.37     62.26

NH       4      .080    958.00      .050    979.00      .035   1002.48      .080   1020.00

        BIFURCATION SECTION; UPSTREAM LIMIT
X1    1674         8    955.00   1006.40        24        20     22
X3     10
GR   516.6    950.00    516.58    955.00    515.55    958.00    515.55    979.00    515.55    980.00
GR   515.6   1002.48     516.6   1006.40     517.0   1020.00


NH       4      .080    966.50      .050    975.00      .035   1003.00      .080   1025.00

X1    1694         8    964.00   1006.40        32        20     20
     10
GR   516.7    950.00    516.68    964.00     515.9    966.50     515.9    975.00     515.7    976.00
GR   515.7   1003.00     516.9   1006.40     517.0   1025.00


NH       4      .080    983.00      .035    992.50      .080   1006.50      .060   1060.00
```

```
X1     1703        8     980.00    1006.50        9        9        9
X3       10
GR    516.9   935.00     516.7     980.00   515.75   983.00   515.75   992.50    515.9   994.00
      516.0  1003.00     516.9    1006.50    517.1  1060.00

NH        6     .080    972.00       .035   975.00     .080   993.00     .035   997.00     .080
NH   1007.0     .060   1040.00

X1     1715       11    970.00    1007.00       14       13       12
X3       10
GR    517.0   935.00     516.7     970.00    515.9   972.00    515.9   975.00    516.2   984.00
GR    515.8   993.00     515.8     997.00    516.1  1001.00    516.1  1003.00    517.1  1007.0
GR    517.3  1040.00

NH        8     .080    942.86       .040   943.5     .080   969.43     .040   975.29     .080
NH   998.39     .035    1003.1       .080  1009.03     .060  1050.00

        BRAIDED AREA UPSTREAM FROM CONFLUENCE
1
   01JUL96      10:57:34                                                                    PAGE   7

X1     1772       18    993.95    1009.03       72       56       57
X3       10
GR    517.9   900.00     517.7     923.00   517.42   938.76   516.60   942.86   516.60    943.5
GR   517.21   945.11    517.26     955.13    517.5   965.61   516.50   969.43   516.55   975.29
GR   517.63   982.11    517.71     993.95    516.3   998.39    516.3  1001.94   516.95   1003.1
GR   517.48  1009.03     517.5    1032.08    517.6  1050.00
1
   01JUL96      10:57:34                                                                    PAGE   8

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000       .75    510.15    510.08    510.15    510.33       .18       .00       .00    511.80
      20.4        .0      20.4        .0        .0      10.9        .0        .0        .0    511.40
       .00       .00      1.87       .00      .000      .035      .000      .000    509.40    990.74
   .010027        0.        0.        0.         0        11         3       .00     20.30   1011.04

FLOW DISTRIBUTION FOR SECNO=    971.00         CWSEL=    510.15

STA=     991.    1015.
  PER Q=    100.0
   AREA=     10.9
    VEL=      1.9
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 995.000
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.94

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.92	510.42	510.15	.00	510.47	.05	.11	.04	513.10
20.4	.0	20.4	.0	.0	20.1	.0	.4	.6	513.50
.01	.00	1.01	.00	.000	.035	.000	.000	509.50	986.45
.002654	11.	23.	36.	2	12	0	.00	34.87	1021.33

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.42

STA= 986. 1025.
PER Q= 100.0
AREA= 20.1
VEL= 1.0
DEPTH= .6

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

SPECIAL BRIDGE

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 510.46 BRIDGE VELOCITY= 1.07 CALCULATED CHANNEL AREA= 18.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.49	.01	0.	20.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	.83	510.43	.00	.00	510.49	.06	.01	.00	511.60
20.4	.0	20.4	.0	.0	18.7	.0	.5	.8	513.50
.01	.00	1.09	.00	.000	.035	.000	.000	509.60	986.60
.003360	6.	6.	6.	0	0	0	.00	34.74	1021.34

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 510.43

STA= 987. 1024.
PER Q= 100.0
AREA= 18.7
VEL= 1.1
DEPTH= .5

CCHV= .100 CEHV= .300
*SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

1020.000	.84	510.64	510.64	.00	510.89	.25	.12	.06	510.90
20.4	.0	20.4	.0	.0	9.2	.0	.7	1.4	513.50
.01	.00	2.21	.00	.000	.035	.000	.000	509.80	986.91
.015479	35.	20.	1.	0	5	0	.00	18.65	1005.55

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

FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 510.64

STA= 987. 1008.
PER Q= 100.0
AREA= 9.2
VEL= 2.2
DEPTH= .5

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.90 ELREA= 512.90

1030.000	1.08	510.98	510.98	.00	511.27	.28	.17	.01	511.90
20.4	.0	20.4	.0	.0	8.6	.0	.8	1.5	512.90
.01	.00	2.36	.00	.000	.038	.000	.000	509.90	987.32
.018378	17.	10.	8.	0	18	0	.00	15.95	1003.27

FLOW DISTRIBUTION FOR SECNO= 1030.00 CWSEL= 510.98

STA= 987. 1005.
PER Q= 100.0
AREA= 8.6
VEL= 2.4
DEPTH= .5

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.03

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.14 ELREA= 512.88

1060.000	1.44	511.46	510.83	.00	511.53	.07	.24	.02	512.14
20.4	.0	20.4	.0	.0	17.6	.0	1.2	2.0	512.88
.02	.00	1.16	.00	.000	.059	.000	.000	510.02	988.88
.004465	16.	31.	18.	2	15	0	.00	16.42	1005.30

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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


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    511.46

STA=     989.    1005.
  PER Q=    100.0
   AREA=     17.6
    VEL=      1.2
  DEPTH=      1.1

1490 NH CARD USED
*SECNO 1154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.01    511.71    511.05       .00    511.73       .01       .19       .01    512.58
      9.7        .0       9.7        .0        .0      20.5        .0       3.0       4.0    512.90
      .07       .00       .47       .00      .000      .047      .000      .000    510.70    986.01
   .000699      94.       94.       93.         3        14         0       .00     25.90   1011.91


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.71

STA=     986.     992.    1004.    1017.
  PER Q=      5.6     76.6     17.8
   AREA=      2.8     11.4      6.3
    VEL=       .2       .7       .3
  DEPTH=       .5      1.0       .8

1490 NH CARD USED
*SECNO 1191.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000       .73    511.63    511.63       .00    511.90       .27       .08       .08    512.33
      9.7        .0       9.7        .0        .0       4.2        .0       3.5       4.6    513.14
      .08       .00      2.30       .00      .000      .052      .000      .000    510.90    996.66
   .035526      42.       37.       35.         0        19         0       .00      8.01   1004.67


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.63

STA=     997.    1005.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
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*SECNO 1246.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.31    512.71    512.26       .00    512.79       .07       .87       .02    513.18
      9.7        .0       9.7        .0        .0       8.1        .0       3.8       5.1    513.85
       .09       .00      1.21       .00      .000      .066      .000      .000    511.40    993.91
   .008797       56.       55.       55.         3         8         0       .00      9.75   1003.65


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.71

STA=     994.    1005.
  PER Q=    100.0
   AREA=      8.1
    VEL=      1.2
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1291.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.40

  1291.000      1.23    513.13    512.71       .00    513.21       .07       .42       .00    513.18
      9.7        .0       9.7        .0        .0       8.0        .0       4.2       5.6    513.40
       .10       .00      1.21       .00      .000      .070      .000      .000    511.90    996.20
   .010334       39.       44.       49.         3        14         0       .00     10.16   1006.37


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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


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    513.13

STA=     996.    1007.
  PER Q=    100.0
   AREA=      8.0
    VEL=      1.2
  DEPTH=       .8

1490 NH CARD USED
*SECNO 1345.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .92    513.53    513.19       .00    513.56       .03       .35       .00    513.93
      9.7        .0       9.7        .0        .0      12.0        .0       4.7       6.4    514.00
       .12       .00       .81       .00      .000      .058      .000      .000    512.61    987.35
   .004490       60.       54.       49.         2        14         0       .00     19.97   1007.32


FLOW DISTRIBUTION FOR SECNO=   1345.00         CWSEL=    513.53
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STA=     987.    1008.
  PER Q=    100.0
   AREA=     12.0
    VEL=       .8
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000       .94    514.08    513.80       .00    514.15       .07       .57       .01    514.12
      9.7        .0       9.7        .0        .0       8.6        .0       5.5       7.7    514.70
      .14       .00      1.13       .00      .000      .072      .000      .000    513.14    986.05
   .014669       69.       77.       85.         1        19         0       .00     15.19   1001.24


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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


FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    514.08

STA=     986.    1001.
  PER Q=    100.0
   AREA=      8.6
    VEL=      1.1
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1450.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000      1.20    514.50    514.18       .00    514.58       .08       .43       .00    514.74
      9.7        .0       9.7        .0        .0       7.8        .0       5.7       8.1    515.00
      .14       .00      1.25       .00      .000      .073      .000      .000    513.30    993.21
   .016233       29.       28.       28.         2        11         0       .00     12.19   1005.39


FLOW DISTRIBUTION FOR SECNO=   1450.00          CWSEL=    514.50

STA=     993.    1007.
  PER Q=    100.0
   AREA=      7.8
    VEL=      1.3
  DEPTH=       .6

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AREA=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.48
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.94 ELREA= 515.01

1467.000	1.20	514.60	513.82	.00	514.62	.02	.03	.01	514.94
9.7	.0	9.7	.0	.0	16.0	.0	6.0	8.4	515.01
.16	.00	.61	.00	.000	.032	.000	.000	513.40	992.11
.000387	23.	23.	23.	2	22	0	.00	15.79	1007.89

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

FLOW DISTRIBUTION FOR SECNO= 1467.00 CWSEL= 514.60

STA= 992. 1009.
PER Q= 100.0
AREA= 16.0
VEL= .6
DEPTH= 1.0

CCHV= .300 CEHV= .500
*SECNO 1477.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.76

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.95 ELREA= 514.95

1477.000	1.15	514.60	513.79	.00	514.62	.02	.00	.00	514.95
9.7	.0	9.7	.0	.0	17.7	.0	6.2	8.6	514.95
.16	.00	.55	.00	.000	.013	.000	.000	513.45	987.15
.000051	22.	13.	10.	2	14	0	.00	15.36	1002.51

FLOW DISTRIBUTION FOR SECNO= 1477.00 CWSEL= 514.60

STA= 987. 1003.
PER Q= 100.0
AREA= 17.7
VEL= .5
DEPTH= 1.2

*SECNO 1480.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.97 ELREA= 514.97

1480.000	1.13	514.60	513.86	.00	514.62	.02	.00	.00	514.97
9.7	.0	9.7	.0	.0	14.6	.0	6.3	8.7	514.97
.16	.00	.67	.00	.000	.013	.000	.000	513.47	987.15
.000079	3.	3.	3.	0	17	0	.00	12.86	1000.01

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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

```
FLOW DISTRIBUTION FOR SECNO=   1480.00          CWSEL=    514.60

STA=     987.    1000.
  PER Q=    100.0
   AREA=     14.6
    VEL=       .7
  DEPTH=      1.1


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
    4          .013      .20      1.66       .00      1.50      3.00      23.16     11         4       513.59    513.47

CHART 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE  4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

*SECNO 1504.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.233  EGOC =    514.426  PCWSE=    514.600  ELTRD=    515.410

5150, EG OF   514.43 LESS THAN XEG OF   514.62
SPECIAL CULVERT

    EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   514.23    514.43       .00        0.       10.      .750      18.0    515.41        0.


5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000      1.00    514.59       .00       .00    514.62       .03       .00       .00    515.09
      9.7        .0       9.7        .0        .0      13.0        .0       6.6       9.0    515.09
      .17       .00       .75       .00      .000      .013      .000      .000    513.59    987.15
  .000114       23.       23.       23.         3         0         0       .00     12.85   1000.01


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    514.59

STA=     987.    1000.
  PER Q=    100.0
   AREA=     13.0
    VEL=       .7
  DEPTH=      1.0
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .100 CEHV=     .300
*SECNO 1507.000
MP CLSTA=     994.83 CELCH=     513.62 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

 1507.000      .98    514.60    513.96      .00    514.62      .02      .00      .00    515.12
      9.7       .0       9.7       .0       .0      15.0       .0      6.7      9.0    515.12
      .17      .00       .65      .00     .000      .032     .000     .000   513.62    987.15
  .000525       3.        3.        3.        0        17        0      .00    15.36   1002.51


FLOW DISTRIBUTION FOR SECNO=   1507.00         CWSEL=    514.60

STA=     987.    1003.
  PER Q=    100.0
   AREA=     15.0
    VEL=       .6
  DEPTH=      1.0

*SECNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000      .71    514.59    514.30      .00    514.65      .06      .01      .01    515.54
      9.7       .0       9.7       .0       .0       8.8       .0      6.8      9.2    515.44
      .18      .00      1.11      .00     .000      .032     .000     .000   513.88    993.09
 .002382       13.       13.       13.        2        14        0      .00    13.83   1006.91


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


FLOW DISTRIBUTION FOR SECNO=   1520.00         CWSEL=    514.59

STA=     993.    1009.
  PER Q=    100.0
   AREA=      8.8
    VEL=      1.1
  DEPTH=       .6

*SECNO 1545.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.31

  1545.000      .72    515.09    515.09      .00    515.36      .27      .13      .06    515.54
      9.7       .0       9.7       .0       .0       4.2       .0      7.0      9.5    515.31
      .18      .00      2.32      .00     .000      .040     .000     .000   514.37    992.66
  .020205       20.       24.       24.        0         5        0      .00     7.67   1000.33
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FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.09

STA=     993.    1001.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1598.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000      1.15    516.00    515.56       .00    516.06       .06       .67       .02    516.12
      9.7        .0       9.7        .0        .0       8.9        .0       7.3      10.0    516.10
      .19       .00      1.09       .00      .000      .068      .000      .000    514.85    992.07
   .008544       53.       54.       54.         2         5         0       .00     12.12   1004.19


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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


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.00

STA=     992.    1005.
  PER Q=    100.0
   AREA=      8.9
    VEL=      1.1
  DEPTH=       .7

1490 NH CARD USED
*SECNO 1652.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34

  1652.000       .97    516.35    515.89       .00    516.39       .04       .33       .00    516.58
      9.7        .0       9.7        .0        .0      10.7        .0       7.8      10.8    516.34
      .21       .00       .91       .01      .000      .060      .000      .000    515.38    990.76
   .004617       53.       53.       54.         3        14         0       .00     15.79   1006.54


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.35

STA=     991.    1006.    1007.
  PER Q=    100.0       .0
   AREA=     10.7       .0
    VEL=       .9       .0
  DEPTH=       .7       .0

1490 NH CARD USED
*SECNO 1674.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.99
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.60

674.000	.85	516.40	515.84	.00	516.42	.01	.03	.00	516.58
20.4	.0	20.4	.0	.0	39.7	.0	8.4	11.5	516.60
.22	.00	.51	.00	.000	.048	.000	.000	515.55	955.51
.000814	24.	22.	20.	2	17	0	.00	50.11	1005.63

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

FLOW DISTRIBUTION FOR SECNO= 1674.00 CWSEL= 516.40

STA= 956. 1006.
PER Q= 100.0
AREA= 39.7
VEL= .5
DEPTH= .8

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.68 ELREA= 516.90

1694.000	.72	516.42	516.06	.00	516.45	.03	.03	.01	516.68
20.4	.0	20.4	.0	.0	25.5	.0	9.0	12.4	516.90
.23	.00	.80	.00	.000	.043	.000	.000	515.70	964.85
.002234	32.	20.	20.	2	18	0	.00	40.18	1005.03

FLOW DISTRIBUTION FOR SECNO= 1694.00 CWSEL= 516.42

STA= 965. 1006.
PER Q= 100.0
AREA= 25.5
VEL= .8
DEPTH= .6

1490 NH CARD USED
*SECNO 1703.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.70 ELREA= 516.90

1703.000	.62	516.37	516.30	.00	516.53	.16	.04	.04	516.70
20.4	.0	20.4	.0	.0	11.3	.0	9.2	12.7	516.90
.23	.00	1.80	.00	.000	.044	.000	.000	515.75	981.05
.016519	9.	9.	9.	2	15	0	.00	23.39	1004.43

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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


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.37

STA=     981.     983.     993.    1007.
  PER Q=      2.1     77.0     20.9
   AREA=       .6      5.9      4.8
    VEL=       .7      2.7       .9
  DEPTH=       .3       .6       .4

1490 NH CARD USED
*SECNO 1715.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.62


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .81    516.61    516.33       .00    516.66       .05       .12       .01    516.70
      20.4        .0      20.4        .0        .0      20.6        .0       9.4      13.0    517.10
       .23       .00       .99       .00      .000      .056      .000      .000    515.80    970.23
   .006306       14.       12.       13.         2        15         0       .00     34.80   1005.03


FLOW DISTRIBUTION FOR SECNO=   1715.00         CWSEL=    516.61

STA=     970.     972.     975.     993.     997.    1007.
  PER Q=      1.5     18.8     35.6     31.2     13.0
   AREA=       .6      2.1     10.5      3.2      4.2
    VEL=       .5      1.8       .7      2.0       .6
  DEPTH=       .4       .7       .6       .8       .5

1490 NH CARD USED
*SECNO 1772.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.11    517.41    517.41       .00    517.74       .33       .81       .08    517.71
      20.4        .0      20.4        .0        .0       8.0        .0      10.2      14.4    517.48
       .24       .00      2.54       .00      .000      .066      .000      .000    516.30    994.89
   .057747       72.       57.       56.         0        14         0       .00     13.39   1008.28


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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


FLOW DISTRIBUTION FOR SECNO=   1772.00         CWSEL=    517.41

STA=     995.    1009.
  PER Q=    100.0
   AREA=      8.0
```

```
    VEL=      2.5
  DEPTH=       .6

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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      ALTERNATIVE 1, WEST CBC CULVERT WITH EXISTING WEST CHANNEL
T3      100-YEAR SUBCRITICAL FLOW
T4      FILE: ALT1WEST.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              3                    0      .0099        1                         510.68

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15                   -1                                      -1                            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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      1.28    510.68    510.61    510.68    511.08       .39       .00       .00    511.80
      62.3        .0      62.3        .0        .0      22.4        .0        .0        .0    511.40
       .00       .00      2.78       .00      .000      .035      .000      .000    509.40    989.92
   .010043        0.        0.        0.         0        11         3       .00     22.94   1012.86


FLOW DISTRIBUTION FOR SECNO=    971.00         CWSEL=    510.68

STA=     990.    1015.
  PER Q=    100.0
   AREA=     22.4
    VEL=      2.8
  DEPTH=      1.0

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.46


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000      1.66    511.16    510.53       .00    511.25       .09       .08       .09    513.10
      62.3        .0      62.3        .0        .0      47.2        .0        .8        .7    513.50
```

.00	.00	1.32	.00	.000	.035	.000	.000	509.50	984.24
.001666	11.	23.	36.	2	15	0	.00	38.71	1022.95

W DISTRIBUTION FOR SECNO= 995.00 CWSEL= 511.16

STA= 984. 1025.
PER Q= 100.0
AREA= 47.2
VEL= 1.3
DEPTH= 1.2

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 511.19 BRIDGE VELOCITY= 1.53 CALCULATED CHANNEL AREA= 39.

GPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	511.26	.01	0.	62.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	1.57	511.17	.00	.00	511.26	.09	.01	.00	511.60
62.3	.0	62.3	.0	.0	45.7	.0	1.1	.9	513.50
.01	.00	1.36	.00	.000	.035	.000	.000	509.60	984.21
.001854	6.	6.	6.	0	0	0	.00	38.76	1022.96

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 511.17

STA= 984. 1024.
PER Q= 100.0
AREA= 45.7
VEL= 1.4
DEPTH= 1.2

CCHV= .100 CEHV= .300
*SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

1020.000	1.37	511.17	511.17	.00	511.56	.39	.08	.09	510.90
62.3	2.6	59.7	.0	5.2	21.2	.0	1.8	1.8	513.50
.01	.50	2.82	.00	.100	.035	.000	.000	509.80	965.55
.011632	35.	20.	1.	0	15	0	.00	40.60	1006.15

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

FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 511.17

STA=	966.	967.	982.	1008.
PER Q=	.2	4.0	95.8	
AREA=	.3	4.9	21.2	
VEL=	.3	.5	2.8	
DEPTH=	.2	.3	.9	

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.90 ELREA= 512.90

1030.000	1.73	511.63	511.63	.00	512.11	.48	.16	.03	511.90
62.3	.0	62.3	.0	.0	20.3	.0	2.1	2.2	512.90
.01	.00	3.07	.00	.000	.047	.000	.000	509.90	982.95
.023052	17.	10.	8.	0	11	0	.00	21.50	1004.45

FLOW DISTRIBUTION FOR SECNO= 1030.00 CWSEL= 511.63

STA=	983.	1005.
PER Q=	100.0	
AREA=	20.3	
VEL=	3.1	
DEPTH=	.9	

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.44

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.14 ELREA= 512.88

1060.000	2.28	512.30	511.53	.00	512.37	.07	.22	.04	512.14
62.3	18.4	43.9	.0	28.0	33.0	.0	3.1	3.3	512.88
.02	.66	1.33	.00	.060	.063	.000	.000	510.02	926.22
.003857	16.	31.	18.	2	11	0	.00	80.27	1006.49

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

FLOW DISTRIBUTION FOR SECNO= 1060.00 CWSEL= 512.30

```
STA=     926.     967.     979.     986.    1007.
  PER Q=     13.1     12.9      3.6     70.5
   AREA=     15.2      9.2      3.5     33.0
    VEL=       .5       .9       .6      1.3
  DEPTH=       .4       .8       .5      1.6

1490 NH CARD USED
*SECNO 1154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.84    512.54    511.41       .00    512.56       .02       .19       .00    512.58
      31.4        .0      31.4        .0        .0      45.7        .0       8.1       8.7    512.90
       .05       .00       .69       .00      .000      .049      .000      .000    510.70    979.74
   .000816       94.       94.       93.         3        17         0       .00     35.43   1015.17


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    512.54

STA=     980.     992.    1004.    1017.
  PER Q=     10.4     70.7     19.0
   AREA=     10.3     20.9     14.5
    VEL=       .3      1.1       .4
  DEPTH=       .8      1.8      1.3

1490 NH CARD USED
*SECNO 1191.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .18


95 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      1.50    512.40    512.26       .00    512.75       .35       .09       .10    512.33
      31.4        .0      31.4        .0        .0      11.9        .0       9.2       9.6    513.14
       .06       .03      2.63       .00      .060      .059      .000      .000    510.90    993.15
   .025232       42.       37.       35.         3        20         0       .00     12.72   1005.86


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    512.40

STA=     993.     994.    1007.
  PER Q=        .0    100.0
   AREA=        .0     11.9
    VEL=        .0      2.6
  DEPTH=        .0      1.0

1490 NH CARD USED
*SECNO 1246.000
0 CROSS SECTION   1246.00 EXTENDED       .21 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      2.01    513.41    512.93       .00    513.50       .09       .73       .03    513.18
     31.4       7.6      23.8        .0      11.8      15.9        .0      10.3      11.5    513.85
      .07       .64      1.49       .00      .060      .067      .000      .000    511.40    950.00
  .007993       56.       55.       55.         3         5         0       .00     54.51   1004.51


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    513.41

STA=     950.     959.     966.     992.    1005.
  PER Q=      5.5      5.7     13.0     75.8
   AREA=      2.6      2.4      6.8     15.9
    VEL=       .7       .7       .6      1.5
  DEPTH=       .3       .3       .3      1.3

1490 NH CARD USED
*SECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .44 METERS

  1291.000      1.87    513.77    513.44       .00    513.91       .14       .40       .02    513.18
     31.4       4.7      26.4        .2       4.4      15.0        .6      11.3      13.1    513.40
      .08      1.08      1.76       .42      .060      .071      .080      .000    511.90    987.59
  .010807       39.       44.       49.         3        16         0       .00     22.61   1010.20


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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


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    513.77

STA=     988.     996.    1007.    1010.
  PER Q=     15.1     84.1       .8
   AREA=      4.4     15.0       .6
    VEL=      1.1      1.8       .4
  DEPTH=       .5      1.4       .2

1490 NH CARD USED
*SECNO 1345.000
3280 CROSS SECTION   1345.00 EXTENDED       .08 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.74

  1345.000      1.57    514.18    513.56       .00    514.24       .06       .31       .01    513.93
     31.4       2.1      29.0        .3       6.5      25.7       1.3      12.8      15.8    514.00
      .09       .33      1.13       .20      .060      .058      .060      .000    512.61    950.00
  .003578       60.       54.       49.         2         8         0       .00     72.67   1022.67


FLOW DISTRIBUTION FOR SECNO=   1345.00         CWSEL=    514.18

STA=     950.     974.     986.    1008.    1023.
  PER Q=      3.3      3.5     92.4       .8
   AREA=      3.7      2.8     25.7      1.3
    VEL=       .3       .4      1.1       .2
  DEPTH=       .2       .2      1.2       .1

1490 NH CARD USED
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*SECNO 1422.000
3280 CROSS SECTION   1422.00 EXTENDED       .08 METERS


2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.44    514.58    514.37       .00    514.65       .07       .41       .00    514.12
     31.4      10.1      21.3        .0      12.3      16.5        .0      15.1      20.3    514.70
      .11       .82      1.29       .00      .060      .073      .000      .000    513.14    950.00
   .009185       69.       77.       85.         2        14         0       .00     52.19   1002.19


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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


FLOW DISTRIBUTION FOR SECNO=   1422.00         CWSEL=    514.58

STA=     950.     969.     986.    1002.
  PER Q=     10.3     21.8     67.9
   AREA=      5.0      7.3     16.5
    VEL=       .6       .9      1.3
  DEPTH=       .3       .4      1.0

90 NH CARD USED
*SECNO 1450.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .51


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000      1.61    514.91    514.83       .00    515.16       .25       .45       .05    514.74
     31.4       1.1      30.3        .0       1.8      13.5        .0      15.7      21.6    515.00
      .11       .60      2.25       .00      .060      .074      .000      .000    513.30    969.74
   .034687       29.       28.       28.         2         8         0       .00     36.86   1006.60


FLOW DISTRIBUTION FOR SECNO=   1450.00         CWSEL=    514.91

STA=     970.     991.    1007.
  PER Q=      3.5     96.5
   AREA=      1.8     13.5
    VEL=       .6      2.2
  DEPTH=       .1       .9

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER

0 CROSS SECTION   1467.00 EXTENDED       .27 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.20

  1467.000      1.82    515.22    514.28       .00    515.26       .04       .08       .02    514.94
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     31.4        .0      31.1        .3        .0      33.4       2.1      16.3      22.7    515.01
      .12       .00       .93       .13      .000      .032      .080      .000    513.40    965.75
  .001284       23.       23.       23.         2        11         0       .00     56.55   1022.30
```



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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

FLOW DISTRIBUTION FOR SECNO=   1467.00         CWSEL=    515.22

STA=     966.    1009.    1022.
  PER Q=     99.1       .9
   AREA=     33.4      2.1
    VEL=       .9       .1
  DEPTH=       .8       .2

CCHV=     .300 CEHV=     .500
*SECNO 1477.000
3280 CROSS SECTION   1477.00 EXTENDED       .32 METERS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.16

  1477.000      1.76    515.21    514.20       .00    515.27       .06       .00       .01    514.95
     31.4        .1      30.5        .8        .9      27.0       7.4      16.8      23.4    514.95
      .12       .06      1.13       .11      .045      .013      .045      .000    513.45    980.19
  .000129       22.       13.       10.         2        14         0       .00     50.19   1030.38

FLOW DISTRIBUTION FOR SECNO=   1477.00         CWSEL=    515.21

STA=     980.     987.    1003.    1006.    1024.    1027.    1030.
  PER Q=       .2     97.3       .2      1.3       .5       .5
   AREA=       .9     27.0       .8      4.2      1.2      1.2
    VEL=       .1      1.1       .1       .1       .1       .1
  DEPTH=       .1      1.8       .2       .2       .4       .4

*SECNO 1480.000
  1480.000      1.72    515.19    514.32       .00    515.29       .10       .00       .02    514.97
     31.4        .0      31.2        .1        .5      22.1        .9      16.9      23.5    514.97
      .12       .08      1.41       .08      .045      .013      .045      .000    513.47    982.95
   .000215        3.        3.        3.         2        11         0       .00     25.39   1008.34

FLOW DISTRIBUTION FOR SECNO=   1480.00         CWSEL=    515.19

STA=     983.     987.    1000.    1004.    1008.
  PER Q=       .1     99.6       .2       .0
   AREA=       .5     22.1       .6       .3
    VEL=       .1      1.4       .1       .0
  DEPTH=       .1      1.7       .2       .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


CIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
    4         .013      .20       1.66      .00       1.50      3.00      23.16     11        4         513.59    513.47

CHART 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE  4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

*SECNO 1504.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.994  EGOC =    515.408  PCWSE=    515.193  ELTRD=    515.410

SPECIAL CULVERT

     EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    514.99    515.41      .11        0       31.     1.408      18.0    515.41        0.


  1504.000      1.72    515.31       .00       .00    515.41       .10       .11       .00    515.09
      31.4        .1      31.1        .2        .8      22.1       2.0      17.4      24.2    515.09
       .13       .07      1.41       .10      .045      .013      .045      .000    513.59    979.42
   .000215       23.       23.       23.         2         0         0       .00     38.89   1018.31


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    515.31

STA=     979.     987.    1000.    1004.    1011.    1018.
 PER Q=       .2     99.2       .3       .3       .0
  AREA=       .8     22.1       .8      1.0       .2
   VEL=       .1      1.4       .1       .1       .0
 DEPTH=       .1      1.7       .2       .1       .0

CCHV=     .100 CEHV=     .300
*SECNO 1507.000
CHIMP CLSTA=     994.83 CELCH=     513.62 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

  1507.000      1.72    515.34    514.37       .00    515.41       .07       .00       .00    515.12
      31.4        .2      30.9        .3       1.0      26.5       1.9      17.5      24.4    515.12
       .13       .15      1.17       .16      .045      .032      .045      .000    513.62    978.03
   .000855        3.         3.        3.         2        14         0       .00     45.01   1023.04


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  01JUL96      10:57:34                                                                                    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


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    515.34

STA=     978.     987.    1003.    1011.    1023.
 PER Q=       .5     98.6       .8       .2
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   AREA=      1.0     26.5      1.3       .6
    VEL=       .2      1.2       .2       .1
  DEPTH=       .1      1.7       .2       .0

 CNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000      1.44    515.32    514.76       .00    515.45       .13       .02       .02    515.54
      31.4        .0      31.4        .0        .0      20.0        .0      17.8      24.8    515.44
       .13       .00      1.57       .00      .000      .032      .000      .000    513.88    991.62
   .002095       13.       13.       13.         2        11         0       .00     16.77   1008.38


FLOW DISTRIBUTION FOR SECNO=   1520.00         CWSEL=    515.32

STA=     992.    1009.
  PER Q=    100.0
   AREA=     20.0
    VEL=      1.6
  DEPTH=      1.2

*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .25 METERS

 5 MINIMUM SPECIFIC ENERGY
20 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.41    515.78    515.78       .00    516.03       .25       .09       .04    515.54
      31.4        .4      25.2       5.8        .9      10.2      10.5      18.3      25.5    515.31
       .14       .43      2.47       .56      .080      .040      .080      .000    514.37    988.00
   .008995       20.       24.       24.         0         8         0       .00     45.60   1033.60


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   01JUL96      10:57:34                                                                                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


FLOW DISTRIBUTION FOR SECNO=   1545.00         CWSEL=    515.78

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      1.2     80.3      8.5      5.0      5.0
   AREA=       .9     10.2      4.3      3.0      3.1
    VEL=       .4      2.5       .6       .5       .5
  DEPTH=       .2      1.1       .4       .3       .3

 0 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION   1598.00 EXTENDED       .27 METERS


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
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  1598.000      1.62    516.47    516.29       .00    516.59       .12       .55       .01    516.12
      31.4        .5      25.6       5.2        .9      15.0       8.1      19.6      27.8    516.10
       .15       .62      1.71       .64      .080      .069      .080      .000    514.85    989.00
   .011770       53.       54.       54.         2         8         0       .00     40.59   1029.59


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.47

STA=     989.     992.    1005.    1030.
  PER Q=      1.8     81.8     16.5
   AREA=       .9     15.0      8.1
    VEL=       .6      1.7       .6
  DEPTH=       .3      1.2       .3

1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION   1652.00 EXTENDED       .40 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65

  1652.000      1.52    516.90    516.47       .00    516.96       .06       .36       .01    516.58
      31.4        .8      23.6       6.9       2.5      19.2      14.0      21.2      30.4    516.34
       .16       .33      1.23       .50      .080      .061      .080      .000    515.38    980.00
   .004342       53.       53.       54.         2        15         0       .00     54.97   1034.97


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   01JUL96      10:57:34                                                                          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


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.90

STA=     980.     990.    1006.    1035.
  PER Q=      2.6     75.2     22.1
   AREA=      2.5     19.2     14.0
    VEL=       .3      1.2       .5
  DEPTH=       .3      1.2       .5

1490 NH CARD USED
*SECNO 1674.000
3280 CROSS SECTION   1674.00 EXTENDED       .36 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.59

  1674.000      1.41    516.96    516.14       .00    517.00       .04       .04       .00    516.58
      62.3        .4      61.5       .3       1.8      68.2       2.2      22.3      31.7    516.60
       .17       .22       .90       .14      .080      .048      .080      .000    515.55    950.00
   .001325       24.       22.       20.         2        18         0       .00     68.60   1018.60


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.96

STA=     950.     955.    1006.    1019.
  PER Q=       .7     98.8       .5
   AREA=      1.8     68.2      2.2
    VEL=       .2       .9       .1
  DEPTH=       .4      1.3       .2
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1490 NH CARD USED
*SECNO 1694.000
3280 CROSS SECTION   1694.00 EXTENDED       .27 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

  1694.000      1.27    516.97    516.41       .00    517.05       .08       .04       .01    516.68
      62.3       1.1      61.1        .0       3.9      48.5        .5      23.6      33.2    516.90
       .17       .28      1.26       .07      .080      .046      .080      .000    515.70    950.00
   .002815       32.       20.       20.         2         8         0       .00     69.38   1019.38


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   01JUL96      10:57:34                                                                          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


FLOW DISTRIBUTION FOR SECNO=   1694.00         CWSEL=    516.97

STA=     950.     964.    1006.    1019.
  PER Q=      1.8     98.2       .1
   AREA=      3.9     48.5       .5
    VEL=       .3      1.3       .1
  DEPTH=       .3      1.1       .0

1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION   1703.00 EXTENDED       .01 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1703.000      1.16    516.91    516.91       .00    517.19       .28       .06       .06    516.70
      62.3       2.3      59.9        .0       4.9      24.9        .0      24.0      33.9    516.90
       .17       .47      2.40       .03      .080      .066      .060      .000    515.75    935.00
   .027545        9.        9.        9.         0         8         0       .00     74.06   1009.06


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.91

STA=     935.     980.    1007.    1009.
  PER Q=      3.8     96.2       .0
   AREA=      4.9     24.9       .0
    VEL=       .5      2.4       .0
  DEPTH=       .1       .9       .0

1490 NH CARD USED
*SECNO 1715.000
3280 CROSS SECTION   1715.00 EXTENDED       .28 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.16

  1715.000      1.48    517.28    516.70       .00    517.35       .06       .13       .02    516.70
      62.3       8.1      53.5        .7      14.9      44.9       2.6      24.6      35.0    517.10
       .17       .54      1.19       .25      .080      .073      .060      .000    515.80    935.00
   .005879       14.       12.       13.         1        15         0       .00    101.14   1036.14


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   01JUL96      10:57:34                                                                          PAGE   37
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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

FLOW DISTRIBUTION FOR SECNO= 1715.00 CWSEL= 517.28

STA=	935.	970.	1007.	1036.
PER Q=	13.0	86.0	1.0	
AREA=	14.9	44.9	2.6	
VEL=	.5	1.2	.3	
DEPTH=	.4	1.2	.1	

1490 NH CARD USED
*SECNO 1772.000
3280 CROSS SECTION 1772.00 EXTENDED .14 METERS

1772.000	1.44	517.74	517.72	.00	517.82	.08	.46	.00	517.71
62.3	40.4	16.3	5.6	32.1	12.8	9.2	28.2	42.5	517.48
.19	1.26	1.27	.61	.058	.068	.060	.000	516.30	918.32
.009530	72.	57.	56.	3	13	0	.00	131.68	1050.00

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.74

STA=	918.	943.	944.	955.	966.	969.	975.	982.	994.	1009.	1032.	1050.
PER Q=	6.5	3.1	8.5	3.8	4.4	31.8	6.5	.3	26.1	6.0	2.9	
AREA=	5.9	.7	6.4	3.8	2.8	7.1	4.4	.8	12.8	5.8	3.4	
VEL=	.7	2.7	.8	.6	1.0	2.8	.9	.2	1.3	.6	.5	
DEPTH=	.2	1.1	.6	.4	.7	1.2	.7	.1	.8	.3	.2	

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THIS RUN EXECUTED 01JUL96 10:57:36

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	971.000	20.37	510.15	.00	20.37	.00	.00	1.87	.00	.00	20.30	100.27	509.40
	971.000	62.26	510.68	.00	62.26	.00	.00	2.78	.00	.00	22.94	100.43	509.40
	995.000	20.37	510.42	.00	20.37	.00	.00	1.01	.00	4.37	34.87	26.54	509.50
*	995.000	62.26	511.16	.00	62.26	.00	.00	1.32	.00	4.37	38.71	16.66	509.50
	1000.000	20.37	510.43	.00	20.37	.00	.00	1.09	.00	18.18	34.74	33.60	509.60
	1000.000	62.26	511.17	.00	62.26	.00	.00	1.36	.00	18.18	38.76	18.54	509.60

*	1020.000	20.37	510.64	.00	20.37	.00	.00	2.21	.00	10.10	18.65	154.79	509.80
*	1020.000	62.26	511.17	2.61	59.65	.00	.50	2.82	.00	10.10	40.60	116.32	509.80
	1030.000	20.37	510.98	.00	20.37	.00	.00	2.36	.00	10.00	15.95	183.78	509.90
*	1030.000	62.26	511.63	.00	62.26	.00	.00	3.07	.00	10.00	21.50	230.52	509.90
*	1060.000	20.37	511.46	.00	20.37	.00	.00	1.16	.00	3.93	16.42	44.65	510.02
*	1060.000	62.26	512.30	18.39	43.87	.00	.66	1.33	.00	3.93	80.27	38.57	510.02
	1154.000	9.72	511.71	.00	9.72	.00	.00	.47	.00	7.26	25.90	6.99	510.70
	1154.000	31.36	512.54	.00	31.36	.00	.00	.69	.00	7.26	35.43	8.16	510.70
*	1191.000	9.72	511.63	.00	9.72	.00	.00	2.30	.00	5.37	8.01	355.26	510.90
*	1191.000	31.36	512.40	.00	31.36	.00	.03	2.63	.00	5.37	12.72	252.32	510.90
*	1246.000	9.72	512.71	.00	9.72	.00	.00	1.21	.00	9.03	9.75	87.97	511.40
*	1246.000	31.36	513.41	7.60	23.76	.00	.64	1.49	.00	9.03	54.51	79.93	511.40
	1291.000	9.72	513.13	.00	9.72	.00	.00	1.21	.00	11.36	10.16	103.34	511.90
	1291.000	31.36	513.77	4.75	26.37	.24	1.08	1.76	.42	11.36	22.61	108.07	511.90
*	1345.000	9.72	513.53	.00	9.72	.00	.00	.81	.00	13.15	19.97	44.90	512.61
*	1345.000	31.36	514.18	2.12	28.98	.26	.33	1.13	.20	13.15	72.67	35.78	512.61

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1422.000	9.72	514.08	.00	9.72	.00	.00	1.13	.00	6.88	15.19	146.69	513.14
	1422.000	31.36	514.58	10.05	21.31	.00	.82	1.29	.00	6.88	52.19	91.85	513.14
	1450.000	9.72	514.50	.00	9.72	.00	.00	1.25	.00	5.70	12.19	162.33	513.30
*	1450.000	31.36	514.91	1.10	30.26	.00	.60	2.25	.00	5.70	36.86	346.87	513.30
*	1467.000	9.72	514.60	.00	9.72	.00	.00	.61	.00	4.31	15.79	3.87	513.40
*	1467.000	31.36	515.22	.00	31.09	.27	.00	.93	.13	4.31	56.55	12.84	513.40
*	1477.000	9.72	514.60	.00	9.72	.00	.00	.55	.00	3.80	15.36	.51	513.45
*	1477.000	31.36	515.21	.06	30.52	.78	.06	1.13	.11	3.80	50.19	1.29	513.45
	1480.000	9.72	514.60	.00	9.72	.00	.00	.67	.00	5.90	12.86	.79	513.47
	1480.000	31.36	515.19	.04	31.25	.08	.08	1.41	.08	5.90	25.39	2.15	513.47
	1504.000	9.72	514.59	.00	9.72	.00	.00	.75	.00	5.17	12.85	1.14	513.59
	1504.000	31.36	515.31 515.41	.06	31.10	.20	.07	1.41	.10	5.17	38.89	2.15	513.59
*	1507.000	9.72	514.60	.00	9.72	.00	.00	.65	.00	8.87	15.36	5.25	513.62
*	1507.000	31.36	515.34	.15	30.91	.30	.15	1.17	.16	8.87	45.01	8.55	513.62
*	1520.000	9.72	514.59	.00	9.72	.00	.00	1.11	.00	20.00	13.83	23.82	513.88
*	1520.000	31.36	515.32	.00	31.36	.00	.00	1.57	.00	20.00	16.77	20.95	513.88
*	1545.000	9.72	515.09	.00	9.72	.00	.00	2.32	.00	20.20	7.67	202.05	514.37
*	1545.000	31.36	515.78	.37	25.18	5.81	.43	2.47	.56	20.20	45.60	89.95	514.37
*	1598.000	9.72	516.00	.00	9.72	.00	.00	1.09	.00	8.95	12.12	85.44	514.85
	1598.000	31.36	516.47	.55	25.65	5.16	.62	1.71	.64	8.95	40.59	117.70	514.85
	1652.000	9.72	516.35	.00	9.72	.00	.00	.91	.01	9.97	15.79	46.17	515.38
*	1652.000	31.36	516.90	.83	23.59	6.94	.33	1.23	.50	9.97	54.97	43.42	515.38
*	1674.000	20.37	516.40	.00	20.37	.00	.00	.51	.00	7.73	50.11	8.14	515.55
*	1674.000	62.26	516.96	.41	61.53	.32	.22	.90	.14	7.73	68.60	13.25	515.55

*	1694.000	20.37	516.42	.00	20.37	.00	.00	.80	.00	7.50	40.18	22.34	515.70
*	1694.000	62.26	516.97	1.10	61.13	.03	.28	1.26	.07	7.50	69.38	28.15	515.70
	1703.000	20.37	516.37	.00	20.37	.00	.00	1.80	.00	5.55	23.39	165.19	515.75
*	1703.000	62.26	516.91	2.34	59.92	.00	.47	2.40	.03	5.55	74.06	275.45	515.75
*	1715.000	20.37	516.61	.00	20.37	.00	.00	.99	.00	4.17	34.80	63.06	515.80
*	1715.000	62.26	517.28	8.07	53.54	.65	.54	1.19	.25	4.17	101.14	58.79	515.80
*	1772.000	20.37	517.41	.00	20.37	.00	.00	2.54	.00	8.77	13.39	577.47	516.30
	1772.000	62.26	517.74	40.42	16.27	5.57	1.26	1.27	.61	8.77	131.68	95.30	516.30

1

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	971.000	20.37	510.33	510.08	.82
	971.000	62.26	511.08	510.61	.90
*	995.000	20.37	510.47	510.15	.43
*	995.000	62.26	511.25	510.53	.38
	1000.000	20.37	510.49	.00	.47
	1000.000	62.26	511.26	.00	.40
	1020.000	20.37	510.89	510.64	1.00
*	1020.000	62.26	511.56	511.17	.95
*	1030.000	20.37	511.27	510.98	1.02
*	1030.000	62.26	512.11	511.63	1.01
*	1060.000	20.37	511.53	510.83	.36
*	1060.000	62.26	512.37	511.53	.33
	1154.000	9.72	511.73	511.05	.17
	1154.000	31.36	512.56	511.41	.19
*	1191.000	9.72	511.90	511.63	1.01
*	1191.000	31.36	512.75	512.26	.83
*	1246.000	9.72	512.79	512.26	.42
*	1246.000	31.36	513.50	512.93	.42
	1291.000	9.72	513.21	512.71	.44
	1291.000	31.36	513.91	513.44	.48
*	1345.000	9.72	513.56	513.19	.33
*	1345.000	31.36	514.24	513.56	.33
*	1422.000	9.72	514.15	513.80	.48
*	1422.000	31.36	514.65	514.37	.41
	1450.000	9.72	514.58	514.18	.50
	1450.000	31.36	515.16	514.83	.76
*	1467.000	9.72	514.62	513.82	.19
*	1467.000	31.36	515.26	514.28	.34

*	1477.000	9.72	514.62	513.79	.16
*	1477.000	31.36	515.27	514.20	.27
	1480.000	9.72	514.62	513.86	.20
	1480.000	31.36	515.29	514.32	.34

1

	SECNO	Q	EG	CRIWS	FRCH
	1504.000	9.72	514.62	.00	.24
	1504.000	31.36	515.41	.00	.34
*	1507.000	9.72	514.62	513.96	.21
*	1507.000	31.36	515.41	514.37	.28
*	1520.000	9.72	514.65	514.30	.44
*	1520.000	31.36	515.45	514.76	.46
*	1545.000	9.72	515.36	515.09	1.00
*	1545.000	31.36	516.03	515.78	.75
*	1598.000	9.72	516.06	515.56	.40
	1598.000	31.36	516.59	516.29	.51
	1652.000	9.72	516.39	515.89	.34
*	1652.000	31.36	516.96	516.47	.35
*	1674.000	20.37	516.42	515.84	.18
*	1674.000	62.26	517.00	516.14	.25
	1694.000	20.37	516.45	516.06	.32
*	1694.000	62.26	517.05	516.41	.38
*	1703.000	20.37	516.53	516.30	.82
*	1703.000	62.26	517.19	516.91	.79
*	1715.000	20.37	516.66	516.33	.41
*	1715.000	62.26	517.35	516.70	.35
*	1772.000	20.37	517.74	517.41	1.05
	1772.000	62.26	517.82	517.72	.44

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	971.000	.00	.00	.00	509.40	20.37	510.15	510.08	510.33	100.27	1.87	10.89	2.03
	971.000	.00	.00	.00	509.40	62.26	510.68	510.61	511.08	100.43	2.78	22.42	6.21
*	995.000	22.90	.00	.00	509.50	20.37	510.42	510.15	510.47	26.54	1.01	20.08	3.95
	995.000	22.90	.00	.00	509.50	62.26	511.16	510.53	511.25	16.66	1.32	47.20	15.25
	1000.000	5.50	513.10	511.90	509.60	20.37	510.43	.00	510.49	33.60	1.09	18.68	3.51
	1000.000	5.50	513.10	511.90	509.60	62.26	511.17	.00	511.26	18.54	1.36	45.72	14.46
*	1020.000	19.80	.00	.00	509.80	20.37	510.64	510.64	510.89	154.79	2.21	9.23	1.64

*	1020.000	19.80	.00	.00	509.80	62.26	511.17	511.17	511.56	116.32	2.82	26.40	5.77
*	1030.000	10.00	.00	.00	509.90	20.37	510.98	510.98	511.27	183.78	2.36	8.65	1.50
*	1030.000	10.00	.00	.00	509.90	62.26	511.63	511.63	512.11	230.52	3.07	20.31	4.10
*	1060.000	30.57	.00	.00	510.02	20.37	511.46	510.83	511.53	44.65	1.16	17.61	3.05
*	1060.000	30.57	.00	.00	510.02	62.26	512.30	511.53	512.37	38.57	1.33	60.93	10.03
	1154.000	93.71	.00	.00	510.70	9.72	511.71	511.05	511.73	6.99	.47	20.51	3.68
	1154.000	93.71	.00	.00	510.70	31.36	512.54	511.41	512.56	8.16	.69	45.73	10.98
*	1191.000	37.24	.00	.00	510.90	9.72	511.63	511.63	511.90	355.26	2.30	4.23	.52
*	1191.000	37.24	.00	.00	510.90	31.36	512.40	512.26	512.75	252.32	2.63	11.97	1.97
*	1246.000	55.38	.00	.00	511.40	9.72	512.71	512.26	512.79	87.97	1.21	8.06	1.04
*	1246.000	55.38	.00	.00	511.40	31.36	513.41	512.93	513.50	79.93	1.49	27.77	3.51
	1291.000	44.03	.00	.00	511.90	9.72	513.13	512.71	513.21	103.34	1.21	8.01	.96
	1291.000	44.03	.00	.00	511.90	31.36	513.77	513.44	513.91	108.07	1.76	19.97	3.02
*	1345.000	54.00	.00	.00	512.61	9.72	513.53	513.19	513.56	44.90	.81	12.01	1.45
*	1345.000	54.00	.00	.00	512.61	31.36	514.18	513.56	514.24	35.78	1.13	33.55	5.24
*	1422.000	77.06	.00	.00	513.14	9.72	514.08	513.80	514.15	146.69	1.13	8.59	.80
*	1422.000	77.06	.00	.00	513.14	31.36	514.58	514.37	514.65	91.85	1.29	28.80	3.27
	1450.000	28.09	.00	.00	513.30	9.72	514.50	514.18	514.58	162.33	1.25	7.77	.76
*	1450.000	28.09	.00	.00	513.30	31.36	514.91	514.83	515.16	346.87	2.25	15.29	1.68
*	1467.000	23.20	.00	.00	513.40	9.72	514.60	513.82	514.62	3.87	.61	16.03	4.94
*	1467.000	23.20	.00	.00	513.40	31.36	515.22	514.28	515.26	12.84	.93	35.49	8.75
	1477.000	13.14	.00	.00	513.45	9.72	514.60	513.79	514.62	.51	.55	17.71	13.65
	1477.000	13.14	.00	.00	513.45	31.36	515.21	514.20	515.27	1.29	1.13	35.28	27.63
	1480.000	3.38	.00	.00	513.47	9.72	514.60	513.86	514.62	.79	.67	14.57	10.94
	1480.000	3.38	.00	.00	513.47	31.36	515.19	514.32	515.29	2.15	1.41	23.50	21.37

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1504.000	23.20	515.41	.00	513.59	9.72	514.59	.00	514.62	1.14	.75	12.97	9.11
	1504.000	23.20	515.41	.00	513.59	31.36	515.31	.00	515.41	2.15	1.41	24.98	21.38
*	1507.000	3.38	.00	.00	513.62	9.72	514.60	513.96	514.62	5.25	.65	14.96	4.24
*	1507.000	3.38	.00	.00	513.62	31.36	515.34	514.37	515.41	8.55	1.17	29.37	10.73
*	1520.000	13.00	.00	.00	513.88	9.72	514.59	514.30	514.65	23.82	1.11	8.77	1.99
*	1520.000	13.00	.00	.00	513.88	31.36	515.32	514.76	515.45	20.95	1.57	20.01	6.85
*	1545.000	24.26	.00	.00	514.37	9.72	515.09	515.09	515.36	202.05	2.32	4.20	.68
*	1545.000	24.26	.00	.00	514.37	31.36	515.78	515.78	516.03	89.95	2.47	21.50	3.31
*	1598.000	53.64	.00	.00	514.85	9.72	516.00	515.56	516.06	85.44	1.09	8.94	1.05
	1598.000	53.64	.00	.00	514.85	31.36	516.47	516.29	516.59	117.70	1.71	24.05	2.89
	1652.000	53.18	.00	.00	515.38	9.72	516.35	515.89	516.39	46.17	.91	10.72	1.43
	1652.000	53.18	.00	.00	515.38	31.36	516.90	516.47	516.96	43.42	1.23	35.72	4.76
*	1674.000	22.00	.00	.00	515.55	20.37	516.40	515.84	516.42	8.14	.51	39.72	7.14
*	1674.000	22.00	.00	.00	515.55	62.26	516.96	516.14	517.00	13.25	.90	72.19	17.10
*	1694.000	20.00	.00	.00	515.70	20.37	516.42	516.06	516.45	22.34	.80	25.48	4.31

1480.000	9.72	514.60	.00	.00	.00	12.86	3.38
1480.000	31.36	515.19	.59	-.02	.00	25.39	3.38

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1504.000	9.72	514.59	.00	-.01	.00	12.85	23.20
	1504.000	31.36	515.31	.71	.12	.00	38.89	23.20
*	1507.000	9.72	514.60	.00	.01	.00	15.36	3.38
*	1507.000	31.36	515.34	.74	.04	.00	45.01	3.38
*	1520.000	9.72	514.59	.00	-.02	.00	13.83	13.00
*	1520.000	31.36	515.32	.73	-.02	.00	16.77	13.00
*	1545.000	9.72	515.09	.00	.50	.00	7.67	24.26
*	1545.000	31.36	515.78	.69	.46	.00	45.60	24.26
*	1598.000	9.72	516.00	.00	.91	.00	12.12	53.64
	1598.000	31.36	516.47	.47	.69	.00	40.59	53.64
	1652.000	9.72	516.35	.00	.35	.00	15.79	53.18
*	1652.000	31.36	516.90	.55	.43	.00	54.97	53.18
*	1674.000	20.37	516.40	.00	.06	.00	50.11	22.00
*	1674.000	62.26	516.96	.56	.06	.00	68.60	22.00
*	1694.000	20.37	516.42	.00	.01	.00	40.18	20.00
	1694.000	62.26	516.97	.55	.01	.00	69.38	20.00
*	1703.000	20.37	516.37	.00	-.05	.00	23.39	9.00
*	1703.000	62.26	516.91	.54	-.06	.00	74.06	9.00
*	1715.000	20.37	516.61	.00	.24	.00	34.80	12.00
*	1715.000	62.26	517.28	.68	.37	.00	101.14	12.00
*	1772.000	20.37	517.41	.00	.80	.00	13.39	57.00
	1772.000	62.26	517.74	.33	.46	.00	131.68	57.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1020.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1020.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1060.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1060.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=   1191.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1246.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1246.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1345.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1345.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1422.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1422.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1450.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1467.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1467.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1520.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1520.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1598.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1652.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1674.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1674.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1694.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1703.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1715.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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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    01JUL96    TIME   11:25:35  *                    *          (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
   01JUL96      11:25:35                                                                          PAGE    1


                                                                   THIS RUN EXECUTED 01JUL96    11:25:35
*************************************
 HEC-2 WATER SURFACE PROFILES

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

T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/30/96
T2      ALTERNATIVE 1, WEST CBC CULVERT WITH EXISTING WEST CHANNEL
T3      10-YEAR SUPERCRITICAL FLOW
T4      FILE: A1WESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 1       .01        1                       517.44

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                -1                                    -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

       2     20.37     62.26

       CHANNEL n-VALUE IS WEIGHTED MEAN OF OVERBANK n-VALUES
       AND SUPERCRITICAL STREAMBED VALUES
       OVERBANK n-VALUES ARE UNCHANGED FROM SUBCRITICAL CASE (TYP)
NC    .080      .080      .071       .1        .3
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X1     1772        18     993.95    1009.03        72        56        57
X3       10
GR    517.9    900.00      517.7     923.00    517.42    938.76    516.60    942.86    516.60     943.5
      517.21   945.11     517.26     955.13     517.5    965.61    516.50    969.43    516.55    975.29
GR    517.63   982.11     517.71     993.95     516.3    998.39     516.3   1001.94    516.95    1003.1
GR    517.48  1009.03      517.5    1032.08     517.6   1050.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
   01JUL96      11:25:35                                                                          PAGE    2


NH       6      .080     972.00       .030    975.00      .080    993.00      .030    997.00      .080
NH    1007.0    .060    1040.00

X1     1715        11     970.00    1007.00        14        13        12
X3       10
GR    517.0    935.00      516.7     970.00    515.9    972.00     515.9    975.00     516.2    984.00
GR    515.8    993.00      515.8     997.00    516.1   1001.00     516.1   1003.00     517.1    1007.0
GR    517.3   1040.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     983.00       .030    992.50      .080   1006.50      .060   1060.00

X1     1703         8    980.00    1006.50         9         9         9
X3       10
GR    516.9    935.00      516.7     980.00   515.75    983.00    515.75    992.50     515.9    994.00
GR    516.0   1003.00      516.9    1006.50    517.1   1060.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     966.50       .050    975.00      .030   1003.00      .080   1025.00

X1     1694         8    964.00    1006.40        32        20        20
X3       10
GR    516.7    950.00      516.68    964.00    515.9    966.50     515.9    975.00     515.7    976.00
GR    515.7   1003.00      516.9    1006.40    517.0   1025.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .080     958.00       .050    979.00      .030   1002.48      .080   1020.00

        BIFURCATION SECTION; UPSTREAM LIMIT
X1     1674         8    955.00    1006.40        24        20        22
X3       10
GR    516.6    950.00      516.58    955.00   515.55    958.00    515.55    979.00    515.55    980.00
GR    515.6   1002.48      516.6    1006.40    517.0   1020.00

        FLOW IN WEST CHANNEL (based on subcritical split flow model)

QT       2      9.72       31.36

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NH       3      .080     994.01       .032   1001.83      .080   1034.97

        BIFURCATION SECTION; DOWNSTREAM LIMIT
X1     1652         6    989.93    1005.58        53        54     53.18
       10
GR    516.7    980.00      516.58    989.93   515.42    994.01    515.38   1001.83    516.34   1005.58
GR    516.5   1034.97

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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      3      .080     996.69      .028    1000.26      .080    1029.59

      DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1598       7     991.58    1004.53        53        54     53.64
X3      10                        989.0
GR  516.15    968.00    516.15    987.05    516.12    991.58    514.87    996.69    514.85    1000.26
GR   516.1   1004.53     516.2   1029.59

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NC    .080      .080      .040

      DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1545       8     991.70    1000.82        20        24     24.26
X3      10                        988.0
GR   515.6    967.00    515.54    991.70    514.46    994.00    514.37    998.71    515.31    1000.82
GR   515.5   1012.48    515.46   1022.45    515.53   1033.60


NC    .045      .045      .026

      CHANNEL TRANSITION SECTION
      DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1    1520       8     991.70    1000.82        13        13     13.00
CI    1000    513.88      .032         2         2       -11
X3      10
GR   515.6    967.00    515.54    991.70    514.30    994.00    514.25    998.71    515.31    1000.82
GR   515.5   1012.48    515.46   1022.45    515.53   1033.60


NC    .045      .045      .026        .3        .5

X1    1507       8     987.15    1002.51         3         3      3.38
CI                                                     .01
X3      10
GR  515.51    968.00    515.34    978.30    515.12    987.15    513.62    987.16    513.62    1002.50
GR  515.12   1002.51    515.25   1010.64    515.41   1031.65


NC    .045      .045      .013        .3        .5

      UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
      CULVERT SKEW 25 DEGREES
      (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1    1504      21     987.15    1000.01      23.2      23.2     23.20
X3      10
GR  515.51    968.00    515.34    978.30    515.09    987.15    513.59    987.16    513.59    990.16
GR  515.09    990.16    515.09    990.44    513.59    990.44    513.59    993.44    515.09    993.44
GR  515.09    993.72    513.59    993.72    513.59    996.72    515.09    996.72    515.09    997.00
GR  513.59    997.00    513.59   1000.00    515.09   1000.01    515.08   1003.77    515.25   1010.64
GR  515.41   1031.65

      DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
1
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      CULVERT SKEW 25 DEGREES

X1    1480      21     987.15    1000.01       3.3       3.3      3.38
X2                         0                 515.41
X3      10
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BT      -2     968.00     515.51     514.97    1031.65     515.41     514.97
GR   515.5     968.00     515.44     978.30     514.97     987.15     513.47     987.16     513.47     990.16
GR  514.97     990.16     514.97     990.44     513.47     990.44     513.47     993.44     514.97     993.44
GR  514.97     993.72     513.47     993.72     513.47     996.72     514.97     996.72     514.97     997.00
    513.47     997.00     513.47    1000.00     514.97    1000.01     515.08    1003.77     515.25    1010.64
GR  515.41    1031.65


NC    .045       .045       .013         .1         .3

        DOWNSTREAM END OF OUTLET APRON
X1     1477         10     987.15    1002.51         22         10      13.14
CI       -1     513.45       .032        .01        .01     -15.34
X3       10
GR   515.3     965.00     515.28     978.30     514.95     987.15     513.45     987.16     513.45    1002.50
GR  514.95    1002.51      515.0    1005.82     514.96    1024.05     514.73    1027.39     514.89    1030.38


NC    .080       .080       .040

        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1     1467          9     965.75    1006.87       23.2       23.2      23.20
CI     1000     513.40       .032          2          2        -11
X3       10
GR  514.94     965.75     514.74     991.48      514.0     997.60     513.84     998.92      513.4     999.00
GR  513.39    1001.52      513.9    1003.30      515.0    1006.87      515.1    1022.3


X1     1450          9     991.48    1006.87         29         28      28.09
CI                                                            .01
X3       10
    514.94     965.75     514.74     991.48      513.9     997.60     513.74     998.92      513.3     999.00
GR   513.3    1001.52      513.8    1003.30      515.0    1006.87      515.1    1022.3
 ***************************************************


        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4       .060     985.66       .080     996.28       .033     999.49       .080    1025.59

X1     1422          8     985.66    1002.43         69         85      77.06
X3       10
GR   514.5     950.00     514.14     969.33     514.12     985.66     513.14     996.28     513.18     999.49
GR   514.1    1001.27      514.7    1002.43     514.81    1025.59

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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NH       4       .060     988.37       .080     996.03       .033    1006.19       .060    1027.15

X1     1345         11     986.22    1007.90         60         49        54
X3       10
GR   514.1     950.00     513.95     974.18     513.93     986.22     513.16     988.37     512.95     994.56
GR   513.1     996.03     512.72    1000.55     512.61    1006.19      513.1    1006.79     514.00    1007.90
GR  514.23    1027.15

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       5       .060     996.07       .080     999.11       .043    1002.81       .080    1012.47       .060
NH  1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
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X1     1291        7     996.07    1007.14        39        49     44.03
X3       10
GR   513.33   987.59     513.18     996.07    512.06    999.11    511.90   1002.81     513.4   1007.14
GR   514.05  1012.47     514.23     1038.2

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4     .060     992.06       .080    998.48      .043   1002.02      .060   1032.48

X1     1246        8     992.06    1005.06        56        55     55.38
X3       10
GR    513.2  950.00     513.01     958.67    513.12    965.78    513.18    992.06    511.57    998.48
GR    511.4 1002.02     513.85    1005.06     513.9   1032.48

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4     .060     994.25       .080    998.82      .028   1003.39      .060   1010.00

X1     1191       10     994.25    1006.67        42        35     37.24
X3       10
GR   512.72  983.92     512.65     989.13    512.33    994.25    511.00    998.82    510.98    998.89
GR    510.9 1003.19     511.00    1003.39    512.01   1005.44    513.14   1006.67     513.2   1010.00

        CONFLUENCE WITH EAST CHANNEL

QT        2   20.37      62.26

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NH        4     .060     979.44       .080    992.04      .035   1003.63      .080   1021.00


X1     1154        9     979.44    1016.60        94        93     93.71
       10
GR    512.7  950.00     512.58     979.44    511.55    987.29    510.76    992.04    510.71   1003.63
GR    510.7 1005.90     510.73    1008.00    512.90   1016.60    513.00   1021.00

        SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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NH        5     .060     986.43       .100    994.11      .030   1003.49      .030   1007.33      .040
NH   1011.0

X1     1060        9     986.43    1007.33        16        18     30.57
X3       10
GR    512.5  915.00     511.55     966.98     511.5   978.97    512.14    986.43    510.02    994.11
GR    510.2 1003.49     511.50    1005.35    512.88   1007.33     512.9    1011.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        5     .060      985.4       .100     988.0      .030    1001.3      .025    1005.3      .040
NH     1013

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1030       11      978.0     1009.8      16.8       7.6      10.0
X3       10
       512.2    950.0      511.9      978.0     511.5     985.4     510.8     988.0     510.8     994.6
GR     509.9    996.7      509.9     1000.0     509.9    1001.3     512.1    1005.3     512.9    1009.8
GR     512.9   1013.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
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NH       3      .100      967.2      .030     1005.9      .025     1009.0

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
       1020        11      982.4    1007.7       35.1       0.9       19.8
X3       10
GR    512.4     961.1      511.5     964.1      510.8     967.2      510.9     982.4      510.2     994.6
GR    509.8     997.6      509.9    1001.3      509.8    1003.7      510.8    1005.9      513.5    1007.7
GR    513.5    1009.0

         SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .025      .025      .030        .3        .5

         UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
         NEGLECT SKEW OF 10 DEGREES

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1000        14      981.7    1024.3        5.5       5.5        5.5
X3       10
GR    513.1     981.1      511.6     981.7      511.5     981.7      511.1     984.7      510.0     987.8
GR    509.6     990.2      509.7     998.7      509.9    1007.3      510.2    1015.8      510.0    1020.4
GR    511.5    1023.7      511.5    1024.3      511.9    1024.3      513.5    1024.3

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SB    1.05       1.6       1.66                  17.1       1.2       68.1       5.4      509.5     509.6

         DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
         NEGLECT SKEW OF 10 DEGREES
         SECTION FROM PREVIOUS SURVEY, US60 (1994)

X1      995        14      981.4    1024.7       10.7      35.7       22.9
X2                            1     511.9      513.1
X3       10
BT       -2     981.4      513.1     511.6     1024.3     513.5      511.9
GR    513.1     981.4      511.6     981.7      511.5     981.7      511.1     984.7      509.9     987.8
GR    509.5     990.2      509.7     998.7      509.8    1007.3      510.2    1015.8      510.0    1020.4
GR    511.5    1023.7      511.5    1024.3      511.9    1024.3      513.5    1024.7

         SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .100      .050      .030        .1        .3

         SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1      971         7      988.2    1015.3         24        24         24
X3       10
GR    511.8     982.1      511.8     988.2      509.4     991.9      509.6    1000.4      509.7    1009.5
GR    511.4    1015.3      511.5    1023.5
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
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CCHV=     .100 CEHV=     .300
*SECNO 1772.000
7230 SLOPE-AREA TRIALS EXCEED 100
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.12    517.42    517.42    517.44    517.74       .32       .00       .00    517.71
      20.4        .0      20.4        .0        .0       8.2        .0        .0        .0    517.48
       .00       .00      2.49       .00      .000      .071      .000      .000    516.30    994.85
   .063758        0.        0.        0.         0         8       101       .00     13.56   1008.41


FLOW DISTRIBUTION FOR SECNO=   1772.00         CWSEL=    517.42

STA=     995.    1009.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1715.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .53    516.33    516.33       .00    516.50       .17      2.54      1.54    516.70
      20.4        .0      20.4        .0        .0      11.1        .0        .5       1.3    517.10
       .01       .00      1.84       .00      .000      .047      .000      .000    515.80    970.94
   .032866       72.       57.       56.        20        14         0       .00     32.97   1003.90


FLOW DISTRIBUTION FOR SECNO=   1715.00         CWSEL=    516.33

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


STA=     971.     972.     975.     993.     997.    1007.
  PER Q=       .9     21.4     27.0     40.6     10.2
   AREA=       .2      1.3      5.4      2.1      2.1
    VEL=       .8      3.4      1.0      3.9      1.0
  DEPTH=       .2       .4       .3       .5       .3

1490 NH CARD USED
*SECNO 1703.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      516.90

  1703.000       .55    516.30    516.30       .00    516.52       .22       .30       .18    516.70
      20.4        .0      20.4        .0        .0       9.8        .0        .7       1.7    516.90
       .01       .00      2.07       .00      .000      .038      .000      .000    515.75    981.25
   .019428       14.       12.       13.        20         8         0       .00     22.93   1004.18
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FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.30

STA=     981.     983.     993.    1007.
  PER Q=      1.7     81.0     17.3
   AREA=       .5      5.3      4.1
    VEL=       .7      3.1       .9
  DEPTH=       .3       .6       .3

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .28    515.98    516.06       .00    516.25       .27       .27       .01    516.68
      20.4        .0      20.4        .0        .0      8.8        .0        .8       1.9    516.90
       .01       .00      2.30       .00      .000      .037      .000      .000    515.70    966.22
   .049860        9.        9.        9.         5        14         0       .00     37.60   1003.82


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

FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    515.98

STA=     966.    1006.
  PER Q=    100.0
   AREA=      8.8
    VEL=      2.3
  DEPTH=       .2

1490 NH CARD USED
*SECNO 1674.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60

  1674.000       .29    515.84    515.84       .00    515.97       .14       .72       .33    516.58
      20.4        .0      20.4        .0        .0      12.5        .0       1.0       2.8    516.60
       .01       .00      1.63       .00      .000      .042      .000      .000    515.55    957.16
   .026892       32.       20.       20.        20         5         0       .00     46.25   1003.41


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    515.84

STA=     957.    1006.
  PER Q=    100.0
   AREA=     12.5
    VEL=      1.6
  DEPTH=       .3

1490 NH CARD USED
*SECNO 1652.000
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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.34

1652.000	.51	515.89	515.89	.00	516.10	.21	.64	.15	516.58
9.7	.0	9.7	.0	.0	4.8	.0	1.2	3.4	516.34
.02	.00	2.03	.00	.000	.050	.000	.000	515.38	992.34
.034123	24.	22.	20.	20	14	0	.00	11.50	1003.84

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

FLOW DISTRIBUTION FOR SECNO= 1652.00 CWSEL= 515.89

STA= 992. 1006.
PER Q= 100.0
AREA= 4.8
VEL= 2.0
DEPTH= .4

1490 NH CARD USED
*SECNO 1598.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 989.0 1029.6 TYPE= 1 TARGET= -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.12 ELREA= 516.10

1598.000	.72	515.57	515.57	.00	515.82	.25	2.18	.80	516.12
9.7	.0	9.7	.0	.0	4.4	.0	1.4	3.9	516.10
.02	.00	2.21	.00	.000	.062	.000	.000	514.85	993.84
.049927	53.	53.	54.	20	11	0	.00	8.86	1002.71

FLOW DISTRIBUTION FOR SECNO= 1598.00 CWSEL= 515.57

STA= 994. 1005.
PER Q= 100.0
AREA= 4.4
VEL= 2.2
DEPTH= .5

*SECNO 1545.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 988.0 1033.6 TYPE= 1 TARGET= -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.54 ELREA= 515.31

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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

  1545.000       .72     515.09     515.09       .00     515.36       .27       1.63       .89     515.54
      9.7        .0        9.7        .0        .0        4.2        .0        1.6       4.4     515.31
      .03       .00       2.32       .00      .000       .040      .000       .000    514.37     992.66
   .020395      53.        54.        54.        20         5         0        .00      7.67    1000.33

 FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.09

 STA=     993.    1001.
   PER Q=    100.0
    AREA=      4.2
     VEL=      2.3
   DEPTH=       .5

 *SECNO 1520.000
 CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
 EXCAVATION DATA
 AEX=      13.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000       .28     514.16     514.30       .00     514.60       .44       .75       .02     515.54
      9.7        .0        9.7        .0        .0        3.3        .0        1.7       4.6     515.44
      .03       .00       2.95       .00      .000       .032      .000       .000    513.88     993.93
   .051439      20.        24.        24.         5        11         0        .00     12.14    1006.07

 FLOW DISTRIBUTION FOR SECNO=   1520.00          CWSEL=    514.16

 STA=     994.    1009.
   PER Q=    100.0
    AREA=      3.3
     VEL=      2.9
   DEPTH=       .3

 CCHV=     .300 CEHV=     .500
1
   01JUL96      11:25:35                                                                                    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 1507.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000       .31     513.93     513.96       .00     514.16       .23       .34       .11     515.12
      9.7        .0        9.7        .0        .0        4.6        .0        1.8       4.8     515.12
```

```
      .03       .00      2.11       .00      .000      .026      .000      .000    513.62    987.16
   .015681       13.       13.       13.         3        11         0       .00     15.34   1002.50


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    513.93

STA=     987.    1003.
  PER Q=    100.0
   AREA=      4.6
    VEL=      2.1
  DEPTH=       .3

CCHV=     .300 CEHV=     .500
*SECNO 1504.000

3265 DIVIDED FLOW

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .40    513.99    513.99       .00    514.20       .20       .02       .01    515.09
      9.7        .0       9.7        .0        .0       4.9        .0       1.8       4.9    515.09
       .04       .00      2.00       .00      .000      .013      .000      .000    513.59    987.16
   .003118        3.        3.        3.        20        11         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    513.99

STA=     987.    1000.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .4

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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 1480.000
3840 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   513.966        4

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=   565.409

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=999999.000

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00
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7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .52    513.99 999999.00       .00    514.11       .12       .05       .04    514.97
       9.7        .0       9.7        .0        .0       6.2        .0       1.9       5.1    514.97
       .04       .00      1.56       .00      .000      .013      .000      .000    513.47    987.16
   .001457       23.       23.       23.         2        81         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1480.00         CWSEL=    513.99

STA=     987.    1000.
  PER Q=    100.0
   AREA=      6.2
    VEL=      1.6
  DEPTH=       .5

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
1
   01JUL96      11:25:35                                                                                    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


EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .22    513.67    513.79       .00    514.07       .40       .01       .03    514.95
       9.7        .0       9.7        .0        .0       3.5        .0       1.9       5.2    514.95
       .04       .00      2.80       .00      .000      .032      .000      .000    513.45    987.16
   .060608        3.        3.        3.         5        14         0       .00     15.34   1002.50


FLOW DISTRIBUTION FOR SECNO=   1477.00         CWSEL=    513.67

STA=     987.    1003.
  PER Q=    100.0
   AREA=      3.5
    VEL=      2.8
  DEPTH=       .2

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .1 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.94 ELREA=      515.01

  1467.000       .42    513.82    513.82       .00    514.01       .20       .34       .22    514.94
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```
      9.7       .0       9.7       .0       .0       4.9       .0       2.0       5.4    515.01
      .04       .00      1.96      .00      .000     .032      .000     .000    513.40    993.66
   .014141     22.       13.       10.       20       14        0       .00      12.67   1006.34


FLOW DISTRIBUTION FOR SECNO=   1467.00          CWSEL=    513.82

1
   01JUL96      11:25:35                                                                          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


STA=     994.    1009.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .4

*SECNO 1450.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.74 ELREA=       515.00

  1450.000      .88    514.18    514.18      .00    514.43      .25       .33       .18    514.74
      9.7       .0       9.7       .0       .0       4.4       .0       2.1       5.6    515.00
      .04       .00      2.22      .00      .000     .032      .000     .000    513.30    995.56
   .014047     23.       23.       23.       20       17        0       .00       8.88   1004.43


FLOW DISTRIBUTION FOR SECNO=   1450.00          CWSEL=    514.18

STA=     996.    1007.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1422.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.12 ELREA=       514.70

  1422.000      .66    513.80    513.80      .00    514.01      .21       .73       .22    514.12
      9.7       .0       9.7       .0       .0       4.8       .0       2.2       5.9    514.70
      .05       .00      2.03      .00      .000     .069      .000     .000    513.14    989.12
   .064487     29.       28.       28.       20       15        0       .00      11.57   1000.69


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   01JUL96      11:25:35                                                                          PAGE   17


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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```
FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    513.80

STA=     989.    1001.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.0
  DEPTH=       .4

1490 NH CARD USED
*SECNO 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .58    513.19    513.19       .00    513.35       .16      4.30      2.80    513.93
      9.7        .0       9.7        .0        .0       5.6        .0       2.6       7.1    514.00
       .06       .00      1.75       .00      .000      .056      .000      .000    512.61    988.28
   .048758       69.       77.       85.        20        15         0       .00     18.62   1006.90


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    513.19

STA=     988.    1008.
  PER Q=    100.0
   AREA=      5.6
    VEL=      1.7
  DEPTH=       .3

1490 NH CARD USED
*SECNO 1291.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.40

  1291.000       .81    512.71    512.71       .00    512.98       .27      2.73      1.21    513.18
      9.7        .0       9.7        .0        .0       4.2        .0       2.9       7.8    513.40
       .07       .00      2.31       .00      .000      .064      .000      .000    511.90    997.35
   .052472       60.       54.       49.        20        11         0       .00      7.79   1005.14


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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


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    512.71

STA=     997.    1007.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1246.000
```

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

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.18 ELREA= 513.85

1246.000	.85	512.25	512.25	.00	512.54	.29	2.20	.98	513.18
9.7	.0	9.7	.0	.0	4.1	.0	3.1	8.1	513.85
.07	.00	2.37	.00	.000	.061	.000	.000	511.40	995.75
.047786	39.	44.	49.	20	8	0	.00	7.33	1003.08

FLOW DISTRIBUTION FOR SECNO= 1246.00 CWSEL= 512.25

STA= 996. 1005.
PER Q= 100.0
AREA= 4.1
VEL= 2.4
DEPTH= .6

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.33 ELREA= 513.14

1191.000	.73	511.63	511.63	.00	511.90	.27	2.16	.89	512.33
9.7	.0	9.7	.0	.0	4.3	.0	3.3	8.5	513.14
.08	.00	2.29	.00	.000	.050	.000	.000	510.90	996.65
.032315	56.	55.	55.	20	11	0	.00	8.03	1004.67

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

FLOW DISTRIBUTION FOR SECNO= 1191.00 CWSEL= 511.63

STA= 997. 1005.
PER Q= 100.0
AREA= 4.3
VEL= 2.3
DEPTH= .5

1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.58 ELREA= 512.90

154.000	.55	511.25	511.25	.00	511.48	.23	1.45	.75	512.58
20.4	.0	20.4	.0	.0	9.6	.0	3.6	9.1	512.90
.08	.00	2.13	.00	.000	.057	.000	.000	510.70	989.10
.042858	42.	37.	35.	20	15	0	.00	20.96	1010.06

```
FLOW DISTRIBUTION FOR SECNO=   1154.00          CWSEL=    511.25

STA=     989.    1017.
  PER Q=    100.0
   AREA=      9.6
    VEL=      2.1
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000       .81    510.83    510.83       .00    511.14       .31      3.30      1.48    512.14
      20.4        .0      20.4        .0        .0       8.2        .0       4.4      10.7    512.88
       .09       .00      2.47       .00      .000      .050      .000      .000    510.02    991.17
   .029478       94.       94.       93.        20        11         0       .00     13.22   1004.39


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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


FLOW DISTRIBUTION FOR SECNO=   1060.00          CWSEL=    510.83

STA=     991.    1005.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.09    510.99    510.99       .00    511.27       .28       .61       .25    511.90
      20.4        .0      20.4        .0        .0       8.7        .0       4.7      11.1    512.90
       .10       .00      2.34       .00      .000      .034      .000      .000    509.90    987.31
   .014495       16.       31.       18.        20        11         0       .00     15.97   1003.28


FLOW DISTRIBUTION FOR SECNO=   1030.00          CWSEL=    510.99

STA=     987.    1005.
  PER Q=    100.0
   AREA=      8.7
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1020.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      513.50

 1020.000      .64    510.44    510.64      .00    511.02      .58      .21      .03    510.90
     20.4       .0      20.4       .0       .0       6.0       .0      4.7     11.3    513.50
      .10      .00      3.37      .00     .000      .030     .000     .000   509.80    990.22
  .034683      17.       10.       8.        5        11        0      .00    14.92   1005.13


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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

FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    510.44

STA=     990.    1006.
  PER Q=    100.0
   AREA=      6.0
    VEL=      3.4
  DEPTH=       .4

CCHV=     .300 CEHV=     .500
*SECNO 1000.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000      .58    510.18    510.21      .00    510.38      .20      .45      .19    511.60
     20.4       .0      20.4       .0       .0      10.4       .0      4.9     11.8    513.50
      .10      .00      1.96      .00     .000      .030     .000     .000   509.60    987.28
  .016113      35.       20.       1.        2        11        0      .00    32.69   1020.80


FLOW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    510.18

STA=     987.    1024.
  PER Q=    100.0
   AREA=     10.4
    VEL=      2.0
  DEPTH=       .3


SPECIAL BRIDGE


5470 ERROR DS DEPTH WRONG SIDE CRITICAL        .50       .66       1       3
1
   01JUL96      11:25:35                                                                          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
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```
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.60      1.66      .00       17.10     1.20      68.10     5.40      509.50    509.60

*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

CLASS C LOW FLOW

3420 BRIDGE W.S.=     510.21 BRIDGE VELOCITY=       1.49     CALCULATED CHANNEL AREA=        14.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
      .00    510.36      .00        0.       20.       68.       69.     511.90    513.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000      .76    510.26       .00       .00    510.36       .10       .02       .00    513.10
      20.4       .0      20.4        .0        .0      14.6        .0       5.0      11.9    513.50
       .10      .00      1.40       .00      .000      .030      .000      .000    509.50    986.87
   .005526       6.        6.        6.         0         0         0       .00     34.11   1020.97


FLOW DISTRIBUTION FOR SECNO=    995.00         CWSEL=    510.26

STA=     987.    1025.
  PER Q=    100.0
   AREA=     14.6
    VEL=      1.4
  DEPTH=       .4

CCHV=     .100 CEHV=     .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      .68    510.08    510.08       .00    510.32       .24       .18       .12    511.80
      20.4       .0      20.4        .0        .0       9.4        .0       5.2      12.6    511.40
       .11      .00      2.17       .00      .000      .030      .000      .000    509.40    990.86
   .011718      11.       23.       36.        20        11         0       .00     19.93   1010.79


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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


FLOW DISTRIBUTION FOR SECNO=    971.00         CWSEL=    510.08

STA=     991.    1015.
  PER Q=    100.0
   AREA=      9.4
    VEL=      2.2
  DEPTH=       .5
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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      ALTERNATIVE 1, WEST CBC CULVERT WITH EXISTING WEST CHANNEL
T3      100-YEAR SUPERCRITICAL FLOW
T4      FILE: A1WESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                  1      .01        1                    517.73

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                  -1                         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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
3280 CROSS SECTION   1772.00 EXTENDED       .12 METERS

3720 CRITICAL DEPTH ASSUMED
  1772.000      1.42    517.72    517.72    517.73    517.81       .09       .00       .00    517.71
      62.3      37.5      20.0       4.8      30.6      12.5       8.4        .0        .0    517.48
       .00      1.23      1.60       .57      .080      .071      .080      .000    516.30    920.68
   .017169        0.        0.        0.         0         8         5       .00    129.32   1050.00


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.72

STA=     921.     943.     945.     955.     966.     969.     975.     982.     994.    1009.    1032.    1050.
  PER Q=      8.0      4.9      7.9      4.6      5.7     20.8      8.2       .2     32.0      5.2      2.5
   AREA=      5.5      2.0      4.9      3.6      2.8      7.0      4.3       .6     12.5      5.3      3.1
    VEL=       .9      1.5      1.0       .8      1.3      1.8      1.2       .2      1.6       .6       .5
  DEPTH=       .2       .9       .5       .3       .7      1.2       .6       .1       .8       .2       .2

1490 NH CARD USED
*SECNO 1715.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3685 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .90    516.70    516.70       .00    517.05       .35      1.79       .20    516.70
      62.3        .0      62.3        .0        .0      23.9        .0       2.4       5.2    517.10
       .01       .00      2.61       .00      .000      .072      .000      .000    515.80    969.95
   .059610       72.       57.       56.        20        14         0       .00     35.45   1005.40
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FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.70

STA=     970.    1007.
  PER Q=    100.0
   AREA=     23.9
    VEL=      2.6
  DEPTH=       .7
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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

1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION   1703.00 EXTENDED       .00 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1703.000      1.15    516.90    516.90       .00    517.19       .29       .47       .02    516.70
      62.3       2.0      60.2        .0       4.5      24.7        .0       2.7       5.9    516.90
       .01       .45      2.44       .00      .080      .065      .000      .000    515.75    935.00
   .027596       14.       12.       13.        20        11         0       .00     71.78   1006.78

FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.90

STA=     935.     980.    1007.
  PER Q=      3.3     96.7
   AREA=      4.5     24.7
    VEL=       .5      2.4
  DEPTH=       .1       .9

1490 NH CARD USED
*SECNO 1694.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .53    516.23    516.40       .00    516.83       .61       .33       .03    516.68
      62.3        .0      62.3        .0        .0      18.1        .0       2.9       6.4    516.90
       .01       .00      3.45       .00      .000      .039      .000      .000    515.70    965.45
   .050760        9.        9.        9.         5        14         0       .00     39.05   1004.50

FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    516.23

STA=     965.    1006.
  PER Q=    100.0
   AREA=     18.1
    VEL=      3.4
  DEPTH=       .5
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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

0 NH CARD USED
*SECNO 1674.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.60

1674.000	.59	516.14	516.14	.00	516.42	.28	.67	.38	516.58
62.3	.0	62.3	.0	.0	26.6	.0	3.4	7.3	516.60
.01	.00	2.34	.00	.000	.044	.000	.000	515.55	956.29
.023457	32.	20.	20.	20	8	0	.00	48.30	1004.59

FLOW DISTRIBUTION FOR SECNO= 1674.00 CWSEL= 516.14

STA=	956.	1006.
PER Q=	100.0	
AREA=	26.6	
VEL=	2.3	
DEPTH=	.6	

1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION 1652.00 EXTENDED .01 METERS

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.34

1652.000	1.13	516.51	516.51	.00	516.77	.26	.51	.17	516.58
31.4	.0	30.3	1.0	.0	13.2	2.7	3.8	8.3	516.34
.01	.00	2.29	.38	.000	.059	.080	.000	515.38	990.17
.022727	24.	22.	20.	20	17	0	.00	44.80	1034.97

FLOW DISTRIBUTION FOR SECNO= 1652.00 CWSEL= 516.51

STA=	990.	1006.	1035.
PER Q=	96.8	3.2	
AREA=	13.2	2.7	
VEL=	2.3	.4	
DEPTH=	.9	.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

0 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION 1598.00 EXTENDED .09 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY

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3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
  1598.000      1.44    516.29    516.29       .00    516.54       .25      1.29       .81    516.12
      31.4        .3      29.1       2.0        .4      12.7       3.6       4.7      10.6    516.10
       .02       .58      2.29       .55      .080      .068      .080      .000    514.85    989.00
   .025872       53.       53.       54.        20        15         0       .00     40.59   1029.59


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.29

STA=     989.     992.    1005.    1030.
  PER Q=       .8     92.8      6.4
   AREA=       .4     12.7      3.6
    VEL=       .6      2.3       .6
  DEPTH=       .2      1.0       .1

*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .24 METERS

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

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.40    515.77    515.77       .00    516.03       .26       .79       .80    515.54
      31.4        .4      25.4       5.6        .8      10.1      10.1       5.7      12.9    515.31
       .03       .43      2.52       .56      .080      .040      .080      .000    514.37    988.00
   .009448       53.       54.       54.        20        11         0       .00     45.60   1033.60


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.77

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      1.1     80.9      8.3      4.8      4.8
   AREA=       .8     10.1      4.2      2.9      3.0
    VEL=       .4      2.5       .6       .5       .5
  DEPTH=       .2      1.1       .4       .3       .3
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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 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.34


3395 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000       .57    514.45    514.76       .00    515.50      1.05       .45       .08    515.54
      31.4        .0      31.4        .0        .0       6.9        .0       6.0      13.6    515.44
       .03       .00      4.54       .00      .000      .032      .000      .000    513.88    993.36
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   .051868      20.      24.      24.       6       14        0      .00     13.28   1006.64

FLOW DISTRIBUTION FOR SECNO=   1520.00         CWSEL=    514.45

STA=     993.    1009.
  PER Q=    100.0
   AREA=      6.9
    VEL=      4.5
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 1507.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000       .53    514.15    514.37       .00    514.90       .74       .45       .15    515.12
      31.4        .0      31.4        .0        .0       8.2        .0       6.1      13.8    515.12
       .03       .00      3.82       .00      .000      .026      .000      .000    513.62    987.16
   .024913       13.       13.       13.         5        11         0       .00     15.35   1002.50


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

FLOW DISTRIBUTION FOR SECNO=   1507.00         CWSEL=    514.15

STA=     987.    1003.
  PER Q=    100.0
   AREA=      8.2
    VEL=      3.8
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 1504.000

3265 DIVIDED FLOW

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .88    514.47    514.47       .00    514.92       .45       .02       .02    515.09
      31.4        .0      31.4        .0        .0      10.6        .0       6.2      13.8    515.09
       .03       .00      2.96       .00      .000      .013      .000      .000    513.59    987.15
   .003246        3.        3.        3.        20        14         0       .00     12.01   1000.01


W DISTRIBUTION FOR SECNO=   1504.00         CWSEL=    514.47

STA=     987.    1000.
  PER Q=    100.0
   AREA=     10.6
    VEL=      3.0
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  DEPTH=       .9

*SECNO 1480.000
3840 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   514.238        4

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=   565.409

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82
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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


4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=999999.000

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .98    514.45 999999.00       .00    514.81       .36       .06       .04    514.97
      31.4        .0      31.4        .0        .0      11.8        .0       6.4      14.1    514.97
       .03       .00      2.65       .00      .000      .013      .000      .000    513.47    987.15
   .002371       23.       23.       23.         2        81         0       .00     12.01   1000.01


FLOW DISTRIBUTION FOR SECNO=   1480.00         CWSEL=    514.45

STA=     987.    1000.
  PER Q=    100.0
   AREA=     11.8
    VEL=      2.6
  DEPTH=      1.0

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.14


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .52    513.97    514.20       .00    514.75       .78       .02       .04    514.95
      31.4        .0      31.4        .0        .0       8.0        .0       6.5      14.2    514.95
       .03       .00      3.91       .00      .000      .032      .000      .000    513.45    987.15
   .040569        3.        3.        3.         5        15         0       .00     15.35   1002.51


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

FLOW DISTRIBUTION FOR SECNO= 1477.00 CWSEL= 513.97

STA= 987. 1003.
PER Q= 100.0
AREA= 8.0
VEL= 3.9
DEPTH= .5

*SECNO 1467.000
CHIMP CLSTA= 1000.00 CELCH= 513.40 BW= 11.00 STCHL= 965.75 STCHR= 1008.72
EXCAVATION DATA
AEX= 6.3 SQ-METER VEXR= .0 K*CU-METER VEXT= .1 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.94 ELREA= 515.01

1467.000	.88	514.28	514.28	.00	514.68	.39	.26	.19	514.94
31.4	.0	31.4	.0	.0	11.3	.0	6.6	14.3	515.01
.03	.00	2.78	.00	.000	.032	.000	.000	513.40	992.73
.011495	22.	13.	10.	20	14	0	.00	14.54	1007.27

FLOW DISTRIBUTION FOR SECNO= 1467.00 CWSEL= 514.28

STA= 993. 1009.
PER Q= 100.0
AREA= 11.3
VEL= 2.8
DEPTH= .8

*SECNO 1450.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.74 ELREA= 515.00

1450.000	1.47	514.77	514.77	.00	515.16	.39	.27	.18	514.74
31.4	.0	31.4	.0	.1	11.4	.0	6.9	14.7	515.00
.04	.01	2.76	.00	.080	.032	.000	.000	513.30	987.77
.011650	23.	23.	23.	20	14	0	.00	18.41	1006.18

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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

FLOW DISTRIBUTION FOR SECNO= 1450.00 CWSEL= 514.77

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STA=     988.     991.    1007.
  PER Q=       .0    100.0
   AREA=       .1     11.4
    VEL=       .0      2.8
  DEPTH=       .0       .8

1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.16    514.30    514.34       .00    514.55       .25       .57       .04    514.12
      31.4       3.4      28.0        .0       3.5      12.0        .0       7.2      15.6    514.70
       .04       .97      2.33       .00      .060      .072      .000      .000    513.14    960.74
   .042723       29.       28.       28.         2        15         0       .00     40.91   1001.66


FLOW DISTRIBUTION FOR SECNO=   1422.00         CWSEL=    514.30

STA=     961.     969.     986.    1002.
  PER Q=      1.4      9.4     89.2
   AREA=       .7      2.8     12.0
    VEL=       .6      1.1      2.3
  DEPTH=       .1       .2       .7

1490 NH CARD USED
*SECNO 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
[illegible]20 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .94    513.55    513.55       .00    513.87       .32      3.10      1.76    513.93
      31.4        .0      31.4        .0        .0      12.5        .0       8.3      17.8    514.00
       .05       .00      2.50       .00      .000      .056      .000      .000    512.61    987.27
   .038312       69.       77.       85.        20        15         0       .00     20.07   1007.35


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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


FLOW DISTRIBUTION FOR SECNO=   1345.00         CWSEL=    513.55

STA=     987.    1008.
  PER Q=    100.0
   AREA=     12.5
    VEL=      2.5
  DEPTH=       .6

[illegible]0 NH CARD USED
[illegible]ECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .09 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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3720 CRITICAL DEPTH ASSUMED
  1291.000      1.52    513.42    513.42       .00    513.78       .36      2.04      1.14    513.18
      31.4       1.3      30.0        .0       1.4      11.1        .0       9.0      18.9    513.40
       .05       .95      2.71       .02      .060      .069      .000      .000    511.90    987.59
   .037089       60.       54.       49.        20        14         0       .00     19.71   1007.30


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    513.42

STA=     988.     996.    1007.    1007.
  PER Q=      4.2     95.8       .0
   AREA=      1.4     11.1       .0
    VEL=      1.0      2.7       .0
  DEPTH=       .2      1.0       .0

1490 NH CARD USED
*SECNO 1246.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.18 ELREA=       513.85

  1246.000      1.53    512.93    512.93       .00    513.41       .48      1.83       .80    513.18
      31.4        .0      31.4        .0        .0      10.3        .0       9.5      19.6    513.85
       .06       .00      3.06       .00      .000      .065      .000      .000    511.40    993.06
   .047140       39.       44.       49.        20         5         0       .00     10.86   1003.92


1
  01JUL96      11:25:35                                                                          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


FLOW DISTRIBUTION FOR SECNO=   1246.00          CWSEL=    512.93

STA=     993.    1005.
  PER Q=    100.0
   AREA=     10.3
    VEL=      3.1
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.33 ELREA=       513.14

  1191.000      1.36    512.26    512.26       .00    512.73       .47      2.27      1.03    512.33
      31.4        .0      31.4        .0        .0      10.4        .0      10.0      20.2    513.14
       .06       .00      3.03       .00      .000      .058      .000      .000    510.90    994.48
   .036053       56.       55.       55.        20        11         0       .00     11.23   1005.71


FLOW DISTRIBUTION FOR SECNO=   1191.00          CWSEL=    512.26

STA=     994.    1007.
  PER Q=    100.0
   AREA=     10.4
```

```
    VEL=      3.0
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.06    511.76    511.76       .00    512.18       .42       .88       .68    512.58
      62.3        .0      62.3        .0        .0      21.7        .0      10.6      20.9    512.90
       .07       .00      2.86       .00      .000      .043      .000      .000    510.70    985.65
   .019792       42.       37.       35.        20        15         0       .00     26.45   1012.10


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  01JUL96      11:25:35                                                                                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


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.76

STA=     986.     992.    1004.    1017.
  PER Q=      5.3     78.6     16.1
   AREA=      3.1     11.9      6.7
    VEL=      1.1      4.1      1.5
  DEPTH=       .5      1.0       .8

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      1.51    511.53    511.53       .00    512.09       .56      2.36       .78    512.14
      62.3        .0      62.3        .0        .0      18.7        .0      12.5      22.9    512.88
       .07       .00      3.32       .00      .000      .058      .000      .000    510.02    988.63
   .033146       94.       94.       93.        20        11         0       .00     16.76   1005.40


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    511.53

STA=     989.    1007.
  PER Q=    100.0
   AREA=     18.7
    VEL=      3.3
  DEPTH=      1.1

1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.74    511.64    511.64       .00    512.11       .47       .78       .44    511.90
```

```
     62.3       .0      62.3       .0       .0      20.4       .0      13.1      23.5    512.90
      .08      .00      3.04      .00     .000      .044     .000      .000    509.90    982.82
  .020349      16.       31.       18.       20         8        0       .00     21.64   1004.46
```



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

FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    511.64

STA=     983.    1005.
  PER Q=    100.0
   AREA=     20.4
    VEL=      3.0
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1020.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      513.50

  1020.000     1.09    510.89    511.17       .00    511.82       .93       .25       .05    510.90
     62.3       .0      62.3       .0       .0      14.6        .0      13.3      23.7    513.50
      .08      .00      4.26      .00     .000      .030     .000      .000    509.80    982.47
  .031369      17.       10.        8.        6        19        0       .00     23.49   1005.96

FLOW DISTRIBUTION FOR SECNO=   1020.00         CWSEL=    510.89

STA=     982.    1008.
  PER Q=    100.0
   AREA=     14.6
    VEL=      4.3
  DEPTH=       .6

CCHV=     .300 CEHV=     .500
*SECNO 1000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000      .76    510.36    510.58       .00    511.07       .70       .64       .11    511.60
     62.3       .0      62.3       .0       .0      16.7        .0      13.6      24.3    513.50
      .08      .00      3.72      .00     .000      .030     .000      .000    509.60    986.75
  .032889      35.       20.        1.        3        11        0       .00     34.46   1021.22

FLOW DISTRIBUTION FOR SECNO=   1000.00         CWSEL=    510.36
```



```
   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

STA=     987.    1024.
```

```
  PER Q=    100.0
   AREA=     16.7
    VEL=      3.7
  DEPTH=       .5

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS     510.73 ,NOT     510.36 NEW BACKWATER REQUIRED

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.60      1.66       .00     17.10      1.20     68.10      5.40    509.50    509.60

*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

CLASS B LOW FLOW

3420 BRIDGE W.S.=     510.58 BRIDGE VELOCITY=       2.83     CALCULATED CHANNEL AREA=        23.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC     ELTRD     WEIRLN
                                                                 AREA
       .00    510.89      .00        0.       62.       68.       69.      511.90    513.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.10 ELREA=       513.50

   995.000       .95    510.45       .00       .00    510.89       .44       .18       .00    513.10
      62.3        .0      62.3        .0        .0      21.1        .0      13.7      24.5    513.50
       .08       .00      2.95       .00      .000      .030      .000      .000    509.50    986.38
   .015565        6.        6.        6.         0         0         0       .00     35.01   1021.39


FLOW DISTRIBUTION FOR SECNO=    995.00          CWSEL=    510.45

STA=     986.    1025.
  PER Q=    100.0
   AREA=     21.1
    VEL=      3.0
  DEPTH=       .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


CCHV=     .100 CEHV=     .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       511.80 ELREA=       511.40

   971.000      1.21    510.61    510.61       .00    511.07       .46       .27       .20    511.80
      62.3        .0      62.3        .0        .0      20.6        .0      14.2      25.2    511.40
       .08       .00      3.02       .00      .000      .030      .000      .000    509.40    990.04
   .009525       11.       23.       36.        20        11         0       .00     22.55   1012.59
```

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.61

STA= 990. 1015.
ER Q= 100.0
AREA= 20.6
VEL= 3.0
DEPTH= .9

1

THIS RUN EXECUTED 01JUL96 11:25:39

****
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

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	1772.000	20.37	517.42	.00	20.37	.00	.00	2.49	.00	.00	13.56	637.58	516.30
*	1772.000	62.26	517.72	37.52	19.95	4.79	1.23	1.60	.57	.00	129.32	171.69	516.30
*	1715.000	20.37	516.33	.00	20.37	.00	.00	1.84	.00	-8.77	32.97	328.66	515.80
*	1715.000	62.26	516.70	.00	62.26	.00	.00	2.61	.00	-8.77	35.45	596.10	515.80
*	1703.000	20.37	516.30	.00	20.37	.00	.00	2.07	.00	-4.17	22.93	194.28	515.75
*	1703.000	62.26	516.90	2.05	60.21	.00	.45	2.44	.00	-4.17	71.78	275.96	515.75
*	1694.000	20.37	515.98	.00	20.37	.00	.00	2.30	.00	-5.55	37.60	498.60	515.70
	1694.000	62.26	516.23	.00	62.26	.00	.00	3.45	.00	-5.55	39.05	507.60	515.70
*	1674.000	20.37	515.84	.00	20.37	.00	.00	1.63	.00	-7.50	46.25	268.92	515.55
*	1674.000	62.26	516.14	.00	62.26	.00	.00	2.34	.00	-7.50	48.30	234.57	515.55
*	1652.000	9.72	515.89	.00	9.72	.00	.00	2.03	.00	-7.73	11.50	341.23	515.38
*	1652.000	31.36	516.51	.00	30.34	1.02	.00	2.29	.38	-7.73	44.80	227.27	515.38
*	1598.000	9.72	515.57	.00	9.72	.00	.00	2.21	.00	-9.97	8.86	499.27	514.85
*	1598.000	31.36	516.29	.25	29.11	2.00	.58	2.29	.55	-9.97	40.59	258.72	514.85
*	1545.000	9.72	515.09	.00	9.72	.00	.00	2.32	.00	-8.95	7.67	203.95	514.37
*	1545.000	31.36	515.77	.35	25.38	5.62	.43	2.52	.56	-8.95	45.60	94.48	514.37
*	1520.000	9.72	514.16	.00	9.72	.00	.00	2.95	.00	-20.20	12.14	514.39	513.88
*	1520.000	31.36	514.45	.00	31.36	.00	.00	4.54	.00	-20.20	13.28	518.68	513.88
	1507.000	9.72	513.93	.00	9.72	.00	.00	2.11	.00	-20.00	15.34	156.81	513.62
	1507.000	31.36	514.15	.00	31.36	.00	.00	3.82	.00	-20.00	15.35	249.13	513.62
*	1504.000	9.72	513.99	.00	9.72	.00	.00	2.00	.00	-8.87	12.01	31.18	513.59
*	1504.000	31.36	514.47	.00	31.36	.00	.00	2.96	.00	-8.87	12.01	32.46	513.59

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1480.000	9.72	513.99	.00	9.72	.00	.00	1.56	.00	-5.17	12.01	14.57	513.47
*	1480.000	31.36	514.45	.00	31.36	.00	.00	2.65	.00	-5.17	12.01	23.71	513.47
*	1477.000	9.72	513.67	.00	9.72	.00	.00	2.80	.00	-5.90	15.34	606.08	513.45
*	1477.000	31.36	513.97	.00	31.36	.00	.00	3.91	.00	-5.90	15.35	405.69	513.45
*	1467.000	9.72	513.82	.00	9.72	.00	.00	1.96	.00	-3.80	12.67	141.41	513.40
*	1467.000	31.36	514.28	.00	31.36	.00	.00	2.78	.00	-3.80	14.54	114.95	513.40
*	1450.000	9.72	514.18	.00	9.72	.00	.00	2.22	.00	-4.31	8.88	140.47	513.30
*	1450.000	31.36	514.77	.00	31.36	.00	.01	2.76	.00	-4.31	18.41	116.50	513.30
*	1422.000	9.72	513.80	.00	9.72	.00	.00	2.03	.00	-5.70	11.57	644.87	513.14
*	1422.000	31.36	514.30	3.37	27.99	.00	.97	2.33	.00	-5.70	40.91	427.23	513.14
*	1345.000	9.72	513.19	.00	9.72	.00	.00	1.75	.00	-6.88	18.62	487.58	512.61
*	1345.000	31.36	513.55	.00	31.36	.00	.00	2.50	.00	-6.88	20.07	383.12	512.61
*	1291.000	9.72	512.71	.00	9.72	.00	.00	2.31	.00	-13.15	7.79	524.72	511.90
*	1291.000	31.36	513.42	1.33	30.03	.00	.95	2.71	.02	-13.15	19.71	370.89	511.90
*	1246.000	9.72	512.25	.00	9.72	.00	.00	2.37	.00	-11.36	7.33	477.86	511.40
*	1246.000	31.36	512.93	.00	31.36	.00	.00	3.06	.00	-11.36	10.86	471.40	511.40
*	1191.000	9.72	511.63	.00	9.72	.00	.00	2.29	.00	-9.03	8.03	323.15	510.90
*	1191.000	31.36	512.26	.00	31.36	.00	.00	3.03	.00	-9.03	11.23	360.53	510.90
	1154.000	20.37	511.25	.00	20.37	.00	.00	2.13	.00	-5.37	20.96	428.58	510.70
*	1154.000	62.26	511.76	.00	62.26	.00	.00	2.86	.00	-5.37	26.45	197.92	510.70
*	1060.000	20.37	510.83	.00	20.37	.00	.00	2.47	.00	-7.26	13.22	294.78	510.02
*	1060.000	62.26	511.53	.00	62.26	.00	.00	3.32	.00	-7.26	16.76	331.46	510.02
*	1030.000	20.37	510.99	.00	20.37	.00	.00	2.34	.00	-3.93	15.97	144.95	509.90
*	1030.000	62.26	511.64	.00	62.26	.00	.00	3.04	.00	-3.93	21.64	203.49	509.90
*	1020.000	20.37	510.44	.00	20.37	.00	.00	3.37	.00	-10.00	14.92	346.83	509.80
	1020.000	62.26	510.89	.00	62.26	.00	.00	4.26	.00	-10.00	23.49	313.69	509.80
*	1000.000	20.37	510.18	.00	20.37	.00	.00	1.96	.00	-10.10	32.69	161.13	509.60
	1000.000	62.26	510.36	.00	62.26	.00	.00	3.72	.00	-10.10	34.46	328.89	509.60
*	995.000	20.37	510.26	.00	20.37	.00	.00	1.40	.00	-18.18	34.11	55.26	509.50
*	995.000	62.26	510.45	.00	62.26	.00	.00	2.95	.00	-18.18	35.01	155.65	509.50
*	971.000	20.37	510.08	.00	20.37	.00	.00	2.17	.00	-4.37	19.93	117.18	509.40
*	971.000	62.26	510.61	.00	62.26	.00	.00	3.02	.00	-4.37	22.55	95.25	509.40

10-YEAR SUPERCRITICAL FL

MARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
*	1772.000	20.37	517.74	517.42	1.02

*	1772.000	62.26	517.81	517.72	.56
*	1715.000	20.37	516.50	516.33	1.01
*	1715.000	62.26	517.05	516.70	1.01
	1703.000	20.37	516.52	516.30	1.01
*	1703.000	62.26	517.19	516.90	.80
*	1694.000	20.37	516.25	516.06	1.52
	1694.000	62.26	516.83	516.40	1.62
*	1674.000	20.37	515.97	515.84	1.00
*	1674.000	62.26	516.42	516.14	1.00
*	1652.000	9.72	516.10	515.89	1.01
*	1652.000	31.36	516.77	516.51	.79
*	1598.000	9.72	515.82	515.57	1.00
*	1598.000	31.36	516.54	516.29	.74
*	1545.000	9.72	515.36	515.09	1.00
*	1545.000	31.36	516.03	515.77	.76
*	1520.000	9.72	514.60	514.30	1.81
*	1520.000	31.36	515.50	514.76	2.01
*	1507.000	9.72	514.16	513.96	1.23
*	1507.000	31.36	514.90	514.37	1.67
*	1504.000	9.72	514.20	513.99	1.04
*	1504.000	31.36	514.92	514.47	1.04
	1480.000	9.72	514.11	999999.00	.71
	1480.000	31.36	514.81	999999.00	.88
*	1477.000	9.72	514.07	513.79	1.88
*	1477.000	31.36	514.75	514.20	1.73
*	1467.000	9.72	514.01	513.82	1.00
*	1467.000	31.36	514.68	514.28	1.01
*	1450.000	9.72	514.43	514.18	1.01
*	1450.000	31.36	515.16	514.77	1.00
*	1422.000	9.72	514.01	513.80	1.01
*	1422.000	31.36	514.55	514.34	.86

1

	SECNO	Q	EG	CRIWS	FRCH
*	1345.000	9.72	513.35	513.19	1.02
*	1345.000	31.36	513.87	513.55	1.01
*	1291.000	9.72	512.98	512.71	1.00
*	1291.000	31.36	513.78	513.42	.86
*	1246.000	9.72	512.54	512.25	1.01
	1246.000	31.36	513.41	512.93	1.00
*	1191.000	9.72	511.90	511.63	1.00
*	1191.000	31.36	512.73	512.26	1.01
*	1154.000	20.37	511.48	511.25	1.01

*	1154.000	62.26	512.18	511.76	1.01
*	1060.000	20.37	511.14	510.83	1.00
*	1060.000	62.26	512.09	511.53	1.00
	1030.000	20.37	511.27	510.99	1.01
*	1030.000	62.26	512.11	511.64	1.00
*	1020.000	20.37	511.02	510.64	1.69
	1020.000	62.26	511.82	511.17	1.73
*	1000.000	20.37	510.38	510.21	1.13
	1000.000	62.26	511.07	510.58	1.70
*	995.000	20.37	510.36	999999.00	.68
*	995.000	62.26	510.89	999999.00	1.21
*	971.000	20.37	510.32	510.08	1.01
*	971.000	62.26	511.07	510.61	1.01

1

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1772.000	.00	.00	.00	516.30	20.37	517.42	517.42	517.74	637.58	2.49	8.17	.81
	1772.000	.00	.00	.00	516.30	62.26	517.72	517.72	517.81	171.69	1.60	51.41	4.75
*	1715.000	57.00	.00	.00	515.80	20.37	516.33	516.33	516.50	328.66	1.84	11.07	1.12
*	1715.000	57.00	.00	.00	515.80	62.26	516.70	516.70	517.05	596.10	2.61	23.89	2.55
*	1703.000	12.00	.00	.00	515.75	20.37	516.30	516.30	516.52	194.28	2.07	9.83	1.46
*	1703.000	12.00	.00	.00	515.75	62.26	516.90	516.90	517.19	275.96	2.44	29.26	3.75
*	1694.000	9.00	.00	.00	515.70	20.37	515.98	516.06	516.25	498.60	2.30	8.84	.91
	1694.000	9.00	.00	.00	515.70	62.26	516.23	516.40	516.83	507.60	3.45	18.05	2.76
*	1674.000	20.00	.00	.00	515.55	20.37	515.84	515.84	515.97	268.92	1.63	12.50	1.24
*	1674.000	20.00	.00	.00	515.55	62.26	516.14	516.14	516.42	234.57	2.34	26.64	4.07
*	1652.000	22.00	.00	.00	515.38	9.72	515.89	515.89	516.10	341.23	2.03	4.78	.53
*	1652.000	22.00	.00	.00	515.38	31.36	516.51	516.51	516.77	227.27	2.29	15.89	2.08
*	1598.000	53.18	.00	.00	514.85	9.72	515.57	515.57	515.82	499.27	2.21	4.39	.44
*	1598.000	53.18	.00	.00	514.85	31.36	516.29	516.29	516.54	258.72	2.29	16.76	1.95
*	1545.000	53.64	.00	.00	514.37	9.72	515.09	515.09	515.36	203.95	2.32	4.18	.68
*	1545.000	53.64	.00	.00	514.37	31.36	515.77	515.77	516.03	94.48	2.52	21.00	3.23
*	1520.000	24.26	.00	.00	513.88	9.72	514.16	514.30	514.60	514.39	2.95	3.29	.43
*	1520.000	24.26	.00	.00	513.88	31.36	514.45	514.76	515.50	518.68	4.54	6.90	1.38
*	1507.000	13.00	.00	.00	513.62	9.72	513.93	513.96	514.16	156.81	2.11	4.61	.78
*	1507.000	13.00	.00	.00	513.62	31.36	514.15	514.37	514.90	249.13	3.82	8.20	1.99
	1504.000	3.38	.00	.00	513.59	9.72	513.99	513.99	514.20	31.18	2.00	4.85	1.74
*	1504.000	3.38	.00	.00	513.59	31.36	514.47	514.47	514.92	32.46	2.96	10.59	5.50
*	1480.000	23.20	515.41	.00	513.47	9.72	513.99	999999.00	514.11	14.57	1.56	6.24	2.55
*	1480.000	23.20	515.41	.00	513.47	31.36	514.45	999999.00	514.81	23.71	2.65	11.83	6.44

*	1477.000	3.38	.00	.00	513.45	9.72	513.67	513.79	514.07	606.08	2.80	3.47	.39
*	1477.000	3.38	.00	.00	513.45	31.36	513.97	514.20	514.75	405.69	3.91	8.02	1.56
	1467.000	13.14	.00	.00	513.40	9.72	513.82	513.82	514.01	141.41	1.96	4.95	.82
	1467.000	13.14	.00	.00	513.40	31.36	514.28	514.28	514.68	114.95	2.78	11.29	2.92
*	1450.000	23.20	.00	.00	513.30	9.72	514.18	514.18	514.43	140.47	2.22	4.37	.82
*	1450.000	23.20	.00	.00	513.30	31.36	514.77	514.77	515.16	116.50	2.76	11.42	2.91
*	1422.000	28.09	.00	.00	513.14	9.72	513.80	513.80	514.01	644.87	2.03	4.79	.38
*	1422.000	28.09	.00	.00	513.14	31.36	514.30	514.34	514.55	427.23	2.33	15.45	1.52

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1345.000	77.06	.00	.00	512.61	9.72	513.19	513.19	513.35	487.58	1.75	5.56	.44
*	1345.000	77.06	.00	.00	512.61	31.36	513.55	513.55	513.87	383.12	2.50	12.52	1.60
*	1291.000	54.00	.00	.00	511.90	9.72	512.71	512.71	512.98	524.72	2.31	4.21	.42
*	1291.000	54.00	.00	.00	511.90	31.36	513.42	513.42	513.78	370.89	2.71	12.48	1.63
*	1246.000	44.03	.00	.00	511.40	9.72	512.25	512.25	512.54	477.86	2.37	4.11	.44
*	1246.000	44.03	.00	.00	511.40	31.36	512.93	512.93	513.41	471.40	3.06	10.25	1.44
*	1191.000	55.38	.00	.00	510.90	9.72	511.63	511.63	511.90	323.15	2.29	4.25	.54
*	1191.000	55.38	.00	.00	510.90	31.36	512.26	512.26	512.73	360.53	3.03	10.36	1.65
*	1154.000	37.24	.00	.00	510.70	20.37	511.25	511.25	511.48	428.58	2.13	9.57	.98
	1154.000	37.24	.00	.00	510.70	62.26	511.76	511.76	512.18	197.92	2.86	21.74	4.43
*	1060.000	93.71	.00	.00	510.02	20.37	510.83	510.83	511.14	294.78	2.47	8.24	1.19
*	1060.000	93.71	.00	.00	510.02	62.26	511.53	511.53	512.09	331.46	3.32	18.74	3.42
*	1030.000	30.57	.00	.00	509.90	20.37	510.99	510.99	511.27	144.95	2.34	8.71	1.69
*	1030.000	30.57	.00	.00	509.90	62.26	511.64	511.64	512.11	203.49	3.04	20.45	4.36
*	1020.000	10.00	.00	.00	509.80	20.37	510.44	510.64	511.02	346.83	3.37	6.04	1.09
	1020.000	10.00	.00	.00	509.80	62.26	510.89	511.17	511.82	313.69	4.26	14.60	3.52
*	1000.000	19.80	.00	.00	509.60	20.37	510.18	510.21	510.38	161.13	1.96	10.37	1.60
	1000.000	19.80	.00	.00	509.60	62.26	510.36	510.58	511.07	328.89	3.72	16.73	3.43
*	995.000	5.50	513.10	511.90	509.50	20.37	510.26	999999.00	510.36	55.26	1.40	14.55	2.74
*	995.000	5.50	513.10	511.90	509.50	62.26	510.45	999999.00	510.89	155.65	2.95	21.09	4.99
*	971.000	22.90	.00	.00	509.40	20.37	510.08	510.08	510.32	117.18	2.17	9.40	1.88
*	971.000	22.90	.00	.00	509.40	62.26	510.61	510.61	511.07	95.25	3.02	20.61	6.38

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1772.000	20.37	517.42	.00	.00	-.02	13.56	.00
*	1772.000	62.26	517.72	.30	.00	-.01	129.32	.00

*	1477.000	3.38	.00	.00	513.45	9.72	513.67	513.79	514.07	606.08	2.80	3.47	.39
*	1477.000	3.38	.00	.00	513.45	31.36	513.97	514.20	514.75	405.69	3.91	8.02	1.56
	1467.000	13.14	.00	.00	513.40	9.72	513.82	513.82	514.01	141.41	1.96	4.95	.82
	1467.000	13.14	.00	.00	513.40	31.36	514.28	514.28	514.68	114.95	2.78	11.29	2.92
*	1450.000	23.20	.00	.00	513.30	9.72	514.18	514.18	514.43	140.47	2.22	4.37	.82
*	1450.000	23.20	.00	.00	513.30	31.36	514.77	514.77	515.16	116.50	2.76	11.42	2.91
*	1422.000	28.09	.00	.00	513.14	9.72	513.80	513.80	514.01	644.87	2.03	4.79	.38
*	1422.000	28.09	.00	.00	513.14	31.36	514.30	514.34	514.55	427.23	2.33	15.45	1.52

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1345.000	77.06	.00	.00	512.61	9.72	513.19	513.19	513.35	487.58	1.75	5.56	.44
*	1345.000	77.06	.00	.00	512.61	31.36	513.55	513.55	513.87	383.12	2.50	12.52	1.60
*	1291.000	54.00	.00	.00	511.90	9.72	512.71	512.71	512.98	524.72	2.31	4.21	.42
*	1291.000	54.00	.00	.00	511.90	31.36	513.42	513.42	513.78	370.89	2.71	12.48	1.63
*	1246.000	44.03	.00	.00	511.40	9.72	512.25	512.25	512.54	477.86	2.37	4.11	.44
*	1246.000	44.03	.00	.00	511.40	31.36	512.93	512.93	513.41	471.40	3.06	10.25	1.44
*	1191.000	55.38	.00	.00	510.90	9.72	511.63	511.63	511.90	323.15	2.29	4.25	.54
*	1191.000	55.38	.00	.00	510.90	31.36	512.26	512.26	512.73	360.53	3.03	10.36	1.65
*	1154.000	37.24	.00	.00	510.70	20.37	511.25	511.25	511.48	428.58	2.13	9.57	.98
*	1154.000	37.24	.00	.00	510.70	62.26	511.76	511.76	512.18	197.92	2.86	21.74	4.43
*	1060.000	93.71	.00	.00	510.02	20.37	510.83	510.83	511.14	294.78	2.47	8.24	1.19
*	1060.000	93.71	.00	.00	510.02	62.26	511.53	511.53	512.09	331.46	3.32	18.74	3.42
*	1030.000	30.57	.00	.00	509.90	20.37	510.99	510.99	511.27	144.95	2.34	8.71	1.69
*	1030.000	30.57	.00	.00	509.90	62.26	511.64	511.64	512.11	203.49	3.04	20.45	4.36
*	1020.000	10.00	.00	.00	509.80	20.37	510.44	510.64	511.02	346.83	3.37	6.04	1.09
	1020.000	10.00	.00	.00	509.80	62.26	510.89	511.17	511.82	313.69	4.26	14.60	3.52
*	1000.000	19.80	.00	.00	509.60	20.37	510.18	510.21	510.38	161.13	1.96	10.37	1.60
	1000.000	19.80	.00	.00	509.60	62.26	510.36	510.58	511.07	328.89	3.72	16.73	3.43
*	995.000	5.50	513.10	511.90	509.50	20.37	510.26	999999.00	510.36	55.26	1.40	14.55	2.74
*	995.000	5.50	513.10	511.90	509.50	62.26	510.45	999999.00	510.89	155.65	2.95	21.09	4.99
*	971.000	22.90	.00	.00	509.40	20.37	510.08	510.08	510.32	117.18	2.17	9.40	1.88
*	971.000	22.90	.00	.00	509.40	62.26	510.61	510.61	511.07	95.25	3.02	20.61	6.38

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1772.000	20.37	517.42	.00	.00	-.02	13.56	.00
*	1772.000	62.26	517.72	.30	.00	-.01	129.32	.00

*	1715.000	20.37	516.33	.00	-1.10	.00	32.97	57.00
*	1715.000	62.26	516.70	.38	-1.02	.00	35.45	57.00
*	1703.000	20.37	516.30	.00	-.02	.00	22.93	12.00
	1703.000	62.26	516.90	.60	.20	.00	71.78	12.00
*	1694.000	20.37	515.98	.00	-.32	.00	37.60	9.00
	1694.000	62.26	516.23	.25	-.67	.00	39.05	9.00
*	1674.000	20.37	515.84	.00	-.14	.00	46.25	20.00
*	1674.000	62.26	516.14	.30	-.09	.00	48.30	20.00
*	1652.000	9.72	515.89	.00	.06	.00	11.50	22.00
*	1652.000	31.36	516.51	.62	.37	.00	44.80	22.00
*	1598.000	9.72	515.57	.00	-.33	.00	8.86	53.18
*	1598.000	31.36	516.29	.73	-.22	.00	40.59	53.18
*	1545.000	9.72	515.09	.00	-.48	.00	7.67	53.64
*	1545.000	31.36	515.77	.68	-.53	.00	45.60	53.64
*	1520.000	9.72	514.16	.00	-.93	.00	12.14	24.26
*	1520.000	31.36	514.45	.29	-1.31	.00	13.28	24.26
*	1507.000	9.72	513.93	.00	-.23	.00	15.34	13.00
*	1507.000	31.36	514.15	.22	-.30	.00	15.35	13.00
*	1504.000	9.72	513.99	.00	.06	.00	12.01	3.38
*	1504.000	31.36	514.47	.48	.32	.00	12.01	3.38
*	1480.000	9.72	513.99	.00	-.01	.00	12.01	23.20
*	1480.000	31.36	514.45	.47	-.02	.00	12.01	23.20
	1477.000	9.72	513.67	.00	-.32	.00	15.34	3.38
*	1477.000	31.36	513.97	.30	-.48	.00	15.35	3.38
*	1467.000	9.72	513.82	.00	.15	.00	12.67	13.14
*	1467.000	31.36	514.28	.47	.32	.00	14.54	13.14
*	1450.000	9.72	514.18	.00	.36	.00	8.88	23.20
*	1450.000	31.36	514.77	.59	.48	.00	18.41	23.20
*	1422.000	9.72	513.80	.00	-.38	.00	11.57	28.09
*	1422.000	31.36	514.30	.50	-.47	.00	40.91	28.09

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1345.000	9.72	513.19	.00	-.61	.00	18.62	77.06
*	1345.000	31.36	513.55	.36	-.74	.00	20.07	77.06
*	1291.000	9.72	512.71	.00	-.48	.00	7.79	54.00
*	1291.000	31.36	513.42	.71	-.13	.00	19.71	54.00
*	1246.000	9.72	512.25	.00	-.45	.00	7.33	44.03
*	1246.000	31.36	512.93	.68	-.49	.00	10.86	44.03
	1191.000	9.72	511.63	.00	-.62	.00	8.03	55.38
	1191.000	31.36	512.26	.63	-.67	.00	11.23	55.38
*	1154.000	20.37	511.25	.00	-.38	.00	20.96	37.24
*	1154.000	62.26	511.76	.52	-.50	.00	26.45	37.24

*	1060.000	20.37	510.83	.00	-.42	.00	13.22	93.71
*	1060.000	62.26	511.53	.70	-.23	.00	16.76	93.71
*	1030.000	20.37	510.99	.00	.16	.00	15.97	30.57
	1030.000	62.26	511.64	.65	.11	.00	21.64	30.57
*	1020.000	20.37	510.44	.00	-.54	.00	14.92	10.00
	1020.000	62.26	510.89	.45	-.75	.00	23.49	10.00
*	1000.000	20.37	510.18	.00	-.26	.00	32.69	19.80
	1000.000	62.26	510.36	.18	-.53	.00	34.46	19.80
*	995.000	20.37	510.26	.00	.08	.00	34.11	5.50
*	995.000	62.26	510.45	.19	.09	.00	35.01	5.50
*	971.000	20.37	510.08	.00	-.18	.00	19.93	22.90
*	971.000	62.26	510.61	.53	.16	.00	22.55	22.90

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=   1715.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1715.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1715.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1715.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1715.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1715.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1703.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1674.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1674.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1674.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1674.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1652.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1652.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1598.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1598.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1545.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1520.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1520.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1504.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1504.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1504.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1504.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1504.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1504.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1480.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=   1480.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1480.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1467.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1467.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1467.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1467.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1467.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1467.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1450.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1450.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1450.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1450.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1450.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1450.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1422.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1422.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1422.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=   1422.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1345.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1345.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1345.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1345.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1291.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1291.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1246.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
```

```
CAUTION SECNO=   1246.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1246.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1246.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
```



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CAUTION SECNO=   1246.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1191.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1191.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1191.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1154.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1154.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1060.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1060.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1020.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1000.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    995.000  PROFILE=  1  DOWNSTREAM DEPTH WRONG SIDE CRITICAL
WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    995.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                        NEW BACKWATER REQUIRED
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    971.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    971.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

Subcritical and Supercritical Runs for Alternative 2

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *                                          *
 *  Version   4.6.2;  May 1991              *
 *                                          *
 *  RUN DATE    01JUL96    TIME   11:26:19  *
 *******************************************
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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               *
*****************************************
```

```
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

01JUL96 11:26:19 PAGE 1

THIS RUN EXECUTED 01JUL96 11:26:19

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************
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```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/30/96
T2      ALTERNATIVE 2, WEST CBC CULVERT WITH VEGETATION MANAGEMENT
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE: ALT2WEST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 0      .0099       1                      510.15

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    1                 -1                                    -1                         15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

QT       2     20.37     62.26

NC    .100      .050      .035       .1        .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
```

```
X1      971        7     988.2    1015.3        0        0        0
X3       10
GR    511.8    982.1    511.8     988.2    509.4    991.9    509.6   1000.4    509.7   1009.5
GR    511.4   1015.3    511.5    1023.5

        SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
1
   01JUL96      11:26:19                                                                    PAGE    2


NC     .025     .025     .035       .3       .5

        DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES
        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1      995       14     981.4    1024.7     10.7     35.7     22.9
X3       10
GR    513.1    981.4    511.6     981.7    511.5    981.7    511.1    984.7    509.9   987.8
GR    509.5    990.2    509.7     998.7    509.8   1007.3    510.2   1015.8    510.0  1020.4
GR    511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.7


SB     1.05      1.6     1.66                17.1      1.2     68.1      5.4    509.6   509.5

        UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1000       14     981.7    1024.3      5.5      5.5      5.5
X2                           1     511.9    513.1
X3       10
        -2    981.7    513.1     511.6   1024.3    513.5    511.9
GR    513.1    981.1    511.6     981.7    511.5    981.7    511.1    984.7    510.0   987.8
GR    509.6    990.2    509.7     998.7    509.9   1007.3    510.2   1015.8    510.0  1020.4
GR    511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.3

        SHOTCRETE SLOPE PROTECTION ON RIGHT

NC     .045     .025     .035       .1       .3

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1020       11     982.4    1007.7     35.1      0.9     19.8
X3       10
GR    512.4    961.1    511.5     964.1    510.8    967.2    510.9    982.4    510.2   994.6
GR    509.8    997.6    509.9    1001.3    509.8   1003.7    510.8   1005.9    513.5  1007.7
GR    513.5   1009.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT

NH       5     .045     985.4      .045    988.0     .035   1001.3     .025   1005.3    .040
NH    1013

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1030       11     978.0    1009.8     16.8      7.6     10.0
X3       10
GR    512.2    950.0    511.9     978.0    511.5    985.4    510.8    988.0    510.8   994.6
GR    509.9    996.7    509.9    1000.0    509.9   1001.3    512.1   1005.3    512.9  1009.8
GR    512.9   1013.0

        SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
1
   01JUL96      11:26:19                                                                    PAGE    3
```

```
NH       5      .045     986.43      .045     994.11      .035    1003.49      .030    1007.33      .040
NH    1011.0

X1     1060         9    986.43    1007.33         16        18      30.57
       10
GR     512.5    915.00    511.55     966.98      511.5    978.97     512.14    986.43     510.02    994.11
GR     510.2   1003.49    511.50    1005.35     512.88   1007.33      512.9    1011.0

        FLOW IN WEST CHANNEL

QT       2      9.72      31.36

NH       4      .045     979.44      .045     992.04      .040    1003.63      .045    1021.00

X1     1154         9    979.44    1016.60         94        93     93.71
X3       10
GR     512.7    950.00    512.58     979.44     511.55   987.29     510.76    992.04     510.71   1003.63
GR     510.7   1005.90    510.73    1008.00     512.90  1016.60     513.00   1021.00


NH       4      .045     994.25      .045     998.82      .033    1003.39      .045    1010.00

X1     1191        10    994.25    1006.67         42        35     37.24
X3       10
GR    512.72    983.92    512.65     989.13     512.33   994.25     511.00    998.82     510.98   998.89
GR     510.9   1003.19    511.00    1003.39     512.01  1005.44     513.14   1006.67      513.2  1010.00


NH       4      .045     992.06      .045     998.48      .040    1002.02      .045    1032.48

X1     1246         8    992.06    1005.06         56        55     55.38
X3       10
       513.2    950.00    513.01     958.67     513.12   965.78     513.18    992.06     511.57   998.48
       511.4   1002.02    513.85    1005.06      513.9  1032.48


NH       5      .045     996.07      .045     999.11      .040    1002.81      .045    1012.47      .045
NH    1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1291         7    996.07    1007.14         39        49     44.03
X3       10
GR    513.33    987.59    513.18     996.07     512.06   999.11     511.90   1002.81      513.4  1007.14
GR    514.05   1012.47    514.23     1038.2


NH       4      .045     988.37      .045     996.03      .038    1006.19      .045    1027.15

X1     1345        11    986.22    1007.90         60        49       54
X3       10
GR     514.1    950.00    513.95     974.18     513.93   986.22     513.16    988.37     512.95   994.56
GR     513.1    996.03    512.72    1000.55     512.61  1006.19      513.1   1006.79     514.00  1007.90
GR    514.23   1027.15
1
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NH       4      .045     985.66      .045     996.28      .038     999.49      .045    1025.59

X1     1422         8    985.66    1002.43         69        85     77.06
X3       10
GR     514.5    950.00    514.14     969.33     514.12   985.66     513.14    996.28     513.18   999.49
GR     514.1   1001.27     514.7    1002.43     514.81  1025.59
 ***************************************************
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```
NH       5      .060    991.48      .080    999.00      .040   1001.52      .080   1006.87      .060
NH  1022.3

     1450         9    991.48   1006.87        29        28     28.09
X3     10
GR  514.94    965.75    514.74    991.48     513.9    997.60    513.74    998.92     513.3    999.00
GR   513.3   1001.52     513.8   1003.30     515.0   1006.87     515.1    1022.3


NC    .080      .080      .040

        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1    1467         9    965.75   1006.87      23.2      23.2     23.20
CI    1000    513.40      .032         2         2       -11
X3      10
GR  514.94    965.75    514.74    991.48     514.0    997.60    513.84    998.92     513.4    999.00
GR  513.39   1001.52     513.9   1003.30     515.0   1006.87     515.1    1022.3


NC    .045      .045      .013        .3        .5

        DOWNSTREAM END OF OUTLET APRON
X1    1477        10    987.15   1002.51        22        10     13.14
CI                                                     .01
X3      10
GR   515.3    965.00    515.28    978.30    514.95    987.15    513.45    987.16    513.45   1002.50
GR  514.95   1002.51     515.0   1005.82    514.96   1024.05    514.73   1027.39    514.89   1030.38

        DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
        CULVERT SKEW 25 DEGREES

     1480         9    987.15   1000.01       3.3       3.3      3.38
X3      10
GR   515.5    968.00    515.44    978.30    514.97    987.15    513.47    987.16    513.47   1000.00
GR  514.97   1000.01     515.08   1003.77    515.25   1010.64    515.41   1031.65

        (4) 3.00m x 1.50m CBC
        SKEWED WINGWALLS WITH 45-DEG BEVEL ON INLET
1
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SC   4.013       0.2      1.66                1.50      3.00     23.16      11.4    513.59    513.47

        UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
        CULVERT SKEW 25 DEGREES
        (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1    1504         9    987.15   1000.01      23.2      23.2     23.20
X2                            2                515.41
X3      10
BT      -2    965.00    515.51               1030.38    515.41
GR  515.51    968.00    515.34    978.30    515.09    987.15    513.59    987.16    513.59   1000.00
GR  515.09   1000.01     515.08   1003.77    515.25   1010.64    515.41   1031.65


NC    .045      .045      .026        .1        .3

     1507         8    987.15   1002.51         3         3      3.38
CI      -1    513.62      .032       .01       .01    -15.34
X3      10
GR  515.51    968.00    515.34    978.30    515.12    987.15    513.62    987.16    513.62   1002.50
GR  515.12   1002.51     515.25   1010.64    515.41   1031.65
```

```
        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM

X1     1520        8    991.70   1000.82        13        13     13.00
       1000   513.88      .032         2         2       -11
X3       10
GR    515.6   967.00    515.54    991.70    514.30    994.00    514.25    998.71    515.31   1000.82
GR    515.5  1012.48    515.46   1022.45    515.53   1033.60


NC     .080     .080      .040

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1545        8    991.70   1000.82        20        24     24.26
CI                                                       .01
X3       10                        988.0
GR    515.6   967.00    515.54    991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR    515.5  1012.48    515.46   1022.45    515.53   1033.60
 ***************************************************

NH       3     .045    996.69      .033   1000.26      .045   1029.59

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1598        7    991.58   1004.53        53        54     53.64
X3       10                        989.0
GR   516.15   968.00    516.15    987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR    516.1  1004.53     516.2   1029.59
```



```
NH       3     .045    994.01      .037   1001.83      .045   1034.97

        BIFURCATION SECTION; DOWNSTREAM LIMIT
X1     1652        6    989.93   1005.58        53        54     53.18
X3       10
GR    516.7   980.00    516.58    989.93    515.42    994.01    515.38   1001.83    516.34   1005.58
GR    516.5  1034.97

        FLOW IN CHANNEL UPSTREAM FROM BIFURCATION

QT       2    20.37     62.26

NH       4     .045    958.00      .045    979.00      .035   1002.48      .045   1020.00

        BIFURCATION SECTION; UPSTREAM LIMIT
X1     1674        8    955.00   1006.40        24        20     22
X3       10
GR    516.6   950.00    516.58    955.00    515.55    958.00    515.55    979.00    515.55    980.00
GR    515.6  1002.48     516.6   1006.40     517.0   1020.00


NH       4     .045    966.50      .045    975.00      .035   1003.00      .045   1025.00

X1     1694        8    964.00   1006.40        32        20     20
X3       10
GR    516.7   950.00    516.68    964.00     515.9    966.50     515.9    975.00     515.7    976.00
GR    515.7  1003.00     516.9   1006.40     517.0   1025.00


NH       4     .045    983.00      .035    992.50      .045   1006.50      .045   1060.00

X1     1703        8    980.00   1006.50         9         9      9
X3       10
```

```
GR    516.9     935.00      516.7     980.00      515.75     983.00      515.75     992.50      515.9     994.00
GR    516.0    1003.00      516.9    1006.50       517.1    1060.00


      6        .045     972.00       .035     975.00       .045     993.00       .035     997.00       .045
NH   1007.0     .045    1040.00

X1    1715        11     970.00    1007.00          14         13         12
X3      10
GR    517.0     935.00      516.7     970.00      515.9     972.00      515.9     975.00      516.2     984.00
GR    515.8     993.00      515.8     997.00      516.1    1001.00      516.1    1003.00      517.1    1007.0
GR    517.3    1040.00


NH       8       .045     942.86       .040      943.5       .045     969.43       .040     975.29       .045
NH   998.39      .035     1003.1       .045    1009.03       .045    1050.00

       BRAIDED AREA UPSTREAM FROM CONFLUENCE
1
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X1    1772        18     993.95    1009.03          72         56         57
X3      10
GR    517.9     900.00      517.7     923.00     517.42     938.76     516.60     942.86     516.60      943.5
GR   517.21     945.11     517.26     955.13      517.5     965.61     516.50     969.43     516.55     975.29
GR   517.63     982.11     517.71     993.95      516.3     998.39      516.3    1001.94     516.95     1003.1
GR   517.48    1009.03      517.5    1032.08      517.6    1050.00
1
   01JUL96      11:26:19                                                                                    PAGE    8


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


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000       .75    510.15    510.08    510.15    510.33       .18       .00       .00    511.80
      20.4        .0      20.4        .0        .0      10.9        .0        .0        .0    511.40
       .00       .00      1.87       .00      .000      .035      .000      .000    509.40    990.74
   .010027        0.        0.        0.         0        11         3       .00     20.30   1011.04


FLOW DISTRIBUTION FOR SECNO=    971.00          CWSEL=    510.15

STA=     991.    1015.
  PER Q=    100.0
   AREA=     10.9
    VEL=      1.9
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.92	510.42	510.15	.00	510.47	.05	.11	.04	513.10
20.4	.0	20.4	.0	.0	20.1	.0	.4	.6	513.50
.01	.00	1.01	.00	.000	.035	.000	.000	509.50	986.45
.002654	11.	23.	36.	2	12	0	.00	34.87	1021.33

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.42

STA= 986. 1025.
PER Q= 100.0
AREA= 20.1
VEL= 1.0
DEPTH= .6

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

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 510.46 BRIDGE VELOCITY= 1.07 CALCULATED CHANNEL AREA= 18.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.49	.01	0.	20.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	.83	510.43	.00	.00	510.49	.06	.01	.00	511.60
20.4	.0	20.4	.0	.0	18.7	.0	.5	.8	513.50
.01	.00	1.09	.00	.000	.035	.000	.000	509.60	986.60
.003360	6.	6.	6.	0	0	0	.00	34.74	1021.34

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 510.43

STA= 987. 1024.
PER Q= 100.0
AREA= 18.7
VEL= 1.1
DEPTH= .5

V= .100 CEHV= .300
SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

```
 1020.000      .84    510.64    510.64      .00    510.89      .25      .12      .06    510.90
     20.4       .0      20.4       .0       .0       9.2       .0       .7      1.4    513.50
      .01      .00      2.21      .00     .000      .035     .000     .000   509.80    986.91
  .015479      35.       20.       1.        0         5        0      .00    18.65   1005.55


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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


FLOW DISTRIBUTION FOR SECNO=   1020.00         CWSEL=    510.64

STA=     987.    1008.
  PER Q=    100.0
   AREA=      9.2
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

 1030.000     1.08    510.98    510.98      .00    511.27      .28      .15      .01    511.90
     20.4       .0      20.4       .0       .0       8.7       .0       .8      1.5    512.90
      .01      .00      2.35      .00     .000      .034     .000     .000   509.90    987.32
  .015252      17.       10.       8.        0        18        0      .00    15.95   1003.27


FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    510.98

STA=     987.    1005.
  PER Q=    100.0
   AREA=      8.7
    VEL=      2.4
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

 1060.000     1.33    511.35    510.83      .00    511.44      .08      .15      .02    512.14
     20.4       .0      20.4       .0       .0       15.8       .0      1.2      2.0    512.88
      .02      .00      1.29      .00     .000      .038     .000     .000   510.02    989.28
  .002453      16.       31.       18.        2        15        0      .00    15.86   1005.14


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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


 W DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    511.35

STA=     989.    1005.
  PER Q=    100.0
   AREA=     15.8
    VEL=      1.3
  DEPTH=      1.0

1490 NH CARD USED
*SECNO 1154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000       .88    511.58    511.05       .00    511.60       .02       .15       .01    512.58
      9.7        .0       9.7        .0        .0      17.1        .0       2.7       3.9    512.90
      .06       .00       .57       .00      .000      .040      .000      .000    510.70    987.05
   .000849      94.       94.       93.         3        14         0       .00     24.33   1011.38


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.58

STA=     987.     992.    1004.    1017.
  PER Q=      7.4     65.9     26.7
   AREA=      2.0      9.8      5.3
    VEL=       .4       .7       .5
  DEPTH=       .4       .8       .7

1490 NH CARD USED
 CNO 1191.000
85 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000       .73    511.63    511.63       .00    511.90       .27       .09       .08    512.33
      9.7        .0       9.7        .0        .0       4.2        .0       3.1       4.5    513.14
      .07       .00      2.29       .00      .000      .039      .000      .000    510.90    996.65
   .019151      42.       37.       35.         0        15         0       .00      8.01   1004.67


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.63

STA=     997.    1005.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
 EPTH=        .5

1490 NH CARD USED
*SECNO 1246.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.18 ELREA= 513.85

246.000	1.07	512.47	512.26	.00	512.61	.14	.70	.01	513.18
9.7	.0	9.7	.0	.0	5.9	.0	3.4	5.0	513.85
.08	.00	1.65	.00	.000	.043	.000	.000	511.40	994.86
.008896	56.	55.	55.	1	8	0	.00	8.50	1003.36

FLOW DISTRIBUTION FOR SECNO= 1246.00 CWSEL= 512.47

STA= 995. 1005.
PER Q= 100.0
AREA= 5.9
VEL= 1.7
DEPTH= .7

1490 NH CARD USED
*SECNO 1291.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.18 ELREA= 513.40

1291.000	.98	512.88	512.71	.00	513.04	.15	.42	.00	513.18
9.7	.0	9.7	.0	.0	5.6	.0	3.7	5.3	513.40
.08	.00	1.73	.00	.000	.043	.000	.000	511.90	996.89
.010483	39.	44.	49.	2	15	0	.00	8.75	1005.63

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

FLOW DISTRIBUTION FOR SECNO= 1291.00 CWSEL= 512.88

STA= 997. 1007.
PER Q= 100.0
AREA= 5.6
VEL= 1.7
DEPTH= .6

1490 NH CARD USED
*SECNO 1345.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.93 ELREA= 514.00

1345.000	.78	513.39	513.19	.00	513.44	.06	.40	.01	513.93
9.7	.0	9.7	.0	.0	9.1	.0	4.1	6.1	514.00
.10	.00	1.07	.00	.000	.041	.000	.000	512.61	987.76
.005455	60.	54.	49.	1	14	0	.00	19.38	1007.14

FLOW DISTRIBUTION FOR SECNO= 1345.00 CWSEL= 513.39

STA= 988. 1008.
PER Q= 100.0
AREA= 9.1
VEL= 1.1
DEPTH= .5

```
1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      .79    513.93    513.80      .00    514.05      .11      .59      .02    514.12
      9.7       .0       9.7       .0       .0       6.5       .0      4.7      7.4    514.70
      .11      .00      1.50      .00     .000      .043     .000     .000   513.14    987.66
   .011355      69.       77.       85.        1        15        0      .00    13.29   1000.95
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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

FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    513.93

STA=     988.    1001.
  PER Q=    100.0
   AREA=      6.5
    VEL=      1.5
  DEPTH=       .5

[illegible]0 NH CARD USED
[illegible]ECNO 1450.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000     1.09    514.39    514.18      .00    514.50      .11      .46      .00    514.74
      9.7       .0       9.7       .0       .0       6.5       .0      4.9      7.7    515.00
      .12      .00      1.49      .00     .000      .072     .000     .000   513.30    993.98
   .025075      29.       28.       28.        2         8        0      .00    11.10   1005.08

FLOW DISTRIBUTION FOR SECNO=   1450.00          CWSEL=    514.39

STA=     994.    1007.
  PER Q=    100.0
   AREA=      6.5
    VEL=      1.5
  DEPTH=       .6

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER

[illegible]2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.21

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.94 ELREA=      515.01
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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

 1467.000      1.13    514.53    513.82       .00    514.55       .02       .03       .01    514.94
     9.7        .0       9.7        .0        .0      14.9        .0       5.1       8.0    515.01
     .13       .00       .65       .00      .000      .032      .000      .000    513.40    992.25
  .000482       23.       23.       23.         2        18         0       .00     15.49   1007.75

FLOW DISTRIBUTION FOR SECNO=   1467.00         CWSEL=    514.53

STA=     992.    1009.
  PER Q=    100.0
   AREA=     14.9
    VEL=       .7
  DEPTH=      1.0

CCHV=     .300 CEHV=     .500
*SECNO 1477.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.79

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

 1477.000      1.08    514.53    513.79       .00    514.55       .02       .00       .00    514.95
     9.7        .0       9.7        .0        .0      16.6        .0       5.3       8.2    514.95
     .13       .00       .58       .00      .000      .013      .000      .000    513.45    987.15
  .000062       22.       13.       10.         2        17         0       .00     15.35   1002.51

FLOW DISTRIBUTION FOR SECNO=   1477.00         CWSEL=    514.53

STA=     987.    1003.
  PER Q=    100.0
   AREA=     16.6
    VEL=       .6
  DEPTH=      1.1

*SECNO 1480.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

 1480.000      1.06    514.53    513.86       .00    514.55       .03       .00       .00    514.97
     9.7        .0       9.7        .0        .0      13.7        .0       5.4       8.3    514.97
     .14       .00       .71       .00      .000      .013      .000      .000    513.47    987.15
  .000096        3.        3.        3.         0        18         0       .00     12.85   1000.01
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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

FLOW DISTRIBUTION FOR SECNO=   1480.00         CWSEL=    514.53
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STA=     987.    1000.
  PER Q=    100.0
   AREA=     13.7
    VEL=       .7
  DEPTH=      1.1


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
    4          .013      .20      1.66       .00      1.50      3.00      23.16     11         4       513.59    513.47

CHART 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE  4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

*SECNO 1504.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.233  EGOC =    514.397  PCWSE=    514.529  ELTRD=    515.410

5150, EG OF   514.40 LESS THAN XEG OF   514.55
SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   514.23    514.40       .00        0.       10.      .809      18.0    515.41        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .93    514.52       .00       .00    514.55       .03       .00       .00    515.09
      9.7        .0       9.7        .0        .0      12.0        .0       5.7       8.6    515.09
      .14       .00       .81       .00      .000      .013      .000      .000    513.59    987.15
   .000145       23.       23.       23.         3         0         0       .00     12.85   1000.01


FLOW DISTRIBUTION FOR SECNO=   1504.00         CWSEL=    514.52

STA=     987.    1000.
  PER Q=    100.0
   AREA=     12.0
    VEL=       .8
  DEPTH=       .9
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .100 CEHV=     .300
*SECNO 1507.000
CHIMP CLSTA=     994.83 CELCH=     513.62 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12
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  1507.000      .91    514.53    513.96      .00    514.56      .03      .00      .00    515.12
      9.7       .0      9.7       .0       .0      13.8       .0      5.7      8.6    515.12
      .14      .00      .70      .00     .000      .032     .000     .000   513.62    987.15
  .000671       3.       3.       3.        0        18        0      .00    15.36   1002.51


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    514.53

STA=     987.    1003.
  PER Q=    100.0
   AREA=     13.8
    VEL=       .7
  DEPTH=       .9

*SECNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000      .63    514.51    514.30      .00    514.59      .08      .02      .02    515.54
      9.7       .0      9.7       .0       .0       7.7       .0      5.8      8.8    515.44
      .15      .00      1.26      .00     .000      .032     .000     .000   513.88    993.24
  .003526       13.      13.      13.        2        14        0      .00    13.52   1006.76


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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


FLOW DISTRIBUTION FOR SECNO=   1520.00          CWSEL=    514.51

STA=     993.    1009.
  PER Q=    100.0
   AREA=      7.7
    VEL=      1.3
  DEPTH=       .6

*SECNO 1545.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.31

  1545.000      .72    515.09    515.09      .00    515.36      .27      .17      .06    515.54
      9.7       .0      9.7       .0       .0       4.2       .0      6.0      9.0    515.31
      .15      .00      2.32      .00     .000      .040     .000     .000   514.37    992.66
  .020322       20.      24.      24.        0         8        0      .00     7.67   1000.33


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.09
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STA=     993.    1001.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1598.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.82


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000       .98    515.83    515.56       .00    515.93       .10       .55       .02    516.12
      9.7        .0       9.7        .0        .0       7.0        .0       6.3       9.5    516.10
       .16       .00      1.39       .00      .000      .041      .000      .000    514.85    992.76
   .006103       53.       54.       54.         3         5         0       .00     10.85   1003.61


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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


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.83

STA=     993.    1005.
  PER Q=    100.0
   AREA=      7.0
    VEL=      1.4
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1652.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34

  1652.000       .77    516.15    515.89       .00    516.22       .08       .29       .00    516.58
      9.7        .0       9.7        .0        .0       7.9        .0       6.7      10.2    516.34
       .17       .00      1.22       .00      .000      .040      .000      .000    515.38    991.45
   .005018       53.       53.       54.         3        11         0       .00     13.39   1004.83


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.15

STA=     991.    1006.
  PER Q=    100.0
   AREA=      7.9
    VEL=      1.2
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1674.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.32


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60
```

1674.000	.70	516.25	515.84	.00	516.27	.02	.04	.01	516.58
20.4	.0	20.4	.0	.0	32.0	.0	7.1	10.9	516.60
.18	.00	.64	.00	.000	.040	.000	.000	515.55	955.97
.001179	24.	22.	20.	2	18	0	.00	49.04	1005.02

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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

FLOW DISTRIBUTION FOR SECNO= 1674.00 CWSEL= 516.25

STA= 956. 1006.
PER Q= 100.0
AREA= 32.0
VEL= .6
DEPTH= .7

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.68 ELREA= 516.90

1694.000	.56	516.26	516.06	.00	516.32	.06	.04	.01	516.68
20.4	.0	20.4	.0	.0	19.4	.0	7.6	11.8	516.90
.19	.00	1.05	.00	.000	.038	.000	.000	515.70	965.34
.004111	32.	20.	20.	2	11	0	.00	39.26	1004.59

FLOW DISTRIBUTION FOR SECNO= 1694.00 CWSEL= 516.26

STA= 965. 1006.
PER Q= 100.0
AREA= 19.4
VEL= 1.1
DEPTH= .5

1490 NH CARD USED
*SECNO 1703.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.70 ELREA= 516.90

1703.000	.55	516.30	516.30	.00	516.52	.22	.07	.05	516.70
20.4	.0	20.4	.0	.0	9.8	.0	7.8	12.0	516.90
.19	.00	2.07	.00	.000	.037	.000	.000	515.75	981.25
.018325	9.	9.	9.	0	5	0	.00	22.93	1004.18

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


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.30

STA=     981.     983.     993.    1007.
  PER Q=      2.9     67.3     29.8
   AREA=       .5      5.3      4.1
    VEL=      1.2      2.6      1.5
  DEPTH=       .3       .6       .3

1490 NH CARD USED
*SECNO 1715.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.15


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .77    516.57    516.33       .00    516.63       .06       .09       .02    516.70
      20.4        .0      20.4        .0        .0      19.4        .0       7.9      12.4    517.10
       .19       .00      1.05       .00      .000      .041      .000      .000    515.80    970.32
   .003975       14.       12.       13.         2        11         0       .00     34.56   1004.88


FLOW DISTRIBUTION FOR SECNO=   1715.00         CWSEL=    516.57

STA=     970.     972.     975.     993.     997.    1007.
  PER Q=      1.8     13.6     45.2     22.9     16.5
   AREA=       .6      2.0      9.8      3.1      3.9
    VEL=       .6      1.4       .9      1.5       .9
  DEPTH=       .3       .7       .5       .8       .5

1490 NH CARD USED
*SECNO 1772.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.10    517.40    517.40       .00    517.74       .34       .46       .08    517.71
      20.4        .0      20.4        .0        .0       7.9        .0       8.7      13.7    517.48
       .20       .00      2.58       .00      .000      .042      .000      .000    516.30    994.91
   .023746       72.       57.       56.         0        11         0       .00     13.27   1008.19


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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


FLOW DISTRIBUTION FOR SECNO=   1772.00         CWSEL=    517.40

STA=     995.    1009.
  PER Q=    100.0
   AREA=      7.9
    VEL=      2.6
  DEPTH=       .6

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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
        ALTERNATIVE 2, WEST CBC CULVERT WITH VEGETATION MANAGEMENT
T3      100-YEAR SUBCRITICAL FLOW
T4      FILE: ALT2WEST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                  0     .0099       1                    510.68

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                   -1                         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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      1.28    510.68    510.61    510.68    511.08       .39       .00       .00    511.80
      62.3        .0      62.3        .0        .0      22.4        .0        .0        .0    511.40
       .00       .00      2.78       .00      .000      .035      .000      .000    509.40    989.92
   .010043        0.        0.        0.         0        11         3       .00     22.94   1012.86


FLOW DISTRIBUTION FOR SECNO=    971.00         CWSEL=    510.68

STA=     990.    1015.
  PER Q=     100.0
   AREA=      22.4
    VEL=       2.8
  DEPTH=       1.0

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.46


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000      1.66    511.16    510.53       .00    511.25       .09       .08       .09    513.10
      62.3        .0      62.3        .0        .0      47.2        .0        .8        .7    513.50
       .00       .00      1.32       .00      .000      .035      .000      .000    509.50    984.24
   .001666       11.       23.       36.         2        15         0       .00     38.71   1022.95
```

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 511.16

STA= 984. 1025.
PER Q= 100.0
AREA= 47.2
VEL= 1.3
DEPTH= 1.2

1

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 511.19 BRIDGE VELOCITY= 1.53 CALCULATED CHANNEL AREA= 39.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	511.26	.01	0.	62.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

1000.000	1.57	511.17	.00	.00	511.26	.09	.01	.00	511.60
62.3	.0	62.3	.0	.0	45.7	.0	1.1	.9	513.50
.01	.00	1.36	.00	.000	.035	.000	.000	509.60	984.21
.001854	6.	6.	6.	0	0	0	.00	38.76	1022.96

FLOW DISTRIBUTION FOR SECNO= 1000.00 CWSEL= 511.17

STA= 984. 1024.
PER Q= 100.0
AREA= 45.7
VEL= 1.4
DEPTH= 1.2

CCHV= .100 CEHV= .300
*SECNO 1020.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 510.90 ELREA= 513.50

1020.000	1.37	511.17	511.17	.00	511.51	.34	.08	.07	510.90
62.3	5.5	56.8	.0	5.2	21.1	.0	1.8	1.8	513.50
.01	1.05	2.69	.00	.045	.035	.000	.000	509.80	965.55
.010593	35.	20.	1.	0	15	0	.00	40.60	1006.15

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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

FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 511.17

STA=	966.	967.	982.	1008.
PER Q=	.4	8.5	91.2	
AREA=	.3	4.9	21.1	
VEL=	.7	1.1	2.7	
DEPTH=	.2	.3	.9	

1490 NH CARD USED
*SECNO 1030.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.90 ELREA= 512.90

1030.000	1.73	511.63	511.63	.00	512.11	.48	.12	.04	511.90
62.3	.0	62.3	.0	.0	20.3	.0	2.1	2.2	512.90
.01	.00	3.06	.00	.000	.036	.000	.000	509.90	982.94
.013713	17.	10.	8.	0	11	0	.00	21.51	1004.45

FLOW DISTRIBUTION FOR SECNO= 1030.00 CWSEL= 511.63

STA=	983.	1005.
PER Q=	100.0	
AREA=	20.3	
VEL=	3.1	
DEPTH=	.9	

1490 NH CARD USED
*SECNO 1060.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.84

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.14 ELREA= 512.88

1060.000	2.10	512.12	511.53	.00	512.34	.23	.21	.03	512.14
62.3	.0	62.3	.0	.0	29.5	.0	2.8	2.8	512.88
.01	.00	2.11	.00	.000	.038	.000	.000	510.02	986.50
.004041	16.	31.	18.	2	11	0	.00	19.74	1006.24

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

FLOW DISTRIBUTION FOR SECNO= 1060.00 CWSEL= 512.12

STA=	986.	1007.
PER Q=	100.0	
AREA=	29.5	

```
   VEL=      2.1
 DEPTH=      1.5

1490 NH CARD USED
*SECNO 1154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.80    512.50    511.41       .00    512.52       .03       .16       .02    512.58
      31.4        .0      31.4        .0        .0      44.1        .0       6.3       5.4    512.90
       .05       .00       .71       .00      .000      .040      .000      .000    510.70    980.09
   .000597       94.       94.       93.         2        17         0       .00     34.90   1014.99


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    512.50

STA=     980.     992.    1004.    1017.
  PER Q=     14.7     57.9     27.4
   AREA=      9.8     20.4     14.0
    VEL=       .5       .9       .6
  DEPTH=       .8      1.8      1.2

1490 NH CARD USED
*SECNO 1191.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      1.36    512.26    512.26       .00    512.73       .47       .06       .13    512.33
      31.4        .0      31.4        .0        .0      10.4        .0       7.3       6.3    513.14
       .05       .00      3.03       .00      .000      .041      .000      .000    510.90    994.48
   .017849       42.       37.       35.         0        15         0       .00     11.23   1005.71


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    512.26

STA=     994.    1007.
  PER Q=    100.0
   AREA=     10.4
    VEL=      3.0
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1246.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.80    513.20    512.93       .00    513.45       .25       .70       .02    513.18
      31.4       1.3      30.1        .0       3.1      13.4        .0       8.0       8.1    513.85
       .06       .42      2.25       .00      .045      .044      .000      .000    511.40    950.03
   .009326       56.       55.       55.         2         8         0       .00     54.22   1004.25


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    513.20
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STA=     950.     959.     966.     992.    1005.
  PER Q=      1.2      1.7      1.2     95.9
   AREA=       .8      1.0      1.3     13.4
    VEL=       .4       .6       .3      2.2
  DEPTH=       .1       .1       .0      1.1

1490 NH CARD USED
*SECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .26 METERS

  1291.000      1.69    513.59    513.42       .00    513.82       .23       .37       .00    513.18
      31.4       2.7      28.6        .1       2.9      13.0        .2       8.7       9.6    513.40
       .07       .93      2.20       .41      .045      .043      .045      .000    511.90    987.59
   .007720       39.       44.       49.         2        15         0       .00     21.15   1008.74


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    513.59

STA=     988.     996.    1007.    1009.
  PER Q=      8.6     91.2       .2
   AREA=      2.9     13.0       .2
    VEL=       .9      2.2       .4
  DEPTH=       .3      1.2       .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


1490 NH CARD USED
*SECNO 1345.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

  1345.000      1.40    514.01    513.56       .00    514.11       .10       .28       .01    513.93
      31.4        .2      31.2        .0       1.0      22.0        .0       9.8      11.4    514.00
       .08       .19      1.42       .01      .045      .042      .000      .000    512.61    965.31
   .003584       60.       54.       49.         2        11         0       .00     43.01   1008.32


FLOW DISTRIBUTION FOR SECNO=   1345.00         CWSEL=    514.01

STA=     965.     974.     986.    1008.
  PER Q=       .1       .5     99.4
   AREA=       .2       .8     22.0
    VEL=       .1       .2      1.4
  DEPTH=       .0       .1      1.0

1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.24    514.38    514.35       .00    514.56       .18       .43       .02    514.12
      31.4       4.6      26.8        .0       5.7      13.3        .0      11.4      14.6    514.70
       .09       .80      2.01       .00      .045      .044      .000      .000    513.14    956.26
   .010221       69.       77.       85.         2        16         0       .00     45.55   1001.82
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FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    514.38

STA=     956.     969.     986.    1002.
 PER Q=      2.8     11.9     85.3
  AREA=      1.6      4.1     13.3
   VEL=       .6       .9      2.0
 DEPTH=       .1       .3       .8
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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


1490 NH CARD USED
*SECNO 1450.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000     1.52   514.82   514.82      .00   515.15      .33      .55      .05   514.74
      31.4       .2     31.1       .0       .5     12.2       .0     11.8     15.7   515.00
       .09      .45     2.55      .00     .060     .074     .000     .000   513.30   980.56
   .049758      29.      28.      28.        0       11        0      .00    25.79  1006.35


FLOW DISTRIBUTION FOR SECNO=   1450.00          CWSEL=    514.82

STA=     981.     991.    1007.
  PER Q=       .7     99.3
   AREA=       .5     12.2
    VEL=       .5      2.6
  DEPTH=       .0       .8

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER

3280 CROSS SECTION   1467.00 EXTENDED       .29 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.44

  1467.000     1.83   515.23   514.29      .00   515.27      .04      .08      .03   514.94
      31.4       .0     31.0       .3       .0     34.1      2.3     12.4     16.6   515.01
       .10      .00      .91      .13     .000     .032     .080     .000   513.40   965.75
   .001198      23.      23.      23.        3       11        0      .00    56.55  1022.30


FLOW DISTRIBUTION FOR SECNO=   1467.00          CWSEL=    515.23

STA=     966.    1009.    1022.
  PER Q=     99.0      1.0
   AREA=     34.1      2.3
    VEL=       .9       .1
  DEPTH=       .8       .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

CCHV= .300 CEHV= .500
*SECNO 1477.000
3280 CROSS SECTION 1477.00 EXTENDED .32 METERS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.06

1477.000	1.77	515.22	514.20	.00	515.28	.06	.00	.01	514.95
31.4	.1	30.5	.8	.9	27.1	7.5	12.9	17.3	514.95
.10	.06	1.13	.11	.045	.013	.045	.000	513.45	980.10
.000128	22.	13.	10.	2	18	0	.00	50.28	1030.38

FLOW DISTRIBUTION FOR SECNO= 1477.00 CWSEL= 515.22

STA=	980.	987.	1003.	1006.	1024.	1027.	1030.
PER Q=	.2	97.3	.2	1.3	.5	.5	
AREA=	.9	27.1	.8	4.2	1.2	1.2	
VEL=	.1	1.1	.1	.1	.1	.1	
DEPTH=	.1	1.8	.2	.2	.4	.4	

*SECNO 1480.000

1480.000	1.73	515.20	514.32	.00	515.30	.10	.00	.02	514.97
31.4	.0	31.2	.1	.5	22.2	1.0	13.0	17.4	514.97
.10	.08	1.40	.09	.045	.013	.045	.000	513.47	982.81
.000212	3.	3.	3.	2	11	0	.00	25.82	1008.63

FLOW DISTRIBUTION FOR SECNO= 1480.00 CWSEL= 515.20

STA=	983.	987.	1000.	1004.	1009.
PER Q=	.1	99.6	.2	.0	
AREA=	.5	22.2	.7	.3	
VEL=	.1	1.4	.1	.0	
DEPTH=	.1	1.7	.2	.1	

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.20	1.66	.00	1.50	3.00	23.16	11	4	513.59	513.47

RT 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
ALE 4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

*SECNO 1504.000
5155, 20 TRIALS OF QWEIR NOT ENOUGH; POSSIBLY INVALID
FINAL QWEIR + QCULV = 32. DOES NOT EQUAL ACTUAL Q = 31.

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SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG =    515.43
SPECIAL CULVERT
    EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   514.99    515.42      .13        0.       32.     1.389      18.0    515.41       11.


  1504.000      1.74    515.33       .00       .00    515.43       .10       .13       .00    515.09
      31.4        .1      31.0        .2       1.0      22.3       2.5      13.5      18.2    515.09
       .11       .08      1.39       .10      .045      .013      .045      .000    513.59    978.69
   .000206       23.       23.       23.         2         0         0       .00     42.32   1021.01


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    515.33

STA=     979.     987.    1000.    1004.    1011.    1021.
  PER Q=       .2     99.0       .4       .3       .0
   AREA=      1.0     22.3       .9      1.1       .4
    VEL=       .1      1.4       .1       .1       .0
  DEPTH=       .1      1.7       .2       .2       .0

CCHV=     .100 CEHV=     .300
*SECNO 1507.000
CHIMP CLSTA=     994.83 CELCH=     513.62 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

  1507.000      1.74    515.36    514.37       .00    515.43       .07       .00       .00    515.12
      31.4        .2      30.8        .4       1.2      26.8       2.3      13.6      18.3    515.12
       .11       .16      1.15       .16      .045      .032      .045      .000    513.62    976.81
   .000816        3.        3.        3.         2        14         0       .00     48.87   1025.69


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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


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    515.36

STA=     977.     987.    1003.    1011.    1026.
  PER Q=       .6     98.2       .9       .3
   AREA=      1.2     26.8      1.5       .9
    VEL=       .2      1.1       .2       .1
  DEPTH=       .1      1.7       .2       .1

*SECNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44
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  1520.000      1.46    515.34    514.77       .00    515.46       .12       .02       .02    515.54
      31.4        .0      31.4        .0        .0      20.4        .0      14.0      18.8    515.44
       .11       .00      1.54       .00      .000      .032      .000      .000    513.88    991.58
   .001992       13.       13.       13.         2         8         0       .00     16.85   1008.42


FLOW DISTRIBUTION FOR SECNO=   1520.00          CWSEL=    515.34

STA=     992.    1009.
  PER Q=    100.0
   AREA=     20.4
    VEL=      1.5
  DEPTH=      1.2

*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .24 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.40    515.77    515.77       .00    516.03       .27       .09       .04    515.54
      31.4        .4      25.4       5.6        .8      10.1      10.1      14.5      19.5    515.31
       .11       .43      2.52       .56      .080      .040      .080      .000    514.37    988.00
   .009492       20.       24.       24.         0        11         0       .00     45.60   1033.60


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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


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.77

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      1.1     81.0      8.3      4.8      4.8
   AREA=       .8     10.1      4.2      2.8      3.0
    VEL=       .4      2.5       .6       .5       .5
  DEPTH=       .2      1.1       .4       .3       .3

1490 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION   1598.00 EXTENDED       .11 METERS


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
  1598.000      1.45    516.30    516.29       .00    516.53       .23       .50       .00    516.12
      31.4        .3      28.7       2.4        .5      12.9       3.9      15.5      21.8    516.10
       .12       .64      2.23       .61      .045      .042      .045      .000    514.85    989.00
   .009116       53.       54.       54.         0         8         0       .00     40.59   1029.59


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.30

STA=     989.     992.    1005.    1030.
  PER Q=       .9     91.4      7.7
   AREA=       .5     12.9      3.9
    VEL=       .6      2.2       .6
  DEPTH=       .2      1.0       .2
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1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION   1652.00 EXTENDED       .24 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59

  1652.000      1.36    516.74    516.53       .00    516.84       .10       .29       .01    516.58
     31.4        .3      25.3       5.8       1.0      16.8       9.4      16.7      24.4    516.34
      .13       .28      1.51       .62      .045      .041      .045      .000    515.38    980.00
   .003595      53.       53.       54.         2        15         0       .00     54.97   1034.97


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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


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.74

STA=     980.     990.    1006.    1035.
  PER Q=       .9     80.6     18.5
   AREA=      1.0     16.8      9.4
    VEL=       .3      1.5       .6
  DEPTH=       .1      1.1       .3

1490 NH CARD USED
*SECNO 1674.000
3280 CROSS SECTION   1674.00 EXTENDED       .23 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.27

  1674.000      1.28    516.83    516.14       .00    516.88       .05       .04       .00    516.58
     62.3        .4      61.7        .2       1.2      61.4        .9      17.7      25.7    516.60
      .14       .30      1.01       .19      .045      .041      .045      .000    515.55    950.00
   .001325      24.       22.       20.         2        14         0       .00     64.14   1014.14


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.83

STA=     950.     955.    1006.    1014.
  PER Q=       .6     99.2       .3
   AREA=      1.2     61.4       .9
    VEL=       .3      1.0       .2
  DEPTH=       .2      1.2       .1

1490 NH CARD USED
*SECNO 1694.000
3280 CROSS SECTION   1694.00 EXTENDED       .13 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65


3305 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.68 ELREA=       516.90

  1694.000      1.13    516.83    516.40       .00    516.93       .11       .04       .02    516.68
     62.3        .6      61.6        .0       1.9      42.6        .0      18.8      27.0    516.90
      .14       .33      1.45       .00      .045      .039      .000      .000    515.70    950.00
   .003115      32.       20.       20.         2        11         0       .00     56.20   1006.20
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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


FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    516.83

STA=     950.     964.    1006.
  PER Q=      1.0     99.0
   AREA=      1.9     42.6
    VEL=       .3      1.4
  DEPTH=       .1      1.0

1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION   1703.00 EXTENDED       .03 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1703.000      1.18    516.93    516.93       .00    517.19       .26       .05       .05    516.70
     62.3       3.3      59.0        .0       5.8      25.4        .1      19.1      27.6    516.90
      .14       .56      2.32       .13      .045      .042      .045      .000    515.75    935.00
  .009953        9.        9.        9.         0         8         0       .00     79.09   1014.09


OW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.93

STA=     935.     980.    1007.    1014.
  PER Q=      5.2     94.7       .0
   AREA=      5.8     25.4       .1
    VEL=       .6      2.3       .1
  DEPTH=       .1      1.0       .0

1490 NH CARD USED
*SECNO 1715.000
3280 CROSS SECTION   1715.00 EXTENDED       .19 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.87

  1715.000      1.38    517.18    516.70       .00    517.27       .08       .06       .02    516.70
     62.3       6.8      55.4        .1      11.8      41.6        .6      19.6      28.7    517.10
      .15       .57      1.33       .15      .045      .043      .045      .000    515.80    935.00
  .002861       14.       12.       13.         2        14         0       .00     86.49   1021.49
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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


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    517.18

STA=     935.     970.    1007.    1021.
```

PER Q=	10.9	88.9	.2
AREA=	11.8	41.6	.6
VEL=	.6	1.3	.1
DEPTH=	.3	1.1	.0

1490 NH CARD USED
*SECNO 1772.000
3280 CROSS SECTION 1772.00 EXTENDED .12 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1772.000	1.42	517.72	517.72	.00	517.80	.09	.24	.00	517.71
62.3	38.8	18.8	4.6	30.3	12.4	8.2	22.9	35.6	517.48
.16	1.28	1.51	.57	.043	.042	.045	.000	516.30	921.12
.005414	72.	57.	56.	0	16	0	.00	128.88	1050.00

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.72

STA=	921.	943.	945.	955.	966.	969.	975.	982.	994.	1009.	1032.	1050.
PER Q=	7.8	5.1	7.8	4.5	5.6	23.2	8.1	.2	30.2	5.1	2.4	
AREA=	5.4	2.0	4.8	3.5	2.7	7.0	4.3	.5	12.4	5.2	3.0	
VEL=	.9	1.6	1.0	.8	1.3	2.1	1.2	.2	1.5	.6	.5	
DEPTH=	.2	.9	.5	.3	.7	1.2	.6	.0	.8	.2	.2	

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THIS RUN EXECUTED 01JUL96 11:26:21

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	971.000	20.37	510.15	.00	20.37	.00	.00	1.87	.00	.00	20.30	100.27	509.40
	971.000	62.26	510.68	.00	62.26	.00	.00	2.78	.00	.00	22.94	100.43	509.40
*	995.000	20.37	510.42	.00	20.37	.00	.00	1.01	.00	4.37	34.87	26.54	509.50
*	995.000	62.26	511.16	.00	62.26	.00	.00	1.32	.00	4.37	38.71	16.66	509.50
	1000.000	20.37	510.43	.00	20.37	.00	.00	1.09	.00	18.18	34.74	33.60	509.60
	1000.000	62.26	511.17	.00	62.26	.00	.00	1.36	.00	18.18	38.76	18.54	509.60
*	1020.000	20.37	510.64	.00	20.37	.00	.00	2.21	.00	10.10	18.65	154.79	509.80
*	1020.000	62.26	511.17	5.49	56.77	.00	1.05	2.69	.00	10.10	40.60	105.93	509.80
	1030.000	20.37	510.98	.00	20.37	.00	.00	2.35	.00	10.00	15.95	152.52	509.90
*	1030.000	62.26	511.63	.00	62.26	.00	.00	3.06	.00	10.00	21.51	137.13	509.90
*	1060.000	20.37	511.35	.00	20.37	.00	.00	1.29	.00	3.93	15.86	24.53	510.02
*	1060.000	62.26	512.12	.00	62.26	.00	.00	2.11	.00	3.93	19.74	40.41	510.02

	1154.000	9.72	511.58	.00	9.72	.00	.00	.57	.00	7.26	24.33	8.49	510.70
	1154.000	31.36	512.50	.00	31.36	.00	.00	.71	.00	7.26	34.90	5.97	510.70
	1191.000	9.72	511.63	.00	9.72	.00	.00	2.29	.00	5.37	8.01	191.51	510.90
	1191.000	31.36	512.26	.00	31.36	.00	.00	3.03	.00	5.37	11.23	178.49	510.90
*	1246.000	9.72	512.47	.00	9.72	.00	.00	1.65	.00	9.03	8.50	88.96	511.40
	1246.000	31.36	513.20	1.28	30.08	.00	.42	2.25	.00	9.03	54.22	93.26	511.40
	1291.000	9.72	512.88	.00	9.72	.00	.00	1.73	.00	11.36	8.75	104.83	511.90
	1291.000	31.36	513.59	2.68	28.61	.06	.93	2.20	.41	11.36	21.15	77.20	511.90
	1345.000	9.72	513.39	.00	9.72	.00	.00	1.07	.00	13.15	19.38	54.55	512.61
*	1345.000	31.36	514.01	.20	31.16	.00	.19	1.42	.01	13.15	43.01	35.84	512.61

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1422.000	9.72	513.93	.00	9.72	.00	.00	1.50	.00	6.88	13.29	113.55	513.14
*	1422.000	31.36	514.38	4.60	26.76	.00	.80	2.01	.00	6.88	45.55	102.21	513.14
*	1450.000	9.72	514.39	.00	9.72	.00	.00	1.49	.00	5.70	11.10	250.75	513.30
*	1450.000	31.36	514.82	.21	31.15	.00	.45	2.55	.00	5.70	25.79	497.58	513.30
*	1467.000	9.72	514.53	.00	9.72	.00	.00	.65	.00	4.31	15.49	4.82	513.40
*	1467.000	31.36	515.23	.00	31.05	.31	.00	.91	.13	4.31	56.55	11.98	513.40
*	1477.000	9.72	514.53	.00	9.72	.00	.00	.58	.00	3.80	15.35	.62	513.45
	1477.000	31.36	515.22	.06	30.51	.79	.06	1.13	.11	3.80	50.28	1.28	513.45
	1480.000	9.72	514.53	.00	9.72	.00	.00	.71	.00	5.90	12.85	.96	513.47
	1480.000	31.36	515.20	.04	31.24	.08	.08	1.40	.09	5.90	25.82	2.12	513.47
	1504.000	9.72	514.52	.00	9.72	.00	.00	.81	.00	5.17	12.85	1.45	513.59
	1504.000	31.36	515.33	.08	31.04	.24	.08	1.39	.10	5.17	42.32	2.06	513.59
*	1507.000	9.72	514.53	.00	9.72	.00	.00	.70	.00	8.87	15.36	6.71	513.62
*	1507.000	31.36	515.36	.20	30.79	.38	.16	1.15	.16	8.87	48.87	8.16	513.62
*	1520.000	9.72	514.51	.00	9.72	.00	.00	1.26	.00	20.00	13.52	35.26	513.88
*	1520.000	31.36	515.34	.00	31.36	.00	.00	1.54	.00	20.00	16.85	19.92	513.88
*	1545.000	9.72	515.09	.00	9.72	.00	.00	2.32	.00	20.20	7.67	203.22	514.37
*	1545.000	31.36	515.77	.35	25.40	5.61	.43	2.52	.56	20.20	45.60	94.92	514.37
*	1598.000	9.72	515.83	.00	9.72	.00	.00	1.39	.00	8.95	10.85	61.03	514.85
	1598.000	31.36	516.30	.30	28.66	2.41	.64	2.23	.61	8.95	40.59	91.16	514.85
	1652.000	9.72	516.15	.00	9.72	.00	.00	1.22	.00	9.97	13.39	50.18	515.38
*	1652.000	31.36	516.74	.28	25.29	5.79	.28	1.51	.62	9.97	54.97	35.95	515.38
*	1674.000	20.37	516.25	.00	20.37	.00	.00	.64	.00	7.73	49.04	11.79	515.55
*	1674.000	62.26	516.83	.36	61.73	.17	.30	1.01	.19	7.73	64.14	13.25	515.55
*	1694.000	20.37	516.26	.00	20.37	.00	.00	1.05	.00	7.50	39.26	41.11	515.70
*	1694.000	62.26	516.83	.64	61.62	.00	.33	1.45	.00	7.50	56.20	31.15	515.70
	1703.000	20.37	516.30	.00	20.37	.00	.00	2.07	.00	5.55	22.93	183.25	515.75
*	1703.000	62.26	516.93	3.26	58.99	.01	.56	2.32	.13	5.55	79.09	99.53	515.75
*	1715.000	20.37	516.57	.00	20.37	.00	.00	1.05	.00	4.17	34.56	39.75	515.80
*	1715.000	62.26	517.18	6.79	55.37	.09	.57	1.33	.15	4.17	86.49	28.61	515.80

*	1772.000	20.37	517.40	.00	20.37	.00	.00	2.58	.00	8.77	13.27	237.46	516.30
*	1772.000	62.26	517.72	38.82	18.80	4.64	1.28	1.51	.57	8.77	128.88	54.14	516.30

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	971.000	20.37	510.33	510.08	.82
	971.000	62.26	511.08	510.61	.90
*	995.000	20.37	510.47	510.15	.43
*	995.000	62.26	511.25	510.53	.38
	1000.000	20.37	510.49	.00	.47
	1000.000	62.26	511.26	.00	.40
*	1020.000	20.37	510.89	510.64	1.00
*	1020.000	62.26	511.51	511.17	.91
*	1030.000	20.37	511.27	510.98	1.02
*	1030.000	62.26	512.11	511.63	1.01
*	1060.000	20.37	511.44	510.83	.41
*	1060.000	62.26	512.34	511.53	.55
	1154.000	9.72	511.60	511.05	.22
	1154.000	31.36	512.52	511.41	.20
*	1191.000	9.72	511.90	511.63	1.01
*	1191.000	31.36	512.73	512.26	1.01
*	1246.000	9.72	512.61	512.26	.63
	1246.000	31.36	513.45	512.93	.69
	1291.000	9.72	513.04	512.71	.69
	1291.000	31.36	513.82	513.42	.65
	1345.000	9.72	513.44	513.19	.50
*	1345.000	31.36	514.11	513.56	.45
*	1422.000	9.72	514.05	513.80	.69
*	1422.000	31.36	514.56	514.35	.71
*	1450.000	9.72	514.50	514.18	.62
*	1450.000	31.36	515.15	514.82	.90
*	1467.000	9.72	514.55	513.82	.21
*	1467.000	31.36	515.27	514.29	.33
*	1477.000	9.72	514.55	513.79	.18
*	1477.000	31.36	515.28	514.20	.27
	1480.000	9.72	514.55	513.86	.22
	1480.000	31.36	515.30	514.32	.34

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	SECNO	Q	EG	CRIWS	FRCH
	1504.000	9.72	514.55	.00	.27
	1504.000	31.36	515.43	.00	.34
*	1507.000	9.72	514.56	513.96	.24
*	1507.000	31.36	515.43	514.37	.28
*	1520.000	9.72	514.59	514.30	.53
*	1520.000	31.36	515.46	514.77	.45
*	1545.000	9.72	515.36	515.09	1.00
*	1545.000	31.36	516.03	515.77	.77
*	1598.000	9.72	515.93	515.56	.55
	1598.000	31.36	516.53	516.29	.71
	1652.000	9.72	516.22	515.89	.51
*	1652.000	31.36	516.84	516.53	.46
*	1674.000	20.37	516.27	515.84	.25
*	1674.000	62.26	516.88	516.14	.29
*	1694.000	20.37	516.32	516.06	.48
*	1694.000	62.26	516.93	516.40	.46
*	1703.000	20.37	516.52	516.30	1.01
*	1703.000	62.26	517.19	516.93	.76
*	1715.000	20.37	516.63	516.33	.45
*	1715.000	62.26	517.27	516.70	.40
	1772.000	20.37	517.74	517.40	1.07
*	1772.000	62.26	517.80	517.72	.53

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	971.000	.00	.00	.00	509.40	20.37	510.15	510.08	510.33	100.27	1.87	10.89	2.03
	971.000	.00	.00	.00	509.40	62.26	510.68	510.61	511.08	100.43	2.78	22.42	6.21
*	995.000	22.90	.00	.00	509.50	20.37	510.42	510.15	510.47	26.54	1.01	20.08	3.95
*	995.000	22.90	.00	.00	509.50	62.26	511.16	510.53	511.25	16.66	1.32	47.20	15.25
	1000.000	5.50	513.10	511.90	509.60	20.37	510.43	.00	510.49	33.60	1.09	18.68	3.51
	1000.000	5.50	513.10	511.90	509.60	62.26	511.17	.00	511.26	18.54	1.36	45.72	14.46
*	1020.000	19.80	.00	.00	509.80	20.37	510.64	510.64	510.89	154.79	2.21	9.23	1.64
*	1020.000	19.80	.00	.00	509.80	62.26	511.17	511.17	511.51	105.93	2.69	26.34	6.05
*	1030.000	10.00	.00	.00	509.90	20.37	510.98	510.98	511.27	152.52	2.35	8.65	1.65
	1030.000	10.00	.00	.00	509.90	62.26	511.63	511.63	512.11	137.13	3.06	20.32	5.32
*	1060.000	30.57	.00	.00	510.02	20.37	511.35	510.83	511.44	24.53	1.29	15.84	4.11
*	1060.000	30.57	.00	.00	510.02	62.26	512.12	511.53	512.34	40.41	2.11	29.50	9.79
	1154.000	93.71	.00	.00	510.70	9.72	511.58	511.05	511.60	8.49	.57	17.10	3.34

	1154.000	93.71	.00	.00	510.70	31.36	512.50	511.41	512.52	5.97	.71	44.13	12.83
*	1191.000	37.24	.00	.00	510.90	9.72	511.63	511.63	511.90	191.51	2.29	4.23	.70
*	1191.000	37.24	.00	.00	510.90	31.36	512.26	512.26	512.73	178.49	3.03	10.36	2.35
	1246.000	55.38	.00	.00	511.40	9.72	512.47	512.26	512.61	88.96	1.65	5.89	1.03
	1246.000	55.38	.00	.00	511.40	31.36	513.20	512.93	513.45	93.26	2.25	16.44	3.25
	1291.000	44.03	.00	.00	511.90	9.72	512.88	512.71	513.04	104.83	1.73	5.61	.95
	1291.000	44.03	.00	.00	511.90	31.36	513.59	513.42	513.82	77.20	2.20	16.07	3.57
	1345.000	54.00	.00	.00	512.61	9.72	513.39	513.19	513.44	54.55	1.07	9.12	1.32
*	1345.000	54.00	.00	.00	512.61	31.36	514.01	513.56	514.11	35.84	1.42	23.04	5.24
*	1422.000	77.06	.00	.00	513.14	9.72	513.93	513.80	514.05	113.55	1.50	6.47	.91
*	1422.000	77.06	.00	.00	513.14	31.36	514.38	514.35	514.56	102.21	2.01	19.06	3.10
*	1450.000	28.09	.00	.00	513.30	9.72	514.39	514.18	514.50	250.75	1.49	6.54	.61
*	1450.000	28.09	.00	.00	513.30	31.36	514.82	514.82	515.15	497.58	2.55	12.66	1.41
*	1467.000	23.20	.00	.00	513.40	9.72	514.53	513.82	514.55	4.82	.65	14.89	4.43
*	1467.000	23.20	.00	.00	513.40	31.36	515.23	514.29	515.27	11.98	.91	36.39	9.06
*	1477.000	13.14	.00	.00	513.45	9.72	514.53	513.79	514.55	.62	.58	16.63	12.37
*	1477.000	13.14	.00	.00	513.45	31.36	515.22	514.20	515.28	1.28	1.13	35.45	27.73
	1480.000	3.38	.00	.00	513.47	9.72	514.53	513.86	514.55	.96	.71	13.67	9.90
	1480.000	3.38	.00	.00	513.47	31.36	515.20	514.32	515.30	2.12	1.40	23.69	21.53

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1504.000	23.20	515.41	.00	513.59	9.72	514.52	.00	514.55	1.45	.81	12.01	8.07
	1504.000	23.20	515.41	.00	513.59	31.36	515.33	.00	515.43	2.06	1.39	25.81	21.84
*	1507.000	3.38	.00	.00	513.62	9.72	514.53	513.96	514.56	6.71	.70	13.85	3.75
*	1507.000	3.38	.00	.00	513.62	31.36	515.36	514.37	515.43	8.16	1.15	30.32	10.98
*	1520.000	13.00	.00	.00	513.88	9.72	514.51	514.30	514.59	35.26	1.26	7.72	1.64
*	1520.000	13.00	.00	.00	513.88	31.36	515.34	514.77	515.46	19.92	1.54	20.36	7.03
*	1545.000	24.26	.00	.00	514.37	9.72	515.09	515.09	515.36	203.22	2.32	4.19	.68
*	1545.000	24.26	.00	.00	514.37	31.36	515.77	515.77	516.03	94.92	2.52	20.95	3.22
*	1598.000	53.64	.00	.00	514.85	9.72	515.83	515.56	515.93	61.03	1.39	7.00	1.24
	1598.000	53.64	.00	.00	514.85	31.36	516.30	516.29	516.53	91.16	2.23	17.24	3.28
	1652.000	53.18	.00	.00	515.38	9.72	516.15	515.89	516.22	50.18	1.22	7.94	1.37
*	1652.000	53.18	.00	.00	515.38	31.36	516.74	516.53	516.84	35.95	1.51	27.12	5.23
*	1674.000	22.00	.00	.00	515.55	20.37	516.25	515.84	516.27	11.79	.64	31.96	5.93
*	1674.000	22.00	.00	.00	515.55	62.26	516.83	516.14	516.88	13.25	1.01	63.48	17.10
*	1694.000	20.00	.00	.00	515.70	20.37	516.26	516.06	516.32	41.11	1.05	19.39	3.18
*	1694.000	20.00	.00	.00	515.70	62.26	516.83	516.40	516.93	31.15	1.45	44.50	11.16
*	1703.000	9.00	.00	.00	515.75	20.37	516.30	516.30	516.52	183.25	2.07	9.82	1.50
	1703.000	9.00	.00	.00	515.75	62.26	516.93	516.93	517.19	99.53	2.32	31.33	6.24
*	1715.000	12.00	.00	.00	515.80	20.37	516.57	516.33	516.63	39.75	1.05	19.36	3.23
*	1715.000	12.00	.00	.00	515.80	62.26	517.18	516.70	517.27	28.61	1.33	54.06	11.64
*	1772.000	57.00	.00	.00	516.30	20.37	517.40	517.40	517.74	237.46	2.58	7.90	1.32

*	1772.000	57.00	.00	.00	516.30	62.26	517.72	517.72	517.80	54.14	1.51	50.91	8.46

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	971.000	20.37	510.15	.00	.00	.00	20.30	.00
	971.000	62.26	510.68	.53	.00	.00	22.94	.00
*	995.000	20.37	510.42	.00	.27	.00	34.87	22.90
*	995.000	62.26	511.16	.74	.47	.00	38.71	22.90
	1000.000	20.37	510.43	.00	.01	.00	34.74	5.50
	1000.000	62.26	511.17	.74	.01	.00	38.76	5.50
*	1020.000	20.37	510.64	.00	.21	.00	18.65	19.80
*	1020.000	62.26	511.17	.53	.01	.00	40.60	19.80
*	1030.000	20.37	510.98	.00	.34	.00	15.95	10.00
*	1030.000	62.26	511.63	.65	.46	.00	21.51	10.00
*	1060.000	20.37	511.35	.00	.37	.00	15.86	30.57
*	1060.000	62.26	512.12	.76	.48	.00	19.74	30.57
	1154.000	9.72	511.58	.00	.23	.00	24.33	93.71
	1154.000	31.36	512.50	.92	.38	.00	34.90	93.71
*	1191.000	9.72	511.63	.00	.05	.00	8.01	37.24
*	1191.000	31.36	512.26	.63	-.24	.00	11.23	37.24
*	1246.000	9.72	512.47	.00	.84	.00	8.50	55.38
	1246.000	31.36	513.20	.73	.94	.00	54.22	55.38
	1291.000	9.72	512.88	.00	.41	.00	8.75	44.03
	1291.000	31.36	513.59	.71	.39	.00	21.15	44.03
	1345.000	9.72	513.39	.00	.50	.00	19.38	54.00
*	1345.000	31.36	514.01	.62	.41	.00	43.01	54.00
*	1422.000	9.72	513.93	.00	.55	.00	13.29	77.06
*	1422.000	31.36	514.38	.45	.38	.00	45.55	77.06
*	1450.000	9.72	514.39	.00	.46	.00	11.10	28.09
*	1450.000	31.36	514.82	.43	.44	.00	25.79	28.09
*	1467.000	9.72	514.53	.00	.13	.00	15.49	23.20
*	1467.000	31.36	515.23	.70	.40	.00	56.55	23.20
*	1477.000	9.72	514.53	.00	.01	.00	15.35	13.14
*	1477.000	31.36	515.22	.69	-.01	.00	50.28	13.14
	1480.000	9.72	514.53	.00	.00	.00	12.85	3.38
	1480.000	31.36	515.20	.67	-.02	.00	25.82	3.38

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

	1504.000	9.72	514.52	.00	-.01	.00	12.85	23.20
	1504.000	31.36	515.33	.81	.13	.00	42.32	23.20
	1507.000	9.72	514.53	.00	-.01	.00	15.36	3.38
	1507.000	31.36	515.36	.83	.04	.00	48.87	3.38
*	1520.000	9.72	514.51	.00	-.02	.00	13.52	13.00
*	1520.000	31.36	515.34	.83	-.02	.00	16.85	13.00
*	1545.000	9.72	515.09	.00	.58	.00	7.67	24.26
*	1545.000	31.36	515.77	.67	.42	.00	45.60	24.26
*	1598.000	9.72	515.83	.00	.74	.00	10.85	53.64
	1598.000	31.36	516.30	.47	.54	.00	40.59	53.64
	1652.000	9.72	516.15	.00	.32	.00	13.39	53.18
*	1652.000	31.36	516.74	.59	.44	.00	54.97	53.18
*	1674.000	20.37	516.25	.00	.10	.00	49.04	22.00
*	1674.000	62.26	516.83	.58	.09	.00	64.14	22.00
*	1694.000	20.37	516.26	.00	.02	.00	39.26	20.00
*	1694.000	62.26	516.83	.57	.00	.00	56.20	20.00
*	1703.000	20.37	516.30	.00	.04	.00	22.93	9.00
*	1703.000	62.26	516.93	.63	.10	.00	79.09	9.00
*	1715.000	20.37	516.57	.00	.27	.00	34.56	12.00
*	1715.000	62.26	517.18	.61	.25	.00	86.49	12.00
*	1772.000	20.37	517.40	.00	.83	.00	13.27	57.00
	1772.000	62.26	517.72	.31	.53	.00	128.88	57.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1020.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1020.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1020.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1060.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1060.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1191.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1246.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1345.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1422.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1422.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1450.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1450.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1450.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1467.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1467.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1520.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1520.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1598.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
```



```
WARNING SECNO=   1652.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1674.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1674.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1694.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1703.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1715.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    01JUL96    TIME   11:25:16 *
 *****************************************
```

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

01JUL96 11:25:16 PAGE 1

THIS RUN EXECUTED 01JUL96 11:25:16

```
*************************************
 HEC-2 WATER SURFACE PROFILES

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

```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/30/96
T2      ALTERNATIVE 2, WEST CBC CULVERT WITH VEGETATION MANAGEMENT
T3      10-YEAR SUPERCRITICAL FLOW
T4      FILE: A2WESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 1       .01       1                        517.44

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                -1                                    -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        3         2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

       2     20.37     62.26

      CHANNEL n-VALUE IS WEIGHTED MEAN OF OVERBANK n-VALUES
      AND SUPERCRITICAL STREAMBED VALUES

NC    .045      .045      .040       .1        .3
```

```
X1     1772        18     993.95    1009.03        72        56        57
X3       10
GR    517.9    900.00      517.7     923.00    517.42    938.76    516.60    942.86    516.60     943.5
      517.21   945.11      517.26    955.13     517.5    965.61    516.50    969.43    516.55    975.29
GR    517.63   982.11      517.71    993.95     516.3    998.39     516.3   1001.94    516.95    1003.1
GR    517.48  1009.03       517.5   1032.08     517.6   1050.00
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

1


```
NH       6      .045     972.00      .030    975.00      .045    993.00      .030    997.00      .045
NH  1007.0      .045    1040.00

X1    1715        11     970.00    1007.00        14        13        12
X3      10
GR    517.0   935.00      516.7     970.00    515.9    972.00    515.9    975.00     516.2    984.00
GR    515.8   993.00      515.8     997.00    516.1   1001.00    516.1   1003.00     517.1    1007.0
GR    517.3  1040.00
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

```
NH       4      .045     983.00      .030    992.50      .045   1006.50      .045   1060.00

X1    1703         8     980.00    1006.50         9         9         9
X3      10
GR    516.9   935.00      516.7     980.00   515.75    983.00   515.75    992.50     515.9    994.00
GR    516.0  1003.00      516.9    1006.50    517.1   1060.00
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

```
NH       4      .045     966.50      .045    975.00      .030   1003.00      .045   1025.00

X1    1694         8     964.00    1006.40        32        20        20
X3      10
GR    516.7   950.00      516.68     964.00    515.9    966.50    515.9    975.00     515.7    976.00
GR    515.7  1003.00       516.9    1006.40    517.0   1025.00
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

```
NH       4      .045     958.00      .045    979.00      .030   1002.48      .045   1020.00
```

BIFURCATION SECTION; UPSTREAM LIMIT

```
X1    1674         8     955.00    1006.40        24        20        22
X3      10
GR    516.6   950.00      516.58     955.00   515.55    958.00   515.55    979.00    515.55    980.00
GR    515.6  1002.48       516.6    1006.40    517.0   1020.00
```

FLOW IN WEST CHANNEL (based on subcritical split flow model)

```
QT       2      9.72       31.36
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

```
NH       3      .045     994.01      .032   1001.83      .045   1034.97
```

BIFURCATION SECTION; DOWNSTREAM LIMIT

```
X1    1652         6     989.93    1005.58        53        54     53.18
      10
GR    516.7   980.00      516.58     989.93   515.42    994.01   515.38   1001.83    516.34   1005.58
GR    516.5  1034.97
```

SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

1

```
      3      .045     996.69      .028    1000.26      .045    1029.59

       DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1598        7    991.58   1004.53        53        54     53.64
X3      10                      989.0
GR  516.15   968.00    516.15    987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR   516.1  1004.53     516.2   1029.59
 ***********************************************

NC    .080     .080      .040

       DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1545        8    991.70   1000.82        20        24     24.26
X3      10                      988.0
GR   515.6   967.00    515.54    991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR   515.5  1012.48    515.46   1022.45    515.53   1033.60


NC    .045     .045      .026

       CHANNEL TRANSITION SECTION
       DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1    1520        8    991.70   1000.82        13        13     13.00
CI    1000   513.88      .032         2         2       -11
X3      10
GR   515.6   967.00    515.54    991.70    514.30    994.00    514.25    998.71    515.31   1000.82
GR   515.5  1012.48    515.46   1022.45    515.53   1033.60


NC    .045     .045      .026        .3        .5

X1    1507        8    987.15   1002.51         3         3      3.38
CI                                                     .01
X3      10
GR  515.51   968.00    515.34    978.30    515.12    987.15    513.62    987.16    513.62   1002.50
GR  515.12  1002.51    515.25   1010.64    515.41   1031.65


NC    .045     .045      .013        .3        .5

       UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
       CULVERT SKEW 25 DEGREES
       (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1    1504       21    987.15   1000.01      23.2      23.2     23.20
X3      10
GR  515.51   968.00    515.34    978.30    515.09    987.15    513.59    987.16    513.59    990.16
GR  515.09   990.16    515.09    990.44    513.59    990.44    513.59    993.44    515.09    993.44
GR  515.09   993.72    513.59    993.72    513.59    996.72    515.09    996.72    515.09    997.00
GR  513.59   997.00    513.59   1000.00    515.09   1000.01    515.08   1003.77    515.25   1010.64
GR  515.41  1031.65

       DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
       CULVERT SKEW 25 DEGREES
```

1


```
X1    1480       21    987.15   1000.01       3.3       3.3      3.38
X2                          0                515.41
X3      10
BT      -2   968.00    515.51    514.97   1031.65    515.41    514.97
```

```
GR    515.5     968.00     515.44     978.30     514.97     987.15     513.47     987.16     513.47     990.16
GR   514.97     990.16     514.97     990.44     513.47     990.44     513.47     993.44     514.97     993.44
GR   514.97     993.72     513.47     993.72     513.47     996.72     514.97     996.72     514.97     997.00
GR   513.47     997.00     513.47    1000.00     514.97    1000.01     515.08    1003.77     515.25    1010.64
     515.41    1031.65


NC     .045       .045       .013        .1         .3

        DOWNSTREAM END OF OUTLET APRON
X1     1477         10     987.15    1002.51         22         10      13.14
CI       -1     513.45       .032        .01        .01     -15.34
X3       10
GR    515.3     965.00     515.28     978.30     514.95     987.15     513.45     987.16     513.45    1002.50
GR   514.95    1002.51      515.0    1005.82     514.96    1024.05     514.73    1027.39     514.89    1030.38


NC     .080       .080       .040

        CHANNEL TRANSITION SECTION
        DUMPED RIPRAP SIDESLOPE, NATURAL BOTTOM
X1     1467          9     965.75    1006.87       23.2       23.2      23.20
CI     1000     513.40       .032          2          2        -11
X3       10
GR   514.94     965.75     514.74     991.48      514.0     997.60     513.84     998.92      513.4     999.00
GR   513.39    1001.52      513.9    1003.30      515.0    1006.87      515.1     1022.3


X1     1450          9     991.48    1006.87         29         28      28.09
CI                                                            .01
X3       10
GR   514.94     965.75     514.74     991.48      513.9     997.60     513.74     998.92      513.3     999.00
     513.3    1001.52      513.8    1003.30      515.0    1006.87      515.1     1022.3
*****************************************************

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH        4       .045     985.66       .045     996.28       .033     999.49       .045    1025.59

X1     1422          8     985.66    1002.43         69         85      77.06
X3       10
GR    514.5     950.00     514.14     969.33     514.12     985.66     513.14     996.28     513.18     999.49
GR    514.1    1001.27      514.7    1002.43     514.81    1025.59

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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NH        4       .045     988.37       .045     996.03       .033    1006.19       .045    1027.15

X1     1345         11     986.22    1007.90         60         49        54
X3       10
GR    514.1     950.00     513.95     974.18     513.93     986.22     513.16     988.37     512.95     994.56
GR    513.1     996.03     512.72    1000.55     512.61    1006.19      513.1    1006.79     514.00    1007.90
GR   514.23    1027.15

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

          5       .045     996.07       .045     999.11       .040    1002.81       .045    1012.47       .045
NH    1038.2

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1291          7     996.07    1007.14         39         49      44.03
X3       10
```

```
GR   513.33    987.59    513.18    996.07    512.06    999.11    511.90    1002.81    513.4    1007.14
GR   514.05   1012.47    514.23    1038.2

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .045    992.06      .045    998.48      .040   1002.02      .045   1032.48

X1    1246         8    992.06   1005.06        56        55     55.38
X3      10
GR   513.2    950.00    513.01    958.67    513.12    965.78    513.18    992.06    511.57    998.48
GR   511.4   1002.02    513.85   1005.06     513.9   1032.48

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       4      .045    994.25      .045    998.82      .028   1003.39      .045   1010.00

X1    1191        10    994.25   1006.67        42        35     37.24
X3      10
GR   512.72   983.92    512.65    989.13    512.33    994.25    511.00    998.82    510.98    998.89
GR   510.9   1003.19    511.00   1003.39    512.01   1005.44    513.14   1006.67     513.2   1010.00

        CONFLUENCE WITH EAST CHANNEL

QT       2     20.37     62.26

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NH       4      .045    979.44      .045    992.04      .035   1003.63      .045   1021.00


X1    1154         9    979.44   1016.60        94        93     93.71
X3      10
GR   512.7    950.00    512.58    979.44    511.55    987.29    510.76    992.04    510.71   1003.63
     510.7   1005.90    510.73   1008.00    512.90   1016.60    513.00   1021.00

        SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
   01JUL96      11:25:16                                                                          PAGE    6


NH       5      .045    986.43      .045    994.11      .030   1003.49      .030   1007.33      .040
NH   1011.0

X1    1060         9    986.43   1007.33        16        18     30.57
X3      10
GR   512.5    915.00    511.55    966.98     511.5    978.97    512.14    986.43    510.02    994.11
GR   510.2   1003.49    511.50   1005.35    512.88   1007.33     512.9    1011.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       5      .045     985.4      .045     988.0      .030    1001.3      .025    1005.3      .040
NH    1013

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1030        11     978.0    1009.8      16.8       7.6      10.0
X3      10
GR   512.2     950.0     511.9     978.0     511.5     985.4     510.8     988.0     510.8     994.6
GR   509.9     996.7     509.9    1000.0     509.9    1001.3     512.1    1005.3     512.9    1009.8
     512.9    1013.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NH       3      .045     967.2      .030    1005.9      .025    1009.0
```

```
        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1020        11      982.4     1007.7       35.1        0.9       19.8
X3       10
GR    512.4     961.1      511.5      964.1      510.8      967.2      510.9      982.4      510.2      994.6
GR    509.8     997.6      509.9     1001.3      509.8     1003.7      510.8     1005.9      513.5     1007.7
GR    513.5    1009.0

        SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .025      .025      .030        .3        .5

        UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1000        14      981.7     1024.3        5.5        5.5        5.5
X3       10
GR    513.1     981.1      511.6      981.7      511.5      981.7      511.1      984.7      510.0      987.8
GR    509.6     990.2      509.7      998.7      509.9     1007.3      510.2     1015.8      510.0     1020.4
GR    511.5    1023.7      511.5     1024.3      511.9     1024.3      513.5     1024.3

1
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SB     1.05       1.6       1.66                  17.1        1.2       68.1        5.4      509.5      509.6

        DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES
        SECTION FROM PREVIOUS SURVEY, US60 (1994)

X1      995        14      981.4     1024.7       10.7       35.7       22.9
X2                            1      511.9      513.1
X3       10
BT       -2     981.4      513.1      511.6     1024.3      513.5      511.9
GR    513.1     981.4      511.6      981.7      511.5      981.7      511.1      984.7      509.9      987.8
GR    509.5     990.2      509.7      998.7      509.8     1007.3      510.2     1015.8      510.0     1020.4
GR    511.5    1023.7      511.5     1024.3      511.9     1024.3      513.5     1024.7

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .100      .050      .030        .1        .3

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1      971         7      988.2     1015.3         24         24         24
X3       10
GR    511.8     982.1      511.8      988.2      509.4      991.9      509.6     1000.4      509.7     1009.5
GR    511.4    1015.3      511.5     1023.5
1
   01JUL96      11:25:16                                                                                PAGE    8


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


PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
```

```
*SECNO 1772.000
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.12    517.42    517.42    517.44    517.74       .32       .00       .00    517.71
      20.4        .0      20.4        .0        .0       8.2        .0        .0        .0    517.48
       .00       .00      2.49       .00      .000      .040      .000      .000    516.30    994.85
   .020239        0.        0.        0.         0         8         7       .00     13.56   1008.41


FLOW DISTRIBUTION FOR SECNO=   1772.00         CWSEL=   517.42

STA=     995.    1009.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1715.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000       .51    516.31    516.33       .00    516.50       .19      1.20       .04    516.70
      20.4        .0      20.4        .0        .0      10.6        .0        .5       1.3    517.10
       .01       .00      1.91       .00      .000      .036      .000      .000    515.80    970.97
   .022046       72.       57.       56.         2        14         0       .00     32.88   1003.85


FLOW DISTRIBUTION FOR SECNO=   1715.00         CWSEL=   516.31

STA=     971.     972.     975.     993.     997.    1007.
  PER Q=      1.1     16.7     36.5     31.9     13.8
   AREA=       .2      1.2      5.2      2.1      2.0
    VEL=      1.1      2.7      1.4      3.2      1.4
  DEPTH=       .2       .4       .3       .5       .3

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  01JUL96      11:25:16                                                                          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


1490 NH CARD USED
*SECNO 1703.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      516.90

  1703.000       .55    516.30    516.30       .00    516.52       .22       .21       .14    516.70
      20.4        .0      20.4        .0        .0       9.8        .0        .7       1.7    516.90
       .01       .00      2.07       .00      .000      .033      .000      .000    515.75    981.25
   .014685       14.       12.       13.        20         8         0       .00     22.94   1004.18


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=   516.30

STA=     981.     983.     993.    1007.
  PER Q=      2.6     70.5     26.8
```

```
   AREA=       .5      5.3      4.1
    VEL=      1.1      2.7      1.3
  DEPTH=       .3       .6       .4

1490 NH CARD USED
*SECNO 1694.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.96


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .26    515.96    516.06       .00    516.28       .32       .23       .01    516.68
      20.4        .0      20.4        .0        .0      8.1        .0        .7       1.9    516.90
       .01       .00      2.51       .00      .000      .034      .000      .000    515.70    966.28
   .056255        9.        9.        9.         4        14         0       .00     37.48   1003.76


FLOW DISTRIBUTION FOR SECNO=   1694.00         CWSEL=    515.96

STA=     966.    1006.
  PER Q=    100.0
   AREA=      8.1
    VEL=      2.5
  DEPTH=       .2
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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


1490 NH CARD USED
*SECNO 1674.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60

  1674.000       .29    515.84    515.84       .00    515.97       .14       .66       .36    516.58
      20.4        .0      20.4        .0        .0      12.5        .0        .9       2.8    516.60
       .01       .00      1.63       .00      .000      .038      .000      .000    515.55    957.16
   .021760       32.       20.       20.        20         8         0       .00     46.25   1003.41


FLOW DISTRIBUTION FOR SECNO=   1674.00         CWSEL=    515.84

STA=     957.    1006.
  PER Q=    100.0
   AREA=     12.5
    VEL=      1.6
  DEPTH=       .3

1490 NH CARD USED
*SECNO 1652.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34
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  1652.000      .52    515.90    515.90      .00    516.10      .21      .45      .13    516.58
      9.7       .0       9.7       .0       .0       4.8       .0      1.1      3.4    516.34
      .02      .00      2.03      .00     .000      .037     .000     .000   515.38    992.34
   .017946      24.       22.       20.       20        14        0      .00    11.50   1003.84


 FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    515.90

 STA=     992.    1006.
   PER Q=    100.0
    AREA=      4.8
     VEL=      2.0
   DEPTH=       .4

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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


 1490 NH CARD USED
 *SECNO 1598.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000      .72    515.57    515.57      .00    515.82      .25      .99      .41    516.12
      9.7       .0       9.7       .0       .0       4.4       .0      1.4      3.9    516.10
      .02      .00      2.21      .00     .000      .039     .000     .000   514.85    993.84
   .019321      53.       53.       54.       20        11        0      .00     8.86   1002.71


 FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.57

 STA=     994.    1005.
   PER Q=    100.0
    AREA=      4.4
     VEL=      2.2
   DEPTH=       .5

 *SECNO 1545.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.31

  1545.000      .72    515.09    515.09      .00    515.36      .27     1.06      .48    515.54
      9.7       .0       9.7       .0       .0       4.2       .0      1.6      4.4    515.31
      .03      .00      2.32      .00     .000      .040     .000     .000   514.37    992.66
   .020395      53.       54.       54.       20         5        0      .00     7.67   1000.33


 FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.09

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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


STA=     993.    1001.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

*SECNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000       .28    514.16    514.30       .00    514.60       .44       .75       .02    515.54
      9.7        .0       9.7       .0        .0       3.3        .0       1.7       4.6    515.44
      .03       .00      2.95       .00      .000      .032      .000      .000    513.88    993.93
   .051439      20.       24.       24.         5        11         0       .00     12.14   1006.07


OW DISTRIBUTION FOR SECNO=   1520.00         CWSEL=    514.16

STA=     994.    1009.
  PER Q=    100.0
   AREA=      3.3
    VEL=      2.9
  DEPTH=       .3

CCHV=     .300 CEHV=     .500
*SECNO 1507.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000       .31    513.93    513.96       .00    514.16       .23       .34       .11    515.12
      9.7        .0       9.7       .0        .0       4.6        .0       1.8       4.8    515.12
      .03       .00      2.11       .00      .000      .026      .000      .000    513.62    987.16
   .015681      13.       13.       13.         3        11         0       .00     15.34   1002.50
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=   1507.00         CWSEL=    513.93
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STA=     987.    1003.
  PER Q=    100.0
   AREA=      4.6
    VEL=      2.1
  DEPTH=       .3

CCHV=     .300 CEHV=     .500
*SECNO 1504.000

3265 DIVIDED FLOW

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .40    513.99    513.99       .00    514.20       .20       .02       .01    515.09
      9.7        .0       9.7        .0        .0       4.9        .0       1.8       4.9    515.09
       .03       .00      2.00       .00      .000      .013      .000      .000    513.59    987.16
   .003118        3.        3.        3.        20        11         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    513.99

STA=     987.    1000.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .4

*SECNO 1480.000
 0 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   513.966         4

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=   565.409

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=999999.000

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00

 5 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .52    513.99 999999.00       .00    514.11       .12       .05       .04    514.97
      9.7        .0       9.7        .0        .0       6.2        .0       1.9       5.1    514.97
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      .04       .00      1.56       .00      .000      .013      .000      .000    513.47    987.16
   .001457       23.       23.       23.         2        81         0       .00     12.01   1000.00


W DISTRIBUTION FOR SECNO=   1480.00          CWSEL=    513.99

STA=     987.    1000.
  PER Q=    100.0
   AREA=      6.2
    VEL=      1.6
  DEPTH=       .5

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.45

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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


5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .22    513.67    513.79       .00    514.07       .40       .01       .03    514.95
      9.7        .0       9.7        .0        .0       3.5        .0       1.9       5.2    514.95
      .04       .00      2.80       .00      .000      .032      .000      .000    513.45    987.16
   .060608        3.        3.        3.         5        14         0       .00     15.34   1002.50


FLOW DISTRIBUTION FOR SECNO=   1477.00          CWSEL=    513.67

STA=     987.    1003.
  PER Q=    100.0
   AREA=      3.5
    VEL=      2.8
  DEPTH=       .2

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .1 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.94 ELREA=      515.01

  1467.000       .42    513.82    513.82       .00    514.01       .20       .34       .22    514.94
      9.7        .0       9.7        .0        .0       4.9        .0       2.0       5.4    515.01
      .04       .00      1.96       .00      .000      .032      .000      .000    513.40    993.66
   .014141       22.       13.       10.        20        14         0       .00     12.67   1006.34


FLOW DISTRIBUTION FOR SECNO=   1467.00          CWSEL=    513.82
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STA=     994.    1009.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .4

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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 1450.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000      .88    514.18    514.18      .00    514.43      .25      .33      .18    514.74
      9.7       .0      9.7       .0       .0      4.4       .0      2.1      5.6    515.00
      .04      .00      2.22      .00     .000      .032     .000     .000   513.30    995.56
   .014047     23.       23.       23.       20        17        0      .00     8.88   1004.43


FLOW DISTRIBUTION FOR SECNO=   1450.00         CWSEL=    514.18

STA=     996.    1007.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1422.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      .66    513.80    513.80      .00    514.01      .21      .51      .02    514.12
      9.7       .0      9.7       .0       .0      4.8       .0      2.2      5.9    514.70
      .05      .00      2.03      .00     .000      .042     .000     .000   513.14    989.12
   .023862     29.       28.       28.       20        15        0      .00    11.57   1000.69


FLOW DISTRIBUTION FOR SECNO=   1422.00         CWSEL=    513.80

STA=     989.    1001.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.0
  DEPTH=       .4

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    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

1490 NH CARD USED
*SECNO 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.93 ELREA= 514.00

1345.000	.58	513.19	513.19	.00	513.35	.16	1.82	1.13	513.93
9.7	.0	9.7	.0	.0	5.6	.0	2.6	7.1	514.00
.06	.00	1.75	.00	.000	.039	.000	.000	512.61	988.28
.023479	69.	77.	85.	20	15	0	.00	18.62	1006.90

FLOW DISTRIBUTION FOR SECNO= 1345.00 CWSEL= 513.19

STA= 988. 1008.
PER Q= 100.0
AREA= 5.6
VEL= 1.7
DEPTH= .3

1490 NH CARD USED
*SECNO 1291.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.18 ELREA= 513.40

1291.000	.81	512.71	512.71	.00	512.98	.27	1.26	.60	513.18
9.7	.0	9.7	.0	.0	4.2	.0	2.9	7.8	513.40
.07	.00	2.31	.00	.000	.043	.000	.000	511.90	997.35
.023159	60.	54.	49.	20	11	0	.00	7.79	1005.14

FLOW DISTRIBUTION FOR SECNO= 1291.00 CWSEL= 512.71

STA= 997. 1007.
PER Q= 100.0
AREA= 4.2
VEL= 2.3
DEPTH= .5

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

1490 NH CARD USED
*SECNO 1246.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.18 ELREA= 513.85

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  1246.000      .85    512.25    512.25      .00    512.54      .29      1.03      .52    513.18
      9.7       .0       9.7       .0       .0       4.1       .0       3.1      8.1    513.85
      .07      .00      2.37      .00     .000      .043     .000      .000   511.40    995.75
  .023773      39.       44.       49.       20         8        0       .00     7.32   1003.08


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.25

STA=     996.    1005.
  PER Q=    100.0
   AREA=      4.1
    VEL=      2.4
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      .73    511.63    511.63      .00    511.90      .27      1.10      .52    512.33
      9.7       .0       9.7       .0       .0       4.2       .0       3.3      8.5    513.14
      .08      .00      2.30      .00     .000      .036     .000      .000   510.90    996.66
  .016768      56.       55.       55.       20        15        0       .00     8.01   1004.67


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.63

STA=     997.    1005.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

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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


1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      .55    511.25    511.25      .00    511.48      .23       .71      .46    512.58
     20.4       .0      20.4       .0       .0       9.6       .0       3.5      9.1    512.90
      .08      .00      2.13      .00     .000      .040     .000      .000   510.70    989.10
  .020400      42.       37.       35.       20        15        0       .00    20.96   1010.06


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.25

STA=     989.    1017.
  PER Q=    100.0
   AREA=      9.6
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    VEL=      2.1
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      .81    510.83    510.83      .00    511.14      .31      1.53      .74    512.14
      20.4       .0      20.4       .0       .0       8.2       .0       4.4     10.7    512.88
       .09      .00      2.47      .00     .000      .034     .000      .000   510.02    991.17
   .013424      94.       94.      93.       20        11        0       .00    13.22   1004.39


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    510.83

STA=     991.    1005.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

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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


1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000     1.09    510.99    510.99      .00    511.27      .28       .38      .20    511.90
      20.4       .0      20.4       .0       .0       8.7       .0       4.6     11.1    512.90
       .10      .00      2.34      .00     .000      .030     .000      .000   509.90    987.31
   .011559      16.       31.      18.       20        11        0       .00    15.97   1003.28


FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    510.99

STA=     987.    1005.
  PER Q=    100.0
   AREA=      8.7
    VEL=      2.3
  DEPTH=       .5

1490 NH CARD USED
*SECNO 1020.000

   2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      513.50

  1020.000      .64    510.44    510.64      .00    511.04      .60       .19      .03    510.90
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     20.4        .0      20.4        .0        .0       5.9        .0       4.7      11.3    513.50
      .10       .00      3.44       .00      .000      .030      .000      .000    509.80    990.37
  .036702       17.       10.        8.         5         8         0       .00     14.75   1005.11


FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    510.44

STA=     990.    1006.
  PER Q=    100.0
   AREA=      5.9
    VEL=      3.4
  DEPTH=       .4

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


CCHV=     .300 CEHV=     .500
*SECNO 1000.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


3265 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000       .58    510.18    510.21       .00    510.38       .20       .46       .20    511.60
      20.4        .0      20.4        .0        .0      10.4        .0       4.9      11.7    513.50
      .10       .00      1.96       .00      .000      .030      .000      .000    509.60    987.28
  .015997       35.       20.        1.         2        11         0       .00     32.74   1020.81


FLOW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    510.18

STA=     987.    1024.
  PER Q=    100.0
   AREA=     10.4
    VEL=      2.0
  DEPTH=       .3


SPECIAL BRIDGE


5470 ERROR DS DEPTH WRONG SIDE CRITICAL        .50       .66         1         3
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.60      1.66       .00     17.10      1.20      68.10      5.40    509.50    509.60

*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

CLASS C LOW FLOW

3420 BRIDGE W.S.=     510.21 BRIDGE VELOCITY=       1.49     CALCULATED CHANNEL AREA=        14.
1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.36	.00	0.	20.	68.	69.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.76	510.26	.00	.00	510.36	.10	.02	.00	513.10
20.4	.0	20.4	.0	.0	14.6	.0	4.9	11.9	513.50
.10	.00	1.40	.00	.000	.030	.000	.000	509.50	986.87
.005478	6.	6.	6.	0	0	0	.00	34.11	1020.98

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.26

STA= 987. 1025.
PER Q= 100.0
AREA= 14.6
VEL= 1.4
DEPTH= .4

CCHV= .100 CEHV= .300
*SECNO 971.000
3485 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.80 ELREA= 511.40

971.000	.68	510.08	510.08	.00	510.32	.24	.18	.11	511.80
20.4	.0	20.4	.0	.0	9.4	.0	5.2	12.5	511.40
.11	.00	2.17	.00	.000	.030	.000	.000	509.40	990.86
.011733	11.	23.	36.	20	11	0	.00	19.93	1010.79

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.08

STA= 991. 1015.
PER Q= 100.0
AREA= 9.4
VEL= 2.2
DEPTH= .5

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T1 MCDOT; WITTMANN-CENTER STREET CULVERTS
T2 ALTERNATIVE 2, WEST CBC CULVERT WITH VEGETATION MANAGEMENT
T3 100-YEAR SUPERCRITICAL FLOW
T4 FILE: A2WESTSU.IH2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3		1	.01	1			517.73	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

15 -1 -1 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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
7230 SLOPE-AREA TRIALS EXCEED 100
3280 CROSS SECTION    1772.00 EXTENDED       .12 METERS

3720 CRITICAL DEPTH ASSUMED
  1772.000     1.42   517.72   517.72   517.73   517.81      .09      .00      .00   517.71
      62.3     37.5     19.9      4.8     30.6     12.5      8.4       .0       .0   517.48
       .00     1.23     1.60      .57     .045     .040     .045     .000   516.30   920.68
   .005438       0.       0.       0.        0        8      101      .00   129.32  1050.00


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.72

STA=     921.     943.     945.     955.     966.     969.     975.     982.     994.    1009.    1032.    1050.
  PER Q=      8.0      4.9      7.9      4.6      5.7     20.8      8.2       .2     32.0      5.2      2.5
   AREA=      5.5      2.0      4.9      3.6      2.8      7.0      4.3       .6     12.5      5.3      3.1
    VEL=       .9      1.5      1.0       .8      1.3      1.8      1.2       .2      1.6       .6       .5
  DEPTH=       .2       .9       .5       .3       .7      1.2       .6       .1       .8       .2       .2

1490 NH CARD USED
*SECNO 1715.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.43


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.10

  1715.000      .78   516.58   516.70      .00   517.10      .52      .67      .04   516.70
      62.3       .0     62.3       .0       .0     19.6       .0      2.2      5.2   517.10
       .01      .00     3.18      .00     .000     .038     .000     .000   515.80   970.31
   .031987      72.      57.      56.        4       14        0      .00    34.60  1004.91


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.58

STA=     970.     972.     975.     993.     997.    1007.
  PER Q=      1.7     15.0     42.6     25.1     15.6
   AREA=       .6      2.0      9.9      3.1      3.9
    VEL=      1.8      4.6      2.7      5.0      2.5
  DEPTH=       .3       .7       .6       .8       .5
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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

1490 NH CARD USED
*SECNO 1703.000
3280 CROSS SECTION   1703.00 EXTENDED       .02 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1703.000      1.17    516.92    516.92       .00    517.19       .27       .19       .14    516.70
      62.3       3.0      59.2        .0       5.6      25.3        .1       2.6       5.9    516.90
       .01       .54      2.34       .02      .045      .040      .045      .000    515.75    935.00
   .009407       14.       12.       13.        20        14         0       .00     78.11   1013.11


FLOW DISTRIBUTION FOR SECNO=   1703.00         CWSEL=    516.92

STA=     935.     980.    1007.    1013.
  PER Q=      4.8     95.1       .0
   AREA=      5.6     25.3       .1
    VEL=       .5      2.3       .0
  DEPTH=       .1      1.0       .0

1490 NH CARD USED
*SECNO 1694.000

3301 HV CHANGED MORE THAN HVINS


3402 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

  1694.000       .47    516.17    516.40       .00    516.96       .79       .17       .05    516.68
      62.3        .0      62.3        .0        .0      15.8        .0       2.8       6.5    516.90
       .01       .00      3.94       .00      .000      .034      .000      .000    515.70    965.63
   .061313        9.        9.        9.         6        14         0       .00     38.70   1004.33


FLOW DISTRIBUTION FOR SECNO=   1694.00         CWSEL=    516.17

STA=     966.    1006.
  PER Q=    100.0
   AREA=     15.8
    VEL=      3.9
  DEPTH=       .4
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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

1490 NH CARD USED
*SECNO 1674.000

3301 HV CHANGED MORE THAN HVINS
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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.60

  1674.000      .59    516.14    516.14      .00    516.42      .28      .60      .45    516.58
      62.3       .0      62.3       .0       .0      26.6       .0      3.2      7.3    516.60
       .01      .00      2.34      .00     .000      .038     .000     .000   515.55    956.29
   .017656      32.       20.       20       20        11        0      .00    48.30   1004.59


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.14

STA=     956.    1006.
  PER Q=    100.0
   AREA=     26.6
    VEL=      2.3
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1652.000
3280 CROSS SECTION   1652.00 EXTENDED       .03 METERS

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      516.34

  1652.000     1.15    516.53    516.53      .00    516.77      .24      .30      .14    516.58
      31.4       .0      29.8       1.5       .0      13.5      3.2      3.7      8.3    516.34
       .01      .00      2.21       .48     .000      .039     .045     .000   515.38    990.11
   .009017      24.       22.       20.       20        20        0      .00    44.86   1034.97


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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


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.53

STA=     990.    1006.    1035.
  PER Q=     95.1      4.9
   AREA=     13.5      3.2
    VEL=      2.2       .5
  DEPTH=       .9       .1

1490 NH CARD USED
*SECNO 1598.000
3280 CROSS SECTION   1598.00 EXTENDED       .10 METERS

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

3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000
  1598.000     1.45    516.30    516.30      .00    516.54      .24      .48      .36    516.12
      31.4       .3      28.9       2.2       .4      12.8      3.7      4.6     10.6    516.10
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      .02       .62      2.27       .59      .045      .041      .045      .000    514.85    989.00
   .009029      53.       53.       54.       20        15         0       .00     40.59   1029.59


W DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    516.30

STA=     989.     992.    1005.    1030.
  PER Q=       .9     92.2      7.0
   AREA=       .4     12.8      3.7
    VEL=       .6      2.3       .6
  DEPTH=       .2      1.0       .1

*SECNO 1545.000
3280 CROSS SECTION   1545.00 EXTENDED       .22 METERS


3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
  1545.000      1.37    515.74    515.77       .00    516.02       .28       .51       .00    515.54
      31.4        .3      25.7       5.4        .8      10.0       9.6       5.6      12.9    515.31
       .03       .42      2.58       .56      .080      .040      .080      .000    514.37    988.00
   .010090      53.       54.       54.         0        11         0       .00     45.60   1033.60


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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


OW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.74

STA=     988.     992.    1001.    1012.    1022.    1034.
  PER Q=      1.0     81.8      8.0      4.6      4.6
   AREA=       .8     10.0      4.0      2.7      2.9
    VEL=       .4      2.6       .6       .5       .5
  DEPTH=       .2      1.1       .3       .3       .3

*SECNO 1520.000
CHIMP CLSTA=    1000.00 CELCH=     513.88 BW=      11.00 STCHL=     991.18 STCHR=    1008.61
EXCAVATION DATA
AEX=      13.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.23


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.44

  1520.000       .58    514.46    514.76       .00    515.48      1.03       .47       .07    515.54
      31.4        .0      31.4        .0        .0       7.0        .0       5.9      13.6    515.44
       .03       .00      4.49       .00      .000      .032      .000      .000    513.88    993.35
   .050112      20.       24.       24.         6        14         0       .00     13.30   1006.65


OW DISTRIBUTION FOR SECNO=   1520.00          CWSEL=    514.46

STA=     993.    1009.
  PER Q=    100.0
   AREA=      7.0
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    VEL=      4.5
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
SECNO 1507.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

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


  1507.000       .53    514.15    514.37       .00    514.90       .74       .45       .14    515.12
      31.4        .0      31.4        .0        .0       8.2        .0       6.0      13.8    515.12
       .03       .00      3.82       .00      .000      .026      .000      .000    513.62    987.16
   .024894       13.       13.       13.         5        11         0       .00     15.35   1002.50


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    514.15

STA=     987.    1003.
  PER Q=    100.0
   AREA=      8.2
    VEL=      3.8
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
SECNO 1504.000

3265 DIVIDED FLOW

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .88    514.47    514.47       .00    514.92       .45       .02       .02    515.09
      31.4        .0      31.4        .0        .0      10.6        .0       6.0      13.9    515.09
       .03       .00      2.96       .00      .000      .013      .000      .000    513.59    987.15
   .003249        3.        3.        3.        20        14         0       .00     12.01   1000.01


FLOW DISTRIBUTION FOR SECNO=   1504.00          CWSEL=    514.47

STA=     987.    1000.
  PER Q=    100.0
   AREA=     10.6
    VEL=      3.0
  DEPTH=       .9

*SECNO 1480.000
3840 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   514.238        4
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
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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

   5 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=   565.409

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=999999.000

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .98    514.45 999999.00       .00    514.81       .36       .06       .04    514.97
     31.4        .0      31.4        .0        .0      11.8        .0       6.3      14.1    514.97
      .03       .00      2.65       .00      .000      .013      .000      .000    513.47    987.15
   .002371      23.       23.       23.         2        81         0       .00     12.01   1000.01

FLOW DISTRIBUTION FOR SECNO=   1480.00          CWSEL=    514.45

STA=     987.    1000.
  PER Q=    100.0
   AREA=     11.8
    VEL=      2.7
  DEPTH=      1.0

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.13

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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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .52    513.97    514.20       .00    514.75       .78       .02       .04    514.95
     31.4        .0      31.4        .0        .0       8.0        .0       6.3      14.2    514.95
      .03       .00      3.91       .00      .000      .032      .000      .000    513.45    987.15
   .040523       3.        3.        3.         5        15         0       .00     15.35   1002.51

FLOW DISTRIBUTION FOR SECNO=   1477.00          CWSEL=    513.97

STA=     987.    1003.
```

```
  PER Q=    100.0
   AREA=      8.0
    VEL=      3.9
  DEPTH=       .5

*SECNO 1467.000
CHIMP CLSTA=    1000.00 CELCH=     513.40 BW=      11.00 STCHL=     965.75 STCHR=    1008.72
EXCAVATION DATA
AEX=       6.3 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .1 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.94 ELREA=      515.01

  1467.000       .88    514.28    514.28       .00    514.68       .39       .26       .19    514.94
      31.4        .0      31.4        .0        .0      11.3        .0       6.4      14.4    515.01
       .03       .00      2.78       .00      .000      .032      .000      .000    513.40    992.73
   .011489       22.       13.       10.        20        14         0       .00     14.54   1007.27


FLOW DISTRIBUTION FOR SECNO=   1467.00         CWSEL=    514.28

STA=     993.    1009.
  PER Q=    100.0
   AREA=     11.3
    VEL=      2.8
  DEPTH=       .8

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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 1450.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1450.000      1.47    514.77    514.77       .00    515.16       .39       .27       .18    514.74
      31.4        .0      31.4        .0        .1      11.4        .0       6.7      14.8    515.00
       .04       .01      2.76       .00      .080      .032      .000      .000    513.30    987.77
   .011650       23.       23.       23.        20        14         0       .00     18.41   1006.18


FLOW DISTRIBUTION FOR SECNO=   1450.00         CWSEL=    514.77

STA=     988.     991.    1007.
  PER Q=        .0    100.0
   AREA=        .1     11.4
    VEL=        .0      2.8
  DEPTH=        .0       .8

1490 NH CARD USED
*SECNO 1422.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.62
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.05    514.19    514.34       .00    514.65       .46       .50       .01    514.12
      31.4        .5      30.8        .0       1.0      10.2        .0       7.0      15.5    514.70
       .04       .54      3.03       .00      .045      .043      .000      .000    513.14    966.83
   .030729       29.       28.       28.         4        15         0       .00     34.60   1001.44


FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    514.19

STA=     967.     986.    1002.
  PER Q=      1.7     98.3
   AREA=      1.0     10.2
    VEL=       .5      3.0
  DEPTH=       .1       .6

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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


1490 NH CARD USED
*SECNO 1345.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .94    513.55    513.55       .00    513.87       .32      1.81      1.15    513.93
      31.4        .0      31.4        .0        .0      12.5        .0       7.9      17.6    514.00
       .05       .00      2.50       .00      .000      .039      .000      .000    512.61    987.27
   .018586       69.       77.       85.        20        11         0       .00     20.08   1007.35


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    513.55

STA=     987.    1008.
  PER Q=    100.0
   AREA=     12.5
    VEL=      2.5
  DEPTH=       .6

1490 NH CARD USED
*SECNO 1291.000
3280 CROSS SECTION   1291.00 EXTENDED       .09 METERS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1291.000      1.52    513.42    513.42       .00    513.79       .37       .90       .63    513.18
      31.4       1.1      30.3        .0       1.4      11.0        .0       8.6      18.7    513.40
       .05       .80      2.74       .00      .045      .043      .000      .000    511.90    987.59
   .015024       60.       54.       49.        20        14         0       .00     19.67   1007.26


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    513.42

STA=     988.     996.    1007.
  PER Q=      3.5     96.5
```

```
  AREA=      1.4     11.0
   VEL=       .8      2.7
 DEPTH=       .2      1.0
```



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

1490 NH CARD USED
*SECNO 1246.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.53    512.93    512.93       .00    513.41       .48       .77       .42    513.18
      31.4        .0      31.4        .0        .0      10.3        .0       9.1      19.3    513.85
       .06       .00      3.06       .00      .000      .043      .000      .000    511.40    993.05
   .020755       39.       44.       49.        20         5         0       .00     10.86   1003.92


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.93

STA=     993.    1005.
  PER Q=    100.0
   AREA=     10.3
    VEL=      3.1
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1191.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.33 ELREA=      513.14

  1191.000      1.36    512.26    512.26       .00    512.73       .47      1.02       .57    512.33
      31.4        .0      31.4        .0        .0      10.4        .0       9.7      19.9    513.14
       .06       .00      3.03       .00      .000      .039      .000      .000    510.90    994.48
   .016370       56.       55.       55.        20        11         0       .00     11.23   1005.71


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    512.26

STA=     994.    1007.
  PER Q=    100.0
   AREA=     10.4
    VEL=      3.0
  DEPTH=       .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
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1490 NH CARD USED
*SECNO 1154.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.07    511.77    511.77       .00    512.18       .42       .56       .02    512.58
      62.3        .0      62.3        .0        .0      21.7        .0      10.3      20.6    512.90
       .06       .00      2.86       .00      .000      .037      .000      .000    510.70    985.65
   .014523       42.       37.       35.        20        15         0       .00     26.45   1012.10


FLOW DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.77

STA=     986.     992.    1004.    1017.
  PER Q=      8.1     67.3     24.6
   AREA=      3.1     11.9      6.7
    VEL=      1.6      3.5      2.3
  DEPTH=       .5      1.0       .8

1490 NH CARD USED
*SECNO 1060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      1.51    511.53    511.53       .00    512.09       .56      1.26       .62    512.14
      62.3        .0      62.3        .0        .0      18.7        .0      12.2      22.6    512.88
       .07       .00      3.32       .00      .000      .035      .000      .000    510.02    988.63
   .012402       94.       94.       93.        20        11         0       .00     16.76   1005.40


FLOW DISTRIBUTION FOR SECNO=   1060.00         CWSEL=    511.53

STA=     989.    1007.
  PER Q=    100.0
   AREA=     18.7
    VEL=      3.3
  DEPTH=      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


1490 NH CARD USED
*SECNO 1030.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.74    511.64    511.64       .00    512.11       .47       .36       .03    511.90
      62.3        .0      62.3        .0        .0      20.4        .0      12.8      23.2    512.90
```

```
      .08       .00      3.05       .00      .000      .033      .000      .000    509.90    982.83
   .011450       16.       31.       18.        20         8         0       .00     21.63   1004.46


W DISTRIBUTION FOR SECNO=   1030.00          CWSEL=    511.64

STA=     983.    1005.
  PER Q=    100.0
   AREA=     20.4
    VEL=      3.0
  DEPTH=       .9

1490 NH CARD USED
*SECNO 1020.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       510.90 ELREA=       513.50

  1020.000      1.07    510.87    511.18       .00    511.87      1.00       .19       .05    510.90
      62.3        .0      62.3        .0        .0      14.0        .0      12.9      23.5    513.50
       .08       .00      4.44       .00      .000      .030      .000      .000    509.80    982.91
   .035013       17.       10.        8.         7        16         0       .00     23.04   1005.95


FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    510.87

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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


STA=     983.    1008.
  PER Q=    100.0
   AREA=     14.0
    VEL=      4.4
  DEPTH=       .6

CCHV=     .300 CEHV=     .500
*SECNO 1000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       511.60 ELREA=       513.50

  1000.000       .78    510.38    510.58       .00    511.06       .68       .65       .16    511.60
      62.3        .0      62.3        .0        .0      17.1        .0      13.3      24.0    513.50
       .08       .00      3.64       .00      .000      .030      .000      .000    509.60    986.72
   .030672       35.       20.        1.         6        11         0       .00     34.52   1021.24


FLOW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    510.38

=     987.    1024.
PER Q=    100.0
 AREA=     17.1
  VEL=      3.6
DEPTH=       .5
```

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 510.73 ,NOT 510.38 NEW BACKWATER REQUIRED

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.50	509.60

*SECNO 995.000
CLASS B LOW FLOW

3420 BRIDGE W.S.= 510.58 BRIDGE VELOCITY= 2.83 CALCULATED CHANNEL AREA= 23.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.89	.00	0.	62.	68.	69.	511.90	513.10	0.

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.95	510.45	.00	.00	510.89	.44	.17	.00	513.10
62.3	.0	62.3	.0	.0	21.1	.0	13.4	24.2	513.50
.08	.00	2.95	.00	.000	.030	.000	.000	509.50	986.38
.015565	6.	6.	6.	0	0	0	.00	35.01	1021.39

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.45

STA= 986. 1025.
PER Q= 100.0
AREA= 21.1
VEL= 3.0
DEPTH= .6

CCHV= .100 CEHV= .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.80 ELREA= 511.40

971.000	1.21	510.61	510.61	.00	511.07	.46	.27	.20	511.80
62.3	.0	62.3	.0	.0	20.6	.0	13.8	24.9	511.40
.08	.00	3.02	.00	.000	.030	.000	.000	509.40	990.04
.009525	11.	23.	36.	20	11	0	.00	22.55	1012.59

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.61

STA= 990. 1015.
PER Q= 100.0
AREA= 20.6
VEL= 3.0
DEPTH= .9

THIS RUN EXECUTED 01JUL96 11:25:20

****
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-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1772.000	20.37	517.42	.00	20.37	.00	.00	2.49	.00	.00	13.56	202.39	516.30
*	1772.000	62.26	517.72	37.54	19.93	4.79	1.23	1.60	.57	.00	129.32	54.38	516.30
	1715.000	20.37	516.31	.00	20.37	.00	.00	1.91	.00	-8.77	32.88	220.46	515.80
*	1715.000	62.26	516.58	.00	62.26	.00	.00	3.18	.00	-8.77	34.60	319.87	515.80
*	1703.000	20.37	516.30	.00	20.37	.00	.00	2.07	.00	-4.17	22.94	146.85	515.75
	1703.000	62.26	516.92	3.02	59.24	.00	.54	2.34	.02	-4.17	78.11	94.07	515.75
*	1694.000	20.37	515.96	.00	20.37	.00	.00	2.51	.00	-5.55	37.48	562.55	515.70
*	1694.000	62.26	516.17	.00	62.26	.00	.00	3.94	.00	-5.55	38.70	613.13	515.70
*	1674.000	20.37	515.84	.00	20.37	.00	.00	1.63	.00	-7.50	46.25	217.60	515.55
*	1674.000	62.26	516.14	.00	62.26	.00	.00	2.34	.00	-7.50	48.30	176.56	515.55
*	1652.000	9.72	515.90	.00	9.72	.00	.00	2.03	.00	-7.73	11.50	179.46	515.38
*	1652.000	31.36	516.53	.00	29.81	1.55	.00	2.21	.48	-7.73	44.86	90.17	515.38
*	1598.000	9.72	515.57	.00	9.72	.00	.00	2.21	.00	-9.97	8.86	193.21	514.85
*	1598.000	31.36	516.30	.27	28.90	2.18	.62	2.27	.59	-9.97	40.59	90.29	514.85
*	1545.000	9.72	515.09	.00	9.72	.00	.00	2.32	.00	-8.95	7.67	203.95	514.37
	1545.000	31.36	515.74	.33	25.66	5.37	.42	2.58	.56	-8.95	45.60	100.90	514.37
*	1520.000	9.72	514.16	.00	9.72	.00	.00	2.95	.00	-20.20	12.14	514.39	513.88
*	1520.000	31.36	514.46	.00	31.36	.00	.00	4.49	.00	-20.20	13.30	501.12	513.88
*	1507.000	9.72	513.93	.00	9.72	.00	.00	2.11	.00	-20.00	15.34	156.81	513.62
	1507.000	31.36	514.15	.00	31.36	.00	.00	3.82	.00	-20.00	15.35	248.94	513.62
*	1504.000	9.72	513.99	.00	9.72	.00	.00	2.00	.00	-8.87	12.01	31.18	513.59
*	1504.000	31.36	514.47	.00	31.36	.00	.00	2.96	.00	-8.87	12.01	32.49	513.59

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1480.000	9.72	513.99	.00	9.72	.00	.00	1.56	.00	-5.17	12.01	14.57	513.47
*	1480.000	31.36	514.45	.00	31.36	.00	.00	2.65	.00	-5.17	12.01	23.71	513.47

*	1477.000	9.72	513.67	.00	9.72	.00	.00	2.80	.00	-5.90	15.34	606.08	513.45
*	1477.000	31.36	513.97	.00	31.36	.00	.00	3.91	.00	-5.90	15.35	405.23	513.45
	1467.000	9.72	513.82	.00	9.72	.00	.00	1.96	.00	-3.80	12.67	141.41	513.40
*	1467.000	31.36	514.28	.00	31.36	.00	.00	2.78	.00	-3.80	14.54	114.89	513.40
*	1450.000	9.72	514.18	.00	9.72	.00	.00	2.22	.00	-4.31	8.88	140.47	513.30
*	1450.000	31.36	514.77	.00	31.36	.00	.01	2.76	.00	-4.31	18.41	116.50	513.30
*	1422.000	9.72	513.80	.00	9.72	.00	.00	2.03	.00	-5.70	11.57	238.62	513.14
*	1422.000	31.36	514.19	.53	30.83	.00	.54	3.03	.00	-5.70	34.60	307.29	513.14
*	1345.000	9.72	513.19	.00	9.72	.00	.00	1.75	.00	-6.88	18.62	234.79	512.61
*	1345.000	31.36	513.55	.00	31.36	.00	.00	2.50	.00	-6.88	20.08	185.86	512.61
*	1291.000	9.72	512.71	.00	9.72	.00	.00	2.31	.00	-13.15	7.79	231.59	511.90
*	1291.000	31.36	513.42	1.08	30.28	.00	.80	2.74	.00	-13.15	19.67	150.24	511.90
*	1246.000	9.72	512.25	.00	9.72	.00	.00	2.37	.00	-11.36	7.32	237.73	511.40
*	1246.000	31.36	512.93	.00	31.36	.00	.00	3.06	.00	-11.36	10.86	207.55	511.40
*	1191.000	9.72	511.63	.00	9.72	.00	.00	2.30	.00	-9.03	8.01	167.68	510.90
*	1191.000	31.36	512.26	.00	31.36	.00	.00	3.03	.00	-9.03	11.23	163.70	510.90
*	1154.000	20.37	511.25	.00	20.37	.00	.00	2.13	.00	-5.37	20.96	204.00	510.70
*	1154.000	62.26	511.77	.00	62.26	.00	.00	2.86	.00	-5.37	26.45	145.23	510.70
*	1060.000	20.37	510.83	.00	20.37	.00	.00	2.47	.00	-7.26	13.22	134.24	510.02
*	1060.000	62.26	511.53	.00	62.26	.00	.00	3.32	.00	-7.26	16.76	124.02	510.02
*	1030.000	20.37	510.99	.00	20.37	.00	.00	2.34	.00	-3.93	15.97	115.59	509.90
	1030.000	62.26	511.64	.00	62.26	.00	.00	3.05	.00	-3.93	21.63	114.50	509.90
*	1020.000	20.37	510.44	.00	20.37	.00	.00	3.44	.00	-10.00	14.75	367.02	509.80
*	1020.000	62.26	510.87	.00	62.26	.00	.00	4.44	.00	-10.00	23.04	350.13	509.80
*	1000.000	20.37	510.18	.00	20.37	.00	.00	1.96	.00	-10.10	32.74	159.97	509.60
	1000.000	62.26	510.38	.00	62.26	.00	.00	3.64	.00	-10.10	34.52	306.72	509.60
*	995.000	20.37	510.26	.00	20.37	.00	.00	1.40	.00	-18.18	34.11	54.78	509.50
*	995.000	62.26	510.45	.00	62.26	.00	.00	2.95	.00	-18.18	35.01	155.65	509.50
*	971.000	20.37	510.08	.00	20.37	.00	.00	2.17	.00	-4.37	19.93	117.33	509.40
*	971.000	62.26	510.61	.00	62.26	.00	.00	3.02	.00	-4.37	22.55	95.25	509.40

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
*	1772.000	20.37	517.74	517.42	1.02
*	1772.000	62.26	517.81	517.72	.56
	1715.000	20.37	516.50	516.33	1.07
*	1715.000	62.26	517.10	516.70	1.35
*	1703.000	20.37	516.52	516.30	1.01
*	1703.000	62.26	517.19	516.92	.76

*	1694.000	20.37	516.28	516.06	1.72
*	1694.000	62.26	516.96	516.40	1.97
*	1674.000	20.37	515.97	515.84	1.00
	1674.000	62.26	516.42	516.14	1.01
*	1652.000	9.72	516.10	515.90	1.00
*	1652.000	31.36	516.77	516.53	.75
*	1598.000	9.72	515.82	515.57	1.00
*	1598.000	31.36	516.54	516.30	.73
*	1545.000	9.72	515.36	515.09	1.00
	1545.000	31.36	516.02	515.77	.79
*	1520.000	9.72	514.60	514.30	1.81
*	1520.000	31.36	515.48	514.76	1.98
*	1507.000	9.72	514.16	513.96	1.23
	1507.000	31.36	514.90	514.37	1.67
*	1504.000	9.72	514.20	513.99	1.04
*	1504.000	31.36	514.92	514.47	1.04
*	1480.000	9.72	514.11	999999.00	.71
*	1480.000	31.36	514.81	999999.00	.88
*	1477.000	9.72	514.07	513.79	1.88
*	1477.000	31.36	514.75	514.20	1.72
*	1467.000	9.72	514.01	513.82	1.00
*	1467.000	31.36	514.68	514.28	1.01
	1450.000	9.72	514.43	514.18	1.01
*	1450.000	31.36	515.16	514.77	1.00
*	1422.000	9.72	514.01	513.80	1.01
*	1422.000	31.36	514.65	514.34	1.20

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	SECNO	Q	EG	CRIWS	FRCH
*	1345.000	9.72	513.35	513.19	1.02
*	1345.000	31.36	513.87	513.55	1.01
*	1291.000	9.72	512.98	512.71	1.00
*	1291.000	31.36	513.79	513.42	.88
*	1246.000	9.72	512.54	512.25	1.01
*	1246.000	31.36	513.41	512.93	1.00
*	1191.000	9.72	511.90	511.63	1.01
*	1191.000	31.36	512.73	512.26	1.01
*	1154.000	20.37	511.48	511.25	1.01
*	1154.000	62.26	512.18	511.77	1.01
	1060.000	20.37	511.14	510.83	1.00
	1060.000	62.26	512.09	511.53	1.00
*	1030.000	20.37	511.27	510.99	1.01
*	1030.000	62.26	512.11	511.64	1.00

*	1020.000	20.37	511.04	510.64	1.74
*	1020.000	62.26	511.87	511.18	1.82
*	1000.000	20.37	510.38	510.21	1.12
	1000.000	62.26	511.06	510.58	1.65
*	995.000	20.37	510.36	999999.00	.68
*	995.000	62.26	510.89	999999.00	1.21
*	971.000	20.37	510.32	510.08	1.01
*	971.000	62.26	511.07	510.61	1.01

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1772.000	.00	.00	.00	516.30	20.37	517.42	517.42	517.74	202.39	2.49	8.17	1.43
*	1772.000	.00	.00	.00	516.30	62.26	517.72	517.72	517.81	54.38	1.60	51.41	8.44
	1715.000	57.00	.00	.00	515.80	20.37	516.31	516.33	516.50	220.46	1.91	10.64	1.37
*	1715.000	57.00	.00	.00	515.80	62.26	516.58	516.70	517.10	319.87	3.18	19.56	3.48
*	1703.000	12.00	.00	.00	515.75	20.37	516.30	516.30	516.52	146.85	2.07	9.85	1.68
*	1703.000	12.00	.00	.00	515.75	62.26	516.92	516.92	517.19	94.07	2.34	31.04	6.42
	1694.000	9.00	.00	.00	515.70	20.37	515.96	516.06	516.28	562.55	2.51	8.13	.86
	1694.000	9.00	.00	.00	515.70	62.26	516.17	516.40	516.96	613.13	3.94	15.80	2.51
*	1674.000	20.00	.00	.00	515.55	20.37	515.84	515.84	515.97	217.60	1.63	12.50	1.38
*	1674.000	20.00	.00	.00	515.55	62.26	516.14	516.14	516.42	176.56	2.34	26.62	4.69
*	1652.000	22.00	.00	.00	515.38	9.72	515.90	515.90	516.10	179.46	2.03	4.79	.73
*	1652.000	22.00	.00	.00	515.38	31.36	516.53	516.53	516.77	90.17	2.21	16.71	3.30
*	1598.000	53.18	.00	.00	514.85	9.72	515.57	515.57	515.82	193.21	2.21	4.39	.70
*	1598.000	53.18	.00	.00	514.85	31.36	516.30	516.30	516.54	90.29	2.27	16.89	3.30
*	1545.000	53.64	.00	.00	514.37	9.72	515.09	515.09	515.36	203.95	2.32	4.18	.68
	1545.000	53.64	.00	.00	514.37	31.36	515.74	515.77	516.02	100.90	2.58	20.34	3.12
*	1520.000	24.26	.00	.00	513.88	9.72	514.16	514.30	514.60	514.39	2.95	3.29	.43
*	1520.000	24.26	.00	.00	513.88	31.36	514.46	514.76	515.48	501.12	4.49	6.98	1.40
*	1507.000	13.00	.00	.00	513.62	9.72	513.93	513.96	514.16	156.81	2.11	4.61	.78
	1507.000	13.00	.00	.00	513.62	31.36	514.15	514.37	514.90	248.94	3.82	8.20	1.99
*	1504.000	3.38	.00	.00	513.59	9.72	513.99	513.99	514.20	31.18	2.00	4.85	1.74
*	1504.000	3.38	.00	.00	513.59	31.36	514.47	514.47	514.92	32.49	2.96	10.58	5.50
*	1480.000	23.20	515.41	.00	513.47	9.72	513.99	999999.00	514.11	14.57	1.56	6.24	2.55
*	1480.000	23.20	515.41	.00	513.47	31.36	514.45	999999.00	514.81	23.71	2.65	11.83	6.44
*	1477.000	3.38	.00	.00	513.45	9.72	513.67	513.79	514.07	606.08	2.80	3.47	.39
	1477.000	3.38	.00	.00	513.45	31.36	513.97	514.20	514.75	405.23	3.91	8.02	1.56
*	1467.000	13.14	.00	.00	513.40	9.72	513.82	513.82	514.01	141.41	1.96	4.95	.82
*	1467.000	13.14	.00	.00	513.40	31.36	514.28	514.28	514.68	114.89	2.78	11.29	2.93
*	1450.000	23.20	.00	.00	513.30	9.72	514.18	514.18	514.43	140.47	2.22	4.37	.82

*	1450.000	23.20	.00	.00	513.30	31.36	514.77	514.77	515.16	116.50	2.76	11.42	2.91
*	1422.000	28.09	.00	.00	513.14	9.72	513.80	513.80	514.01	238.62	2.03	4.79	.63
*	1422.000	28.09	.00	.00	513.14	31.36	514.19	514.34	514.65	307.29	3.03	11.17	1.79

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1345.000	77.06	.00	.00	512.61	9.72	513.19	513.19	513.35	234.79	1.75	5.55	.63
*	1345.000	77.06	.00	.00	512.61	31.36	513.55	513.55	513.87	185.86	2.50	12.54	2.30
*	1291.000	54.00	.00	.00	511.90	9.72	512.71	512.71	512.98	231.59	2.31	4.21	.64
*	1291.000	54.00	.00	.00	511.90	31.36	513.42	513.42	513.79	150.24	2.74	12.40	2.56
*	1246.000	44.03	.00	.00	511.40	9.72	512.25	512.25	512.54	237.73	2.37	4.10	.63
*	1246.000	44.03	.00	.00	511.40	31.36	512.93	512.93	513.41	207.55	3.06	10.26	2.18
*	1191.000	55.38	.00	.00	510.90	9.72	511.63	511.63	511.90	167.68	2.30	4.23	.75
*	1191.000	55.38	.00	.00	510.90	31.36	512.26	512.26	512.73	163.70	3.03	10.36	2.45
*	1154.000	37.24	.00	.00	510.70	20.37	511.25	511.25	511.48	204.00	2.13	9.57	1.43
*	1154.000	37.24	.00	.00	510.70	62.26	511.77	511.77	512.18	145.23	2.86	21.75	5.17
*	1060.000	93.71	.00	.00	510.02	20.37	510.83	510.83	511.14	134.24	2.47	8.24	1.76
*	1060.000	93.71	.00	.00	510.02	62.26	511.53	511.53	512.09	124.02	3.32	18.74	5.59
*	1030.000	30.57	.00	.00	509.90	20.37	510.99	510.99	511.27	115.59	2.34	8.71	1.89
*	1030.000	30.57	.00	.00	509.90	62.26	511.64	511.64	512.11	114.50	3.05	20.44	5.82
	1020.000	10.00	.00	.00	509.80	20.37	510.44	510.64	511.04	367.02	3.44	5.91	1.06
	1020.000	10.00	.00	.00	509.80	62.26	510.87	511.18	511.87	350.13	4.44	14.02	3.33
*	1000.000	19.80	.00	.00	509.60	20.37	510.18	510.21	510.38	159.97	1.96	10.40	1.61
	1000.000	19.80	.00	.00	509.60	62.26	510.38	510.58	511.06	306.72	3.64	17.10	3.55
*	995.000	5.50	513.10	511.90	509.50	20.37	510.26	999999.00	510.36	54.78	1.40	14.59	2.75
*	995.000	5.50	513.10	511.90	509.50	62.26	510.45	999999.00	510.89	155.65	2.95	21.09	4.99
*	971.000	22.90	.00	.00	509.40	20.37	510.08	510.08	510.32	117.33	2.17	9.39	1.88
*	971.000	22.90	.00	.00	509.40	62.26	510.61	510.61	511.07	95.25	3.02	20.61	6.38

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1772.000	20.37	517.42	.00	.00	-.02	13.56	.00
*	1772.000	62.26	517.72	.30	.00	-.01	129.32	.00
	1715.000	20.37	516.31	.00	-1.11	.00	32.88	57.00
*	1715.000	62.26	516.58	.27	-1.14	.00	34.60	57.00
	1703.000	20.37	516.30	.00	-.01	.00	22.94	12.00
*	1703.000	62.26	516.92	.62	.34	.00	78.11	12.00
*	1694.000	20.37	515.96	.00	-.34	.00	37.48	9.00
*	1694.000	62.26	516.17	.21	-.75	.00	38.70	9.00

*	1674.000	20.37	515.84	.00	-.12	.00	46.25	20.00
*	1674.000	62.26	516.14	.30	-.04	.00	48.30	20.00
	1652.000	9.72	515.90	.00	.06	.00	11.50	22.00
	1652.000	31.36	516.53	.63	.39	.00	44.86	22.00
*	1598.000	9.72	515.57	.00	-.33	.00	8.86	53.18
*	1598.000	31.36	516.30	.73	-.23	.00	40.59	53.18
*	1545.000	9.72	515.09	.00	-.48	.00	7.67	53.64
	1545.000	31.36	515.74	.66	-.55	.00	45.60	53.64
*	1520.000	9.72	514.16	.00	-.93	.00	12.14	24.26
*	1520.000	31.36	514.46	.30	-1.29	.00	13.30	24.26
*	1507.000	9.72	513.93	.00	-.23	.00	15.34	13.00
	1507.000	31.36	514.15	.22	-.30	.00	15.35	13.00
*	1504.000	9.72	513.99	.00	.06	.00	12.01	3.38
*	1504.000	31.36	514.47	.48	.32	.00	12.01	3.38
*	1480.000	9.72	513.99	.00	-.01	.00	12.01	23.20
*	1480.000	31.36	514.45	.47	-.02	.00	12.01	23.20
*	1477.000	9.72	513.67	.00	-.32	.00	15.34	3.38
*	1477.000	31.36	513.97	.30	-.48	.00	15.35	3.38
*	1467.000	9.72	513.82	.00	.15	.00	12.67	13.14
*	1467.000	31.36	514.28	.47	.31	.00	14.54	13.14
*	1450.000	9.72	514.18	.00	.36	.00	8.88	23.20
	1450.000	31.36	514.77	.59	.48	.00	18.41	23.20
*	1422.000	9.72	513.80	.00	-.38	.00	11.57	28.09
*	1422.000	31.36	514.19	.39	-.58	.00	34.60	28.09

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1345.000	9.72	513.19	.00	-.61	.00	18.62	77.06
*	1345.000	31.36	513.55	.36	-.64	.00	20.08	77.06
*	1291.000	9.72	512.71	.00	-.48	.00	7.79	54.00
*	1291.000	31.36	513.42	.71	-.14	.00	19.67	54.00
*	1246.000	9.72	512.25	.00	-.45	.00	7.32	44.03
*	1246.000	31.36	512.93	.68	-.48	.00	10.86	44.03
*	1191.000	9.72	511.63	.00	-.62	.00	8.01	55.38
*	1191.000	31.36	512.26	.63	-.67	.00	11.23	55.38
*	1154.000	20.37	511.25	.00	-.38	.00	20.96	37.24
*	1154.000	62.26	511.77	.52	-.50	.00	26.45	37.24
*	1060.000	20.37	510.83	.00	-.42	.00	13.22	93.71
*	1060.000	62.26	511.53	.70	-.23	.00	16.76	93.71
	1030.000	20.37	510.99	.00	.16	.00	15.97	30.57
*	1030.000	62.26	511.64	.65	.11	.00	21.63	30.57
*	1020.000	20.37	510.44	.00	-.55	.00	14.75	10.00
*	1020.000	62.26	510.87	.43	-.77	.00	23.04	10.00

*	1000.000	20.37	510.18	.00	-.26	.00	32.74	19.80
	1000.000	62.26	510.38	.20	-.48	.00	34.52	19.80
	995.000	20.37	510.26	.00	.08	.00	34.11	5.50
*	995.000	62.26	510.45	.19	.07	.00	35.01	5.50
*	971.000	20.37	510.08	.00	-.18	.00	19.93	22.90
*	971.000	62.26	510.61	.53	.16	.00	22.55	22.90

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1703.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1694.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1694.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1674.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1674.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1674.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1674.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1674.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1652.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1652.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1598.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1598.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1598.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1520.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1520.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1504.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1504.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
```

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CAUTION SECNO=   1504.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1504.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1504.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1504.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```



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CAUTION SECNO=   1480.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=   1480.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1480.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1467.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1467.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1467.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1467.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1467.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1467.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1450.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1450.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1450.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1450.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1450.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1450.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1422.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1422.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1422.000  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=   1422.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=   1422.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1345.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1345.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1345.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1345.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1345.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1291.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1291.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1291.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1291.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1246.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1246.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1246.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1246.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1191.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1191.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
```

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CAUTION SECNO=   1191.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1154.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1154.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1060.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1060.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1020.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1020.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1000.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    995.000  PROFILE=  1  DOWNSTREAM DEPTH WRONG SIDE CRITICAL
WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    995.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                        NEW BACKWATER REQUIRED

CAUTION SECNO=    971.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    971.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

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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    01JUL96    TIME   12:17:09  *                    *          (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
   01JUL96      12:17:09                                                                          PAGE    1


                                                                          THIS RUN EXECUTED 01JUL96    12:17:09
*************************************
 HEC-2 WATER SURFACE PROFILES

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


T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/30/96
T2      PROPOSED CBC; VEGETATION MANAGEMENT
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE:   ALT2EAST.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                   0      .0101        1                         511.28

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1        13        14        15        55        26        56        33
     4         5        42
    38        43         3         2        68
   150

       REMAINDER OF SPLIT FLOW FROM EXISTING WEST CHANNEL (EXWEST.OH2)
       SEE SPLIT FLOW WIER SUMMARY FOR STATIONS 1+652 TO 1+674
       AT END OF EACH PROFILE (INTERMEDIATE RESULTS; EXWEST.IH2)

        2      10.65      30.90

       WEIGHTED MEAN n-VALUE FOR EXISTING WITTMANN WASH CHANNEL
       (FROM NH RECORD FOR STA 1+154;EXWEST.IH2)
NC     .045       .045       .040        .1         .3
```

```
        USE SECTION 1+154 FROM EXWEST.IH2
X1     2000        9     979.44    1016.60        0        0        0
X3       10
GR    512.7   950.00     512.58     979.44   511.55   987.29   510.76   992.04   510.71  1003.63
      510.7  1005.90     510.73    1008.00   512.90  1016.60   513.00  1021.00

1
   01JUL96      12:17:09                                                                    PAGE    2


NH        5      .045     984.69       .045   996.45     .038  1002.34     .045  1010.05     .045
NH   1017.6

X1     2039        9     984.69    1010.05       37       43    38.84
X3       10
GR   512.85   950.00     512.81     984.69   512.39   985.68   511.64   987.49   511.04   996.45
GR    511.2  1002.34     512.27    1007.92   512.71  1010.05   512.72   1017.6


NH        5      .045     992.31       .045   997.72     .035  1003.15     .045  1027.30     .045
NH   1046.2

X1     2125        9     992.31    1027.30       87       85    86.39
X3       10
GR    513.7   950.00     513.59     982.08   513.46   992.31   513.12   994.19    511.8   997.72
GR   511.85  1002.50     512.51    1003.15   513.35  1027.30   513.35   1046.2


NH        5      .045     995.96       .045   999.26     .035  1002.89     .045  1008.18     .045
NH   1041.6

      2231       10     995.96    1008.18      106      105   106.01
        10
GR    514.6   950.00     514.37     992.92   514.43   995.96   514.33   996.36   512.48   999.26
GR    512.6  1002.89     514.47    1008.18   514.47  1008.18   514.55  1027.97   514.55   1041.6


NH        5      .045     997.82       .045  1002.30     .035  1005.63     .045  1008.36     .045
NH   1030.6

X1     2291        8     997.82    1008.36       65       59    59.27
X3       10
GR    515.3   950.00     515.08     980.87   514.76   997.82   512.84  1002.30    512.8  1005.63
GR   514.79  1008.05     514.96    1008.36   514.94   1030.6

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

NH        5      .060     994.05       .080   997.70     .041  1003.57     .080  1011.14     .060
NH   1030.1

X1     2330       11     994.05    1011.14       40       37    39.35
X3       10
GR    515.5   950.00     515.29     981.22   515.09   994.05   513.63   997.70    513.1   997.79
GR    513.0  1003.57     514.69    1006.62   515.24  1007.56   515.38  1011.14    515.3  1022.39
GR   515.40   1030.1


NC     .045      .045      .026

      TRANSITION SECTION
      DUMPED RIPRAP SIDESLOPES, NATURAL BOTTOM
1
   01JUL96      12:17:09                                                                    PAGE    3
```

```
X1     2339        11     994.05    1011.14         9         9      9.00
CI     1000    513.10      .032          2         2     -10.0
X3       10
GR    515.5    950.00    515.29     981.22    515.09    994.05    513.73    997.70     513.2    997.79
      513.09   1003.57    514.79    1006.62    515.24   1007.56    515.38   1011.14     515.3   1022.39
GR   515.40    1030.1

        SECTION JUST DOWNSTREAM FROM EAST CULVERT

NC     .045      .045      .013        .3        .5

X1     2354         9    990.95    1008.00        15        14     14.77
CI                                                 .01
X3       10
GR    515.4    950.00    515.14     990.95    514.91    992.32    513.41    992.33    513.41   1007.67
GR   514.93   1007.68     515.1    1008.00    515.35   1020.00    515.35   1050.00

        CENTER STREET EAST CROSSING
        DOWNSTREAM FACE OF EAST CULVERT
        PROPOSED (4) 3.0m x 1.5m CBC; NO SKEW

X1     2357         9    992.00    1008.00         3         3      3.00
CI                                                 .01
X3       10
GR    515.6    950.00    515.33     992.00    514.93    993.71    513.43    993.72    513.43   1006.56
GR   514.93   1006.57     515.3    1008.00    515.35   1017.24     515.3   1050.00

        PROPOSED (4)- 3.0m x 1.5m CBC; FLARED WINGWALLS, BEVELED INLET

SC     [illegible]                                                 23.16       9.1    513.59    513.43

        UPSTREAM FACE OF EAST CULVERT
        PROPOSED (4) 3.0m x 1.5m CBC; NO SKEW
X1     2377         9    992.00    1008.00     20.73     20.73     20.73
X2                           2
X3       10                                                      515.55    515.50
BT       -2    950.00    515.72              1017.24    515.46
GR   515.72    950.00    515.45     992.00    515.09    993.71    513.59    993.72    513.59   1006.56
GR   515.09   1006.57    515.44    1008.00    515.46   1017.24     515.4   1050.00


NC     .045      .045      .026        .1        .3

        UPSTREAM END OF FLARED INLET WINGWALLS
X1     2380         8    992.32    1009.00         3         3      3.00
X3       10
GR    515.8    950.00    515.48     967.15    515.11    992.32    513.61    992.33    513.61   1007.67
GR   515.11   1007.68    515.32    1009.00    515.47   1030.00
```



```
X1     2400        10    992.29    1008.57        21        26     24.00
CI     1000    514.13      .032          2         2      -7.0
X3       10
GR    516.0    950.00    515.88     972.39    515.95    992.29    515.92    992.44     514.8    998.34
GR    514.5    999.50     514.5    1004.94    515.78   1008.57    515.88   1008.58    515.97   1020.93

NC     .080      .100      .034

X1     2418        10    992.29    1008.57        17        19     18.00
CI                                                 .01
X3       10
```

```
GR    516.0     950.00     515.88     972.39     515.95     992.29     515.92     992.44     514.95     998.34
GR    514.6     999.50      514.6    1004.94     515.88    1008.57     515.88    1008.58     515.97    1020.93
  ****************************************


NH        4       .045     997.77       .034    1004.03       .045    1010.09       .045    1020.00

X1     2449          8     994.14    1010.09         31         31      31.12
X3       10
GR    516.3     950.00     516.11     994.14     515.83     994.93     514.98     997.77     514.76    1004.03
GR    515.8    1010.09     515.78    1010.21     516.15    1020.00

        SECTION JUST DOWNSTREAM FROM SPLIT WITH WEST CHANNEL

NH        4       .045     998.19       .040    1003.75       .045    1010.79       .045    1022.06

X1     2496          8     994.87    1010.79         46         46      46.38
X3       10
GR    516.8     950.00     516.69     963.09     516.53     994.87     515.32     998.19      515.4    1003.75
GR   516.46    1010.20     516.56    1010.79      516.7    1022.06
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

TICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 2000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000       .47    511.17    511.07    511.28    511.26       .09       .00       .00    512.58
      10.6        .0      10.6        .0        .0       7.9        .0        .0        .0    512.90
       .00       .00      1.34       .00      .000      .040      .000      .000    510.70    989.58
   .010081        0.        0.        0.         0        14         5       .00     20.16   1009.74


FLOW DISTRIBUTION FOR SECNO=   2000.00         CWSEL=    511.17

STA=     990.    1017.
  PER Q=    100.0
   AREA=      7.9
    VEL=      1.3
  DEPTH=       .4

1490 NH CARD USED
*SECNO 2039.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  039.000       .60    511.64    511.61       .00    511.79       .15       .49       .02    512.81
      10.6        .0      10.6        .0        .0       6.3        .0        .3        .7    512.71
       .01       .00      1.70       .00      .000      .038      .000      .000    511.04    987.49
   .016490       37.       39.       43.        20        11         0       .00     17.15   1004.64
```

```
FLOW DISTRIBUTION FOR SECNO=   2039.00         CWSEL=    511.64

STA=     987.     996.    1002.    1008.
  PER Q=     32.3     62.9      4.9
   AREA=      2.7      3.1       .5
    VEL=      1.3      2.2      1.0
  DEPTH=       .3       .5       .2

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


1490 NH CARD USED
*SECNO 2125.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.46 ELREA=      513.35

  2125.000       .99    512.79    512.59       .00    512.90       .10      1.10       .00    513.46
      10.6        .0      10.6        .0        .0      7.5        .0        .9      2.2    513.35
       .02       .00      1.42       .00      .000      .042      .000      .000    511.80    995.06
   .010199       87.       86.       85.         3        11         0       .00     16.23   1011.29


FLOW DISTRIBUTION FOR SECNO=   2125.00         CWSEL=    512.79

STA=     995.    1027.
  PER Q=    100.0
   AREA=      7.5
    VEL=      1.4
  DEPTH=       .5

1490 NH CARD USED
*SECNO 2231.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.43 ELREA=      514.47

  2231.000      1.16    513.64    513.35       .00    513.77       .13       .87       .01    514.43
      10.6        .0      10.6        .0        .0      6.6        .0      1.6       3.5    514.47
       .04       .00      1.62       .00      .000      .041      .000      .000    512.48    997.45
   .006677      106.      106.      105.         3        11         0       .00      8.38   1005.83


FLOW DISTRIBUTION FOR SECNO=   2231.00         CWSEL=    513.64

STA=     997.    1008.
  PER Q=    100.0
   AREA=      6.6
    VEL=      1.6
  DEPTH=       .8

1490 NH CARD USED
*SECNO 2291.000
1
   01JUL96      12:17:09                                                                                    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
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.76 ELREA=      514.96

  2291.000      1.22    514.02    513.68       .00    514.15       .14       .38       .00    514.76
      10.6        .0      10.6        .0        .0       6.5        .0       2.0       3.9    514.96
       .05       .00      1.64       .00      .000      .041      .000      .000    512.80    999.56
   .006228       65.       59.       59.         2        15         0       .00      7.55   1007.11


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    514.02

STA=    1000.    1008.
  PER Q=    100.0
   AREA=      6.5
    VEL=      1.6
  DEPTH=       .9

1490 NH CARD USED
*SECNO 2330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2330.000      1.32    514.32    513.72       .00    514.38       .06       .22       .01    515.09
      10.6        .0      10.6        .0        .0       9.6        .0       2.3       4.3    515.38
       .06       .00      1.11       .00      .000      .059      .000      .000    513.00    995.98
   .005088       40.       39.       37.         2        14         0       .00      9.97   1005.95


FLOW DISTRIBUTION FOR SECNO=   2330.00         CWSEL=    514.32

STA=     996.    1007.
  PER Q=    100.0
   AREA=      9.6
    VEL=      1.1
  DEPTH=      1.0

*SECNO 2339.000
CHIMP CLSTA=    1000.00 CELCH=     513.10 BW=      10.00 STCHL=     990.92 STCHR=    1011.14
EXCAVATION DATA
AEX=      10.7 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER

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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.37


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      515.38

  2339.000      1.27    514.37    513.57       .00    514.40       .02       .01       .00    515.14
      10.6        .0      10.6        .0        .0       15.9        .0       2.4       4.4    515.38
       .07       .00       .67       .00      .000      .032      .000      .000    513.10    992.46
   .000448        9.        9.        9.         0        18         0       .00     15.08   1007.54


FLOW DISTRIBUTION FOR SECNO=   2339.00         CWSEL=    514.37
```

```
STA=     992.    1011.
  PER Q=    100.0
   AREA=     15.9
    VEL=       .7
  DEPTH=      1.1

CCHV=     .300 CEHV=     .500
*SECNO 2354.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.04


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      515.10

  2354.000       .96    514.37    513.78       .00    514.40       .03       .00       .00    515.14
      10.6        .0      10.6        .0        .0      14.8        .0       2.7       4.6    515.10
       .07       .00       .72       .00      .000      .013      .000      .000    513.41    992.32
   .000108       15.       15.       14.         2        14         0       .00     15.35   1007.68


FLOW DISTRIBUTION FOR SECNO=   2354.00         CWSEL=    514.37

STA=     992.    1008.
  PER Q=    100.0
   AREA=     14.8
    VEL=       .7
  DEPTH=      1.0
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 2357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.30

  2357.000       .94    514.37    513.84       .00    514.41       .04       .00       .01    515.33
      10.6        .0      10.6        .0        .0      12.1        .0       2.7       4.7    515.30
       .07       .00       .88       .00      .000      .013      .000      .000    513.43    993.71
   .000168        3.        3.        3.         0        14         0       .00     12.85   1006.57


FLOW DISTRIBUTION FOR SECNO=   2357.00         CWSEL=    514.37

STA=     994.    1008.
  PER Q=    100.0
   AREA=     12.1
    VEL=       .9
  DEPTH=       .9


SPECIAL CULVERT

   CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
    4         .013      .20      1.66       .00      1.50      3.00      23.16     9         1        513.59    513.43

CHART  9 - BOX CULVERT WITH FLARED WINGWALL AND INLET TOP EDGE BEVEL
SCALE  1 - WINGWALL FLARED 45 DEGREES; INLET TOP EDGE = 0.043D
```

```
*SECNO 2377.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.290  EGOC =    514.377  PCWSE=    514.368  ELTRD=    515.500

3150, EG OF   514.38 LESS THAN XEG OF   514.41
SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   514.29    514.38       .00        0.       11.     1.092      18.0    515.50        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.55 ELREA=      515.50

  2377.000       .76    514.35       .00       .00    514.41       .06       .00       .00    515.45
      10.6        .0      10.6        .0        .0       9.8        .0       2.9       4.9    515.44
       .08       .00      1.09       .00      .000      .013      .000      .000    513.59    993.71
   .000338       21.       21.       21.         1         0         0       .00     12.85   1006.57


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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


FLOW DISTRIBUTION FOR SECNO=   2377.00          CWSEL=    514.35

STA=     994.    1008.
  PER Q=    100.0
   AREA=      9.8
    VEL=      1.1
  DEPTH=       .8

CCHV=     .100 CEHV=     .300
*SECNO 2380.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.11 ELREA=      515.32

  2380.000       .76    514.37    513.98       .00    514.41       .04       .00       .00    515.11
      10.6        .0      10.6        .0        .0      11.6        .0       3.0       5.0    515.32
       .08       .00       .92       .00      .000      .026      .000      .000    513.61    992.32
   .000929        3.         3.        3.         2        11         0       .00     15.35   1007.68


FLOW DISTRIBUTION FOR SECNO=   2380.00          CWSEL=    514.37

STA=     992.    1009.
  PER Q=    100.0
   AREA=     11.6
    VEL=       .9
  DEPTH=       .8

*SECNO 2400.000
CHIMP CLSTA=    1000.00 CELCH=     514.13 BW=       7.00 STCHL=     992.29 STCHR=    1008.57
EXCAVATION DATA
AEX=       3.8 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        .2 K*CU-METER
```

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.95 ELREA= 515.78

2400.000	.58	514.71	514.71	.00	514.97	.26	.06	.06	515.95
10.6	.0	10.6	.0	.0	4.7	.0	3.2	5.3	515.78
.08	.00	2.25	.00	.000	.032	.000	.000	514.13	995.34
.013231	21.	24.	26.	0	15	0	.00	9.32	1004.66

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

FLOW DISTRIBUTION FOR SECNO= 2400.00 CWSEL= 514.71

STA= 995. 1009.
PER Q= 100.0
AREA= 4.7
VEL= 2.2
DEPTH= .5

*SECNO 2418.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.95 ELREA= 515.88

2418.000	.64	515.24	515.24	.00	515.48	.24	.25	.00	515.95
10.6	.0	10.6	.0	.0	4.9	.0	3.2	5.4	515.88
.08	.00	2.18	.00	.000	.034	.000	.000	514.60	996.56
.015013	17.	18.	19.	0	8	0	.00	10.20	1006.76

FLOW DISTRIBUTION FOR SECNO= 2418.00 CWSEL= 515.24

STA= 997. 1009.
PER Q= 100.0
AREA= 4.9
VEL= 2.2
DEPTH= .5

1490 NH CARD USED
*SECNO 2449.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.11 ELREA= 515.80

2449.000	.92	515.68	515.42	.00	515.76	.08	.26	.02	516.11
10.6	.0	10.6	.0	.0	8.3	.0	3.4	5.8	515.80
.09	.00	1.28	.00	.000	.040	.000	.000	514.76	995.44
.005359	31.	31.	31.	2	8	0	.00	13.95	1009.38

```
   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

FLOW DISTRIBUTION FOR SECNO=   2449.00         CWSEL=    515.68

STA=     995.    1010.
  PER Q=    100.0
   AREA=      8.3
    VEL=      1.3
  DEPTH=       .6

1490 NH CARD USED
*SECNO 2496.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.53 ELREA=      516.56

  2496.000       .70    516.02    515.97       .00    516.21       .19       .41       .03    516.53
      10.6        .0      10.6        .0        .0       5.5        .0       3.8       6.4    516.56
       .10       .00      1.93       .00      .000      .043      .000      .000    515.32    996.27
   .017806       46.       46.       46.         2        19         0       .00     11.26   1007.53


FLOW DISTRIBUTION FOR SECNO=   2496.00         CWSEL=    516.02

STA=     996.    1010.
  PER Q=    100.0
   AREA=      5.5
    VEL=      1.9
  DEPTH=       .5
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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      PROPOSED CBC; VEGETATION MANAGEMENT
T3      100-YEAR SUBCRITICAL FLOW
T4      FILE:   ALT2EAST.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                   0      .0102        1                         511.75

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15                   -1                                      -1                            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
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*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CEHV=     .100 CEHV=     .300
*SECNO 2000.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000      .84    511.54    511.40    511.75    511.73       .19       .00       .00    512.58
      30.9       .0      30.9       .0       .0      16.0        .0       .0        .0    512.90
       .00      .00      1.93      .00      .000      .040      .000      .000    510.70    987.36
   .010155       0.        0.       0.         0        14         4       .00     23.84   1011.20


FLOW DISTRIBUTION FOR SECNO=   2000.00         CWSEL=    511.54

STA=     987.    1017.
  PER Q=    100.0
   AREA=     16.0
    VEL=      1.9
  DEPTH=       .7

1490 NH CARD USED
*SECNO 2039.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  2039.000      .93    511.97    511.97       .00    512.29       .32       .52       .04    512.81
      30.9       .0      30.9       .0       .0      12.4        .0       .6        .8    512.71
       .00      .00      2.50      .00      .000      .040      .000      .000    511.04    986.69
   .018480      37.       39.      43.         0         8         0       .00     19.68   1006.37


FLOW DISTRIBUTION FOR SECNO=   2039.00         CWSEL=    511.97

STA=     987.     996.    1002.    1008.
  PER Q=     39.8     52.2      8.0
   AREA=      5.8      5.0      1.6
    VEL=      2.1      3.2      1.6
  DEPTH=       .6       .9       .4
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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


1490 NH CARD USED
*SECNO 2125.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.46 ELREA=      513.35

  2125.000     1.49    513.29    513.08       .00    513.42       .13      1.11       .02    513.46
      30.9       .0      30.9       .0       .0      19.5        .0       1.9       3.1    513.35
       .02      .00      1.58      .00      .000      .043      .000      .000    511.80    993.24
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   .009428      87.      86.      85.       3      11       0     .00    32.39  1025.63


FLOW DISTRIBUTION FOR SECNO=   2125.00         CWSEL=    513.29

STA=     993.    1027.
  PER Q=    100.0
   AREA=     19.5
    VEL=      1.6
  DEPTH=       .6

1490 NH CARD USED
*SECNO 2231.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.43 ELREA=      514.47

  2231.000     1.74   514.22   514.00      .00   514.55      .33     1.07      .06   514.43
     30.9       .0     30.9       .0       .0     12.2       .0      3.6      5.4   514.47
      .03      .00     2.54      .00     .000     .042     .000     .000   512.48   996.53
   .010788     106.     106.     105.        2        5        0      .00    10.94  1007.47


FLOW DISTRIBUTION FOR SECNO=   2231.00         CWSEL=    514.22

STA=     997.    1008.
  PER Q=    100.0
   AREA=     12.2
    VEL=      2.5
  DEPTH=      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


1490 NH CARD USED
*SECNO 2291.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.76 ELREA=      514.96

  2291.000     2.01   514.81   514.38      .00   515.07      .26      .52      .01   514.76
     30.9       .0     30.9       .0       .1     13.6       .0      4.4      6.1   514.96
      .04      .02     2.27      .00     .045     .042     .000     .000   512.80   995.28
   .007266      65.      59.      59.        2       11        0      .00    12.80  1008.08


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    514.81

STA=     995.     998.    1008.
  PER Q=       .0    100.0
   AREA=       .1     13.6
    VEL=       .0      2.3
  DEPTH=       .0      1.3

1490 NH CARD USED
*SECNO 2330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2330.000     2.23   515.23   514.35      .00   515.35      .11      .26      .01   515.09
     30.9       .2     30.7       .0       .7     20.5       .0      5.1      6.8   515.38
```

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      .05       .23      1.50       .00      .060      .065      .000      .000    513.00    984.77
   .006156      40.       39.       37.        2        14         0       .00     22.78   1007.55


W DISTRIBUTION FOR SECNO=   2330.00          CWSEL=    515.23

STA=     985.     994.    1008.
  PER Q=       .5     99.5
   AREA=       .7     20.5
    VEL=       .2      1.5
  DEPTH=       .1      1.5

*SECNO 2339.000
CHIMP CLSTA=    1000.00 CELCH=     513.10 BW=      10.00 STCHL=     990.92 STCHR=    1011.14
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


EXCAVATION DATA
AEX=      10.7 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      515.38

  2339.000      2.22    515.32    514.02       .00    515.37       .05       .01       .01    515.14
      30.9        .1      30.8        .0       1.1      32.0        .0       5.3       7.1    515.38
       .05       .10       .96       .00      .045      .032      .000      .000    513.10    976.82
   .000495        9.        9.        9.        2        18         0       .00     32.77   1009.59


FLOW DISTRIBUTION FOR SECNO=   2339.00          CWSEL=    515.32

STA=     977.     991.    1011.
  PER Q=       .4     99.6
   AREA=      1.1     32.0
    VEL=       .1      1.0
  DEPTH=       .1      1.7

CCHV=     .300 CEHV=     .500
*SECNO 2354.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.16

  2354.000      1.91    515.32    514.15       .00    515.37       .05       .00       .00    515.14
      30.9        .1      30.7        .1       2.5      29.8       1.2       5.8       7.7    515.10
       .05       .05      1.03       .05      .045      .013      .045      .000    513.41    962.75
   .000106       15.       15.       14.        2        17         0       .00     55.77   1018.52


FLOW DISTRIBUTION FOR SECNO=   2354.00          CWSEL=    515.32

=     963.     991.    1008.    1019.
PER Q=       .4     99.4       .2
  AREA=      2.5     29.8      1.2
   VEL=       .0      1.0       .1
 DEPTH=       .1      1.7       .1
```

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

*SECNO 2357.000

3265 DIVIDED FLOW

3280 CROSS SECTION 2357.00 EXTENDED .01 METERS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.33 ELREA= 515.30

2357.000	1.88	515.31	514.27	.00	515.39	.08	.00	.01	515.33
30.9	.0	30.9	.0	.0	24.8	.1	5.9	7.8	515.30
.05	.00	1.25	.00	.000	.013	.045	.000	513.43	992.07
.000184	3.	3.	3.	1	14	0	.00	27.47	1050.00

FLOW DISTRIBUTION FOR SECNO= 2357.00 CWSEL= 515.31

STA=	992.	1008.	1050.
PER Q=	100.0	.0	
AREA=	24.8	.1	
VEL=	1.2	.0	
DEPTH=	1.6	.0	

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.20	1.66	.00	1.50	3.00	23.16	9	1	513.59	513.43

CHART 9 - BOX CULVERT WITH FLARED WINGWALL AND INLET TOP EDGE BEVEL
SCALE 1 - WINGWALL FLARED 45 DEGREES; INLET TOP EDGE = 0.043D

*SECNO 2377.000
5155, 20 TRIALS OF QWEIR NOT ENOUGH; POSSIBLY INVALID
FINAL QWEIR + QCULV = 31. DOES NOT EQUAL ACTUAL Q = 31.

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 515.52
3280 CROSS SECTION 2377.00 EXTENDED .04 METERS

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
515.01	515.52	.13	0.	31.	1.274	18.0	515.50	16.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.55 ELREA= 515.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

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    SLOPE      XLOBL      XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID    ENDST


  2377.000      1.85    515.44       .00       .00    515.52       .08       .13       .00    515.45
     30.9        .0      30.9        .0        .0      24.3        .0       6.4       8.3    515.44
      .06       .00      1.27       .00      .000      .013      .000      .000    513.59    992.07
   .000198      21.       21.       21.         2         0         0       .00     15.92   1007.98


FLOW DISTRIBUTION FOR SECNO=   2377.00          CWSEL=    515.44

STA=     992.    1008.
  PER Q=    100.0
   AREA=     24.3
    VEL=      1.3
  DEPTH=      1.5

CCHV=     .100 CEHV=     .300
*SECNO 2380.000
3280 CROSS SECTION   2380.00 EXTENDED       .00 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

  2380.000      1.86    515.47    514.35       .00    515.52       .05       .00       .00    515.11
     30.9        .7      30.1        .1       4.4      28.9       1.6       6.5       8.4    515.32
      .06       .15      1.04       .08      .045      .026      .045      .000    513.61    967.82
   .000440       3.        3.        3.         2        18         0       .00     62.18   1030.00


FLOW DISTRIBUTION FOR SECNO=   2380.00          CWSEL=    515.47

  =     968.     992.    1009.    1030.
  PER Q=      2.1     97.5       .4
   AREA=      4.4     28.9      1.6
    VEL=       .1      1.0       .1
  DEPTH=       .2      1.7       .1

*SECNO 2400.000
CHIMP CLSTA=    1000.00 CELCH=     514.13 BW=       7.00 STCHL=     992.29 STCHR=    1008.57
EXCAVATION DATA
AEX=       3.8 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        .2 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
1
   01JUL96      12:17:09                                                                                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


3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.78

  2400.000      1.12    515.25    515.25       .00    515.70       .46       .03       .12    515.95
     30.9        .0      30.9        .0        .0      10.3        .0       7.0       9.3    515.78
      .06       .00      2.99       .00      .000      .032      .000      .000    514.13    994.27
   .011221      21.       24.       26.         0        14         0       .00     11.47   1005.74


FLOW DISTRIBUTION FOR SECNO=   2400.00          CWSEL=    515.25
```

```
STA=     994.    1009.
  PER Q=    100.0
   AREA=     10.3
    VEL=      3.0
  DEPTH=       .9

*SECNO 2418.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.88

  2418.000      1.15    515.75    515.75       .00    516.14       .39       .22       .01    515.95
      30.9        .0      30.9        .0        .0      11.2        .0       7.2       9.5    515.88
       .06       .00      2.76       .00      .000      .034      .000      .000    514.60    993.48
   .013045       17.       18.       19.         0         8         0       .00     14.72   1008.20


FLOW DISTRIBUTION FOR SECNO=   2418.00         CWSEL=    515.75

STA=     993.    1009.
  PER Q=    100.0
   AREA=     11.2
    VEL=      2.8
  DEPTH=       .8

1490 NH CARD USED
*SECNO 2449.000
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3280 CROSS SECTION   2449.00 EXTENDED       .10 METERS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

  2449.000      1.49    516.25    515.89       .00    516.38       .13       .22       .03    516.11
      30.9        .5      28.6       1.7       2.2      17.1       2.8       7.7      10.6    515.80
       .07       .25      1.67       .62      .045      .041      .045      .000    514.76    962.21
   .004374       31.       31.       31.         2         5         0       .00     57.79   1020.00


FLOW DISTRIBUTION FOR SECNO=   2449.00         CWSEL=    516.25

STA=     962.     994.    1010.    1020.
  PER Q=      1.8     92.6      5.6
   AREA=      2.2     17.1      2.8
    VEL=       .2      1.7       .6
  DEPTH=       .1      1.1       .3

1490 NH CARD USED
*SECNO 2496.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.53 ELREA=      516.56

  2496.000      1.13    516.45    516.45       .00    516.84       .39       .39       .05    516.53
      30.9        .0      30.9        .0        .0      11.2        .0       8.5      12.3    516.56
```

.07	.00	2.76	.00	.000	.043	.000	.000	515.32	995.08
.021631	46.	46.	46.	0	15	0	.00	15.07	1010.15

W DISTRIBUTION FOR SECNO= 2496.00 CWSEL= 516.45

STA= 995. 1010.
PER Q= 100.0
AREA= 11.2
VEL= 2.8
DEPTH= .7

1

THIS RUN EXECUTED 01JUL96 12:17:11

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	2000.000	10.65	511.17	.00	10.65	.00	.00	1.34	.00	.00	20.16	100.81	510.70
	2000.000	30.90	511.54	.00	30.90	.00	.00	1.93	.00	.00	23.84	101.55	510.70
*	2039.000	10.65	511.64	.00	10.65	.00	.00	1.70	.00	8.75	17.15	164.90	511.04
*	2039.000	30.90	511.97	.00	30.90	.00	.00	2.50	.00	8.75	19.68	184.80	511.04
	2125.000	10.65	512.79	.00	10.65	.00	.00	1.42	.00	8.80	16.23	101.99	511.80
*	2125.000	30.90	513.29	.00	30.90	.00	.00	1.58	.00	8.80	32.39	94.28	511.80
	2231.000	10.65	513.64	.00	10.65	.00	.00	1.62	.00	6.41	8.38	66.77	512.48
	2231.000	30.90	514.22	.00	30.90	.00	.00	2.54	.00	6.41	10.94	107.88	512.48
	2291.000	10.65	514.02	.00	10.65	.00	.00	1.64	.00	5.40	7.55	62.28	512.80
	2291.000	30.90	514.81	.00	30.90	.00	.02	2.27	.00	5.40	12.80	72.66	512.80
	2330.000	10.65	514.32	.00	10.65	.00	.00	1.11	.00	5.08	9.97	50.88	513.00
	2330.000	30.90	515.23	.15	30.75	.00	.23	1.50	.00	5.08	22.78	61.56	513.00
*	2339.000	10.65	514.37	.00	10.65	.00	.00	.67	.00	11.11	15.08	4.48	513.10
*	2339.000	30.90	515.32	.11	30.79	.00	.10	.96	.00	11.11	32.77	4.95	513.10
*	2354.000	10.65	514.37	.00	10.65	.00	.00	.72	.00	20.99	15.35	1.08	513.41
*	2354.000	30.90	515.32	.12	30.72	.06	.05	1.03	.05	20.99	55.77	1.06	513.41
	2357.000	10.65	514.37	.00	10.65	.00	.00	.88	.00	6.67	12.85	1.68	513.43
	2357.000	30.90	515.31	.00	30.90	.00	.00	1.25	.00	6.67	27.47	1.84	513.43
	2377.000	10.65	514.35	.00	10.65	.00	.00	1.09	.00	7.72	12.85	3.38	513.59
	2377.000	30.90	515.44	.00	30.90	.00	.00	1.27	.00	7.72	15.92	1.98	513.59

*	2380.000	10.65	514.37	.00	10.65	.00	.00	.92	.00	6.65	15.35	9.29	513.61
*	2380.000	30.90	515.47	.66	30.11	.13	.15	1.04	.08	6.65	62.18	4.40	513.61

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	2400.000	10.65	514.71	.00	10.65	.00	.00	2.25	.00	21.67	9.32	132.31	514.13
*	2400.000	30.90	515.25	.00	30.90	.00	.00	2.99	.00	21.67	11.47	112.21	514.13
*	2418.000	10.65	515.24	.00	10.65	.00	.00	2.18	.00	26.11	10.20	150.13	514.60
*	2418.000	30.90	515.75	.00	30.90	.00	.00	2.76	.00	26.11	14.72	130.45	514.60
*	2449.000	10.65	515.68	.00	10.65	.00	.00	1.28	.00	5.14	13.95	53.59	514.76
*	2449.000	30.90	516.25	.54	28.62	1.74	.25	1.67	.62	5.14	57.79	43.74	514.76
*	2496.000	10.65	516.02	.00	10.65	.00	.00	1.93	.00	12.07	11.26	178.06	515.32
*	2496.000	30.90	516.45	.00	30.90	.00	.00	2.76	.00	12.07	15.07	216.31	515.32

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	2000.000	10.65	511.26	511.07	.68
	2000.000	30.90	511.73	511.40	.75
*	2039.000	10.65	511.79	511.61	.90
*	2039.000	30.90	512.29	511.97	1.01
	2125.000	10.65	512.90	512.59	.67
*	2125.000	30.90	513.42	513.08	.65
	2231.000	10.65	513.77	513.35	.59
	2231.000	30.90	514.55	514.00	.77
	2291.000	10.65	514.15	513.68	.56
	2291.000	30.90	515.07	514.38	.63
	2330.000	10.65	514.38	513.72	.36
	2330.000	30.90	515.35	514.35	.39
*	2339.000	10.65	514.40	513.57	.21
*	2339.000	30.90	515.37	514.02	.23
*	2354.000	10.65	514.40	513.78	.23
*	2354.000	30.90	515.37	514.15	.25
	2357.000	10.65	514.41	513.84	.29
	2357.000	30.90	515.39	514.27	.32
	2377.000	10.65	514.41	.00	.40
	2377.000	30.90	515.52	.00	.33
*	2380.000	10.65	514.41	513.98	.34
*	2380.000	30.90	515.52	514.35	.25
*	2400.000	10.65	514.97	514.71	1.01

*	2400.000	30.90	515.70	515.25	1.01
*	2418.000	10.65	515.48	515.24	1.00
*	2418.000	30.90	516.14	515.75	1.01
*	2449.000	10.65	515.76	515.42	.53
*	2449.000	30.90	516.38	515.89	.52
*	2496.000	10.65	516.21	515.97	.88
*	2496.000	30.90	516.84	516.45	1.02

1

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	2000.000	.00	.00	.00	510.70	10.65	511.17	511.07	511.26	100.81	1.34	7.93	1.06
	2000.000	.00	.00	.00	510.70	30.90	511.54	511.40	511.73	101.55	1.93	16.04	3.07
*	2039.000	38.84	.00	.00	511.04	10.65	511.64	511.61	511.79	164.90	1.70	6.26	.83
*	2039.000	38.84	.00	.00	511.04	30.90	511.97	511.97	512.29	184.80	2.50	12.37	2.27
	2125.000	86.39	.00	.00	511.80	10.65	512.79	512.59	512.90	101.99	1.42	7.50	1.05
*	2125.000	86.39	.00	.00	511.80	30.90	513.29	513.08	513.42	94.28	1.58	19.54	3.18
	2231.000	106.01	.00	.00	512.48	10.65	513.64	513.35	513.77	66.77	1.62	6.56	1.30
	2231.000	106.01	.00	.00	512.48	30.90	514.22	514.00	514.55	107.88	2.54	12.19	2.97
	2291.000	59.27	.00	.00	512.80	10.65	514.02	513.68	514.15	62.28	1.64	6.49	1.35
	2291.000	59.27	.00	.00	512.80	30.90	514.81	514.38	515.07	72.66	2.27	13.65	3.63
	2330.000	39.35	.00	.00	513.00	10.65	514.32	513.72	514.38	50.88	1.11	9.59	1.49
	2330.000	39.35	.00	.00	513.00	30.90	515.23	514.35	515.35	61.56	1.50	21.15	3.94
*	2339.000	9.00	.00	.00	513.10	10.65	514.37	513.57	514.40	4.48	.67	15.93	5.03
*	2339.000	9.00	.00	.00	513.10	30.90	515.32	514.02	515.37	4.95	.96	33.10	13.89
*	2354.000	14.77	.00	.00	513.41	10.65	514.37	513.78	514.40	1.08	.72	14.80	10.27
*	2354.000	14.77	.00	.00	513.41	30.90	515.32	514.15	515.37	1.06	1.03	33.49	29.98
	2357.000	3.00	.00	.00	513.43	10.65	514.37	513.84	514.41	1.68	.88	12.14	8.21
	2357.000	3.00	.00	.00	513.43	30.90	515.31	514.27	515.39	1.84	1.25	24.89	22.80
	2377.000	20.73	515.50	.00	513.59	10.65	514.35	.00	514.41	3.38	1.09	9.75	5.79
	2377.000	20.73	515.50	.00	513.59	30.90	515.44	.00	515.52	1.98	1.27	24.26	21.98
*	2380.000	3.00	.00	.00	513.61	10.65	514.37	513.98	514.41	9.29	.92	11.63	3.49
*	2380.000	3.00	.00	.00	513.61	30.90	515.47	514.35	515.52	4.40	1.04	34.88	14.73
*	2400.000	24.00	.00	.00	514.13	10.65	514.71	514.71	514.97	132.31	2.25	4.74	.93
*	2400.000	24.00	.00	.00	514.13	30.90	515.25	515.25	515.70	112.21	2.99	10.32	2.92
*	2418.000	18.00	.00	.00	514.60	10.65	515.24	515.24	515.48	150.13	2.18	4.89	.87
*	2418.000	18.00	.00	.00	514.60	30.90	515.75	515.75	516.14	130.45	2.76	11.20	2.71
*	2449.000	31.12	.00	.00	514.76	10.65	515.68	515.42	515.76	53.59	1.28	8.34	1.45
*	2449.000	31.12	.00	.00	514.76	30.90	516.25	515.89	516.38	43.74	1.67	22.11	4.67
*	2496.000	46.38	.00	.00	515.32	10.65	516.02	515.97	516.21	178.06	1.93	5.52	.80
*	2496.000	46.38	.00	.00	515.32	30.90	516.45	516.45	516.84	216.31	2.76	11.20	2.10

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2000.000	10.65	511.17	.00	.00	-.11	20.16	.00
	2000.000	30.90	511.54	.37	.00	-.21	23.84	.00
*	2039.000	10.65	511.64	.00	.47	.00	17.15	38.84
*	2039.000	30.90	511.97	.33	.43	.00	19.68	38.84
	2125.000	10.65	512.79	.00	1.15	.00	16.23	86.39
*	2125.000	30.90	513.29	.50	1.32	.00	32.39	86.39
	2231.000	10.65	513.64	.00	.84	.00	8.38	106.01
	2231.000	30.90	514.22	.58	.93	.00	10.94	106.01
	2291.000	10.65	514.02	.00	.38	.00	7.55	59.27
	2291.000	30.90	514.81	.79	.59	.00	12.80	59.27
	2330.000	10.65	514.32	.00	.30	.00	9.97	39.35
	2330.000	30.90	515.23	.92	.43	.00	22.78	39.35
*	2339.000	10.65	514.37	.00	.05	.00	15.08	9.00
*	2339.000	30.90	515.32	.95	.08	.00	32.77	9.00
	2354.000	10.65	514.37	.00	.00	.00	15.35	14.77
*	2354.000	30.90	515.32	.95	.00	.00	55.77	14.77
	2357.000	10.65	514.37	.00	-.01	.00	12.85	3.00
	2357.000	30.90	515.31	.94	-.01	.00	27.47	3.00
	2377.000	10.65	514.35	.00	-.02	.00	12.85	20.73
	2377.000	30.90	515.44	1.09	.13	.00	15.92	20.73
*	2380.000	10.65	514.37	.00	.02	.00	15.35	3.00
*	2380.000	30.90	515.47	1.10	.03	.00	62.18	3.00
*	2400.000	10.65	514.71	.00	.34	.00	9.32	24.00
*	2400.000	30.90	515.25	.54	-.22	.00	11.47	24.00
*	2418.000	10.65	515.24	.00	.53	.00	10.20	18.00
*	2418.000	30.90	515.75	.51	.50	.00	14.72	18.00
*	2449.000	10.65	515.68	.00	.44	.00	13.95	31.12
*	2449.000	30.90	516.25	.57	.50	.00	57.79	31.12
*	2496.000	10.65	516.02	.00	.34	.00	11.26	46.38
*	2496.000	30.90	516.45	.43	.21	.00	15.07	46.38

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=   2039.000  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=   2039.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   2039.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2039.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   2125.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2339.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2339.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2354.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2354.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2380.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2380.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2400.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2400.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2400.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2400.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2418.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2418.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   2449.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2449.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2496.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   2496.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2496.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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Subcritical and Supercritical Runs for Alternative 3

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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    24JUN96    TIME   14:11:08 *                    *          (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
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                                                                   THIS RUN EXECUTED 24JUN96    14:11:08
*************************************
 HEC-2 WATER SURFACE PROFILES

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


T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/24/96
T2      ALTERNATIVE 3, WEST CBC CULVERT WITH CHANNELIZATION
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE: ALT3WEST.IH2


J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2                   0       .0099        1                         510.15

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1        13        14        15        55        26        56        33
     4         5        42
    38        43         3         2        68
   150

       INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
       10-YEAR AND 100-YEAR FLOW TAKEN FROM
       WLB WITTMANN ADMS REPORT (MAY 89)

         2      20.37      62.26

NC     .100       .050       .035        .1         .3

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
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X1     971        7     988.2    1015.3        0        0        0
X3      10
GR   511.8    982.1    511.8     988.2    509.4    991.9    509.6    1000.4    509.7    1009.5
GR   511.4   1015.3    511.5    1023.5

       SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
1
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NC    .025      .025      .035       .3       .5

       DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
       NEGLECT SKEW OF 10 DEGREES
       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     995       14     981.4    1024.7     10.7     35.7     22.9
X3      10
GR   513.1    981.4    511.6     981.7    511.5    981.7    511.1    984.7    509.9    987.8
GR   509.5    990.2    509.7     998.7    509.8   1007.3    510.2   1015.8    510.0   1020.4
GR   511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.7


SB    1.05       1.6      1.66                17.1      1.2     68.1      5.4    509.6    509.5

       UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
       NEGLECT SKEW OF 10 DEGREES

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1    1000       14     981.7    1024.3      5.5      5.5      5.5
X2                          1     511.9    513.1
X3      10
       -2    981.7    513.1     511.6   1024.3    513.5    511.9
GR   513.1    981.1    511.6     981.7    511.5    981.7    511.1    984.7    510.0    987.8
GR   509.6    990.2    509.7     998.7    509.9   1007.3    510.2   1015.8    510.0   1020.4
GR   511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.3

       DUMMY SECTION JUST UPSTREAM FROM BRIDGE FACE
       BEGIN CHANNEL IMPROVEMENTS

X1    1001       14     981.7    1024.3        1        1        1
CI    1004    509.6      .030         2        2      -32
X3      10
GR   513.1    981.1    511.6     981.7    511.5    981.7    511.1    984.7    510.0    987.8
GR   509.6    990.2    509.7     998.7    509.9   1007.3    510.2   1015.8    510.0   1020.4
GR   511.5   1023.7    511.5    1024.3    511.9   1024.3    513.5   1024.3

       SHOTCRETE SLOPE PROTECTION ON RIGHT

NC    .045      .025      .035       .1       .3

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
       TRANSITION SECTION (BOTTOM WIDTH)
X1    1020       11     964.1    1007.7       34      .01     18.8
CI     996    .0052      .030       1.5      1.5      -20
X3      10
GR   512.4    961.1    511.5     964.1    510.8    967.2    510.9    982.4    510.2    994.6
GR   509.8    997.6    509.9    1001.3    509.8   1003.7    510.8   1005.9    513.5   1007.7
GR   513.5   1009.0

       SHOTCRETE SLOPE PROTECTION ON RIGHT
       INCLUDED WITH WEIGHTED MEAN OF CHANNEL n-VALUE
1
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NC     .045      .040      .030

       SECTION FROM PREVIOUS SURVEY, US60 (1994)
      1030        11     978.0    1009.8      16.8       7.6      10.0
CI    996.5              .030       1.5       1.5     -10.0
X3       10
GR    512.2     950.0     511.9     978.0     511.5     985.4     510.8     988.0     510.8     994.6
GR    509.9     996.7     509.9    1000.0     509.9    1001.3     512.1    1005.3     512.9    1009.8
GR    512.9    1013.0

       SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
       INCLUDED WITH WEIGHTED MEAN OF CHANNEL n-VALUE

NC     .045      .045      .032

X1     1060         9    986.43   1007.33        16        18     30.57
CI      998     .0052      .030       1.5       1.5     -10.0
X3       10
GR    512.5    915.00    511.55    966.98     511.5    978.97    512.14    986.43    510.02    994.11
GR    510.2   1003.49    511.50   1005.35    512.88   1007.33     512.9    1011.0

       FLOW IN WEST CHANNEL

QT        2      9.72     31.36

NC     .045      .045      .040

X1     1154         9    979.44   1016.60        94        93     93.71
CI     1000    510.40      .030       1.5       1.5     -10.0
X3       10
GR    512.7    950.00    512.58    979.44    511.55    987.29    510.76    992.04    510.71   1003.63
      510.7   1005.90    510.73   1008.00    512.90   1016.60    513.00   1021.00


NC     .045      .045      .033

X1     1191        10    989.13   1006.67        42        35     37.24
CI     1000     .0093      .030       1.5       1.5      -7.5
X3       10
GR   512.72    983.92    512.65    989.13    512.33    994.25    511.00    998.82    510.98    998.89
GR    510.9   1003.19    511.00   1003.39    512.01   1005.44    513.14   1006.67     513.2   1010.00


NC     .045      .045      .040

X1     1246         8    992.06   1005.06        56        55     55.38
CI      998              .030       1.5       1.5      -7.5
X3       10
GR    513.2    950.00    513.01    958.67    513.12    965.78    513.18    992.06    511.57    998.48
GR    511.4   1002.02    513.85   1005.06     513.9   1032.48
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NC     .045      .045      .040

       DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
      1291         7    996.07   1007.14        39        49     44.03
CI    1002              .030       1.5       1.5      -7.5
X3       10
GR   513.33    987.59    513.18    996.07    512.06    999.11    511.90   1002.81     513.4   1007.14
GR   514.05   1012.47    514.23    1038.2
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NC     .045      .045      .038

X1     1345        11    986.22   1007.90        60        49        54
       1000              .030       1.5       1.5      -7.5
X3       10
GR    514.1    950.00    513.95    974.18    513.93    986.22    513.16    988.37    512.95    994.56
GR    513.1    996.03    512.72   1000.55    512.61   1006.19     513.1   1006.79    514.00   1007.90
GR   514.23   1027.15


NC     .045      .045      .038

X1     1422         8    950.00   1002.43        69        85     77.06
CI      996              .030       1.5       1.5      -7.5
X3       10
GR    514.5    950.00    514.14    969.33    514.12    985.66    513.14    996.28    513.18    999.49
GR    514.1   1001.27     514.7   1002.43    514.81   1025.59


NC     .045      .045      .040

X1     1464         9    965.75   1006.87        43        42     42.09
CI     1000     .0093      .030       1.5       1.5      -7.5
X3       10
GR   514.94    965.75    514.74    991.48     514.0    997.60    513.84    998.92     513.4    999.00
GR   513.39   1001.52     513.9   1003.30     515.0   1006.87     515.1   1028.00


NC     .045      .045      .013        .3        .5

       DOWNSTREAM END OF OUTLET APRON
       1477        10    987.15   1002.51        22        10     13.14
                                                          .01
X3       10
GR    515.3    965.00    515.28    978.30    514.95    987.15    513.45    987.16    513.45   1002.50
GR   514.95   1002.51     515.0   1005.82    514.96   1024.05    514.73   1027.39    514.89   1030.38

       DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
       CULVERT SKEW 25 DEGREES
1
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X1     1480         9    987.15   1000.01       3.3       3.3      3.38
X3       10
GR    515.5    968.00    515.44    978.30    514.97    987.15    513.47    987.16    513.47   1000.00
GR   514.97   1000.01     515.08   1003.77    515.25   1010.64    515.41   1031.65

       (4) 3.00m x 1.50m CBC
       SKEWED WINGWALLS WITH 45-DEG BEVEL ON INLET

SC     4013       0.2      1.66                1.52      3.05     23.16      11.4    513.59    513.47

       UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
       CULVERT SKEW 25 DEGREES
       (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1     1504         9    987.15   1000.01       16.7      16.7     16.72
X2                             2                515.41
       10
BT       -2    965.00    515.51               1030.38    515.41
GR   515.51    968.00    515.34    978.30    515.09    987.15    513.59    987.16    513.59   1000.00
GR   515.09   1000.01     515.08   1003.77    515.25   1010.64    515.41   1031.65
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NC     .045      .045      .026        .1         .3

       UPSTREAM END OF INLET WINGWALL FLARE
       BEGIN CHANNEL IMPROVEMENTS
      1507         8    987.15   1002.51         3         3      3.38
CI      -1    513.62      .030       .01       .01    -15.34
X3      10
GR  515.51    968.00    515.34    978.30    515.12    987.15    513.62    987.16    513.62   1002.50
GR  515.12   1002.51    515.25   1010.64    515.41   1031.65


NC     .045      .045      .040

       DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1545         8    991.70   1012.48        31        37     37.26
CI      998     .0102      .030       1.5       1.5      -7.5
X3      10                          988.0
GR    515.6    967.00    515.54    991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR    515.5   1012.48    515.46   1022.45    515.53   1033.60


NC     .045      .045      .033

       DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1598         7    991.58   1004.53        53        54     53.64
CI      998                .030       1.5       1.5      -7.5
X3      10                          989.0
GR   516.15    968.00    516.15    987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR    516.1   1004.53     516.2   1029.59
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NC     .045      .045      .037

       BIFURCATION SECTION; DOWNSTREAM LIMIT
       RIGHTMOST GR COORDINATE IS DUMMY POINT
       TO ALLOW RIGHT CHIMP BANK TO BE RAISED
X1     1652         7    989.93    1120.0        53        54     53.18
CI      999    515.14      .030       1.5       1.5      -7.5
X3      10
GR    516.7    980.00    516.58    989.93    515.42    994.01    515.38   1001.83    516.34   1005.58
GR    516.5   1034.97     517.0    1120.0

       FLOW IN CHANNEL UPSTREAM FROM BIFURCATION

QT       2     20.37     62.26

NC     .045      .045      .035

       BIFURCATION SECTION; UPSTREAM LIMIT;
       LEFTMOST GR COORDINATE IS DUMMY POINT
       TO ALLOW LEFT CHIMP BANK TO BE RAISED
X1     1674         8    950.00   1020.00        24        20        22
CI      993     .0102      .030       1.5       1.5    -20.0
X3      10
GR    516.7    950.00    516.58    955.00    515.55    958.00    515.55    979.00    515.55    980.00
GR    515.6   1002.48     516.6   1006.40     517.0   1020.00


NC     .045      .045      .035

       LEFTMOST GR COORDINATE IS DUMMY POINT
       TO ALLOW LEFT CHIMP BANK TO BE RAISED
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X1     1694        8     950.00    1025.00        32        20        20
CI      993              .030        1.5       1.5     -20.0
X3       10
GR    517.0    950.00    516.68     964.00     515.9    966.50     515.9    975.00     515.7    976.00
      515.7   1003.00     516.9    1006.40     517.0   1025.00


NC     .045      .045      .035

        LEFTMOST GR COORDINATE IS DUMMY POINT
        TO ALLOW LEFT CHIMP BANK TO BE RAISED
        END CHANNEL IMPROVEMENTS; BEGIN TRANSITION TO MATCH EXIST
X1     1703        8     935.00    1060.00         9         9         9
CI      993    .0102      .030        1.5       1.5     -20.0
X3       10
GR    517.1    935.00     516.7     980.00    515.75    983.00    515.75    992.50     515.9    994.00
GR    516.0   1003.00     516.9    1006.50     517.1   1060.00
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NC     .045      .045      .035

        LEFTMOST GR COORDINATE IS DUMMY POINT
        TO ALLOW LEFT CHIMP BANK TO BE RAISED
X1     1715       11     935.00     1007.0        14        13        12
CI      993   515.80      .030        1.5       1.5    -30.00
X3       10
GR    517.3    935.00     516.7     970.00     515.9    972.00     515.9    975.00     516.2    984.00
GR    515.8    993.00     515.8     997.00     516.1   1001.00     516.1   1003.00     517.1    1007.0
      517.3   1040.00


NC     .045      .045      .040

        BRAIDED AREA UPSTREAM FROM CONFLUENCE
        MATCH EXISTING CHANNEL
X1     1772       18     993.95    1009.03        72        56        57
CI                                                          .01
X3       10
GR    517.9    900.00     517.7     923.00    517.42    938.76    516.60    942.86    516.60     943.5
GR   517.21    945.11    517.26     955.13     517.5    965.61    516.50    969.43    516.55    975.29
GR   517.63    982.11    517.71     993.95     516.3    998.39     516.3   1001.94    516.95    1003.1
GR   517.48   1009.03     517.5    1032.08     517.6   1050.00
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

V=     .100 CEHV=     .300
SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      .75    510.15    510.08    510.15    510.33      .18      .00      .00    511.80
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     20.4       .0      20.4       .0       .0      10.9       .0       .0       .0   511.40
      .00       .00      1.87      .00     .000      .035     .000     .000   509.40   990.74
  .010027        0.        0.       0.        0        11        3      .00    20.30  1011.04


FLOW DISTRIBUTION FOR SECNO=    971.00          CWSEL=    510.15

STA=     991.    1015.
  PER Q=    100.0
   AREA=     10.9
    VEL=      1.9
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 995.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000       .92   510.42   510.15       .00   510.47       .05       .11       .04   513.10
      20.4        .0     20.4       .0        .0     20.1        .0        .4        .6   513.50
       .01       .00     1.01      .00      .000     .035      .000      .000   509.50   986.45
   .002654       11.       23.      36.         2       12         0       .00    34.87  1021.33


FLOW DISTRIBUTION FOR SECNO=    995.00          CWSEL=    510.42

STA=     986.    1025.
  PER Q=    100.0
   AREA=     20.1
    VEL=      1.0
  DEPTH=       .6

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


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.60      1.66       .00     17.10      1.20     68.10      5.40    509.60    509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.=     510.46 BRIDGE VELOCITY=       1.07     CALCULATED CHANNEL AREA=        18.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                             AREA
      .00    510.49      .01        0.       20.       68.       65.    511.90    513.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000       .83   510.43       .00       .00   510.49       .06       .01       .00   511.60
      20.4        .0     20.4       .0        .0     18.7        .0        .5        .8   513.50
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      .01       .00      1.09       .00      .000      .035      .000      .000    509.60    986.60
   .003360       6.        6.        6.         0         0         0       .00     34.74   1021.34


 OW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    510.43

STA=     987.    1024.
  PER Q=    100.0
   AREA=     18.7
    VEL=      1.1
  DEPTH=       .5

*SECNO 1001.000
CHIMP CLSTA=    1004.00 CELCH=     509.60 BW=      32.00 STCHL=     981.10 STCHR=    1024.30
EXCAVATION DATA
AEX=       8.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.46


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.05 ELREA=      511.75

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


  1001.000       .88    510.48    509.94       .00    510.50       .02       .00       .01    513.05
      20.4        .0      20.4        .0        .0      29.6        .0        .5        .9    511.75
       .01       .00       .69       .00      .000      .030      .000      .000    509.60    986.25
   .000554        1.        1.        1.         2        14         0       .00     35.50   1021.75


FLOW DISTRIBUTION FOR SECNO=   1001.00          CWSEL=    510.48

STA=     986.    1024.
  PER Q=    100.0
   AREA=     29.6
    VEL=       .7
  DEPTH=       .8

CCHV=      .100 CEHV=      .300
*SECNO 1020.000
CHIMP CLSTA=     996.00 CELCH=     509.70 BW=      20.00 STCHL=     964.10 STCHR=    1009.00
EXCAVATION DATA
AEX=       4.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.50 ELREA=      511.70

  1020.000       .76    510.45    510.16       .00    510.54       .08       .02       .02    511.50
      20.4        .0      20.4        .0        .0      16.0        .0        .9       1.4    511.70
       .01       .00      1.27       .00      .000      .030      .000      .000    509.70    984.87
   .002336       34.       19.        0.         2        11         0       .00     22.27   1007.13


FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    510.45
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STA=     985.    1009.
  PER Q=    100.0
   AREA=     16.0
    VEL=      1.3
  DEPTH=       .7
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*SECNO 1030.000
CHIMP CLSTA=     996.50 CELCH=     509.75 BW=      10.00 STCHL=     978.00 STCHR=    1009.80
EXCAVATION DATA
AEX=       1.6 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .2 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000       .72    510.47    510.47       .00    510.80       .33       .04       .07    511.90
      20.4        .0      20.4        .0        .0       8.0        .0       1.0       1.6    512.90
       .01       .00      2.54       .00      .000      .030      .000      .000    509.75    990.42
   .010662       17.       10.        8.         0         8         0       .00     12.17   1002.58

FLOW DISTRIBUTION FOR SECNO=   1030.00         CWSEL=    510.47

STA=     990.    1010.
  PER Q=    100.0
   AREA=      8.0
    VEL=      2.5
  DEPTH=       .7

*SECNO 1060.000
CHIMP CLSTA=     998.00 CELCH=     509.91 BW=      10.00 STCHL=     986.43 STCHR=    1007.46
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000       .92    510.83    510.63       .00    511.02       .19       .20       .01    512.14
      20.4        .0      20.4        .0        .0      10.6        .0       1.3       2.0    512.88
       .02       .00      1.93       .00      .000      .030      .000      .000    509.91    991.61
   .004578       16.       31.       18.         2         5         0       .00     12.78   1004.39
```


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

```
FLOW DISTRIBUTION FOR SECNO=   1060.00          CWSEL=    510.83

STA=     992.    1007.
  PER Q=    100.0
   AREA=     10.6
    VEL=      1.9
  DEPTH=       .8

*SECNO 1154.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=      10.00 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -19.4 SQ-METER     VEXR=       -.9 K*CU-METER     VEXT=        -.7 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.58 ELREA=       512.90

  1154.000       .85    511.25    510.85       .00    511.31       .05       .27       .01    512.58
      9.7        .0       9.7        .0        .0       9.5        .0       2.3       3.1    512.90
       .04       .00      1.02       .00      .000      .030      .000      .000    510.40    993.73
   .001426       94.       94.       93.         2        11         0       .00     12.54   1006.27


FLOW DISTRIBUTION FOR SECNO=   1154.00          CWSEL=    511.25

STA=     994.    1017.
  PER Q=    100.0
   AREA=      9.5
    VEL=      1.0
  DEPTH=       .8

SECNO 1191.000
CHIMP CLSTA=    1000.00 CELCH=     510.75 BW=       7.50 STCHL=     989.13 STCHR=    1007.36
EXCAVATION DATA
AEX=       4.3 SQ-METER     VEXR=       -.3 K*CU-METER     VEXT=       -1.0 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.65 ELREA=       513.15

  1191.000       .53    511.28    511.28       .00    511.53       .25       .12       .06    512.65
      9.7        .0       9.7        .0        .0       4.4        .0       2.5       3.5    513.15
       .05       .00      2.20       .00      .000      .030      .000      .000    510.75    995.45
   .011897       42.       37.       35.         0        14         0       .00      9.10   1004.55


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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


FLOW DISTRIBUTION FOR SECNO=   1191.00          CWSEL=    511.28

STA=     995.    1007.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5
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*SECNO 1246.000
CHIMP CLSTA=     998.00 CELCH=     511.26 BW=       7.50 STCHL=     991.37 STCHR=    1005.63
EXCAVATION DATA
AEX=       7.1 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.7 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000       .61    511.87    511.79       .00    512.05       .18       .52       .01    513.18
      9.7        .0       9.7        .0        .0       5.1        .0       2.8       4.1    513.85
      .06       .00      1.90       .00      .000      .030      .000      .000    511.26    993.34
   .007657       56.       55.       55.         2         5         0       .00      9.32   1002.66


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    511.87

STA=     993.    1006.
  PER Q=    100.0
   AREA=      5.1
    VEL=      1.9
  DEPTH=       .5

*SECNO 1291.000
CHIMP CLSTA=    1002.00 CELCH=     511.67 BW=       7.50 STCHL=     995.98 STCHR=    1008.61
EXCAVATION DATA
AEX=       6.6 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.4 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.58

  1291.000       .56    512.23    512.20       .00    512.45       .22       .39       .01    513.18
      9.7        .0       9.7        .0        .0       4.6        .0       3.0       4.5    513.58
      .06       .00      2.09       .00      .000      .030      .000      .000    511.67    997.41
   .010277       39.       44.       49.         2        11         0       .00      9.17   1006.59


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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


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    512.23

STA=     997.    1009.
  PER Q=    100.0
   AREA=      4.6
    VEL=      2.1
  DEPTH=       .5

*SECNO 1345.000
CHIMP CLSTA=    1000.00 CELCH=     512.17 BW=       7.50 STCHL=     986.22 STCHR=    1007.90
EXCAVATION DATA
AEX=      -2.6 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.3 K*CU-METER


5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000       .59    512.77    512.71       .00    512.97       .20       .51       .00    513.93
      9.7        .0       9.7        .0        .0       4.9        .0       3.3       5.0    514.00
      .07       .00      1.98       .00      .000      .030      .000      .000    512.17    995.37
   .008695       60.       54.       49.         1         8         0       .00      9.25   1004.63
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FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    512.77

STA=     995.    1008.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .5

*SECNO 1422.000
CHIMP CLSTA=     996.00 CELCH=     512.89 BW=       7.50 STCHL=     950.00 STCHR=    1002.47
EXCAVATION DATA
AEX=      -8.8 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=       -.7 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.50 ELREA=      514.70

  1422.000       .57    513.46    513.42       .00    513.67       .21       .70       .00    514.50
      9.7        .0       9.7        .0        .0       4.8        .0       3.6       5.7    514.70
      .08       .00      2.04       .00      .000      .030      .000      .000    512.89    991.40
   .009541       69.       77.       85.         2        11         0       .00      9.21   1000.60


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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

FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    513.46

STA=     991.    1002.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.0
  DEPTH=       .5

*SECNO 1464.000
CHIMP CLSTA=    1000.00 CELCH=     513.28 BW=       7.50 STCHL=     965.75 STCHR=    1006.87
EXCAVATION DATA
AEX=       1.1 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=       -.9 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.94 ELREA=      515.00

  1464.000       .58    513.86    513.82       .00    514.07       .21       .40       .00    514.94
      9.7        .0       9.7        .0        .0       4.8        .0       3.8       6.1    515.00
      .09       .00      2.03       .00      .000      .030      .000      .000    513.28    995.39
   .009349       43.       42.       42.         1         8         0       .00      9.22   1004.61


FLOW DISTRIBUTION FOR SECNO=   1464.00          CWSEL=    513.86

STA=     995.    1007.
  PER Q=    100.0
   AREA=      4.8
    VEL=      2.0
  DEPTH=       .5

CCHV=     .300 CEHV=     .500
*SECNO 1477.000
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.15

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.95 ELREA= 514.95

1477.000	.63	514.08	513.79	.00	514.13	.05	.01	.05	514.95
9.7	.0	9.7	.0	.0	9.7	.0	3.9	6.2	514.95
.09	.00	1.01	.00	.000	.013	.000	.000	513.45	987.16
.000353	22.	13.	10.	2	11	0	.00	15.35	1002.50

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

FLOW DISTRIBUTION FOR SECNO= 1477.00 CWSEL= 514.08

STA= 987. 1003.
PER Q= 100.0
AREA= 9.7
VEL= 1.0
DEPTH= .6

*SECNO 1480.000

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 514.97 ELREA= 514.97

1480.000	.59	514.06	513.86	.00	514.15	.08	.00	.02	514.97
9.7	.0	9.7	.0	.0	7.6	.0	4.0	6.3	514.97
.09	.00	1.27	.00	.000	.013	.000	.000	513.47	987.16
.000619	3.	3.	3.	2	14	0	.00	12.85	1000.00

FLOW DISTRIBUTION FOR SECNO= 1480.00 CWSEL= 514.06

STA= 987. 1000.
PER Q= 100.0
AREA= 7.6
VEL= 1.3
DEPTH= .6

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.20	1.66	.00	1.52	3.05	23.16	11	4	513.59	513.47

CHART 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

*SECNO 1504.000

SPECIAL CULVERT OUTLET CONTROL
C = 514.226 EGOC = 514.244 PCWSE= 514.063 ELTRD= 515.410

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
514.23	514.24	.10	0.	10.	1.337	18.5	515.41	0.

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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000      .56    514.15       .00       .00    514.24       .09       .10       .00    515.09
      9.7       .0       9.7       .0        .0       7.3       .0       4.1       6.5    515.09
      .09      .00      1.34       .00      .000      .013      .000      .000    513.59    987.16
   .000721     17.       17.       17.        2         0         0       .00     12.85   1000.00


FLOW DISTRIBUTION FOR SECNO=   1504.00         CWSEL=    514.15

STA=     987.    1000.
  PER Q=    100.0
   AREA=      7.3
    VEL=      1.3
  DEPTH=       .6

CCHV=     .100 CEHV=     .300
*SECNO 1507.000
CHIMP CLSTA=     994.83 CELCH=     513.62 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
 CAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.9 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000      .57    514.19    513.96       .00    514.25       .06       .00       .00    515.12
      9.7       .0       9.7       .0        .0       8.7       .0       4.1       6.5    515.12
      .09      .00      1.11       .00      .000      .030      .000      .000    513.62    987.15
   .002607      3.        3.        3.         2        14         0       .00     15.35   1002.51


FLOW DISTRIBUTION FOR SECNO=   1507.00         CWSEL=    514.19

STA=     987.    1003.
  PER Q=    100.0
   AREA=      8.7
    VEL=      1.1
  DEPTH=       .6
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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 1545.000
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```
CHIMP CLSTA=     998.00 CELCH=     514.00 BW=       7.50 STCHL=     991.70 STCHR=    1012.48
EXCAVATION DATA
AEX=       5.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.8 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.50

  1545.000       .53    514.53    514.53       .00    514.78       .25       .18       .05    515.54
      9.7        .0       9.7        .0        .0       4.4        .0       4.3       7.0    515.50
      .10       .00      2.19       .00      .000      .030      .000      .000    514.00    993.45
   .011867       31.       37.       37.         0        11         0       .00      9.10   1002.55


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    514.53

STA=     993.    1012.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

*SECNO 1598.000
CHIMP CLSTA=     998.00 CELCH=     514.55 BW=       7.50 STCHL=     991.58 STCHR=    1004.53
EXCAVATION DATA
AEX=       5.1 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.5 K*CU-METER


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000       .58    515.13    515.08       .00    515.33       .20       .54       .00    516.12
      9.7        .0       9.7        .0        .0       4.9        .0       4.6       7.5    516.10
      .11       .00      1.99       .00      .000      .030      .000      .000    514.55    993.37
   .008726       53.       54.       54.         1         5         0       .00      9.25   1002.63


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


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.13

STA=     993.    1005.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .5

*SECNO 1652.000
CHIMP CLSTA=     999.00 CELCH=     515.14 BW=       7.50 STCHL=     989.93 STCHR=    1120.00
EXCAVATION DATA
AEX=      -8.5 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=        -.6 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 517.00

1652.000	.53	515.67	515.67	.00	515.92	.25	.54	.01	516.58
9.7	.0	9.7	.0	.0	4.4	.0	4.8	8.0	517.00
.11	.00	2.20	.00	.000	.030	.000	.000	515.14	994.45
.011922	53.	53.	54.	0	11	0	.00	9.10	1003.55

FLOW DISTRIBUTION FOR SECNO= 1652.00 CWSEL= 515.67

STA= 994. 1120.
PER Q= 100.0
AREA= 4.4
VEL= 2.2
DEPTH= .5

*SECNO 1674.000
CHIMP CLSTA= 993.00 CELCH= 515.36 BW= 20.00 STCHL= 950.00 STCHR= 1020.00
EXCAVATION DATA
AEX= -26.4 SQ-METER VEXR= -.4 K*CU-METER VEXT= -1.0 K*CU-METER

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.95

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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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.70 ELREA= 517.00

1674.000	.58	515.94	515.83	.00	516.09	.15	.16	.01	516.70
20.4	.0	20.4	.0	.0	11.9	.0	5.0	8.3	517.00
.12	.00	1.71	.00	.000	.030	.000	.000	515.36	982.14
.006003	24.	22.	20.	0	11	0	.00	21.71	1003.86

FLOW DISTRIBUTION FOR SECNO= 1674.00 CWSEL= 515.94

STA= 982. 1020.
PER Q= 100.0
AREA= 11.9
VEL= 1.7
DEPTH= .5

*SECNO 1694.000
CHIMP CLSTA= 993.00 CELCH= 515.57 BW= 20.00 STCHL= 950.00 STCHR= 1025.00
EXCAVATION DATA
AEX= -21.3 SQ-METER VEXR= -.5 K*CU-METER VEXT= -1.4 K*CU-METER

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 517.00 ELREA= 517.00

694.000	.48	516.05	516.03	.00	516.26	.21	.16	.02	517.00
20.4	.0	20.4	.0	.0	10.0	.0	5.2	8.7	517.00
.12	.00	2.03	.00	.000	.030	.000	.000	515.57	982.27
.010393	32.	20.	20.	2	15	0	.00	21.45	1003.73

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FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    516.05

STA=     982.    1025.
  PER Q=    100.0
   AREA=     10.0
    VEL=      2.0
  DEPTH=       .5

*SECNO 1703.000
CHIMP CLSTA=     993.00 CELCH=     515.66 BW=      20.00 STCHL=     935.00 STCHR=    1060.00
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


EXCAVATION DATA
AEX=     -12.4 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=       -1.6 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       517.10 ELREA=       517.10

  1703.000       .48    516.14    516.13       .00    516.36       .22       .10       .00    517.10
      20.4        .0      20.4        .0        .0      9.9        .0       5.3       8.9    517.10
       .12       .00      2.06       .00      .000      .030      .000      .000    515.66    982.28
   .010950        9.        9.        9.         1         8         0       .00     21.43   1003.72


FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.14

STA=     982.    1060.
  PER Q=    100.0
   AREA=      9.9
    VEL=      2.1
  DEPTH=       .5

*SECNO 1715.000
CHIMP CLSTA=     993.00 CELCH=     515.80 BW=      30.00 STCHL=     935.00 STCHR=    1009.98
EXCAVATION DATA
AEX=      -3.8 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=       -1.7 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       517.30 ELREA=       517.12

  1715.000       .56    516.36    516.16       .00    516.43       .07       .06       .01    517.30
      20.4        .0      20.4        .0        .0      17.5        .0       5.5       9.2    517.12
       .12       .00      1.17       .00      .000      .030      .000      .000    515.80    977.15
   .002753       14.       12.       13.         2        15         0       .00     31.70   1008.85


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.36

STA=     977.    1010.
  PER Q=    100.0
   AREA=     17.5
    VEL=      1.2
  DEPTH=       .6
```

1

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

*SECNO 1772.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 517.71 ELREA= 517.48

1772.000	1.14	517.44	517.44	.00	517.74	.30	.33	.07	517.71
20.4	.0	20.4	.0	.0	8.3	.0	6.2	10.5	517.48
.13	.00	2.44	.00	.000	.040	.000	.000	516.30	994.81
.019249	72.	57.	56.	0	14	0	.00	13.74	1008.55

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.44

STA= 995. 1009.
PER Q= 100.0
AREA= 8.3
VEL= 2.4
DEPTH= .6

1

T1 MCDOT; WITTMANN-CENTER STREET CULVERTS
T2 ALTERNATIVE 3, WEST CBC CULVERT WITH CHANNELIZATION
T3 100-YEAR SUBCRITICAL FLOW
T4 FILE: ALT3WEST.IH2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3		0	.0099	1			510.68	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1				-1			15

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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 971.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.80 ELREA= 511.40

971.000	1.28	510.68	510.61	510.68	511.08	.39	.00	.00	511.80
62.3	.0	62.3	.0	.0	22.4	.0	.0	.0	511.40
.00	.00	2.78	.00	.000	.035	.000	.000	509.40	989.92
.010043	0.	0.	0.	0	11	3	.00	22.94	1012.86

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.68

STA= 990. 1015.
PER Q= 100.0
AREA= 22.4
VEL= 2.8
DEPTH= 1.0

CCHV= .300 CEHV= .500
*SECNO 995.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.46

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	1.66	511.16	510.53	.00	511.25	.09	.08	.09	513.10
62.3	.0	62.3	.0	.0	47.2	.0	.8	.7	513.50
.00	.00	1.32	.00	.000	.035	.000	.000	509.50	984.24
.001666	11.	23.	36.	2	15	0	.00	38.71	1022.95

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 511.16

STA= 984. 1025.
PER Q= 100.0
AREA= 47.2
VEL= 1.3
DEPTH= 1.2

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	1.66	.00	17.10	1.20	68.10	5.40	509.60	509.50

*SECNO 1000.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 511.19 BRIDGE VELOCITY= 1.53 CALCULATED CHANNEL AREA= 39.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	511.26	.01	0.	62.	68.	65.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.60 ELREA= 513.50

```
  1000.000      1.57    511.17       .00       .00    511.26       .09       .01       .00    511.60
     62.3        .0      62.3        .0        .0      45.7        .0       1.1        .9    513.50
       .01       .00      1.36       .00      .000      .035      .000      .000    509.60    984.21
   .001854        6.        6.        6.         0         0         0       .00     38.76   1022.96


FLOW DISTRIBUTION FOR SECNO=   1000.00          CWSEL=    511.17

STA=     984.    1024.
  PER Q=    100.0
   AREA=     45.7
    VEL=      1.4
  DEPTH=      1.2

*SECNO 1001.000
CHIMP CLSTA=    1004.00 CELCH=     509.60 BW=      32.00 STCHL=     981.10 STCHR=    1024.30
EXCAVATION DATA
AEX=       8.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.05 ELREA=       511.75

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


  1001.000      1.61    511.21    510.31       .00    511.27       .06       .00       .01    513.05
     62.3        .0      62.3        .0        .0      56.7        .0       1.1       1.0    511.75
       .01       .00      1.10       .00      .000      .030      .000      .000    509.60    984.78
   .000663        1.        1.        1.         2        14         0       .00     38.44   1023.22


FLOW DISTRIBUTION FOR SECNO=   1001.00          CWSEL=    511.21

STA=     985.    1024.
  PER Q=    100.0
   AREA=     56.7
    VEL=      1.1
  DEPTH=      1.5

CCHV=      .100 CEHV=      .300
*SECNO 1020.000
CHIMP CLSTA=     996.00 CELCH=     509.70 BW=      20.00 STCHL=     964.10 STCHR=    1009.00
EXCAVATION DATA
AEX=       4.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .1 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52


5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       511.50 ELREA=       511.70

  1020.000      1.44    511.14    510.67       .00    511.33       .19       .02       .04    511.50
     62.3        .0      62.3        .0        .0      32.0        .0       1.9       1.5    511.70
       .01       .00      1.95       .00      .000      .030      .000      .000    509.70    983.84
   .002486       34.       19.        0.         2        14         0       .00     24.33   1008.16
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FLOW DISTRIBUTION FOR SECNO= 1020.00 CWSEL= 511.14

STA= 984. 1009.
PER Q= 100.0
AREA= 32.0
VEL= 1.9
DEPTH= 1.3

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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 1030.000
CHIMP CLSTA= 996.50 CELCH= 509.75 BW= 10.00 STCHL= 978.00 STCHR= 1009.80
EXCAVATION DATA
AEX= 1.6 SQ-METER VEXR= .0 K*CU-METER VEXT= .2 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.90 ELREA= 512.90

1030.000	1.46	511.21	511.21	.00	511.83	.62	.04	.13	511.90
62.3	.0	62.3	.0	.0	17.8	.0	2.2	1.7	512.90
.01	.00	3.49	.00	.000	.030	.000	.000	509.75	989.31
.008931	17.	10.	8.	0	5	0	.00	14.39	1003.69

FLOW DISTRIBUTION FOR SECNO= 1030.00 CWSEL= 511.21

STA= 989. 1010.
PER Q= 100.0
AREA= 17.8
VEL= 3.5
DEPTH= 1.2

*SECNO 1060.000
CHIMP CLSTA= 998.00 CELCH= 509.91 BW= 10.00 STCHL= 986.43 STCHR= 1007.46
EXCAVATION DATA
AEX= .0 SQ-METER VEXR= .0 K*CU-METER VEXT= .2 K*CU-METER

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 512.14 ELREA= 512.88

1060.000	1.72	511.63	511.37	.00	512.06	.43	.20	.02	512.14
62.3	.0	62.3	.0	.0	21.5	.0	2.8	2.2	512.88
.01	.00	2.89	.00	.000	.030	.000	.000	509.91	990.43
.005148	16.	31.	18.	3	5	0	.00	15.14	1005.57

FLOW DISTRIBUTION FOR SECNO= 1060.00 CWSEL= 511.63

STA= 990. 1007.
PER Q= 100.0
AREA= 21.5
VEL= 2.9
DEPTH= 1.4

```
 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 1154.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=      10.00 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -19.4 SQ-METER     VEXR=       -.9 K*CU-METER     VEXT=        -.7 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.84    512.24    511.35       .00    512.33       .09       .24       .03    512.58
      31.4        .0      31.4        .0        .0      23.4        .0       4.9       3.6    512.90
       .03       .00      1.34       .00      .000      .030      .000      .000    510.40    992.24
   .001018       94.       94.       93.         2        11         0       .00     15.51   1007.76


FLOW DISTRIBUTION FOR SECNO=   1154.00          CWSEL=    512.24

STA=     992.    1017.
  PER Q=    100.0
   AREA=     23.4
    VEL=      1.3
  DEPTH=      1.5

SECNO 1191.000
CHIMP CLSTA=    1000.00 CELCH=     510.75 BW=       7.50 STCHL=     989.13 STCHR=    1007.36
EXCAVATION DATA
AEX=       4.3 SQ-METER     VEXR=       -.3 K*CU-METER     VEXT=       -1.0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .51


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.65 ELREA=      513.15

  1191.000      1.44    512.19    511.86       .00    512.45       .26       .07       .05    512.65
      31.4        .0      31.4        .0        .0      14.0        .0       5.6       4.1    513.15
       .04       .00      2.24       .00      .000      .030      .000      .000    510.75    994.08
   .003976       42.       37.       35.         2        14         0       .00     11.84   1005.92


FLOW DISTRIBUTION FOR SECNO=   1191.00          CWSEL=    512.19
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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


STA=     994.    1007.
  PER Q=    100.0
   AREA=     14.0
    VEL=      2.2
  DEPTH=      1.2
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```
*SECNO 1246.000
CHIMP CLSTA=     998.00 CELCH=     511.26 BW=       7.50 STCHL=     991.37 STCHR=    1005.63
EXCAVATION DATA
AEX=       7.1 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.7 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.12    512.38    512.38       .00    512.86       .48       .33       .07    513.18
      31.4        .0      31.4        .0        .0      10.2        .0       6.3       4.8    513.85
       .04       .00      3.06       .00      .000      .030      .000      .000    511.26    992.58
   .009879       56.       55.       55.         0        15         0       .00     10.85   1003.42


FLOW DISTRIBUTION FOR SECNO=   1246.00          CWSEL=    512.38

STA=     993.    1006.
  PER Q=    100.0
   AREA=     10.2
    VEL=      3.1
  DEPTH=       .9

*SECNO 1291.000
CHIMP CLSTA=    1002.00 CELCH=     511.67 BW=       7.50 STCHL=     995.98 STCHR=    1008.61
EXCAVATION DATA
AEX=       6.6 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.4 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.58

  1291.000      1.15    512.82    512.79       .00    513.27       .45       .41       .00    513.18
      31.4        .0      31.4        .0        .0      10.6        .0       6.7       5.2    513.58
       .05       .00      2.97       .00      .000      .030      .000      .000    511.67    996.53
   .008994       39.       44.       49.         1         5         0       .00     10.94   1007.47


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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


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    512.82

STA=     997.    1009.
  PER Q=    100.0
   AREA=     10.6
    VEL=      3.0
  DEPTH=      1.0

*SECNO 1345.000
CHIMP CLSTA=    1000.00 CELCH=     512.17 BW=       7.50 STCHL=     986.22 STCHR=    1007.90
EXCAVATION DATA
AEX=      -2.6 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.3 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000      1.14    513.31    513.29       .00    513.77       .46       .49       .00    513.93
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     31.4       .0      31.4       .0       .0      10.4       .0      7.3      5.8   514.00
      .05      .00      3.00      .00     .000      .030     .000     .000   512.17   994.55
  .009343      60.       54.      49.        2         8        0      .00    10.90  1005.45


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    513.31

STA=     995.    1008.
  PER Q=    100.0
   AREA=     10.4
    VEL=      3.0
  DEPTH=      1.0

*SECNO 1422.000
CHIMP CLSTA=     996.00 CELCH=     512.89 BW=       7.50 STCHL=     950.00 STCHR=    1002.47
EXCAVATION DATA
AEX=      -8.8 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=        -.7 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.50 ELREA=       514.70

  1422.000      1.14   514.03   514.00       .00   514.49       .46      .72      .00   514.50
     31.4        .0     31.4       .0        .0     10.5        .0      8.1      6.7   514.70
      .06       .00     3.00      .00      .000     .030      .000     .000   512.89   990.55
  .009287       69.      77.      85.         1        5         0      .00    10.91  1001.45


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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


FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    514.03

STA=     991.    1002.
  PER Q=    100.0
   AREA=     10.5
    VEL=      3.0
  DEPTH=      1.0

*SECNO 1464.000
CHIMP CLSTA=    1000.00 CELCH=     513.28 BW=       7.50 STCHL=     965.75 STCHR=    1006.87
EXCAVATION DATA
AEX=       1.1 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=        -.9 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.94 ELREA=       515.00

  1464.000      1.15   514.43   514.40       .00   514.88       .45      .39      .00   514.94
     31.4        .0     31.4       .0        .0     10.6        .0      8.5      7.1   515.00
      .06       .00     2.97      .00      .000     .030      .000     .000   513.28   994.53
  .009045       43.      42.      42.         0        8         0      .00    10.93  1005.47


FLOW DISTRIBUTION FOR SECNO=   1464.00          CWSEL=    514.43

STA=     995.    1007.
  PER Q=    100.0
   AREA=     10.6
    VEL=      3.0
  DEPTH=      1.0
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CCHV=     .300 CEHV=     .500
*SECNO 1477.000

2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.84

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000      1.44    514.89    514.20       .00    514.99       .10       .01       .10    514.95
     31.4        .0      31.4        .0        .0      22.0        .0       8.7       7.3    514.95
      .06       .00      1.42       .00      .000      .013      .000      .000    513.45    987.15
   .000265       22.       13.       10.         3        14         0       .00     15.36   1002.51


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


FLOW DISTRIBUTION FOR SECNO=   1477.00          CWSEL=    514.89

STA=     987.    1003.
  PER Q=    100.0
   AREA=     22.0
    VEL=      1.4
  DEPTH=      1.4

SECNO 1480.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000      1.39    514.86    514.32       .00    515.02       .16       .00       .03    514.97
     31.4        .0      31.4        .0        .0      17.9        .0       8.8       7.4    514.97
      .07       .00      1.75       .00      .000      .013      .000      .000    513.47    987.15
   .000434        3.        3.        3.         2        11         0       .00     12.86   1000.01


FLOW DISTRIBUTION FOR SECNO=   1480.00          CWSEL=    514.86

STA=     987.    1000.
  PER Q=    100.0
   AREA=     17.9
    VEL=      1.8
  DEPTH=      1.4


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4          .013      .20      1.66       .00      1.52      3.05      23.16     11         4       513.59    513.47

CHART 11 - BOX CULVERT; SKEWED HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE  4 - HEADWALL SKEWED 10 TO 45 DEGREES; INLET EDGES BEVELED

CNO 1504.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.979  EGOC =    515.038  PCWSE=    514.861  ELTRD=    515.410

SPECIAL CULVERT
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EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WSRLN
514.98	515.04	.02	0.	[illegible]	1.932	18.5	515.41	0.

1

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.09 ELREA= 515.09

1504.000	1.26	514.85	.00	.00	515.04	.19	.02	.00	515.09
31.4	.0	31.4	.0	.0	16.2	.0	9.1	7.6	515.09
.07	.00	1.93	.00	.000	.013	.000	.000	513.59	987.15
.000586	17.	17.	17.	2	0	0	.00	12.86	1000.01

FLOW DISTRIBUTION FOR SECNO= 1504.00 CWSEL= 514.85

STA= 987. 1000.
PER Q= 100.0
AREA= 16.2
VEL= 1.9
DEPTH= 1.3

HV= .100 CEHV= .300
SECNO 1507.000
CHIMP CLSTA= 994.83 CELCH= 513.62 BW= 15.34 STCHL= 987.15 STCHR= 1002.51
EXCAVATION DATA
AEX= .0 SQ-METER VEXR= .0 K*CU-METER VEXT= -.9 K*CU-METER

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.12 ELREA= 515.12

1507.000	1.30	514.92	514.37	.00	515.05	.13	.00	.01	515.12
31.4	.0	31.4	.0	.0	20.0	.0	9.2	7.6	515.12
.07	.00	1.57	.00	.000	.030	.000	.000	513.62	987.15
.001911	3.	3.	3.	2	14	0	.00	15.37	1002.51

FLOW DISTRIBUTION FOR SECNO= 1507.00 CWSEL= 514.92

STA= 987. 1003.
PER Q= 100.0
AREA= 20.0
VEL= 1.6
DEPTH= 1.3

1

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

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*SECNO 1545.000
CHIMP CLSTA=     998.00 CELCH=     514.00 BW=       7.50 STCHL=     991.70 STCHR=    1012.48
EXCAVATION DATA
AEX=       5.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.8 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.50

  1545.000      1.12    515.12    515.12       .00    515.59       .47       .14       .10    515.54
      31.4        .0      31.4        .0        .0      10.3        .0       9.7       8.1    515.50
       .07       .00      3.05       .00      .000      .030      .000      .000    514.00    992.57
   .009793       31.       37.       37.         0        11         0       .00     10.86   1003.43


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.12

STA=     993.    1012.
  PER Q=    100.0
   AREA=     10.3
    VEL=      3.1
  DEPTH=       .9

*SECNO 1598.000
CHIMP CLSTA=     998.00 CELCH=     514.55 BW=       7.50 STCHL=     991.58 STCHR=    1004.53
EXCAVATION DATA
AEX=       5.1 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.5 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000      1.12    515.66    515.66       .00    516.14       .48       .53       .00    516.12
      31.4        .0      31.4        .0        .0      10.2        .0      10.3       8.7    516.10
       .08       .00      3.06       .00      .000      .030      .000      .000    514.55    992.58
   .009885       53.       54.       54.         0         5         0       .00     10.85   1003.42


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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


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.66

STA=     993.    1005.
  PER Q=    100.0
   AREA=     10.2
    VEL=      3.1
  DEPTH=       .9

*SECNO 1652.000
CHIMP CLSTA=     999.00 CELCH=     515.14 BW=       7.50 STCHL=     989.93 STCHR=    1120.00
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EXCAVATION DATA
AEX=      -8.5 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=        -.6 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
     0 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.58 ELREA=      517.00

  1652.000      1.12    516.26    516.26       .00    516.73       .48       .52       .00    516.58
      31.4        .0      31.4        .0        .0      10.2        .0      10.8       9.3    517.00
       .08       .00      3.06       .00      .000      .030      .000      .000    515.14    993.57
   .009857       53.       53.       54.         0         5         0       .00     10.85   1004.43


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.26

STA=     994.    1120.
  PER Q=    100.0
   AREA=     10.2
    VEL=      3.1
  DEPTH=       .9

*SECNO 1674.000
CHIMP CLSTA=     993.00 CELCH=     515.36 BW=      20.00 STCHL=     950.00 STCHR=    1020.00
EXCAVATION DATA
AEX=     -26.4 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=       -1.0 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.09

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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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.00

  1674.000      1.24    516.60    516.33       .00    516.87       .27       .12       .02    516.70
      62.3        .0      62.3        .0        .0      27.2        .0      11.2       9.6    517.00
       .08       .00      2.29       .00      .000      .030      .000      .000    515.36    981.13
   .004077       24.       22.       20.         2        11         0       .00     23.74   1004.87


FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.60

STA=     981.    1020.
  PER Q=    100.0
   AREA=     27.2
    VEL=      2.3
  DEPTH=      1.1

*SECNO 1694.000
CHIMP CLSTA=     993.00 CELCH=     515.57 BW=      20.00 STCHL=     950.00 STCHR=    1025.00
EXCAVATION DATA
AEX=     -21.3 SQ-METER     VEXR=       -.5 K*CU-METER     VEXT=       -1.4 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.00 ELREA=      517.00

  1694.000      1.07    516.64    516.54       .00    517.00       .37       .10       .03    517.00
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     62.3       .0      62.3       .0       .0      23.2       .0      11.7      10.1    517.00
      .09      .00      2.68      .00     .000      .030     .000      .000    515.57    981.39
  .006728      32.       20.       20.        2        15        0       .00     23.22   1004.61


FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    516.64

STA=     981.    1025.
  PER Q=    100.0
   AREA=     23.2
    VEL=      2.7
  DEPTH=      1.0

*SECNO 1703.000
CHIMP CLSTA=     993.00 CELCH=     515.66 BW=      20.00 STCHL=     935.00 STCHR=    1060.00
1
   24JUN96      14:11:08                                                                                    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


EXCAVATION DATA
AEX=     -12.4 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=       -1.6 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       517.10 ELREA=       517.10

  1703.000      1.02    516.68    516.63       .00    517.08       .40       .07       .01    517.10
     62.3       .0      62.3       .0       .0      22.1       .0      11.9      10.3    517.10
      .09      .00      2.82      .00     .000      .030     .000      .000    515.66    981.46
  .007851       9.        9.        9.        0        11        0       .00     23.08   1004.54


FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.68

STA=     981.    1060.
  PER Q=    100.0
   AREA=     22.1
    VEL=      2.8
  DEPTH=      1.0

*SECNO 1715.000
CHIMP CLSTA=     993.00 CELCH=     515.80 BW=      30.00 STCHL=     935.00 STCHR=    1009.98
EXCAVATION DATA
AEX=      -3.8 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=       -1.7 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       517.30 ELREA=       517.12

  1715.000      1.22    517.02    516.55       .00    517.15       .13       .04       .03    517.30
     62.3       .0      62.3       .0       .0      38.7       .0      12.3      10.7    517.12
      .09      .00      1.61      .00     .000      .030     .000      .000    515.80    976.17
  .001983       14.       12.       13.        3        15        0       .00     33.65   1009.83


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    517.02

STA=     976.    1010.
  PER Q=    100.0
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AREA=	38.7
VEL=	1.6
DEPTH=	1.2

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

*SECNO 1772.000
3280 CROSS SECTION 1772.00 EXTENDED .11 METERS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1772.000	1.41	517.71	517.71	.00	517.80	.09	.19	.00	517.71
62.3	37.6	20.1	4.6	30.0	12.4	8.0	15.1	15.8	517.48
.10	1.25	1.62	.57	.045	.040	.045	.000	516.30	921.63
.005708	72.	57.	56.	0	27	0	.00	128.37	1050.00

FLOW DISTRIBUTION FOR SECNO= 1772.00 CWSEL= 517.71

STA=	922.	943.	945.	955.	966.	969.	975.	982.	994.	1009.	1032.	1050.
PER Q=	7.9	5.0	7.9	4.5	5.7	21.0	8.3	.2	32.2	5.1	2.3	
AREA=	5.3	2.0	4.8	3.5	2.7	7.0	4.2	.5	12.4	5.1	2.9	
VEL=	.9	1.5	1.0	.8	1.3	1.9	1.2	.2	1.6	.6	.5	
DEPTH=	.2	.9	.5	.3	.7	1.2	.6	.0	.8	.2	.2	

THIS RUN EXECUTED 24JUN96 14:11:10

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
971.000	20.37	510.15	.00	20.37	.00	.00	1.87	.00	.00	20.30	100.27	509.40
971.000	62.26	510.68	.00	62.26	.00	.00	2.78	.00	.00	22.94	100.43	509.40
995.000	20.37	510.42	.00	20.37	.00	.00	1.01	.00	4.37	34.87	26.54	509.50
995.000	62.26	511.16	.00	62.26	.00	.00	1.32	.00	4.37	38.71	16.66	509.50
1000.000	20.37	510.43	.00	20.37	.00	.00	1.09	.00	18.18	34.74	33.60	509.60
1000.000	62.26	511.17	.00	62.26	.00	.00	1.36	.00	18.18	38.76	18.54	509.60

*	1001.000	20.37	510.48	.00	20.37	.00	.00	.69	.00	.00	35.50	5.54	509.60
*	1001.000	62.26	511.21	.00	62.26	.00	.00	1.10	.00	.00	38.44	6.63	509.60
*	1020.000	20.37	510.45	.00	20.37	.00	.00	1.27	.00	5.20	22.27	23.36	509.70
	1020.000	62.26	511.14	.00	62.26	.00	.00	1.95	.00	5.20	24.33	24.86	509.70
*	1030.000	20.37	510.47	.00	20.37	.00	.00	2.54	.00	5.20	12.17	106.62	509.75
*	1030.000	62.26	511.21	.00	62.26	.00	.00	3.49	.00	5.20	14.39	89.31	509.75
*	1060.000	20.37	510.83	.00	20.37	.00	.00	1.93	.00	5.20	12.78	45.78	509.91
	1060.000	62.26	511.63	.00	62.26	.00	.00	2.89	.00	5.20	15.14	51.48	509.91
	1154.000	9.72	511.25	.00	9.72	.00	.00	1.02	.00	5.24	12.54	14.26	510.40
	1154.000	31.36	512.24	.00	31.36	.00	.00	1.34	.00	5.24	15.51	10.18	510.40
*	1191.000	9.72	511.28	.00	9.72	.00	.00	2.20	.00	9.30	9.10	118.97	510.75
*	1191.000	31.36	512.19	.00	31.36	.00	.00	2.24	.00	9.30	11.84	39.76	510.75
	1246.000	9.72	511.87	.00	9.72	.00	.00	1.90	.00	9.30	9.32	76.57	511.26
*	1246.000	31.36	512.38	.00	31.36	.00	.00	3.06	.00	9.30	10.85	98.79	511.26
	1291.000	9.72	512.23	.00	9.72	.00	.00	2.09	.00	9.30	9.17	102.77	511.67
	1291.000	31.36	512.82	.00	31.36	.00	.00	2.97	.00	9.30	10.94	89.94	511.67

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	1345.000	9.72	512.77	.00	9.72	.00	.00	1.98	.00	9.30	9.25	86.95	512.17
	1345.000	31.36	513.31	.00	31.36	.00	.00	3.00	.00	9.30	10.90	93.43	512.17
	1422.000	9.72	513.46	.00	9.72	.00	.00	2.04	.00	9.30	9.21	95.41	512.89
	1422.000	31.36	514.03	.00	31.36	.00	.00	3.00	.00	9.30	10.91	92.87	512.89
	1464.000	9.72	513.86	.00	9.72	.00	.00	2.03	.00	9.30	9.22	93.49	513.28
	1464.000	31.36	514.43	.00	31.36	.00	.00	2.97	.00	9.30	10.93	90.45	513.28
*	1477.000	9.72	514.08	.00	9.72	.00	.00	1.01	.00	12.85	15.35	3.53	513.45
*	1477.000	31.36	514.89	.00	31.36	.00	.00	1.42	.00	12.85	15.36	2.65	513.45
	1480.000	9.72	514.06	.00	9.72	.00	.00	1.27	.00	5.90	12.85	6.19	513.47
	1480.000	31.36	514.86	.00	31.36	.00	.00	1.75	.00	5.90	12.86	4.34	513.47
	1504.000	9.72	514.15	.00	9.72	.00	.00	1.34	.00	7.18	12.85	7.21	513.59
	1504.000	31.36	514.85	.00	31.36	.00	.00	1.93	.00	7.18	12.86	5.86	513.59
*	1507.000	9.72	514.19	.00	9.72	.00	.00	1.11	.00	8.87	15.35	26.07	513.62
*	1507.000	31.36	514.92	.00	31.36	.00	.00	1.57	.00	8.87	15.37	19.11	513.62
*	1545.000	9.72	514.53	.00	9.72	.00	.00	2.19	.00	10.20	9.10	118.67	514.00
*	1545.000	31.36	515.12	.00	31.36	.00	.00	3.05	.00	10.20	10.86	97.93	514.00
	1598.000	9.72	515.13	.00	9.72	.00	.00	1.99	.00	10.20	9.25	87.26	514.55
*	1598.000	31.36	515.66	.00	31.36	.00	.00	3.06	.00	10.20	10.85	98.85	514.55
*	1652.000	9.72	515.67	.00	9.72	.00	.00	2.20	.00	11.15	9.10	119.22	515.14
*	1652.000	31.36	516.26	.00	31.36	.00	.00	3.06	.00	11.15	10.85	98.57	515.14
	1674.000	20.37	515.94	.00	20.37	.00	.00	1.71	.00	10.20	21.71	60.03	515.36
	1674.000	62.26	516.60	.00	62.26	.00	.00	2.29	.00	10.20	23.74	40.77	515.36
	1694.000	20.37	516.05	.00	20.37	.00	.00	2.03	.00	10.20	21.45	103.93	515.57
	1694.000	62.26	516.64	.00	62.26	.00	.00	2.68	.00	10.20	23.22	67.28	515.57

	1703.000	20.37	516.14	.00	20.37	.00	.00	2.06	.00	10.20	21.43	109.50	515.66
	1703.000	62.26	516.68	.00	62.26	.00	.00	2.82	.00	10.20	23.08	78.51	515.66
*	1715.000	20.37	516.36	.00	20.37	.00	.00	1.17	.00	11.65	31.70	27.53	515.80
	1715.000	62.26	517.02	.00	62.26	.00	.00	1.61	.00	11.65	33.65	19.83	515.80
*	1772.000	20.37	517.44	.00	20.37	.00	.00	2.44	.00	8.77	13.74	192.49	516.30
*	1772.000	62.26	517.71	37.59	20.08	4.59	1.25	1.62	.57	8.77	128.37	57.08	516.30

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	971.000	20.37	510.33	510.08	.82
	971.000	62.26	511.08	510.61	.90
*	995.000	20.37	510.47	510.15	.43
*	995.000	62.26	511.25	510.53	.38
	1000.000	20.37	510.49	.00	.47
	1000.000	62.26	511.26	.00	.40
*	1001.000	20.37	510.50	509.94	.24
*	1001.000	62.26	511.27	510.31	.29
	1020.000	20.37	510.54	510.16	.48
	1020.000	62.26	511.33	510.67	.54
*	1030.000	20.37	510.80	510.47	1.00
*	1030.000	62.26	511.83	511.21	1.00
*	1060.000	20.37	511.02	510.63	.68
	1060.000	62.26	512.06	511.37	.77
	1154.000	9.72	511.31	510.85	.37
	1154.000	31.36	512.33	511.35	.35
*	1191.000	9.72	511.53	511.28	1.01
*	1191.000	31.36	512.45	511.86	.66
	1246.000	9.72	512.05	511.79	.82
*	1246.000	31.36	512.86	512.38	1.01
	1291.000	9.72	512.45	512.20	.94
	1291.000	31.36	513.27	512.79	.96
	1345.000	9.72	512.97	512.71	.87
	1345.000	31.36	513.77	513.29	.98
	1422.000	9.72	513.67	513.42	.91
	1422.000	31.36	514.49	514.00	.98
	1464.000	9.72	514.07	513.82	.90
	1464.000	31.36	514.88	514.40	.97
*	1477.000	9.72	514.13	513.79	.41
*	1477.000	31.36	514.99	514.20	.38
	1480.000	9.72	514.15	513.86	.53

	1480.000	31.36	515.02	514.32	.47

1

	SECNO	Q	EG	CRIWS	FRCH
	1504.000	9.72	514.24	.00	.57
	1504.000	31.36	515.04	.00	.55
*	1507.000	9.72	514.25	513.96	.47
*	1507.000	31.36	515.05	514.37	.44
*	1545.000	9.72	514.78	514.53	1.00
*	1545.000	31.36	515.59	515.12	1.00
	1598.000	9.72	515.33	515.08	.87
*	1598.000	31.36	516.14	515.66	1.01
*	1652.000	9.72	515.92	515.67	1.01
*	1652.000	31.36	516.73	516.26	1.00
*	1674.000	20.37	516.09	515.83	.74
*	1674.000	62.26	516.87	516.33	.68
	1694.000	20.37	516.26	516.03	.95
	1694.000	62.26	517.00	516.54	.86
	1703.000	20.37	516.36	516.13	.97
	1703.000	62.26	517.08	516.63	.92
	1715.000	20.37	516.43	516.16	.50
	1715.000	62.26	517.15	516.55	.48
*	1772.000	20.37	517.74	517.44	1.00
*	1772.000	62.26	517.80	517.71	.57

1

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	971.000	.00	.00	.00	509.40	20.37	510.15	510.08	510.33	100.27	1.87	10.89	2.03
	971.000	.00	.00	.00	509.40	62.26	510.68	510.61	511.08	100.43	2.78	22.42	6.21
*	995.000	22.90	.00	.00	509.50	20.37	510.42	510.15	510.47	26.54	1.01	20.08	3.95
*	995.000	22.90	.00	.00	509.50	62.26	511.16	510.53	511.25	16.66	1.32	47.20	15.25
	1000.000	5.50	513.10	511.90	509.60	20.37	510.43	.00	510.49	33.60	1.09	18.68	3.51
	1000.000	5.50	513.10	511.90	509.60	62.26	511.17	.00	511.26	18.54	1.36	45.72	14.46
*	1001.000	1.00	.00	.00	509.60	20.37	510.48	509.94	510.50	5.54	.69	29.56	8.65
*	1001.000	1.00	.00	.00	509.60	62.26	511.21	510.31	511.27	6.63	1.10	56.70	24.17
	1020.000	18.80	.00	.00	509.70	20.37	510.45	510.16	510.54	23.36	1.27	15.99	4.21
*	1020.000	18.80	.00	.00	509.70	62.26	511.14	510.67	511.33	24.86	1.95	31.97	12.49
*	1030.000	10.00	.00	.00	509.75	20.37	510.47	510.47	510.80	106.62	2.54	8.01	1.97
*	1030.000	10.00	.00	.00	509.75	62.26	511.21	511.21	511.83	89.31	3.49	17.83	6.59

*	1060.000	30.57	.00	.00	509.91	20.37	510.83	510.63	511.02	45.78	1.93	10.56	3.01
	1060.000	30.57	.00	.00	509.91	62.26	511.63	511.37	512.06	51.48	2.89	21.52	8.68
	1154.000	93.71	.00	.00	510.40	9.72	511.25	510.85	511.31	14.26	1.02	9.52	2.57
	1154.000	93.71	.00	.00	510.40	31.36	512.24	511.35	512.33	10.18	1.34	23.45	9.83
*	1191.000	37.24	.00	.00	510.75	9.72	511.28	511.28	511.53	118.97	2.20	4.42	.89
*	1191.000	37.24	.00	.00	510.75	31.36	512.19	511.86	512.45	39.76	2.24	14.00	4.97
	1246.000	55.38	.00	.00	511.26	9.72	511.87	511.79	512.05	76.57	1.90	5.11	1.11
*	1246.000	55.38	.00	.00	511.26	31.36	512.38	512.38	512.86	98.79	3.06	10.24	3.16
	1291.000	44.03	.00	.00	511.67	9.72	512.23	512.20	512.45	102.77	2.09	4.64	.96
	1291.000	44.03	.00	.00	511.67	31.36	512.82	512.79	513.27	89.94	2.97	10.57	3.31
	1345.000	54.00	.00	.00	512.17	9.72	512.77	512.71	512.97	86.95	1.98	4.90	1.04
	1345.000	54.00	.00	.00	512.17	31.36	513.31	513.29	513.77	93.43	3.00	10.44	3.24
	1422.000	77.06	.00	.00	512.89	9.72	513.46	513.42	513.67	95.41	2.04	4.75	1.00
	1422.000	77.06	.00	.00	512.89	31.36	514.03	514.00	514.49	92.87	3.00	10.46	3.25
	1464.000	42.09	.00	.00	513.28	9.72	513.86	513.82	514.07	93.49	2.03	4.78	1.01
	1464.000	42.09	.00	.00	513.28	31.36	514.43	514.40	514.88	90.45	2.97	10.55	3.30
*	1477.000	13.14	.00	.00	513.45	9.72	514.08	513.79	514.13	3.53	1.01	9.65	5.17
*	1477.000	13.14	.00	.00	513.45	31.36	514.89	514.20	514.99	2.65	1.42	22.04	19.25
	1480.000	3.38	.00	.00	513.47	9.72	514.06	513.86	514.15	6.19	1.27	7.63	3.91
	1480.000	3.38	.00	.00	513.47	31.36	514.86	514.32	515.02	4.34	1.75	17.88	15.05

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1504.000	16.72	515.41	.00	513.59	9.72	514.15	.00	514.24	7.21	1.34	7.27	3.62
	1504.000	16.72	515.41	.00	513.59	31.36	514.85	.00	515.04	5.86	1.93	16.23	12.95
*	1507.000	3.38	.00	.00	513.62	9.72	514.19	513.96	514.25	26.07	1.11	8.73	1.90
*	1507.000	3.38	.00	.00	513.62	31.36	514.92	514.37	515.05	19.11	1.57	20.01	7.17
*	1545.000	37.26	.00	.00	514.00	9.72	514.53	514.53	514.78	118.67	2.19	4.43	.89
*	1545.000	37.26	.00	.00	514.00	31.36	515.12	515.12	515.59	97.93	3.05	10.27	3.17
	1598.000	53.64	.00	.00	514.55	9.72	515.13	515.08	515.33	87.26	1.99	4.89	1.04
*	1598.000	53.64	.00	.00	514.55	31.36	515.66	515.66	516.14	98.85	3.06	10.24	3.15
*	1652.000	53.18	.00	.00	515.14	9.72	515.67	515.67	515.92	119.22	2.20	4.42	.89
*	1652.000	53.18	.00	.00	515.14	31.36	516.26	516.26	516.73	98.57	3.06	10.25	3.16
*	1674.000	22.00	.00	.00	515.36	20.37	515.94	515.83	516.09	60.03	1.71	11.90	2.63
*	1674.000	22.00	.00	.00	515.36	62.26	516.60	516.33	516.87	40.77	2.29	27.25	9.75
	1694.000	20.00	.00	.00	515.57	20.37	516.05	516.03	516.26	103.93	2.03	10.04	2.00
	1694.000	20.00	.00	.00	515.57	62.26	516.64	516.54	517.00	67.28	2.68	23.21	7.59
	1703.000	9.00	.00	.00	515.66	20.37	516.14	516.13	516.36	109.50	2.06	9.88	1.95
	1703.000	9.00	.00	.00	515.66	62.26	516.68	516.63	517.08	78.51	2.82	22.09	7.03
*	1715.000	12.00	.00	.00	515.80	20.37	516.36	516.16	516.43	27.53	1.17	17.46	3.88
*	1715.000	12.00	.00	.00	515.80	62.26	517.02	516.55	517.15	19.83	1.61	38.74	13.98
*	1772.000	57.00	.00	.00	516.30	20.37	517.44	517.44	517.74	192.49	2.44	8.34	1.47
*	1772.000	57.00	.00	.00	516.30	62.26	517.71	517.71	517.80	57.08	1.62	50.34	8.24

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	971.000	20.37	510.15	.00	.00	.00	20.30	.00
	971.000	62.26	510.68	.53	.00	.00	22.94	.00
*	995.000	20.37	510.42	.00	.27	.00	34.87	22.90
*	995.000	62.26	511.16	.74	.47	.00	38.71	22.90
	1000.000	20.37	510.43	.00	.01	.00	34.74	5.50
	1000.000	62.26	511.17	.74	.01	.00	38.76	5.50
*	1001.000	20.37	510.48	.00	.05	.00	35.50	1.00
*	1001.000	62.26	511.21	.73	.04	.00	38.44	1.00
*	1020.000	20.37	510.45	.00	-.02	.00	22.27	18.80
*	1020.000	62.26	511.14	.69	-.07	.00	24.33	18.80
*	1030.000	20.37	510.47	.00	.02	.00	12.17	10.00
*	1030.000	62.26	511.21	.74	.07	.00	14.39	10.00
*	1060.000	20.37	510.83	.00	.36	.00	12.78	30.57
	1060.000	62.26	511.63	.80	.42	.00	15.14	30.57
	1154.000	9.72	511.25	.00	.42	.00	12.54	93.71
	1154.000	31.36	512.24	.99	.61	.00	15.51	93.71
*	1191.000	9.72	511.28	.00	.03	.00	9.10	37.24
*	1191.000	31.36	512.19	.91	-.05	.00	11.84	37.24
	1246.000	9.72	511.87	.00	.59	.00	9.32	55.38
*	1246.000	31.36	512.38	.51	.19	.00	10.85	55.38
	1291.000	9.72	512.23	.00	.36	.00	9.17	44.03
	1291.000	31.36	512.82	.59	.45	.00	10.94	44.03
	1345.000	9.72	512.77	.00	.53	.00	9.25	54.00
	1345.000	31.36	513.31	.55	.49	.00	10.90	54.00
	1422.000	9.72	513.46	.00	.69	.00	9.21	77.06
	1422.000	31.36	514.03	.57	.72	.00	10.91	77.06
	1464.000	9.72	513.86	.00	.40	.00	9.22	42.09
	1464.000	31.36	514.43	.57	.39	.00	10.93	42.09
*	1477.000	9.72	514.08	.00	.22	.00	15.35	13.14
*	1477.000	31.36	514.89	.81	.46	.00	15.36	13.14
	1480.000	9.72	514.06	.00	-.01	.00	12.85	3.38
	1480.000	31.36	514.86	.80	-.03	.00	12.86	3.38

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

	1504.000	9.72	514.15	.00	.09	.00	12.85	16.72
	1504.000	31.36	514.85	.69	-.01	.00	12.86	16.72
*	1507.000	9.72	514.19	.00	.03	.00	15.35	3.38
	1507.000	31.36	514.92	.73	.07	.00	15.37	3.38
*	1545.000	9.72	514.53	.00	.35	.00	9.10	37.26
*	1545.000	31.36	515.12	.59	.20	.00	10.86	37.26
	1598.000	9.72	515.13	.00	.59	.00	9.25	53.64
*	1598.000	31.36	515.66	.54	.54	.00	10.85	53.64
*	1652.000	9.72	515.67	.00	.55	.00	9.10	53.18
*	1652.000	31.36	516.26	.58	.59	.00	10.85	53.18
*	1674.000	20.37	515.94	.00	.27	.00	21.71	22.00
*	1674.000	62.26	516.60	.66	.35	.00	23.74	22.00
	1694.000	20.37	516.05	.00	.11	.00	21.45	20.00
	1694.000	62.26	516.64	.58	.03	.00	23.22	20.00
	1703.000	20.37	516.14	.00	.09	.00	21.43	9.00
	1703.000	62.26	516.68	.53	.04	.00	23.08	9.00
*	1715.000	20.37	516.36	.00	.22	.00	31.70	12.00
*	1715.000	62.26	517.02	.65	.34	.00	33.65	12.00
*	1772.000	20.37	517.44	.00	1.07	.00	13.74	57.00
*	1772.000	62.26	517.71	.28	.69	.00	128.37	57.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    995.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1001.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1001.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1020.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1020.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1060.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1191.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1191.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=   1191.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1246.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1246.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=   1507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1545.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1545.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1545.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1598.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1598.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1652.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   1674.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1674.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1715.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
  24JUN96      14:11:08                                                                    PAGE   48

CAUTION SECNO=   1772.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    25JUN96    TIME   08:56:15 *
 *****************************************
```

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

```
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

25JUN96 08:56:15 PAGE 1

THIS RUN EXECUTED 25JUN96 08:56:15

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/25/96
T2      ALTERNATIVE 3, WEST CBC CULVERT WITH CHANNELIZATION
T3      10-YEAR SUPERCRITICAL FLOW
T4      FILE: A3WESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                 1       .01       1                        517.44

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                -1                                    -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        13       14       15       55       26       56       33
     4        5       42
    38       43        8        25        2       68
   150

      INCREMENTAL FLOWS REACHING A,T & SF RAILROAD BRIDGE
      10-YEAR AND 100-YEAR FLOW TAKEN FROM
      WLB WITTMANN ADMS REPORT (MAY 89)

       2     20.37     62.26

       CHANNEL n-VALUE IS WEIGHTED MEAN OF OVERBANK n-VALUES
       AND SUPERCRITICAL STREAMBED VALUES

NC    .045      .045      .040       .1        .3
```

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        MATCH EXIST STREAMBED; BEGIN CHANNEL TRANSITION
X1     1772        18     993.95    1009.03        72        56        57
X3       10
GR     517.9    900.00      517.7     923.00    517.42    938.76    516.60    942.86    516.60     943.5
GR    517.21    945.11     517.26     955.13     517.5    965.61    516.50    969.43    516.55    975.29
GR    517.63    982.11     517.71     993.95     516.3    998.39     516.3   1001.94    516.95    1003.1
GR    517.48   1009.03      517.5    1032.08     517.6   1050.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
   25JUN96      08:56:15                                                                          PAGE    2


NC     .045      .045      .030

        END TRANSITION; BEGIN TYPICAL SECTION
X1     1715        11     970.00    1007.00        14        13        12
CI      993    515.80      .025       1.5       1.5     -30.0
X3       10
GR     517.0    935.00      516.7     970.00    515.9    972.00    515.9    975.00    516.2    984.00
GR     515.8    993.00      515.8     997.00    516.1   1001.00    516.1   1003.00    517.1    1007.0
GR     517.3   1040.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045      .045      .030

X1     1703         8     980.00    1006.50         9         9         9
CI      993     .0102      .025       1.5       1.5     -20.0
X3       10
GR     516.9    935.00      516.7     980.00    515.75    983.00    515.75    992.50    515.9    994.00
GR     516.0   1003.00      516.9    1006.50     517.1   1060.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045      .045      .030

X1     1694         8     964.00    1006.40        32        20        20
CI      993               .025       1.5       1.5     -20.0
X3       10
GR     516.7    950.00     516.68     964.00    515.9    966.50    515.9    975.00    515.7    976.00
GR     515.7   1003.00      516.9    1006.40     517.0   1025.00

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045      .045      .030

        BIFURCATION SECTION; UPSTREAM LIMIT
X1     1674         8     955.00    1006.40        24        20        22
CI      993     .0102      .025       1.5       1.5     -20.0
X3       10
GR     516.6    950.00     516.58     955.00    515.55    958.00    515.55    979.00    515.55    980.00
GR     515.6   1002.48      516.6    1006.40     517.0   1020.00

        FLOW IN WEST CHANNEL (based on subcritical split flow model)

QT        2      9.72      31.36

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NC     .045      .045      .032

        BIFURCATION SECTION; DOWNSTREAM LIMIT
1
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```
X1     1652        6     989.93    1005.58        53        54     53.18
CI      999   515.14      .025        1.5       1.5      -7.5
        10
GR    516.7   980.00    516.58     989.93    515.42    994.01    515.38   1001.83    516.34   1005.58
GR    516.5  1034.97

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045     .045      .028

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1598        7     991.58    1004.53        53        54     53.64
CI      998    .0102      .025        1.5       1.5      -7.5
X3       10                          989.0
GR   516.15   968.00    516.15     987.05    516.12    991.58    514.87    996.69    514.85   1000.26
GR   516.1  1004.53     516.2    1029.59

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045     .045      .035

        DWELLINGS ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1     1545        8     991.70    1000.82        31        37     37.26
CI      998                .025        1.5       1.5      -7.5
X3       10                          988.0
GR   515.6   967.00    515.54     991.70    514.46    994.00    514.37    998.71    515.31   1000.82
GR   515.5  1012.48    515.46    1022.45    515.53   1033.60

        WEST CBC, SUPERCRITICAL CONFIGURATION

       .045     .045      .026        .1        .3

        SKEWED INLET WINGWALL FLARED OPENING
        END CHANNEL IMPROVEMENTS
X1     1507        8     987.15    1002.51         3         3      3.38
CI                                                          .01
X3       10
GR   515.51   968.00    515.34     978.30    515.12    987.15    513.62    987.16    513.62   1002.50
GR   515.12  1002.51    515.25    1010.64    515.41   1031.65


NC     .045     .045      .013        .3        .5

        UPSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
        CULVERT SKEW 25 DEGREES
        (BASELINE STATION 1000 IS AT RIGHT TOE OF SLOPE)
X1     1504       21     987.15    1000.01      16.7      16.7     16.72
X3       10
GR   515.51   968.00    515.34     978.30    515.09    987.15    513.59    987.16    513.59    990.16
GR   515.09   990.16    515.09     990.44    513.59    990.44    513.59    993.44    515.09    993.44
GR   515.09   993.72    513.59     993.72    513.59    996.72    515.09    996.72    515.09    997.00
GR   513.59   997.00    513.59    1000.00    515.09   1000.01    515.08   1003.77    515.25   1010.64
GR   515.41  1031.65
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```
        DOWNSTREAM FACE OF (4) 3.00m x 1.50m CBC CULVERT WITH FLARED WINGWALLS
        CULVERT SKEW 25 DEGREES

X1     1480       21     987.15    1000.01       3.3       3.3      3.38
X2                           0                 515.41
X3       10
```

```
BT      -2     968.00     515.51     514.97    1031.65     515.41     514.97
GR   515.5     968.00     515.44     978.30     514.97     987.15     513.47     987.16     513.47     990.16
GR  514.97     990.16     514.97     990.44     513.47     990.44     513.47     993.44     514.97     993.44
GR  514.97     993.72     513.47     993.72     513.47     996.72     514.97     996.72     514.97     997.00
    513.47     997.00     513.47    1000.00     514.97    1000.01     515.08    1003.77     515.25    1010.64
GR  515.41    1031.65


NC    .045       .045       .013         .1         .3

        DOWNSTREAM END OF OUTLET APRON
        BEGIN CHANNEL IMPROVEMENTS; TRANSITION SECTION
X1    1477         10     987.15    1002.51         22         10      13.14
CI      -1     513.45       .025        .01        .01     -15.34
X3      10
GR   515.3     965.00     515.28     978.30     514.95     987.15     513.45     987.16     513.45    1002.50
GR  514.95    1002.51      515.0    1005.82     514.96    1024.05     514.73    1027.39     514.89    1030.38

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .045       .045       .035

        BEGIN TYPICAL SECTION
X1    1464          9     991.48    1006.87         43         42      42.09
CI    1000      .0093       .025        1.5        1.5       -7.5
X3      10
GR  514.94     965.75     514.74     991.48      514.0     997.60     513.84     998.92      513.4     999.00
GR  513.39    1001.52      513.9    1003.30      515.0    1006.87      515.1    1022.3

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .045       .045       .033

X1    1422          8     985.66    1002.43         69         85      77.06
CI     996                 .025        1.5        1.5       -7.5
X3      10
GR   514.5     950.00     514.14     969.33     514.12     985.66     513.14     996.28     513.18     999.49
GR   514.1    1001.27      514.7    1002.43     514.81    1025.59

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .045       .045       .033

X1    1345         11     986.22    1007.90         60         49         54
CI    1000                 .025        1.5        1.5       -7.5
X3      10
GR   514.1     950.00     513.95     974.18     513.93     986.22     513.16     988.37     512.95     994.56
GR   513.1     996.03     512.72    1000.55     512.61    1006.19      513.1    1006.79     514.00    1007.90
1
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GR  514.23    1027.15

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC    .045       .045       .040

        DWELLING ON LEFT OVERBANK (INEFFECTIVE FLOW)
X1    1291          7     996.07    1007.14         39         49      44.03
    1002                 .025        1.5        1.5       -7.5
X3      10
GR  513.33     987.59     513.18     996.07     512.06     999.11     511.90    1002.81      513.4    1007.14
GR  514.05    1012.47     514.23     1038.2

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
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```
NC     .045       .045       .040

X1     1246          8     992.06    1005.06         56         55      55.38
       998                   .025        1.5        1.5       -7.5
X3      10
GR    513.2     950.00     513.01     958.67     513.12     965.78     513.18     992.06     511.57     998.48
GR    511.4    1002.02     513.85    1005.06      513.9    1032.48

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045       .045       .028

X1     1191         10     994.25    1006.67         42         35      37.24
CI     1000      .0093       .025        1.5        1.5       -7.5
X3      10
GR   512.72     983.92     512.65     989.13     512.33     994.25     511.00     998.82     510.98     998.89
GR   510.9    1003.19     511.00    1003.39     512.01    1005.44     513.14    1006.67      513.2    1010.00

        CONFLUENCE WITH EAST CHANNEL

QT       2      20.37      62.26

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
NC     .045       .045       .035

X1     1154          9     979.44    1016.60         94         93      93.71
CI     1000     510.40       .025        1.5        1.5      -10.0
X3      10
GR    512.7     950.00     512.58     979.44     511.55     987.29     510.76     992.04     510.71    1003.63
GR    510.7    1005.90     510.73    1008.00     512.90    1016.60     513.00    1021.00

        SHOTCRETE SLOPE PROTECTION (and small bushes) ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY
1
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NC     .045       .040       .030

X1     1060          9     986.43    1007.33         16         18      30.57
CI      998      .0052       .025        1.5        1.5      -10.0
X3      10
GR    512.5     915.00     511.55     966.98      511.5     978.97     512.14     986.43     510.02     994.11
GR    510.2    1003.49     511.50    1005.35     512.88    1007.33      512.9     1011.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045       .040       .035

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1     1030         11      978.0     1009.8       16.8        7.6       10.0
CI    996.5                 .025        1.5        1.5      -10.0
X3      10
GR    512.2      950.0      511.9      978.0      511.5      985.4     510.8      988.0      510.8      994.6
GR    509.9      996.7      509.9     1000.0      509.9     1001.3     512.1     1005.3      512.9     1009.8
GR    512.9     1013.0

        SHOTCRETE SLOPE PROTECTION ON RIGHT
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .045       .025       .030

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
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```
        TRANSITION SECTION (BOTTOM WIDTH)
X1     1020        11      982.4    1007.7        34       .01      18.8
CI      996     .0052       .025       1.5       1.5       -20
X3       10
GR    512.4     961.1     511.5     964.1     510.8     967.2     510.9     982.4     510.2     994.6
GR    509.8     997.6     509.9    1001.3     509.8    1003.7     510.8    1005.9     513.5    1007.7
GR    513.5    1009.0

        SHOTCRETE SLOPE PROTECTION ON BOTH BANKS UNDER RR BRIDGE
        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .025      .025      .030       .3        .5
        DUMMY SECTION JUST UPSTREAM FROM RR BRIDGE
X1     1001        14      981.7    1024.3         1         1         1
CI     1004     509.6       .025         2         2       -32
X3       10
GR    513.1     981.1     511.6     981.7     511.5     981.7     511.1     984.7     510.0     987.8
GR    509.6     990.2     509.7     998.7     509.9    1007.3     510.2    1015.8     510.0    1020.4
GR    511.5    1023.7     511.5    1024.3     511.9    1024.3     513.5    1024.3

        UPSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
1
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X1     1000        14      981.7    1024.3       5.5       5.5       5.5
CI                                                        .01
X3       10
GR    513.1     981.1     511.6     981.7     511.5     981.7     511.1     984.7     510.0     987.8
GR    509.6     990.2     509.7     998.7     509.9    1007.3     510.2    1015.8     510.0    1020.4
GR    511.5    1023.7     511.5    1024.3     511.9    1024.3     513.5    1024.3


SB     1.05       1.6      1.66                17.1       1.2      68.1       5.4     509.5     509.6

        DOWNSTREAM FACE OF 5-14'SPAN RAILROAD STEEL & CONCRETE BRIDGE;
        NEGLECT SKEW OF 10 DEGREES
        SECTION FROM PREVIOUS SURVEY, US60 (1994)

X1      995        14      981.4    1024.7      10.7      35.7      22.9
X2                            1     511.9     513.1
X3       10
BT       -2     981.4     513.1     511.6    1024.3     513.5     511.9
GR    513.1     981.4     511.6     981.7     511.5     981.7     511.1     984.7     509.9     987.8
GR    509.5     990.2     509.7     998.7     509.8    1007.3     510.2    1015.8     510.0    1020.4
GR    511.5    1023.7     511.5    1024.3     511.9    1024.3     513.5    1024.7

        SUPERCRITICAL n-VALUE USED IN STREAMBED ONLY

NC     .100      .050      .030       .1        .3

        SECTION FROM PREVIOUS SURVEY, US60 (1994)
X1      971         7      988.2    1015.3        24        24        24
X3       10
GR    511.8     982.1     511.8     988.2     509.4     991.9     509.6    1000.4     509.7    1009.5
GR    511.4    1015.3     511.5    1023.5
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


    OF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      517.71 ELREA=      517.48

  1772.000      1.12    517.42    517.42    517.44    517.74       .32       .00       .00    517.71
      20.4        .0      20.4        .0        .0       8.2        .0        .0        .0    517.48
       .00       .00      2.49       .00      .000      .040      .000      .000    516.30    994.85
   .020239        0.        0.        0.         0         8         7       .00     13.56   1008.41


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.42

STA=     995.    1009.
  PER Q=    100.0
   AREA=      8.2
    VEL=      2.5
  DEPTH=       .6

*SECNO 1715.000
CHIMP CLSTA=     993.00 CELCH=     515.80 BW=      30.00 STCHL=     970.00 STCHR=    1009.98
EXCAVATION DATA
AEX=       5.8 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.12

  1715.000       .26    516.06    516.16       .00    516.41       .35      1.33       .00    516.70
      20.4        .0      20.4        .0        .0       7.8        .0        .5        1.3    517.12
       .01       .00      2.63       .00      .000      .025      .000      .000    515.80    977.62
   .027238       72.       57.       56.         6        17         0       .00     30.77   1008.38


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.06

STA=     978.    1010.
  PER Q=    100.0
   AREA=      7.8
    VEL=      2.6
  DEPTH=       .3

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


    CNO 1703.000
CHIMP CLSTA=     993.00 CELCH=     515.68 BW=      20.00 STCHL=     980.00 STCHR=    1006.50
EXCAVATION DATA
AEX=       2.4 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
```

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.70 ELREA= 516.90

1703.000	.47	516.14	516.14	.00	516.37	.23	.16	.09	516.70
20.4	.0	20.4	.0	.0	9.6	.0	.6	1.6	516.90
.01	.00	2.11	.00	.000	.025	.000	.000	515.68	982.30
.008224	14.	12.	13.	20	14	0	.00	21.40	1003.70

FLOW DISTRIBUTION FOR SECNO= 1703.00 CWSEL= 516.14

STA= 982. 1007.
PER Q= 100.0
AREA= 9.6
VEL= 2.1
DEPTH= .5

*SECNO 1694.000
CHIMP CLSTA= 993.00 CELCH= 515.59 BW= 20.00 STCHL= 964.00 STCHR= 1006.40
EXCAVATION DATA
AEX= -12.8 SQ-METER VEXR= .0 K*CU-METER VEXT= .0 K*CU-METER

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.68 ELREA= 516.90

1694.000	.42	516.00	516.05	.00	516.28	.28	.09	.00	516.68
20.4	.0	20.4	.0	.0	8.7	.0	.6	1.8	516.90
.01	.00	2.33	.00	.000	.025	.000	.000	515.59	982.36
.011262	9.	9.	9.	2	5	0	.00	21.27	1003.64

FLOW DISTRIBUTION FOR SECNO= 1694.00 CWSEL= 516.00

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

STA= 982. 1006.
PER Q= 100.0
AREA= 8.7
VEL= 2.3
DEPTH= .4

*SECNO 1674.000
CHIMP CLSTA= 993.00 CELCH= 515.38 BW= 20.00 STCHL= 955.00 STCHR= 1006.40
EXCAVATION DATA
AEX= -22.6 SQ-METER VEXR= -.4 K*CU-METER VEXT= -.4 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.58 ELREA= 516.60

1674.000	.46	515.84	515.85	.00	516.07	.23	.19	.01	516.58
20.4	.0	20.4	.0	.0	9.5	.0	.8	2.2	516.60
.01	.00	2.13	.00	.000	.025	.000	.000	515.38	982.31
.008493	32.	20.	20.	0	8	0	.00	21.38	1003.69

```
FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    515.84

STA=     982.    1006.
  PER Q=    100.0
   AREA=      9.5
    VEL=      2.1
  DEPTH=       .4

*SECNO 1652.000
CHIMP CLSTA=     999.00 CELCH=     515.14 BW=       7.50 STCHL=     989.93 STCHR=    1005.58
EXCAVATION DATA
AEX=        .1 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=        -.6 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.58 ELREA=       516.34

  1652.000       .53    515.67    515.67       .00    515.92       .24       .18       .01    516.58
      9.7        .0       9.7       .0        .0       4.4        .0       1.0       2.5    516.34
       .01       .00      2.19       .00      .000      .025      .000      .000    515.14    994.45
   .008181       24.       22.       20.        20         8         0       .00      9.10   1003.55


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

FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    515.67

STA=     994.    1006.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

*SECNO 1598.000
CHIMP CLSTA=     998.00 CELCH=     514.60 BW=       7.50 STCHL=     991.58 STCHR=    1004.53
EXCAVATION DATA
AEX=       4.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.5 K*CU-METER


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.12 ELREA=       516.10

  1598.000       .48    515.08    515.13       .00    515.39       .31       .52       .01    516.12
      9.7        .0       9.7       .0        .0       3.9        .0       1.2       3.0    516.10
       .02       .00      2.47       .00      .000      .025      .000      .000    514.60    993.53
   .011948       53.       53.       54.         3         5         0       .00      8.93   1002.47


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.08

STA=     994.    1005.
  PER Q=    100.0
   AREA=      3.9
    VEL=      2.5
  DEPTH=       .4
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```
*SECNO 1545.000
CHIMP CLSTA=     998.00 CELCH=     514.05 BW=       7.50 STCHL=     991.70 STCHR=    1003.71
EXCAVATION DATA
AREA=       5.9 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.2 K*CU-METER


3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST



3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.36

  1545.000       .53    514.58    514.58       .00    514.83       .25       .54       .02    515.54
      9.7        .0       9.7       .0        .0       4.4        .0       1.4       3.5    515.36
      .03       .00      2.22       .00      .000      .025      .000      .000    514.05    993.46
   .008541       53.       54.       54.         0         8         0       .00      9.08   1002.54


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    514.58

STA=     993.    1004.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

CCHV=     .100 CEHV=     .300
*SECNO 1507.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.12


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000       .22    513.84    513.96       .00    514.23       .39       .59       .01    515.12
      9.7        .0       9.7       .0        .0       3.5        .0       1.6       3.9    515.12
      .03       .00      2.77       .00      .000      .026      .000      .000    513.62    987.16
   .038359       31.       37.       37.         5        14         0       .00     15.34   1002.50


FLOW DISTRIBUTION FOR SECNO=   1507.00          CWSEL=    513.84

STA=     987.    1003.
  PER Q=    100.0
   AREA=      3.5
    VEL=      2.8
  DEPTH=       .2

CCHV=     .300 CEHV=     .500
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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 1504.000

3265 DIVIDED FLOW

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .40    513.99    513.99       .00    514.20       .20       .03       .04    515.09
      9.7        .0       9.7        .0        .0       4.9        .0       1.6       4.0    515.09
      .03       .00      2.00       .00      .000      .013      .000      .000    513.59    987.16
   .003118       3.        3.        3.        20        14         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1504.00         CWSEL=    513.99

STA=     987.    1000.
  PER Q=    100.0
   AREA=      4.9
    VEL=      2.0
  DEPTH=       .4

*SECNO 1480.000
3840 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   513.780         4

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=   565.409

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.503 EGC=   565.409 WSEL=999999.000

     565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.50

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

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


3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .54    514.01 999999.00       .00    514.12       .12       .03       .04    514.97
      9.7        .0       9.7        .0        .0       6.4        .0       1.7       4.2    514.97
      .03       .00      1.51       .00      .000      .013      .000      .000    513.47    987.16
   .001327       17.       17.       17.         2        81         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1480.00         CWSEL=    514.01
```

```
STA=     987.    1000.
  PER Q=    100.0
   AREA=      6.4
    VEL=      1.5
  DEPTH=       .5

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.34


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .23    513.68    513.79       .00    514.08       .40       .01       .03    514.95
      9.7        .0       9.7       .0        .0       3.4        .0       1.7       4.2    514.95
      .03       .00      2.82       .00      .000      .025      .000      .000    513.45    987.16
   .037763        3.        3.        3.         6        14         0       .00     15.34   1002.50


FLOW DISTRIBUTION FOR SECNO=   1477.00         CWSEL=    513.68

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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


STA=     987.    1003.
  PER Q=    100.0
   AREA=      3.4
    VEL=      2.8
  DEPTH=       .2

*SECNO 1464.000
CHIMP CLSTA=    1000.00 CELCH=     513.33 BW=       7.50 STCHL=     991.48 STCHR=    1006.87
EXCAVATION DATA
AEX=       3.6 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1464.000       .53    513.86    513.86       .00    514.11       .25       .20       .13    514.74
      9.7        .0       9.7       .0        .0       4.4        .0       1.7       4.4    515.00
      .04       .00      2.20       .00      .000      .025      .000      .000    513.33    995.45
   .008293       22.       13.       10.        20        17         0       .00      9.10   1004.55


 DISTRIBUTION FOR SECNO=   1464.00         CWSEL=    513.86

STA=     995.    1007.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
```

```
  DEPTH=       .5

*SECNO 1422.000
CHIMP CLSTA=     996.00 CELCH=     512.94 BW=       7.50 STCHL=     985.66 STCHR=    1002.43
EXCAVATION DATA
AEX=       1.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.1 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.12 ELREA=       514.70

  1422.000       .50    513.43    513.47       .00    513.72       .28       .39       .00    514.12
      9.7        .0       9.7        .0        .0       4.1        .0       1.9       4.8    514.70
      .04       .00      2.36       .00      .000      .025      .000      .000    512.94    991.50
   .010283       43.       42.       42.         2         5         0       .00      9.00   1000.50


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


FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    513.43

STA=     992.    1002.
  PER Q=    100.0
   AREA=      4.1
    VEL=      2.4
  DEPTH=       .5

*SECNO 1345.000
CHIMP CLSTA=    1000.00 CELCH=     512.22 BW=       7.50 STCHL=     986.22 STCHR=    1007.90
EXCAVATION DATA
AEX=      -3.2 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=        -.1 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.93 ELREA=       514.00

  1345.000       .53    512.75    512.75       .00    513.00       .25       .71       .01    513.93
      9.7        .0       9.7        .0        .0       4.4        .0       2.3       5.5    514.00
      .05       .00      2.20       .00      .000      .025      .000      .000    512.22    995.45
   .008261       69.       77.       85.         5         8         0       .00      9.10   1004.55


FLOW DISTRIBUTION FOR SECNO=   1345.00          CWSEL=    512.75

STA=     995.    1008.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

*SECNO 1291.000
CHIMP CLSTA=    1002.00 CELCH=     511.72 BW=       7.50 STCHL=     996.06 STCHR=    1008.53
EXCAVATION DATA
AEX=       6.0 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .0 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.18 ELREA=       513.57

  1291.000       .50    512.21    512.25       .00    512.50       .28       .50       .00    513.18
```

```
      9.7       .0       9.7       .0       .0       4.1       .0       2.5       6.0    513.57
      .06       .00      2.36      .00      .000     .025      .000     .000    511.72    997.50
  .010283       60.      54.       49.       2        5        0        .00      9.00   1006.50
```



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


FLOW DISTRIBUTION FOR SECNO=   1291.00          CWSEL=    512.21

STA=     998.    1009.
  PER Q=    100.0
   AREA=      4.1
    VEL=      2.4
  DEPTH=       .5

*SECNO 1246.000
CHIMP CLSTA=     998.00 CELCH=     511.31 BW=       7.50 STCHL=     991.44 STCHR=    1005.56
EXCAVATION DATA
AEX=       6.4 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        .2 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.18 ELREA=       513.85

  1246.000       .52    511.83    511.84       .00    512.08       .25       .41       .01    513.18
      9.7        .0       9.7       .0        .0       4.4        .0       2.7       6.4    513.85
      .06       .00      2.20      .00      .000     .025      .000     .000    511.31    993.45
  .008315       39.      44.       49.       15       8         0        .00      9.10   1002.55


FLOW DISTRIBUTION FOR SECNO=   1246.00          CWSEL=    511.83

STA=     993.    1006.
  PER Q=    100.0
   AREA=      4.4
    VEL=      2.2
  DEPTH=       .5

*SECNO 1191.000
CHIMP CLSTA=    1000.00 CELCH=     510.79 BW=       7.50 STCHL=     993.91 STCHR=    1007.29
EXCAVATION DATA
AEX=       4.3 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        .5 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.35 ELREA=       513.15

  1191.000       .50    511.29    511.33       .00    511.57       .28       .50       .00    512.35
      9.7        .0       9.7       .0        .0       4.2        .0       2.9       6.9    513.15
      .07       .00      2.34      .00      .000     .025      .000     .000    510.79    995.49
  .010026       56.      55.       55.       2        5         0        .00      9.01   1004.51
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 W DISTRIBUTION FOR SECNO=   1191.00          CWSEL=    511.29

STA=     995.    1007.
  PER Q=    100.0
   AREA=      4.2
    VEL=      2.3
  DEPTH=       .5

*SECNO 1154.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=      10.00 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -19.4 SQ-METER     VEXR=       -.3 K*CU-METER     VEXT=         .3 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.58 ELREA=       512.90

  1154.000       .72    511.12    511.12       .00    511.45       .33       .30       .22    512.58
      20.4        .0      20.4        .0        .0       8.0        .0       3.1       7.3    512.90
       .07       .00      2.55       .00      .000      .025      .000      .000    510.40    993.92
   .007433       42.       37.       35.        20        11         0       .00     12.17   1006.08


FLOW DISTRIBUTION FOR SECNO=   1154.00          CWSEL=    511.12

STA=     994.    1017.
  ER Q=    100.0
 AREA=      8.0
    VEL=      2.5
  DEPTH=       .7

*SECNO 1060.000
CHIMP CLSTA=     998.00 CELCH=     509.91 BW=      10.00 STCHL=     986.43 STCHR=    1007.45
EXCAVATION DATA
AEX=       -.1 SQ-METER     VEXR=       -.9 K*CU-METER     VEXT=        -.6 K*CU-METER

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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       512.14 ELREA=       512.88

  1060.000       .72    510.63    510.63       .00    510.96       .33       .70       .30    512.14
      20.4        .0      20.4        .0        .0       8.0        .0       3.9       8.4    512.88
       .08       .00      2.55       .00      .000      .025      .000      .000    509.91    991.92
   .007470       94.       94.       93.        20         5         0       .00     12.16   1004.08


FLOW DISTRIBUTION FOR SECNO=   1060.00          CWSEL=    510.63
```

```
STA=     992.    1007.
  PER Q=    100.0
   AREA=      8.0
    VEL=      2.6
  DEPTH=       .7

*SECNO 1030.000
CHIMP CLSTA=     996.50 CELCH=     509.75 BW=      10.00 STCHL=     978.00 STCHR=    1009.80
EXCAVATION DATA
AEX=       1.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.6 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000       .72    510.47    510.47       .00    510.81       .33       .23       .11    511.90
      20.4        .0      20.4        .0        .0       8.0        .0       4.1       8.8    512.90
       .09       .00      2.55       .00      .000      .025      .000      .000    509.75    990.42
   .007466       16.       31.       18.        20         5         0       .00     12.16   1002.58


FLOW DISTRIBUTION FOR SECNO=   1030.00          CWSEL=    510.47

STA=     990.    1010.
  PER Q=    100.0
   AREA=      8.0
    VEL=      2.6
  DEPTH=       .7
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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 1020.000
CHIMP CLSTA=     996.00 CELCH=     509.70 BW=      20.00 STCHL=     982.40 STCHR=    1009.00
EXCAVATION DATA
AEX=      16.6 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.5 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.43


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      511.70

  1020.000       .29    509.99    510.17       .00    510.63       .64       .15       .03    510.90
      20.4        .0      20.4        .0        .0       5.8        .0       4.2       8.9    511.70
       .09       .00      3.54       .00      .000      .025      .000      .000    509.70    985.58
   .043946       17.       10.        8.         6        14         0       .00     20.85   1006.42


FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    509.99

STA=     986.    1009.
  PER Q=    100.0
   AREA=      5.8
    VEL=      3.5
  DEPTH=       .3
```

```
CCHV=     .300 CEHV=     .500
*SECNO 1001.000
CHIMP CLSTA=    1004.00 CELCH=     509.60 BW=      32.00 STCHL=     981.10 STCHR=    1024.30
EXCAVATION DATA
AREA=       8.5 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        -.3 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.05 ELREA=      511.75

  1001.000       .34    509.94    509.94       .00    510.11       .17       .32       .24    513.05
      20.4        .0      20.4        .0        .0      11.2        .0       4.4       9.4    511.75
       .09       .00      1.82       .00      .000      .025      .000      .000    509.60    987.32
   .008994       34.       19.        0.        20        11         0       .00     33.37   1020.68


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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


FLOW DISTRIBUTION FOR SECNO=   1001.00         CWSEL=    509.94

STA=     987.    1024.
  PER Q=    100.0
   AREA=     11.2
    VEL=      1.8
  DEPTH=       .3

*SECNO 1000.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000       .61    510.21    510.21       .00    510.38       .17       .01       .04    511.60
      20.4        .0      20.4        .0        .0      11.2        .0       4.4       9.5    513.50
       .09       .00      1.82       .00      .000      .025      .000      .000    509.60    987.21
   .008966        1.        1.        1.        20        14         0       .00     33.65   1020.86


FLOW DISTRIBUTION FOR SECNO=   1000.00         CWSEL=    510.21

STA=     987.    1024.
  PER Q=    100.0
   AREA=     11.2
    VEL=      1.8
  DEPTH=       .3


SPECIAL BRIDGE

3470 ERROR DS DEPTH WRONG SIDE CRITICAL        .50       .69       1       3
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.60      1.66       .00      17.10     1.20      68.10     5.40    509.50    509.60

*SECNO 995.000
```

6110 EGLWC OF 510.38 LESS THAN XEG OF 510.38

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .59

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

CLASS C LOW FLOW

3420 BRIDGE W.S.= 510.24 BRIDGE VELOCITY= 1.42 CALCULATED CHANNEL AREA= 15.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	510.38	.00	0.	20.	68.	69.	511.90	513.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 513.10 ELREA= 513.50

995.000	.79	510.29	.00	.00	510.38	.09	.00	.00	513.10
20.4	.0	20.4	.0	.0	15.6	.0	4.4	9.7	513.50
.09	.00	1.31	.00	.000	.025	.000	.000	509.50	986.79
.003076	6.	6.	6.	0	0	0	.00	34.25	1021.04

FLOW DISTRIBUTION FOR SECNO= 995.00 CWSEL= 510.29

STA= 987. 1025.
PER Q= 100.0
AREA= 15.6
VEL= 1.3
DEPTH= .5

CCHV= .100 CEHV= .300
*SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 511.80 ELREA= 511.40

971.000	.68	510.08	510.08	.00	510.32	.24	.12	.08	511.80
20.4	.0	20.4	.0	.0	9.4	.0	4.7	10.3	511.40
.09	.00	2.17	.00	.000	.030	.000	.000	509.40	990.86
.011815	11.	23.	36.	20	15	0	.00	19.93	1010.78

FLOW DISTRIBUTION FOR SECNO= 971.00 CWSEL= 510.08

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

```
STA=     991.    1015.
  PER Q=    100.0
   AREA=      9.4
    VEL=      2.2
  DEPTH=       .5
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T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      ALTERNATIVE 3, WEST CBC CULVERT WITH CHANNELIZATION
T3      100-YEAR SUPERCRITICAL FLOW
T4      FILE: A3WESTSU.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

               3                 1      .01        1                    517.73

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     15                -1                                   -1                         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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 1772.000
7230 SLOPE-AREA TRIALS EXCEED 100
3280 CROSS SECTION   1772.00 EXTENDED       .12 METERS

3720 CRITICAL DEPTH ASSUMED
  1772.000      1.42    517.72    517.72    517.73    517.81       .09       .00       .00    517.71
      62.3      37.5      19.9       4.8      30.6      12.5       8.4        .0        .0    517.48
       .00      1.23      1.60       .57      .045      .040      .045      .000    516.30    920.68
   .005438        0.        0.        0.         0         8       101       .00    129.32   1050.00


FLOW DISTRIBUTION FOR SECNO=   1772.00          CWSEL=    517.72

STA=     921.     943.     945.     955.     966.     969.     975.     982.     994.    1009.    1032.    1050.
  PER Q=      8.0      4.9      7.9      4.6      5.7     20.8      8.2       .2     32.0      5.2      2.5
   AREA=      5.5      2.0      4.9      3.6      2.8      7.0      4.3       .6     12.5      5.3      3.1
    VEL=       .9      1.5      1.0       .8      1.3      1.8      1.2       .2      1.6       .6       .5
  DEPTH=       .2       .9       .5       .3       .7      1.2       .6       .1       .8       .2       .2

*SECNO 1715.000
CHAMP CLSTA=     993.00 CELCH=     515.80 BW=      30.00 STCHL=     970.00 STCHR=    1009.98
EXCAVATION DATA
AEX=       5.8 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER
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3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.18

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      517.12

  1715.000       .50    516.30    516.55       .00    517.11       .81       .63       .07    516.70
     62.3        .0      62.3        .0        .0      15.6        .0       2.1       5.1    517.12
      .00       .00      3.99       .00      .000      .025      .000      .000    515.80    977.24
   .025730       72.       57.       56.         5        11         0       .00     31.52   1008.76


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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


FLOW DISTRIBUTION FOR SECNO=   1715.00          CWSEL=    516.30

STA=     977.    1010.
  PER Q=    100.0
   AREA=     15.6
    VEL=      4.0
  DEPTH=       .5

*SECNO 1703.000
CHIMP CLSTA=     993.00 CELCH=     515.68 BW=      20.00 STCHL=     980.00 STCHR=    1006.50
EXCAVATION DATA
AEX=       2.4 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.70 ELREA=      516.90

  1703.000       .96    516.64    516.64       .00    517.10       .46       .14       .10    516.70
     62.3        .0      62.3        .0        .0      20.7        .0       2.4       5.4    516.90
      .01       .00      3.01       .00      .000      .025      .000      .000    515.68    981.55
   .006714       14.       12.       13.        20        14         0       .00     22.89   1004.45


FLOW DISTRIBUTION FOR SECNO=   1703.00          CWSEL=    516.64

STA=     982.    1007.
  PER Q=    100.0
   AREA=     20.7
    VEL=      3.0
  DEPTH=       .9

*SECNO 1694.000
CHIMP CLSTA=     993.00 CELCH=     515.59 BW=      20.00 STCHL=     964.00 STCHR=    1006.40
EXCAVATION DATA
AEX=     -12.8 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=         .0 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.68 ELREA=      516.90

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

 1694.000      .90    516.49    516.56       .00    517.03       .54       .07       .01    516.68
    62.3       .0      62.3       .0        .0      19.2        .0       2.5       5.6    516.90
     .01      .00      3.25       .00      .000      .025      .000      .000    515.59    981.65
 .008531       9.        9.        9.         3         5         0       .00     22.69   1004.35

FLOW DISTRIBUTION FOR SECNO=   1694.00          CWSEL=    516.49

STA=     982.    1006.
  PER Q=    100.0
   AREA=     19.2
    VEL=      3.2
  DEPTH=       .8

*SECNO 1674.000
CHIMP CLSTA=     993.00 CELCH=     515.38 BW=      20.00 STCHL=     955.00 STCHR=    1006.40
EXCAVATION DATA
AEX=     -22.6 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=        -.4 K*CU-METER

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.58 ELREA=       516.60

 1674.000      .83    516.22    516.35       .00    516.83       .62       .19       .01    516.58
    62.3       .0      62.3       .0        .0      17.9        .0       2.9       6.1    516.60
     .01      .00      3.48       .00      .000      .025      .000      .000    515.38    981.74
 .010560      32.       20.       20.         6         8         0       .00     22.53   1004.26

FLOW DISTRIBUTION FOR SECNO=   1674.00          CWSEL=    516.22

STA=     982.    1006.
  PER Q=    100.0
   AREA=     17.9
    VEL=      3.5
  DEPTH=       .8

*SECNO 1652.000
CHIMP CLSTA=     999.00 CELCH=     515.14 BW=       7.50 STCHL=     989.93 STCHR=    1005.58
EXCAVATION DATA
AEX=        .1 SQ-METER     VEXR=       -.2 K*CU-METER     VEXT=        -.6 K*CU-METER
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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

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.58 ELREA=       516.34
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  1652.000      1.10    516.24    516.24       .00    516.73       .49       .20       .07    516.58
     31.4        .0      31.4        .0        .0      10.1        .0       3.2       6.5    516.34
      .01       .00      3.10       .00      .000      .025      .000      .000    515.14    993.59
   .007114       24.       22.       20.        20        11         0       .00     10.81   1004.41


FLOW DISTRIBUTION FOR SECNO=   1652.00          CWSEL=    516.24

STA=     994.    1006.
  PER Q=    100.0
   AREA=     10.1
    VEL=      3.1
  DEPTH=       .9

*SECNO 1598.000
CHIMP CLSTA=     998.00 CELCH=     514.60 BW=       7.50 STCHL=     991.58 STCHR=    1004.53
EXCAVATION DATA
AEX=       4.5 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.5 K*CU-METER


3470 ENCROACHMENT STATIONS=      989.0    1029.6  TYPE=      1  TARGET=     -989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      516.12 ELREA=      516.10

  1598.000       .96    515.55    515.72       .00    516.24       .68       .48       .02    516.12
     31.4        .0      31.4        .0        .0       8.6        .0       3.7       7.0    516.10
      .01       .00      3.66       .00      .000      .025      .000      .000    514.60    992.81
   .011656       53.       53.       54.         5         5         0       .00     10.37   1003.19


FLOW DISTRIBUTION FOR SECNO=   1598.00          CWSEL=    515.55

=     993.    1005.
ER Q=    100.0
  AREA=      8.6
   VEL=      3.7
 DEPTH=       .8
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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 1545.000
CHIMP CLSTA=     998.00 CELCH=     514.05 BW=       7.50 STCHL=     991.70 STCHR=    1003.71
EXCAVATION DATA
AEX=       5.9 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.2 K*CU-METER


3470 ENCROACHMENT STATIONS=      988.0    1033.6  TYPE=      1  TARGET=     -988.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.54 ELREA=      515.36

  1545.000      1.04    515.09    515.17       .00    515.66       .57       .55       .03    515.54
     31.4        .0      31.4        .0        .0       9.4        .0       4.2       7.6    515.36
      .02       .00      3.35       .00      .000      .025      .000      .000    514.05    992.70
   .008935       53.       54.       54.         3         8         0       .00     10.60   1003.30


FLOW DISTRIBUTION FOR SECNO=   1545.00          CWSEL=    515.09
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```
STA=     993.    1004.
  PER Q=    100.0
   AREA=      9.4
    VEL=      3.3
  DEPTH=       .9

CCHV=     .100 CEHV=     .300
*SECNO 1507.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.12 ELREA=      515.12

  1507.000       .48    514.10    514.37       .00    515.03       .93       .59       .04    515.12
      31.4        .0      31.4        .0        .0       7.3        .0       4.5       8.1    515.12
       .02       .00      4.27       .00      .000      .026      .000      .000    513.62    987.16
   .035798       31.       37.       37.         6        15         0       .00     15.35   1002.50


FLOW DISTRIBUTION FOR SECNO=   1507.00         CWSEL=    514.10

STA=     987.    1003.
  PER Q=    100.0
   AREA=      7.3
    VEL=      4.3
  DEPTH=       .5
```



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


CCHV=     .300 CEHV=     .500
*SECNO 1504.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.09

  1504.000       .68    514.27    514.47       .00    515.02       .74       .04       .20    515.09
      31.4        .0      31.4        .0        .0       8.2        .0       4.5       8.1    515.09
       .02       .00      3.82       .00      .000      .013      .000      .000    513.59    987.16
   .006764        3.        3.        3.        20        14         0       .00     12.01   1000.00


FLOW DISTRIBUTION FOR SECNO=   1504.00         CWSEL=    514.27

STA=     987.    1000.
  PER Q=    100.0
   AREA=      8.2
    VEL=      3.8
  DEPTH=       .7

*SECNO 1480.000
3840 SECTION NOT HIGH ENOUGH   567.996   565.410   513.470   565.500   514.251         4

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=   565.409
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    565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF      .000 EGLC=   514.817 EGC=   565.409 WSEL=999999.000

    565.80 TRIALS NOT ENOUGH FOR CRITICAL DEPTH       .00    515.41    615.41    565.40    514.82

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   2 MIN ELTRD=   515.41 MAX ELLC=      .00

7185 MINIMUM SPECIFIC ENERGY
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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.97 ELREA=      514.97

  1480.000       .87    514.34 999999.00       .00    514.80       .46       .08       .14    514.97
     31.4        .0      31.4        .0        .0      10.4        .0       4.7       8.3    514.97
      .02       .00      3.00       .00      .000      .013      .000      .000    513.47    987.15
   .003376       17.       17.       17.         2        81         0       .00     12.01   1000.01


FLOW DISTRIBUTION FOR SECNO=   1480.00          CWSEL=    514.34

STA=     987.    1000.
  PER Q=    100.0
   AREA=     10.4
    VEL=      3.0
  DEPTH=       .9

CCHV=     .100 CEHV=     .300
*SECNO 1477.000
CHIMP CLSTA=     994.83 CELCH=     513.45 BW=      15.34 STCHL=     987.15 STCHR=    1002.51
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.68


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.95 ELREA=      514.95

  1477.000       .52    513.97    514.20       .00    514.74       .77       .02       .03    514.95
     31.4        .0      31.4        .0        .0       8.1        .0       4.7       8.4    514.95
      .02       .00      3.88       .00      .000      .025      .000      .000    513.45    987.15
   .024253        3.        3.        3.        13        11         0       .00     15.35   1002.51


FLOW DISTRIBUTION FOR SECNO=   1477.00          CWSEL=    513.97

     987.    1003.
  PER Q=    100.0
   AREA=      8.1
    VEL=      3.9
  DEPTH=       .5
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*SECNO 1464.000
CHIMP CLSTA=    1000.00 CELCH=     513.33 BW=       7.50 STCHL=     991.48 STCHR=    1006.87
EXCAVATION DATA
AEX=       3.6 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.74 ELREA=      515.00

  1464.000      1.12    514.44    514.44       .00    514.92       .48       .15       .08    514.74
      31.4        .0      31.4        .0        .0      10.2        .0       4.8       8.5    515.00
       .02       .00      3.06       .00      .000      .025      .000      .000    513.33    994.58
   .006877       22.       13.       10.        20        17         0       .00     10.85   1005.42


FLOW DISTRIBUTION FOR SECNO=   1464.00          CWSEL=    514.44

STA=     995.    1007.
  PER Q=    100.0
   AREA=     10.2
    VEL=      3.1
  DEPTH=       .9

*SECNO 1422.000
CHIMP CLSTA=     996.00 CELCH=     512.94 BW=       7.50 STCHL=     985.66 STCHR=    1002.43
EXCAVATION DATA
AEX=       1.9 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.1 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.12 ELREA=      514.70

  1422.000      1.01    513.95    514.04       .00    514.56       .62       .35       .01    514.12
      31.4        .0      31.4        .0        .0       9.0        .0       5.2       9.0    514.70
       .03       .00      3.48       .00      .000      .025      .000      .000    512.94    990.75
   .010001       43.       42.       42.         3         8         0       .00     10.50   1001.25


FLOW DISTRIBUTION FOR SECNO=   1422.00          CWSEL=    513.95
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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

```
STA=     991.    1002.
  PER Q=    100.0
   AREA=      9.0
    VEL=      3.5
  DEPTH=       .9
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*SECNO 1345.000
CHIMP CLSTA=    1000.00 CELCH=     512.22 BW=       7.50 STCHL=     986.22 STCHR=    1007.90
EXCAVATION DATA
AEX=      -3.2 SQ-METER     VEXR=       -.1 K*CU-METER     VEXT=        -.1 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.93 ELREA=      514.00

  1345.000      1.04    513.26    513.34       .00    513.83       .56       .72       .02    513.93
      31.4        .0      31.4        .0        .0       9.4        .0       5.9       9.8    514.00
       .03       .00      3.33       .00      .000      .025      .000      .000    512.22    994.69
   .008766       69.       77.       85.         3         8         0       .00     10.62   1005.31


FLOW DISTRIBUTION FOR SECNO=   1345.00         CWSEL=    513.26

STA=     995.    1008.
  PER Q=    100.0
   AREA=      9.4
    VEL=      3.3
  DEPTH=       .9

*SECNO 1291.000
CHIMP CLSTA=    1002.00 CELCH=     511.72 BW=       7.50 STCHL=     996.06 STCHR=    1008.53
EXCAVATION DATA
AEX=       6.0 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=         .0 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.57

  1291.000      1.02    512.74    512.83       .00    513.33       .59       .49       .00    513.18
      31.4        .0      31.4        .0        .0       9.2        .0       6.5      10.4    513.57
       .04       .00      3.41       .00      .000      .025      .000      .000    511.72    996.72
   .009424       60.       54.       49.         4         8         0       .00     10.56   1007.28


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   25JUN96      08:56:15                                                                          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


FLOW DISTRIBUTION FOR SECNO=   1291.00         CWSEL=    512.74

STA=     997.    1009.
  PER Q=    100.0
   AREA=      9.2
    VEL=      3.4
  DEPTH=       .9

*SECNO 1246.000
CHIMP CLSTA=     998.00 CELCH=     511.31 BW=       7.50 STCHL=     991.44 STCHR=    1005.56
EXCAVATION DATA
AEX=       6.4 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=         .2 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.18 ELREA=      513.85

  1246.000      1.03    512.34    512.42       .00    512.92       .58       .41       .00    513.18
      31.4        .0      31.4        .0        .0       9.3        .0       6.9      10.8    513.85
       .04       .00      3.37       .00      .000      .025      .000      .000    511.31    992.71
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   .009081      39.      44.      49.       4       8       0     .00    10.59  1003.29


FLOW DISTRIBUTION FOR SECNO=   1246.00         CWSEL=    512.34

STA=     993.    1006.
  PER Q=    100.0
   AREA=      9.3
    VEL=      3.4
  DEPTH=       .9

*SECNO 1191.000
CHIMP CLSTA=    1000.00 CELCH=     510.79 BW=      7.50 STCHL=     993.91 STCHR=    1007.29
EXCAVATION DATA
AEX=       4.3 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        .5 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.35 ELREA=      513.15

  1191.000      1.03    511.82    511.91       .00    512.41       .59       .51       .00    512.35
      31.4        .0      31.4        .0        .0       9.2        .0       7.4      11.4    513.15
       .05       .00      3.40       .00      .000      .025      .000      .000    510.79    994.72
   .009367      56.      55.      55.       4       8       0     .00    10.56  1005.28


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   25JUN96      08:56:15                                                                                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


FLOW DISTRIBUTION FOR SECNO=   1191.00         CWSEL=    511.82

STA=     995.    1007.
  PER Q=    100.0
   AREA=      9.2
    VEL=      3.4
  DEPTH=       .9

*SECNO 1154.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=     10.00 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -19.4 SQ-METER     VEXR=       -.3 K*CU-METER     VEXT=        .3 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  1154.000      1.46    511.86    511.86       .00    512.48       .62       .26       .22    512.58
      62.3        .0      62.3        .0        .0      17.8        .0       7.9      11.9    512.90
       .05       .00      3.50       .00      .000      .025      .000      .000    510.40    992.81
   .006219      42.      37.      35.       20       11       0     .00    14.38  1007.19


 DISTRIBUTION FOR SECNO=   1154.00         CWSEL=    511.86

STA=     993.    1017.
  PER Q=    100.0
   AREA=     17.8
    VEL=      3.5
```

```
  DEPTH=      1.2

*SECNO 1060.000
CHIMP CLSTA=     998.00 CELCH=     509.91 BW=      10.00 STCHL=     986.43 STCHR=    1007.45
EXCAVATION DATA
AEX=       -.1 SQ-METER     VEXR=       -.9 K*CU-METER     VEXT=        -.6 K*CU-METER

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
   25JUN96      08:56:15                                                                                    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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.14 ELREA=      512.88

  1060.000      1.46    511.37    511.37       .00    512.00       .63       .58       .25    512.14
     62.3        .0      62.3        .0        .0      17.8        .0       9.5      13.2    512.88
      .06       .00      3.50       .00      .000      .025      .000      .000    509.91    990.81
   .006262      94.       94.       93.        20         5         0       .00     14.37   1005.19


FLOW DISTRIBUTION FOR SECNO=   1060.00          CWSEL=    511.37

STA=     991.    1007.
  PER Q=    100.0
   AREA=     17.8
    VEL=      3.5
  DEPTH=      1.2

*SECNO 1030.000
CHIMP CLSTA=     996.50 CELCH=     509.75 BW=      10.00 STCHL=     978.00 STCHR=    1009.80
EXCAVATION DATA
AEX=       1.5 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.6 K*CU-METER

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.90 ELREA=      512.90

  1030.000      1.46    511.21    511.21       .00    511.84       .62       .19       .02    511.90
     62.3        .0      62.3        .0        .0      17.8        .0      10.1      13.7    512.90
      .06       .00      3.50       .00      .000      .025      .000      .000    509.75    989.31
   .006248      16.       31.       18.        20         5         0       .00     14.38   1003.69


FLOW DISTRIBUTION FOR SECNO=   1030.00          CWSEL=    511.21

STA=     989.    1010.
  PER Q=    100.0
   AREA=     17.8
    VEL=      3.5
  DEPTH=      1.2

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 1020.000
CHIMP CLSTA=     996.00 CELCH=     509.70 BW=      20.00 STCHL=     982.40 STCHR=    1009.00
EXCAVATION DATA
AEX=      16.6 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.5 K*CU-METER


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      510.90 ELREA=      511.70

  1020.000       .58    510.29    510.67       .00    511.64      1.35       .13       .07    510.90
      62.3        .0      62.3        .0        .0      12.1        .0      10.2      13.9    511.70
       .06       .00      5.15       .00      .000      .025      .000      .000    509.70    985.13
   .037107       17.       10.        8.        12        14         0       .00     21.74   1006.87


FLOW DISTRIBUTION FOR SECNO=   1020.00          CWSEL=    510.29

STA=     985.    1009.
  PER Q=    100.0
   AREA=     12.1
    VEL=      5.2
  DEPTH=       .6

CCHV=     .300 CEHV=     .500
*SECNO 1001.000
CHIMP CLSTA=    1004.00 CELCH=     509.60 BW=      32.00 STCHL=     981.10 STCHR=    1024.30
EXCAVATION DATA
AEX=       8.5 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        -.3 K*CU-METER


3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.05 ELREA=      511.75

  1001.000       .53    510.13    510.31       .00    510.79       .66       .50       .35    513.05
      62.3        .0      62.3        .0        .0      17.3        .0      10.5      14.4    511.75
       .06       .00      3.59       .00      .000      .025      .000      .000    509.60    986.95
   .020049       34.       19.        0.         3        11         0       .00     34.10   1021.05


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  25JUN96      08:56:15                                                                          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

FLOW DISTRIBUTION FOR SECNO=   1001.00          CWSEL=    510.13

STA=     987.    1024.
  PER Q=    100.0
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   AREA=      17.3
    VEL=       3.6
  DEPTH=        .5

 SECNO 1000.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.60 ELREA=      513.50

  1000.000       .98    510.58    510.58       .00    510.92       .34       .01      1.01    511.60
      62.3        .0      62.3        .0        .0      23.9        .0      10.5      14.4    513.50
       .06       .00      2.60       .00      .000      .025      .000      .000    509.60    986.17
   .007226        1.        1.        1.        20        17         0       .00     35.50   1021.67


FLOW DISTRIBUTION FOR SECNO=   1000.00         CWSEL=    510.58

STA=     986.    1024.
  PER Q=    100.0
   AREA=     23.9
    VEL=      2.6
  DEPTH=       .7


SPECIAL BRIDGE

5290 UPSTREAM ELEV IS     510.73 ,NOT     510.58 NEW BACKWATER REQUIRED

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.60      1.66       .00     17.10      1.20     68.10      5.40    509.50    509.60

 SECNO 995.000
CLASS B LOW FLOW

3420 BRIDGE W.S.=     510.58 BRIDGE VELOCITY=      2.83     CALCULATED CHANNEL AREA=       23.
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


 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                 AREA
       .00    510.89      .00        0.       62.       68.       69.     511.90    513.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.10 ELREA=      513.50

   995.000       .95    510.45       .00       .00    510.89       .44       .03       .00    513.10
      62.3        .0      62.3        .0        .0      21.1        .0      10.7      14.6    513.50
       .06       .00      2.95       .00      .000      .025      .000      .000    509.50    986.38
   .010807        6.        6.        6.         0         0         0       .00     35.01   1021.39


FLOW DISTRIBUTION FOR SECNO=    995.00         CWSEL=    510.45

STA=     986.    1025.
  PER Q=    100.0
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   AREA=     21.1
    VEL=      3.0
  DEPTH=       .6

 CEV=     .100 CEHV=     .300
 SECNO 971.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      511.80 ELREA=      511.40

   971.000      1.21    510.61    510.61       .00    511.07       .46       .23       .16    511.80
      62.3        .0      62.3        .0        .0      20.6        .0      11.1      15.3    511.40
       .06       .00      3.02       .00      .000      .030      .000      .000    509.40    990.04
   .009512       11.       23.       36.        20        11         0       .00     22.55   1012.59


FLOW DISTRIBUTION FOR SECNO=    971.00          CWSEL=    510.61

STA=     990.    1015.
  PER Q=    100.0
   AREA=     20.6
    VEL=      3.0
  DEPTH=       .9
```

1

THIS RUN EXECUTED 25JUN96 08:56:18

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
**************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1772.000	20.37	517.42	.00	20.37	.00	.00	2.49	.00	.00	13.56	202.39	516.30
*	1772.000	62.26	517.72	37.54	19.93	4.79	1.23	1.60	.57	.00	129.32	54.38	516.30
	1715.000	20.37	516.06	.00	20.37	.00	.00	2.63	.00	-8.77	30.77	272.38	515.80
*	1715.000	62.26	516.30	.00	62.26	.00	.00	3.99	.00	-8.77	31.52	257.30	515.80
*	1703.000	20.37	516.14	.00	20.37	.00	.00	2.11	.00	-10.20	21.40	82.24	515.68
*	1703.000	62.26	516.64	.00	62.26	.00	.00	3.01	.00	-10.20	22.89	67.14	515.68
	1694.000	20.37	516.00	.00	20.37	.00	.00	2.33	.00	-10.20	21.27	112.62	515.59
	1694.000	62.26	516.49	.00	62.26	.00	.00	3.25	.00	-10.20	22.69	85.31	515.59
*	1674.000	20.37	515.84	.00	20.37	.00	.00	2.13	.00	-10.20	21.38	84.93	515.38
	1674.000	62.26	516.22	.00	62.26	.00	.00	3.48	.00	-10.20	22.53	105.60	515.38
*	1652.000	9.72	515.67	.00	9.72	.00	.00	2.19	.00	-10.99	9.10	81.81	515.14

*	1652.000	31.36	516.24	.00	31.36	.00	.00	3.10	.00	-10.99	10.81	71.14	515.14
	1598.000	9.72	515.08	.00	9.72	.00	.00	2.47	.00	-10.20	8.93	119.48	514.60
	1598.000	31.36	515.55	.00	31.36	.00	.00	3.66	.00	-10.20	10.37	116.56	514.60
	1545.000	9.72	514.58	.00	9.72	.00	.00	2.22	.00	-10.20	9.08	85.41	514.05
	1545.000	31.36	515.09	.00	31.36	.00	.00	3.35	.00	-10.20	10.60	89.35	514.05
*	1507.000	9.72	513.84	.00	9.72	.00	.00	2.77	.00	-11.55	15.34	383.59	513.62
*	1507.000	31.36	514.10	.00	31.36	.00	.00	4.27	.00	-11.55	15.35	357.98	513.62
*	1504.000	9.72	513.99	.00	9.72	.00	.00	2.00	.00	-8.87	12.01	31.18	513.59
*	1504.000	31.36	514.27	.00	31.36	.00	.00	3.82	.00	-8.87	12.01	67.64	513.59
*	1480.000	9.72	514.01	.00	9.72	.00	.00	1.51	.00	-7.18	12.01	13.27	513.47
*	1480.000	31.36	514.34	.00	31.36	.00	.00	3.00	.00	-7.18	12.01	33.76	513.47

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
*	1477.000	9.72	513.68	.00	9.72	.00	.00	2.82	.00	-5.90	15.34	377.63	513.45
*	1477.000	31.36	513.97	.00	31.36	.00	.00	3.88	.00	-5.90	15.35	242.53	513.45
*	1464.000	9.72	513.86	.00	9.72	.00	.00	2.20	.00	-9.30	9.10	82.93	513.33
*	1464.000	31.36	514.44	.00	31.36	.00	.00	3.06	.00	-9.30	10.85	68.77	513.33
	1422.000	9.72	513.43	.00	9.72	.00	.00	2.36	.00	-9.30	9.00	102.83	512.94
	1422.000	31.36	513.95	.00	31.36	.00	.00	3.48	.00	-9.30	10.50	100.01	512.94
	1345.000	9.72	512.75	.00	9.72	.00	.00	2.20	.00	-9.30	9.10	82.61	512.22
	1345.000	31.36	513.26	.00	31.36	.00	.00	3.33	.00	-9.30	10.62	87.66	512.22
	1291.000	9.72	512.21	.00	9.72	.00	.00	2.36	.00	-9.30	9.00	102.83	511.72
	1291.000	31.36	512.74	.00	31.36	.00	.00	3.41	.00	-9.30	10.56	94.24	511.72
*	1246.000	9.72	511.83	.00	9.72	.00	.00	2.20	.00	-9.30	9.10	83.15	511.31
	1246.000	31.36	512.34	.00	31.36	.00	.00	3.37	.00	-9.30	10.59	90.81	511.31
	1191.000	9.72	511.29	.00	9.72	.00	.00	2.34	.00	-9.30	9.01	100.26	510.79
	1191.000	31.36	511.82	.00	31.36	.00	.00	3.40	.00	-9.30	10.56	93.67	510.79
*	1154.000	20.37	511.12	.00	20.37	.00	.00	2.55	.00	-10.55	12.17	74.33	510.40
*	1154.000	62.26	511.86	.00	62.26	.00	.00	3.50	.00	-10.55	14.38	62.19	510.40
*	1060.000	20.37	510.63	.00	20.37	.00	.00	2.55	.00	-5.20	12.16	74.70	509.91
*	1060.000	62.26	511.37	.00	62.26	.00	.00	3.50	.00	-5.20	14.37	62.62	509.91
*	1030.000	20.37	510.47	.00	20.37	.00	.00	2.55	.00	-5.20	12.16	74.66	509.75
*	1030.000	62.26	511.21	.00	62.26	.00	.00	3.50	.00	-5.20	14.38	62.48	509.75
*	1020.000	20.37	509.99	.00	20.37	.00	.00	3.54	.00	-5.20	20.85	439.46	509.70
*	1020.000	62.26	510.29	.00	62.26	.00	.00	5.15	.00	-5.20	21.74	371.07	509.70
*	1001.000	20.37	509.94	.00	20.37	.00	.00	1.82	.00	-5.41	33.37	89.94	509.60
	1001.000	62.26	510.13	.00	62.26	.00	.00	3.59	.00	-5.41	34.10	200.49	509.60
*	1000.000	20.37	510.21	.00	20.37	.00	.00	1.82	.00	.00	33.65	89.66	509.60
	1000.000	62.26	510.58	.00	62.26	.00	.00	2.60	.00	.00	35.50	72.26	509.60
*	995.000	20.37	510.29	.00	20.37	.00	.00	1.31	.00	-18.18	34.25	30.76	509.50
*	995.000	62.26	510.45	.00	62.26	.00	.00	2.95	.00	-18.18	35.01	108.07	509.50
*	971.000	20.37	510.08	.00	20.37	.00	.00	2.17	.00	-4.37	19.93	118.15	509.40

*	971.000	62.26	510.61	.00	62.26	.00	.00	3.02	.00	-4.37	22.55	95.12	509.40

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10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT

	SECNO	Q	DEPTH	AREA	CRIWS	FRCH
*	1772.000	20.37	1.12	8.17	517.42	1.02
*	1772.000	62.26	1.42	51.41	517.72	.56
	1715.000	20.37	.26	7.76	516.16	1.67
*	1715.000	62.26	.50	15.61	516.55	1.81
*	1703.000	20.37	.47	9.64	516.14	1.00
*	1703.000	62.26	.96	20.68	516.64	1.01
	1694.000	20.37	.42	8.75	516.05	1.16
	1694.000	62.26	.90	19.16	516.56	1.13
*	1674.000	20.37	.46	9.54	515.85	1.02
	1674.000	62.26	.83	17.91	516.35	1.24
*	1652.000	9.72	.53	4.44	515.67	1.00
*	1652.000	31.36	1.10	10.11	516.24	1.02
	1598.000	9.72	.48	3.93	515.13	1.19
	1598.000	31.36	.96	8.56	515.72	1.29
	1545.000	9.72	.53	4.38	514.58	1.02
	1545.000	31.36	1.04	9.36	515.17	1.14
*	1507.000	9.72	.22	3.51	513.96	1.84
*	1507.000	31.36	.48	7.34	514.37	1.97
*	1504.000	9.72	.40	4.85	513.99	1.04
*	1504.000	31.36	.68	8.20	514.47	1.53
*	1480.000	9.72	.54	6.44	999999.00	.68
*	1480.000	31.36	.87	10.44	999999.00	1.06
*	1477.000	9.72	.23	3.45	513.79	1.90
*	1477.000	31.36	.52	8.07	514.20	1.71
*	1464.000	9.72	.53	4.42	513.86	1.01
*	1464.000	31.36	1.12	10.23	514.44	1.01
	1422.000	9.72	.50	4.12	513.47	1.11
	1422.000	31.36	1.01	9.01	514.04	1.20
*	1345.000	9.72	.53	4.42	512.75	1.01
	1345.000	31.36	1.04	9.42	513.34	1.13
	1291.000	9.72	.50	4.12	512.25	1.11
	1291.000	31.36	1.02	9.20	512.83	1.17

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SECNO	Q	DEPTH	AREA	CRIWS	FRCH

*	1246.000	9.72	.52	4.42	511.84	1.01
	1246.000	31.36	1.03	9.31	512.42	1.15
	1191.000	9.72	.50	4.16	511.33	1.10
	1191.000	31.36	1.03	9.21	511.91	1.16
*	1154.000	20.37	.72	8.00	511.12	1.00
*	1154.000	62.26	1.46	17.81	511.86	1.00
*	1060.000	20.37	.72	7.99	510.63	1.00
*	1060.000	62.26	1.46	17.77	511.37	1.01
*	1030.000	20.37	.72	7.99	510.47	1.00
*	1030.000	62.26	1.46	17.78	511.21	1.00
*	1020.000	20.37	.29	5.76	510.17	2.15
*	1020.000	62.26	.58	12.08	510.67	2.21
*	1001.000	20.37	.34	11.17	509.94	1.01
	1001.000	62.26	.53	17.34	510.31	1.61
*	1000.000	20.37	.61	11.22	510.21	1.00
*	1000.000	62.26	.98	23.93	510.58	1.01
*	995.000	20.37	.79	15.58	999999.00	.62
*	995.000	62.26	.95	21.09	999999.00	1.21
*	971.000	20.37	.68	9.37	510.08	1.01
*	971.000	62.26	1.21	20.62	510.61	1.01

10-YEAR SUPERCRITICAL FL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1772.000	.00	.00	.00	516.30	20.37	517.42	517.42	517.74	202.39	2.49	8.17	1.43
*	1772.000	.00	.00	.00	516.30	62.26	517.72	517.72	517.81	54.38	1.60	51.41	8.44
	1715.000	57.00	.00	.00	515.80	20.37	516.06	516.16	516.41	272.38	2.63	7.76	1.23
*	1715.000	57.00	.00	.00	515.80	62.26	516.30	516.55	517.11	257.30	3.99	15.61	3.88
*	1703.000	12.00	.00	.00	515.68	20.37	516.14	516.14	516.37	82.24	2.11	9.64	2.25
*	1703.000	12.00	.00	.00	515.68	62.26	516.64	516.64	517.10	67.14	3.01	20.68	7.60
	1694.000	9.00	.00	.00	515.59	20.37	516.00	516.05	516.28	112.62	2.33	8.75	1.92
	1694.000	9.00	.00	.00	515.59	62.26	516.49	516.56	517.03	85.31	3.25	19.16	6.74
*	1674.000	20.00	.00	.00	515.38	20.37	515.84	515.85	516.07	84.93	2.13	9.54	2.21
	1674.000	20.00	.00	.00	515.38	62.26	516.22	516.35	516.83	105.60	3.48	17.91	6.06
*	1652.000	22.00	.00	.00	515.14	9.72	515.67	515.67	515.92	81.81	2.19	4.44	1.07
*	1652.000	22.00	.00	.00	515.14	31.36	516.24	516.24	516.73	71.14	3.10	10.11	3.72
	1598.000	53.18	.00	.00	514.60	9.72	515.08	515.13	515.39	119.48	2.47	3.93	.89
	1598.000	53.18	.00	.00	514.60	31.36	515.55	515.72	516.24	116.56	3.66	8.56	2.90
	1545.000	53.64	.00	.00	514.05	9.72	514.58	514.58	514.83	85.41	2.22	4.38	1.05
	1545.000	53.64	.00	.00	514.05	31.36	515.09	515.17	515.66	89.35	3.35	9.36	3.32

*	1507.000	37.26	.00	.00	513.62	9.72	513.84	513.96	514.23	383.59	2.77	3.51	.50
*	1507.000	37.26	.00	.00	513.62	31.36	514.10	514.37	515.03	357.98	4.27	7.34	1.66
*	1504.000	3.38	.00	.00	513.59	9.72	513.99	513.99	514.20	31.18	2.00	4.85	1.74
	1504.000	3.38	.00	.00	513.59	31.36	514.27	514.47	515.02	67.64	3.82	8.20	3.81
*	1480.000	16.72	515.41	.00	513.47	9.72	514.01	999999.00	514.12	13.27	1.51	6.44	2.67
*	1480.000	16.72	515.41	.00	513.47	31.36	514.34	999999.00	514.80	33.76	3.00	10.44	5.40
*	1477.000	3.38	.00	.00	513.45	9.72	513.68	513.79	514.08	377.63	2.82	3.45	.50
*	1477.000	3.38	.00	.00	513.45	31.36	513.97	514.20	514.74	242.53	3.88	8.07	2.01
*	1464.000	13.14	.00	.00	513.33	9.72	513.86	513.86	514.11	82.93	2.20	4.42	1.07
*	1464.000	13.14	.00	.00	513.33	31.36	514.44	514.44	514.92	68.77	3.06	10.23	3.78
	1422.000	42.09	.00	.00	512.94	9.72	513.43	513.47	513.72	102.83	2.36	4.12	.96
	1422.000	42.09	.00	.00	512.94	31.36	513.95	514.04	514.56	100.01	3.48	9.01	3.14
*	1345.000	77.06	.00	.00	512.22	9.72	512.75	512.75	513.00	82.61	2.20	4.42	1.07
	1345.000	77.06	.00	.00	512.22	31.36	513.26	513.34	513.83	87.66	3.33	9.42	3.35
	1291.000	54.00	.00	.00	511.72	9.72	512.21	512.25	512.50	102.83	2.36	4.12	.96
	1291.000	54.00	.00	.00	511.72	31.36	512.74	512.83	513.33	94.24	3.41	9.20	3.23

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1246.000	44.03	.00	.00	511.31	9.72	511.83	511.84	512.08	83.15	2.20	4.42	1.07
	1246.000	44.03	.00	.00	511.31	31.36	512.34	512.42	512.92	90.81	3.37	9.31	3.29
	1191.000	55.38	.00	.00	510.79	9.72	511.29	511.33	511.57	100.26	2.34	4.16	.97
	1191.000	55.38	.00	.00	510.79	31.36	511.82	511.91	512.41	93.67	3.40	9.21	3.24
*	1154.000	37.24	.00	.00	510.40	20.37	511.12	511.12	511.45	74.33	2.55	8.00	2.36
*	1154.000	37.24	.00	.00	510.40	62.26	511.86	511.86	512.48	62.19	3.50	17.81	7.89
*	1060.000	93.71	.00	.00	509.91	20.37	510.63	510.63	510.96	74.70	2.55	7.99	2.36
*	1060.000	93.71	.00	.00	509.91	62.26	511.37	511.37	512.00	62.62	3.50	17.77	7.87
*	1030.000	30.57	.00	.00	509.75	20.37	510.47	510.47	510.81	74.66	2.55	7.99	2.36
*	1030.000	30.57	.00	.00	509.75	62.26	511.21	511.21	511.84	62.48	3.50	17.78	7.88
*	1020.000	10.00	.00	.00	509.70	20.37	509.99	510.17	510.63	439.46	3.54	5.76	.97
*	1020.000	10.00	.00	.00	509.70	62.26	510.29	510.67	511.64	371.07	5.15	12.08	3.23
*	1001.000	18.80	.00	.00	509.60	20.37	509.94	509.94	510.11	89.94	1.82	11.17	2.15
	1001.000	18.80	.00	.00	509.60	62.26	510.13	510.31	510.79	200.49	3.59	17.34	4.40
*	1000.000	1.00	.00	.00	509.60	20.37	510.21	510.21	510.38	89.66	1.82	11.22	2.15
*	1000.000	1.00	.00	.00	509.60	62.26	510.58	510.58	510.92	72.26	2.60	23.93	7.32
*	995.000	5.50	513.10	511.90	509.50	20.37	510.29	999999.00	510.38	30.76	1.31	15.58	3.67
*	995.000	5.50	513.10	511.90	509.50	62.26	510.45	999999.00	510.89	108.07	2.95	21.09	5.99
*	971.000	22.90	.00	.00	509.40	20.37	510.08	510.08	510.32	118.15	2.17	9.37	1.87
*	971.000	22.90	.00	.00	509.40	62.26	510.61	510.61	511.07	95.12	3.02	20.62	6.38

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1772.000	20.37	517.42	.00	.00	-.02	13.56	.00
*	1772.000	62.26	517.72	.30	.00	-.01	129.32	.00
	1715.000	20.37	516.06	.00	-1.37	.00	30.77	57.00
*	1715.000	62.26	516.30	.24	-1.42	.00	31.52	57.00
*	1703.000	20.37	516.14	.00	.09	.00	21.40	12.00
*	1703.000	62.26	516.64	.50	.34	.00	22.89	12.00
	1694.000	20.37	516.00	.00	-.14	.00	21.27	9.00
	1694.000	62.26	516.49	.49	-.15	.00	22.69	9.00
*	1674.000	20.37	515.84	.00	-.16	.00	21.38	20.00
	1674.000	62.26	516.22	.38	-.27	.00	22.53	20.00
*	1652.000	9.72	515.67	.00	-.17	.00	9.10	22.00
*	1652.000	31.36	516.24	.57	.03	.00	10.81	22.00
	1598.000	9.72	515.08	.00	-.60	.00	8.93	53.18
	1598.000	31.36	515.55	.48	-.69	.00	10.37	53.18
	1545.000	9.72	514.58	.00	-.50	.00	9.08	53.64
	1545.000	31.36	515.09	.50	-.47	.00	10.60	53.64
*	1507.000	9.72	513.84	.00	-.74	.00	15.34	37.26
*	1507.000	31.36	514.10	.26	-.99	.00	15.35	37.26
	1504.000	9.72	513.99	.00	.15	.00	12.01	3.38
	1504.000	31.36	514.27	.28	.17	.00	12.01	3.38
*	1480.000	9.72	514.01	.00	.01	.00	12.01	16.72
*	1480.000	31.36	514.34	.33	.06	.00	12.01	16.72
*	1477.000	9.72	513.68	.00	-.33	.00	15.34	3.38
*	1477.000	31.36	513.97	.30	-.36	.00	15.35	3.38
*	1464.000	9.72	513.86	.00	.18	.00	9.10	13.14
*	1464.000	31.36	514.44	.58	.47	.00	10.85	13.14
	1422.000	9.72	513.43	.00	-.43	.00	9.00	42.09
	1422.000	31.36	513.95	.51	-.50	.00	10.50	42.09
*	1345.000	9.72	512.75	.00	-.68	.00	9.10	77.06
	1345.000	31.36	513.26	.51	-.68	.00	10.62	77.06
	1291.000	9.72	512.21	.00	-.54	.00	9.00	54.00
	1291.000	31.36	512.74	.53	-.52	.00	10.56	54.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1246.000	9.72	511.83	.00	-.38	.00	9.10	44.03
	1246.000	31.36	512.34	.51	-.40	.00	10.59	44.03
	1191.000	9.72	511.29	.00	-.54	.00	9.01	55.38
	1191.000	31.36	511.82	.53	-.52	.00	10.56	55.38
*	1154.000	20.37	511.12	.00	-.17	.00	12.17	37.24

*	1154.000	62.26	511.86	.74	.04	.00	14.38	37.24
*	1060.000	20.37	510.63	.00	-.49	.00	12.16	93.71
*	1060.000	62.26	511.37	.74	-.49	.00	14.37	93.71
	1030.000	20.37	510.47	.00	-.16	.00	12.16	30.57
*	1030.000	62.26	511.21	.74	-.16	.00	14.38	30.57
*	1020.000	20.37	509.99	.00	-.49	.00	20.85	10.00
*	1020.000	62.26	510.29	.30	-.93	.00	21.74	10.00
*	1001.000	20.37	509.94	.00	-.05	.00	33.37	18.80
	1001.000	62.26	510.13	.19	-.15	.00	34.10	18.80
*	1000.000	20.37	510.21	.00	.27	.00	33.65	1.00
*	1000.000	62.26	510.58	.37	.44	.00	35.50	1.00
*	995.000	20.37	510.29	.00	.08	.00	34.25	5.50
*	995.000	62.26	510.45	.16	-.13	.00	35.01	5.50
*	971.000	20.37	510.08	.00	-.21	.00	19.93	22.90
*	971.000	62.26	510.61	.53	.16	.00	22.55	22.90

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=   1772.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1772.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

WARNING SECNO=   1715.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1703.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1703.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1703.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1703.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1674.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1652.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1652.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1652.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1652.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1507.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1507.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1504.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1504.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1504.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1504.000  PROFILE=  2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=   1504.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1480.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=   1480.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   1480.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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WARNING SECNO=   1477.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1477.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1464.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1464.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1464.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1464.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1464.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1464.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1345.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1246.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1154.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=   1154.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1154.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1154.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1060.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1060.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1060.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1060.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1030.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1030.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1030.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1030.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   1020.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1020.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1001.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1001.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1001.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1000.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1000.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1000.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   1000.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1000.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1000.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=    995.000  PROFILE=  1  DOWNSTREAM DEPTH WRONG SIDE CRITICAL
WARNING SECNO=    995.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    995.000  PROFILE=  2  BRIDGE DROWNS U.S. PROFILE
                                        NEW BACKWATER REQUIRED

CAUTION SECNO=    971.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=    971.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    971.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    971.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    24JUN96    TIME   14:10:59 *
 *******************************************
```

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

```
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
   24JUN96      14:10:59                                                                                PAGE    1
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                                                                                THIS RUN EXECUTED 24JUN96    14:10:59
*************************************
 HEC-2 WATER SURFACE PROFILES

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


T1      MCDOT; WITTMANN-CENTER STREET CULVERTS                  6/24/96
T2      PROPOSED EAST CBC CULVERT WITH CHANNELIZATION
T3      10-YEAR SUBCRITICAL FLOW
T4      FILE:   ALT3EAST.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                   0      .0101        1                          511.28

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                      -1                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1        13        14        15        55        26        56        33
     4         5        42
    38        43         3         2        68
   150

       REMAINDER OF SPLIT FLOW FROM EXISTING WEST CHANNEL (EXWEST.OH2)
       SEE SPLIT FLOW WIER SUMMARY FOR STATIONS 1+652 TO 1+674
       AT END OF EACH PROFILE (INTERMEDIATE RESULTS; EXWEST.IH2)

        2      10.65      30.90

       (FROM NC RECORD FOR STA 1+154; ALT3WEST.IH2)
NC     .045       .045       .040        .1         .3

       USE PROPOSED INVERT IN SECTION 1+154 FROM ALT3WEST.IH2
```

```
X1     2000        9    979.44   1016.60        0        0        0
CI     1000   510.40      .030       1.5      1.5     -7.5
X3       10
GR    512.7   950.00   512.58    979.44   511.55   987.29   510.76   992.04   510.71   1003.63
      510.7  1005.90   510.73   1008.00   512.90  1016.60   513.00  1021.00
```

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```
NC     .045     .045     .038

X1     2039        9    984.69   1010.05       37       43    38.84
CI     1000    .0085      .030       1.5      1.5     -7.5
X3       10
GR   512.85   950.00   512.81    984.69   512.39   985.68   511.64   987.49   511.04   996.45
GR   511.2   1002.34   512.27   1007.92   512.71  1010.05   512.72   1017.6

NC     .045     .045     .035

X1     2125        9    992.31   1027.30       87       85    86.39
CI     1000             .030       1.5      1.5     -7.5
X3       10
GR    513.7   950.00   513.59    982.08   513.46   992.31   513.12   994.19    511.8   997.72
GR   511.85  1002.50   512.51   1003.15   513.35  1027.30   513.35   1046.2

X1     2231       10    995.96   1008.18      106      105   106.01
CI     1002             .030       1.5      1.5     -7.5
X3       10
      514.6   950.00   514.37    992.92   514.43   995.96   514.33   996.36   512.48   999.26
      512.6  1002.89   514.47   1008.18   514.47  1008.18   514.55  1027.97   514.55   1041.6

X1     2291        8    997.82   1008.36       65       59    59.27
CI     1003             .030       1.5      1.5     -7.5
X3       10
GR    515.3   950.00   515.08    980.87   514.76   997.82   512.84  1002.30    512.8  1005.63
GR   514.79  1008.05   514.96   1008.36   514.94   1030.6

NC     .045     .045     .040

X1     2339       11    994.05   1011.14       49       46    48.35
CI     1002    .0085      .030       1.5      1.5     -7.5
X3       10
GR    515.5   950.00   515.29    981.22   515.09   994.05   513.73   997.70    513.2   997.79
GR   513.09  1003.57   514.79   1006.62   515.24  1007.56   515.38  1011.14    515.3  1022.39
GR   515.40   1030.1
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DOWNSTREAM END OF OUTLET APRON

```
NC     .045     .045     .013       .3       .5

X1     2354        9    990.95   1008.00       15       14    14.77
CI     1000   513.41      .013      .01      .01   -15.34
       10
GR    515.4   950.00   515.14    990.95   514.91   992.32   513.41   992.33   513.41   1007.67
GR   514.93  1007.68    515.1   1008.00   515.35  1020.00   515.35  1050.00
```

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```
        CENTER STREET EAST CROSSING
        DOWNSTREAM FACE OF EAST CULVERT
        PROPOSED (4) 3.0m x 1.5m CBC; NO SKEW

X1     2357         9     992.00    1008.00         3         3      3.00
CI                                                  .01
X3       10
GR    515.6    950.00     515.33     992.00    514.93    993.71    513.43    993.72    513.43    1006.56
GR   514.93   1006.57      515.3    1008.00    515.35   1017.24     515.3   1050.00

        PROPOSED (4)- 3.0m x 1.5m CBC; FLARED WINGWALLS, BEVELED INLET

SC     4.013       0.2      1.66                 1.52      3.05     23.16       9.1    513.59    513.43

        UPSTREAM FACE OF EAST CULVERT
        PROPOSED (4) 3.0m x 1.5m CBC; NO SKEW
X1     2377         9     992.00    1008.00     20.73     20.73     20.73
X2                             2                515.50
X3       10                                                        515.55    515.50
BT       -2    950.00     515.72               1017.24    515.46
GR   515.72    950.00     515.45     992.00    515.09    993.71    513.59    993.72    513.59    1006.56
GR   515.09   1006.57     515.44    1008.00    515.46   1017.24     515.4   1050.00


NC     .045      .045       .026        .1        .3

        UPSTREAM END OF FLARED INLET WINGWALLS
        BEGIN CHANNEL IMPROVEMENT; TRANSITION TO TYPICAL SECTION
X1     2380         8     992.32    1009.00         3         3      3.00
CI     1000    513.61       .030       .01       .01    -15.34
       10
       515.8    950.00     515.48     967.15    515.11    992.32    513.61    992.33    513.61    1007.67
GR   515.11   1007.68     515.32    1009.00    515.47   1030.00
  ******************************************

NC     .045      .045       .034

        END TRANSITION; BEGIN TYPICAL SECTION
X1     2418        10     992.29    1008.57        35        40     37.82
CI     1002     .0122       .030       1.5       1.5      -7.5
X3       10
GR    516.0    950.00     515.88     972.39    515.95    992.29    515.92    992.44    514.95    998.34
GR    514.6    999.50      514.6    1004.94    515.88   1008.57    515.88   1008.58    515.97   1020.93


X1     2449         8     994.14    1010.09        31        31     31.12
CI     1002     .0122       .030       1.5       1.5      -7.5
X3       10
GR    516.3    950.00     516.11     994.14    515.83    994.93    514.98    997.77    514.76    1004.03
GR    515.8   1010.09     515.78    1010.21    516.15   1020.00

        SECTION JUST DOWNSTREAM FROM SPLIT WITH WEST CHANNEL
1
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NC     .045      .045       .040

X1     2496         8     994.87    1010.79        46        46     46.38
CI     1002    515.03       .030       1.5       1.5      -7.5
X3       10
GR    516.8    950.00     516.69     963.09    516.53    994.87    515.32    998.19     515.4    1003.75
GR   516.46   1010.20     516.56    1010.79     516.7   1022.06
```

```
NC      .045       .045       .030
         END OF CHANNEL IMPROVEMENT
      2523          6     994.00    1031.00          33          16       27.00
GR                                                                .01
X3       10
GR    516.7     985.00     516.68     994.00     515.57     998.00     515.36     1016.00      516.6     1022.00
GR    516.7    1031.00
```

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


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
*SECNO 2000.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=       7.50 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -24.8 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

 2000.000       .59    510.99    510.96    511.28    511.23       .24       .00       .00    512.58
     10.6        .0      10.6        .0        .0       5.0        .0        .0        .0    512.90
      .00       .00      2.15       .00      .000      .030      .000      .000    510.40    995.36
  .010084        0.        0.        0.         0        14         5       .00      9.27   1004.64


FLOW DISTRIBUTION FOR SECNO=   2000.00         CWSEL=    510.99

STA=     995.    1017.
  PER Q=    100.0
   AREA=      5.0
    VEL=      2.1
  DEPTH=       .5

*SECNO 2039.000
CHIMP CLSTA=    1000.00 CELCH=     510.73 BW=       7.50 STCHL=     984.69 STCHR=    1010.05
EXCAVATION DATA
AEX=      -8.2 SQ-METER     VEXR=       -.6 K*CU-METER     VEXT=       -.6 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

 2039.000       .64    511.37    511.30       .00    511.56       .19       .33       .00    512.81
     10.6        .0      10.6        .0        .0       5.5        .0        .2        .4    512.71
      .01       .00      1.93       .00      .000      .030      .000      .000    510.73    995.28
  .007314       37.       39.       43.         1         8         0       .00      9.45   1004.72
```

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

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


FLOW DISTRIBUTION FOR SECNO=   2039.00          CWSEL=    511.37

STA=     995.    1010.
  PER Q=    100.0
   AREA=      5.5
    VEL=      1.9
  DEPTH=       .6

*SECNO 2125.000
CHIMP CLSTA=    1000.00 CELCH=     511.46 BW=       7.50 STCHL=     992.31 STCHR=    1027.30
EXCAVATION DATA
AEX=      -2.1 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=       -1.1 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       513.46 ELREA=       513.35

  2125.000       .60    512.06    512.03       .00    512.29       .23       .72       .01    513.46
      10.6        .0      10.6        .0        .0       5.0        .0        .7       1.2    513.35
       .02       .00      2.11       .00      .000      .030      .000      .000    511.46    995.35
   .009541       87.       86.       85.         2        11         0       .00      9.30   1004.65


FLOW DISTRIBUTION FOR SECNO=   2125.00          CWSEL=    512.06

STA=     995.    1027.
  PER Q=    100.0
   AREA=      5.0
    VEL=      2.1
  DEPTH=       .5

*SECNO 2231.000
CHIMP CLSTA=    1002.00 CELCH=     512.37 BW=       7.50 STCHL=     995.18 STCHR=    1008.91
EXCAVATION DATA
AEX=       7.3 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.8 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       514.41 ELREA=       514.47

  2231.000       .64    513.00    512.93       .00    513.20       .20       .90       .00    514.41
      10.6        .0      10.6        .0        .0       5.4        .0       1.2       2.2    514.47
       .03       .00      1.97       .00      .000      .030      .000      .000    512.37    997.29
   .007682      106.      106.      105.         2        11         0       .00      9.42   1006.71


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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


FLOW DISTRIBUTION FOR SECNO=   2231.00          CWSEL=    513.00

STA=     997.    1009.
  PER Q=    100.0
   AREA=      5.4
    VEL=      2.0
  DEPTH=       .6
```

```
*SECNO 2291.000
CHIMP CLSTA=    1003.00 CELCH=     512.87 BW=       7.50 STCHL=     996.37 STCHR=    1009.88
EXCAVATION DATA
AEX=       6.8 SQ-METER     VEXR=        .4 K*CU-METER     VEXT=        -.4 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.79 ELREA=      514.96

  2291.000       .61    513.48    513.43       .00    513.70       .22       .49       .01    514.79
      10.6        .0      10.6        .0        .0       5.1        .0       1.5       2.7    514.96
       .04       .00      2.08       .00      .000      .030      .000      .000    512.87    998.34
   .009071       65.       59.       59.         2        11         0       .00      9.33   1007.66


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    513.48

STA=     998.    1010.
  PER Q=    100.0
   AREA=      5.1
    VEL=      2.1
  DEPTH=       .5

*SECNO 2339.000
CHIMP CLSTA=    1002.00 CELCH=     513.28 BW=       7.50 STCHL=     994.05 STCHR=    1011.14
EXCAVATION DATA
AEX=       1.2 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        -.2 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2339.000       .63    513.91    513.85       .00    514.12       .20       .41       .00    515.09
      10.6        .0      10.6        .0        .0       5.3        .0       1.8       3.2    515.38
       .05       .00      2.00       .00      .000      .030      .000      .000    513.28    997.30
   .008094       49.       48.       46.         2        11         0       .00      9.39   1006.70


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   24JUN96      14:10:59                                                                                    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


FLOW DISTRIBUTION FOR SECNO=   2339.00         CWSEL=    513.91

STA=     997.    1011.
  PER Q=    100.0
   AREA=      5.3
    VEL=      2.0
  DEPTH=       .6

CCHV=     .300 CEHV=     .500
*SECNO 2354.000
CHIMP CLSTA=    1000.00 CELCH=     513.41 BW=      15.34 STCHL=     990.95 STCHR=    1008.00
EXCAVATION DATA
AEX=       -.1 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.41


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      515.10
```

```
  2354.000      .72    514.13    513.78      .00    514.17      .05      .01      .05    515.14
      10.6       .0      10.6       .0       .0      11.0       .0      1.9      3.4    515.10
       .05      .00       .97      .00     .000      .013     .000     .000   513.41    992.32
   .000277      15.       15.      14.        2        11        0      .00    15.35   1007.68


FLOW DISTRIBUTION FOR SECNO=   2354.00         CWSEL=    514.13

STA=     992.    1008.
  PER Q=    100.0
   AREA=     11.0
    VEL=      1.0
  DEPTH=       .7

*SECNO 2357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.30

  2357.000      .68    514.11    513.84      .00    514.19      .07      .00      .01    515.33
      10.6       .0      10.6       .0       .0       8.8       .0      1.9      3.4    515.30
       .05      .00      1.21      .00     .000      .013     .000     .000   513.43    993.72
   .000472       3.        3.       3.        2        11        0      .00    12.85   1006.56


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   24JUN96      14:10:59                                                                          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


FLOW DISTRIBUTION FOR SECNO=   2357.00         CWSEL=    514.11

STA=     994.    1008.
  PER Q=    100.0
   AREA=      8.8
    VEL=      1.2
  DEPTH=       .7


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4         .013      .20      1.66       .00      1.52      3.05      23.16      9         1       513.59    513.43

CHART  9 - BOX CULVERT WITH FLARED WINGWALL AND INLET TOP EDGE BEVEL
SCALE  1 - WINGWALL FLARED 45 DEGREES; INLET TOP EDGE = 0.043D

*SECNO 2377.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    514.282  EGOC =    514.296  PCWSE=    514.114  ELTRD=    515.500

SPECIAL CULVERT

    EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  514.28    514.30       .11        0.       11.     1.344      18.5    515.50        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.55 ELREA=      515.50
```

```
  2377.000      .61    514.20      .00      .00    514.30      .09      .11      .00    515.45
      10.6       .0      10.6       .0       .0       7.9       .0      2.1      3.7    515.44
       .06      .00      1.34      .00     .000      .013     .000     .000   513.59    993.72
   .000657      21.       21.      21.        2         0        0      .00    12.85   1006.56


 FLOW DISTRIBUTION FOR SECNO=   2377.00          CWSEL=    514.20

 STA=     994.    1008.
   PER Q=    100.0
    AREA=      7.9
     VEL=      1.3
   DEPTH=       .6

1
   24JUN96      14:10:59                                                                                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


 CCHV=     .100 CEHV=     .300
 *SECNO 2380.000
 CHIMP CLSTA=    1000.00 CELCH=     513.61 BW=      15.34 STCHL=     992.32 STCHR=    1009.00
 EXCAVATION DATA
 AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.11 ELREA=      515.32

  2380.000      .63    514.24    513.98      .00    514.30      .06      .00      .00    515.11
      10.6       .0      10.6       .0       .0       9.7       .0      2.1      3.7    515.32
       .06      .00      1.10      .00     .000      .030     .000     .000   513.61    992.32
   .002226       3.        3.       3.        2        11        0      .00    15.35   1007.68


 FLOW DISTRIBUTION FOR SECNO=   2380.00          CWSEL=    514.24

 STA=     992.    1009.
   PER Q=    100.0
    AREA=      9.7
     VEL=      1.1
   DEPTH=       .6

 *SECNO 2418.000
 CHIMP CLSTA=    1002.00 CELCH=     514.07 BW=       7.50 STCHL=     992.29 STCHR=    1008.57
 EXCAVATION DATA
 AEX=       5.2 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.1 K*CU-METER

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.88

  2418.000      .57    514.64    514.64      .00    514.90      .26      .16      .06    515.95
      10.6       .0      10.6       .0       .0       4.7       .0      2.4      4.2    515.88
       .06      .00      2.26      .00     .000      .030     .000     .000   514.07    997.40
   .011711      35.       38.      40.        0        11        0      .00     9.20   1006.60
```

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

FLOW DISTRIBUTION FOR SECNO= 2418.00 CWSEL= 514.64

STA= 997. 1009.
PER Q= 100.0
AREA= 4.7
VEL= 2.3
DEPTH= .5

*SECNO 2449.000
CHIMP CLSTA= 1002.00 CELCH= 514.45 BW= 7.50 STCHL= 994.14 STCHR= 1010.09
EXCAVATION DATA
AEX= 2.7 SQ-METER VEXR= .1 K*CU-METER VEXT= .0 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.11 ELREA= 515.80

2449.000	.57	515.02	515.02	.00	515.28	.26	.36	.00	516.11
10.6	.0	10.6	.0	.0	4.7	.0	2.5	4.5	515.80
.07	.00	2.26	.00	.000	.030	.000	.000	514.45	997.40
.011729	31.	31.	31.	0	5	0	.00	9.20	1006.60

FLOW DISTRIBUTION FOR SECNO= 2449.00 CWSEL= 515.02

STA= 997. 1010.
PER Q= 100.0
AREA= 4.7
VEL= 2.3
DEPTH= .5

*SECNO 2496.000
CHIMP CLSTA= 1002.00 CELCH= 515.03 BW= 7.50 STCHL= 994.87 STCHR= 1010.79
EXCAVATION DATA
AEX= 2.2 SQ-METER VEXR= .1 K*CU-METER VEXT= .1 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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

[illegible] OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.53 ELREA= 516.56

2496.000	.57	515.60	515.60	.00	515.85	.26	.54	.00	516.53
10.6	.0	10.6	.0	.0	4.7	.0	2.8	4.9	516.56
.07	.00	2.26	.00	.000	.030	.000	.000	515.03	997.40
.011694	46.	46.	46.	0	5	0	.00	9.20	1006.60

```
FLOW DISTRIBUTION FOR SECNO=   2496.00          CWSEL=    515.60

STA=     997.    1011.
  PER Q=    100.0
   AREA=      4.7
    VEL=      2.3
  DEPTH=       .5

*SECNO 2523.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       516.68 ELREA=       516.70

  2523.000       .60    515.96    515.78       .00    516.02       .06       .14       .02    516.68
      10.6        .0      10.6        .0        .0      10.0        .0       3.0       5.3    516.70
       .08       .00      1.06       .00      .000      .030      .000      .000    515.36    996.60
   .002980       33.       27.       16.         2        19         0       .00     22.29   1018.89


FLOW DISTRIBUTION FOR SECNO=   2523.00          CWSEL=    515.96

STA=     997.    1031.
  PER Q=    100.0
   AREA=     10.0
    VEL=      1.1
  DEPTH=       .4
```

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```
T1      MCDOT; WITTMANN-CENTER STREET CULVERTS
T2      PROPOSED EAST CBC CULVERT WITH CHANNELIZATION
T3      100-YEAR SUBCRITICAL FLOW
T4      FILE:   ALT3EAST.IH2

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              3                  0     .0102       1                    511.75

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15                 -1                                   -1                         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 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .100 CEHV=     .300
```

```
*SECNO 2000.000
CHIMP CLSTA=    1000.00 CELCH=     510.40 BW=       7.50 STCHL=     979.44 STCHR=    1016.60
EXCAVATION DATA
AEX=     -24.8 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        .0 K*CU-METER

3420 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.58 ELREA=      512.90

  2000.000      1.11    511.51    511.51    511.75    511.98       .47       .00       .00    512.58
      30.9        .0      30.9        .0        .0      10.1        .0        .0        .0    512.90
       .00       .00      3.05       .00      .000      .030      .000      .000    510.40    994.59
   .009912        0.        0.        0.         0        15         4       .00     10.82   1005.41


FLOW DISTRIBUTION FOR SECNO=   2000.00          CWSEL=    511.51

STA=     995.    1017.
  PER Q=    100.0
   AREA=     10.1
    VEL=      3.1
  DEPTH=       .9

*SECNO 2039.000
CHIMP CLSTA=    1000.00 CELCH=     510.73 BW=       7.50 STCHL=     984.69 STCHR=    1010.05
EXCAVATION DATA
AEX=      -8.2 SQ-METER     VEXR=       -.6 K*CU-METER     VEXT=       -.6 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      512.81 ELREA=      512.71

  2039.000      1.20    511.93    511.84       .00    512.32       .39       .33       .01    512.81
      30.9        .0      30.9        .0        .0      11.2        .0        .4        .4    512.71
       .00       .00      2.77       .00      .000      .030      .000      .000    510.73    994.45
   .007440       37.       39.       43.         2         5         0       .00     11.10   1005.55


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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


FLOW DISTRIBUTION FOR SECNO=   2039.00          CWSEL=    511.93

STA=     994.    1010.
  PER Q=    100.0
   AREA=     11.2
    VEL=      2.8
  DEPTH=      1.0

*SECNO 2125.000
CHIMP CLSTA=    1000.00 CELCH=     511.46 BW=       7.50 STCHL=     992.31 STCHR=    1027.30
EXCAVATION DATA
AEX=      -2.1 SQ-METER     VEXR=       -.4 K*CU-METER     VEXT=      -1.1 K*CU-METER

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      513.46 ELREA=      513.35

  2125.000      1.13    512.60    512.57       .00    513.05       .45       .71       .02    513.46
      30.9        .0      30.9        .0        .0      10.4        .0       1.3       1.4    513.35
       .01       .00      2.96       .00      .000      .030      .000      .000    511.46    994.55
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   .009106      87.      86.      85.        2       11        0      .00     10.90   1005.45


FLOW DISTRIBUTION FOR SECNO=   2125.00         CWSEL=    512.60

STA=     995.    1027.
  PER Q=    100.0
   AREA=     10.4
    VEL=      3.0
  DEPTH=      1.0

*SECNO 2231.000
CHIMP CLSTA=    1002.00 CELCH=     512.37 BW=       7.50 STCHL=     995.18 STCHR=    1008.91
EXCAVATION DATA
AEX=       7.3 SQ-METER     VEXR=        .3 K*CU-METER     VEXT=        -.8 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.41 ELREA=      514.47

  2231.000      1.18    513.54    513.47       .00    513.95       .41       .90       .00    514.41
      30.9        .0      30.9        .0        .0      10.9        .0       2.5       2.5    514.47
       .02       .00      2.83       .00      .000      .030      .000      .000    512.37    996.48
   .007969      106.      106.      105.        2         8         0       .00     11.03   1007.52


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


FLOW DISTRIBUTION FOR SECNO=   2231.00         CWSEL=    513.54

STA=     996.    1009.
  PER Q=    100.0
   AREA=     10.9
    VEL=      2.8
  DEPTH=      1.0

*SECNO 2291.000
CHIMP CLSTA=    1003.00 CELCH=     512.87 BW=       7.50 STCHL=     996.37 STCHR=    1009.88
EXCAVATION DATA
AEX=       6.8 SQ-METER     VEXR=        .4 K*CU-METER     VEXT=        -.4 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      514.79 ELREA=      514.96

  2291.000      1.15    514.02    513.98       .00    514.46       .44       .50       .01    514.79
      30.9        .0      30.9        .0        .0      10.5        .0       3.1       3.2    514.96
       .03       .00      2.93       .00      .000      .030      .000      .000    512.87    997.54
   .008832       65.       59.       59.        2        11         0       .00     10.93   1008.46


FLOW DISTRIBUTION FOR SECNO=   2291.00         CWSEL=    514.02

STA=     998.    1010.
  PER Q=    100.0
   AREA=     10.5
    VEL=      2.9
  DEPTH=      1.0

*SECNO 2339.000
```

```
CHIMP CLSTA=    1002.00 CELCH=     513.28 BW=       7.50 STCHL=     994.05 STCHR=    1011.14
EXCAVATION DATA
AEX=       1.2 SQ-METER     VEXR=        .2 K*CU-METER     VEXT=        -.2 K*CU-METER


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.09 ELREA=      515.38

  2339.000      1.18    514.46    514.39       .00    514.87       .41       .41       .00    515.09
      30.9        .0      30.9        .0        .0      10.9        .0       3.6       3.7    515.38
       .03       .00      2.83       .00      .000      .030      .000      .000    513.28    996.48
   .007968       49.       48.       46.         2         8         0       .00     11.03   1007.52


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


FLOW DISTRIBUTION FOR SECNO=   2339.00          CWSEL=    514.46

STA=     996.    1011.
  PER Q=    100.0
   AREA=     10.9
    VEL=      2.8
  DEPTH=      1.0

CCHV=     .300 CEHV=     .500
*SECNO 2354.000
CHIMP CLSTA=    1000.00 CELCH=     513.41 BW=      15.34 STCHL=     990.95 STCHR=    1008.00
EXCAVATION DATA
AEX=       -.1 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.74


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.14 ELREA=      515.10

  2354.000      1.46    514.87    514.15       .00    514.97       .10       .01       .09    515.14
      30.9        .0      30.9        .0        .0      22.5        .0       3.9       3.9    515.10
       .04       .00      1.37       .00      .000      .013      .000      .000    513.41    992.32
   .000242       15.       15.       14.         3        14         0       .00     15.37   1007.68


FLOW DISTRIBUTION FOR SECNO=   2354.00          CWSEL=    514.87

STA=     992.    1008.
  PER Q=    100.0
   AREA=     22.5
    VEL=      1.4
  DEPTH=      1.5

*SECNO 2357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.33 ELREA=      515.30

  2357.000      1.42    514.85    514.27       .00    515.00       .15       .00       .02    515.33
      30.9        .0      30.9        .0        .0      18.3        .0       3.9       4.0    515.30
       .04       .00      1.69       .00      .000      .013      .000      .000    513.43    993.71
   .000395        3.        3.        3.         2        11         0       .00     12.86   1006.57
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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

FLOW DISTRIBUTION FOR SECNO= 2357.00 CWSEL= 514.85

STA= 994. 1008.
PER Q= 100.0
AREA= 18.3
VEL= 1.7
DEPTH= 1.4

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.20	1.66	.00	1.[illegible]2	3.[illegible]05	23.16	9	1	513.59	513.43

CHART 9 - BOX CULVERT WITH FLARED WINGWALL AND INLET TOP EDGE BEVEL
SCALE 1 - WINGWALL FLARED 45 DEGREES; INLET TOP EDGE = 0.043D

*SECNO 2377.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 514.999 EGOC = 515.034 PCWSE= 514.851 ELTRD= 515.500

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
515.00	515.[illegible]	.04	0.	3[illegible].	1.902	18.5	515.50	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 515.55 ELREA= 515.50

2377.000	1.26	514.85	.00	.00	515.03	.18	.04	.00	515.45
30.9	.0	30.9	.0	.0	16.2	.0	4.3	4.2	515.44
.04	.00	1.90	.00	.000	.013	.000	.000	513.59	993.71
.000568	21.	21.	21.	2	0	0	.00	12.86	1006.57

FLOW DISTRIBUTION FOR SECNO= 2377.00 CWSEL= 514.85

STA= 994. 1008.
PER Q= 100.0
AREA= 16.2
VEL= 1.9
DEPTH= 1.3

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

```
CCHV=     .100 CEHV=     .300
*SECNO 2380.000
CHIMP CLSTA=    1000.00 CELCH=     513.61 BW=      15.34 STCHL=     992.32 STCHR=    1009.00
EXCAVATION DATA
AEX=        .0 SQ-METER     VEXR=        .0 K*CU-METER     VEXT=        -.2 K*CU-METER


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .56


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.11 ELREA=      515.32

  2380.000      1.31    514.92    514.35       .00    515.04       .12       .00       .01    515.11
      30.9        .0      30.9        .0        .0      20.2        .0       4.4       4.3    515.32
       .04       .00      1.53       .00      .000      .030      .000      .000    513.61    992.32
   .001808        3.        3.        3.         2        11         0       .00     15.37   1007.68


FLOW DISTRIBUTION FOR SECNO=   2380.00          CWSEL=    514.92

STA=     992.    1009.
  PER Q=    100.0
   AREA=     20.2
    VEL=      1.5
  DEPTH=      1.3

*SECNO 2418.000
CHIMP CLSTA=    1002.00 CELCH=     514.07 BW=       7.50 STCHL=     992.29 STCHR=    1008.57
EXCAVATION DATA
AEX=       5.2 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        -.1 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
7180 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      515.95 ELREA=      515.88

  2418.000      1.11    515.18    515.18       .00    515.65       .47       .13       .11    515.95
      30.9        .0      30.9        .0        .0      10.2        .0       4.9       4.8    515.88
       .04       .00      3.04       .00      .000      .030      .000      .000    514.07    996.59
   .009802       35.       38.       40.         0        11         0       .00     10.83   1007.41


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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


FLOW DISTRIBUTION FOR SECNO=   2418.00          CWSEL=    515.18

STA=     997.    1009.
  PER Q=    100.0
   AREA=     10.2
    VEL=      3.0
  DEPTH=       .9

*SECNO 2449.000
CHIMP CLSTA=    1002.00 CELCH=     514.45 BW=       7.50 STCHL=     994.14 STCHR=    1010.09
EXCAVATION DATA
AEX=       2.7 SQ-METER     VEXR=        .1 K*CU-METER     VEXT=        .0 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
```

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.11 ELREA= 515.80

449.000	1.11	515.56	515.56	.00	516.03	.47	.31	.00	516.11
30.9	.0	30.9	.0	.0	10.1	.0	5.2	5.1	515.80
.05	.00	3.05	.00	.000	.030	.000	.000	514.45	996.59
.009895	31.	31.	31.	0	5	0	.00	10.82	1007.41

FLOW DISTRIBUTION FOR SECNO= 2449.00 CWSEL= 515.56

STA= 997. 1010.
PER Q= 100.0
AREA= 10.1
VEL= 3.0
DEPTH= .9

*SECNO 2496.000
CHIMP CLSTA= 1002.00 CELCH= 515.03 BW= 7.50 STCHL= 994.87 STCHR= 1010.79
EXCAVATION DATA
AEX= 2.2 SQ-METER VEXR= .1 K*CU-METER VEXT= .1 K*CU-METER

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.53 ELREA= 516.56

2496.000	1.11	516.14	516.14	.00	516.61	.47	.46	.00	516.53
30.9	.0	30.9	.0	.0	10.1	.0	5.7	5.6	516.56
.05	.00	3.05	.00	.000	.030	.000	.000	515.03	996.59
.009866	46.	46.	46.	0	5	0	.00	10.82	1007.41

FLOW DISTRIBUTION FOR SECNO= 2496.00 CWSEL= 516.14

STA= 997. 1011.
PER Q= 100.0
AREA= 10.1
VEL= 3.0
DEPTH= .9

*SECNO 2523.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.64

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 516.68 ELREA= 516.70

2523.000	1.31	516.67	516.09	.00	516.73	.06	.08	.04	516.68
30.9	.0	30.9	.0	.0	28.2	.0	6.2	6.2	516.70
.06	.00	1.10	.00	.000	.030	.000	.000	515.36	994.04
.001411	33.	27.	16.	3	14	0	.00	34.19	1028.23

FLOW DISTRIBUTION FOR SECNO= 2523.00 CWSEL= 516.67

STA= 994. 1031.
PER Q= 100.0
AREA= 28.2
VEL= 1.1
DEPTH= .8

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THIS RUN EXECUTED 24JUN96 14:11:00

****
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-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	2000.000	10.65	510.99	.00	10.65	.00	.00	2.15	.00	.00	9.27	100.84	510.40
	2000.000	30.90	511.51	.00	30.90	.00	.00	3.05	.00	.00	10.82	99.12	510.40
	2039.000	10.65	511.37	.00	10.65	.00	.00	1.93	.00	8.50	9.45	73.14	510.73
	2039.000	30.90	511.93	.00	30.90	.00	.00	2.77	.00	8.50	11.10	74.40	510.73
	2125.000	10.65	512.06	.00	10.65	.00	.00	2.11	.00	8.50	9.30	95.41	511.46
	2125.000	30.90	512.60	.00	30.90	.00	.00	2.96	.00	8.50	10.90	91.06	511.46
	2231.000	10.65	513.00	.00	10.65	.00	.00	1.97	.00	8.50	9.42	76.82	512.37
	2231.000	30.90	513.54	.00	30.90	.00	.00	2.83	.00	8.50	11.03	79.69	512.37
	2291.000	10.65	513.48	.00	10.65	.00	.00	2.08	.00	8.50	9.33	90.71	512.87
	2291.000	30.90	514.02	.00	30.90	.00	.00	2.93	.00	8.50	10.93	88.32	512.87
	2339.000	10.65	513.91	.00	10.65	.00	.00	2.00	.00	8.50	9.39	80.94	513.28
	2339.000	30.90	514.46	.00	30.90	.00	.00	2.83	.00	8.50	11.03	79.68	513.28
*	2354.000	10.65	514.13	.00	10.65	.00	.00	.97	.00	8.78	15.35	2.77	513.41
*	2354.000	30.90	514.87	.00	30.90	.00	.00	1.37	.00	8.78	15.37	2.42	513.41
	2357.000	10.65	514.11	.00	10.65	.00	.00	1.21	.00	6.67	12.85	4.72	513.43
	2357.000	30.90	514.85	.00	30.90	.00	.00	1.69	.00	6.67	12.86	3.95	513.43
	2377.000	10.65	514.20	.00	10.65	.00	.00	1.34	.00	7.72	12.85	6.57	513.59
	2377.000	30.90	514.85	.00	30.90	.00	.00	1.90	.00	7.72	12.86	5.68	513.59
*	2380.000	10.65	514.24	.00	10.65	.00	.00	1.10	.00	6.65	15.35	22.26	513.61
*	2380.000	30.90	514.92	.00	30.90	.00	.00	1.53	.00	6.65	15.37	18.08	513.61
	2418.000	10.65	514.64	.00	10.65	.00	.00	2.26	.00	12.20	9.20	117.11	514.07
*	2418.000	30.90	515.18	.00	30.90	.00	.00	3.04	.00	12.20	10.83	98.02	514.07

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	SECNO	Q	CWSEL	QLOB	QCH	QROB	VLOB	VCH	VROB	K*CHSL	TOPWID	10*KS	ELMIN
	2449.000	10.65	515.02	.00	10.65	.00	.00	2.26	.00	12.20	9.20	117.29	514.45
	2449.000	30.90	515.56	.00	30.90	.00	.00	3.05	.00	12.20	10.82	98.95	514.45
*	2496.000	10.65	515.60	.00	10.65	.00	.00	2.26	.00	12.48	9.20	116.94	515.03
*	2496.000	30.90	516.14	.00	30.90	.00	.00	3.05	.00	12.48	10.82	98.66	515.03
*	2523.000	10.65	515.96	.00	10.65	.00	.00	1.06	.00	12.22	22.29	29.80	515.36
*	2523.000	30.90	516.67	.00	30.90	.00	.00	1.10	.00	12.22	34.19	14.11	515.36

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10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT

	SECNO	Q	EG	CRIWS	FRCH
	2000.000	10.65	511.23	510.96	.94
*	2000.000	30.90	511.98	511.51	1.01
	2039.000	10.65	511.56	511.30	.81
	2039.000	30.90	512.32	511.84	.88
	2125.000	10.65	512.29	512.03	.91
	2125.000	30.90	513.05	512.57	.97
	2231.000	10.65	513.20	512.93	.83
	2231.000	30.90	513.95	513.47	.91
	2291.000	10.65	513.70	513.43	.89
	2291.000	30.90	514.46	513.98	.95
	2339.000	10.65	514.12	513.85	.85
	2339.000	30.90	514.87	514.39	.91
*	2354.000	10.65	514.17	513.78	.36
*	2354.000	30.90	514.97	514.15	.36
	2357.000	10.65	514.19	513.84	.47
	2357.000	30.90	515.00	514.27	.45
	2377.000	10.65	514.30	.00	.55
	2377.000	30.90	515.03	.00	.54
*	2380.000	10.65	514.30	513.98	.44
*	2380.000	30.90	515.04	514.35	.43
*	2418.000	10.65	514.90	514.64	1.01
*	2418.000	30.90	515.65	515.18	1.00
*	2449.000	10.65	515.28	515.02	1.01
*	2449.000	30.90	516.03	515.56	1.01
	2496.000	10.65	515.85	515.60	1.00
	2496.000	30.90	516.61	516.14	1.00
*	2523.000	10.65	516.02	515.78	.51
*	2523.000	30.90	516.73	516.09	.38

YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	2000.000	.00	.00	.00	510.40	10.65	510.99	510.96	511.23	100.84	2.15	4.95	1.06
*	2000.000	.00	.00	.00	510.40	30.90	511.51	511.51	511.98	99.12	3.05	10.13	3.10
	2039.000	38.84	.00	.00	510.73	10.65	511.37	511.30	511.56	73.14	1.93	5.50	1.25
	2039.000	38.84	.00	.00	510.73	30.90	511.93	511.84	512.32	74.40	2.77	11.17	3.58
	2125.000	86.39	.00	.00	511.46	10.65	512.06	512.03	512.29	95.41	2.11	5.05	1.09
	2125.000	86.39	.00	.00	511.46	30.90	512.60	512.57	513.05	91.06	2.96	10.42	3.24
	2231.000	106.01	.00	.00	512.37	10.65	513.00	512.93	513.20	76.82	1.97	5.42	1.22
	2231.000	106.01	.00	.00	512.37	30.90	513.54	513.47	513.95	79.69	2.83	10.91	3.46
	2291.000	59.27	.00	.00	512.87	10.65	513.48	513.43	513.70	90.71	2.08	5.13	1.12
	2291.000	59.27	.00	.00	512.87	30.90	514.02	513.98	514.46	88.32	2.93	10.53	3.29
	2339.000	48.35	.00	.00	513.28	10.65	513.91	513.85	514.12	80.94	2.00	5.32	1.18
	2339.000	48.35	.00	.00	513.28	30.90	514.46	514.39	514.87	79.68	2.83	10.91	3.46
*	2354.000	14.77	.00	.00	513.41	10.65	514.13	513.78	514.17	2.77	.97	11.02	6.40
*	2354.000	14.77	.00	.00	513.41	30.90	514.87	514.15	514.97	2.42	1.37	22.48	19.86
	2357.000	3.00	.00	.00	513.43	10.65	514.11	513.84	514.19	4.72	1.21	8.78	4.90
	2357.000	3.00	.00	.00	513.43	30.90	514.85	514.27	515.00	3.95	1.69	18.25	15.54
	2377.000	20.73	515.50	.00	513.59	10.65	514.20	.00	514.30	6.57	1.34	7.92	4.16
	2377.000	20.73	515.50	.00	513.59	30.90	514.85	.00	515.03	5.68	1.90	16.24	12.97
*	2380.000	3.00	.00	.00	513.61	10.65	514.24	513.98	514.30	22.26	1.10	9.69	2.26
*	2380.000	3.00	.00	.00	513.61	30.90	514.92	514.35	515.04	18.08	1.53	20.18	7.27
*	2418.000	37.82	.00	.00	514.07	10.65	514.64	514.64	514.90	117.11	2.26	4.72	.98
*	2418.000	37.82	.00	.00	514.07	30.90	515.18	515.18	515.65	98.02	3.04	10.17	3.12
*	2449.000	31.12	.00	.00	514.45	10.65	515.02	515.02	515.28	117.29	2.26	4.72	.98
*	2449.000	31.12	.00	.00	514.45	30.90	515.56	515.56	516.03	98.95	3.05	10.13	3.11
*	2496.000	46.38	.00	.00	515.03	10.65	515.60	515.60	515.85	116.94	2.26	4.72	.98
*	2496.000	46.38	.00	.00	515.03	30.90	516.14	516.14	516.61	98.66	3.05	10.14	3.11
*	2523.000	27.00	.00	.00	515.36	10.65	515.96	515.78	516.02	29.80	1.06	10.01	1.95
*	2523.000	27.00	.00	.00	515.36	30.90	516.67	516.09	516.73	14.11	1.10	28.21	8.22

10-YEAR SUBCRITICAL FLOW

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2000.000	10.65	510.99	.00	.00	-.29	9.27	.00
*	2000.000	30.90	511.51	.51	.00	-.24	10.82	.00

	2039.000	10.65	511.37	.00	.38	.00	9.45	38.84
	2039.000	30.90	511.93	.56	.42	.00	11.10	38.84
	2125.000	10.65	512.06	.00	.69	.00	9.30	86.39
	2125.000	30.90	512.60	.53	.67	.00	10.90	86.39
	2231.000	10.65	513.00	.00	.94	.00	9.42	106.01
	2231.000	30.90	513.54	.54	.94	.00	11.03	106.01
	2291.000	10.65	513.48	.00	.48	.00	9.33	59.27
	2291.000	30.90	514.02	.54	.48	.00	10.93	59.27
	2339.000	10.65	513.91	.00	.43	.00	9.39	48.35
	2339.000	30.90	514.46	.55	.44	.00	11.03	48.35
*	2354.000	10.65	514.13	.00	.21	.00	15.35	14.77
*	2354.000	30.90	514.87	.75	.42	.00	15.37	14.77
	2357.000	10.65	514.11	.00	-.01	.00	12.85	3.00
	2357.000	30.90	514.85	.74	-.02	.00	12.86	3.00
	2377.000	10.65	514.20	.00	.09	.00	12.85	20.73
	2377.000	30.90	514.85	.65	.00	.00	12.86	20.73
*	2380.000	10.65	514.24	.00	.04	.00	15.35	3.00
*	2380.000	30.90	514.92	.68	.07	.00	15.37	3.00
*	2418.000	10.65	514.64	.00	.40	.00	9.20	37.82
*	2418.000	30.90	515.18	.54	.26	.00	10.83	37.82
*	2449.000	10.65	515.02	.00	.38	.00	9.20	31.12
	2449.000	30.90	515.56	.54	.38	.00	10.82	31.12
*	2496.000	10.65	515.60	.00	.58	.00	9.20	46.38
*	2496.000	30.90	516.14	.54	.58	.00	10.82	46.38
*	2523.000	10.65	515.96	.00	.36	.00	22.29	27.00
*	2523.000	30.90	516.67	.71	.53	.00	34.19	27.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=   2000.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

WARNING SECNO=   2354.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2354.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2380.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2380.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2418.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2418.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2418.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2449.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2449.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2449.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2449.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=   2496.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2496.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2496.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2496.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   2523.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2523.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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