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Floodways

RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY

FCD 93-06

Wash A
Wash A South
Wash F
Wash I

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Burgess & Niple, Inc.
5025 East Washington Street
Phoenix, AZ 85034
(602) 244-8100

August 1995

A258.014.006

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August 1995

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
18055
LARRY D.
CULLER
Date Signed 7/20/95
ARIZONA, U.S.A.

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SECTION 1: FLOODWAYS

FLOODPLAIN MANAGEMENT APPLICATIONS

This study has been performed to meet the standards of the National Flood Insurance Program as defined in "Flood Insurance Study Guidelines and Specifications for Study Contractors".

A prime purpose of the National Flood Insurance Program is to encourage state and local governments to adopt sound floodplain management programs. This study, therefore, includes a flood boundary map designed to assist communities in developing sound floodplain management measures.

Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for purposes of floodplain management measures. The boundary of the 100-year flood has been delineated using flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:2400 with a contour interval of 2 feet.

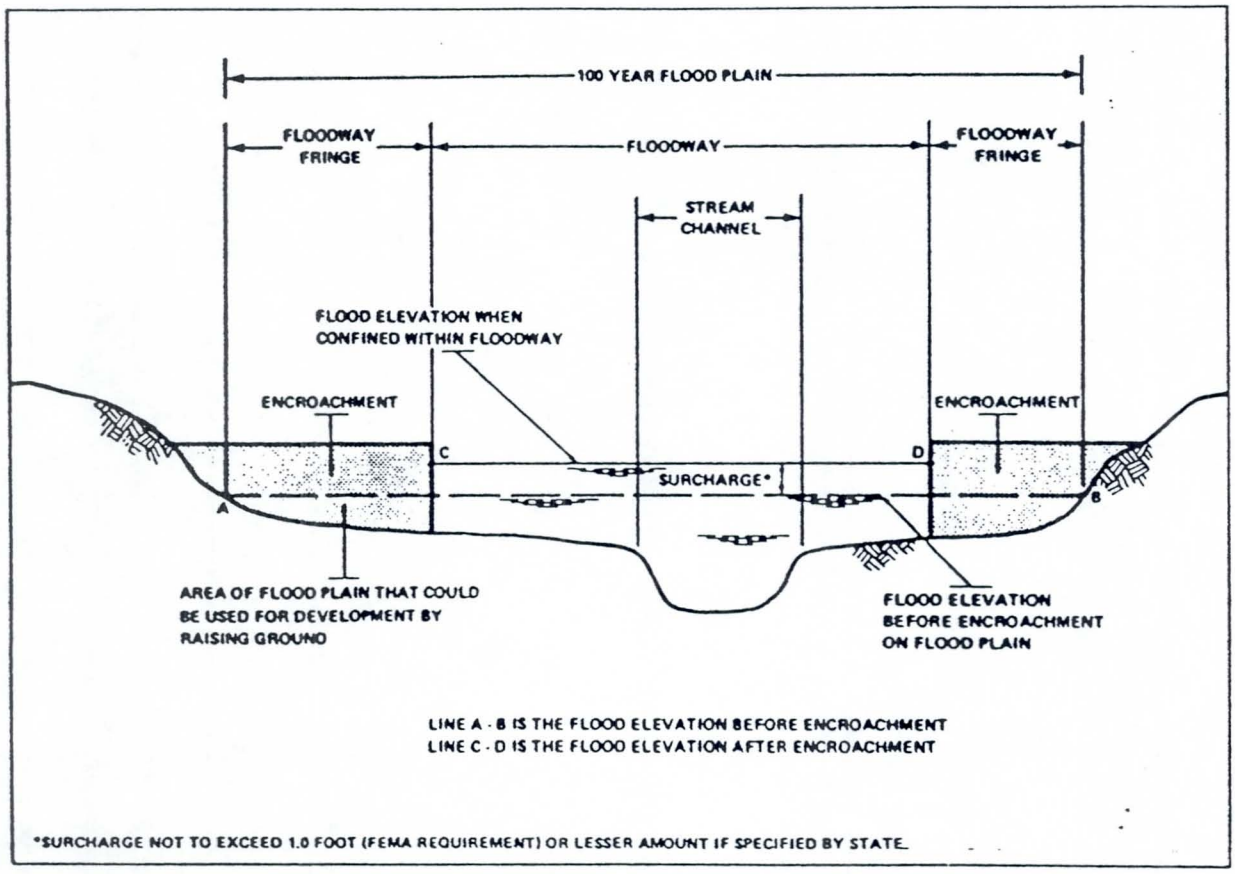
The boundary of the 100-year flood is shown on the Flood Boundary and Floodway Maps. Small areas within the flood boundaries may lie above the flood elevations, and therefore, may not be subject to flooding. Due to limitations of the map scale and lack of detailed topographic data, such areas are not shown.

Floodways

Encroachment on floodplains, such as artificial fill, reduces the flood carrying capacity, increases flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year flood is divided into a

floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment in order that the 100-year flood can be carried without substantial increase in flood heights. Minimum federal standards limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown below in the Floodway Schematic.



FLOODWAY SCHEMATIC

Following completion of natural 100-year profile models, floodway models were developed. The floodway was computed on the basis of equal conveyance reduction from each side of the floodplain and adjusted for high velocities and physical discontinuities. The floodway model for each stream begins at the first cross section and each run starts with a 1.0 foot surcharge. The floodway was computer generated, using Method 6. The initial computed floodway was plotted on work maps and reviewed. Adjustments were made and encroachment stations set by Method 1, based on the following criteria:

* Encroachment at the first section set equal to the computer generated value
* Top widths to be more uniform
* Achieve goal of 1.0 foot surcharge with no point exceeding 1.0 foot
* Avoid excessive velocities

The results of these computations are tabulated for each stream segment for which a floodway is computed on Pages A9, B11, C10 and D9 of the Computer Input and Output Files included in Section 2.

As shown on the Flood Boundary and Floodway Maps, the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close, together or collinear, only the floodway boundary has been shown.

Wash A, between Section 0.700 and Section 1.557, and Wash A South are relatively small channels with limited capacity. A substantial part of the 100-year flow is conveyed as shallow overbank flow. It was concluded that a floodway would be very wide and include a large area of shallow flooding; therefore, a floodway was not delineated.

SECTION 2: HEC-2 COMPUTER INPUT AND OUTPUT FILES

Wash A Floodway (Below Wash A South)	A
Wash A Floodway (Above Wash A South)	B
Wash F Floodway	C
Wash I Floodway	D

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    18NOV94    TIME   08:41:52 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1                                                                                    PAGE    1
   18NOV94      08:41:52


                                                                THIS RUN EXECUTED 18NOV94     08:41:52

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

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


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A 100-YEAR                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\WASHA1F1.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                                     -1                                1509
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1                   -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        53        54         8        43        26        10        51
     46        40        41         0       110         0       200

QT       2      1140      1140
NC     .08       .08      .035       0.1       0.3
ET                         4.1      9988     10026
X1   0.000        16    9988.0   10026.0
GR  1512.0    9970.0    1510.0    9978.5    1509.6    9988.0    1505.3    9993.9    1505.4   10000.0
GR  1505.1   10013.1    1507.0   10015.0    1508.2   10023.8    1509.0   10026.0    1507.2   10030.4
GR  1509.6   10036.4    1513.0   10046.3    1517.5   10074.7    1521.8   10085.4    1522.9   10104.7
GR  1522.6   10107.8       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC     .07       .07       .03       0.1       0.3
ET                         4.1      9983     10034
X1   0.031        15    9975.4   10041.4       160       180       164
GR  1523.7    9913.6    1523.0    9922.8    1521.7    9931.9    1520.7    9940.1    1521.5    9961.5
GR  1521.4    9975.4    1510.5    9985.4    1510.6   10000.0    1510.4   10016.2    1512.9   10029.5
GR  1514.5   10039.4    1522.9   10041.4    1522.9   10056.3    1523.2   10077.3    1523.2   10086.8

ET                         4.1      9965     10027
X1   0.094        14    9954.2   10028.8       340       290       333
GR  1529.6    9905.9    1529.4    9931.4    1528.0    9941.1    1526.3    9948.7    1526.3    9954.2
GR  1518.3    9968.9    1518.5    9982.9    1518.8    9992.5    1518.2   10000.0    1518.4   10026.0
GR  1528.8   10028.8    1529.7   10036.9    1529.8   10053.3    1529.9   10061.5       0.0       0.0
1                                                                                    PAGE    2
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NC     .06       .06       .03       0.1       0.3
ET                         4.1      9953     10009
X1   0.181        16    9930.9   10021.1       440       450       459
GR  1540.3    9891.4    1539.7    9909.8    1539.6    9925.1    1539.1    9930.9    1536.4    9941.3
GR  1532.0    9956.3    1531.0    9976.3    1529.7    9982.4    1529.7   10000.0    1529.9   10003.3
GR  1540.1   10021.1    1540.7   10026.8    1539.2   10033.7    1537.2   10040.9    1536.4   10051.5
GR  1536.2   10065.4       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

ET                         4.1      9960     10033
X1   0.241        13    9953.7   10049.6       305       315       317
GR  1544.4    9931.2    1543.4    9953.7    1536.9    9964.3    1536.6    9990.6    1536.2   10000.0
GR  1537.1   10014.7    1538.6   10028.9    1541.1   10049.6    1542.0   10069.3    1542.8   10083.6
GR  1542.9   10091.4    1542.7   10097.8    1542.0   10108.3       0.0       0.0       0.0       0.0

ET                         4.1      9979     10060
X1   0.347        15    9978.9   10016.1       505       545       560
GR  1553.7    9915.7    1553.6    9940.1    1553.5    9965.2    1553.2    9978.9    1551.2    9987.4
GR  1548.1    9991.0    1547.9    9999.8    1547.8   10000.0    1547.8   10004.9    1553.1   10016.1
GR  1552.8   10028.4    1552.8   10034.5    1552.9   10050.3    1553.1   10067.5    1553.7   10071.0

NC     .07       .07       .03       0.1       0.3
NH       5       .07    9989.7       .03   10017.0       .07   10303.4       .04   10321.6       .07
```

```
NH   10414.
ET                          4.1       9990      10100
X1    0.453        45     9989.7   10017.0        535        525        560
GR   1564.5    9922.2     1564.5    9927.5     1564.4     9954.1     1564.1     9970.4     1563.0     9975.6
GR   1563.6    9982.8     1563.1    9989.7     1558.8     9995.3     1558.8    10000.0     1558.8    10005.9
GR   1563.6   10017.0     1564.9   10028.6     1563.6    10036.3     1563.1    10051.1     1563.2    10055.5
GR   1563.9   10074.9     1564.4   10097.6     1564.3    10116.6     1563.6    10128.3     1564.0    10140.3
GR   1564.7   10152.9     1565.0   10169.7     1565.3    10188.1     1564.6    10218.2     1564.0    10237.6
GR   1562.7   10248.5     1563.7   10254.8     1564.2    10264.8     1563.9    10280.5     1563.4    10292.1
GR   1563.8   10303.4     1563.7   10306.9     1561.0    10309.9     1561.0    10310.5     1563.7    10315.7
GR   1564.0   10321.6     1562.6   10334.3     1563.5    10339.9     1564.3    10349.8     1564.0    10364.5
GR   1564.4   10376.5     1563.9   10385.1     1564.4    10392.7     1564.7    10403.9     1564.9    10414.0
```

A MINOR FLOW BREAKOUT OCCURS AT THE RIGHT END OF SECTION 0.550. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 5A)

```
NH       5       .07     9977.4       .03    10012.2       .07    10066.4       .04    10097.5       .07
NH   10237.
ET                          4.1      9977      10085
X1    0.550        29     9977.4   10012.2        495        460        512
GR   1572.8    9863.3     1572.8    9874.0     1572.9     9894.8     1572.7     9918.7     1571.4     9929.4
GR   1572.2    9932.4     1572.4    9958.9     1572.1     9977.4     1571.3     9988.2     1569.9     9992.9
GR   1569.9   10000.0     1570.0   10007.9     1572.2    10012.2     1571.8    10026.1     1571.7    10052.8
GR   1571.8   10066.4     1571.6   10072.3     1570.5    10084.5     1570.9    10088.2     1570.1    10091.5
GR   1571.3   10097.5     1571.2   10110.5     1571.5    10137.5     1572.0    10161.8     1571.8    10173.3
GR   1571.2   10188.5     1571.7   10206.2     1572.0    10226.4     1572.3    10237.0
1                                                                                                   PAGE    3
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QT       2      1160       1160
NC     .08       .08        .04       0.1       0.3
ET                          4.1      9981      10029
X1    0.658        20     9981.0   10012.2        530        575        570
GR   1584.0    9878.2     1584.1    9904.0     1583.7     9927.5     1582.2     9942.8     1581.5     9962.7
GR   1582.3    9981.0     1579.3    9991.9     1579.3    10000.0     1579.3    10007.5     1581.8    10012.2
GR   1581.3   10022.0     1581.3   10049.1     1582.4    10064.8     1582.7    10080.7     1582.4    10095.0
GR   1582.8   10108.0     1582.4   10119.6     1582.4    10125.2     1583.6    10133.3     1583.6    10143.6
```

THE CONFLUENCE WITH WASH A SOUTH IS AT RIVER MILE 0.682. THE DISCHARGE IS NOT CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE UNTIL SECTION 0.820. (SEE SPECIAL PROBLEM NO. 4A)

```
NC     .08       .08       .035       0.1       0.3
NH       5       .08     9970.2      .035   10035.4       .08    10041.5      .035    10083.7       .08
NH   10227.
ET                          4.1      9970      10084
X1    0.700        28     9970.2   10083.7        195        190        222
GR   1587.5    9924.0     1587.7    9939.3     1587.6     9960.1     1587.4     9970.2     1586.4     9986.5
GR   1583.9    9996.3     1583.8   10000.0     1584.1    10007.0     1585.6    10012.4     1586.0    10025.7
GR   1587.5   10035.4     1588.0   10041.5     1584.7    10055.6     1584.5    10064.7     1584.6    10072.7
GR   1587.6   10083.7     1586.3   10090.8     1586.6    10115.4     1585.3    10117.7     1585.6    10125.1
GR   1585.9   10144.3     1585.6   10166.1     1585.7    10187.0     1586.1    10195.6     1586.1    10208.3
GR   1587.6   10213.0     1588.6   10221.6     1587.8    10227.0       0.0       0.0       0.0       0.0
1                                                                                                   PAGE    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

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3720 CRITICAL DEPTH ASSUMED
      .000       4.30   1509.40   1509.40   1509.00   1510.83      1.44       .00       .00   1509.60
    1140.0         .0    1113.5      26.5        .0     114.4      11.7        .0        .0   1509.00
       .00        .00      9.73      2.26      .000      .035      .080      .000   1505.10   9988.28
   .012964         0.        0.        0.         0         7         0       .00     47.61  10035.89

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1509.40

 STA=    9988.   10026.   10030.   10036.
   PER Q=     97.7      1.2      1.1
    AREA=    114.4      5.7      6.0
     VEL=      9.7      2.4      2.1
   DEPTH=      3.0      1.3      1.1

 CCHV=     .100 CEHV=     .300
 *SECNO  .031
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      .031       3.21   1513.61   1513.61       .00   1514.86      1.25      1.88       .02   1521.40
    1140.0         .0    1140.0        .0        .0     127.1        .0        .5        .2   1522.90
       .01        .00      8.97       .00      .000      .030      .000      .000   1510.40   9982.55
   .010226       160.      164.      180.        20        15         0       .00     51.34  10033.88

 FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1513.61

 STA=    9983.   10041.
```

```
  PER Q=    100.0
   AREA=    127.1
    VEL=      9.0
  DEPTH=      2.5

*SECNO  .094
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1                                                                                                                    PAGE    5
   18NOV94      08:41:52

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

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .094       2.47    1520.67    1520.67        .00    1521.78       1.10       3.50        .01    1526.30
    1140.0         .0     1140.0         .0         .0      135.2         .0        1.5         .6    1528.80
      .02        .00       8.43        .00       .000       .030       .000       .000    1518.20    9964.54
   .010798       340.       333.       290.         20         15          0        .00      62.07   10026.61

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1520.67

STA=    9965.   10029.
  PER Q=    100.0
   AREA=    135.2
    VEL=      8.4
  DEPTH=      2.2

CCHV=     .100 CEHV=     .300
*SECNO  .181
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .181       3.41    1533.11    1533.11        .00    1534.28       1.17       4.82        .02    1539.10
    1140.0         .0     1140.0         .0         .0      131.3         .0        2.9        1.2    1540.10
      .03        .00       8.68        .00       .000       .030       .000       .000    1529.70    9952.50
   .010231       440.       459.       450.         20         11          0        .00      56.41   10008.91

FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1533.11

STA=    9953.   10021.
  PER Q=    100.0
   AREA=    131.3
    VEL=      8.7
  DEPTH=      2.3

*SECNO  .241
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .241       2.84    1539.04    1539.04        .00    1540.05       1.01       3.33        .02    1543.40
    1140.0         .0     1140.0         .0         .0      141.6         .0        3.9        1.7    1541.10
      .04        .00       8.05        .00       .000       .030       .000       .000    1536.20    9960.81
   .010815       305.       317.       315.         20         15          0        .00      71.73   10032.54

1                                                                                                                    PAGE    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

FLOW DISTRIBUTION FOR SECNO=       .24          CWSEL=   1539.04

STA=    9961.   10050.
  PER Q=    100.0
   AREA=    141.6
    VEL=      8.1
  DEPTH=      2.0

*SECNO  .347

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .347       5.29    1553.09    1553.09        .00    1554.44       1.35       5.16        .10    1553.20
    1140.0         .0     1133.5        6.5         .0      121.2        8.6        5.6        2.7    1553.10
      .06        .00       9.36        .75       .000       .030       .060       .000    1547.80    9979.38
   .007942       505.       560.       545.         20         17          0        .00      86.32   10066.30

FLOW DISTRIBUTION FOR SECNO=       .35          CWSEL=   1553.09

STA=    9979.   10016.   10028.   10035.   10050.   10066.
  PER Q=     99.4       .1       .1       .3       .1
   AREA=    121.2      1.7      1.7      3.7      1.5
    VEL=      9.4       .6      1.0       .8       .5
  DEPTH=      3.3       .1       .3       .2       .1

CCHV=     .100 CEHV=     .300
```

```
1490 NH CARD USED
*SECNO  .453

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1                                                                                                                                PAGE    7
   18NOV94       08:41:52

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

      .453       5.63    1564.43    1564.43        .00    1565.10        .67       2.95        .07    1563.10
   1140.0        28.3      863.2      248.5       23.2      115.0      181.5        8.4        5.5    1563.60
      .08        1.22       7.51       1.37       .070       .030       .061       .000    1558.80    9946.43
  .003787        535.       560.       525.         20          8          0        .00     364.63   10393.78

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1564.43

STA=    9946.     9990.    10017.    10056.    10140.    10281.    10310.    10316.    10340.    10394.
  PER Q=      2.5      75.7       3.0       3.2       3.3       3.9       4.2       3.3        .9
   AREA=     23.2     115.0      26.7      38.0      34.9      27.0      12.9      25.5      16.6
    VEL=      1.2       7.5       1.3        .9       1.1       1.6       3.7       1.5        .6
  DEPTH=       .5       4.2        .7        .4        .2        .9       2.2       1.1        .3

1490 NH CARD USED
*SECNO  .550
3280 CROSS SECTION       .55 EXTENDED       .27 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .550       2.67    1572.57    1572.57        .00    1573.02        .45       2.92        .02    1572.10
   1140.0        25.2      490.3      624.5       21.0       64.6      222.2       11.9        9.1    1572.20
      .11        1.20       7.59       2.81       .070       .030       .058       .000    1569.90    9919.78
  .010597        495.       512.       460.         20         13          0        .00     317.22   10237.00

FLOW DISTRIBUTION FOR SECNO=       .55          CWSEL=   1572.57

STA=    9920.     9977.    10012.    10053.    10072.    10085.    10088.    10092.    10098.    10111.    10138.    10162.    10189.
  PER Q=      2.2      43.0       4.7       3.4       8.2       3.5       3.6       5.6       4.0       7.2       3.3       4.4
   AREA=     21.0      64.6      29.8      16.3      18.5       6.9       6.8      11.2      17.1      32.9      19.9      23.9
    VEL=      1.2       7.6       1.8       2.4       5.0       5.8       6.1       5.7       2.6       2.5       1.9       2.1
  DEPTH=       .4       1.9        .7        .8       1.5       1.9       2.1       1.9       1.3       1.2        .8        .9

STA=   10189.    10206.    10237.
  PER Q=      4.1       2.7
   AREA=     19.8      19.0
    VEL=      2.4       1.6
  DEPTH=      1.1        .6

1                                                                                                                                PAGE    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

CCHV=     .100 CEHV=     .300
*SECNO  .658
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .658       3.81    1583.11    1583.11        .00    1583.81        .70       6.13        .08    1582.30
   1160.0       110.0      779.2      270.8       51.3       96.6      119.0       15.6       12.5    1581.80
      .14        2.14       8.07       2.28       .080       .040       .080       .000    1579.30    9933.54
  .010918        530.       570.       575.         11         11          0        .00     196.44   10129.98

FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1583.11

STA=    9934.     9963.     9981.    10012.    10022.    10049.    10065.    10120.    10130.
  PER Q=      5.3       4.2      67.2       3.4      12.2       3.8       3.2        .7
   AREA=     29.2      22.1      96.6      15.3      49.0      19.7      29.3       5.7
    VEL=      2.1       2.2       8.1       2.6       2.9       2.3       1.3       1.4
  DEPTH=      1.0       1.2       3.1       1.6       1.8       1.3        .5        .5

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .700

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .700       3.06    1586.86    1586.86        .00    1587.42        .57       2.63        .01    1587.40
   1160.0         .0      909.1      250.9         .0      135.4      112.6       16.8       13.4    1587.60
      .15        .00       6.72       2.23       .000       .035       .080       .000    1583.80    9979.07
  .014010        195.       222.       190.         10         16          0        .00     209.66   10210.67
```

```
FLOW DISTRIBUTION FOR SECNO=       .70          CWSEL=   1586.86

STA=    9979.   10035.   10084.   10125.   10144.   10166.   10187.   10208.   10211.
  PER Q=     43.0     35.3      3.9      4.3      4.9      5.4      3.0       .1
   AREA=     77.1     58.2     23.3     21.2     24.1     25.2     17.8       .9
    VEL=      6.5      7.0      1.9      2.4      2.4      2.5      2.0      1.1
  DEPTH=      1.5      1.7       .6      1.1      1.1      1.2       .8       .4

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   18NOV94      08:41:52                                                                                PAGE    9

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A 100-YEAR (FLOODWAY)      L. CULLER - (602)244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                                                                  1510.40

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15                  -1                                                                      15


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   18NOV94      08:41:52                                                                                PAGE   10

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

 *PROF 2
0
 CCHV=     .100 CEHV=     .300
 *SECNO  .000

 3470 ENCROACHMENT STATIONS=     9988.0   10026.0  TYPE=      1  TARGET=       38.000
      .000      5.30   1510.40       .00   1509.40   1511.27       .87       .00       .00   1509.60
    1140.0        .0    1140.0        .0        .0     152.5        .0       .0        .0 100000.00
      .00       .00      7.47       .00      .000      .035      .000      .000   1505.10   9988.00
   .005658        0.        0.        0.         0         0         0       .00     38.00  10026.00

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1510.40

 STA=    9988.   10026.
   PER Q=    100.0
    AREA=    152.5
     VEL=      7.5
   DEPTH=      4.0

 CCHV=     .100 CEHV=     .300
 *SECNO  .031
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9983.0   10034.0  TYPE=      1  TARGET=       51.000
      .031      3.20   1513.60   1513.60   1513.61   1514.86      1.26      1.23       .12 100000.00
    1140.0        .0    1140.0        .0        .0     126.4        .0        .5        .2 100000.00
      .01       .00      9.02       .00      .000      .030      .000      .000   1510.40   9983.00
   .010329      160.      164.      180.        20        14         0       .00     50.82  10033.82

 FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1513.60

 STA=    9983.   10041.
   PER Q=    100.0
    AREA=    126.4
     VEL=      9.0
   DEPTH=      2.5

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   18NOV94      08:41:52                                                                                PAGE   11

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

 *SECNO  .094
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9965.0   10027.0  TYPE=      1  TARGET=       62.000
      .094      2.47   1520.67   1520.67   1520.67   1521.78      1.11      3.52       .02 100000.00
    1140.0        .0    1140.0        .0        .0     134.8        .0       1.5        .6 100000.00
      .02       .00      8.46       .00      .000      .030      .000      .000   1518.20   9965.00
   .010836      340.      333.      290.        20        15         0       .00     61.61  10026.61
```

```
FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1520.67

STA=    9965.   10029.
  PER Q=    100.0
   AREA=    134.8
    VEL=      8.5
  DEPTH=      2.2

CCHV=     .100 CEHV=     .300
*SECNO  .181
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9953.0   10009.0  TYPE=      1  TARGET=       56.000
      .181      3.41   1533.11   1533.11   1533.11   1534.29      1.18      4.84       .02 100000.00
    1140.0        .0    1140.0        .0        .0     130.9        .0       2.9      1.2 100000.00
       .03       .00      8.71       .00      .000      .030      .000      .000   1529.70   9953.00
   .010253      440.      459.      450.        20        11         0       .00     55.90  10008.90


FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1533.11

STA=    9953.   10021.
  PER Q=    100.0
   AREA=    130.9
    VEL=      8.7
  DEPTH=      2.3
```



```
    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  .241
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9960.0   10033.0  TYPE=      1  TARGET=       73.000
      .241      2.84   1539.04   1539.04   1539.04   1540.05      1.00      3.33       .02 100000.00
    1140.0        .0    1140.0        .0        .0     141.8        .0       3.9      1.7 100000.00
       .04       .00      8.04       .00      .000      .030      .000      .000   1536.20   9960.81
   .010769      305.      317.      315.        20        15         0       .00     71.76  10032.57


FLOW DISTRIBUTION FOR SECNO=       .24          CWSEL=   1539.04

STA=    9961.   10050.
  PER Q=    100.0
   AREA=    141.8
    VEL=      8.0
  DEPTH=      2.0

*SECNO  .347

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS=     9979.0   10060.0  TYPE=      1  TARGET=       81.000
      .347      5.27   1553.07   1553.07   1553.09   1554.44      1.37      5.19       .11 100000.00
    1140.0        .0    1134.3       5.7        .0     120.5       7.6       5.6      2.6   1553.10
       .06       .00      9.42       .75      .000      .030      .060      .000   1547.80   9979.46
   .008072      505.      560.      545.        20        17         0       .00     79.12  10060.00


FLOW DISTRIBUTION FOR SECNO=       .35          CWSEL=   1553.07

STA=    9979.   10016.   10028.   10035.   10050.   10060.
  PER Q=     99.5       .1       .1       .2       .0
   AREA=    120.5      1.5      1.6      3.4      1.1
    VEL=      9.4       .6       .9       .8       .5
  DEPTH=      3.3       .1       .3       .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


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .453

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3470 ENCROACHMENT STATIONS=     9990.0   10100.0  TYPE=      1  TARGET=      110.000
      .453      5.61   1564.41   1564.41   1564.43   1565.69      1.28      3.96       .01 100000.00
    1140.0        .0    1068.0      72.0        .0     114.0      48.7       7.5       3.8   1563.60
       .08       .00      9.37      1.48      .000      .030      .070      .000   1558.80   9990.00
   .006275      535.      560.       525.        20         8         0       .00    102.71  10100.00

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1564.41

STA=    9990.   10017.   10024.   10036.   10051.   10056.   10075.   10098.
  PER Q=     93.7       .2       .2      2.4      1.0      2.2       .4
   AREA=    114.0      2.9      1.9     15.7      5.5     16.7      5.9
    VEL=      9.4       .9       .9      1.7      2.0      1.5       .7
  DEPTH=      4.2       .4       .2      1.1      1.3       .9       .3

1490 NH CARD USED
*SECNO  .550
3280 CROSS SECTION       .55 EXTENDED       .83 FEET

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

3470 ENCROACHMENT STATIONS=     9977.0   10085.0  TYPE=      1  TARGET=      108.000
      .550      3.23   1573.13   1573.13   1572.57   1574.02       .89      3.98       .04   1572.10
    1140.0        .4     754.0     385.6        .4      84.1     106.5       9.5       4.9   1572.20
       .10       .94      8.96      3.62      .070      .030      .054      .000   1569.90   9977.00
   .010380      495.      512.       460.        20        14         0       .00    108.00  10085.00

FLOW DISTRIBUTION FOR SECNO=       .55          CWSEL=   1573.13
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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

STA=    9977.    9977.   10012.   10026.   10053.   10066.   10072.   10085.   10085.
  PER Q=       .0     66.1      3.2      8.7      4.4      3.6     13.7       .2
   AREA=       .4     84.1     15.7     36.9     18.8      8.4     25.4      1.3
    VEL=       .9      9.0      2.3      2.7      2.7      4.8      6.2      2.1
  DEPTH=      1.0      2.4      1.1      1.4      1.4      1.4      2.1      2.6

CCHV=     .100 CEHV=     .300
*SECNO  .658

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9981.0   10029.0  TYPE=      1  TARGET=       48.000
      .658      4.04   1583.34   1583.34   1583.11   1584.81      1.47      7.36       .17   1582.30
    1160.0        .0    1052.7     107.3        .0     103.8      31.8      11.6       5.9   1581.80
       .11       .00     10.14      3.37      .000      .040      .080      .000   1579.30   9981.00
   .016336      530.      570.       575.        10        11         0       .00     48.00  10029.00

FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1583.34

STA=    9981.   10012.   10022.   10029.
  PER Q=     90.7      5.3      4.0
   AREA=    103.8     17.5     14.3
    VEL=     10.1      3.5      3.2
  DEPTH=      3.3      1.8      2.0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .700

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9970.0   10084.0  TYPE=      1  TARGET=      114.000
      .700      3.46   1587.26       .00   1586.86   1587.96       .70      3.07       .08   1587.40
    1160.0        .0    1160.0        .0        .0     172.8        .0      12.4       6.3   1587.60
       .12       .00      6.71       .00      .000      .035      .000      .000   1583.80   9972.50
   .012034      195.      222.       190.         2         0         0       .00     99.13  10082.45
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=       .70          CWSEL=   1587.26

STA=    9972.   10035.   10084.
  PER Q=     55.2     44.8
```

AREA=	100.0	72.8
VEL=	6.4	7.1
DEPTH=	1.6	1.9

THIS RUN EXECUTED 18NOV94 08:41:58

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

WASH A 100-YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	SSTA	ENDST	DEPTH	Q	VCH	HV	DIFWSX	QWEIR	ELTRD	ELLC
*	.000	1505.10	1509.40	9988.28	10035.89	4.30	1140.00	9.73	1.44	.00	.00	.00	.00
	.000	1505.10	1510.40	9988.00	10026.00	5.30	1140.00	7.47	.87	.00	.00	.00	.00
*	.031	1510.40	1513.61	9982.55	10033.88	3.21	1140.00	8.97	1.25	4.21	.00	.00	.00
*	.031	1510.40	1513.60	9983.00	10033.82	3.20	1140.00	9.02	1.26	3.20	.00	.00	.00
*	.094	1518.20	1520.67	9964.54	10026.61	2.47	1140.00	8.43	1.10	7.07	.00	.00	.00
*	.094	1518.20	1520.67	9965.00	10026.61	2.47	1140.00	8.46	1.11	7.07	.00	.00	.00
*	.181	1529.70	1533.11	9952.50	10008.91	3.41	1140.00	8.68	1.17	12.44	.00	.00	.00
*	.181	1529.70	1533.11	9953.00	10008.90	3.41	1140.00	8.71	1.18	12.44	.00	.00	.00
*	.241	1536.20	1539.04	9960.81	10032.54	2.84	1140.00	8.05	1.01	5.93	.00	.00	.00
*	.241	1536.20	1539.04	9960.81	10032.57	2.84	1140.00	8.04	1.00	5.94	.00	.00	.00
*	.347	1547.80	1553.09	9979.38	10066.30	5.29	1140.00	9.36	1.35	14.05	.00	.00	.00
*	.347	1547.80	1553.07	9979.46	10060.00	5.27	1140.00	9.42	1.37	14.02	.00	.00	.00
*	.453	1558.80	1564.43	9946.43	10393.78	5.63	1140.00	7.51	.67	11.34	.00	.00	.00
*	.453	1558.80	1564.41	9990.00	10100.00	5.61	1140.00	9.37	1.28	11.34	.00	.00	.00
*	.550	1569.90	1572.57	9919.78	10237.00	2.67	1140.00	7.59	.45	8.14	.00	.00	.00
*	.550	1569.90	1573.13	9977.00	10085.00	3.23	1140.00	8.96	.89	8.72	.00	.00	.00
*	.658	1579.30	1583.11	9933.54	10129.98	3.81	1160.00	8.07	.70	10.54	.00	.00	.00
*	.658	1579.30	1583.34	9981.00	10029.00	4.04	1160.00	10.14	1.47	10.21	.00	.00	.00
*	.700	1583.80	1586.86	9979.07	10210.67	3.06	1160.00	6.72	.57	3.75	.00	.00	.00
	.700	1583.80	1587.26	9972.50	10082.45	3.46	1160.00	6.71	.70	3.92	.00	.00	.00

WASH A 100-YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	.000	1509.40	.40	1510.83	47.61	.00	1113.46	26.54	.00	.00	9988.00	10026.00	.00
	.000	1510.40	1.00	1511.27	38.00	.00	1140.00	.00	38.00	9988.00	9988.00	10026.00	10026.00
*	.031	1513.61	.00	1514.86	51.34	.00	1140.00	.00	.00	.00	9975.40	10041.40	.00
*	.031	1513.60	-.01	1514.86	50.82	.00	1140.00	.00	51.00	9983.00	9975.40	10041.40	10034.00
*	.094	1520.67	.00	1521.78	62.07	.00	1140.00	.00	.00	.00	9954.20	10028.80	.00
*	.094	1520.67	-.01	1521.78	61.61	.00	1140.00	.00	62.00	9965.00	9954.20	10028.80	10027.00
*	.181	1533.11	.00	1534.28	56.41	.00	1140.00	.00	.00	.00	9930.90	10021.10	.00
*	.181	1533.11	-.01	1534.29	55.90	.00	1140.00	.00	56.00	9953.00	9930.90	10021.10	10009.00
*	.241	1539.04	.00	1540.05	71.73	.00	1140.00	.00	.00	.00	9953.70	10049.60	.00
*	.241	1539.04	.00	1540.05	71.76	.00	1140.00	.00	73.00	9960.00	9953.70	10049.60	10033.00
*	.347	1553.09	.00	1554.44	86.32	.00	1133.50	6.50	.00	.00	9978.90	10016.10	.00
*	.347	1553.07	-.02	1554.44	79.12	.00	1134.34	5.66	81.00	9979.00	9978.90	10016.10	10060.00
*	.453	1564.43	.00	1565.10	364.63	28.31	863.21	248.47	.00	.00	9989.70	10017.00	.00
*	.453	1564.41	-.02	1565.69	102.71	.00	1067.99	72.01	110.00	9990.00	9989.70	10017.00	10100.00
*	.550	1572.57	.00	1573.02	317.22	25.18	490.27	624.54	.00	.00	9977.40	10012.20	.00
*	.550	1573.13	.56	1574.02	108.00	.39	754.00	385.61	108.00	9977.00	9977.40	10012.20	10085.00
*	.658	1583.11	.00	1583.81	196.44	110.01	779.22	270.78	.00	.00	9981.00	10012.20	.00
*	.658	1583.34	.23	1584.81	48.00	.00	1052.70	107.30	48.00	9981.00	9981.00	10012.20	10029.00
*	.700	1586.86	.00	1587.42	209.66	.00	909.09	250.91	.00	.00	9970.20	10083.70	.00
	.700	1587.26	.40	1587.96	99.13	.00	1160.00	.00	114.00	9970.00	9970.20	10083.70	10084.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=       .000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=       .031  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .031  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .031  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=       .031  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .031  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .031  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .094  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .094  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .094  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=       .094  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .094  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .094  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=       .181  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .181  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=       .181  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .181  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .181  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .241  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=       .241  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .241  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .241  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .347  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .347  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .347  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=       .347  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .347  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .453  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .453  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .453  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=       .453  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .453  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=       .550  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .550  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=       .550  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .550  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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   18NOV94      08:41:52                                                                    PAGE   19


CAUTION SECNO=       .658  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .658  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=       .658  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=       .700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .700  PROFILE=  1  MINIMUM SPECIFIC ENERGY

1
   18NOV94      08:41:52                                                                    PAGE   20
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FLOODWAY DATA, WASH A 100-YEAR
PROFILE NO. 2

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	38.	153.	7.5	1510.4	1509.4	1.0
.031	51.	126.	9.0	1513.6	1513.6	.0
.094	62.	135.	8.5	1520.7	1520.7	.0
.181	56.	131.	8.7	1533.1	1533.1	.0
.241	72.	142.	8.0	1539.0	1539.0	.0
.347	81.	128.	8.9	1553.1	1553.1	.0
.453	110.	163.	7.0	1564.4	1564.4	.0
.550	108.	191.	6.0	1573.2	1572.6	.6
.658	48.	136.	8.6	1583.3	1583.1	.2
.700	110.	173.	6.7	1587.3	1586.9	.4

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    17NOV94    TIME   14:42:14 *
 *****************************************
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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1                                                                                                  PAGE    1
   17NOV94       14:42:14

                                                                  THIS RUN EXECUTED 17NOV94     14:42:14
*************************************
 HEC-2 WATER SURFACE PROFILES

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

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A 100-YEAR                L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\WASHA2F1.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 2                                                                 1680.40

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        53        54         8        43        26        10        51
     46        40        41         0       110         0       200

QT       2      1080      1080
NC     .08       .08      .035       0.1       0.3
NH      11       .08    9900.8       .04    9906.8       .08    9944.9       .04    9968.1       .08
NH  9997.0      .035   10010.0       .08   10086.7      .035   10104.0       .08   10186.7       .04
NH  10212.       .08   10334.1
ET                        4.1      9970     10104
X1   1.557        41    9997.0   10104.0       400       490       449
GR  1680.6    9827.0    1680.4    9852.9    1679.9    9866.7    1679.7    9873.1    1680.5    9884.2
GR  1680.4    9900.8    1678.7    9902.1    1680.5    9906.8    1680.5    9923.8    1680.2    9944.9
GR  1679.1    9959.4    1679.4    9968.1    1679.7    9987.6    1679.9    9997.0    1678.9   10000.0
GR  1679.0   10004.0    1679.1   10007.2    1679.8   10010.0    1679.5   10025.4    1679.3   10044.0
GR  1679.7   10059.3    1679.5   10064.5    1679.7   10074.1    1679.8   10086.7    1679.7   10095.2
GR  1680.2   10104.0    1680.0   10126.8    1680.1   10143.9    1679.7   10158.7    1680.1   10173.6
GR  1679.9   10186.7    1678.1   10190.1    1679.1   10198.5    1680.3   10212.0    1680.7   10231.1
GR  1679.1   10245.3    1680.0   10263.1    1680.7   10284.3    1681.1   10301.7    1681.7   10316.4
GR  1681.9   10334.1

QT       2      1090      1090
NC     .08       .07      .035       0.1       0.3
NH       5       .08    9976.1      .035   10024.9       .07   10290.3       .04   10306.4       .07
NH  10403.
ET                        4.1      9976     10187
1                                                                                                  PAGE    2
   17NOV94       14:42:14

X1   1.629        42    9976.1   10024.9       415       330       380
GR  1691.0    9776.0    1691.0    9795.8    1689.7    9815.3    1689.5    9825.7    1690.1    9853.6
GR  1689.5    9883.0    1689.8    9905.9    1689.3    9922.9    1688.3    9941.1    1689.2    9957.0
GR  1689.4    9976.1    1688.8    9986.4    1688.4    9998.7    1688.6   10000.0    1689.1   10008.6
GR  1688.7   10017.0    1688.9   10024.9    1688.2   10033.7    1688.9   10042.8    1688.9   10043.0
GR  1688.7   10060.8    1687.6   10074.0    1688.5   10080.8    1688.2   10098.0    1687.7   10106.1
GR  1689.0   10119.5    1689.1   10143.2    1688.6   10158.1    1688.8   10172.5    1688.7   10186.5
GR  1688.6   10193.3    1687.1   10201.7    1688.4   10216.4    1688.8   10238.5    1689.3   10255.7
GR  1688.9   10272.1    1688.3   10290.3    1686.3   10301.0    1688.6   10306.4    1688.6   10329.5
GR  1689.6   10367.5    1689.5   10403.0

NC     .07       .07      .035       0.1       0.3
NH       5       .07    9793.3       .04    9851.5       .07    9984.3      .035   10032.8       .07
NH  10115.
ET                        4.1      9874     10034
X1   1.733        23    9984.3   10032.8       490       510       549
GR  1702.9    9757.59   1702.9    9757.6    1702.3    9775.1    1701.5    9793.3    1701.4    9803.8
GR  1701.0    9810.5    1700.8    9821.9    1701.1    9835.8    1701.7    9851.5    1701.9    9871.2
GR  1701.7    9894.3    1702.2    9927.6    1702.4    9945.8    1703.1    9969.2    1702.9    9984.3
GR  1702.3    9995.3    1701.6   10000.0    1702.3   10016.3    1702.7   10032.8    1703.8   10056.4
GR  1704.5   10073.0    1704.3   10092.7    1703.6   10115.0
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NH        7       .07    9792.9       .04    9818.3       .07    9915.1       .04    9941.6       .07
NH   9977.5      .035   10043.9       .07   10088.2
ET                          4.1      9931     10044
X1    1.806        39    9977.5   10043.9       385       370       385
GR   1712.7   9726.18    1712.7   9726.19    1712.7    9726.2    1712.2    9739.4    1711.9    9750.6
GR   1711.5    9765.2    1711.7    9775.0    1712.1    9784.7    1712.1    9792.9    1711.6    9797.0
GR   1710.9    9801.7    1710.6    9804.9    1710.6    9809.6    1711.1    9813.4    1712.4    9818.3
GR   1712.3    9835.0    1712.0    9860.5    1712.2    9881.2    1712.1    9897.9    1711.8    9915.1
GR   1711.5    9927.1    1711.7    9933.2    1711.1    9933.9    1711.8    9941.6    1712.6    9953.3
GR   1712.6    9966.9    1712.5    9977.5    1712.0    9980.8    1710.8    9984.5    1710.8    9992.7
GR   1710.9    9999.9    1711.1   10000.0    1711.2   10007.9    1711.1   10017.5    1711.8   10029.3
GR   1712.6   10043.9    1713.0   10058.8    1713.0   10076.0    1713.1   10088.2

NH        7       .07    9644.0       .04    9675.2       .07    9860.0       .04    9886.7       .07
NH   9958.2      .035   10070.3       .07   10140.5
ET                          4.1      9958     10090
X1    1.887        39    9958.2   10070.3       415       400       428
GR   1723.7    9561.7    1723.5    9588.3    1723.2    9613.8    1722.6    9644.0    1719.8    9651.4
GR   1720.1    9657.0    1721.2    9661.7    1720.1    9668.3    1721.4    9675.2    1721.5    9689.8
GR   1721.4    9692.3    1721.4    9709.0    1722.1    9729.6    1722.3    9755.5    1722.4    9785.4
GR   1722.3    9810.3    1721.9    9832.1    1721.9    9846.2    1722.0    9860.0    1721.8    9872.4
GR   1721.0    9876.3    1721.2    9882.6    1722.2    9886.7    1722.2    9905.6    1722.1    9936.4
GR   1722.6    9958.2    1721.7    9974.6    1721.1    9988.8    1721.2   10000.0    1721.5   10017.5
GR   1721.7   10039.0    1721.7   10060.4    1722.0   10070.3    1721.5   10082.8    1722.4   10091.5
GR   1721.8   10103.3    1721.7   10116.2    1722.6   10127.2    1722.9   10140.5

QT        2      1110      1110
NH        6       .07    9874.2       .04    9923.5       .07    9988.0      .035   10018.5       .07
NH   10249.       .04   10348.6
ET                          4.1      9895     10019
1
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X1    1.983        42    9988.0   10018.5       525       505       507
GR   1737.3    9676.1    1738.1    9695.6    1737.1    9713.9    1737.9    9725.1    1738.0    9741.3
GR   1736.5    9761.2    1735.9    9786.6    1734.9    9807.5    1734.0    9818.6    1733.3    9828.2
GR   1734.7    9837.9    1733.9    9850.9    1733.8    9862.6    1734.1    9874.2    1733.9    9883.6
GR   1731.8    9889.8    1733.5    9895.3    1734.5    9910.0    1735.2    9923.5    1735.0    9944.4
GR   1734.7    9946.0    1734.4    9963.1    1733.5    9974.9    1734.2    9988.0    1732.7    9996.9
GR   1732.7   10000.0    1733.1   10013.4    1734.1   10018.5    1734.7   10031.5    1733.5   10041.3
GR   1734.2   10045.0    1734.7   10074.2    1735.6   10112.9    1735.5   10154.9    1735.9   10184.5
GR   1736.1   10217.0    1735.5   10227.4    1736.7   10249.0    1736.2   10280.8    1736.5   10306.2
GR   1736.3   10327.7    1736.6   10348.6         0         0         0         0         0         0
```

A SPLIT FLOW CONDITION OCCURS JUST DOWNSTREAM OF SECTION 2.105.
FLOW EXITS INTO A SMALL WASH WHICH ENDS
IN WASH A CHANNEL JUST DOWNSTREAM.
RATING CURVES FOR THIS SECTION AND THE SMALL WASH WERE DEVELOPEDED AND
ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 60 CFS LEAVES AT THIS
LOCATION. DUE TO THE DISCHARGE BEING LESS THAN 6 PERCENT OF THE TOTAL
FLOW THERE WAS NO FLOW REDUCTION IN WASH A DISCHARGE. (SEE SPECIAL
PROBLEM NO. 2A)

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NC      .08       .07      .035       0.1       0.3
ET                          4.1      9989     10078
X1    2.105        25    9989.7   10060.7       675       655       644
GR   1751.0    9826.6    1750.9    9849.4    1749.6    9894.0    1748.9    9914.6    1749.0    9944.2
GR   1749.2    9971.3    1748.9    9989.7    1747.0   10000.0    1748.9   10010.4    1749.2   10024.4
GR   1748.9   10030.7    1747.7   10034.1    1748.3   10041.7    1749.1   10060.7    1748.5   10078.6
GR   1748.2   10090.7    1748.8   10097.9    1749.3   10106.8    1748.7   10135.7    1749.2   10159.0
GR   1749.0   10175.1    1749.2   10190.0    1748.4   10195.3    1749.5   10209.2    1750.2   10224.0

NH        5       .08    9815.9       .04    9840.0       .08    9967.8      .035   10016.8       .07
NH   10139.
ET                          4.1      9967     10022
X1    2.181        39    9967.8   10016.8       390       370       401
GR   1760.8    9702.6    1760.8    9723.4    1761.0    9741.6    1761.3    9762.5    1761.4    9787.6
GR   1761.0    9815.9    1760.1    9821.8    1759.9    9836.1    1760.9    9840.0    1761.0    9855.3
GR   1760.8    9864.9    1759.3    9871.0    1760.1    9878.6    1759.9    9880.5    1759.8    9888.1
GR   1758.6    9892.5    1759.6    9897.4    1759.4    9914.7    1759.8    9932.3    1759.8    9941.7
GR   1758.8    9944.6    1758.9    9953.8    1758.9    9967.8    1757.8    9973.5    1757.8    9981.3
GR   1758.5    9990.7    1757.5    9997.2    1757.3   10000.0    1757.3   10012.0    1758.8   10016.8
GR   1758.8   10030.3    1758.7   10053.2    1758.9   10064.8    1758.6   10086.2    1759.1   10100.2
GR   1759.6   10108.2    1760.2   10112.6    1760.5   10135.0    1760.6   10139.0       0.0       0.0

NH        5       .08    9989.4      .035   10056.7       .07   10116.9       .04   10139.3       .07
NH   10250.
ET                          4.1      9989     10072
X1    2.297        25    9989.4   10056.7       625       575       612
GR   1774.7   9924.09    1774.7    9924.1    1774.0    9941.4    1773.2    9961.6    1773.7    9979.3
GR   1773.2    9983.0    1773.3    9989.4    1772.4    9994.2    1772.5   10000.0    1772.3   10010.2
GR   1772.8   10016.7    1772.8   10037.5    1773.5   10056.7    1774.2   10081.6    1773.8   10104.5
GR   1773.9   10116.9    1771.6   10121.2    1772.0   10130.7    1773.8   10139.3    1773.8   10150.4
GR   1773.7   10173.1    1773.7   10193.1    1774.0   10215.8    1773.9   10234.7    1774.5   10250.0
1
   17NOV94      14:42:14                                                                          PAGE    4

NH        5       .07    9990.9      .035   10017.4       .07   10061.2       .04   10077.4       .07
NH   10319.
ET                          4.1      9937     10069
X1    2.403        39    9990.9   10017.4       530       550       560
GR   1788.4   9832.57    1788.4   9832.58    1788.4   9832.59    1788.4    9832.6    1788.0    9849.9
GR   1787.9    9872.8    1787.6    9883.9    1786.6    9886.4    1787.5    9891.2    1787.5    9909.2
GR   1786.5    9928.8    1786.1    9934.4    1787.0    9948.5    1787.4    9954.6    1788.0    9977.2
GR   1787.6    9990.9    1786.8   10000.0    1786.0   10005.1    1785.9   10010.1    1787.4   10017.4
GR   1787.8   10035.3    1787.5   10061.2    1786.3   10068.9    1787.7   10077.4    1787.8   10085.6
GR   1786.1   10094.3    1787.8   10103.2    1787.6   10122.6    1787.6   10147.5    1788.2   10173.9
GR   1788.6   10176.7    1787.5   10196.6    1788.5   10213.0    1789.3   10229.3    1789.2   10246.8
```

```
GR   1788.4    10265.6     1788.6    10285.7      1789.1     10304.6      1789.8     10319.0          0.0          0.0
```

A FLOW BREAKOUT OCCURS AT SECTION 2.494. FLOW EXITS ON THE RIGHT SIDE. RATING CURVES FOR THIS SECTION AND THE WATERSHED DIVIDE WERE DEVELOPED AND ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 220 CFS LEAVES WASH A. 160 CFS LEAVES BELOW THE SECTION AND 60 CFS LEAVES AT THE SECTION. THEREFORE THE DISCHARGE FOR SECTION 2.494 HAS BEEN REDUCED FROM 1330 CFS TO 1270 CFS AND THE DISCHARGE FOR THE NEXT DOWNSTREAM SECTION 2.403 HAS BEEN REDUCED FROM 1330 CFS TO 1110 CFS. (SEE SPECIAL PROBLEM NO. 1A)

```
QT        2       1270       1270
NC      .08        .06       .035        0.1        0.3
ET                            4.1       9977      10067
X1    2.494         21     9976.7    10019.1        445        425        480
GR   1801.5    9902.67     1801.5    9902.68     1801.5    9902.69     1801.5     9902.7     1801.0     9921.9
GR   1799.7     9944.1     1800.4     9961.0     1799.5     9976.7     1798.6     9991.6     1798.6    10000.0
GR   1798.8    10008.1     1799.8    10019.1     1799.8    10036.1     1800.1    10048.0     1799.5    10062.1
GR   1799.0    10066.8     1797.5    10071.5     1799.0    10079.7     1799.6    10096.8     1800.0    10122.6
GR   1800.2    10130.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
1                                                                                                          PAGE    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

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.557

 3265 DIVIDED FLOW

      1.557       2.30   1680.40   1680.38   1680.40   1680.72       .32       .00       .00   1679.90
     1080.0      268.1     411.6     400.4      60.1      89.2      87.5        .0        .0   1680.20
        .00       4.46      4.61      4.57      .054      .057      .054      .000   1678.10   9852.90
    .039359       400.      449.      490.         0         4         0       .00    363.05  10275.22

 FLOW DISTRIBUTION FOR SECNO=      1.56          CWSEL=   1680.40

 STA=    9853.     9907.     9959.     9968.     9988.     9997.    10010.    10087.    10104.    10159.    10190.    10199.    10212.
   PER Q=      4.7       6.2       7.5       5.1       1.4      13.8      19.3       5.0       3.7       6.3      15.2       5.1
    AREA=     15.6      12.3      10.0      16.6       5.6      15.8      64.0       9.5      20.2      17.5      15.1       9.5
     VEL=      3.2       5.5       8.1       3.3       2.6       9.5       3.3       5.6       1.9       3.9      10.9       5.8
   DEPTH=       .3        .2       1.2        .9        .6       1.2        .8        .5        .4        .6       1.8        .7

 STA=   10212.   10263.   10275.
   PER Q=      6.6       .3
    AREA=     22.9      2.4
     VEL=      3.1      1.3
   DEPTH=       .4       .2

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.629

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52

      1.629       3.12   1689.42       .00       .00   1689.59       .17      8.85       .02   1689.40
     1090.0       41.2     112.3     936.4      24.4      28.7     286.7       2.3       3.3   1688.90
        .03       1.69      3.92      3.27      .080      .035      .062      .000   1686.30   9918.86
    .017299       415.      380.      330.         7         0         0       .00    441.75  10360.62

1                                                                                                          PAGE    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

 FLOW DISTRIBUTION FOR SECNO=      1.63          CWSEL=   1689.42

 STA=    9919.     9957.     9976.    10025.    10043.    10074.    10098.    10106.    10120.    10173.    10202.    10216.    10239.
   PER Q=      3.7        .1      10.3       3.6       7.1       7.8       3.9       3.8       4.8       7.5       8.8       4.1
    AREA=     22.1       2.3      28.7      15.6      27.9      27.7      11.9      14.3      27.6      27.8      24.5      18.1
     VEL=      1.8        .6       3.9       2.5       2.8       3.1       3.6       2.9       1.9       2.9       3.9       2.4
   DEPTH=       .6        .1        .6        .9        .9       1.2       1.5       1.1        .5       1.0       1.7        .8

 STA=   10239.   10290.   10301.   10306.   10330.   10361.
   PER Q=      4.8      16.6       7.1       4.2       1.8
    AREA=     26.5      22.7      10.6      18.9      12.7
     VEL=      2.0       8.0       7.3       2.4       1.5
   DEPTH=       .5       2.1       2.0        .8        .4

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.733

 3265 DIVIDED FLOW
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.733      1.94   1702.74   1702.74       .00   1703.17       .44     10.45       .08   1702.90
    1090.0     997.6      92.4        .0     184.6      22.2        .0       5.5       7.3   1702.70
       .06      5.40      4.17       .03      .048      .035      .070      .000   1700.80   9762.37
   .025264      490.      549.      510.         4        14         0       .00    240.95  10033.58

FLOW DISTRIBUTION FOR SECNO=      1.73          CWSEL=   1702.74

STA=    9762.    9793.    9804.    9811.    9822.    9836.    9852.    9871.    9894.    9928.    9957.   10033.
  PER Q=      4.5      8.7      7.4     17.0     19.8     13.8      5.5      6.4      6.9      1.6      8.5
   AREA=     18.0     13.5     10.3     20.9     24.8     21.0     18.4     21.6     26.2      9.8     22.2
    VEL=      2.7      7.0      7.9      8.9      8.7      7.2      3.2      3.2      2.9      1.8      4.2
  DEPTH=       .6      1.3      1.5      1.8      1.8      1.3       .9       .9       .8       .3       .5

1490 NH CARD USED
*SECNO 1.806

3265 DIVIDED FLOW
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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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.806      1.99   1712.59   1712.59       .00   1713.03       .44      8.61       .00   1712.50
    1090.0     578.5     511.5        .0     152.6      77.3        .0       7.4       9.7   1712.60
       .08      3.79      6.62       .00      .050      .035      .000      .000   1710.60   9729.08
   .019928      385.      385.      370.         5         8         0       .00    299.97  10043.74

FLOW DISTRIBUTION FOR SECNO=      1.81          CWSEL=   1712.59

STA=    9729.    9765.    9785.    9802.    9805.    9810.    9813.    9861.    9915.    9927.    9934.    9942.    9978.
  PER Q=      4.6      4.1      5.5      4.2      7.1      4.6      3.9      5.2      5.2      3.3      4.6       .7
   AREA=     21.1     16.4     13.4      5.9      9.4      6.6     19.4     28.6     11.3      6.9      8.8      5.0
    VEL=      2.4      2.7      4.5      7.9      8.3      7.5      2.2      2.0      5.0      5.2      5.7      1.5
  DEPTH=       .6       .8       .8      1.8      2.0      1.7       .4       .5       .9      1.0      1.1       .1

STA=    9978.   10044.
  PER Q=     46.9
   AREA=     77.3
    VEL=      6.6
  DEPTH=      1.2

1490 NH CARD USED
*SECNO 1.887

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.887      2.55   1722.35   1722.35       .00   1722.66       .32      8.27       .01   1722.60
    1090.0     633.5     411.9      44.6     146.9      82.8      24.1       9.8      13.2   1722.00
       .10      4.31      4.97      1.85      .047      .035      .070      .000   1719.80   9644.67
   .019422      415.      428.      400.        11        11         0       .00    432.49  10124.10

FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.35
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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

STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9832.    9872.    9883.    9947.   10070.
  PER Q=      4.6     11.4      5.3      7.5      7.1      3.3      4.7      3.2      3.3      6.0      1.8     37.8
   AREA=      8.6     13.4      8.0     11.2     11.0     13.1     18.0     22.0     17.3     11.5     12.8     82.8
    VEL=      5.8      9.3      7.2      7.3      7.0      2.7      2.8      1.6      2.1      5.7      1.5      5.0
  DEPTH=      1.3      2.4      1.7      1.7      1.6       .9       .9       .2       .4      1.1       .2       .8

STA=   10070.   10116.   10124.
  PER Q=      3.8       .3
   AREA=     21.5      2.6
    VEL=      1.9      1.4
  DEPTH=       .5       .3

1490 NH CARD USED
*SECNO 1.983

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.983      3.22   1735.02   1735.02       .00   1735.52       .51      8.84       .06   1734.20
    1110.0     583.0     446.3      80.7     154.2      56.7      39.9      12.8      17.3   1734.10
       .13      3.78      7.87      2.02      .054      .035      .070      .000   1731.80   9805.09
   .015202      525.      507.      505.        19        11         0       .00    259.84  10087.77
```

```
FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1735.02

STA=    9805.    9828.    9851.    9863.    9874.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10041.
  PER Q=     4.8      4.1      3.6      3.0      4.0      8.9      9.2      6.2      4.7      4.0     40.2      3.3
   AREA=    19.5     19.2     13.6     12.4      9.5     13.4     13.0     14.9     23.4     15.3     56.7     17.0
    VEL=     2.7      2.4      2.9      2.7      4.6      7.4      7.9      4.6      2.2      2.9      7.9      2.2
  DEPTH=      .8       .8      1.2      1.1      1.0      2.2      2.4      1.0       .4      1.2      1.9       .7

STA=   10041.   10074.   10088.
  PER Q=     3.8       .1
   AREA=    20.8      2.1
    VEL=     2.0       .8
  DEPTH=      .6       .2

CCHV=     .100 CEHV=     .300
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 2.105
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.105       2.78    1749.78    1749.78       .00    1750.22       .45      10.98       .01    1748.90
    1110.0      135.2      621.7      353.1      67.4       91.5     130.4       16.9      21.7    1749.10
       .17       2.00       6.80       2.71      .080       .035      .070       .000   1747.00    9887.98
   .018495       675.       644.       655.        13          9         0        .00    327.05   10215.03

FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.78

STA=    9888.    9944.    9971.    9990.   10061.   10079.   10091.   10107.   10136.   10159.   10190.   10209.   10215.
  PER Q=     6.5      3.2      2.5     56.0      4.5      5.7      4.2      4.9      4.4      4.2      3.9       .1
   AREA=    35.8     18.3     13.3     91.5     17.5     17.2     15.6     22.4     19.2     20.9     16.6       .8
    VEL=     2.0      1.9      2.0      6.8      2.8      3.7      3.0      2.4      2.5      2.2      2.6       .8
  DEPTH=      .6       .7       .7      1.3      1.0      1.4      1.0       .8       .8       .7       .9       .1

1490 NH CARD USED
*SECNO 2.181

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.181       2.68    1759.98    1759.98       .00    1760.57       .59       5.39       .04    1758.90
    1110.0       89.8      763.0      257.2      56.8      105.2     105.9       19.3      24.3    1758.80
       .19       1.58       7.25       2.43      .080       .035      .070       .000   1757.30    9830.08
   .010656       390.       401.       370.         9          8         0        .00    246.95   10111.02

FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1759.98

STA=    9830.    9932.    9968.   10017.   10030.   10053.   10065.   10086.   10100.   10111.
  PER Q=     3.0      5.1     68.7      3.5      6.4      3.0      6.0      3.4       .8
   AREA=    27.4     29.3    105.2     16.0     28.3     13.7     26.4     15.9      5.6
    VEL=     1.2      1.9      7.3      2.5      2.5      2.5      2.5      2.4      1.5
  DEPTH=      .3       .8      2.1      1.2      1.2      1.2      1.2      1.1       .5

1490 NH CARD USED
*SECNO 2.297
7185 MINIMUM SPECIFIC ENERGY
1
   17NOV94      14:42:14                                                                                          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

3720 CRITICAL DEPTH ASSUMED
     2.297       2.63    1774.23    1774.23       .00    1774.73       .50       7.73       .01    1773.30
    1110.0       69.5      659.0      381.4      36.4       97.0     101.9       22.8      28.1    1773.50
       .22       1.91       6.79       3.74      .080       .035      .047       .000   1771.60    9935.71
   .015752       625.       612.       575.        12          5         0        .00    307.41   10243.12

FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.23

STA=    9936.    9979.    9989.   10057.   10121.   10131.   10139.   10193.   10243.
  PER Q=     4.5      1.8     59.4      5.5     17.5      5.7      3.9      1.7
   AREA=    27.2      9.2     97.0     25.8     23.1     11.4     26.3     15.3
    VEL=     1.8      2.2      6.8      2.3      8.4      5.6      1.7      1.3
  DEPTH=      .6       .9      1.4       .4      2.4      1.3       .5       .3

1490 NH CARD USED
*SECNO 2.403

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.403       2.42    1788.32    1788.32       .00    1788.69       .37       8.95       .01    1787.60
    1110.0      387.3      338.2      384.5     131.2       44.1     134.1       26.2      32.3    1787.40
       .25       2.95       7.68       2.87      .070       .035      .060       .000   1785.90    9836.00
   .016805       530.       560.       550.        10         10         0        .00    367.07   10210.07
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FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.32

STA=    9836.    9886.    9909.    9929.    9934.    9949.    9977.    9991.   10017.   10061.   10069.   10077.   10094.
  PER Q=      3.2      5.0      7.7      4.5      9.1      4.4      1.1     30.5      5.9      6.0      5.8      4.4
   AREA=     20.1     20.9     25.9     11.3     25.0     20.9      7.1     44.1     30.3     10.9     11.2     16.6
    VEL=      1.7      2.6      3.3      4.4      4.0      2.3      1.8      7.7      2.2      6.0      5.7      2.9
  DEPTH=       .4       .9      1.3      2.0      1.8       .7       .5      1.7       .7      1.4      1.3      1.0

STA=   10094.   10103.   10148.   10210.
  PER Q=      3.7      5.8      3.1
   AREA=     12.2     30.0     22.8
    VEL=      3.4      2.1      1.5
  DEPTH=      1.4       .7       .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=     .100 CEHV=     .300
*SECNO 2.494
3280 CROSS SECTION      2.49 EXTENDED       .58 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.494      3.28   1800.78   1800.78       .00   1801.45       .67      7.71       .09   1799.50
    1270.0      69.4     645.6     555.0      35.5      77.4     136.3      29.0      35.2   1799.80
       .27      1.95      8.34      4.07      .080      .035      .060      .000   1797.50   9925.58
   .017343      445.      480.      425.        14        14         0       .00    204.42  10130.00

FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.78

STA=    9926.    9961.    9977.   10019.   10036.   10062.   10072.   10080.   10097.   10123.   10130.
  PER Q=      3.2      2.2     50.8      4.3      5.8      8.0      9.8      8.5      6.5      1.0
   AREA=     22.4     13.1     77.4     16.7     23.8     19.1     20.8     25.4     25.4      5.1
    VEL=      1.8      2.2      8.3      3.2      3.1      5.3      6.0      4.2      3.2      2.4
  DEPTH=       .6       .8      1.8      1.0       .9      2.0      2.5      1.5      1.0       .7
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH  FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A 100-YEAR (FLOODWAY)      L. CULLER - (602)244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                                                                   1681.40

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15                  -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
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.557
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     9970.0   10104.0  TYPE=      1  TARGET=      134.000
     1.557      3.30   1681.40       .00   1680.40   1681.71       .31       .00       .00   1679.90
    1080.0     174.7     905.3        .0      47.3     196.2        .0        .0        .0 100000.00
       .00      3.69      4.61       .00      .080      .068      .000      .000   1678.10   9970.00
   .020508      400.      449.      490.         0         0         0       .00    134.00  10104.00

FLOW DISTRIBUTION FOR SECNO=      1.56          CWSEL=   1681.40

STA=    9970.    9988.    9997.   10104.
  PER Q=     11.1      5.1     83.8
   AREA=     32.3     15.0    196.2
    VEL=      3.7      3.6      4.6
  DEPTH=      1.8      1.6      1.8

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.629
3280 CROSS SECTION      1.63 EXTENDED       .29 FEET
```

```
3470 ENCROACHMENT STATIONS=     9976.0   10187.0  TYPE=      1  TARGET=      211.000
     1.629      3.49   1689.79      .00   1689.42   1690.16       .38      8.43       .02   1689.40
    1090.0        .0     310.0    780.0        .0      46.6     194.1       2.0       1.4   1688.90
       .02       .03      6.66     4.02      .080      .035      .070      .000   1686.30   9976.00
   .026191      415.      380.     330.         6         0         0       .00    211.00  10187.00

FLOW DISTRIBUTION FOR SECNO=      1.63          CWSEL=   1689.79
```



```
     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=    9976.    9976.   10025.   10034.   10043.   10061.   10074.   10081.   10098.   10106.   10120.   10143.   10158.
  PER Q=      .0     28.4      3.9      4.1      5.5      9.4      5.3      9.9      7.0      7.7      4.5      4.2
   AREA=      .0     46.6     10.9     11.2     17.7     21.6     11.8     24.7     14.9     19.2     17.4     13.9
    VEL=      .0      6.7      3.9      3.9      3.4      4.8      4.9      4.4      5.1      4.4      2.8      3.3
  DEPTH=      .4      1.0      1.2      1.2      1.0      1.6      1.7      1.4      1.8      1.4       .7       .9

STA=   10158.   10173.   10187.   10187.
  PER Q=     5.2      4.7       .1
   AREA=    15.6     14.5       .5
    VEL=     3.6      3.5      1.7
  DEPTH=     1.1      1.0      1.1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.733

3470 ENCROACHMENT STATIONS=     9874.0   10034.0  TYPE=      1  TARGET=      160.000
     1.733      2.74   1703.54   1703.49   1702.74   1704.17       .63     13.93       .08   1702.90
    1090.0     591.2     496.7      2.1     137.4      60.8       1.0       4.6       3.6   1702.70
       .05      4.30      8.17      2.19      .070      .035      .070      .000   1700.80   9874.00
   .027507      490.      549.      510.        17        19         0       .00    160.00  10034.00

FLOW DISTRIBUTION FOR SECNO=      1.73          CWSEL=   1703.54

STA=    9874.    9894.    9928.    9946.    9969.    9984.   10033.   10034.
  PER Q=    15.8     23.2      8.4      5.1      1.7     45.6       .2
   AREA=    35.5     52.9     22.5     18.4      8.1     60.8      1.0
    VEL=     4.9      4.8      4.1      3.0      2.3      8.2      2.2
  DEPTH=     1.7      1.6      1.2       .8       .5      1.3       .8

1490 NH CARD USED
*SECNO 1.806
3280 CROSS SECTION      1.81 EXTENDED       .15 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9931.0   10044.0  TYPE=      1  TARGET=      113.000
     1.806      2.65   1713.25   1713.25   1712.59   1714.03       .78      7.46       .05   1712.50
    1090.0     176.3     913.7        .0      47.0     120.8        .1       6.2       4.8   1712.60
       .06      3.75      7.56       .03      .051      .035      .070      .000   1710.60   9931.00
   .014384      385.      385.      370.         4         8         0       .00    113.00  10044.00
```



```
     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

FLOW DISTRIBUTION FOR SECNO=      1.81          CWSEL=   1713.25

STA=    9931.    9942.    9967.    9978.   10044.   10044.
  PER Q=    10.3      4.5      1.4     83.8       .0
   AREA=    18.6     21.0      7.4    120.8       .1
    VEL=     6.1      2.3      2.0      7.6       .0
  DEPTH=     1.8       .8       .7      1.8       .6

1490 NH CARD USED
*SECNO 1.887
3280 CROSS SECTION      1.89 EXTENDED       .04 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9958.0   10090.0  TYPE=      1  TARGET=      132.000
     1.887      3.14   1722.94   1722.94   1722.35   1723.63       .70      6.84       .01   1722.60
    1090.0        .0    1021.2      68.8        .1     148.6      22.5       7.9       6.0   1722.00
       .08       .03      6.87      3.05      .070      .035      .070      .000   1719.80   9958.00
   .018008      415.      428.      400.         6        11         0       .00    132.00  10090.00

FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.94

STA=    9958.    9958.   10070.   10083.   10090.
  PER Q=      .0     93.7      4.3      2.0
   AREA=      .1    148.6     14.8      7.7
    VEL=      .0      6.9      3.2      2.8
```

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 DEPTH=        .3       1.3       1.2       1.1

1490 NH CARD USED
*SECNO 1.983
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      9895.0   10019.0  TYPE=       1  TARGET=       124.000
     1.983      3.92   1735.72   1735.72   1735.02   1736.52       .80      7.43       .03   1734.20
    1110.0     428.6     680.4       1.0     117.8      78.3        .8      10.1       7.5   1734.10
       .10      3.64      8.69      1.23      .056      .035      .070      .000   1731.80   9895.00
   .012052      525.      507.      505.         6        11         0       .00    124.00  10019.00
```



```
    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

FLOW DISTRIBUTION FOR SECNO=       1.98          CWSEL=   1735.72

STA=    9895.     9910.     9924.     9963.     9975.     9988.    10019.    10019.
  PER Q=      13.5       4.0       6.9       6.4       7.8      61.3        .1
   AREA=      26.0      11.8      34.5      20.9      24.5      78.3        .8
    VEL=       5.7       3.7       2.2       3.4       3.5       8.7       1.2
  DEPTH=       1.7        .9        .9       1.8       1.9       2.6       1.6

CCHV=     .100 CEHV=     .300
*SECNO 2.105
3280 CROSS SECTION      2.11 EXTENDED       .10 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      9989.0   10078.0  TYPE=       1  TARGET=        89.000
     2.105      3.30   1750.30   1750.30   1749.78   1751.22       .92      8.98       .04   1748.90
    1110.0       1.4    1023.9      84.8       1.0     128.9      25.8      12.7       9.1   1749.10
       .12      1.42      7.94      3.28      .080      .035      .070      .000   1747.00   9989.00
   .015991      675.      644.      655.        14        15         0       .00     89.00  10078.00

FLOW DISTRIBUTION FOR SECNO=       2.11          CWSEL=   1750.30

STA=    9989.     9990.    10061.    10078.
  PER Q=        .1      92.2       7.6
   AREA=       1.0     128.9      25.8
    VEL=       1.4       7.9       3.3
  DEPTH=       1.4       1.8       1.5

1490 NH CARD USED
*SECNO 2.181
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      9967.0   10022.0  TYPE=       1  TARGET=        55.000
     2.181      3.01   1760.31   1760.31   1759.98   1761.54      1.23      5.87       .09   1758.90
    1110.0       1.6    1087.0      21.5       1.1     121.0       7.8      14.0       9.8   1758.80
       .14      1.38      8.98      2.74      .080      .035      .070      .000   1757.30   9967.00
   .013558      390.      401.      370.         9        11         0       .00     55.00  10022.00
```



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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

FLOW DISTRIBUTION FOR SECNO=       2.18          CWSEL=   1760.31

STA=    9967.     9968.    10017.    10022.
  PER Q=        .1      97.9       1.9
   AREA=       1.1     121.0       7.8
    VEL=       1.4       9.0       2.7
  DEPTH=       1.4       2.5       1.5

1490 NH CARD USED
*SECNO 2.297
3280 CROSS SECTION      2.30 EXTENDED       .28 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      9989.0   10072.0  TYPE=       1  TARGET=        83.000
     2.297      3.18   1774.78   1774.78   1774.23   1775.73       .96      8.48       .03   1773.30
    1110.0        .6    1068.2      41.2        .6     133.7      16.2      16.0      10.7   1773.50
       .16      1.02      7.99      2.54      .080      .035      .070      .000   1771.60   9989.00
   .014198      625.      612.      575.         5         8         0       .00     83.00  10072.00

FLOW DISTRIBUTION FOR SECNO=       2.30          CWSEL=   1774.78

STA=    9989.     9989.    10057.    10072.
  PER Q=        .1      96.2       3.7
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   AREA=       .6     133.7      16.2
    VEL=      1.0       8.0       2.5
  DEPTH=      1.5       2.0       1.1

1490 NH CARD USED
*SECNO 2.403
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9937.0   10069.0  TYPE=      1  TARGET=      132.000
     2.403      2.99   1788.89   1788.89   1788.32   1789.66       .77      8.48       .02   1787.60
    1110.0     271.6     547.5     290.9      78.1      59.2      70.8      18.2      12.1   1787.40
       .18      3.48      9.26      4.11      .070      .035      .058      .000   1785.90   9937.00
   .016495      530.      560.      550.        12        11         0       .00    132.00  10069.00


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   17NOV94      14:42:14                                                                                PAGE   18

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

FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.89

STA=    9937.    9949.    9955.    9977.    9991.   10017.   10035.   10061.   10069.   10069.
  PER Q=      9.6      3.6      7.4      3.9     49.3      6.7      9.1     10.3       .0
   AREA=     26.0     10.3     26.9     14.9     59.2     23.1     32.1     15.3       .3
    VEL=      4.1      3.9      3.1      2.9      9.3      3.2      3.1      7.5      1.0
  DEPTH=      2.3      1.7      1.2      1.1      2.2      1.3      1.2      2.0      2.6

CCHV=     .100 CEHV=     .300
*SECNO 2.494
3280 CROSS SECTION      2.49 EXTENDED      1.26 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9977.0   10067.0  TYPE=      1  TARGET=       90.000
     2.494      3.96   1801.46   1801.46   1800.78   1802.44       .98      6.92       .06 100000.00
    1270.0        .0     939.6     330.4        .0     105.3      80.3      20.3      13.2   1799.80
       .20       .00      8.92      4.11      .000      .035      .060      .000   1797.50   9977.00
   .013860      445.      480.      425.         4        11         0       .00     90.00  10067.00


FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1801.46

STA=    9977.   10019.   10036.   10048.   10062.   10067.   10067.
  PER Q=     74.0      9.0      5.4      7.5      4.0       .0
   AREA=    105.3     28.2     17.9     23.4     10.4       .5
    VEL=      8.9      4.1      3.8      4.1      4.9       .9
  DEPTH=      2.5      1.7      1.5      1.7      2.2      2.5

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   17NOV94      14:42:14                                                                                PAGE   19


                                                                                THIS RUN EXECUTED 17NOV94    14:42:22

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

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

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

 WASH A 100-YEAR

 SUMMARY PRINTOUT
```

	SECNO	ELMIN	CWSEL	SSTA	ENDST	DEPTH	Q	VCH	HV	DIFWSX	QWEIR	ELTRD	ELLC
	1.557	1678.10	1680.40	9852.90	10275.22	2.30	1080.00	4.61	.32	.00	.00	.00	.00
	1.557	1678.10	1681.40	9970.00	10104.00	3.30	1080.00	4.61	.31	.00	.00	.00	.00
*	1.629	1686.30	1689.42	9918.86	10360.62	3.12	1090.00	3.92	.17	9.02	.00	.00	.00
	1.629	1686.30	1689.79	9976.00	10187.00	3.49	1090.00	6.66	.38	8.39	.00	.00	.00
*	1.733	1700.80	1702.74	9762.37	10033.58	1.94	1090.00	4.17	.44	13.32	.00	.00	.00
	1.733	1700.80	1703.54	9874.00	10034.00	2.74	1090.00	8.17	.63	13.75	.00	.00	.00
*	1.806	1710.60	1712.59	9729.08	10043.74	1.99	1090.00	6.62	.44	9.85	.00	.00	.00
*	1.806	1710.60	1713.25	9931.00	10044.00	2.65	1090.00	7.56	.78	9.71	.00	.00	.00
*	1.887	1719.80	1722.35	9644.67	10124.10	2.55	1090.00	4.97	.32	9.76	.00	.00	.00
*	1.887	1719.80	1722.94	9958.00	10090.00	3.14	1090.00	6.87	.70	9.69	.00	.00	.00
*	1.983	1731.80	1735.02	9805.09	10087.77	3.22	1110.00	7.87	.51	12.67	.00	.00	.00
*	1.983	1731.80	1735.72	9895.00	10019.00	3.92	1110.00	8.69	.80	12.79	.00	.00	.00
*	2.105	1747.00	1749.78	9887.98	10215.03	2.78	1110.00	6.80	.45	14.76	.00	.00	.00
*	2.105	1747.00	1750.30	9989.00	10078.00	3.30	1110.00	7.94	.92	14.58	.00	.00	.00
*	2.181	1757.30	1759.98	9830.08	10111.02	2.68	1110.00	7.25	.59	10.21	.00	.00	.00

*	2.181	1757.30	1760.31	9967.00	10022.00	3.01	1110.00	8.98	1.23	10.00	.00	.00	.00
*	2.297	1771.60	1774.23	9935.71	10243.12	2.63	1110.00	6.79	.50	14.25	.00	.00	.00
*	2.297	1771.60	1774.78	9989.00	10072.00	3.18	1110.00	7.99	.96	14.47	.00	.00	.00
*	2.403	1785.90	1788.32	9836.00	10210.07	2.42	1110.00	7.68	.37	14.09	.00	.00	.00
*	2.403	1785.90	1788.89	9937.00	10069.00	2.99	1110.00	9.26	.77	14.12	.00	.00	.00
*	2.494	1797.50	1800.78	9925.58	10130.00	3.28	1270.00	8.34	.67	12.46	.00	.00	.00
*	2.494	1797.50	1801.46	9977.00	10067.00	3.96	1270.00	8.92	.98	12.57	.00	.00	.00

WASH A 100-YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1.557	1680.40	.00	1680.72	363.05	268.06	411.57	400.36	.00	.00	9997.00	10104.00	.00
	1.557	1681.40	1.00	1681.71	134.00	174.73	905.26	.00	134.00	9970.00	9997.00	10104.00	10104.00
*	1.629	1689.42	.00	1689.59	441.75	41.23	112.32	936.45	.00	.00	9976.10	10024.90	.00
	1.629	1689.79	.37	1690.16	211.00	.00	310.04	779.96	211.00	9976.00	9976.10	10024.90	10187.00
*	1.733	1702.74	.00	1703.17	240.95	997.56	92.44	.00	.00	.00	9984.30	10032.80	.00
	1.733	1703.54	.80	1704.17	160.00	591.16	496.71	2.12	160.00	9874.00	9984.30	10032.80	10034.00
*	1.806	1712.59	.00	1713.03	299.97	578.48	511.52	.00	.00	.00	9977.50	10043.90	.00
*	1.806	1713.25	.66	1714.03	113.00	176.29	913.70	.00	113.00	9931.00	9977.50	10043.90	10044.00
*	1.887	1722.35	.00	1722.66	432.49	633.46	411.90	44.64	.00	.00	9958.20	10070.30	.00
*	1.887	1722.94	.59	1723.63	132.00	.00	1021.22	68.78	132.00	9958.00	9958.20	10070.30	10090.00
*	1.983	1735.02	.00	1735.52	259.84	583.01	446.26	80.73	.00	.00	9988.00	10018.50	.00
*	1.983	1735.72	.71	1736.52	124.00	428.58	680.43	.99	124.00	9895.00	9988.00	10018.50	10019.00
*	2.105	1749.78	.00	1750.22	327.05	135.21	621.71	353.07	.00	.00	9989.70	10060.70	.00
*	2.105	1750.30	.53	1751.22	89.00	1.38	1023.86	84.76	89.00	9989.00	9989.70	10060.70	10078.00
*	2.181	1759.98	.00	1760.57	246.95	89.79	763.01	257.20	.00	.00	9967.80	10016.80	.00
*	2.181	1760.31	.32	1761.54	55.00	1.55	1086.96	21.49	55.00	9967.00	9967.80	10016.80	10022.00
*	2.297	1774.23	.00	1774.73	307.41	69.55	659.05	381.40	.00	.00	9989.40	10056.70	.00
*	2.297	1774.78	.55	1775.73	83.00	.61	1068.21	41.18	83.00	9989.00	9989.40	10056.70	10072.00
*	2.403	1788.32	.00	1788.69	367.07	387.29	338.20	384.52	.00	.00	9990.90	10017.40	.00
*	2.403	1788.89	.57	1789.66	132.00	271.57	547.49	290.94	132.00	9937.00	9990.90	10017.40	10069.00
*	2.494	1800.78	.00	1801.45	204.42	69.37	645.64	554.99	.00	.00	9976.70	10019.10	.00
*	2.494	1801.46	.67	1802.44	90.00	.00	939.63	330.37	90.00	9977.00	9976.70	10019.10	10067.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	1.629	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	1.733	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.733	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.806	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.806	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.806	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.806	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.887	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.887	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.887	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.887	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.983	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.983	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.983	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.983	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.105	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.105	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.105	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.105	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.181	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.181	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.181	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.181	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.297	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.297	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.297	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.297	PROFILE=	2	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.403	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	2.403	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	2.403	PROFILE=	2	CRITICAL DEPTH ASSUMED

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CAUTION SECNO=      2.403  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      2.494  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.494  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, WASH A 100-YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.557	134.	244.	4.4	1681.4	1680.4	1.0
1.629	211.	241.	4.5	1689.8	1689.4	.4
1.733	160.	199.	5.5	1703.5	1702.7	.8
1.806	113.	168.	6.5	1713.3	1712.6	.7
1.887	132.	171.	6.4	1722.9	1722.3	.6
1.983	124.	197.	5.6	1735.7	1735.0	.7
2.105	89.	156.	7.1	1750.3	1749.8	.5
2.181	55.	130.	8.5	1760.3	1760.0	.3
2.297	83.	151.	7.4	1774.7	1774.2	.5
2.403	132.	208.	5.3	1788.9	1788.3	.6
2.494	90.	186.	6.8	1801.5	1800.8	.7

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    31OCT94    TIME   14:00:48 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   31OCT94      14:00:48                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 31OCT94    14:00:48
 *************************************
 HEC-2 WATER SURFACE PROFILES

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


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH F 100-YEAR                L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHF\WASHFF1.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           -1                                      1527

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        53        54         8        43        26        10        51
     46        40        41         0       110         0       200

QT        2       610       610
NC      .08       .08      .055       0.1       0.3
ET                          4.1      9933     10038
X1    0.000        12    9927.4   10048.4
GR   1536.3    9907.1    1536.3    9907.1    1535.3    9927.4    1525.6    9934.2    1525.6    9958.8
GR   1525.6    9977.2    1526.0   10000.0    1525.8   10037.0    1535.3   10048.4    1535.1   10067.3
GR   1535.9   10079.2    1535.9   10092.3

NC      .08       .08      .050       0.1       0.3
ET                          4.1      9914     10025
X1    0.095        15    9902.9   10037.2       540       490       502
GR   1560.0    9838.9    1558.9    9845.8    1554.2    9863.2    1547.6    9878.2    1545.7    9883.9
GR   1545.7    9902.9    1544.7    9914.3    1544.3    9930.0    1544.4    9945.8    1544.6    9962.0
GR   1543.4    9973.3    1543.1    9991.6    1542.6   10000.0    1542.7   10023.3    1562.7   10037.2

NC      .07       .08      .045       0.1       0.3
ET                          4.1      9986     10028
X1    0.195        13    9981.0   10028.7       425       575       528
GR   1570.4    9913.2    1565.8    9928.4    1567.7    9941.7    1565.2    9954.6    1564.5    9959.7
GR   1565.2    9969.1    1562.4    9981.0    1559.3    9996.7    1559.0   10000.0    1559.0   10015.7
GR   1559.2   10023.3    1561.8   10028.7    1562.6   10038.9
1
   31OCT94      14:00:48                                                                    PAGE    2


NC      .08       .08       .04       0.1       0.3
ET                          4.1      9974     10015
X1    0.305        13    9962.7   10015.7       610       530       581
GR   1583.6    9928.6    1583.4    9938.6    1582.8    9953.4    1581.5    9962.7    1578.4    9975.3
GR   1577.7    9980.0    1576.2    9985.1    1576.2   10000.0    1576.4   10008.4    1578.8   10015.7
GR   1579.6   10034.2    1580.2   10048.4    1580.2   10053.8

NH        5       .08    9921.9       .04    9951.2       .08    9980.6       .04   10017.8       .07
NH   10024.
ET                          4.1      9981     10017
X1    0.374        16    9980.6   10017.8       340       385       364
GR   1590.7    9875.6    1589.2    9897.0    1588.0    9906.6    1587.6    9921.9    1586.0    9929.5
GR   1585.8    9938.8    1586.1    9947.9    1587.3    9951.2    1587.2    9965.0    1587.1    9980.6
GR   1586.2    9987.3    1585.5    9992.7    1585.3   10000.0    1585.6   10011.9    1587.7   10017.8
GR   1587.7   10024.0

        FOREST SERVICE ROAD IS AT RIVER MILE 0.385 (LOW CROSSING, NO STRUCTURE)

NH        5       .08    9907.9       .04    9945.9       .08    9973.5       .04   10028.5       .07
NH   10112.
ET                          4.1      9974     10029
```

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X1    0.390        22     9973.5    10028.5        85        85        85
GR   1592.0   9876.69     1592.0     9876.7    1591.4    9887.7    1590.0    9895.7    1590.2    9907.9
GR   1588.5    9920.7     1588.4     9931.5    1588.6    9938.5    1590.0    9945.9    1589.8    9959.9
GR   1589.5    9973.5     1587.8     9989.7    1587.6    9997.8    1587.6   10000.0    1587.7   10005.5
GR   1588.7   10015.1     1589.5    10028.5    1590.2   10051.6    1591.3   10073.4    1593.2   10091.1
GR   1593.9   10098.1     1594.3    10112.0

        SECTION 0.480 CONTOURS ARE ALTERED FROM STA. 9875.8 TO STA. 9919.2
        TO REFLECT EFFECTIVE FLOW CONDITIONS - SEE SPECIAL PROBLEM NO. F3

NH        5       .08     9942.7        .04    9958.4       .08    9966.8       .04   10021.0       .07
NH   10034.
ET                          4.1       9967     10017
X1    0.480        20     9966.8    10021.0       470       450       475
GR   1604.0    9875.8     1604.0     9880.5    1604.0    9890.0    1604.0    9893.0    1602.2    9919.2
GR   1602.2    9931.1     1601.8     9942.7    1600.5    9950.8    1600.7    9954.1    1602.4    9958.4
GR   1602.9    9966.8     1602.1     9975.6    1601.1    9978.9    1601.3    9985.7    1602.2    9990.5
GR   1601.2    9997.9     1601.2    10000.0    1601.0   10014.5    1605.5   10021.0    1607.0   10034.0

NH        5       .08     9932.4        .04    9954.3       .08    9993.5       .04   10015.8       .07
NH   10133.
ET                          4.1       9956     10016
X1    0.569        25     9993.5    10015.8       435       480       470
GR   1616.1   9885.07     1616.1    9885.08    1616.1   9885.09    1616.1    9885.1    1615.6    9898.7
GR   1614.3    9912.7     1613.6     9926.1    1613.7    9932.4    1612.3    9934.9    1612.1    9946.6
GR   1612.0    9954.3     1612.6     9964.9    1613.1    9986.3    1613.1    9993.5    1612.2   10000.0
GR   1612.5   10008.7     1613.7    10015.8    1613.6   10028.6    1614.6   10036.5    1614.4   10047.2
GR   1615.4   10060.0     1616.1    10076.7    1616.7   10095.8    1617.6   10115.2    1618.3   10133.0

        SECTION 0.683 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA
1
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        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. F2

NH        5       .07     9811.2        .04    9853.5       .07    9971.5      .035   10017.5       .07
NH   10104.
ET                          4.1       9980     10050
X1    0.683        30     9971.5    10017.5       510       590       602
GR   1629.1   9801.07     1629.1    9801.08    1629.1   9801.09    1629.1    9801.1    1629.0    9811.2
GR   1626.7    9827.9     1626.8     9838.9    1626.6    9848.1    1628.7    9853.5    1628.7    9865.5
GR   1628.6    9870.4     1628.0     9877.0    1629.4    9886.4    1629.6    9908.8    1630.0    9930.7
GR   1629.7    9955.0     1629.0     9971.5    1627.9    9986.6    1627.0    9998.8    1626.9   10000.0
GR   1626.8   10012.6     1628.6    10017.5    1628.6   10027.2    1627.4   10038.9    1628.0   10051.4
GR   1628.9   10065.2     1629.8    10076.8    1630.2   10088.7    1629.5   10094.9    1630.3   10104.0

        SECTION 0.790 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA
        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. F1

NH        5       .08     9976.7      .035   10009.7       .08   10126.2       .04   10160.6       .08
NH   10175.
ET                          4.1       9977     10022
X1    0.790        22     9976.7    10009.7       550       560       565
GR   1642.7    9925.6     1642.9     9942.6    1641.9    9954.4    1640.4    9968.0    1640.8    9976.7
GR   1639.6    9983.8     1639.4     9995.0    1639.5   10000.0    1640.4   10009.7    1641.6   10023.1
GR   1643.6   10032.2     1643.9    10046.8    1643.9   10064.1    1643.2   10076.4    1642.9   10093.8
GR   1641.7   10105.9     1641.9    10119.6    1641.4   10126.2    1640.0   10139.7    1639.5   10149.7
GR   1642.4   10160.6     1642.4    10175.0

NC      .08       .08      .035        .1        .3
ET                          4.1      9976     10017
X1    0.856        12     9976.2    10017.7       340       355       348
GR   1650.5   9968.19     1650.5     9968.2    1649.9    9976.2    1648.1    9987.1    1648.1   10000.0
GR   1648.4   10013.4     1651.2    10017.7    1650.7   10033.1    1651.2   10051.0    1651.5   10073.9
GR   1651.6   10096.7     1651.6    10113.1       0.0       0.0       0.0       0.0       0.0       0.0

NC      .07       .07      .035        0.1       .03
ET                          4.1      9979     10019
X1    0.961         9     9973.9    10020.4       550       555       549
GR   1663.7    9944.1     1663.6     9959.6    1663.0    9973.9    1659.9    9987.9    1659.4   10000.0
GR   1659.5   10017.4     1662.9    10020.4    1663.2   10032.5    1663.5   10049.3
1
   31OCT94      14:00:48                                                                          PAGE    4

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

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3720 CRITICAL DEPTH ASSUMED
       .000      1.17   1526.77   1526.77   1527.00   1527.29       .51       .00       .00   1535.30
      610.0        .0     610.0        .0        .0     106.1        .0        .0        .0   1535.30
        .00       .00      5.75       .00      .000      .055      .000      .000   1525.60   9933.38
    .045108        0.        0.        0.         0        14         0       .00    104.79  10038.17

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1526.77

 STA=    9933.   10048.
```

```
  PER Q=     100.0
   AREA=     106.1
    VEL=       5.8
  DEPTH=       1.0

CCHV=      .100 CEHV=      .300
*SECNO  .095
      .095       2.16   1544.76       .00       .00   1545.18       .42     17.88       .01   1545.70
     610.0         .0     610.0        .0        .0     117.3        .0       1.3       1.2   1562.70
       .03        .00      5.20       .00      .000      .050      .000      .000   1542.60   9913.65
   .028834       540.      502.      490.         6         0         0       .00    111.08  10024.73

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1544.76

STA=    9914.   10037.
  PER Q=     100.0
   AREA=     117.3
    VEL=       5.2
  DEPTH=       1.1

CCHV=      .100 CEHV=      .300
*SECNO  .195

3301 HV CHANGED MORE THAN HVINS

1
   31OCT94      14:00:48                                                                                    PAGE    5

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .195       2.39   1561.39   1561.39       .00   1562.33       .95     14.07       .16   1562.40
     610.0         .0     610.0        .0        .0      78.2        .0       2.5       2.2   1561.80
       .05        .00      7.80       .00      .000      .045      .000      .000   1559.00   9986.14
   .024705       425.      528.      575.         4         8         0       .00     41.70  10027.84

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1561.39

STA=    9986.   10029.
  PER Q=     100.0
   AREA=      78.2
    VEL=       7.8
  DEPTH=       1.9

CCHV=      .100 CEHV=      .300
*SECNO  .305
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .305       2.50   1578.70   1578.70       .00   1579.66       .96     12.75       .00   1581.50
     610.0         .0     610.0        .0        .0      77.8        .0       3.5       2.7   1578.80
       .07        .00      7.84       .00      .000      .040      .000      .000   1576.20   9974.07
   .019619       610.      581.      530.         4         8         0       .00     41.34  10015.41

FLOW DISTRIBUTION FOR SECNO=       .31          CWSEL=   1578.70

STA=    9974.   10016.
  PER Q=     100.0
   AREA=      77.8
    VEL=       7.8
  DEPTH=       1.9

1490 NH CARD USED
*SECNO  .374
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .374       2.15   1587.45   1587.45       .00   1588.05       .60      6.76       .04   1587.10
     610.0      223.2     386.8        .0      43.1      57.6        .0       4.2       3.3   1587.70
       .08       5.18      6.71       .00      .041      .040      .000      .000   1585.30   9922.61
   .018042       340.      364.      385.        10        15         0       .00     94.50  10017.10

1
   31OCT94      14:00:48                                                                                    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

FLOW DISTRIBUTION FOR SECNO=       .37          CWSEL=   1587.45

STA=    9923.    9930.    9939.    9948.    9951.    9965.    9981.   10018.
  PER Q=      3.3     15.8     14.7      1.6       .4       .9     63.4
   AREA=      5.0     14.4     13.7      2.5      2.8      4.7     57.6
    VEL=      4.0      6.7      6.5      4.0       .9      1.1      6.7
  DEPTH=       .7      1.6      1.5       .8       .2       .3      1.6

1490 NH CARD USED
*SECNO  .390

3265 DIVIDED FLOW
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .390      2.11   1589.71   1589.71       .00   1590.25       .55      1.60       .00   1589.50
     610.0     163.8     445.8        .5      31.7      71.9        .7       4.4       3.5   1589.50
       .09      5.17      6.20       .65      .040      .040      .070      .000   1587.60   9911.61
   .019545       85.       85.       85.         7         8         0       .00    103.93  10035.32

FLOW DISTRIBUTION FOR SECNO=       .39          CWSEL=   1589.71

STA=    9912.    9921.    9932.    9939.    9944.    9974.   10029.   10035.
  PER Q=      3.3     13.5      8.2      1.8       .1     73.1       .1
   AREA=      5.5     13.6      8.4      3.2      1.0     71.9       .7
    VEL=      3.7      6.0      5.9      3.5       .6      6.2       .7
  DEPTH=       .6      1.3      1.2       .6       .0      1.3       .1

1490 NH CARD USED
*SECNO  .480

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .480      2.27   1602.77   1602.77       .00   1603.31       .54      9.86       .00   1602.90
     610.0     236.0     374.0        .0      44.9      59.7        .0       5.6       4.6   1605.50
       .11      5.25      6.26       .00      .046      .040      .000      .000   1600.50   9910.86
   .022260      470.      475.      450.        10         8         0       .00    102.66  10017.06
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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=       .48          CWSEL=   1602.77

STA=    9911.    9943.    9951.    9954.    9958.    9965.   10021.
  PER Q=      6.0     16.4     10.9      5.2       .2     61.3
   AREA=     18.2     13.1      7.2      5.3      1.2     59.7
    VEL=      2.0      7.6      9.3      6.0       .9      6.3
  DEPTH=       .6      1.6      2.2      1.2       .2      1.2

1490 NH CARD USED
*SECNO  .569
      .569      1.82   1613.82   1613.81       .00   1614.35       .54     11.04       .00   1613.10
     610.0     436.2     171.2       2.6      78.7      25.6       2.5      6.7       5.7   1613.70
       .13      5.55      6.68      1.07      .053      .040      .070      .000   1612.00   9921.77
   .027080      435.      470.      480.         6        15         0       .00    108.61  10030.39

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1613.82

STA=    9922.    9947.    9954.    9965.    9986.    9994.   10016.   10030.
  PER Q=     28.3     20.1     10.7     10.3      2.1     28.1       .4
   AREA=     22.7     13.7     16.2     20.9      5.2     25.6      2.5
    VEL=      7.6      9.0      4.0      3.0      2.5      6.7      1.1
  DEPTH=       .9      1.8      1.5      1.0       .7      1.1       .2

1490 NH CARD USED
*SECNO  .683

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .683      1.89   1628.49   1628.49       .00   1629.02       .53     11.65       .00   1629.00
     610.0     331.0     242.4      36.6      54.1      41.6      17.6       8.0       7.1   1628.60
       .16      6.12      5.83      2.08      .040      .035      .070      .000   1626.60   9814.88
   .017379      510.      602.      590.         4         8         0       .00    116.25  10058.95

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1628.49

STA=    9815.    9828.    9839.    9848.    9853.    9880.   10018.   10051.   10059.
  PER Q=      8.7     22.3     19.5      3.4       .4     39.7      5.7       .3
   AREA=     11.7     19.2     16.5      4.6      2.1     41.6     15.7      1.9
    VEL=      4.5      7.1      7.2      4.5      1.1      5.8      2.2      1.1
  DEPTH=       .9      1.7      1.8       .9       .1      1.1       .5       .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

1490 NH CARD USED
*SECNO  .790

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .790      2.06   1641.46   1641.46       .00   1642.09       .63      8.85       .03   1640.80
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```
     610.0       22.5      400.3      187.2       12.6       55.6       40.8        9.5        8.5    1640.40
       .18       1.79       7.20       4.58       .080       .035       .042       .000    1639.40    9958.40
   .014450       550.       565.       560.          4          8          0        .00      94.78   10157.06

FLOW DISTRIBUTION FOR SECNO=       .79          CWSEL=   1641.46

STA=    9958.    9968.    9977.   10010.   10022.   10140.   10150.   10157.
  PER Q=       1.2       2.5      65.6       1.5       6.2      17.9       5.1
   AREA=       5.1       7.5      55.6       6.3      10.3      17.1       7.2
    VEL=       1.5       2.0       7.2       1.5       3.7       6.4       4.3
  DEPTH=        .5        .9       1.7        .5        .1       1.7       1.0

CCHV=     .100 CEHV=     .300
*SECNO  .856
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
       .856       2.33   1650.43   1650.43       .00   1651.37       .94       5.02        .09   1649.90
     610.0        1.7     608.3        .0       1.9      78.0        .0       10.2        9.0   1651.20
       .19        .92      7.80       .00      .080      .035      .000       .000    1648.10    9969.13
   .014324       340.      348.      355.         3         8         0        .00      47.39  10016.52

FLOW DISTRIBUTION FOR SECNO=       .86          CWSEL=   1650.43

STA=    9969.    9976.   10018.
  PER Q=        .3      99.7
   AREA=       1.9      78.0
    VEL=        .9       7.8
  DEPTH=        .3       1.9

CCHV=     .100 CEHV=     .030
1                                                                                                          PAGE    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

*SECNO  .961
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
       .961       2.39   1661.79   1661.79       .00   1662.76       .97       8.08        .00   1663.00
     610.0         .0     610.0        .0        .0      77.1        .0       11.2        9.6   1662.90
       .21        .00      7.91       .00      .000      .035      .000       .000    1659.40    9979.36
   .015136       550.      549.      555.         4         8         0        .00      40.07  10019.42

FLOW DISTRIBUTION FOR SECNO=       .96          CWSEL=   1661.79

STA=    9979.   10020.
  PER Q=      100.0
   AREA=       77.1
    VEL=        7.9
  DEPTH=        1.9

1                                                                                                          PAGE   10
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH F 100-YEAR (FLOODWAY)      L. CULLER - (602)244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
                 3                                                                          1527.77

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     15                    -1                                                                            15

1                                                                                                          PAGE   11
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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
0

CCHV=     .100 CEHV=     .300
*SECNO  .000

3470 ENCROACHMENT STATIONS=     9933.0   10038.0  TYPE=      1  TARGET=      105.000
       .000       2.17   1527.77       .00   1526.77   1527.90       .13       .00        .00 100000.00
     610.0         .0     610.0        .0        .0     210.5        .0        .0        .0 100000.00
       .00        .00      2.90       .00      .000      .055      .000      .000    1525.60    9933.00
   .004709         0.        0.        0.         0         0         0       .00     105.00   10038.00

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1527.77
```

```
STA=    9933.   10048.
  PER Q=    100.0
   AREA=    210.5
    VEL=      2.9
  DEPTH=      2.0

CCHV=     .100 CEHV=     .300
*SECNO  .095
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9914.0   10025.0  TYPE=      1  TARGET=      111.000
      .095      2.06   1544.66   1544.66   1544.76   1545.17       .51      5.19       .11 100000.00
     610.0        .0     610.0        .0        .0     106.8        .0       1.8       1.2 100000.00
       .02       .00      5.71       .00      .000      .050      .000      .000   1542.60   9915.82
   .038406      540.      502.      490.        20        11         0       .00    108.84  10024.66


FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1544.66

STA=    9916.   10037.
  PER Q=    100.0
   AREA=    106.8
    VEL=      5.7
  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  .195
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9986.0   10028.0  TYPE=      1  TARGET=       42.000
      .195      2.39   1561.39   1561.39   1561.39   1562.33       .94     16.01       .13 100000.00
     610.0        .0     610.0        .0        .0      78.4        .0       3.0       2.1 100000.00
       .04       .00      7.78       .00      .000      .045      .000      .000   1559.00   9986.11
   .024534      425.      528.      575.         5         8         0       .00     41.73  10027.85


FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1561.39

STA=    9986.   10029.
  PER Q=    100.0
   AREA=     78.4
    VEL=      7.8
  DEPTH=      1.9

CCHV=     .100 CEHV=     .300
*SECNO  .305
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9974.0   10015.0  TYPE=      1  TARGET=       41.000
      .305      2.50   1578.70   1578.70   1578.70   1579.66       .96     12.72       .01 100000.00
     610.0        .0     610.0        .0        .0      77.5        .0       4.0       2.7 100000.00
       .06       .00      7.87       .00      .000      .040      .000      .000   1576.20   9974.09
   .019657      610.      581.      530.         4         8         0       .00     40.91  10015.00


FLOW DISTRIBUTION FOR SECNO=       .31          CWSEL=   1578.70

STA=    9974.   10016.
  PER Q=    100.0
   AREA=     77.5
    VEL=      7.9
  DEPTH=      1.9
```



```
    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  .374
3280 CROSS SECTION        .37 EXTENDED        .22 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9981.0   10017.0  TYPE=      1  TARGET=       36.000
      .374      2.62   1587.92   1587.92   1587.45   1588.97      1.05      7.20       .03 100000.00
     610.0        .0     610.0        .0        .0      74.2        .0       4.6       3.0 100000.00
       .08       .00      8.22       .00      .000      .040      .000      .000   1585.30   9981.00
   .019932      340.      364.      385.        11         8         0       .00     36.00  10017.00


FLOW DISTRIBUTION FOR SECNO=       .37          CWSEL=   1587.92
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```
STA=    9981.   10017.
  PER Q=    100.0
   AREA=     74.2
    VEL=      8.2
  DEPTH=      2.1

1490 NH CARD USED
*SECNO  .390
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9974.0   10029.0  TYPE=      1  TARGET=       55.000
     .390      2.35   1589.95   1589.95   1589.71   1590.75      .80      1.74      .03 100000.00
    610.0        .0     609.7       .3        .0      85.0       .2       4.8      3.1   1589.50
      .08       .00      7.17      1.17      .000      .040     .070      .000  1587.60   9974.00
  .020944       85.       85.       85.         2        15        0       .00    55.00  10029.00

FLOW DISTRIBUTION FOR SECNO=       .39          CWSEL=   1589.95

STA=    9974.   10029.   10029.
  PER Q=    100.0       .0
   AREA=     85.0       .2
    VEL=      7.2      1.2
  DEPTH=      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  .480
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9967.0   10017.0  TYPE=      1  TARGET=       50.000
     .480      2.73   1603.23   1603.23   1602.77   1604.08      .85     10.03      .02 100000.00
    610.0        .0     610.0        .0        .0      82.5       .0       5.7      3.7 100000.00
      .10       .00      7.40       .00      .000      .040     .000      .000  1600.50   9967.00
  .021298      470.      475.      450.         4        11        0       .00    50.00  10017.00

FLOW DISTRIBUTION FOR SECNO=       .48          CWSEL=   1603.23

STA=    9967.   10017.
  PER Q=    100.0
   AREA=     82.5
    VEL=      7.4
  DEPTH=      1.6

1490 NH CARD USED
*SECNO  .569

3470 ENCROACHMENT STATIONS=     9956.0   10016.0  TYPE=      1  TARGET=       60.000
     .569      2.43   1614.43   1614.41   1613.82   1615.26      .83     11.18       .00   1613.10
    610.0     258.5     351.3       .2      62.1      39.2       .1       6.7      4.3   1613.70
      .12      4.16      8.96      1.03      .080      .040     .070      .000  1612.00   9956.00
  .027646      435.      470.      480.        13        15        0       .00    60.00  10016.00

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1614.43

STA=    9956.    9965.    9986.    9994.   10016.   10016.
  PER Q=     13.1     23.3      5.9     57.6       .0
   AREA=     18.6     33.9      9.6     39.2       .1
    VEL=      4.3      4.2      3.7      9.0      1.0
  DEPTH=      2.1      1.6      1.3      1.8       .7

1490 NH CARD USED
*SECNO  .683
7185 MINIMUM SPECIFIC ENERGY
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   31OCT94      14:00:48

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

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9980.0   10050.0  TYPE=      1  TARGET=       70.000
     .683      2.56   1629.16   1629.16   1628.49   1629.93      .77     11.80      .01 100000.00
    610.0        .0     506.8     103.2        .0      66.6     35.7       8.0      5.1   1628.60
      .14       .00      7.61      2.89      .000      .035     .070      .000  1626.60   9980.00
  .015527      510.      602.      590.         4         8        0       .00    70.00  10050.00

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1629.16

STA=    9980.   10018.   10027.   10039.   10050.
  PER Q=     83.1      1.6      6.5      8.8
   AREA=     66.6      5.5     13.6     16.6
    VEL=      7.6      1.8      2.9      3.2
```

```
  DEPTH=      1.8       .6      1.2      1.5

1490 NH CARD USED
*SECNO  .790
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9977.0   10022.0  TYPE=      1  TARGET=       45.000
      .790      2.55   1641.95   1641.95   1641.46   1642.95      1.00      8.25       .07 100000.00
     610.0        .0     583.9      26.1        .0      71.5      12.3       9.2       5.9   1640.40
       .16       .00      8.17      2.12      .000      .035      .080      .000   1639.40   9977.00
   .013779      550.      565.      560.         5         5         0       .00     45.00  10022.00


FLOW DISTRIBUTION FOR SECNO=       .79          CWSEL=   1641.95

STA=    9977.   10010.   10022.
  PER Q=     95.7      4.3
   AREA=     71.5     12.3
    VEL=      8.2      2.1
  DEPTH=      2.2      1.0

CCHV=     .100 CEHV=     .300
*SECNO  .856
7185 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


3470 ENCROACHMENT STATIONS=     9976.0   10017.0  TYPE=      1  TARGET=       41.000
      .856      2.31   1650.41   1650.41   1650.43   1651.38       .97      5.00       .00   1649.90
     610.0        .0     610.0        .0        .1      77.1        .0       9.8       6.2 100000.00
       .17       .02      7.91       .00      .080      .035      .000      .000   1648.10   9976.00
   .014985      340.      348.      355.         4        11         0       .00     40.48  10016.48


FLOW DISTRIBUTION FOR SECNO=       .86          CWSEL=   1650.41

STA=    9976.    9976.   10018.
  PER Q=        .0     100.0
   AREA=        .1      77.1
    VEL=        .0       7.9
  DEPTH=        .5       1.9

CCHV=     .100 CEHV=     .030
*SECNO  .961
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9979.0   10019.0  TYPE=      1  TARGET=       40.000
      .961      2.39   1661.79   1661.79   1661.79   1662.77       .98      8.29       .00 100000.00
     610.0        .0     610.0        .0        .0      76.8        .0      10.8       6.7 100000.00
       .19       .00      7.94       .00      .000      .035      .000      .000   1659.40   9979.38
   .015227      550.      549.      555.         5         8         0       .00     39.62  10019.00


FLOW DISTRIBUTION FOR SECNO=       .96          CWSEL=   1661.79

STA=    9979.   10020.
  PER Q=    100.0
   AREA=     76.8
    VEL=      7.9
  DEPTH=      1.9

1
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                                                                                THIS RUN EXECUTED 31OCT94    14:00:53

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


 WASH F 100-YEAR

 SUMMARY PRINTOUT

       SECNO     ELMIN     CWSEL     SSTA      ENDST     DEPTH     Q         VCH       HV        DIFWSX    QWEIR     ELTRD     ELLC

 *      .000   1525.60   1526.77   9933.38   10038.17      1.17    610.00      5.75       .51       .00       .00       .00       .00
        .000   1525.60   1527.77   9933.00   10038.00      2.17    610.00      2.90       .13       .00       .00       .00       .00

        .095   1542.60   1544.76   9913.65   10024.73      2.16    610.00      5.20       .42     17.98       .00       .00       .00
 *      .095   1542.60   1544.66   9915.82   10024.66      2.06    610.00      5.71       .51     16.89       .00       .00       .00
```

*	.195	1559.00	1561.39	9986.14	10027.84	2.39	610.00	7.80	.95	16.63	.00	.00	.00
*	.195	1559.00	1561.39	9986.11	10027.85	2.39	610.00	7.78	.94	16.73	.00	.00	.00
*	.305	1576.20	1578.70	9974.07	10015.41	2.50	610.00	7.84	.96	17.32	.00	.00	.00
*	.305	1576.20	1578.70	9974.09	10015.00	2.50	610.00	7.87	.96	17.31	.00	.00	.00
*	.374	1585.30	1587.45	9922.61	10017.10	2.15	610.00	6.71	.60	8.75	.00	.00	.00
*	.374	1585.30	1587.92	9981.00	10017.00	2.62	610.00	8.22	1.05	9.22	.00	.00	.00
*	.390	1587.60	1589.71	9911.61	10035.32	2.11	610.00	6.20	.55	2.26	.00	.00	.00
*	.390	1587.60	1589.95	9974.00	10029.00	2.35	610.00	7.17	.80	2.03	.00	.00	.00
*	.480	1600.50	1602.77	9910.86	10017.06	2.27	610.00	6.26	.54	13.07	.00	.00	.00
*	.480	1600.50	1603.23	9967.00	10017.00	2.73	610.00	7.40	.85	13.28	.00	.00	.00
	.569	1612.00	1613.82	9921.77	10030.39	1.82	610.00	6.68	.54	11.04	.00	.00	.00
	.569	1612.00	1614.43	9956.00	10016.00	2.43	610.00	8.96	.83	11.20	.00	.00	.00
*	.683	1626.60	1628.49	9814.88	10058.95	1.89	610.00	5.83	.53	14.68	.00	.00	.00
*	.683	1626.60	1629.16	9980.00	10050.00	2.56	610.00	7.61	.77	14.74	.00	.00	.00
*	.790	1639.40	1641.46	9958.40	10157.06	2.06	610.00	7.20	.63	12.97	.00	.00	.00
*	.790	1639.40	1641.95	9977.00	10022.00	2.55	610.00	8.17	1.00	12.79	.00	.00	.00
*	.856	1648.10	1650.43	9969.13	10016.52	2.33	610.00	7.80	.94	8.97	.00	.00	.00
*	.856	1648.10	1650.41	9976.00	10016.48	2.31	610.00	7.91	.97	8.46	.00	.00	.00

	SECNO	ELMIN	CWSEL	SSTA	ENDST	DEPTH	Q	VCH	HV	DIFWSX	QWEIR	ELTRD	ELLC
*	.961	1659.40	1661.79	9979.36	10019.42	2.39	610.00	7.91	.97	11.36	.00	.00	.00
*	.961	1659.40	1661.79	9979.38	10019.00	2.39	610.00	7.94	.98	11.38	.00	.00	.00

WASH F 100-YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	.000	1526.77	-.23	1527.29	104.79	.00	610.00	.00	.00	.00	9927.40	10048.40	.00
	.000	1527.77	1.00	1527.90	105.00	.00	610.00	.00	105.00	9933.00	9927.40	10048.40	10038.00
	.095	1544.76	.00	1545.18	111.08	.00	610.00	.00	.00	.00	9902.90	10037.20	.00
*	.095	1544.66	-.10	1545.17	108.84	.00	610.00	.00	111.00	9914.00	9902.90	10037.20	10025.00
*	.195	1561.39	.00	1562.33	41.70	.00	610.00	.00	.00	.00	9981.00	10028.70	.00
*	.195	1561.39	.00	1562.33	41.73	.00	610.00	.00	42.00	9986.00	9981.00	10028.70	10028.00
*	.305	1578.70	.00	1579.66	41.34	.00	610.00	.00	.00	.00	9962.70	10015.70	.00
*	.305	1578.70	-.01	1579.66	40.91	.00	610.00	.00	41.00	9974.00	9962.70	10015.70	10015.00
*	.374	1587.45	.00	1588.05	94.50	223.17	386.83	.00	.00	.00	9980.60	10017.80	.00
*	.374	1587.92	.46	1588.97	36.00	.00	610.00	.00	36.00	9981.00	9980.60	10017.80	10017.00
*	.390	1589.71	.00	1590.25	103.93	163.79	445.75	.46	.00	.00	9973.50	10028.50	.00
*	.390	1589.95	.24	1590.75	55.00	.00	609.74	.26	55.00	9974.00	9973.50	10028.50	10029.00
*	.480	1602.77	.00	1603.31	102.66	235.98	374.02	.00	.00	.00	9966.80	10021.00	.00
*	.480	1603.23	.46	1604.08	50.00	.00	610.00	.00	50.00	9967.00	9966.80	10021.00	10017.00
	.569	1613.82	.00	1614.35	108.61	436.17	171.19	2.64	.00	.00	9993.50	10015.80	.00
	.569	1614.43	.61	1615.26	60.00	258.55	351.30	.15	60.00	9956.00	9993.50	10015.80	10016.00
*	.683	1628.49	.00	1629.02	116.25	330.97	242.41	36.61	.00	.00	9971.50	10017.50	.00
*	.683	1629.16	.67	1629.93	70.00	.00	506.84	103.16	70.00	9980.00	9971.50	10017.50	10050.00
*	.790	1641.46	.00	1642.09	94.78	22.48	400.31	187.21	.00	.00	9976.70	10009.70	.00
*	.790	1641.95	.49	1642.95	45.00	.00	583.86	26.14	45.00	9977.00	9976.70	10009.70	10022.00
*	.856	1650.43	.00	1651.37	47.39	1.72	608.28	.00	.00	.00	9976.20	10017.70	.00
*	.856	1650.41	-.02	1651.38	40.48	.00	610.00	.00	41.00	9976.00	9976.20	10017.70	10017.00
*	.961	1661.79	.00	1662.76	40.07	.00	610.00	.00	.00	.00	9973.90	10020.40	.00
*	.961	1661.79	.00	1662.77	39.62	.00	610.00	.00	40.00	9979.00	9973.90	10020.40	10019.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      .095  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .095  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .095  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      .195  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .195  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .195  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=       .480  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=       .683  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=       .683  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=       .790  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .790  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .790  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .790  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=       .856  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=       .961  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=       .961  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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   31OCT94      14:00:48                                                    PAGE   21


1
   31OCT94      14:00:48                                                    PAGE   22
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FLOODWAY DATA, WASH F 100-YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.000	105.	211.	2.9	1527.8	1526.8	1.0
.095	109.	107.	5.7	1544.7	1544.8	-.1
.195	42.	78.	7.8	1561.4	1561.4	.0
.305	41.	77.	7.9	1578.7	1578.7	.0
.374	36.	74.	8.2	1588.0	1587.5	.5
.390	55.	85.	7.2	1589.9	1589.7	.2
.480	50.	82.	7.4	1603.3	1602.8	.5
.569	60.	101.	6.0	1614.4	1613.8	.6
.683	70.	102.	6.0	1629.2	1628.5	.7
.790	45.	84.	7.3	1642.0	1641.5	.5
.856	40.	77.	7.9	1650.4	1650.4	.0
.961	40.	77.	7.9	1661.8	1661.8	.0

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    27OCT94    TIME   16:00:15 *
 *****************************************
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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             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X           XXXXX    XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX    XXXXX            XXXXXXX
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1                                                                                                    PAGE    1
   27OCT94       16:00:15

                                                                  THIS RUN EXECUTED 27OCT94     16:00:15
 *************************************
  HEC-2 WATER SURFACE PROFILES

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

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2       RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3       WASH I 100-YEAR                L. CULLER - (602)244-8100
T4       JOB 15183   PR15183\ETC\WASHI\WASHIF1.IH2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                           -1                                      1530

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1                   -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        53        54         8        43        26        10        51
     46        40        41         0       110         0       200

QT        2      1530      1530
NC      .07       .07      .035       0.1       0.3
ET                          4.1      9969     10061
X1    0.000        13    9963.4   10078.5
GR   1542.2    9936.4    1535.1    9952.6    1532.8    9963.4    1527.7    9972.2    1528.5    9984.6
GR   1527.0    9994.7    1527.2   10000.0    1527.1   10014.7    1526.7   10043.7    1528.7   10057.2
GR   1533.6   10078.5    1538.7   10100.9    1538.8   10114.2

ET                          4.1      9956     10034
X1    0.012        14    9947.0   10048.9        45       110        63
GR   1546.9    9927.9    1548.1    9931.0    1545.7    9938.5    1539.8    9947.0    1531.5    9960.7
GR   1531.0    9979.7    1531.7    9995.5    1531.3   10000.0    1532.1   10014.1    1533.0   10024.3
GR   1534.4   10035.5    1536.2   10048.9    1538.9   10063.9    1545.4   10072.6

QT        2      1350      1350
ET                          4.1      9941     10024
X1    0.076        15    9932.9   10027.5       360       340       338
GR   1562.0    9913.6    1560.6    9924.5    1556.8    9932.9    1551.2    9942.6    1551.0    9956.6
GR   1550.1    9974.1    1549.4    9985.8    1549.3    9998.5    1548.9   10000.0    1549.5   10006.5
GR   1550.4   10018.0    1553.4   10027.5    1559.7   10039.0    1560.3   10044.1    1560.6   10054.9
1                                                                                                    PAGE    2
   27OCT94       16:00:15

NC      .07       .07       .04       0.1       0.3
ET                          4.1      9950     10038
X1    0.181        25    9949.2   10038.0       535       560       554
GR   1577.9   9941.86    1577.9   9941.87    1577.9   9941.88    1577.9   9941.89    1577.9    9941.9
GR   1576.5    9949.2    1574.2    9955.0    1573.4    9965.1    1573.9    9973.6    1573.8    9983.2
GR   1573.2    9989.5    1573.7   10000.0    1574.0   10014.1    1574.8   10027.0    1575.5   10038.0
GR   1580.1   10048.1    1581.0   10055.0    1581.2   10067.2    1580.6   10074.5    1581.5   10084.1
GR   1582.3   10093.1    1583.9   10109.1    1585.4   10126.3    1588.1   10141.7    1591.6   10154.8
        FOREST SERVICE ROAD IS AT RIVER MILE 0.187 (LOW CROSSING, NO STRUCTURE)

ET                          4.1      9924     10032
X1    0.191        16    9918.2   10044.5        45        45        53
GR   1579.4   9918.19    1579.4    9918.2    1576.9    9927.4    1576.8    9936.2    1575.7    9945.2
GR   1575.6    9961.9    1575.7    9984.4    1575.9   10000.0    1576.4   10017.9    1577.2   10029.6
GR   1581.1   10044.5    1582.2   10061.5    1584.3   10082.7    1586.9   10101.9    1589.1   10118.9
GR   1589.1   10119.4       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        5       .07    9884.3       .04   10022.5       .07   10071.2       .04   10104.9       .07
NH   10117.
ET                          4.1      9884     10023
X1    0.270        22    9884.3   10022.5       390       420       417
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GR   1600.3     9833.0     1597.5     9850.0     1594.5     9864.5     1594.8     9872.5     1592.4     9884.3
GR   1591.9     9901.7     1591.9     9925.5     1592.1     9954.5     1591.3     9964.5     1591.7     9979.0
GR   1591.4    10000.0     1591.7    10013.1     1592.3    10022.5     1592.9    10030.3     1593.2    10046.8
GR   1593.4    10057.9     1593.7    10071.2     1592.9    10078.0     1591.8    10085.2     1592.1    10097.9
GR   1597.0    10104.9     1596.9    10117.0

NC       .07        .07        .04        0.1        0.3
ET                           4.1       9913      10045
X1     0.363         20     9912.8    10044.9        515        445        491
GR   1615.7    9901.18     1615.7    9901.19     1615.7     9901.2     1608.1     9912.8     1608.1     9929.2
GR   1608.3     9940.8     1608.7     9949.2     1608.7     9966.3     1607.7     9985.1     1607.5     9994.3
GR   1607.5    10000.0     1607.9    10015.9     1607.7    10026.3     1607.8    10039.8     1608.5    10044.9
GR   1608.9    10059.8     1609.2    10082.2     1609.4    10095.3     1611.0    10110.5     1612.0    10121.3

NH         5        .07     9958.7        .04    10045.1        .07    10070.4        .04    10116.4        .07
NH   10146.
ET                           4.1       9959      10045
X1     0.451         22     9958.7    10045.1        505        440        465
GR   1629.5     9900.9     1629.5     9900.9     1629.5     9908.7     1627.4     9926.2     1625.5     9943.8
GR   1622.6     9958.7     1621.6     9974.2     1622.1     9993.9     1621.9    10000.0     1622.1    10017.5
GR   1621.9    10027.9     1622.1    10036.1     1622.4    10045.1     1623.7    10060.8     1622.9    10070.4
GR   1622.1    10082.1     1622.7    10091.5     1622.4    10103.1     1623.1    10116.4     1623.2    10132.7
GR   1629.2    10137.1     1629.9    10146.0

NC       .07        .07        .04        0.1        0.3
ET                           4.1       9970      10037
1
   27OCT94      16:00:15                                                                                  PAGE    3

X1     0.541         16     9969.7    10036.7        415        540        475
GR   1642.5     9911.0     1642.2     9927.6     1642.1     9943.5     1639.9     9957.6     1637.7     9969.7
GR   1636.1     9977.6     1636.0     9999.2     1635.9    10000.0     1636.2    10022.2     1637.1    10036.7
GR   1636.7    10062.6     1640.5    10080.0     1643.0    10097.0     1645.1    10116.8     1646.3    10136.0
GR   1646.9    10144.3        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

NH         3        .07     9942.9        .04    10021.1        .07    10114.6
ET                           4.1       9943      10021
X1     0.625         18     9942.9    10021.1        445        445        444
GR   1658.1    9907.99     1658.1     9908.0     1657.5     9915.4     1653.9     9924.6     1648.4     9942.9
GR   1648.3     9958.4     1649.0     9969.4     1648.6     9988.2     1648.1     9999.5     1648.0    10000.0
GR   1648.1    10010.0     1649.3    10021.1     1650.7    10033.9     1652.0    10046.6     1652.0    10063.5
GR   1652.8    10085.4     1654.7    10103.3     1655.3    10114.6
1
   27OCT94      16:00:15                                                                                  PAGE    4

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

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3720 CRITICAL DEPTH ASSUMED
      .000       2.81   1529.51   1529.51   1530.00   1530.55       1.04        .00        .00   1532.80
    1530.0         .0     1530.0        .0        .0     186.9         .0         .0         .0   1533.60
       .00        .00       8.19       .00      .000      .035       .000       .000   1526.70   9969.08
   .014549         0.         0.        0.         0        14          0        .00      91.63  10060.71

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1529.51

 STA=    9969.   10079.
   PER Q=    100.0
    AREA=    186.9
     VEL=      8.2
   DEPTH=      2.0

 *SECNO  .012
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      .012       3.21   1534.21   1534.21       .00   1535.36       1.15        .89        .03   1539.80
    1530.0         .0     1530.0        .0        .0     177.9         .0         .3         .1   1536.20
       .00        .00       8.60       .00      .000      .035       .000       .000   1531.00   9956.23
   .013820        45.        63.       110.        20         8          0        .00      77.76  10033.99

 FLOW DISTRIBUTION FOR SECNO=       .01          CWSEL=   1534.21

 STA=    9956.   10049.
   PER Q=    100.0
    AREA=    177.9
     VEL=      8.6
   DEPTH=      2.3

 *SECNO  .076
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
1
   27OCT94      16:00:15                                                                                  PAGE    5

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3720 CRITICAL DEPTH ASSUMED
     .076       3.31   1552.21   1552.21       .00   1553.24       1.03       4.82       .01   1556.80
   1350.0         .0    1350.0        .0        .0     165.8         .0        1.6        .7   1553.40
     .01        .00      8.14       .00      .000      .035       .000       .000   1548.90   9940.85
  .014752      360.      338.      340.        20         8          0        .00     82.87  10023.72

FLOW DISTRIBUTION FOR SECNO=       .08          CWSEL=   1552.21

STA=    9941.   10028.
  PER Q=    100.0
   AREA=    165.8
    VEL=      8.1
  DEPTH=      2.0

CCHV=     .100 CEHV=     .300
*SECNO  .181
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .181       2.80   1576.00   1576.00       .00   1576.98       .99       9.29       .00   1576.50
   1350.0         .0    1349.7        .3        .0     169.4         .3        3.7       1.8   1575.50
     .03        .00      7.97      1.09      .000      .040       .070       .000   1573.20   9950.47
  .019207      535.      554.      560.        20        15          0        .00     88.62  10039.09

FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1576.00

STA=    9950.   10038.   10039.
  PER Q=    100.0       .0
   AREA=    169.4       .3
    VEL=      8.0      1.1
  DEPTH=      1.9       .2

*SECNO  .191
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .191       2.20   1577.80   1577.80       .00   1578.66       .86       1.04       .01   1579.40
   1350.0         .0    1350.0        .0        .0     181.6         .0        3.9       2.0   1581.10
     .03        .00      7.43       .00      .000      .040       .000       .000   1575.60   9924.07
  .020048       45.       53.       45.        20        15          0        .00    107.83  10031.91
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=       .19          CWSEL=   1577.80

STA=    9924.   10045.
  PER Q=    100.0
   AREA=    181.6
    VEL=      7.4
  DEPTH=      1.7

1490 NH CARD USED
*SECNO  .270

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .270       1.87   1593.17   1593.17       .00   1593.79       .62       8.41       .02   1592.40
   1350.0        2.3    1212.8     134.8       1.5     187.3      29.1        5.9       3.4   1592.30
     .05       1.58      6.48      4.64      .070      .040      .042       .000   1591.30   9880.51
  .020276      390.      417.      420.         3        15          0        .00    188.48  10099.43

FLOW DISTRIBUTION FOR SECNO=       .27          CWSEL=   1593.17

STA=    9881.    9884.   10023.   10098.   10099.
  PER Q=        .2      89.8      9.8       .2
   AREA=       1.5     187.3     28.2       .8
    VEL=       1.6       6.5      4.7      3.1
  DEPTH=        .4       1.4       .4       .5

CCHV=     .100 CEHV=     .300
*SECNO  .363
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .363       2.04   1609.54   1609.54       .00   1610.19       .65       9.54       .01   1608.10
   1350.0        3.3    1291.3      55.5       1.6     195.1      26.6        8.3       5.4   1608.50
     .07       2.08      6.62      2.09      .070      .040      .070       .000   1607.50   9910.61
  .018876      515.      491.      445.         4         8          0        .00    185.99  10096.60

FLOW DISTRIBUTION FOR SECNO=       .36          CWSEL=   1609.54
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=    9911.     9913.    10045.    10060.    10082.    10095.    10097.
  PER Q=       .2       95.6       2.4       1.5        .3        .0
   AREA=      1.6      195.1      12.5      10.9       3.1        .1
    VEL=      2.1        6.6       2.6       1.8       1.1        .0
  DEPTH=       .7        1.5        .8        .5        .2        .1

1490 NH CARD USED
*SECNO  .451

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .451      2.10   1623.70   1623.70       .00   1624.34       .64      8.41       .00   1622.60
    1350.0       5.8    1018.9     325.3       3.1     145.9      75.2      10.7       7.4   1622.40
       .09      1.86      6.98      4.33      .070      .040      .044      .000   1621.60   9953.06
   .017589       505.      465.      440.         4         8         0       .00    179.97  10133.07


FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1623.70

STA=    9953.     9959.    10045.    10082.    10092.    10103.    10116.    10133.
  PER Q=       .4       75.5       7.8       5.3       5.3       4.4       1.2
   AREA=      3.1      145.9      28.0      12.2      13.3      12.6       9.0
    VEL=      1.9        7.0       3.7       5.9       5.4       4.8       1.9
  DEPTH=       .5        1.7        .8       1.3       1.1        .9        .5

CCHV=     .100 CEHV=     .300
*SECNO  .541
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .541      2.52   1638.42   1638.42       .00   1639.37       .95      8.66       .09   1637.70
    1350.0       2.0    1183.1     164.9       1.4     143.2      46.0      13.0       9.0   1637.10
       .11      1.42      8.26      3.58      .070      .040      .070      .000   1635.90   9965.76
   .018026       415.      475.      540.         4        11         0       .00    104.70  10070.46


FLOW DISTRIBUTION FOR SECNO=       .54          CWSEL=   1638.42

STA=    9966.     9970.    10037.    10063.    10070.
  PER Q=       .1       87.6      10.9       1.3
   AREA=      1.4      143.2      39.3       6.7
    VEL=      1.4        8.3       3.8       2.5
  DEPTH=       .4        2.1       1.5        .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


1490 NH CARD USED
*SECNO  .625
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .625      2.58   1650.58   1650.58       .00   1651.57       .99      8.00       .01   1648.40
    1350.0      23.2    1310.9      15.8       7.9     162.0       7.5      14.9      10.0   1649.30
       .13      2.93      8.09      2.11      .070      .040      .070      .000   1648.00   9935.64
   .017986       445.      444.      445.        10         8         0       .00     97.18  10032.82


FLOW DISTRIBUTION FOR SECNO=       .63          CWSEL=   1650.58

STA=    9936.     9943.    10021.    10033.
  PER Q=      1.7       97.1       1.2
   AREA=      7.9      162.0       7.5
    VEL=      2.9        8.1       2.1
  DEPTH=      1.1        2.1        .6

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 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH I 100-YEAR (FLOODWAY)       L. CULLER - (602)244-8100

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  3                                                                          1530.51

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      15                    -1                                                                            15


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   27OCT94      16:00:15                                                                                PAGE   10

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
```

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

 *PROF 2
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000

 3470 ENCROACHMENT STATIONS=     9969.0   10061.0  TYPE=      1  TARGET=       92.000
      .000      3.81   1530.51      .00   1529.51   1530.98      .47       .00       .00 100000.00
    1530.0       .0    1530.0       .0        .0     279.1       .0       .0        .0 100000.00
      .00       .00      5.48      .00      .000      .035     .000      .000   1526.70   9969.00
   .003950       0.        0.       0.         0         0        0       .00     92.00  10061.00

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1530.51

 STA=    9969.   10079.
   PER Q=    100.0
    AREA=    279.1
     VEL=      5.5
   DEPTH=      3.0

 *SECNO  .012

 3301 HV CHANGED MORE THAN HVINS

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

 3470 ENCROACHMENT STATIONS=     9956.0   10034.0  TYPE=      1  TARGET=       78.000
      .012      3.20   1534.20   1534.20   1534.21   1535.36     1.16       .43       .21 100000.00
    1530.0       .0    1530.0       .0        .0     176.9       .0        .3        .1 100000.00
      .00       .00      8.65      .00      .000      .035     .000      .000   1531.00   9956.25
   .014053      45.       63.      110.        20        15        0       .00     77.64  10033.88

 FLOW DISTRIBUTION FOR SECNO=       .01          CWSEL=   1534.20

 STA=    9956.   10049.
   PER Q=    100.0
    AREA=    176.9
     VEL=      8.6
   DEPTH=      2.3

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    27OCT94      16:00:15                                                                          PAGE   11

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

 *SECNO  .076
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9941.0   10024.0  TYPE=      1  TARGET=       83.000
      .076      3.31   1552.21   1552.21   1552.21   1553.24     1.03      4.86       .01 100000.00
    1350.0       .0    1350.0       .0        .0     165.7       .0       1.7        .7 100000.00
      .01       .00      8.15      .00      .000      .035     .000      .000   1548.90   9941.00
   .014769     360.      338.      340.        20         8        0       .00     82.72  10023.72

 FLOW DISTRIBUTION FOR SECNO=       .08          CWSEL=   1552.21

 STA=    9941.   10028.
   PER Q=    100.0
    AREA=    165.7
     VEL=      8.1
   DEPTH=      2.0

 CCHV=     .100 CEHV=     .300
 *SECNO  .181
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9950.0   10038.0  TYPE=      1  TARGET=       88.000
      .181      2.79   1575.99   1575.99   1576.00   1576.98      .99      9.34       .00 100000.00
    1350.0       .0    1350.0       .0        .0     169.2       .0       3.8       1.8 100000.00
      .03       .00      7.98      .00      .000      .040     .000      .000   1573.20   9950.48
   .019443     535.      554.      560.        20        15        0       .00     87.52  10038.00

 FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1575.99

 STA=    9950.   10038.
   PER Q=    100.0
    AREA=    169.2
     VEL=      8.0
   DEPTH=      1.9

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    27OCT94      16:00:15                                                                          PAGE   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

*SECNO  .191
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9924.0   10032.0  TYPE=      1  TARGET=      108.000
      .191      2.21   1577.81   1577.81   1577.80   1578.66       .86      1.05       .01 100000.00
    1350.0        .0    1350.0        .0        .0     181.7        .0       4.0       1.9 100000.00
       .03       .00      7.43       .00      .000      .040      .000      .000   1575.60   9924.07
   .020006       45.       53.       45.        20        15         0       .00    107.84  10031.91

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1577.81

STA=    9924.   10045.
  PER Q=    100.0
   AREA=    181.7
    VEL=      7.4
  DEPTH=      1.7

1490 NH CARD USED
*SECNO  .270
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9884.0   10023.0  TYPE=      1  TARGET=      139.000
      .270      1.94   1593.24   1593.24   1593.17   1593.97       .73      8.58       .01   1592.40
    1350.0        .3    1349.0        .7        .2     197.0        .5       5.8       3.1   1592.30
       .05      1.14      6.85      1.47      .070      .040      .070      .000   1591.30   9884.00
   .021187      390.      417.      420.         3        15         0       .00    139.00  10023.00

FLOW DISTRIBUTION FOR SECNO=       .27          CWSEL=   1593.24

STA=    9884.    9884.   10023.   10023.
  PER Q=       .0     99.9       .1
   AREA=       .2    197.0       .5
    VEL=      1.1      6.8      1.5
  DEPTH=       .8      1.4       .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

CCHV=     .100 CEHV=     .300
*SECNO  .363
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9913.0   10045.0  TYPE=      1  TARGET=      132.000
      .363      2.03   1609.53   1609.53   1609.54   1610.28       .75     10.43       .01 100000.00
    1350.0        .0    1349.9        .1        .0     194.0        .1       8.0       4.7   1608.50
       .07       .00      6.96       .62      .000      .040      .070      .000   1607.50   9913.00
   .021311      515.      491.      445.         4         8         0       .00    132.00  10045.00

FLOW DISTRIBUTION FOR SECNO=       .36          CWSEL=   1609.53

STA=    9913.   10045.   10045.
  PER Q=    100.0       .0
   AREA=    194.0       .1
    VEL=      7.0       .6
  DEPTH=      1.5      1.0

1490 NH CARD USED
*SECNO  .451
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9959.0   10045.0  TYPE=      1  TARGET=       86.000
      .451      2.38   1623.98   1623.98   1623.70   1624.96       .98      9.46       .07 100000.00
    1350.0        .0    1350.0        .0        .0     169.6        .0      10.0       5.8 100000.00
       .09       .00      7.96       .00      .000      .040      .000      .000   1621.60   9959.00
   .019454      505.      465.      440.         4         8         0       .00     86.00  10045.00

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1623.98

STA=    9959.   10045.
  PER Q=    100.0
   AREA=    169.6
    VEL=      8.0
  DEPTH=      2.0
```



```
    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

CCHV=     .100 CEHV=     .300
*SECNO  .541
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9970.0   10037.0  TYPE=      1  TARGET=       67.000
      .541      2.70   1638.60   1638.60   1638.42   1639.77      1.17      8.91       .06 100000.00
    1350.0        .0    1349.5        .5        .0     155.4        .4      11.7       6.7   1637.10
      .10       .00      8.68      1.13      .000      .040      .070      .000   1635.90   9970.00
   .018084      415.      475.      540.         4         8         0       .00     67.00  10037.00

FLOW DISTRIBUTION FOR SECNO=       .54          CWSEL=   1638.60

STA=    9970.   10037.   10037.
  PER Q=    100.0       .0
   AREA=    155.4       .4
    VEL=      8.7      1.1
  DEPTH=      2.3      1.5

1490 NH CARD USED
*SECNO  .625
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9943.0   10021.0  TYPE=      1  TARGET=       78.000
      .625      2.61   1650.61   1650.61   1650.58   1651.66      1.05      8.31       .01 100000.00
    1350.0        .0    1350.0        .0        .0     163.9        .0      13.4       7.4 100000.00
      .12       .00      8.23       .00      .000      .040      .000      .000   1648.00   9943.00
   .019395      445.      444.      445.        10         8         0       .00     78.00  10021.00

FLOW DISTRIBUTION FOR SECNO=       .63          CWSEL=   1650.61

STA=    9943.   10021.
  PER Q=    100.0
   AREA=    163.9
    VEL=      8.2
  DEPTH=      2.1
```


THIS RUN EXECUTED 27OCT94 16:00:21

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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

WASH I 100-YEAR

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	SSTA	ENDST	DEPTH	Q	VCH	HV	DIFWSX	QWEIR	ELTRD	ELLC
*	.000	1526.70	1529.51	9969.08	10060.71	2.81	1530.00	8.19	1.04	.00	.00	.00	.00
	.000	1526.70	1530.51	9969.00	10061.00	3.81	1530.00	5.48	.47	.00	.00	.00	.00
*	.012	1531.00	1534.21	9956.23	10033.99	3.21	1530.00	8.60	1.15	4.70	.00	.00	.00
*	.012	1531.00	1534.20	9956.25	10033.88	3.20	1530.00	8.65	1.16	3.69	.00	.00	.00
*	.076	1548.90	1552.21	9940.85	10023.72	3.31	1350.00	8.14	1.03	18.00	.00	.00	.00
*	.076	1548.90	1552.21	9941.00	10023.72	3.31	1350.00	8.15	1.03	18.01	.00	.00	.00
*	.181	1573.20	1576.00	9950.47	10039.09	2.80	1350.00	7.97	.99	23.79	.00	.00	.00
*	.181	1573.20	1575.99	9950.48	10038.00	2.79	1350.00	7.98	.99	23.79	.00	.00	.00
*	.191	1575.60	1577.80	9924.07	10031.91	2.20	1350.00	7.43	.86	1.81	.00	.00	.00
*	.191	1575.60	1577.81	9924.07	10031.91	2.21	1350.00	7.43	.86	1.81	.00	.00	.00
*	.270	1591.30	1593.17	9880.51	10099.43	1.87	1350.00	6.48	.62	15.37	.00	.00	.00
*	.270	1591.30	1593.24	9884.00	10023.00	1.94	1350.00	6.85	.73	15.44	.00	.00	.00
*	.363	1607.50	1609.54	9910.61	10096.60	2.04	1350.00	6.62	.65	16.37	.00	.00	.00
*	.363	1607.50	1609.53	9913.00	10045.00	2.03	1350.00	6.96	.75	16.29	.00	.00	.00
*	.451	1621.60	1623.70	9953.06	10133.07	2.10	1350.00	6.98	.64	14.16	.00	.00	.00
*	.451	1621.60	1623.98	9959.00	10045.00	2.38	1350.00	7.96	.98	14.45	.00	.00	.00
*	.541	1635.90	1638.42	9965.76	10070.46	2.52	1350.00	8.26	.95	14.72	.00	.00	.00
*	.541	1635.90	1638.60	9970.00	10037.00	2.70	1350.00	8.68	1.17	14.62	.00	.00	.00
*	.625	1648.00	1650.58	9935.64	10032.82	2.58	1350.00	8.09	.99	12.17	.00	.00	.00
*	.625	1648.00	1650.61	9943.00	10021.00	2.61	1350.00	8.23	1.05	12.01	.00	.00	.00

WASH I 100-YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	.000	1529.51	-.49	1530.55	91.63	.00	1530.00	.00	.00	.00	9963.40	10078.50	.00
	.000	1530.51	1.00	1530.98	92.00	.00	1530.00	.00	92.00	9969.00	9963.40	10078.50	10061.00
*	.012	1534.21	.00	1535.36	77.76	.00	1530.00	.00	.00	.00	9947.00	10048.90	.00
*	.012	1534.20	-.01	1535.36	77.64	.00	1530.00	.00	78.00	9956.00	9947.00	10048.90	10034.00
*	.076	1552.21	.00	1553.24	82.87	.00	1350.00	.00	.00	.00	9932.90	10027.50	.00
*	.076	1552.21	.00	1553.24	82.72	.00	1350.00	.00	83.00	9941.00	9932.90	10027.50	10024.00
*	.181	1576.00	.00	1576.98	88.62	.00	1349.70	.29	.00	.00	9949.20	10038.00	.00
*	.181	1575.99	.00	1576.98	87.52	.00	1350.00	.00	88.00	9950.00	9949.20	10038.00	10038.00
*	.191	1577.80	.00	1578.66	107.83	.00	1350.00	.00	.00	.00	9918.20	10044.50	.00
*	.191	1577.81	.00	1578.66	107.84	.00	1350.00	.00	108.00	9924.00	9918.20	10044.50	10032.00
*	.270	1593.17	.00	1593.79	188.48	2.31	1212.84	134.84	.00	.00	9884.30	10022.50	.00
*	.270	1593.24	.07	1593.97	139.00	.28	1349.04	.68	139.00	9884.00	9884.30	10022.50	10023.00
*	.363	1609.54	.00	1610.19	185.99	3.27	1291.27	55.46	.00	.00	9912.80	10044.90	.00
*	.363	1609.53	-.01	1610.28	132.00	.00	1349.94	.06	132.00	9913.00	9912.80	10044.90	10045.00
*	.451	1623.70	.00	1624.34	179.97	5.78	1018.91	325.31	.00	.00	9958.70	10045.10	.00
*	.451	1623.98	.28	1624.96	86.00	.00	1350.00	.00	86.00	9959.00	9958.70	10045.10	10045.00
*	.541	1638.42	.00	1639.37	104.70	2.01	1183.14	164.86	.00	.00	9969.70	10036.70	.00
*	.541	1638.60	.19	1639.77	67.00	.00	1349.49	.51	67.00	9970.00	9969.70	10036.70	10037.00
*	.625	1650.58	.00	1651.57	97.18	23.22	1310.95	15.84	.00	.00	9942.90	10021.10	.00
*	.625	1650.61	.03	1651.66	78.00	.00	1350.00	.00	78.00	9943.00	9942.90	10021.10	10021.00

1

27OCT94 16:00:15 PAGE 17

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .012  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .012  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .012  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      .012  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .012  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .012  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .076  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .076  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .076  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      .076  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .076  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .076  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      .181  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .181  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      .181  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .181  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .181  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      .191  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .191  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      .191  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .191  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .191  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .270  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .270  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .270  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .270  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .363  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .363  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .363  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .363  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .451  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .451  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .451  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .451  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .541  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .541  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .541  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .541  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .625  PROFILE=  1  CRITICAL DEPTH ASSUMED
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1

27OCT94 16:00:15 PAGE 18

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CAUTION SECNO=      .625  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO= .625 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .625 PROFILE= 2 MINIMUM SPECIFIC ENERGY

1

FLOODWAY DATA, WASH I 100-YEAR
PROFILE NO. 2

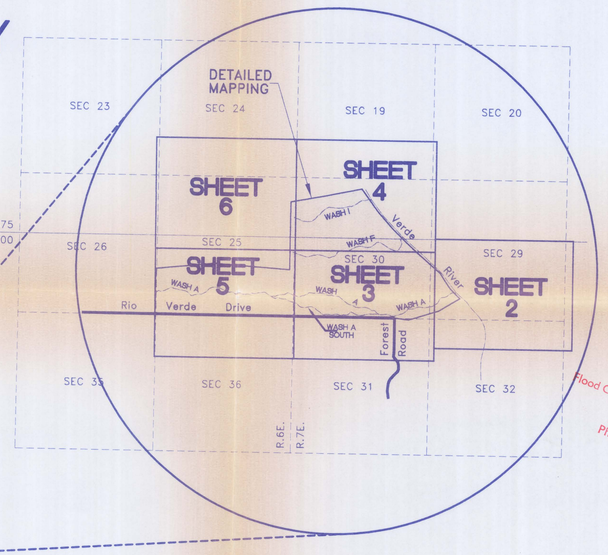
STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.000	92.	279.	5.5	1530.5	1529.5	1.0
.012	78.	177.	8.6	1534.2	1534.2	.0
.076	83.	166.	8.1	1552.2	1552.2	.0
.181	88.	169.	8.0	1576.0	1576.0	.0
.191	108.	182.	7.4	1577.8	1577.8	.0
.270	139.	198.	6.8	1593.3	1593.2	.1
.363	132.	194.	7.0	1609.5	1609.5	.0
.451	86.	170.	8.0	1624.0	1623.7	.3
.541	67.	156.	8.7	1638.6	1638.4	.2
.625	78.	164.	8.2	1650.6	1650.6	.0

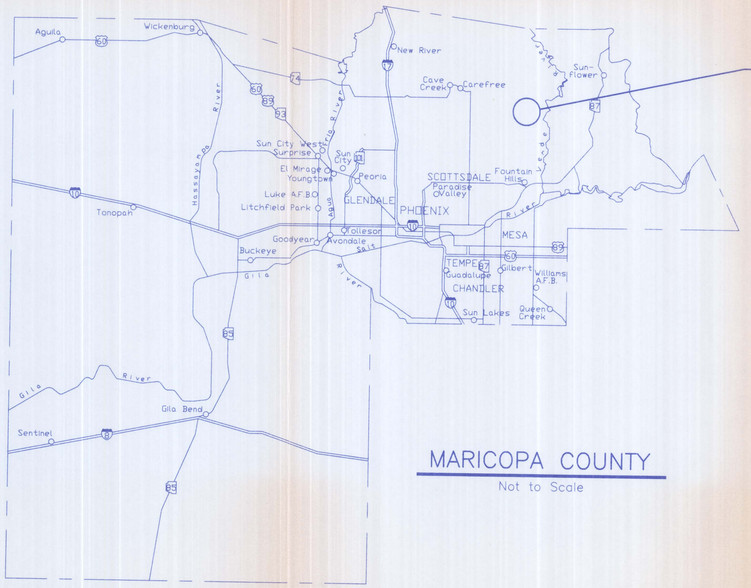
SECTION 3: FLOOD BOUNDARY AND FLOODWAY MAPS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

UN-NAMED WASH A
UN-NAMED WASH A SOUTH
UN-NAMED WASH F
UN-NAMED WASH I

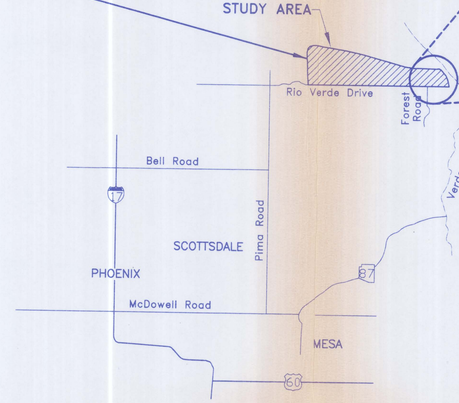
RIO VERDE - NORTH
FLOODPLAIN DELINEATION STUDY
FCD 93-06





MARICOPA COUNTY
Not to Scale

PROJECT

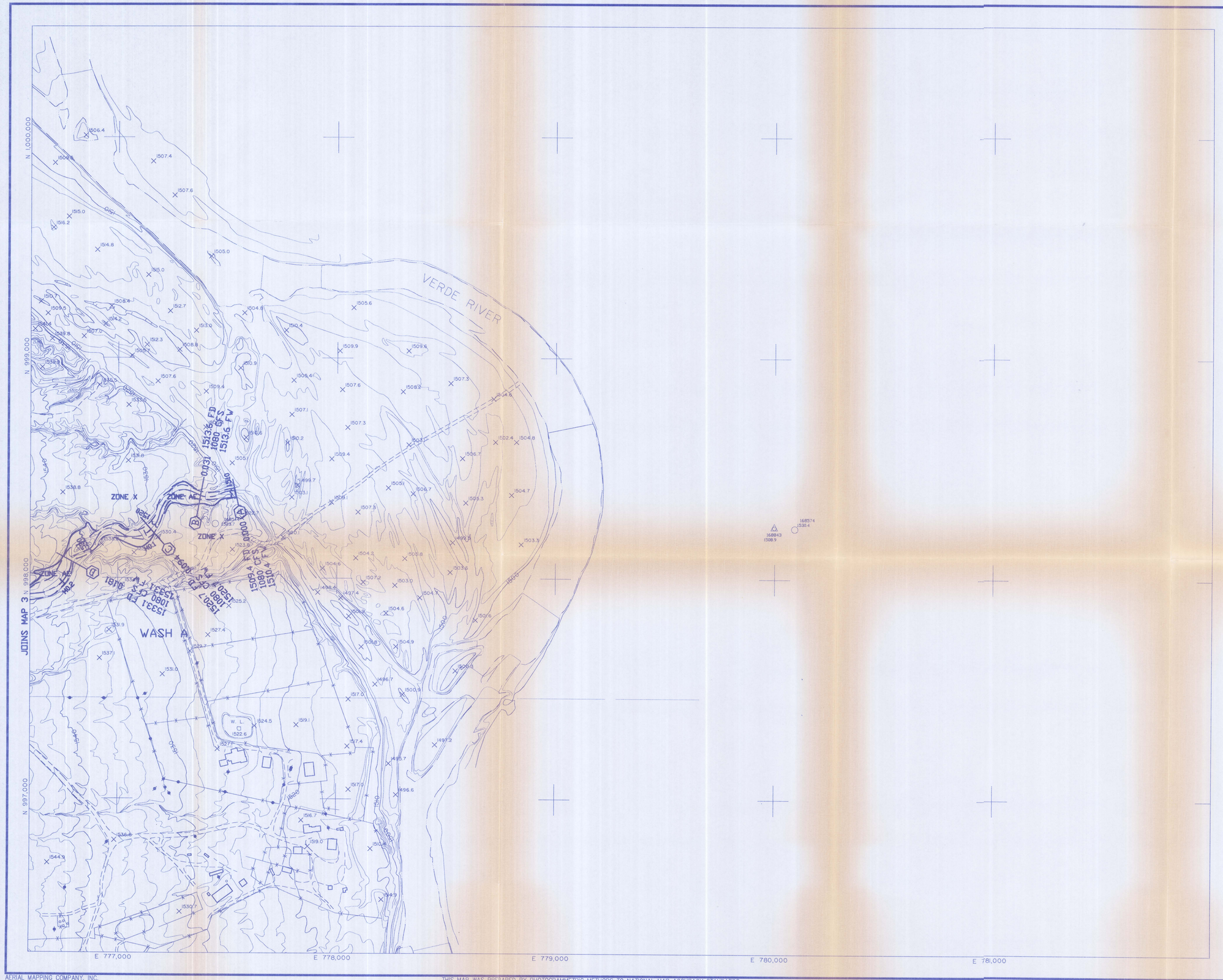


VICINITY MAP
Not to Scale

AERIAL MAPPING COMPANY, INC.
FLOWN DECEMBER 22, 1993
STUDY DATE: AUGUST 1995

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

Property of
Flood Control District of Maricopa County
Please Return to
2801 West Durango
Phoenix, AZ 85009



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

RIO VERDE NORTH

F.C.D. CONTRACT NO. 93-06

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	A FD=100 Yr WSE FW=Floodway WSE A
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
STRUCTURES	UTILITY POLES
PAVED ROADS	DIRT ROADS

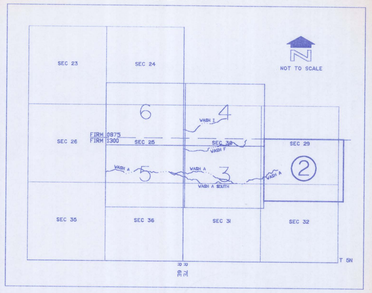
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM#2	*ERM EL = 1544.580*	*This station is located at Section Corner (29,30,31,32). The mark is a brass cap.*

NOTES

INDEX MAP



200 0' 200 400

SCALE: 1"= 200'

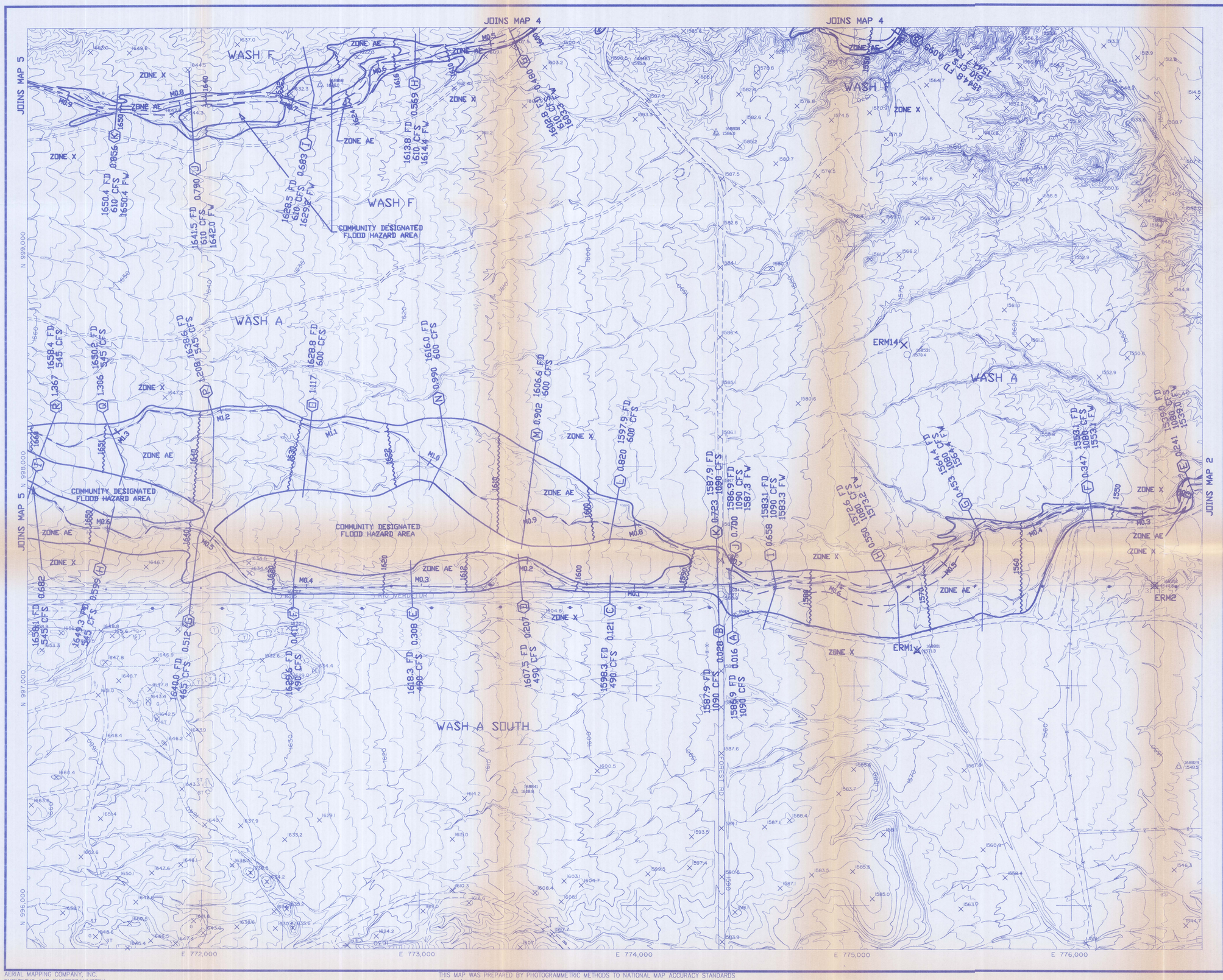
CONTOUR INTERVAL = 2' FEET

BURGESS & NIPLE

	BY	DATE	
DESIGN	L.D.C.	8/94	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	S.E.J.	8/94	RECOMMENDED BY: DATE
PLANS	L.D.C.	8/94	APPROVED BY: DATE
PLANS CHK.	S.E.J.	8/94	CHIEF ENGINEER AND GENERAL MANAGER
SUBMITTED BY: DATE:			SHEET 2 OF 6

AERIAL MAPPING COMPANY, INC.
SURVEYING AND PHOTOGRAMMETRY
FLIGHT DATE: 12-22-1993

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PROVIDED BY BURGESS AND NIPLE, INC.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

RIO VERDE NORTH

F.C.D. CONTRACT NO. 93-06

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	A FD=100 Yr WSE FW=Floodway WSE A
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
STRUCTURES	UTILITY POLES
PAVED ROADS	DIRT ROADS

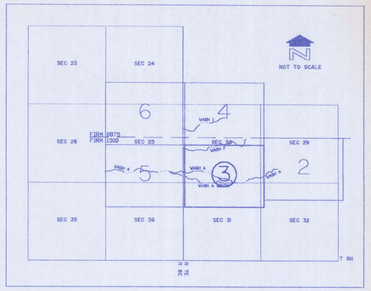
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM#1	*ERM EL = 1571.265*	*This station is located approximately 0.17 miles east of Forest Road to th Box Bar Ranch. The mark is a brass cap stamped U.S. Coast and Geodetic Survey.*
ERM#2	*ERM EL = 1544.580*	*This station is located at Section Corner (29,30,31,32). The mark is a brass cap.*
ERM#14	*ERM EL = 1571.387*	*This station is located approximately 0.22 miles north along the graded Forest Service road from its intersection with Forest Road and Rio Verde Drive, thence east approximately 0.16 miles from the graded Forest Service road. The mark is a brass cap stamped "1572 PHNX ".*

NOTES

INDEX MAP



200 0' 200 400

SCALE: 1"= 200'

CONTOUR INTERVAL = 2' FEET

BURGESS & NIPLE

	BY	DATE
DESIGN	L.D.C.	8/94
DESIGN CHK.	S.E.J.	8/94
PLANS	L.D.C.	8/94
PLANS CHK.	S.E.J.	8/94
SUBMITTED BY:		DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

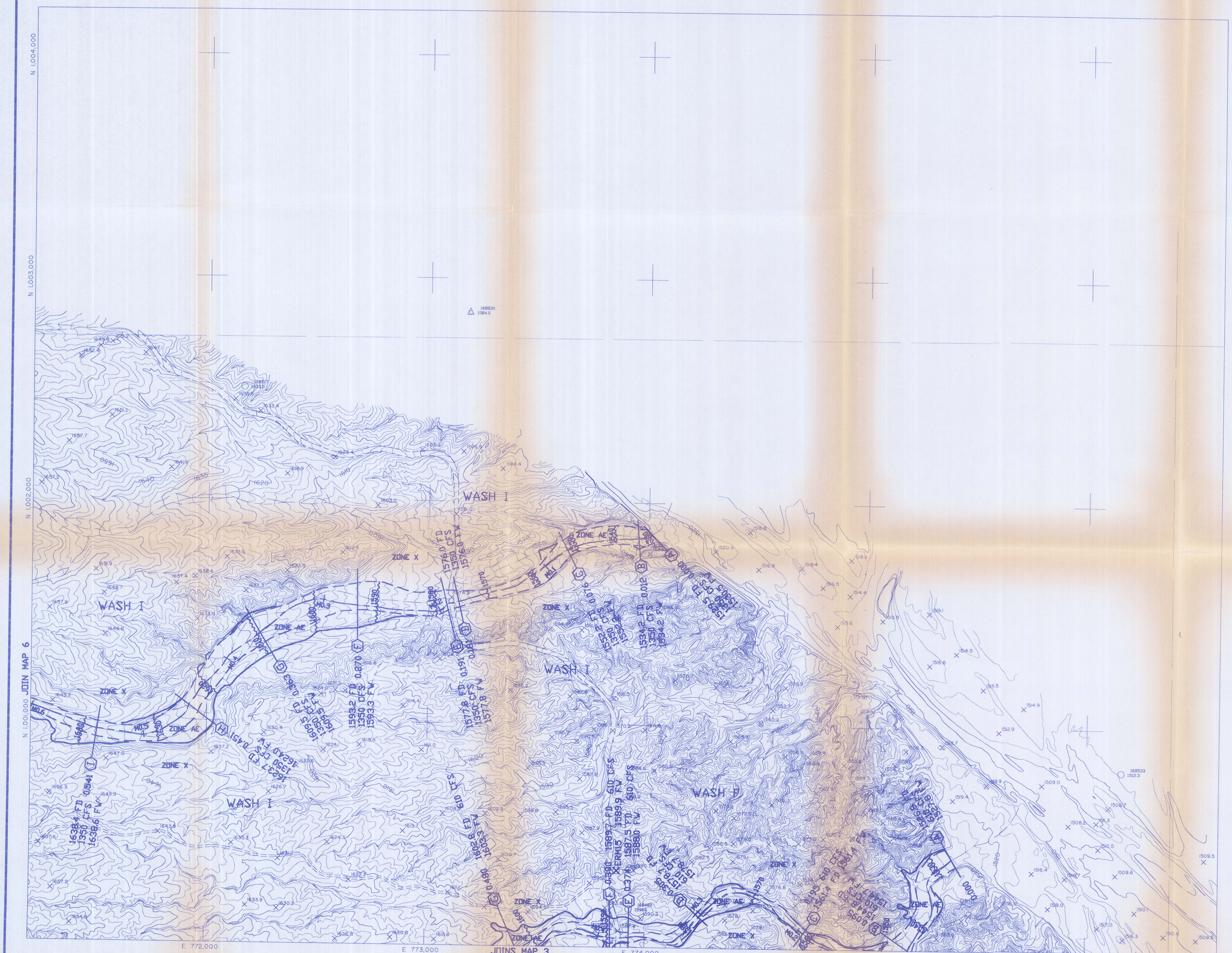
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 3 OF 6

AERIAL MAPPING COMPANY, INC.
SURVEYING AND PHOTOGRAMMETRY
FLIGHT DATE: 12-22-1993

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PROVIDED BY BURGESS AND NIPLE, INC.



AERIAL MAPPING COMPANY, INC.
SURVEYING AND PHOTOGRAMMETRY
FLIGHT DATE: 12-22-1993

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PROVIDED BY BURGESS AND NIPLE, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

RIO VERDE NORTH

F.C.D. CONTRACT NO. 93-06

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	(A) FD=100 Yr WSE / FW=Floodway WSE (A)
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
STRUCTURES	
UTILITY POLES	
PAVED ROADS	
DIRT ROADS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM#15	ERM EL = 1591.660	

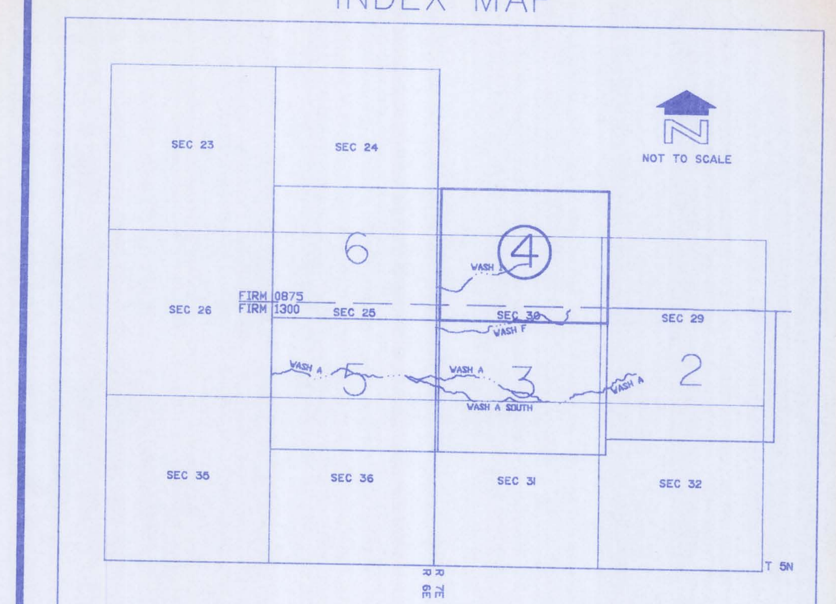
This station is located approximately 0.45 miles south of the north line of Section 30 and appooximately 40 feet east of the graded Forest Service road. The mark is a one half inch iron pin.

NOTES

9/29/95

Larry D. Cullen 10/6/95

INDEX MAP

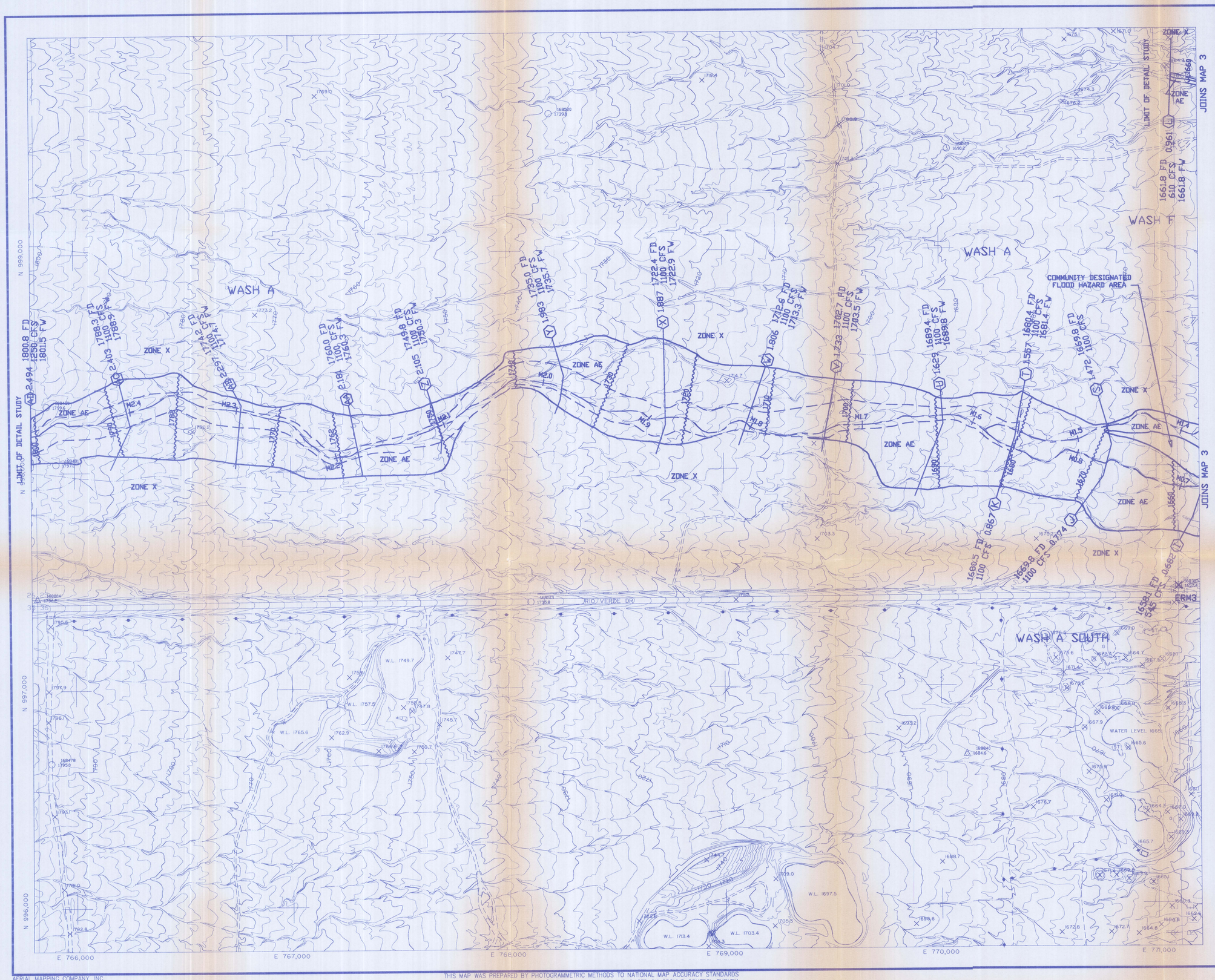


200 0' 200 400
SCALE: 1"= 200'
CONTOUR INTERVAL = 2' FEET

BURGESS & NIPLE

	BY	DATE
DESIGN	L.D.C.	8/94
DESIGN CHK.	S.E.J.	8/94
PLANS	L.D.C.	8/94
PLANS CHK.	S.E.J.	8/94
SUBMITTED BY:		DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER
SHEET 4 OF 6



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

RIO VERDE NORTH

F.C.D. CONTRACT NO. 93-06

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	A — FD=100 Yr WSE FW=Floodway WSE — A
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
STRUCTURES	UTILITY POLES
PAVED ROADS	DIRT ROADS

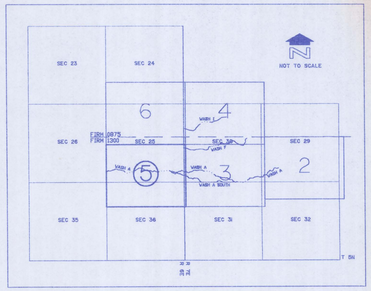
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM#3	*ERM EL = 1655.995*	*This station is located at Section Corner (25,30,31,36). The mark is a one inch iron pin.*

NOTES

INDEX MAP



200 0' 200 400

SCALE: 1" = 200'

CONTOUR INTERVAL = 2' FEET

BURGESS & NIPLE

	BY	DATE
DESIGN	L.R.C.	5/94
DESIGN CHK.	S.E.J.	8/94
PLANS	L.R.C.	5/94
PLANS CHK.	S.E.J.	8/94
SUBMITTED BY:		DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

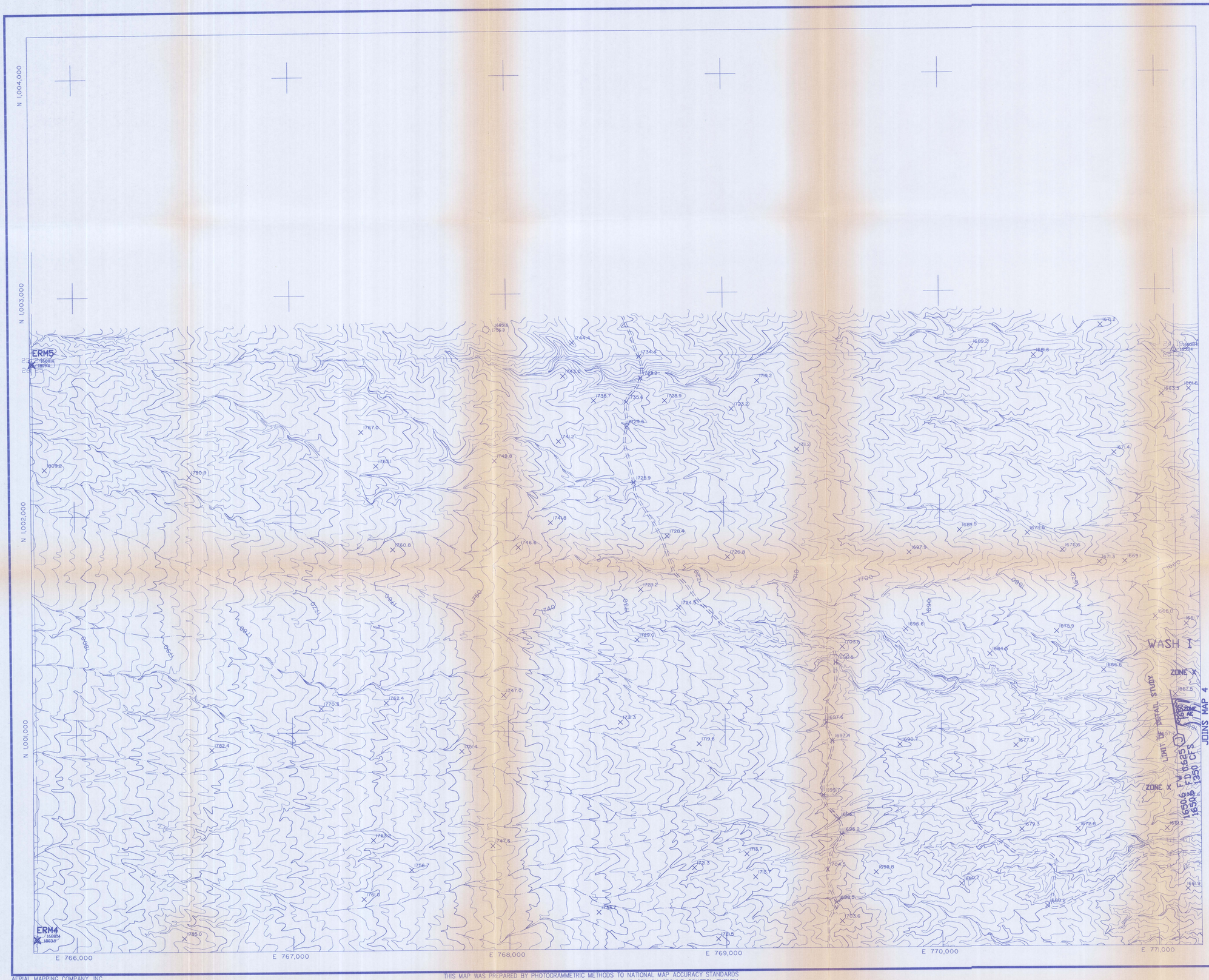
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 5 OF 6

AERIAL MAPPING COMPANY, INC.
SURVEYING AND PHOTOGRAMMETRY
FLIGHT DATE: 12-22-1993

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PROVIDED BY BURGESS AND NIPLE, INC.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

RIO VERDE NORTH

F.C.D. CONTRACT NO. 93-06

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	A FD=100 Yr WSE FW=Floodway WSE A
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
STRUCTURES	UTILITY POLES
PAVED ROADS	DIRT ROADS

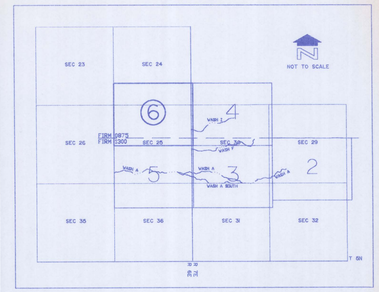
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM#4	*ERM EL = 1803.815*	*This station is located at the west quarter corner of Section 25. The mark is a brass cap.*
ERM#5	*ERM EL = 1810.205*	*This station is located at Section Corner (23,24,25,26). The mark is a brass cap.*

NOTES

INDEX MAP



200 0' 200 400

SCALE: 1"= 200'

CONTOUR INTERVAL = 2' FEET

BURGESS & NIPLE

	BY	DATE
DESIGN	L.D.C.	8/94
DESIGN CHK.	S.E.V.	8/94
PLANS	L.D.C.	8/94
PLANS CHK.	S.E.V.	8/94
SUBMITTED BY:		DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 6 OF 6

AERIAL MAPPING COMPANY, INC.
SURVEYING AND PHOTOGRAMMETRY
FLIGHT DATE: 12-22-1993

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS
1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY
DATA PROVIDED BY BURGESS AND NIPLE, INC.

SECTION 4: COMPUTER DISKETTE

KEY TO COMPUTER FILES

Input File	Output File	Description
WASHA1F6.IH2	WASHA1F6.OUT	Wash A Floodway, Method 6 (Below Wash A South)
WASHA1F1.IH2	WASHA1F1.OUT	Wash A Floodway, Method 1 (Below Wash A South)
WASHA2F6.IH2	WASHA2F6.OUT	Wash A Floodway, Method 6 (Above Wash A South)
WASHA2F1.IH2	WASHA2F1.OUT	Wash A Floodway, Method 1 (Above Wash A South)
WASHFF6.IH2	WASHFF6.OUT	Wash F Floodway, Method 6
WASHFF1.IH2	WASHFF1.OUT	Wash F Floodway, Method 1
WASHIF6.IH2	WASHIF6.OUT	Wash I Floodway, Method 6
WASHIF1.IH2	WASHIF1.OUT	Wash I Floodway, Method 1