AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

Between the Gila River Confluence and the New Waddell Dam

FCDMC CONTRACT #95-05

TECHNICAL DATA NOTEBOOK
SECTION 4
HYDRAULIC ANALYSIS

October 31, 1996

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Prepared for:

Flood Control District of Maricopa County
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CVL

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY TDN SECTION 4 HYDRAULIC ANALYSIS

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Agua Fria River Floodplain
Delineation Re-Study
TDN Section 4
Hydraulic Analysis

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4.0 Introduction

4.0.1 Scope of Study

Coe & Van Loo Consultants, Inc., (CVL) has contracted with the Flood Control District of Maricopa County (FCDMC) to perform a Floodplain Delineation Re-Study (FDR) of the Agua Fria River. The specific scope of this Floodplain Delineation Re-Study is to evaluate the existence and severity of flood hazards for the Agua Fria River within Maricopa County, Arizona. The study reach crosses unincorporated areas of Maricopa County and numerous communities within Maricopa County. The communities include Peoria, Surprise, El Mirage, Youngtown, Glendale, Phoenix, Avondale, and Goodyear.

The project consists of floodplain and floodway delineation of approximately 34 river miles of the Agua Fria River from the Gila River Confluence to the outlet of the New Waddell Dam. The U.S. Army Corps of Engineers (CORPS) has developed the hydrology for the Agua Fria River within the study area using the CORPS HEC-1 computer model. The hydrology has been revised, from the currently effective Flood Insurance Study (FIS), by the CORPS to model the effect of the recently constructed New Waddell Dam. The hydrologic analysis for this study reach was documented in a report, *Hydrologic Evaluation of Impacts of New Waddell Dam on Downstream Peak Discharges in the Agua Fria River*, (Ref. 21). This analysis indicates that the 100-year peak flows have substantially reduced due to the construction of the New Waddell Dam. In addition, new topographic mapping has been provided by the FCDMC for much of the study reach.

The project has been divided into three distinct reaches for conducting the study. Reach 1 extends from the Gila River upstream to Indian School Road. Much of this reach has been channelized, therefore, it is expected that the floodplain boundaries will remain unchanged with

SECTION VI

NEW RIVER HYDRAULICS

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.0;  February 1991        *
*                                         *
*  RUN DATE    27JUN96    TIME   13:45:45 *
*******************************************
```

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

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

THIS RUN EXECUTED 27JUN96 13:45:45

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

 Version   4.6.0;  February 1991
*************************************
```

```
T1      FCDMC NEW RIVER FLOODWAY ANALYSIS
T2      100-YEAR FLOWS
T3      NEW RIVER-A.F.R. TO S.C.

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        4                         .001                                1027.5

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1       10      67.67              -1                          0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43        1        8        3       26       12       53        4       54
    0        105      200

NC    .045      .045      .035      0.1       0.3
QT       5    12500     29000     39000     39000     70000
ET  501.45                                    9.1       9.1                                9300     12150
        LAST AGUA FRIA X-SECT.  USED AS STARTING WSEL FOR NEW RIVER W/O
        PHASING AS REQUESTED PER DAVE JOHNSON OF MCFCD ON 10/20/86 FOR THEIR
        FIS STUDY.  FILE LNRSPFQS CONVERTED TO LNRMCFCD ON 10/21/86 FOR
        NEW RIVER FIS BASE.
X1  501.45        74      9150     11440
GR    1034      5420      1032      5520      1030      6550    1029.3      7130    1028.5      8140
GR    1028      8260      1027      8530      1027      9080    1027.7      9150      1026      9220
GR  1025.3      9240      1026      9260      1027      9300      1026      9315      1020      9335
GR    1020      9445      1022      9450      1022      9560      1020      9615    1019.2      9640
GR    1020      9650      1022      9665      1023      9675      1022      9685    1021.7      9860
GR  1020.9     10000    1020.5     10050      1022     10200    1022.3     10300      1022     10390
GR    1022     10480      1026     10520      1026     10600    1027.5     10720      1026     10965
GR    1024     10975      1026     11000    1026.3     11130      1026     11260      1026     11370
GR    1028     11440    1029.2     11470      1028     11500      1026     11750      1024     11800
GR    1024     11830      1026     11920      1026     11950    1025.6     12070      1024     12140
GR  1024.5     12210      1024     12270      1022     12280    1020.4     12320      1022     12360
GR    1024     12435      1026     12480      1026     12565      1024     12600      1024     12650
GR    1026     12720      1025     12820      1026     12900      1024     12960      1026     13000
GR    1027     13070      1026     13135      1026     13580    1025.8     14080      1026     14550
GR  1026.5     15000    1027.3     15150      1030     15250    1030.5     15270
```

```
ET      10                          7.1       9.1       9.1      8600     11510      9050     10370
X1      10        24      9730     10260       700      1700      1000
GR    1035      6900      1024      6950    1024.7      7370    1024.8      8000    1025.2      8430
GR    1026      8470    1027.1      8700    1026.3      9070      1028      9660    1028.3      9730
GR    1028      9800    1027.7      9890      1026      9940      1024      9960      1024     10050
GR    1026     10230      1028     10260      1028     10380    1029.8     10570    1028.5     10750
GR    1030     11000      1030     11500      1032     11510    1033.5     11630

ET      13                          7.1       9.1       9.1      8600     11720      9050     10374
        AP PLAN STA. 15+30  CROSS SECTIONS 13.0 THRU 70.5 HAVE BEEN UPDATED
        PER GLENDALE AIRPORT CHANNEL PLANS AND HAVE BEEN ADJUSTED TO COE
        DATUM.  COE B.M.=1074.25  A.P. B.M.=1074.71.  A.P. CROSS SECTION
        DATA ADJUSTED -0.46 FT(USED -0.50).
X1      13        34      9846     10374       100       300       300
GR    1034      5200      1032      5345      1030      5430    1028.7      5460      1026      5770
GR  1024.9      6360    1025.4      6405    1025.3      7135    1025.5      8210      1027      8260
GR  1025.5      8290      1027      8580      1026      8605      1026      9115      1028      9360
GR  1030.0      9827    1030.0      9846    1029.0      9849    1029.0      9872    1029.8      9900
GR  1029.0      9914      1024      9930      1023      9955    1022.2      9960    1022.4     10000
GR  1022.5     10014    1022.8     10060    1023.4     10150    1024.9     10369    1027.5     10374
GR  1029.5     10414    1030.7     10800      1032     11300    1033.5     11720

ET      20                          7.1       9.1       9.1      8800     11360      9100     10445
                AP PLAN STA. 22+30
X1      20        35      9630     10445       960       700       700
GR  1034.3      5570      1034      5730    1032.3      5765      1032      5880      1030      6095
GR    1028      6170      1026      6460    1025.7      7160    1027.2      7220    1027.4      7530
GR    1027      7610    1027.2      7630      1028      7870    1028.3      8750      1030      9460
GR  1031.3      9500      1032      9600      1033      9630      1032      9645      1030      9750
GR  1029.3      9890      1028      9905      1026      9910      1024      9960    1023.6     10025
GR  1024.5     10165    1025.5     10310    1025.5     10378    1024.5     10429    1028.5     10445
GR  1029.5     10457      1030     10690    1031.2     10900      1032     11060      1034     11360

ET    26.8                          7.1       9.1       9.1      8000     11740      9150     10400
                AP PLAN STA. 29+10
X1    26.8        37      9793     10400      1000       680       680
GR    1036      5980    1035.7      6080    1035.2      6235      1034      6400      1033      6480
GR    1032      6530      1030      6640    1030.2      6750      1030      7200      1030      7830
GR    1031      8160      1032      8660    1033.2      8700      1032      8740      1032      9520
GR    1033      9793    1032.5      9809    1031.5      9825    1030.5      9845    1029.5      9866
GR  1028.5      9886    1027.5      9908    1025.5      9946    1024.9      9957      1026     10044
GR  1026.5     10193    1027.5     10342    1027.6     10362    1029.5     10366    1030.5     10381
GR  1031.5     10400    1033.2     10540    1033.4     10710    1033.6     10895    1033.8     11090
GR    1034     11260    1035.3     11740

ET    32.6                          7.1       9.1       9.1      8500     10233      9000     10233
                AP PLAN STA. 35+40
X1    32.6        48      9565     10233       660       580       580
GR    1038      6020    1037.8      6155      1036      6300      1035      6650      1034      6760
GR  1032.3      6930      1032      7035      1032      7190      1032      7800      1033      7830
GR    1034      7860    1034.2      8080      1035      8500      1035      8670    1035.7      8695
GR    1035      8730      1034      8970      1034      9480    1035.1      9532    1035.3      9547
GR  1034.5      9550    1034.5      9558    1034.5      9565    1033.5      9644    1032.5      9670
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GR	1031.5	9691	1030.5	9711	1029.5	9722	1028.5	9747	1027.5	9774
GR	1026.5	9794	1026.2	9800	1026.5	9847	1027.5	9997	1028.5	10147
GR	1027.5	10207	1028.5	10209	1032.5	10217	1036.5	10225	1040.5	10233
GR	1041.2	10320	1041.8	10520	1042.3	10670	1043.2	10975	1043.8	11160
GR	1044.0	11480	1044.5	11750	1045.0	11920				
ET	38			7.1	9.1	9.1	8900	10073	8900	10073
		AP PLAN STA. 40+30								
X1	38	40	9420	10072.6	440	500	540			
GR	1040.6	5895	1040	6065	1040	6067	1039.7	6275	1038	6368
GR	1038	6370	1036	6635	1034	6920	1033.8	7280	1034	7365
GR	1032.9	7385	1034.3	7660	1034.5	7940	1035.3	8245	1036	8640
GR	1035.5	9365	1035.6	9420	1034.5	9492	1033.5	9512	1032.5	9532
GR	1031.5	9552	1030.5	9572	1029.5	9592	1028.5	9612	1027.5	9632
GR	1027.2	9646	1028	9698	1029	9846	1030	9997	1030.4	10051.4
GR	1041.0	10072.6	1041.4	10160	1041.5	10165	1041.6	10190	1041.6	10200
GR	1041.7	10250	1044.2	10880	1044.4	10920	1045.7	11500	1045.9	11630
ET	45			7.1	9.1	9.1	9150	10136	9150	10136
		AP PLAN STA. 45+80								
X1	45	44	9375	10135.8	440	680	700			
GR	1042	5925	1043.2	6000	1042.3	6220	1042	6395	1042	6397
GR	1040	6425	1039.3	6530	1038	6575	1037.7	6730	1037.3	6925
GR	1036	6975	1035.7	7225	1034.6	7570	1034.7	8000	1035.5	8350
GR	1036	8510	1036.3	8850	1036.5	9060	1036.3	9255	1038	9368
GR	1038.7	9375	1038	9395	1036.8	9460	1036	9525	1036.3	9538
[illegible]	1035.5	9558	1034.5	9578	1033.5	9598	1032.5	9618	1031.5	9638
[illegible]	1030.5	9658	1029.5	9678	1028.5	9698	1028.3	9710	1028.5	9748
GR	1029.5	9888	1030.5	10047	1031.0	10115.4	1041.2	10135.8	1041.4	10252
GR	1041.5	10390	1041.9	10590	1042.2	10710	1043.1	11000		
ET	51.7			7.1	9.1	9.1	9799	10599	9799	10599
		AP PLAN STA. 53+70								
X1	51.7	43	9800	10598.2	600	510	670			
GR	1042	7015	1040	7060	1039.7	7175	1038.5	7270	1038	7320
GR	1037.7	7470	1036	7545	1035.2	7800	1035	8110	1034.8	8265
GR	1034.7	8480	1036	8820	1036.5	8860	1037.4	9090	1037.8	9510
GR	1038	9660	1039.1	9680	1038	9695	1038	9755	1040	9760
GR	1041	9765	1041	9770	1041	9780	1041	9790	1041	9800
GR	1040	9820	1044.5	9832	1044.5	9840	1034.5	9875	1030	9910
GR	1028.0	9915	1027.4	9970	1027.5	10000	1029.5	10090	1029.8	10172
GR	1030.5	10271	1031.5	10420	1032.5	10570	1032.6	10577.4	1043.0	10598.2
GR	1043.5	10675	1043.8	10685	1044.5	10705				
ET	54			7.1	9.1	9.1	9854	10696	9854	10696
		AP PLAN STA. 55+65								
X1	54	55	9855	10695	270	200	230			
GR	1045	5965	1045.6	6005	1045.7	6090	1045	6360	1044	6775
GR	1042	6900	1041	7020	1040	7125	1038.7	7230	1038	7385
GR	1036.8	7475	1037.3	7825	1036.3	8165	1036.4	8460	1036.4	8635
GR	1036.5	8790	1037	9055	1037.7	9260	1038	9540	1039.2	9635
GR	1038	9705	1034	9712	1033.3	9750	1034	9780	1036	9785
GR	1038	9800	1040	9810	1042	9815	1042.5	9835	1042.5	9855
GR	1036	9862	1034	9868	1032	9875	1030	9890	1028	9915

```
GR     1029     10000      1030     10035      1030     10115      1032     10140      1034     10160
GR   1033.5     10180    1032.5     10219    1031.5     10242    1030.5     10263    1030.2     10269
GR   1030.5     10311    1031.5     10459    1032.5     10610    1032.9   10674.4    1043.2     10695
GR   1044.1     11215    1044.2     11525    1044.5     11780      1045     11840      1046     13150

ET       59                          7.1       9.1       9.1      9744     10701      9744     10701
                AP PLAN STA. 60+00
X1       59        43      9745   10700.2       760       490       500
GR     1046      6900    1045.5      7000      1045      7100      1044      7305    1042.7      7410
GR     1042      7525    1041.7      7640    1041.5      7875      1041      8170    1041.5      8560
GR     1040      8720      1040      8800    1040.8      9085      1041      9500      1042      9585
GR     1044      9600      1042      9615    1040.3      9630      1044      9700      1044      9720
GR     1044      9745      1042      9765      1040      9770      1038      9800      1036      9805
GR     1034      9815      1032      9865    1030.7      9880      1032      9890      1034      9915
GR     1032      9945    1031.6     10000      1035     10204      1034     10224      1033     10245
GR     1032     10266    1031.1     10274    1031.5     10335    1032.5     10484    1033.5     10632
GR   1033.8   10679.4    1044.2   10700.2      1046     12750

ET       63                          7.1       9.1       9.1      9669     10572      9669     10572
                AP PLAN STA. 63+00
X1       63        37      9670   10571.6       460       380       400
GR     1050      6725      1049      6950      1048      7040    1047.2      7190      1046      7330
GR     1044      7710    1043.4      8020    1043.2      8470    1043.1      8630    1043.1      8865
GR   1043.3      9315    1043.3      9490      1042      9535      1042      9655    1043.5      9670
GR     1042      9685      1040      9715      1038      9760      1036      9780      1034      9845
GR     1034      9890    1033.7      9960    1032.9     10000      1032     10020    1032.3     10100
GR     1032     10120    1031.8     10130      1032     10140    1031.7     10145    1032.5     10266
GR   1033.5     10415    1034.4   10550.4    1045.0   10571.6    1045.5     11090      1046     11350
GR   1047.7     11390      1048     12390

ET     70.5                          7.1       9.1       9.1      9579     10271      9579     10271
                AP PLAN STA. 70+50
X1     70.5        40      9580     10270       710       700       750
GR   1049.8      7020      1048      7215    1047.7      7255      1046      7310    1045.8      7420
GR     1045      7825    1045.1      7985    1044.3      8190      1045      8520    1044.7      8790
GR   1045.2      9075    1044.6      9360      1044      9460      1043      9485      1042      9505
GR     1042      9550      1044      9565      1044      9570      1044      9580      1042      9595
GR   1040.7      9625    1041.8      9720      1040      9825      1038      9840    1035.5      9922
GR   1035.5      9994    1036.4     10000    1034.5     10055    1033.5     10122    1035.5     10147
GR   1033.5     10165    1034.5     10240    1046.5     10262    1047.5     10270      1046     10390
GR     1046     10490    1046.5     10560      1046     10600      1046     11300      1048     11700

ET       77                          7.1       9.1       9.1      9775     10250      9775     10250
                AP PLAN STA. 74+16, END CHANNEL AT 107TH AVE.
                NORTH PROJECT X-77.0 USED AS NATURAL RIVER BED
X1       77        33      9776     10148       480       660       650
GR     1052      7105      1050      7110    1048.4      7205      1048      7500      1047      8115
GR   1047.3      8410    1047.2      8760      1046      9080    1045.7      9225    1045.5      9390
GR   1044.2      9548      1044      9648    1043.7      9748      1051      9776    1044.6      9807
GR   1042.3      9858    1042.2      9875    1043.4      9884    1042.3      9891    1042.8      9900
GR   1035.6      9921    1036.3      9956    1036.2     10000    1035.5     10048    1034.6     10078
GR   1035.7     10104    1044.7     10148    1044.5     10165    1048.2     10192    1046.1     10214
GR   1046.7     10236    1048.1     10248    1050.9     10285
```

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 501.450

3265 DIVIDED FLOW

LAST AGUA FRIA X-SECT. USED AS STARTING WSEL FOR NEW RIVER W/O
PHASING AS REQUESTED PER DAVE JOHNSON OF MCFCD ON 10/20/86 FOR THEIR
FIS STUDY. FILE LNRSPFQS CONVERTED TO LNRMCFCD ON 10/21/86 FOR
NEW RIVER FIS BASE.

501.450	8.30	1027.50	1024.62	1027.50	1027.62	.12	.00	.00	1027.70
39000.0	199.2	26795.3	12005.5	321.3	8381.7	6637.8	.0	.0	1028.00
.00	.62	3.20	1.81	.045	.035	.045	.000	1019.20	8395.00
.000991	0.	0.	0.	0	13	0	.00	6594.18	15157.41

*SECNO 10.000

DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 8600.0 11510.0 TYPE= 1 TARGET= 2910.000

10.000	5.45	1029.45	1029.45	.00	1030.66	1.21	2.52	.33	1028.30
39000.0	18099.5	19449.0	1451.5	2726.3	1819.9	423.6	279.4	128.2	1028.00
.03	6.64	10.69	3.43	.045	.035	.045	.000	1024.00	8600.00
.012236	700.	1000.	1700.	0	19	0	.00	2223.60	10908.61

*SECNO 13.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.69

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=     8600.0   11720.0  TYPE=      1  TARGET=     3120.000
        AP PLAN STA. 15+30  CROSS SECTIONS 13.0 THRU 70.5 HAVE BEEN UPDATED
        PER GLENDALE AIRPORT CHANNEL PLANS AND HAVE BEEN ADJUSTED TO COE
        DATUM.  COE B.M.=1074.25  A.P. B.M.=1074.71.  A.P. CROSS SECTION
        DATA ADJUSTED -0.46 FT(USED -0.50).
   13.000      8.88   1031.08   1029.07       .00   1031.50       .42       .76       .08   1030.00
  39000.0   16149.6   22061.8     788.7    4613.1    3550.9     512.0     309.5     138.5   1027.50
      .05      3.50      6.21      1.54      .045      .035      .045      .000   1022.20   8600.00
 .001694      100.      300.      300.         3        12         0       .00   2347.98  10947.98


*SECNO 20.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     8800.0   11360.0  TYPE=      1  TARGET=     2560.000
               AP PLAN STA. 22+30
   20.000      8.86   1032.46   1030.69       .00   1032.92       .46      1.40       .01   1033.00
  39000.0    7026.1   29027.0    2947.0    2298.2    4773.5    1214.2     466.4     182.0   1028.50
      .09      3.06      6.08      2.43      .045      .035      .045      .000   1023.60   8800.00
 .001920      960.      700.      700.         4        15         0       .00   2303.88  11128.37


*SECNO 26.800

3470 ENCROACHMENT STATIONS=     8000.0   11740.0  TYPE=      1  TARGET=     3740.000
               AP PLAN STA. 29+10
   26.800      9.03   1033.93   1032.93       .00   1034.54       .61      1.58       .04   1033.00
  39000.0    9897.7   28400.5     701.8    3724.7    3976.7     459.8     616.9     234.6   1031.50
      .12      2.66      7.14      1.53      .045      .035      .045      .000   1024.90   8000.00
 .002311     1000.      680.      680.         2        15         0       .00   3200.43  11200.43


*SECNO 32.600

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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= 8500.0 10233.0 TYPE= 1 TARGET= 1733.000

AP PLAN STA. 35+40

32.600	9.05	1035.25	1033.34	.00	1036.42	1.17	1.71	.17	1034.50
39000.0	1906.7	37093.3	.0	912.6	4177.3	.0	709.4	269.6	100000.00
.14	2.09	8.88	.00	.045	.035	.000	.000	1026.20	8500.00
.003732	660.	580.	580.	2	13	0	.00	1680.05	10222.50

*SECNO 38.000

3470 ENCROACHMENT STATIONS= 8900.0 10073.0 TYPE= 1 TARGET= 1173.000

AP PLAN STA. 40+30

38.000	9.96	1037.16	1034.82	.00	1038.17	1.01	1.74	.02	1035.60
39000.0	1798.1	37201.9	.0	780.1	4504.3	.0	771.8	285.5	1041.00
.16	2.30	8.26	.00	.045	.035	.000	.000	1027.20	8900.00
.002845	440.	540.	500.	2	8	0	.00	1164.90	10064.90

*SECNO 45.000

3470 ENCROACHMENT STATIONS= 9150.0 10136.0 TYPE= 1 TARGET= 986.000

AP PLAN STA. 45+80

45.000	10.78	1039.08	1035.48	.00	1039.81	.73	1.61	.03	1038.70
39000.0	1302.1	37697.9	.0	509.4	5414.8	.0	858.0	300.5	1041.20
.19	2.56	6.96	.00	.045	.035	.000	.000	1028.30	9150.00
.001957	440.	700.	680.	2	15	0	.00	981.56	10131.56

*SECNO 51.700

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

3470 ENCROACHMENT STATIONS= 9799.0 10599.0 TYPE= 1 TARGET= 800.000

AP PLAN STA. 53+70

51.700	12.78	1040.18	1034.80	.00	1040.66	.47	.82	.03	1041.00
39000.0	.0	39000.0	.0	.0	7077.6	.0	957.6	313.6	1043.00
.22	.00	5.51	.00	.000	.035	.000	.000	1027.40	9816.33
.000837	600.	670.	510.	2	19	0	.00	741.62	10592.57

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


*SECNO 54.000

3470 ENCROACHMENT STATIONS=     9854.0   10696.0  TYPE=      1  TARGET=      842.000
                AP PLAN STA. 55+65
   54.000     12.44   1040.44   1035.22       .00   1040.84       .40       .18       .01   1042.50
  39000.0        .0   39000.0        .0        .0    7670.4        .0     996.5     317.7   1043.20
      .23       .00      5.08       .00      .000      .035      .000      .000   1028.00   9857.22
 .000748      270.      230.      200.         2        11         0       .00    832.27  10689.49


*SECNO 59.000

3470 ENCROACHMENT STATIONS=     9744.0   10701.0  TYPE=      1  TARGET=      957.000
                AP PLAN STA. 60+00
   59.000     10.15   1040.85   1036.70       .00   1041.30       .45       .44       .02   1044.00
  39000.0        .0   39000.0        .0        .0    7215.3        .0    1081.9     327.8   1044.20
      .26       .00      5.41       .00      .000      .035      .000      .000   1030.70   9767.88
 .001053      760.      500.      490.         2        11         0       .00    925.61  10693.49


*SECNO 63.000

3470 ENCROACHMENT STATIONS=     9669.0   10572.0  TYPE=      1  TARGET=      903.000
                AP PLAN STA. 63+00
   63.000      9.55   1041.25   1037.49       .00   1041.82       .57       .48       .03   1043.50
  39000.0        .0   39000.0        .0        .0    6458.0        .0    1144.7     336.1   1045.00
      .28       .00      6.04       .00      .000      .035      .000      .000   1031.70   9696.25
 .001396      460.      400.      380.         2        11         0       .00    867.85  10564.10


*SECNO 70.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .38


3470 ENCROACHMENT STATIONS=     9579.0   10271.0  TYPE=      1  TARGET=      692.000
                AP PLAN STA. 70+50
   70.500      8.77   1042.27   1042.08       .00   1044.53      2.25      2.20       .51   1044.00
  39000.0        .0   39000.0        .0        .0    3238.3        .0    1228.2     349.2   1047.50
      .30       .00     12.04       .00      .000      .035      .000      .000   1033.50   9592.93
 .009725      710.      750.      700.         2        15         0       .00    661.32  10254.25
```

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

*SECNO 77.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 9775.0 10250.0 TYPE= 1 TARGET= 475.000
AP PLAN STA. 74+16, END CHANNEL AT 107TH AVE.
NORTH PROJECT X-77.0 USED AS NATURAL RIVER BED

77.000	12.28	1046.88	1045.95	.00	1049.71	2.82	5.01	.17	1051.00
39000.0	.0	38743.0	257.0	.0	2864.8	73.3	1274.3	357.3	1044.70
.31	.00	13.52	3.51	.000	.035	.045	.000	1034.60	9795.96
.006259	480.	650.	660.	2	11	0	.00	418.12	10237.54

```
T1      FCDMC NEW RIVER FLOODWAY ANALYSIS
T2      100-YEAR FLOWS W/ FLOODWAY ENCROACHMENTS
T3      NEW RIVER-A.F.R. TO S.C.

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        5        0        0      .001       0        0        0     1028.5      0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     15        0       -1        0        0        0       -1        6        0        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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 501.450

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9300.0 12150.0 TYPE= 1 TARGET= 2850.000
LAST AGUA FRIA X-SECT. USED AS STARTING WSEL FOR NEW RIVER W/O
PHASING AS REQUESTED PER DAVE JOHNSON OF MCFCD ON 10/20/86 FOR THEIR
FIS STUDY. FILE LNRSPFQS CONVERTED TO LNRMCFCD ON 10/21/86 FOR
NEW RIVER FIS BASE.

501.450	9.02	1028.22	1024.72	1027.50	1028.42	.20	.00	.00	100000.00
39000.0	.0	35948.3	3051.7	.0	9750.7	1519.7	.0	.0	1028.00
.00	.00	3.69	2.01	.000	.035	.045	.000	1019.20	9300.00
.001000	0.	0.	0.	0	14	5	.00	2800.83	12150.00

O 10.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9050.0 10370.0 TYPE= 1 TARGET= 1320.000

10.000	6.01	1030.01	1030.01	1029.45	1031.58	1.58	2.36	.41	1028.30
39000.0	13369.9	24392.3	1237.8	1888.5	2113.5	220.6	185.3	51.2	1028.00
.03	7.08	11.54	5.61	.045	.035	.045	.000	1024.00	9050.00
.011689	700.	1000.	1700.	0	23	0	.00	1320.00	10370.00

*SECNO 13.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.52

```
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


3470 ENCROACHMENT STATIONS=     9050.0   10374.0  TYPE=      1  TARGET=     1324.000
        AP PLAN STA. 15+30  CROSS SECTIONS 13.0 THRU 70.5 HAVE BEEN UPDATED
        PER GLENDALE AIRPORT CHANNEL PLANS AND HAVE BEEN ADJUSTED TO COE
        DATUM.  COE B.M.=1074.25  A.P. B.M.=1074.71.  A.P. CROSS SECTION
        DATA ADJUSTED -0.46 FT(USED -0.50).
   13.000      9.77   1031.97   1029.69   1031.08   1032.58       .60       .90       .10   1030.00
  39000.0   10878.9   28121.1        .0    3029.3    4017.8        .0     212.8      56.9 100000.00
     .04      3.59      7.00       .00      .045      .035      .000      .000   1022.20   9050.00
 .001844      100.      300.      300.         2        11         0       .00   1324.00  10374.00


*SECNO 20.000

3470 ENCROACHMENT STATIONS=     9100.0   10445.0  TYPE=      1  TARGET=     1345.000
               AP PLAN STA. 22+30
   20.000      9.77   1033.37   1030.67   1032.46   1033.90       .53      1.31       .01   1033.00
  39000.0    5088.6   33911.4        .0    1675.5    5516.7        .0     341.3      82.3 100000.00
     .08      3.04      6.15       .00      .045      .035      .000      .000   1023.60   9100.00
 .001653      960.      700.      700.         3        19         0       .00   1345.00  10445.00


*SECNO 26.800

3470 ENCROACHMENT STATIONS=     9150.0   10400.0  TYPE=      1  TARGET=     1250.000
               AP PLAN STA. 29+10
   26.800      9.68   1034.58   1032.84   1033.93   1035.45       .87      1.45       .10   1033.00
  39000.0    4482.5   34517.5        .0    1521.4    4370.3        .0     455.2     106.8 100000.00
     .10      2.95      7.90       .00      .045      .035      .000      .000   1024.90   9150.00
 .002510     1000.      680.      680.         2        12         0       .00   1250.00  10400.00


*SECNO 32.600

3470 ENCROACHMENT STATIONS=     9000.0   10233.0  TYPE=      1  TARGET=     1233.000
               AP PLAN STA. 35+40
   32.600      9.83   1036.03   1033.27   1035.25   1036.90       .87      1.45       .00   1034.50
  39000.0    2773.7   36226.3        .0    1091.1    4691.6        .0     535.3     124.4 100000.00
     .12      2.54      7.72       .00      .045      .035      .000      .000   1026.20   9000.00
 .002426      660.      580.      580.         2        17         0       .00   1224.06  10224.06
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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


*SECNO 38.000

3470 ENCROACHMENT STATIONS=     8900.0   10073.0  TYPE=      1  TARGET=     1173.000
                AP PLAN STA. 40+30
   38.000     10.12   1037.32   1034.79   1037.16   1038.26       .95      1.34       .02   1035.60
 39000.0    2047.2   36952.8        .0     866.8    4611.9        .0     602.8     138.0   1041.00
     .14      2.36      8.01       .00      .045      .035      .000      .000   1027.20   8900.00
 .002596      440.      540.      500.         2        14         0       .00   1165.23  10065.23


*SECNO 45.000

3470 ENCROACHMENT STATIONS=     9150.0   10136.0  TYPE=      1  TARGET=      986.000
                AP PLAN STA. 45+80
   45.000     10.80   1039.10   1035.49   1039.08   1039.82       .73      1.54       .02   1038.70
 39000.0    1313.0   37687.0        .0     513.5    5428.4        .0     690.5     153.0   1041.20
     .17      2.56      6.94       .00      .045      .035      .000      .000   1028.30   9150.00
 .001939      440.      700.      680.         2        15         0       .00    981.60  10131.60


*SECNO 51.700

3265 DIVIDED FLOW


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


3470 ENCROACHMENT STATIONS=     9799.0   10599.0  TYPE=      1  TARGET=      800.000
                AP PLAN STA. 53+70
   51.700     12.79   1040.19   1034.80   1040.18   1040.66       .47       .81       .03   1041.00
 39000.0        .0   39000.0        .0        .0    7085.1        .0     790.2     166.1   1043.00
     .21       .00      5.50       .00      .000      .035      .000      .000   1027.40   9816.13
 .000834      600.      670.      510.         2        19         0       .00    741.91  10592.59


*SECNO 54.000

3470 ENCROACHMENT STATIONS=     9854.0   10696.0  TYPE=      1  TARGET=      842.000
                AP PLAN STA. 55+65
   54.000     12.45   1040.45   1035.22   1040.44   1040.85       .40       .18       .01   1042.50
 39000.0        .0   39000.0        .0        .0    7678.2        .0     829.2     170.2   1043.20
     .22       .00      5.08       .00      .000      .035      .000      .000   1028.00   9857.21
 .000745      270.      230.      200.         2        11         0       .00    832.30  10689.50
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 59.000

3470 ENCROACHMENT STATIONS=     9744.0   10701.0  TYPE=      1  TARGET=      957.000
               AP PLAN STA. 60+00
   59.000     10.15   1040.85   1036.70   1040.85   1041.31       .45       .44       .02   1044.00
  39000.0        .0   39000.0        .0        .0    7222.9        .0     914.7     180.3   1044.20
      .24       .00      5.40       .00      .000      .035      .000      .000   1030.70   9767.86
 .001049      760.      500.      490.         2        11         0       .00    925.64  10693.51


*SECNO 63.000

3470 ENCROACHMENT STATIONS=     9669.0   10572.0  TYPE=      1  TARGET=      903.000
               AP PLAN STA. 63+00
   63.000      9.56   1041.26   1037.49   1041.25   1041.82       .57       .48       .03   1043.50
  39000.0        .0   39000.0        .0        .0    6463.7        .0     977.6     188.6   1045.00
      .26       .00      6.03       .00      .000      .035      .000      .000   1031.70   9696.15
 .001393      460.      400.      380.         2        11         0       .00    867.96  10564.11


*SECNO 70.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .38


3470 ENCROACHMENT STATIONS=     9579.0   10271.0  TYPE=      1  TARGET=      692.000
               AP PLAN STA. 70+50
   70.500      8.77   1042.27   1042.08   1042.27   1044.53      2.25      2.20       .51   1044.00
  39000.0        .0   39000.0        .0        .0    3239.2        .0    1061.1     201.7   1047.50
      .28       .00     12.04       .00      .000      .035      .000      .000   1033.50   9592.92
 .009716      710.      750.      700.         2        15         0       .00    661.33  10254.26


*SECNO 77.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS
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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= 9775.0 10250.0 TYPE= 1 TARGET= 475.000

AP PLAN STA. 74+16, END CHANNEL AT 107TH AVE.

NORTH PROJECT X-77.0 USED AS NATURAL RIVER BED

77.000	12.28	1046.88	1045.95	1046.88	1049.71	2.82	5.01	.17	1051.00
39000.0	.0	38743.1	256.9	.0	2864.6	73.3	1107.2	209.8	1044.70
.29	.00	13.52	3.51	.000	.035	.045	.000	1034.60	9795.96
.006261	480.	650.	660.	2	11	0	.00	418.10	10237.54

THIS RUN EXECUTED 27JUN96 13:45:53

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

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

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	501.450	39000.00	1027.50	8.30	1027.62	3.20	.00	8395.00	6594.18	15157.41
	501.450	39000.00	1028.22	9.02	1028.42	3.69	.00	9300.00	2800.83	12150.00
*	10.000	39000.00	1029.45	5.45	1030.66	10.69	.33	8600.00	2223.60	10908.61
*	10.000	39000.00	1030.01	6.01	1031.58	11.54	.41	9050.00	1320.00	10370.00
*	13.000	39000.00	1031.08	8.88	1031.50	6.21	.08	8600.00	2347.98	10947.98
	13.000	39000.00	1031.97	9.77	1032.58	7.00	.10	9050.00	1324.00	10374.00
	20.000	39000.00	1032.46	8.86	1032.92	6.08	.01	8800.00	2303.88	11128.37
	20.000	39000.00	1033.37	9.77	1033.90	6.15	.01	9100.00	1345.00	10445.00
	26.800	39000.00	1033.93	9.03	1034.54	7.14	.04	8000.00	3200.43	11200.43
	26.800	39000.00	1034.58	9.68	1035.45	7.90	.10	9150.00	1250.00	10400.00
	32.600	39000.00	1035.25	9.05	1036.42	8.88	.17	8500.00	1680.05	10222.50
	32.600	39000.00	1036.03	9.83	1036.90	7.72	.00	9000.00	1224.06	10224.06
	38.000	39000.00	1037.16	9.96	1038.17	8.26	.02	8900.00	1164.90	10064.90
	38.000	39000.00	1037.32	10.12	1038.26	8.01	.02	8900.00	1165.23	10065.23
	45.000	39000.00	1039.08	10.78	1039.81	6.96	.03	9150.00	981.56	10131.56
	45.000	39000.00	1039.10	10.80	1039.82	6.94	.02	9150.00	981.60	10131.60
*	51.700	39000.00	1040.18	12.78	1040.66	5.51	.03	9816.33	741.62	10592.57
*	51.700	39000.00	1040.19	12.79	1040.66	5.50	.03	9816.13	741.91	10592.59
	54.000	39000.00	1040.44	12.44	1040.84	5.08	.01	9857.22	832.27	10689.49
	54.000	39000.00	1040.45	12.45	1040.85	5.08	.01	9857.21	832.30	10689.50
	59.000	39000.00	1040.85	10.15	1041.30	5.41	.02	9767.88	925.61	10693.49
	59.000	39000.00	1040.85	10.15	1041.31	5.40	.02	9767.86	925.64	10693.51

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	63.000	39000.00	1041.25	9.55	1041.82	6.04	.03	9696.25	867.85	10564.10
	63.000	39000.00	1041.26	9.56	1041.82	6.03	.03	9696.15	867.96	10564.11
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.93	661.32	10254.25
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.92	661.33	10254.26
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.12	10237.54
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.10	10237.54

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 105

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	501.450	1027.50	.00	.00	6594.18	199.19	26795.27	12005.53
	501.450	1028.22	.00	.00	2800.83	.00	35948.30	3051.70
*	10.000	1029.45	2.52	.33	2223.60	18099.46	19449.04	1451.51
*	10.000	1030.01	2.36	.41	1320.00	13369.86	24392.32	1237.82
*	13.000	1031.08	.76	.08	2347.98	16149.57	22061.76	788.67
*	13.000	1031.97	.90	.10	1324.00	10878.90	28121.10	.00
	20.000	1032.46	1.40	.01	2303.88	7026.06	29026.95	2946.99
	20.000	1033.37	1.31	.01	1345.00	5088.63	33911.37	.00
	26.800	1033.93	1.58	.04	3200.43	9897.68	28400.53	701.78
	26.800	1034.58	1.45	.10	1250.00	4482.55	34517.45	.00
	32.600	1035.25	1.71	.17	1680.05	1906.65	37093.35	.00
	32.600	1036.03	1.45	.00	1224.06	2773.67	36226.33	.00
	38.000	1037.16	1.74	.02	1164.90	1798.14	37201.86	.00
	38.000	1037.32	1.34	.02	1165.23	2047.21	36952.79	.00
	45.000	1039.08	1.61	.03	981.56	1302.15	37697.86	.00
	45.000	1039.10	1.54	.02	981.60	1312.98	37687.02	.00
*	51.700	1040.18	.82	.03	741.62	.00	39000.00	.00
*	51.700	1040.19	.81	.03	741.91	.00	39000.00	.00
	54.000	1040.44	.18	.01	832.27	.00	39000.00	.00
	54.000	1040.45	.18	.01	832.30	.00	39000.00	.00
	59.000	1040.85	.44	.02	925.61	.00	39000.00	.00
	59.000	1040.85	.44	.02	925.64	.00	39000.00	.00
	63.000	1041.25	.48	.03	867.85	.00	39000.00	.00
	63.000	1041.26	.48	.03	867.96	.00	39000.00	.00
*	70.500	1042.27	2.20	.51	661.32	.00	39000.00	.00
*	70.500	1042.27	2.20	.51	661.33	.00	39000.00	.00
	77.000	1046.88	5.01	.17	418.12	.00	38742.97	257.03
	77.000	1046.88	5.01	.17	418.10	.00	38743.14	256.87

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	501.450	.00	.00	.00	1019.20	39000.00	1027.50	1024.62	1027.62	9.91	3.20	15340.78	12386.92
	501.450	.00	.00	.00	1019.20	39000.00	1028.22	1024.72	1028.42	10.00	3.69	11270.33	12331.60
*	10.000	1000.00	.00	.00	1024.00	39000.00	1029.45	1029.45	1030.66	122.36	10.69	4969.74	3525.68
*	10.000	1000.00	.00	.00	1024.00	39000.00	1030.01	1030.01	1031.58	116.89	11.54	4222.62	3607.20
*	13.000	300.00	.00	.00	1022.20	39000.00	1031.08	1029.07	1031.50	16.94	6.21	8675.90	9475.77
*	13.000	300.00	.00	.00	1022.20	39000.00	1031.97	1029.69	1032.58	18.44	7.00	7047.08	9082.55
	20.000	700.00	.00	.00	1023.60	39000.00	1032.46	1030.69	1032.92	19.20	6.08	8285.85	8900.25
	20.000	700.00	.00	.00	1023.60	39000.00	1033.37	1030.67	1033.90	16.53	6.15	7192.19	9593.18
	26.800	680.00	.00	.00	1024.90	39000.00	1033.93	1032.93	1034.54	23.11	7.14	8161.15	8111.86
	26.800	680.00	.00	.00	1024.90	39000.00	1034.58	1032.84	1035.45	25.10	7.90	5891.66	7785.04
	32.600	580.00	.00	.00	1026.20	39000.00	1035.25	1033.34	1036.42	37.32	8.88	5089.86	6383.69
	32.600	580.00	.00	.00	1026.20	39000.00	1036.03	1033.27	1036.90	24.26	7.72	5782.75	7918.29
	38.000	540.00	.00	.00	1027.20	39000.00	1037.16	1034.82	1038.17	28.45	8.26	5284.44	7312.40
	38.000	540.00	.00	.00	1027.20	39000.00	1037.32	1034.79	1038.26	25.96	8.01	5478.71	7654.07
	45.000	700.00	.00	.00	1028.30	39000.00	1039.08	1035.48	1039.81	19.57	6.96	5924.26	8817.02
	45.000	700.00	.00	.00	1028.30	39000.00	1039.10	1035.49	1039.82	19.39	6.94	5941.88	8856.13
*	51.700	670.00	.00	.00	1027.40	39000.00	1040.18	1034.80	1040.66	8.37	5.51	7077.61	13480.55
*	51.700	670.00	.00	.00	1027.40	39000.00	1040.19	1034.80	1040.66	8.34	5.50	7085.12	13500.89
	54.000	230.00	.00	.00	1028.00	39000.00	1040.44	1035.22	1040.84	7.48	5.08	7670.43	14263.82
	54.000	230.00	.00	.00	1028.00	39000.00	1040.45	1035.22	1040.85	7.45	5.08	7678.15	14287.37
	59.000	500.00	.00	.00	1030.70	39000.00	1040.85	1036.70	1041.30	10.53	5.41	7215.30	12018.79
	59.000	500.00	.00	.00	1030.70	39000.00	1040.85	1036.70	1041.31	10.49	5.40	7222.87	12039.47
	63.000	400.00	.00	.00	1031.70	39000.00	1041.25	1037.49	1041.82	13.96	6.04	6458.00	10436.45
	63.000	400.00	.00	.00	1031.70	39000.00	1041.26	1037.49	1041.82	13.93	6.03	6463.72	10450.94
*	70.500	750.00	.00	.00	1033.50	39000.00	1042.27	1042.08	1044.53	97.25	12.04	3238.29	3954.76
*	70.500	750.00	.00	.00	1033.50	39000.00	1042.27	1042.08	1044.53	97.16	12.04	3239.18	3956.52
	77.000	650.00	.00	.00	1034.60	39000.00	1046.88	1045.95	1049.71	62.59	13.52	2938.14	4929.53
	77.000	650.00	.00	.00	1034.60	39000.00	1046.88	1045.95	1049.71	62.61	13.52	2937.83	4928.80

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	501.450	39000.00	1027.50	.00	.00	.00	6594.18	.00
	501.450	39000.00	1028.22	.72	.00	.72	2800.83	.00
*	10.000	39000.00	1029.45	.00	1.95	.00	2223.60	1000.00
*	10.000	39000.00	1030.01	.55	1.79	.55	1320.00	1000.00
*	13.000	39000.00	1031.08	.00	1.63	.00	2347.98	300.00
*	13.000	39000.00	1031.97	.89	1.97	.89	1324.00	300.00
	20.000	39000.00	1032.46	.00	1.37	.00	2303.88	700.00
	20.000	39000.00	1033.37	.91	1.40	.91	1345.00	700.00
	26.800	39000.00	1033.93	.00	1.47	.00	3200.43	680.00
	26.800	39000.00	1034.58	.65	1.21	.65	1250.00	680.00
	32.600	39000.00	1035.25	.00	1.32	.00	1680.05	580.00
	32.600	39000.00	1036.03	.78	1.46	.78	1224.06	580.00
	38.000	39000.00	1037.16	.00	1.91	.00	1164.90	540.00
	38.000	39000.00	1037.32	.16	1.28	.16	1165.23	540.00
	45.000	39000.00	1039.08	.00	1.92	.00	981.56	700.00
	45.000	39000.00	1039.10	.02	1.78	.02	981.60	700.00
*	51.700	39000.00	1040.18	.00	1.10	.00	741.62	670.00
*	51.700	39000.00	1040.19	.01	1.10	.01	741.91	670.00
	54.000	39000.00	1040.44	.00	.26	.00	832.27	230.00
	54.000	39000.00	1040.45	.01	.26	.01	832.30	230.00
	59.000	39000.00	1040.85	.00	.40	.00	925.61	500.00
	59.000	39000.00	1040.85	.01	.40	.01	925.64	500.00
	63.000	39000.00	1041.25	.00	.40	.00	867.85	400.00
	63.000	39000.00	1041.26	.01	.40	.01	867.96	400.00
*	70.500	39000.00	1042.27	.00	1.02	.00	661.32	750.00
*	70.500	39000.00	1042.27	.00	1.02	.00	661.33	750.00
	77.000	39000.00	1046.88	.00	4.61	.00	418.12	650.00
	77.000	39000.00	1046.88	.00	4.61	.00	418.10	650.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=     10.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     10.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     10.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     10.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

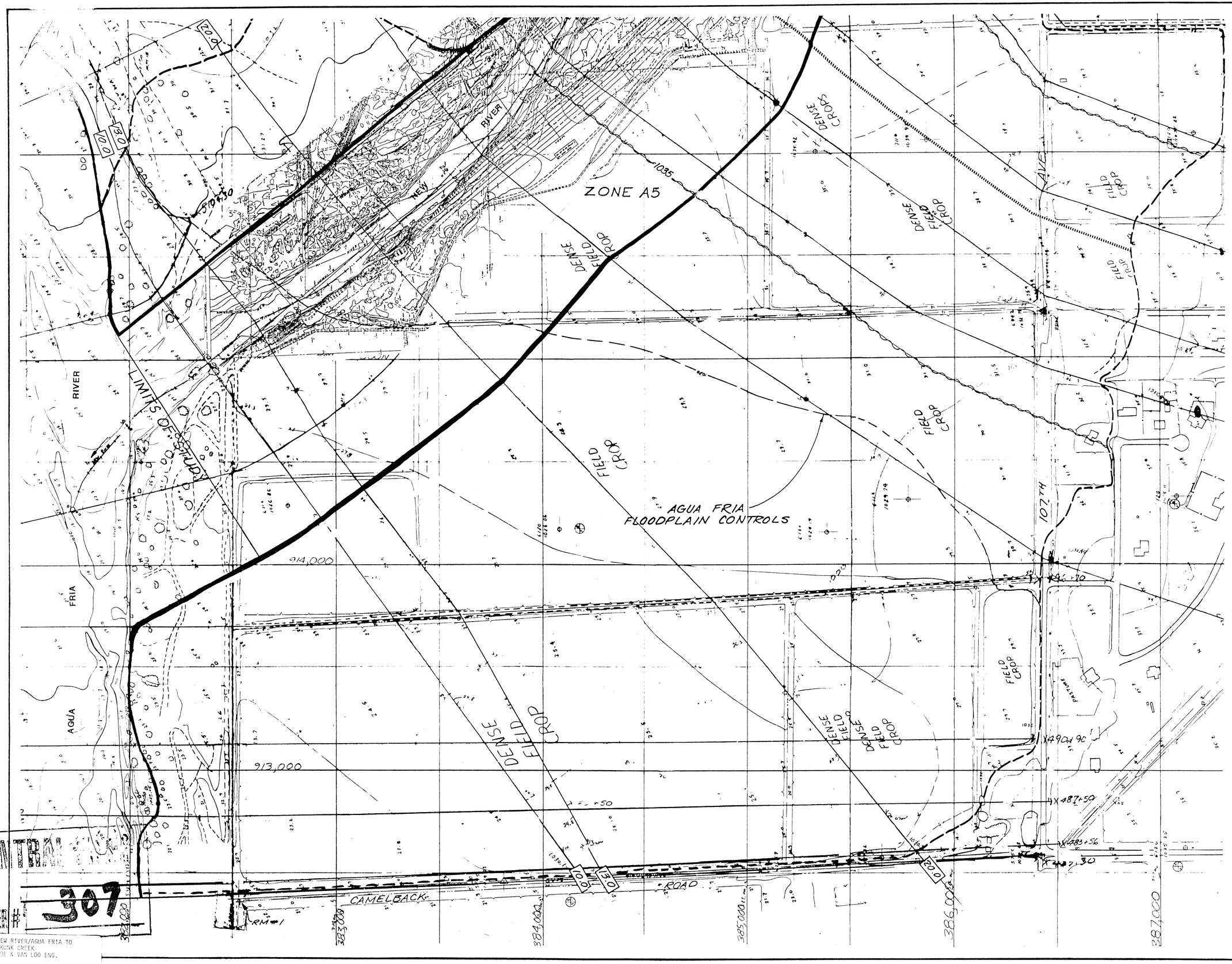
WARNING SECNO=     13.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     51.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     51.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     70.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     70.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

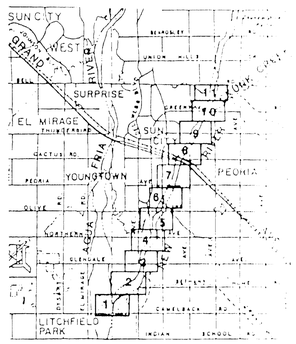
FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
501.450	2850.	11270.	3.5	1028.2	1027.5	.7
10.000	1320.	4223.	9.2	1030.1	1029.5	.6
13.000	1324.	7047.	5.5	1032.0	1031.1	.9
20.000	1345.	7192.	5.4	1033.4	1032.5	.9
26.800	1250.	5892.	6.6	1034.5	1033.9	.6
32.600	1224.	5783.	6.7	1036.1	1035.3	.8
38.000	1165.	5479.	7.1	1037.4	1037.2	.2
45.000	982.	5942.	6.6	1039.1	1039.1	.0
51.700	776.	7085.	5.5	1040.2	1040.2	.0
54.000	832.	7678.	5.1	1040.4	1040.4	.0
59.000	926.	7223.	5.4	1040.8	1040.8	.0
63.000	868.	6464.	6.0	1041.3	1041.3	.0
70.500	661.	3239.	12.0	1042.3	1042.3	.0
77.000	442.	2938.	13.3	1046.9	1046.9	.0



0 200 400

CONTOUR INTERVAL 2 FEET



KEY MAP
NTS

LEGEND

- 100-YEAR FLOOD LIMITS
- FLOODWAY LIMITS
- BASE FLOOD ELEVATION
- STATIONING IN RIVER FEET UPSTREAM FROM AGUA FRIA RIVER
- 204.0 — CROSS-SECTION NUMBER
- + RM#1 REFERENCE MARK
- CONTROL LINE
- FLOOD ZONE LIMIT

NOTES

THIS FLOOD INSURANCE STUDY WORK MAP HAS BEEN PREPARED IN ACCORDANCE WITH FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) GUIDELINES

THE STUDY HAS BEEN APPROVED BY FEMA BY LETTER DATED OCTOBER 9, 1987.

MAP BASED ON 1" = 200' TOPOGRAPHIC MAPPING PREPARED BY AERIAL MAPPING COMPANY, INC. FROM PHOTOGRAPHS TAKEN IN 1975 AND 1981

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

NEW RIVER, ARIZONA

COMPILATION SCALE	1" = 200'
CONTOUR INTERVAL	2'
FLIGHT ALTITUDE	6000'
DATUM MSL	1929
FLOWN BY	AMCI
COMPILED BY	AMCI
CONTROL BY	USCE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER FLOODPLAIN DELINEATION

AGUA FRIA RIVER TO SKUNK CREEK

RECOMMENDED: DATE:
APPROVED BY: DATE:
FLOODPLAIN ADMINISTRATOR

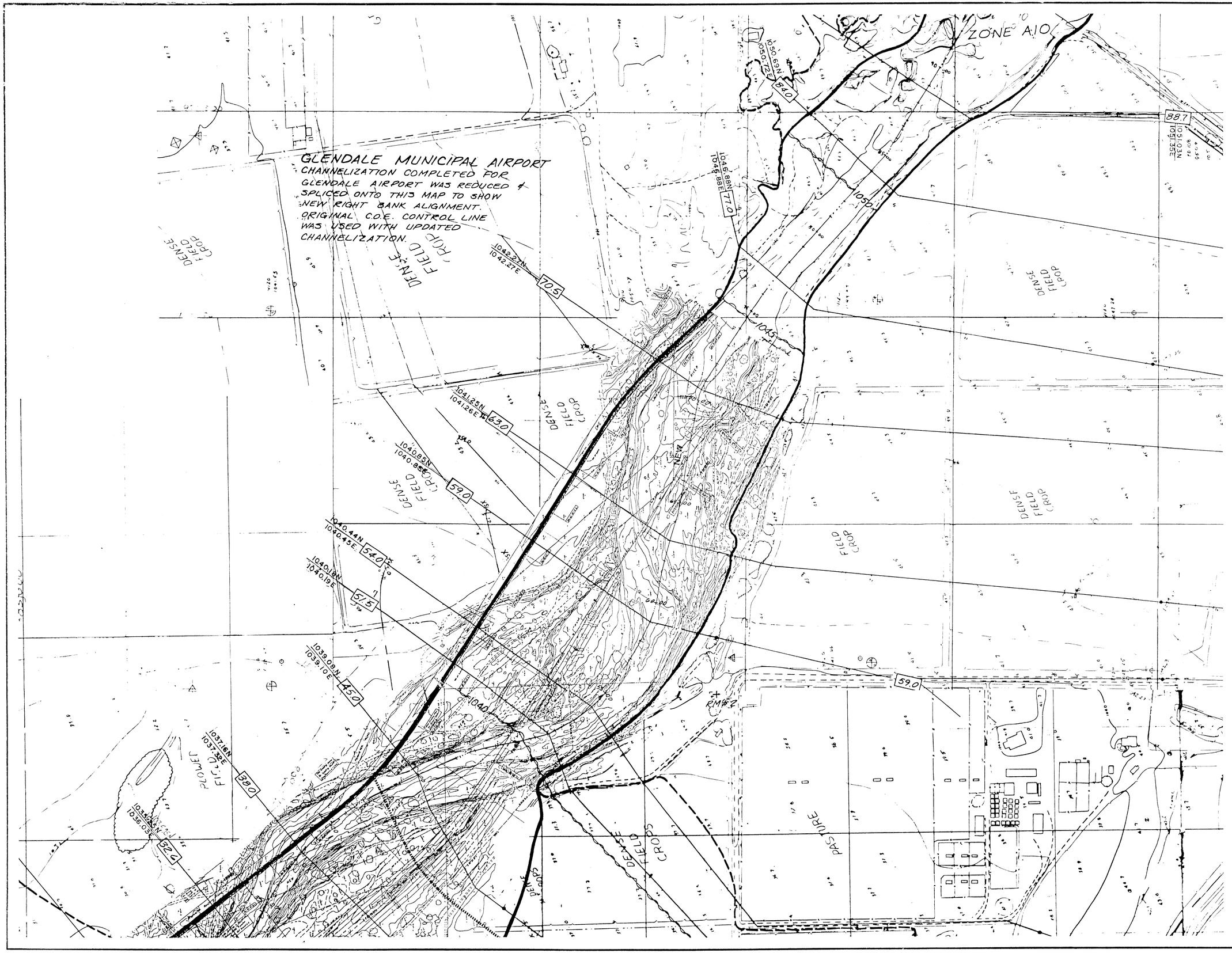
1

COE & VAN LOO PHOENIX
CONSULTING ENGINEERS INC ARIZONA

CVL JOB NO. 109[illegible]

307

NEW RIVER/AGUA FRIA TO SKUNK CREEK
COE & VAN LOO ENG.
STUDY 1987 FCD 86-27



LEGEND

- 100-YEAR FLOOD LIMITS
- FLOODWAY LIMITS
- BASE FLOOD ELEVATION
- 85.00 STATIONING IN RIVER FEET UPSTREAM FROM AGUA FRIA RIVER
- 204.0 CROSS-SECTION NUMBER
- RM#4 REFERENCE MARK
- CONTROL LINE
- FLOOD ZONE LIMIT

NOTES

THIS FLOOD INSURANCE STUDY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) GUIDELINES

THE STUDY HAS BEEN APPROVED BY FEMA BY LETTER DATED OCTOBER 9, 1987

MAP BASED ON 1" = 200' TOPOGRAPHIC MAPPING PREPARED BY AERIAL MAPPING COMPANY, INC. FROM PHOTOGRAPHS TAKEN IN 1975 AND 1981

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

NEW RIVER, ARIZONA

COMPILATION SCALE	1"=200'
CONTOUR INTERVAL	2'
FLIGHT ALTITUDE	6000'
DATUM MSL	1929
FLOWN BY	AMCI
COMPILED BY	AMCI
CONTROL BY	USCE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER FLOODPLAIN DELINEATION

AGUA FRIA RIVER TO SKUNK CREEK

RECOMMENDED _____ DATE _____

APPROVED BY _____ DATE _____

FLOODPLAIN ADMINISTRATOR

COE & VAN LOO PHOENIX, ARIZONA
CONSULTING ENGINEERING

CVL JOB NO. 1092-

SECTION VII

BREAK OUT FLOW IN FARMLAND NORTH OF GILA RIVER

SECTION VII
BREAKOUT FLOW IN FARMLAND NORTH OF GILA RIVER

Sections 0.920 to 1.330 Floodplain Delineation Using Approximate Methods

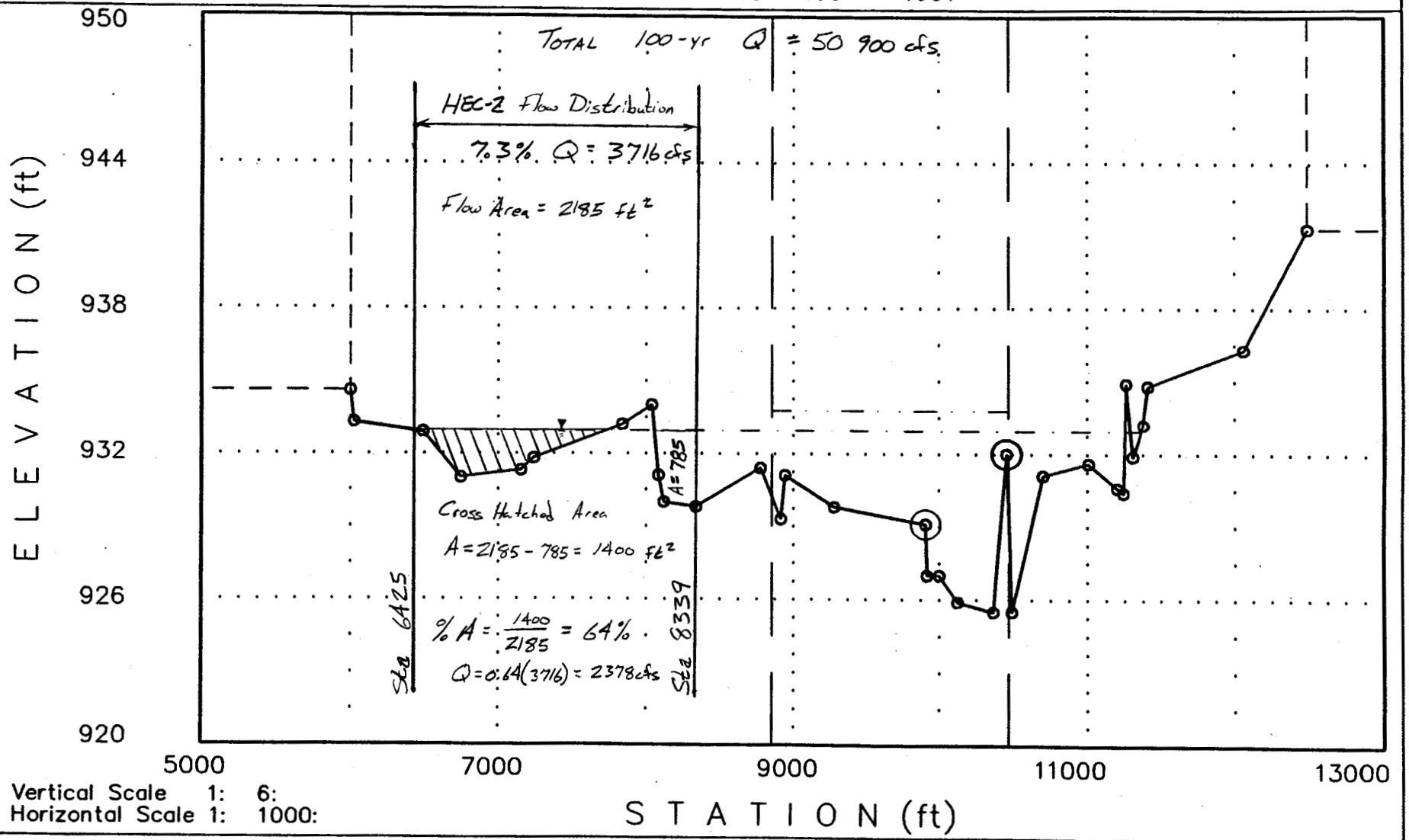
The limits of Zone A flooding for cross Sections 0.920 to 1.330 is determined by approximate methods. Cross Section 1.330, the section just upstream of the breakout area, flow distribution between Stations 6425 and 8339 is prorated based on flow area. The total flow area of cross section 1.330 between stations 6425 and 8339 is 2185 square feet. The cross hatched flow area in the left bank of Section 1.330 is estimated to be 1400 sq. ft., which is 64% of flow distribution area between Stations 6425 to 8339. This yields a flow rate of about 2378 cfs for Zone A flooding (64% 3716 cfs = 2378 cfs). Refer to cross section plot of Section 1.33 for schematics of prorated flow area calculations (following text).

The limits of Zone A flooding are determined by using the prorated flow rate of 2378 cfs. Two cross sections are used (see Breakout Flow in Farmland North of Gila River, sheet 1 of 1) to determine the normal flow depth using Manning's equation. A summary of Manning's equation computations is provided for both Sections 1 and 2. The limits of Zone A flooding tie into the 100-year floodplain at Sections 0.920 and 1.330.

<<<<<< Cross Section: 1.33: (FN = TEST1020.0) >>>>>>

Q1= 50900cfs WS1= 932.95
Q2= 50900cfs WS2= 933.78

Manning-n Values: LOB: .045 - .049 CH: .035 ROB: .05 - .051



Vertical Scale 1: 6:
Horizontal Scale 1: 1000:

10-20-1996

Project Agua Fria FDS
Project No. 950067
Sheet No. 1 of 2
Calculated by _____ Date _____

UNIFORM FLOW COMPUTATIONS

LOCATION/DESCRIPTION:

Approximate Methods - SECTION 1

Agua Fria Sta 0.920 - 1.330

CROSS SECTION PARAMETERS: FILENAME: hec2sec1.SEC

No. of Cross Section Points:	6	Bed Slope:	0.00100	Max Elev.:	934.12
Bank Stations.....Left:	0.0	Right....:	2150.0	Min Elev.:	928.00
Encroachment Stations..Left:		Right....:			
Manning-n Values.....LOB:	0.100	CHANNEL..:	0.100	ROB.....:	0.100

CROSS SECTION POINTS - Elevations & Stations in feet:

No.	Elev.	Sta.	No.	Elev.	Sta.	No.	Elev.	Sta.
1)	928.00	0.00	2)	932.52	435.00	3)	932.00	780.00
4)	931.69	1470.00	5)	932.00	1800.00	6)	934.12	2150.00

COMPUTED PARAMETERS:

WSEL(ft)	Q(cfs)	V(fps)	Fr No.	ne	D(ft)	TW(ft)	A(sf)	WP(ft)	CRWS(ft)
933.40	2377.8	0.7	0.09	0.100	1.7	2031.6	3512.6	2031.6	930.73

NOTES:

Project Agua Fria FDS
Project No. 950067
Sheet No. 2 of 2
Calculated by _____ Date _____

UNIFORM FLOW COMPUTATIONS

LOCATION/DESCRIPTION:

Approximate Methods - SECTION 2

Agua Fria Sta 0.920-6.330

CROSS SECTION PARAMETERS: FILENAME: hec2sec2.SEC

No. of Cross Section Points:	6	Bed Slope:	0.00200	Max Elev.:	930.90
Bank Stations.....Left:	0.0	Right....:	3520.0	Min Elev.:	928.00
Encroachment Stations..Left:		Right....:			
Manning-n Values.....LOB:	0.100	CHANNEL..:	0.100	ROB.....:	0.100

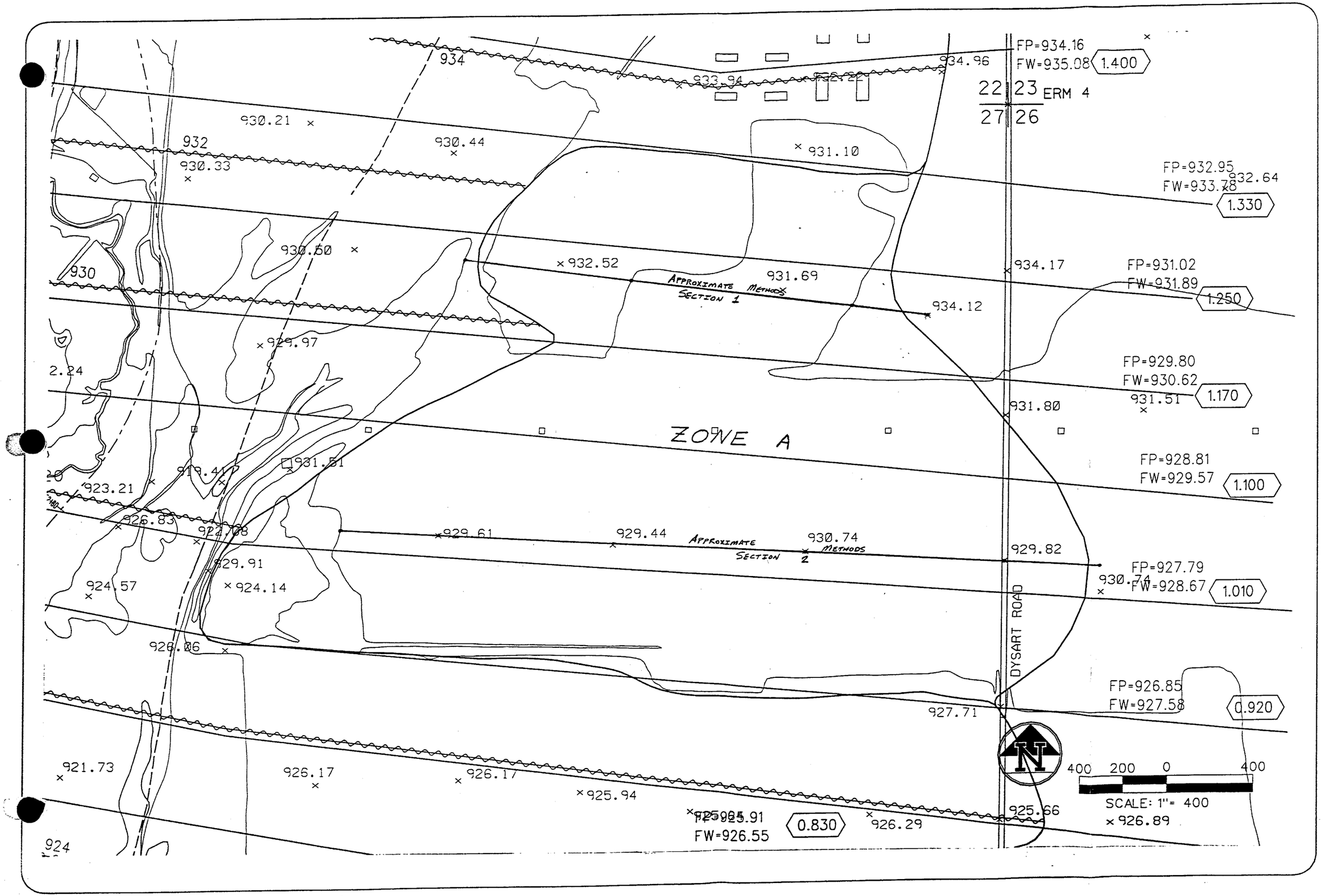
CROSS SECTION POINTS - Elevations & Stations in feet:

No.	Elev.	Sta.	No.	Elev.	Sta.	No.	Elev.	Sta.
1)	928.00	0.00	2)	929.61	450.00	3)	929.44	1250.00
4)	930.74	2140.00	5)	929.82	3070.00	6)	930.90	3520.00

COMPUTED PARAMETERS:

WSEL(ft)	Q(cfs)	V(fps)	Fr No.	ne	D(ft)	TW(ft)	A(sf)	WP(ft)	CRWS(ft)
930.89	2377.4	0.7	0.12	0.100	1.0	3516.4	3552.8	3516.4	929.75

NOTES:



AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

COE & VAN LOO
PLANNING•ENGINEERING•LANDSCAPE ARCHITECTURE

BREAKOUT FLOW IN FARMLAND
NORTH OF GILA RIVER

4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
TELEPHONE (602) 264-6831

JOB NO
950067

SHEET
1 OF 1

FILE: N:\950067\HYDRO\GILASPLT.DGN DATE: 10-96

SECTION VIII

BOX CULVERT UNDER GRAND AVENUE

SECTION VIII

BOX CULVERT UNDER GRAND AVENUE

CVL

Split Flow Condition at Grand Avenue

At Grand Avenue the majority of the Agua Fria River is conveyed under the Santa Fe Railroad Bridge and the Grand Avenue Bridge. However, there is a flow breakout to the west upstream of these bridges. Once this flow breaks out it will pond behind the railroad and Grand Avenue. The majority of this breakout flow is conveyed south across Grand Avenue through 3-8'x4' box culverts. This flow will continue to drain south remaining west of the landfill until it combines with the main flow.

The culverts were modeled using the HDS-5 charts to determine their flow capacity. Downstream of the culverts and west of the landfill the river was delineated using this flow.

PROJECT: AGUA FRIA FLOODPLAIN DELINEATION RESTUDY

STATION: GRAND AVENUE BOX CULVERT

SHEET 1 OF 3

CULVERT DESIGN FORM

DESIGNER / DATE: DB / 10/25/96

REVIEWER / DATE: ____ / ____

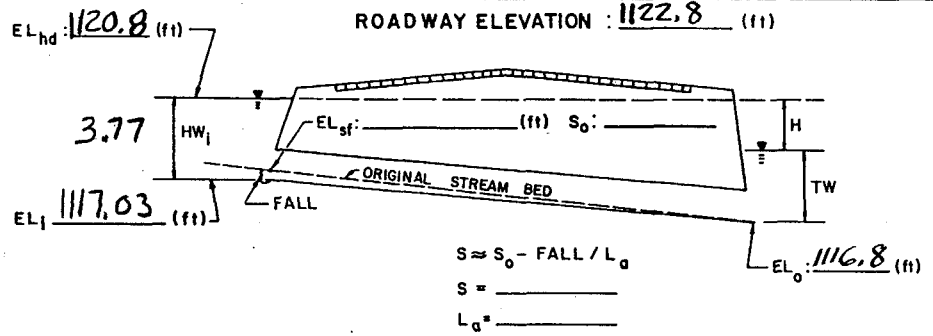
HYDROLOGICAL DATA

SEE ADD'L. SHTS.

- ☐ METHOD: ____
- ☐ DRAINAGE AREA: ____ ☐ STREAM SLOPE: ____
- ☐ CHANNEL SHAPE: ____
- ☐ ROUTING: ____ ☐ OTHER: ____

DESIGN FLOWS/TAILWATER

R.I. (YEARS)	FLOW (cfs)	TW (ft)



CULVERT DESCRIPTION: MATERIAL - SHAPE - SIZE - ENTRANCE	TOTAL FLOW Q (cfs)	FLOW PER BARREL Q/N (1)	HEADWATER CALCULATIONS: INLET CONTROL HW_i/D (2)	HW_i	FALL (3)	EL_{hi} (4)	OUTLET CONTROL TW (5)	d_c	$\frac{d_c+D}{2}$	h_o (6)	k_e	H (7)	EL_{ho} (8)	CONTROL HEADWATER ELEVATION	OUTLET VELOCITY	COMMENTS
3-8'x4' CBC's	500	167	0.94	3.77	0	1120.8										

TECHNICAL FOOTNOTES:

(1) USE Q/NB FOR BOX CULVERTS

(2) HW_i/D = HW /D OR HW_t/D FROM DESIGN CHARTS

(3) FALL = $HW_i - (EL_{hd} - EL_{sf})$; FALL IS ZERO FOR CULVERTS ON GRADE

(4) $EL_{hi} = HW_i + EL_i$ (INVERT OF INLET CONTROL SECTION)

(5) TW BASED ON DOWN STREAM CONTROL OR FLOW DEPTH IN CHANNEL.

(6) h_o = TW or $(d_c + D/2)$ (WHICHEVER IS GREATER)

(7) $H = \left[1 + k_e + (29n^2 L)/R^{1.33}\right] V^2/2g$

(8) $EL_{ho} = EL_o + H + h_o$

SUBSCRIPT DEFINITIONS:

a. APPROXIMATE
f. CULVERT FACE
hd. DESIGN HEADWATER
hi. HEADWATER IN INLET CONTROL
ho. HEADWATER IN OUTLET CONTROL
i. INLET CONTROL SECTION
o. OUTLET
sf. STREAMBED AT CULVERT FACE
tw. TAILWATER

COMMENTS / DISCUSSION:

EXIST. 3-8'x4' CBC's HAVE A CAPACITY OF 500 cfs AT HEADWATER WATER SURFACE OF 1119.8 - INLET CONTROL

CULVERT BARREL SELECTED:

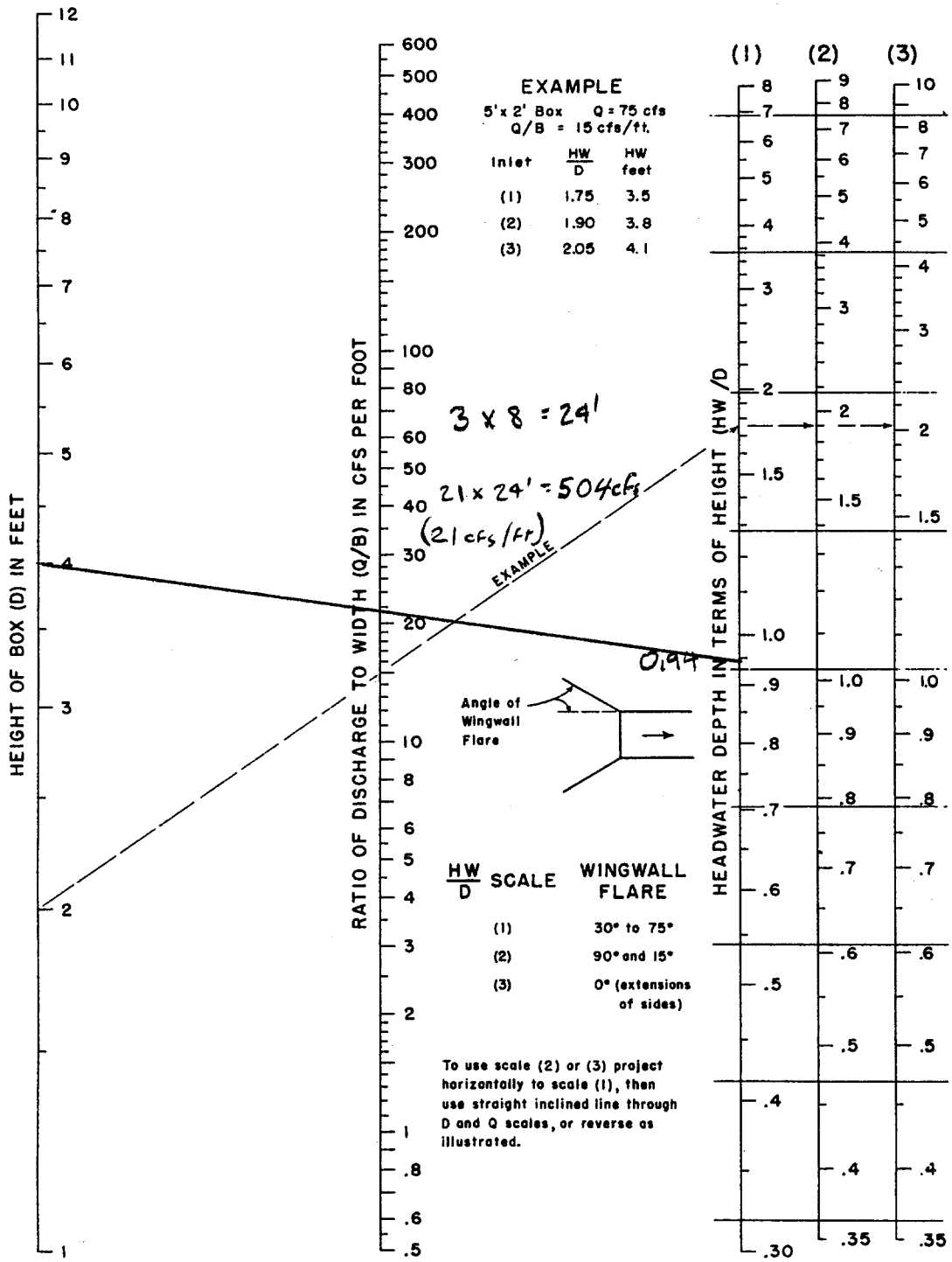
SIZE: ____

SHAPE: ____

MATERIAL: ____ n: ____

ENTRANCE: ____

CHART 8

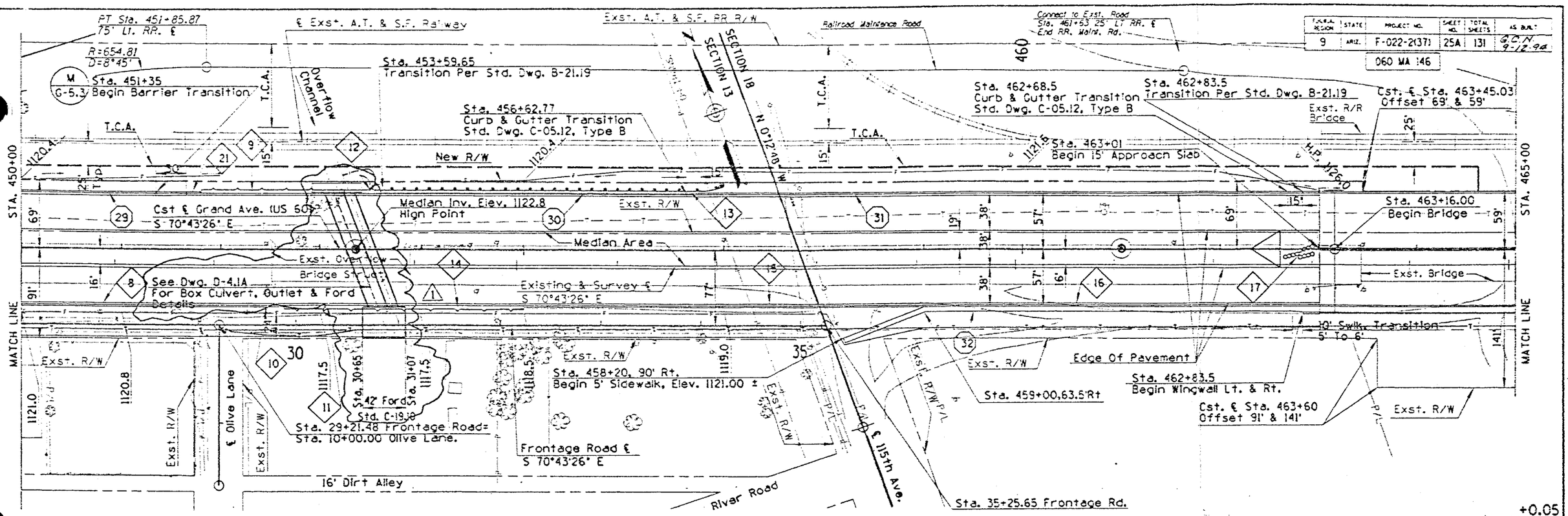


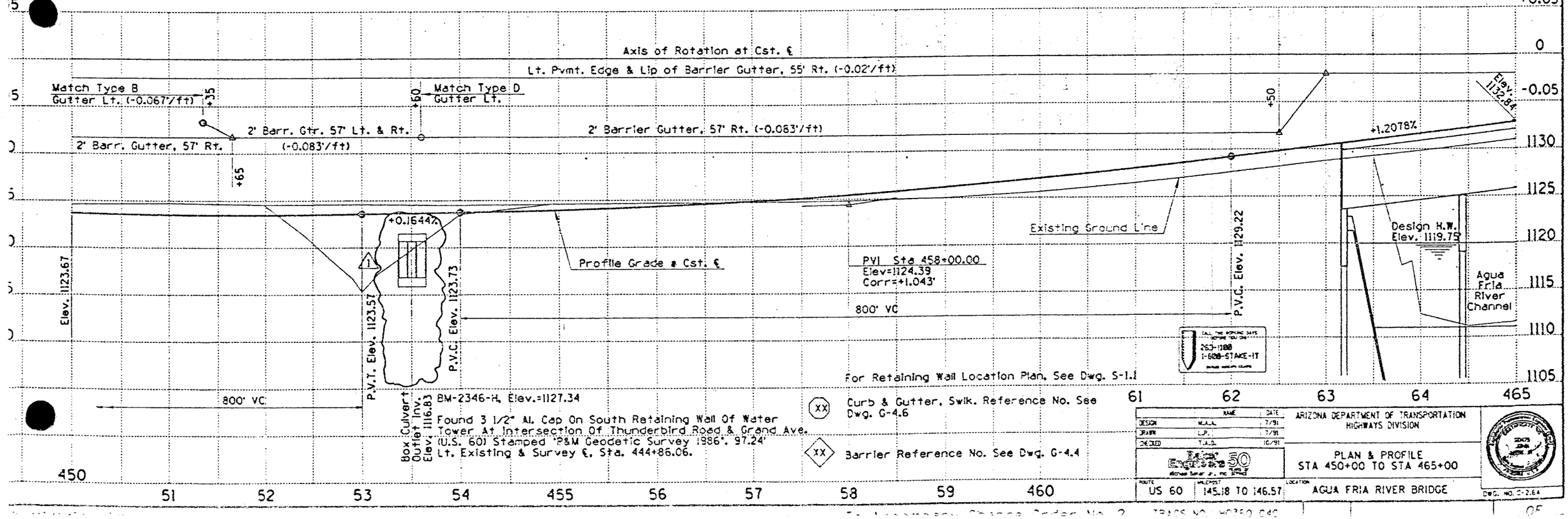
HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

FEDERAL REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	F-022-2(37)	25A	131	GCN 9-12-94

060 MA 146





	NAME	DATE
DESIGN	M.A.L.	7/91
DRAWN	L.P.	7/91
CHECKED	T.A.S.	10/91

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE
STA 450+00 TO STA 465+00

ROUTE	MILEPOST	LOCATION
US 60	145.18 TO 146.57	AGUA FRIA RIVER BRIDGE

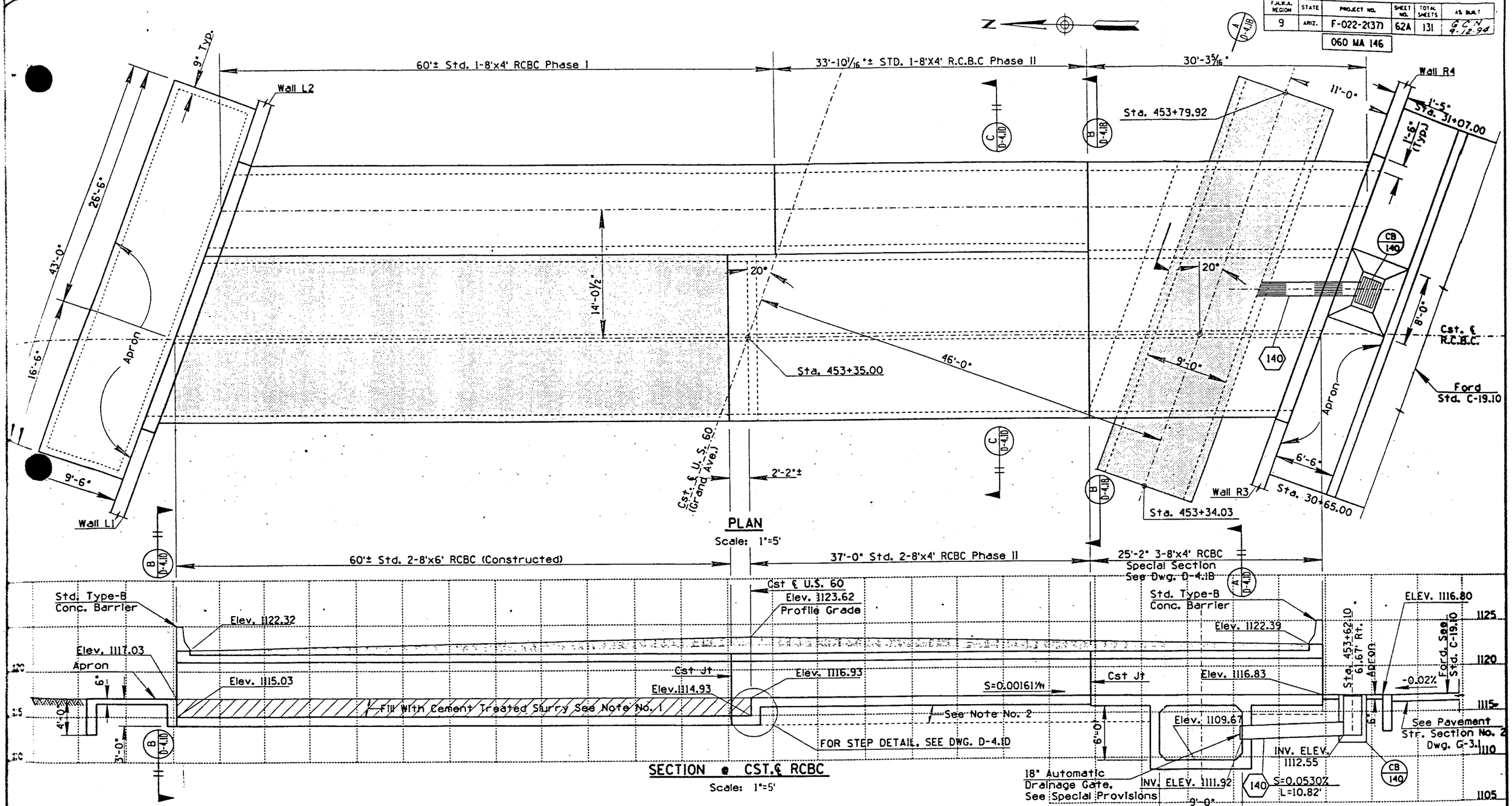
DWG. NO. C-2.6A

To Accompany Change Order No. 2 TRACS NO. H0360 040

05

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	F-022-2(137)	62A	131	GCN 9-12-94

060 MA 146



Notes:

1. Fill 2-8'x6' RCB Barrels with a 2'-0" Thick Cement - Treated Slurry Material Conforming to the Requirements of Subsection 501-3.02(A)(3) of the Standard Specifications (Approximately 73.5 CY).

2. Structural Excavation and Backfill: The Contractor Shall Remove Soil to a Minimum of 2.0 Feet Below the Bottom of the RCBC and 2.0 Feet Laterally Beyond the RCBC edge. Prior to Filling this Excavation the Upper 6 Inches of the Subgrade Shall be Scarified and Recompacted to Approximately 95 Percent of Maximum Density (ASTM D698). The Excavation Shall be Filled with Native Material Which has been Screened to Remove all Materials over 6 Inches. Filling Shall Proceed with Loose lifts 10 Inches or Less in depth, Placed and Compacted at ±3 Percent of Optimum Moisture Content (ASTM D698) and 95 Percent of Maximum Density (ASTM D698).

3. For Additional Details See Dwg. D-4.1B, D-4.1C, and D-4.1D

4. For Inlet And Outlet Aprons Reinforcing Steel, See Std. B-06.10.

	NAME	DATE
DESIGN	HDH	07-92
DRAWN	SSO	07-92
CHECKED	JM	07-92

Baker Engineers 50 YEARS OF SERVICE Michael Baker Jr., Inc.

ARIZONA DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

OVERFLOW CHANNEL RCBC PLAN AND PROFILE

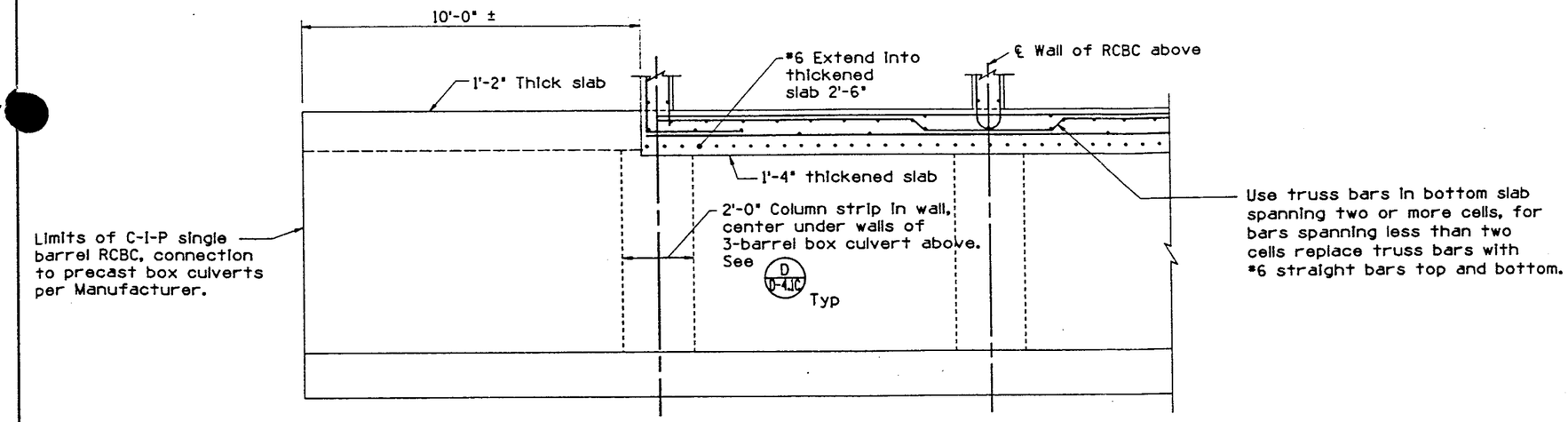
ROUTE	MILEPOST	LOCATION
US 60	145.18 TO 146.57	AGUA FRIA RIVER BRIDGE

DWG. NO. D-4.1A

/usr2/agua3/rlofio.dgn

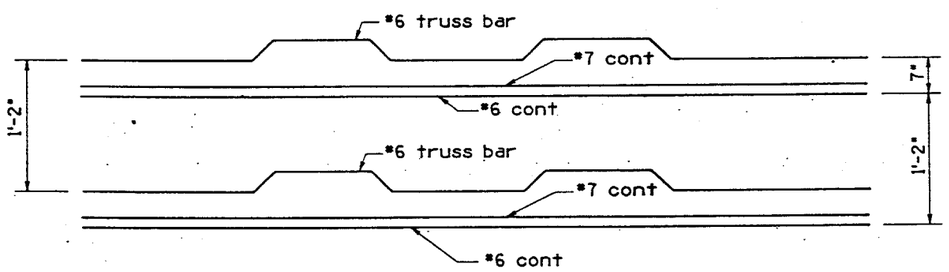
To Accompany Change Order No. 2 TRACS NO. H0360 04C F-022-2(137) 62A OF 131

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	F-022-2(37)	62B	131	
		060 MA 146			

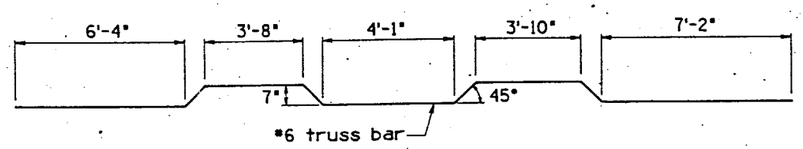


NOTE: For reinforcing not shown see DWG No D-4.1C

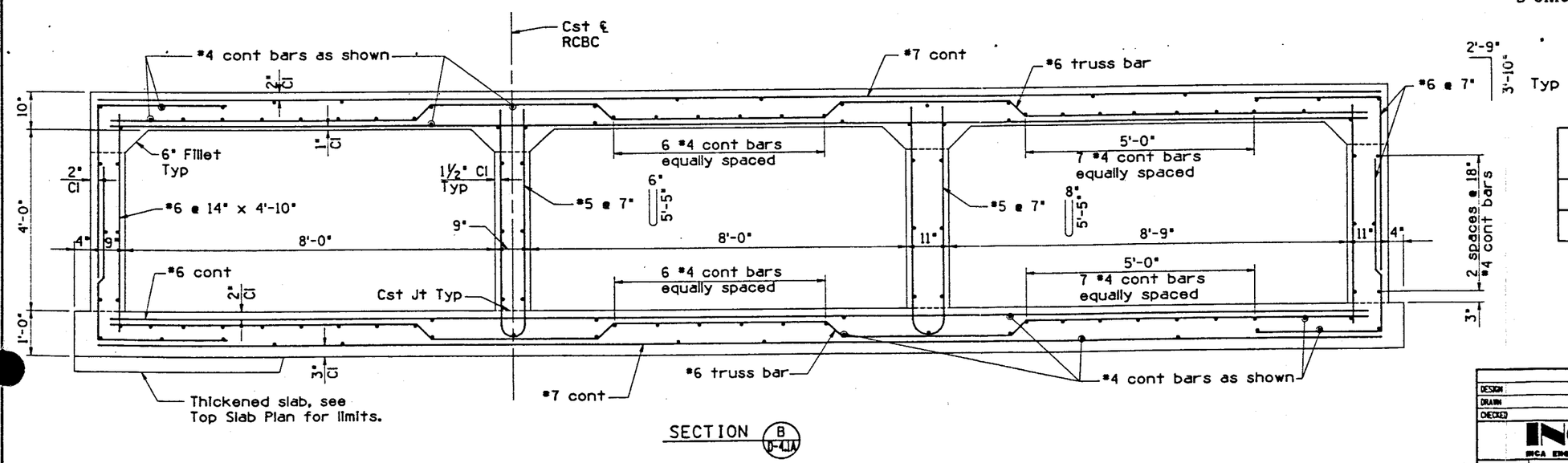
THICKENED SLAB DETAIL (A/D-4.1A)



REINFORCING BAR PLACING DIAGRAM



TRUSS BAR



SECTION (B/D-4.1A)

GENERAL NOTES

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 1990 Edition.

Design Specifications - AASHTO Standard Specifications for Highway Bridges, Edition of 1989 with 1990 and 1991 Interim Specifications.

Loading Class - HS20-44 and/or Interstate Alternate Loading

Reinforcing steel shall conform to ASTM Specification A615. Bar sizes #6 and smaller shall be designed as Grade 40 but may be furnished as Grade 40 or Grade 60. Bar sizes #7 and larger shall be designed and furnished as Grade 60.

All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

Standard hook dimensions shall be used unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

Stresses:

Concrete	f'_c	=	3000 psi
Grade 40 reinforcing steel . . .	fs	=	20000 psi
Grade 60 reinforcing steel . . .	fs	=	24000 psi

Chamfer all exposed corners ¾" as per Standard B-19.10 unless noted otherwise.

Dimensions shall not be scaled from drawings.

ADOT Structures Section Standards, 1988 Edition. B-01.10, B-19.10, & B-21.18

SPECIAL SECTION APPROXIMATE QUANTITIES		
Concrete Class S, f'c =3000 psi	120.6	CY
Reinforcing Steel	26128	LBS

	NAME	DATE
DESIGN	DJM	08/92
DRAWN	SKC	08/92
CHECKED	CG	08/92

INCA ENGINEERS INC.

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRUCTURES SECTION

OVERFLOW CHANNEL RCBC DETAILS

US 60 (ROUTE) | MILEPOST | STRUCTURE NO.

LOCATION: AGUA FRIA RIVER BRIDGE

DWG. NO. D-4.1B

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.0;  February 1991          *
*                                           *
*  RUN DATE    30OCT96    TIME   14:51:33   *
*********************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
```

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

THIS RUN EXECUTED 30OCT96 14:51:33

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

 Version   4.6.0;  February 1991
************************************


T1 AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY
T1 PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC #95-05)
T1 PREPARED BY COE & VAN LOO CONSULTANTS, INC. (CVL #95-0067-01)
T1 GRAND AVENUE SPLIT FLOW  Q100=500CFS BREAK OUT THROUGH GRAND AVE. BOX CULVERT
T2 AGUA FRIA RIVER, GILA RIVER TO THE NEW WADDELL DAM
T3 100-YEAR EVENT    EXISTING CONDITION            FILE NAME - GRAND

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0                 0        0        0    1109.06     0

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1        0        0        0       -1        0        0        15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       43        1        8        3        2       26        5       39       53
      4       54       37

NC    .040     .040     .040       .1       .3
QT       1      500
ET  15.658      9.1                                                          10100    12300
        AGUA FRIA DETAILED FDR PREPARED FOR THE FLOOD CONTROL DISTRICT OF
        MARICOPA COUNTY BY COE & VAN LOO CONSULTANTS, INC., 1996.
        THE CONTROL LINE ON THE MAIN CHANNEL OF THE AGUA FRIA RIVER IS
        STATION 10,000. ALL SECTIONS ARE STATIONED IN RIVER MILES FROM THE
        CONFLUENCE WITH THE GILA RIVER. ENCROACHMENT CARDS (ET) WERE USED
        IN SOME CASES TO BETTER MODEL DEAD OR NON-EFFECTIVE FLOW AREAS.
        CONSEQUENTLY, "SSTA" AND "ENDST" DO NOT REPRESENT THE ACTUAL FLOODING
        LIMITS, AND THE DELINEATION WAS ESTABLISHED BASED ON THE CROSS SECTION
        POINT ELEVATIONS AND THE TOPOGRAPHY. IN SOME CASES "TOPWID" DOES NOT
        REPRESENT THE FULL WIDTH OF THE FLOODPLAIN DUE TO NON-EFFECTIVE FLOW
        AREAS OR LOW ISLANDS WITHIN THE FLOODPLAIN.
        THIS RUN IS FOR A 500 CFS FLOW SPLIT THAT BREAKS OUT THROUGH A
        TRIPLE 8'X4' BOX CULVERT UNDER GRAND AVENUE.
        THE RUN WAS STARTED BASED ON THE 100-YEAR WATER SURFACE ELEVATION IN
        THE MAIN CHANNEL.
X1  15.658      94   11220.8   11553.9        0        0        0
GR  1112.0   9446.5    1102.9    9461.8   1100.4   9465.5   1099.9   9483.7   1099.2   9525.8
GR  1099.0   9567.9    1099.2    9593.1   1099.1   9623.6   1098.3   9661.4   1099.0   9692.6
GR  1099.6   9731.7    1105.5    9771.5   1104.8   9821.5   1106.7   9842.5   1108.3   9871.1
GR  1107.7   9920.1    1105.9    9948.6   1104.8   9955.5   1100.0   9980.4   1097.1  10019.8
GR  1098.5  10032.1    1099.1   10035.6   1099.1  10047.6   1102.0  10063.9   1103.1  10083.7
```

GR	1105.1	10102.2	1105.6	10123.1	1105.3	10172.7	1105.7	10224.6	1104.9	10285.3
GR	1108.5	10297.1	1102.3	10314.8	1103.6	10344.9	1104.6	10376.8	1104.1	10404.4
GR	1108.7	10421.4	1109.0	10424.8	1109.1	10479.6	1108.9	10529.0	1109.2	10579.4
GR	1109.3	10629.5	1109.3	10659.2	1109.7	10706.2	1109.4	10729.7	1109.8	10756.5
GR	1109.9	10810.1	1109.9	10847.3	1109.7	10894.4	1110.3	10980.2	1109.8	11030.4
GR	1109.8	11078.1	1109.9	11130.6	1109.1	11168.2	1108.6	11181.1	1108.3	11181.6
GR	1107.5	11220.8	1104.3	11235.1	1102.8	11283.3	1103.7	11301.1	1104.5	11331.3
GR	1106.5	11371.9	1107.8	11386.7	1106.8	11396.5	1106.2	11416.0	1104.7	11430.3
GR	1104.6	11481.3	1103.0	11511.9	1112.2	11553.9	1110.1	11576.5	1107.0	11618.7
GR	1107.8	11631.6	1108.1	11663.4	1108.7	11681.8	1108.9	11731.8	1108.8	11788.1
GR	1108.7	11832.1	1108.8	11882.2	1108.9	11932.3	1108.9	11982.4	1108.9	12070.3
GR	1109.2	12164.3	1109.4	12232.9	1109.4	12283.0	1109.3	12305.5	1109.4	12333.1
GR	1109.1	12352.5	1108.5	12418.3	1108.4	12483.5	1108.6	12587.7	1108.6	12683.9
GR	1108.6	12734.0	1108.5	12784.1	1109.0	12815.2	1109.8	12846.4		
ET	15.719	9.1							10150	11800
X1	15.719	95	11178.2	11520.3	310	310	310			
GR	1111.0	9385.2	1102.4	9398.9	1098.3	9405.4	1099.7	9508.2	1099.8	9558.7
GR	1100.2	9593.1	1101.5	9631.5	1101.6	9640.0	1106.0	9674.1	1106.8	9713.1
GR	1106.8	9755.4	1106.4	9770.7	1105.6	9781.8	1107.9	9798.9	1108.1	9802.8
GR	1108.2	9818.3	1107.6	9843.6	1108.7	9852.4	1109.4	9885.3	1106.4	9899.1
GR	1105.4	9942.2	1094.1	9965.8	1093.7	10015.7	1098.6	10029.2	1098.8	10039.4
GR	1114.5	10059.7	1117.7	10065.0	1119.6	10075.2	1118.7	10102.4	1123.6	10109.0
[illegible]	1128.1	10116.8	1128.5	10122.8	1132.0	10150.4	1132.9	10155.3	1133.7	10161.2
GR	1126.3	10172.4	1105.8	10205.0	1106.5	10225.8	1106.5	10232.4	1106.7	10237.1
GR	1106.7	10249.4	1106.5	10256.5	1105.8	10268.0	1106.1	10274.7	1105.4	10291.1
GR	1105.4	10315.9	1104.6	10354.3	1104.2	10382.4	1104.6	10419.6	1104.4	10422.2
GR	1109.6	10439.6	1110.1	10467.3	1110.1	10568.3	1110.6	10669.0	1111.3	10769.1
GR	1110.6	10858.6	1110.6	10878.9	1111.2	10919.4	1110.7	10964.7	1111.5	11019.5
GR	1111.8	11069.6	1110.7	11128.0	1111.0	11170.1	1109.5	11178.2	1104.8	11207.6
GR	1105.4	11219.8	1105.5	11230.8	1104.0	11261.0	1103.7	11271.4	1105.0	11297.5
GR	1105.2	11318.8	1103.9	11330.4	1104.5	11370.1	1104.3	11412.5	1106.1	11429.7
GR	1108.0	11445.6	1108.6	11487.5	1109.3	11520.3	1109.4	11670.6	1109.4	11779.9
GR	1109.3	11920.9	1109.5	11971.0	1109.6	12071.2	1109.8	12171.3	1109.6	12271.5
GR	1109.7	12321.6	1110.1	12348.9	1110.1	12397.0	1109.1	12471.8	1109.1	12572.0
GR	1109.0	12672.1	1108.7	12822.3	1109.9	12859.5	1110.5	12884.5	1110.3	12907.4
ET	15.814	9.1							10200	11500
X1	15.814	94	11235.0	11390.3	505	505	505			
GR	1117.3	9374.6	1110.9	9384.0	1103.5	9401.9	1100.2	9407.4	1099.5	9412.1
GR	1097.5	9430.4	1098.7	9446.8	1101.3	9473.1	1102.9	9498.5	1103.4	9516.2
GR	1103.1	9522.3	1103.6	9550.0	1105.7	9579.7	1108.1	9598.4	1108.2	9619.8
GR	1108.8	9624.4	1108.2	9630.4	1107.9	9644.3	1107.7	9674.8	1108.2	9740.7
GR	1108.8	9752.5	1108.5	9767.7	1109.1	9784.7	1109.5	9816.0	1109.5	9842.0
GR	1108.9	9850.0	1104.3	9885.7	1103.0	9909.3	1094.9	9926.1	1094.4	9978.0
GR	1099.6	9995.3	1100.3	10014.7	1103.9	10023.6	1115.9	10048.8	1121.6	10060.5
GR	1122.0	10076.5	1121.5	10093.9	1136.0	10122.8	1139.2	10128.8	1145.6	10146.8
GR	1145.1	10156.5	1143.7	10173.9	1143.6	10179.4	1143.2	10180.4	1143.8	10190.4
[illegible]	1136.0	10215.6	1131.3	10229.6	1105.7	10286.7	1103.9	10306.1	1103.5	10324.1
GR	1106.1	10358.1	1106.2	10381.0	1105.5	10402.6	1105.2	10424.2	1105.8	10456.9
GR	1111.8	10476.5	1112.2	10481.8	1111.6	10523.6	1112.2	10582.7	1112.3	10657.2
GR	1112.8	10703.8	1113.0	10834.2	1113.4	10934.3	1109.6	10979.0	1110.1	10985.4
GR	1109.3	11036.9	1109.5	11084.4	1109.0	11134.4	1106.8	11235.0	1105.4	11250.3
GR	1104.4	11331.3	1104.0	11347.4	1103.4	11357.9	1105.3	11364.2	1111.4	11390.3

GR	1111.4	11392.2	1109.7	11410.6	1110.8	11434.7	1111.0	11584.8	1111.1	11684.9
GR	1111.2	11785.0	1111.1	11885.1	1110.7	11985.2	1110.7	12085.3	1111.0	12189.2
GR	1111.3	12285.5	1111.6	12335.5	1112.1	12435.6	1111.0	12485.6	1111.2	12599.3
GR	1111.2	12717.4	1111.2	12836.0	1111.4	12950.2	1111.4	12954.6		
ET	15.909	9.1							10200	11400
X1	15.909	95	10629.4	11252.8	505	505	505			
GR	1125.4	9329.6	1112.7	9346.7	1099.9	9365.8	1100.4	9386.2	1100.9	9439.3
GR	1101.5	9449.8	1105.1	9485.0	1104.7	9533.0	1104.3	9554.2	1106.7	9565.0
GR	1108.5	9575.0	1108.8	9588.8	1107.7	9647.0	1107.0	9651.4	1106.2	9665.7
GR	1108.6	9673.3	1107.0	9682.0	1107.3	9683.9	1108.0	9717.3	1108.7	9739.6
GR	1110.9	9790.9	1110.0	9801.3	1105.9	9813.1	1109.9	9826.2	1108.7	9831.5
GR	1104.9	9854.0	1102.3	9871.8	1099.5	9882.0	1099.7	9900.6	1098.3	9909.9
GR	1099.2	9964.2	1099.4	9991.9	1097.8	10029.6	1100.4	10034.2	1114.1	10060.0
GR	1120.0	10070.1	1121.0	10094.3	1143.5	10143.4	1155.8	10179.6	1159.1	10188.4
GR	1157.9	10200.1	1159.6	10213.4	1153.6	10233.8	1152.7	10241.9	1152.9	10242.7
GR	1153.0	10250.4	1138.1	10294.8	1128.3	10318.9	1118.2	10345.3	1109.4	10371.0
GR	1108.1	10394.0	1107.8	10407.1	1109.4	10461.8	1111.2	10493.9	1111.1	10497.9
GR	1110.4	10501.5	1110.6	10510.7	1111.2	10528.4	1111.5	10547.2	1110.7	10559.4
GR	1110.4	10597.6	1110.6	10629.4	1109.5	10749.1	1108.9	10766.4	1108.7	10782.2
GR	1106.7	10806.8	1108.7	10850.0	1108.9	10899.4	1107.9	10951.5	1106.9	10964.3
GR	1107.0	10993.8	1107.2	10998.3	1106.6	11041.0	1108.2	11075.0	1109.6	11100.1
	1110.5	11150.1	1109.8	11166.0	1107.8	11229.1	1108.4	11237.1	1111.1	11252.8
	1111.9	11278.9	1111.4	11325.7	1111.4	11347.0	1112.3	11400.1	1112.2	11631.5
GR	1112.2	11824.1	1112.1	12118.8	1112.4	12235.1	1112.7	12350.5	1112.6	12400.5
GR	1112.0	12450.5	1112.6	12703.6	1112.6	12902.9	1112.2	12950.7	1112.4	13044.9
ET	16.004	9.1							10300	11100
X1	16.004	94	10612.2	11014.7	500	500	500			
GR	1115.9	9256.5	1110.4	9264.0	1106.5	9270.7	1105.9	9300.2	1104.8	9329.7
GR	1106.0	9344.4	1106.8	9366.4	1107.4	9402.6	1106.9	9417.7	1103.6	9432.1
GR	1103.4	9503.7	1100.7	9518.4	1102.5	9588.5	1102.1	9600.1	1107.9	9645.5
GR	1109.2	9657.7	1109.5	9681.3	1110.0	9697.9	1110.7	9702.9	1110.0	9714.8
GR	1108.9	9727.2	1109.2	9736.4	1108.8	9752.5	1109.2	9807.5	1110.0	9826.9
GR	1108.9	9830.9	1099.7	9845.5	1100.2	9855.2	1100.3	9932.9	1102.2	9941.3
GR	1102.4	9957.6	1100.0	9963.1	1100.8	10006.6	1100.6	10040.6	1104.0	10047.5
GR	1114.9	10066.4	1122.8	10077.2	1123.1	10103.9	1123.6	10107.8	1143.3	10158.0
GR	1163.5	10208.5	1167.5	10241.5	1167.2	10242.6	1166.8	10255.4	1161.9	10277.7
GR	1159.2	10285.6	1158.6	10304.9	1155.4	10314.0	1137.1	10359.9	1115.3	10410.3
GR	1110.9	10425.4	1107.8	10464.2	1107.0	10501.8	1106.5	10516.2	1111.3	10562.4
GR	1111.1	10612.2	1109.7	10680.6	1109.9	10715.0	1109.5	10740.9	1109.4	10759.3
GR	1111.2	10779.8	1111.8	10824.0	1111.1	10864.5	1111.0	10920.0	1110.7	10931.7
GR	1110.2	10938.3	1110.0	10948.3	1109.2	10962.1	1109.7	10965.2	1111.0	10988.5
GR	1113.7	11014.7	1113.5	11015.5	1114.1	11064.6	1114.1	11114.6	1113.3	11264.7
GR	1113.0	11364.7	1112.2	11417.5	1111.3	11445.8	1110.1	11464.7	1110.3	11514.1
GR	1112.5	11528.8	1111.9	11564.7	1111.8	11749.5	1112.0	11964.8	1112.3	12114.8
GR	1112.2	12264.9	1112.5	12364.5	1112.4	12414.9	1112.9	12564.9	1112.9	12631.2
GR	1113.8	12765.0	1113.7	12915.0	1113.4	13015.0	1113.7	13165.1		

ET	16.099	9.1							10300	11200
X1	16.099	92	10474.8	10670.3	500	500	500			
GR	1132.1	9191.9	1126.8	9200.4	1111.0	9233.0	1104.9	9259.9	1105.0	9274.3
GR	1104.8	9282.4	1106.9	9313.0	1108.3	9366.1	1109.2	9418.0	1109.2	9466.8
GR	1110.2	9517.2	1109.5	9549.3	1109.5	9567.6	1108.4	9606.1	1105.8	9624.0
GR	1106.1	9629.4	1106.4	9668.4	1106.2	9694.8	1106.5	9705.3	1107.2	9716.8
GR	1106.8	9725.8	1106.6	9752.8	1106.8	9768.3	1106.4	9769.3	1105.5	9804.0
GR	1102.0	9815.8	1100.9	9929.6	1102.0	9942.0	1101.6	10021.2	1100.8	10043.9
GR	1120.7	10081.1	1121.5	10083.0	1122.9	10120.9	1160.4	10222.8	1176.1	10273.2
GR	1177.9	10295.5	1172.6	10323.6	1162.9	10344.4	1159.3	10352.7	1160.0	10368.4
GR	1156.1	10377.4	1137.3	10424.4	1115.3	10474.8	1112.0	10486.0	1111	10491.9
GR	1111	10518.8	1111	10547.6	1111	10562.5	1111	10573.5	1111.5	10624.5
GR	1114.6	10670.3	1115.2	10686.0	1115.7	10720.9	1115.7	10798.4	1115.3	10820.9
GR	1114.5	10834.1	1113.1	10879.9	1113.3	10936.2	1113.1	10978.8	1111.9	11028.4
GR	1109.9	11050.0	1113.4	11069.5	1113.7	11079.3	1115.5	11104.9	1115.1	11109.6
GR	1115.2	11134.0	1114.9	11177.8	1115.1	11219.4	1114.8	11370.9	1114.1	11429.1
GR	1113.5	11456.5	1111.4	11479.4	1111.7	11481.5	1113.2	11504.1	1113.1	11516.6
GR	1112.4	11531.3	1112.5	11549.4	1113.1	11567.8	1113.4	11729.2	1113.2	11911.4
GR	1113.5	12079.2	1113.9	12179.2	1114.1	12304.0	1114.4	12329.3	1114.1	12501.3
GR	1113.9	12675.5	1114.0	12727.4	1114.2	12746.8	1114.1	12929.3	1114.6	13041.6
GR	1115.1	13090.7	1115.1	13122.1						
	16.195	9.1							10400	11400
X1	16.195	94	10540.8	10902.0	505	505	505			
GR	1138.8	9251.5	1115.9	9297.2	1115.9	9317.4	1115.6	9335.3	1115.1	9341.9
GR	1111.9	9350.9	1115.6	9363.0	1115.8	9386.3	1115.5	9465.2	1115.7	9482.3
GR	1115.6	9521.2	1110.6	9534.2	1109.4	9567.0	1110.9	9582.2	1113.3	9615.0
GR	1113.4	9643.8	1109.8	9661.9	1108.3	9690.9	1107.2	9720.8	1105.4	9728.6
GR	1103.0	9740.9	1102.5	9744.3	1104.3	9835.1	1104.6	9885.5	1104.6	9935.9
GR	1103.9	9975.1	1100.8	9984.2	1101.0	10056.9	1111.0	10072.9	1122.5	10090.0
GR	1125.4	10095.8	1126.3	10123.1	1127.3	10126.8	1130.8	10137.5	1149.2	10187.9
GR	1164.2	10238.3	1174.7	10276.1	1181.9	10305.4	1183.9	10336.5	1183.2	10351.6
GR	1183.7	10370.5	1183.2	10384.7	1181.5	10392.1	1172.3	10408.2	1158.7	10429.8
GR	1151.8	10450.2	1152.4	10474.7	1149.8	10481.8	1146.9	10490.4	1142.4	10499.6
GR	1124.1	10540.8	1113.9	10568.2	1112.4	10585.5	1111.6	10591.7	1111.5	10592.4
GR	1111.5	10641.6	1111.5	10649.4	1111.5	10656.2	1112.1	10694.1	1112.5	10708.1
GR	1113.1	10713.7	1114.0	10733.3	1114.3	10767.2	1114.3	10812.6	1114.7	10902.0
GR	1114.1	10944.0	1113.9	10994.4	1114.5	11044.8	1114.8	11106.6	1114.8	11123.1
GR	1114.0	11149.1	1111.1	11158.8	1115.5	11182.8	1116.2	11197.0	1115.6	11222.6
GR	1115.9	11233.6	1116.3	11324.7	1116.3	11395.3	1115.9	11495.4	1114.9	11620.5
GR	1114.6	11645.4	1114.8	11745.4	1115.2	11795.4	1115.2	11945.4	1115.2	12145.4
GR	1115.3	12295.4	1115.3	12345.4	1115.8	12395.4	1116.1	12545.5	1115.6	12695.5
GR	1115.5	12803.9	1115.2	12853.2	1115.3	13045.5	1115.8	13127.4		
ET	16.289	9.1							10500	11500
X1	16.289	93	10612.0	10857.9	500	500	500			
GR	1132.1	9352.4	1130.8	9355.0	1125.6	9369.0	1122.3	9376.4	1117.7	9386.0
GR	1117.0	9446.4	1116.9	9507.7	1117.0	9606.0	1114.4	9625.6	1112.7	9648.1
GR	1111.7	9684.2	1105.8	9698.3	1104.3	9708.5	1104.0	9715.6	1105.3	9799.3
GR	1104.4	9900.1	1105.1	9950.5	1104.5	10000.9	1102.9	10029.6	1100.8	10053.5
GR	1103.3	10058.7	1108.9	10069.3	1121.8	10089.7	1125.8	10097.1	1126.1	10120.6
GR	1126.7	10133.4	1133.6	10158.4	1163.9	10253.0	1164.6	10259.8	1177.0	10303.4
GR	1176.2	10317.7	1176.5	10353.8	1174.4	10381.7	1172.2	10404.2	1168.3	10454.6

GR	1160.4	10471.1	1151.5	10505.1	1145.6	10518.7	1138.7	10539.1	1139.1	10546.2
GR	1139.1	10557.6	1138.1	10562.6	1122.4	10602.5	1119.0	10612.0	1114.6	10625.3
GR	1114.1	10647.8	1113.6	10653.3	1113.3	10697.0	1113.8	10722.5	1115.2	10744.8
GR	1116.1	10857.9	1115.8	11010.5	1115.9	11069.9	1115.6	11110.0	1115.7	11210.4
GR	1115.3	11223.7	1112.9	11252.2	1112.7	11285.0	1116.9	11310.4	1117.3	11334.4
GR	1118.3	11360.4	1118.2	11385.2	1119.2	11460.4	1119.3	11510.4	1118.3	11560.4
GR	1117.4	11582.5	1116.6	11610.4	1116.0	11660.4	1115.4	11810.5	1115.8	11910.5
GR	1115.6	11915.9	1115.9	11925.3	1116.0	11943.6	1117.0	12010.5	1117.4	12110.5
GR	1117.2	12210.5	1116.7	12260.5	1116.8	12310.5	1117.4	12360.5	1117.5	12410.5
GR	1118.0	12452.5	1118.0	12517.6	1117.5	12560.6	1117.6	12655.8	1117.0	12760.6
GR	1117.3	12809.1	1116.8	12810.1	1116.9	12960.6	1116.9	13010.8	1117.4	13018.7
GR	1117.3	13060.0	1117.5	13069.7	1116.7	13106.1				
ET	16.385	9.1							10950	11400
X1	16.385	94	10954.6	11128.5	505	505	505			
GR	1132.5	9392.8	1125.5	9412.7	1121.3	9431.2	1121.6	9461.4	1119.4	9518.1
GR	1120.6	9562.2	1119.7	9595.0	1117.6	9611.7	1114.2	9621.4	1113.6	9663.0
GR	1114.5	9713.4	1111.0	9864.7	1105.7	9959.8	1104.7	9966.0	1105.1	10015.9
GR	1103.7	10068.3	1127.1	10106.4	1127.8	10112.1	1128.5	10138.4	1128.6	10158.1
GR	1129.1	10160.7	1149.7	10217.8	1152.8	10227.2	1151.7	10240.3	1151.1	10254.5
GR	1151.6	10272.2	1151.6	10325.1	1152.1	10332.9	1152.3	10370.1	1149.0	10380.2
GR	1148.2	10381.9	1131.7	10410.7	1121.5	10435.4	1121.0	10451.9	1119.5	10466.3
GR	1119.4	10500.9	1119.7	10509.0	1120.7	10520.0	1119.6	10564.4	1119.9	10620.8
GR	1121.6	10647.0	1121.8	10660.4	1120.0	10666.6	1119.5	10667.4	1117.1	10685.5
	1116.2	10707.4	1116.5	10738.8	1117.6	10764.8	1117.6	10795.7	1117.4	10800.6
GR	1117.0	10877.7	1117.5	10889.7	1117.3	10910.1	1118.5	10938.8	1118.3	10954.6
GR	1115	10969.0	1115	10987.1	1115	11016.0	1115	11048.3	1116.1	11074.5
GR	1116.4	11095.5	1117.4	11128.5	1116.5	11175.3	1116.0	11225.7	1116.4	11246.8
GR	1119.1	11294.9	1120.5	11325.8	1119.4	11335.2	1119.7	11360.0	1121.1	11375.9
GR	1120.8	11381.6	1120.2	11416.5	1120.4	11425.9	1120.1	11441.3	1120.2	11475.9
GR	1119.8	11512.3	1119.1	11575.9	1116.4	11676.0	1116.4	11782.8	1116.8	11831.5
GR	1117.9	11880.3	1118.5	11976.1	1117.9	12000.3	1119.5	12076.1	1119.5	12176.1
GR	1119.2	12226.1	1119.3	12276.1	1119.1	12384.6	1119.5	12476.2	1120.1	12589.9
GR	1119.9	12628.5	1119.2	12658.2	1119.8	12676.3	1119.9	12726.3		
ET	16.471	9.1							10720	12483
X1	16.471	93	10720.9	11374.6	550	650	600			
GR	1137.5	9306.9	1137.5	9316.4	1136.9	9333.2	1136.8	9360.6	1138.1	9406.1
GR	1137.2	9416.4	1136.3	9460.2	1135.2	9484.2	1135.2	9514.1	1134.9	9527.2
GR	1133.5	9541.6	1133.6	9550.8	1133.1	9560.7	1131.5	9569.1	1131.0	9578.7
GR	1127.2	9624.1	1125.2	9662.1	1126.0	9676.4	1124.6	9680.1	1123.5	9685.0
GR	1121.6	9719.4	1116.8	9761.4	1116.8	9765.4	1115.1	9771.1	1113.0	9802.4
GR	1112.0	9807.4	1110.8	9818.8	1109.9	9863.3	1109.4	9872.7	1109.4	9881.8
GR	1108.8	9891.3	1108.4	9921.3	1105.9	9955.5	1105.4	9987.0	1107.7	10024.6
GR	1108.4	10100.4	1110.3	10124.9	1111.9	10153.6	1113.6	10163.0	1114.4	10169.9
GR	1119.3	10179.8	1123.1	10188.3	1133.7	10217.5	1135.2	10263.4	1135.1	10276.2
GR	1132.9	10285.8	1120.3	10319.6	1120.1	10322.9	1120.4	10337.0	1119.1	10392.8
GR	1120.1	10409.2	1120.7	10435.5	1124.5	10493.0	1124.3	10516.1	1124.5	10537.3
GR	1124.4	10550.3	1122.6	10571.9	1121.7	10590.1	1119.0	10624.7	1119.2	10641.3
	1119.9	10648.9	1119.2	10656.2	1119.0	10694.7	1122.1	10710.2	1122.9	10720.9
	1120.9	10732.1	1119.5	10743.3	1118.9	10856.8	1118.8	10973.3	1118.2	11012.7
GR	1119.5	11116.7	1119.1	11174.7	1119.7	11220.6	1118.3	11293.6	1118.7	11322.3
GR	1119.1	11324.2	1120.1	11374.6	1120.3	11425.0	1119.8	11475.4	1120.4	11519.4
GR	1120.4	11564.1	1121.3	11608.8	1121.1	11727.4	1120.2	11777.8	1121.5	11832.4

GR	1121.1	11878.6	1121.9	11938.3	1120.7	12053.7	1121.0	12145.4	1121.7	12190.1
GR	1121.8	12284.7	1122.3	12342.4	1122.7	12483.4				
ET	16.482	9.1							10300	12402
X1	16.482	95	11105.9	11329.8	100	150	130			
GR	1140.7	9305.3	1139.9	9363.5	1139.9	9370.4	1138.7	9446.0	1138.7	9449.5
GR	1139.3	9451.2	1138.5	9456.3	1137.2	9528.1	1136.8	9537.1	1137.1	9563.8
GR	1136.6	9616.0	1135.9	9622.7	1134.7	9645.4	1133.3	9704.0	1131.9	9731.2
GR	1130.9	9750.4	1130.6	9765.2	1126.1	9774.7	1122.1	9781.9	1117.0	9795.4
GR	1114.2	9802.5	1111.1	9816.2	1109.7	9859.8	1108.9	9880.3	1108.6	9915.4
GR	1107.7	9931.8	1105.6	9947.6	1105.8	9985.2	1108.0	10015.1	1109.8	10086.8
GR	1108.8	10140.7	1109.1	10210.9	1117.6	10219.8	1119.6	10222.0	1120.1	10266.0
GR	1121.6	10270.4	1126.9	10287.0	1127.5	10289.6	1127.6	10293.3	1127.6	10326.1
GR	1127.6	10334.5	1126.1	10443.1	1125.8	10450.5	1125.8	10455.8	1126.2	10510.5
GR	1124.9	10570.5	1124.9	10577.4	1124.2	10651.5	1124.5	10662.8	1124.1	10687.3
GR	1123.9	10696.8	1123.4	10708.0	1123.0	10739.0	1122.7	10753.8	1122.2	10775.4
GR	1121.9	10780.7	1121.5	10782.6	1119.5	10822.5	1119.4	10838.0	1119.6	10875.6
GR	1118.8	10994.6	1118.6	11064.6	1118.2	11105.9	1117.3	11151.7	1116.3	11206.3
GR	1116.2	11210.6	1117.1	11245.1	1116.8	11253.8	1117.1	11286.7	1118.3	11329.8
GR	1118.3	11349.3	1118.5	11378.5	1118.7	11406.2	1119.3	11448.7	1119.7	11562.0
GR	1120.2	11569.8	1120.5	11673.4	1120.6	11689.2	1120.7	11754.4	1121.0	11817.9
GR	1121.1	11822.8	1122.0	11961.4	1122.4	11986.6	1122.8	12071.0	1123.0	12098.0
[illegible]	1123.1	12149.2	1123.1	12151.2	1123.2	12191.5	1124.0	12254.5	1124.0	12264.5
	1124.5	12306.8	1124.8	12337.8	1124.4	12368.0	1124.5	12379.8	1124.1	12402.2

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

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= .100 CEHV= .300
*SECNO 15.658

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 10100.0 12300.0 TYPE= 1 TARGET= 2200.000
AGUA FRIA DETAILED FDR PREPARED FOR THE FLOOD CONTROL DISTRICT OF
MARICOPA COUNTY BY COE & VAN LOO CONSULTANTS, INC., 1996.
THE CONTROL LINE ON THE MAIN CHANNEL OF THE AGUA FRIA RIVER IS
STATION 10,000. ALL SECTIONS ARE STATIONED IN RIVER MILES FROM THE
CONFLUENCE WITH THE GILA RIVER. ENCROACHMENT CARDS (ET) WERE USED
IN SOME CASES TO BETTER MODEL DEAD OR NON-EFFECTIVE FLOW AREAS.
CONSEQUENTLY, "SSTA" AND "ENDST" DO NOT REPRESENT THE ACTUAL FLOODING
LIMITS, AND THE DELINEATION WAS ESTABLISHED BASED ON THE CROSS SECTION
POINT ELEVATIONS AND THE TOPOGRAPHY. IN SOME CASES "TOPWID" DOES NOT
REPRESENT THE FULL WIDTH OF THE FLOODPLAIN DUE TO NON-EFFECTIVE FLOW
AREAS OR LOW ISLANDS WITHIN THE FLOODPLAIN.
THIS RUN IS FOR A 500 CFS FLOW SPLIT THAT BREAKS OUT THROUGH A
TRIPLE 8'X4' BOX CULVERT UNDER GRAND AVENUE.
THE RUN WAS STARTED BASED ON THE 100-YEAR WATER SURFACE ELEVATION IN
THE MAIN CHANNEL.

15.658	11.96	1109.06	1104.09	.00	1109.06	.00	.00	.00	1107.50
500.0	243.4	246.5	10.1	1344.1	1325.3	188.4	.0	.0	1112.20
.00	.18	.19	.05	.040	.040	.040	.000	1097.10	10100.00
.000004	0.	0.	0.	0	15	0	.00	1324.29	12120.46

FLOW DISTRIBUTION FOR SECNO= 15.66 CWSEL= 1109.06

STA=	10100.	10173.	10225.	10285.	10345.	10377.	10404.	11221.	11554.	12120.
PER Q=	8.9	6.2	8.0	11.7	6.6	5.3	2.0	49.3	2.0	
AREA=	265.6	184.8	228.2	276.5	158.2	130.0	100.7	1325.3	188.4	
VEL=	.2	.2	.2	.2	.2	.2	.1	.2	.1	
DEPTH=	3.7	3.6	3.8	4.6	5.0	4.7	.1	4.2	.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 15.719

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 10150.0 11800.0 TYPE= 1 TARGET= 1650.000

15.719	15.36	1109.06	1104.96	.00	1109.06	.00	.00	.00	1109.50
500.0	225.1	274.9	.0	852.0	1114.8	.0	17.2	6.7	1109.30
.34	.26	.25	.00	.040	.040	.000	.000	1093.70	10199.81
.000009	310.	310.	310.	0	8	0	.00	566.15	11509.11

FLOW DISTRIBUTION FOR SECNO= 15.72 CWSEL= 1109.06

STA=	10200.	10232.	10268.	10291.	10316.	10354.	10382.	10420.	10438.	11520.
PER Q=	3.6	3.8	3.6	4.7	8.7	8.0	10.6	2.1	55.0	
AREA=	85.9	91.6	75.1	90.8	156.0	131.0	173.4	48.2	1114.8	
VEL=	.2	.2	.2	.3	.3	.3	.3	.2	.2	
DEPTH=	2.6	2.6	3.3	3.7	4.1	4.7	4.7	2.6	3.4	

*SECNO 15.814

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 10200.0 11500.0 TYPE= 1 TARGET= 1300.000

15.814	14.67	1109.07	1105.12	.00	1109.07	.00	.01	.00	1106.80
500.0	278.5	221.5	.0	804.7	577.4	.0	36.6	12.6	1111.40
.73	.35	.38	.00	.040	.040	.000	.000	1094.40	10279.20
.000017	505.	505.	505.	0	13	0	.00	440.73	11380.31

FLOW DISTRIBUTION FOR SECNO= 15.81 CWSEL= 1109.07

STA=	10279.	10287.	10306.	10324.	10358.	10381.	10403.	10424.	10457.	10468.	11235.	11390.
PER Q=	.5	6.7	9.1	11.7	4.2	4.6	5.9	8.3	.7	4.0	44.3	
AREA=	12.6	82.7	96.6	145.0	66.7	69.4	80.2	116.6	17.4	117.4	577.4	
VEL=	.2	.4	.5	.4	.3	.3	.4	.4	.2	.2	.4	
DEPTH=	1.7	4.3	5.4	4.3	2.9	3.2	3.7	3.6	1.6	.2	4.0	

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

*SECNO 15.909

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 10200.0 11400.0 TYPE= 1 TARGET= 1200.000

15.909	11.28	1109.08	1107.76	.00	1109.10	.02	.03	.00	1110.60
500.0	40.9	459.1	.0	50.8	430.5	.0	47.4	17.8	1111.10
.86	.81	1.07	.00	.040	.040	.000	.000	1097.80	10376.79
.000702	505.	505.	505.	0	14	0	.00	455.15	11241.01

FLOW DISTRIBUTION FOR SECNO= 15.91 CWSEL= 1109.08

STA=	10377.	10394.	10407.	10451.	11253.
PER Q=	1.0	3.1	4.0	91.8	
AREA=	8.4	14.7	27.7	430.5	
VEL=	.6	1.1	.7	1.1	
DEPTH=	.5	1.1	.6	1.1	

*SECNO 16.004

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 10300.0 11100.0 TYPE= 1 TARGET= 800.000

16.004	9.87	1109.57	1108.40	.00	1109.68	.11	.56	.03	1111.10
500.0	498.2	1.8	.0	187.8	4.3	.0	51.2	21.2	1113.70
.91	2.65	.42	.00	.040	.040	.000	.000	1099.70	10441.98
.002035	500.	500.	500.	2	20	0	.00	137.94	10964.43

FLOW DISTRIBUTION FOR SECNO= 16.00 CWSEL= 1109.57

STA=	10442.	10464.	10502.	10516.	10546.	11015.
PER Q=	6.1	46.0	27.2	20.3	.4
AREA=	19.7	81.8	40.7	45.5	4.3
VEL=	1.5	2.8	3.3	2.2	.4
DEPTH=	.9	2.2	2.8	1.5	.1

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

*SECNO 16.099

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .33

3470 ENCROACHMENT STATIONS= 10300.0 11200.0 TYPE= 1 TARGET= 900.000

16.099	10.98	1111.78	1111.60	.00	1112.05	.27	2.32	.05	1115.30
500.0	.0	358.7	141.3	.0	92.4	28.8	53.0	22.9	1114.60
.95	.00	3.88	4.91	.000	.040	.040	.000	1100.80	10487.32
.019228	500.	500.	500.	2	16	0	.00	171.95	11060.45

FLOW DISTRIBUTION FOR SECNO= 16.10 CWSEL= 1111.78

STA=	10487.	10670.	11050.	11060.
PER Q=	71.7	18.7	9.6	
AREA=	92.4	19.0	9.8	
VEL=	3.9	4.9	4.9	
DEPTH=	.7	.1	.9	

*SECNO 16.195

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.93

3470 ENCROACHMENT STATIONS= 10400.0 11400.0 TYPE= 1 TARGET= 1000.000

16.195	12.82	1113.62	1112.46	.00	1113.67	.05	1.60	.02	1124.10
500.0	.0	457.6	42.4	.0	251.6	28.1	55.4	25.0	1114.70
1.02	.00	1.82	1.51	.000	.040	.040	.000	1100.80	10571.34
.001246	505.	505.	505.	6	10	0	.00	176.11	11172.59

FLOW DISTRIBUTION FOR SECNO= 16.19 CWSEL= 1113.62

STA=	10571.	10902.	11159.	11173.
PER Q=	91.5	3.2	5.3	
AREA=	251.6	10.7	17.4	
VEL=	1.8	1.5	1.5	
DEPTH=	1.6	.0	1.3	

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

*SECNO 16.289

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 10500.0 11500.0 TYPE= 1 TARGET= 1000.000

16.289	13.83	1114.63	1114.11	.00	1114.76	.13	1.06	.02	1119.00
500.0	.0	212.0	288.0	.0	94.9	88.9	58.0	27.0	1116.10
1.07	.00	2.23	3.24	.000	.040	.040	.000	1100.80	10625.22
.004427	500.	500.	500.	4	12	0	.00	175.44	11296.66

FLOW DISTRIBUTION FOR SECNO= 16.29 CWSEL= 1114.63

STA=	10625.	10858.	11252.	11285.	11297.
PER Q=	42.4	7.9	44.3	5.4	
AREA=	94.9	17.7	59.9	11.2	
VEL=	2.2	2.2	3.7	2.4	
DEPTH=	.9	.0	1.8	1.0	

*SECNO 16.385

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 10950.0 11400.0 TYPE= 1 TARGET= 450.000

16.385	12.97	1116.67	1116.07	.00	1116.77	.10	2.00	.00	1118.30
500.0	.0	459.1	40.9	.0	178.3	32.7	60.3	29.3	1117.40
1.13	.00	2.57	1.25	.000	.040	.040	.000	1103.70	10961.70
.003580	505.	505.	505.	4	13	0	.00	228.17	11251.66

FLOW DISTRIBUTION FOR SECNO= 16.39 CWSEL= 1116.67

STA=	10962.	11129.	11175.	11226.	11247.	11252.
PER Q=	91.8	.1	5.3	2.7	.1	
AREA=	178.3	.8	21.3	10.0	.7	
VEL=	2.6	.4	1.3	1.3	.6	
DEPTH=	1.2	.0	.4	.5	.1	

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

*SECNO 16.471

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 10720.0 12483.0 TYPE= 1 TARGET= 1763.000

16.471	14.05	1119.45	1119.06	.00	1119.50	.05	2.73	.00	1122.90
500.0	.0	500.0	.0	.0	275.3	.0	63.7	34.7	1120.10
1.22	.00	1.82	.00	.000	.040	.000	.000	1105.40	10753.65
.005910	550.	600.	650.	6	9	0	.00	542.90	11341.60

FLOW DISTRIBUTION FOR SECNO= 16.47 CWSEL= 1119.45

STA=	10754.	11375.
PER Q=	100.0	
AREA=	275.3	
VEL=	1.8	
DEPTH=	.5	

*SECNO 16.482

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 6.74

3470 ENCROACHMENT STATIONS= 10300.0 12402.0 TYPE= 1 TARGET= 2102.000

16.482	13.95	1119.55	1117.50	.00	1119.55	.01	.05	.00	1118.20
500.0	53.1	401.8	45.1	149.8	532.5	114.6	65.3	36.4	1118.30
1.27	.35	.75	.39	.040	.040	.040	.000	1105.60	10821.70
.000130	100.	130.	150.	2	14	0	.00	674.73	11516.66

FLOW DISTRIBUTION FOR SECNO= 16.48 CWSEL= 1119.55

STA=	10822.	10838.	10864.	10995.	11065.	11106.	11330.	11349.	11379.	11406.	11449.	11517.
PER Q=	.0	.0	1.8	4.4	4.4	80.4	2.4	3.1	2.1	1.3	.2	
AREA=	1.4	1.8	40.7	58.8	47.1	532.5	24.2	33.3	26.0	22.9	8.2	
VEL=	.1	.1	.2	.4	.5	.8	.5	.5	.4	.3	.1	
DEPTH=	.1	.1	.3	.8	1.1	2.4	1.2	1.1	.9	.5	.1	

THIS RUN EXECUTED 30OCT96 14:51:34

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

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

EAR EVENT EXISTING CO

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	ENDST	TWA
	15.658	500.00	1109.06	11.96	1109.06	1104.09	.19	.04	.00	10100.00	1324.29	12120.46	.00
	15.719	500.00	1109.06	15.36	1109.06	1104.96	.25	.09	310.00	10199.81	566.15	11509.11	6.73
	15.814	500.00	1109.07	14.67	1109.07	1105.12	.38	.17	505.00	10279.20	440.73	11380.31	12.56
*	15.909	500.00	1109.08	11.28	1109.10	1107.76	1.07	7.02	505.00	10376.79	455.15	11241.01	17.76
*	16.004	500.00	1109.57	9.87	1109.68	1108.40	.42	20.35	500.00	10441.98	137.94	10964.43	21.16
*	16.099	500.00	1111.78	10.98	1112.05	1111.60	3.88	192.28	500.00	10487.32	171.95	11060.45	22.94
*	16.195	500.00	1113.62	12.82	1113.67	1112.46	1.82	12.46	505.00	10571.34	176.11	11172.59	24.96
*	16.289	500.00	1114.63	13.83	1114.76	1114.11	2.23	44.27	500.00	10625.22	175.44	11296.66	26.97
	16.385	500.00	1116.67	12.97	1116.77	1116.07	2.57	35.80	505.00	10961.70	228.17	11251.66	29.31
	16.471	500.00	1119.45	14.05	1119.50	1119.06	1.82	59.10	600.00	10753.65	542.90	11341.60	34.67
*	16.482	500.00	1119.55	13.95	1119.55	1117.50	.75	1.30	130.00	10821.70	674.73	11516.66	36.44

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=     15.719  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     15.909  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     16.004  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     16.099  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     16.195  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

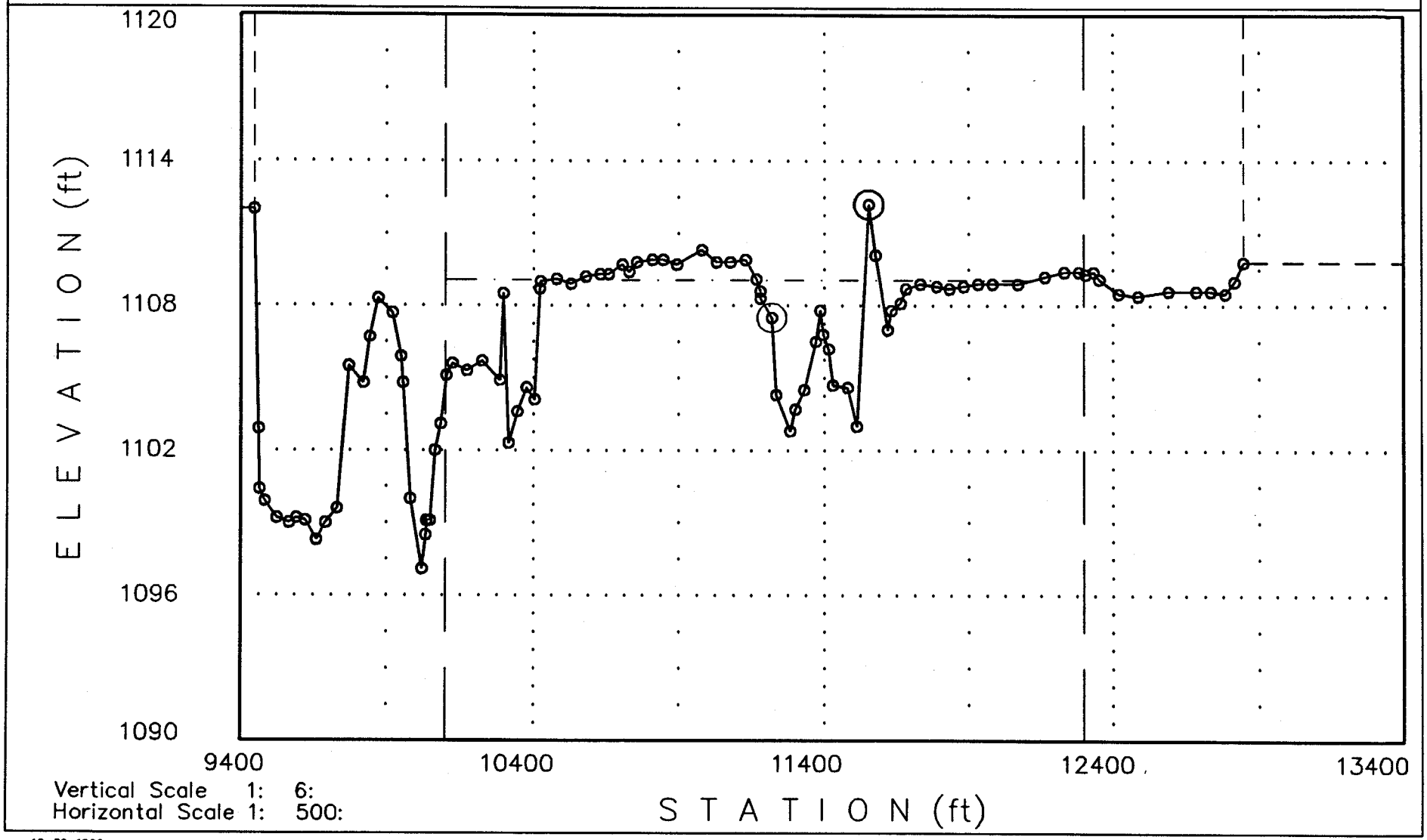
WARNING SECNO=     16.289  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     16.482  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

<<<<<< Cross Section: 15.658: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1109.06

Manning-n Values: LOB: .04 CH: .04 ROB: .04



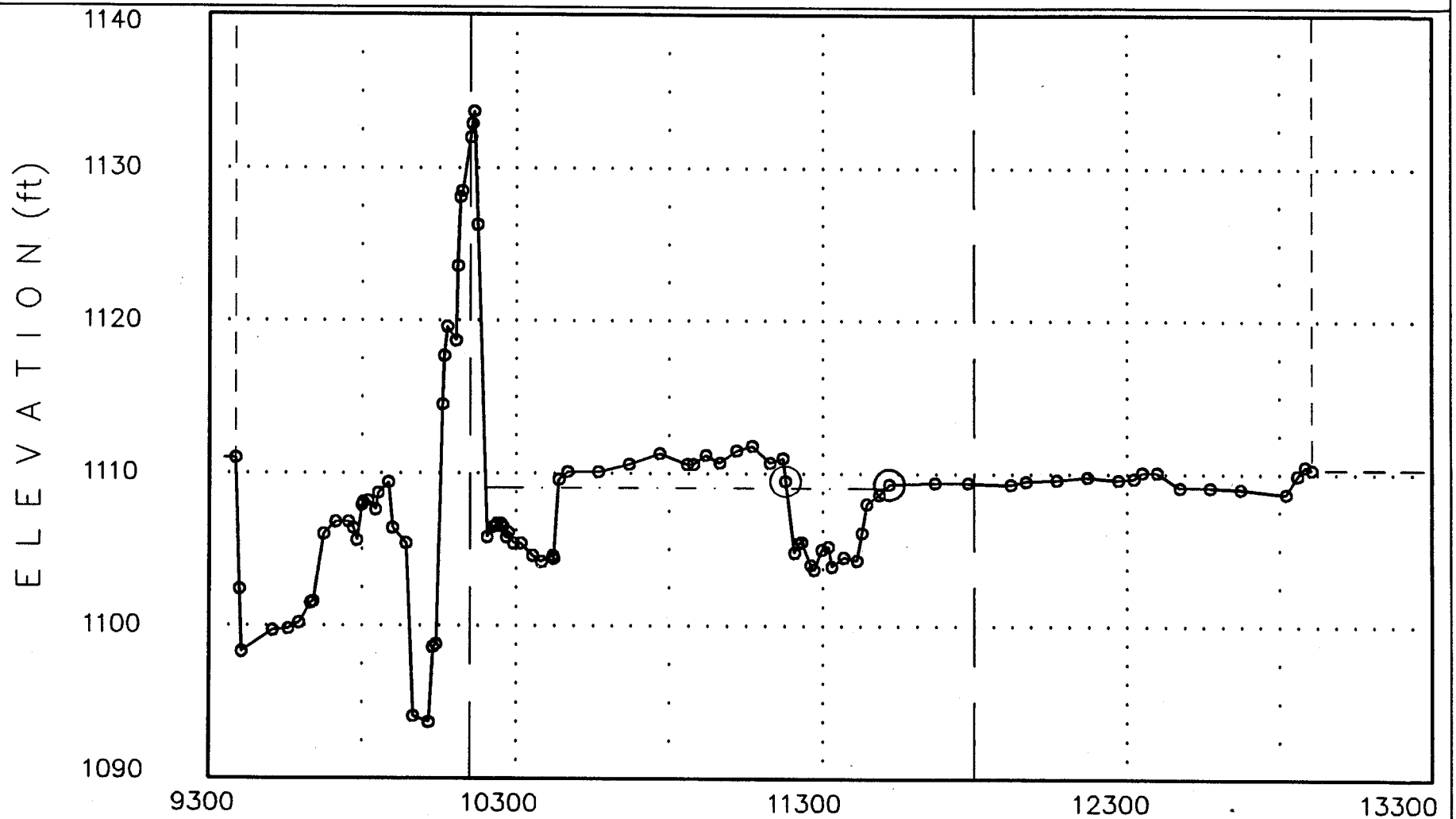
Vertical Scale 1: 6:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 15.719: (FN = GRAND.O) >>>>>>

Q1= 500cfs WS1= 1109.06

Manning-n Values: LOB: .04 CH: .04 ROB: 0



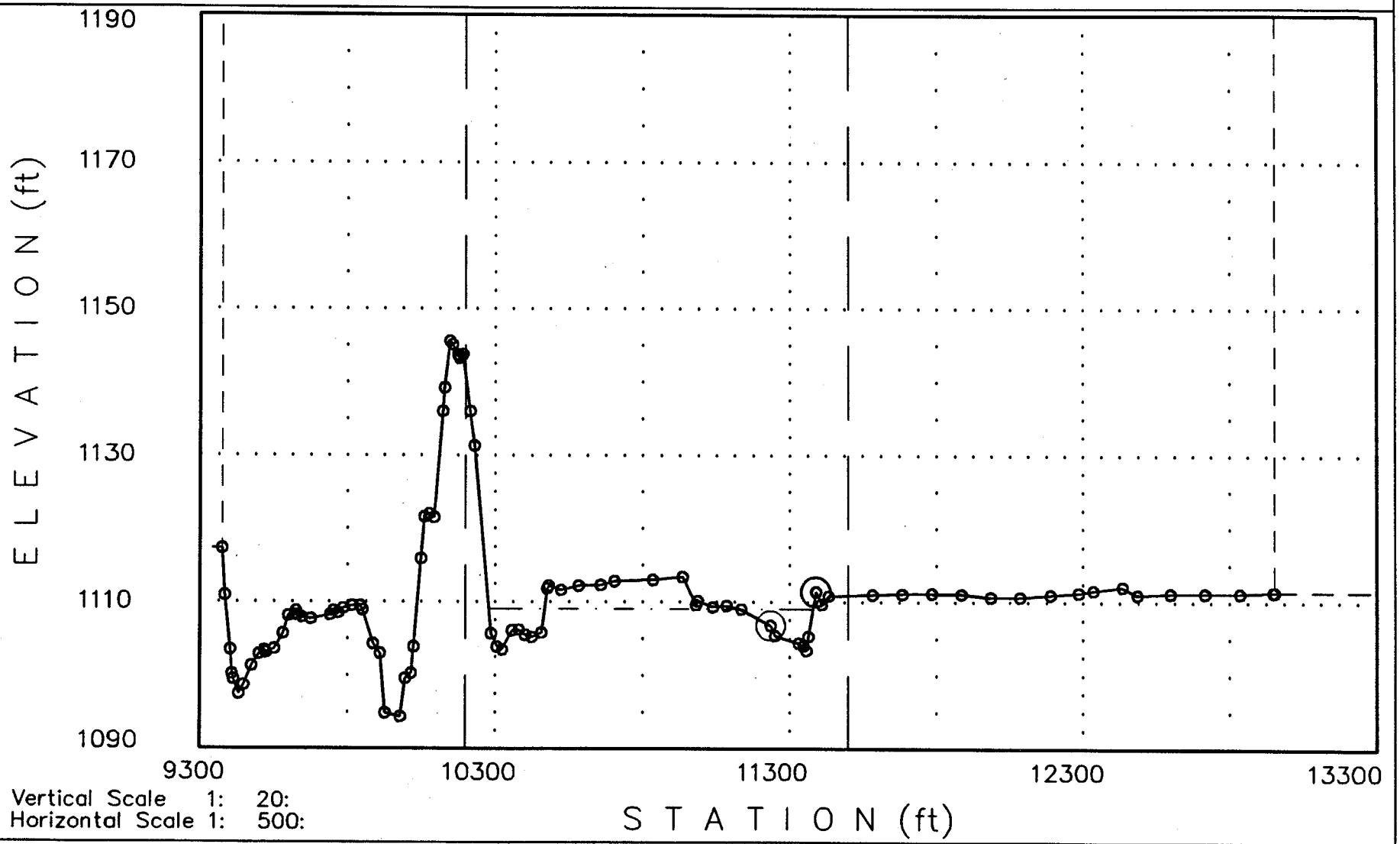
Vertical Scale 1: 10:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 15.814: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1109.07

Manning-n Values: LOB: .04 CH: .04 ROB: 0



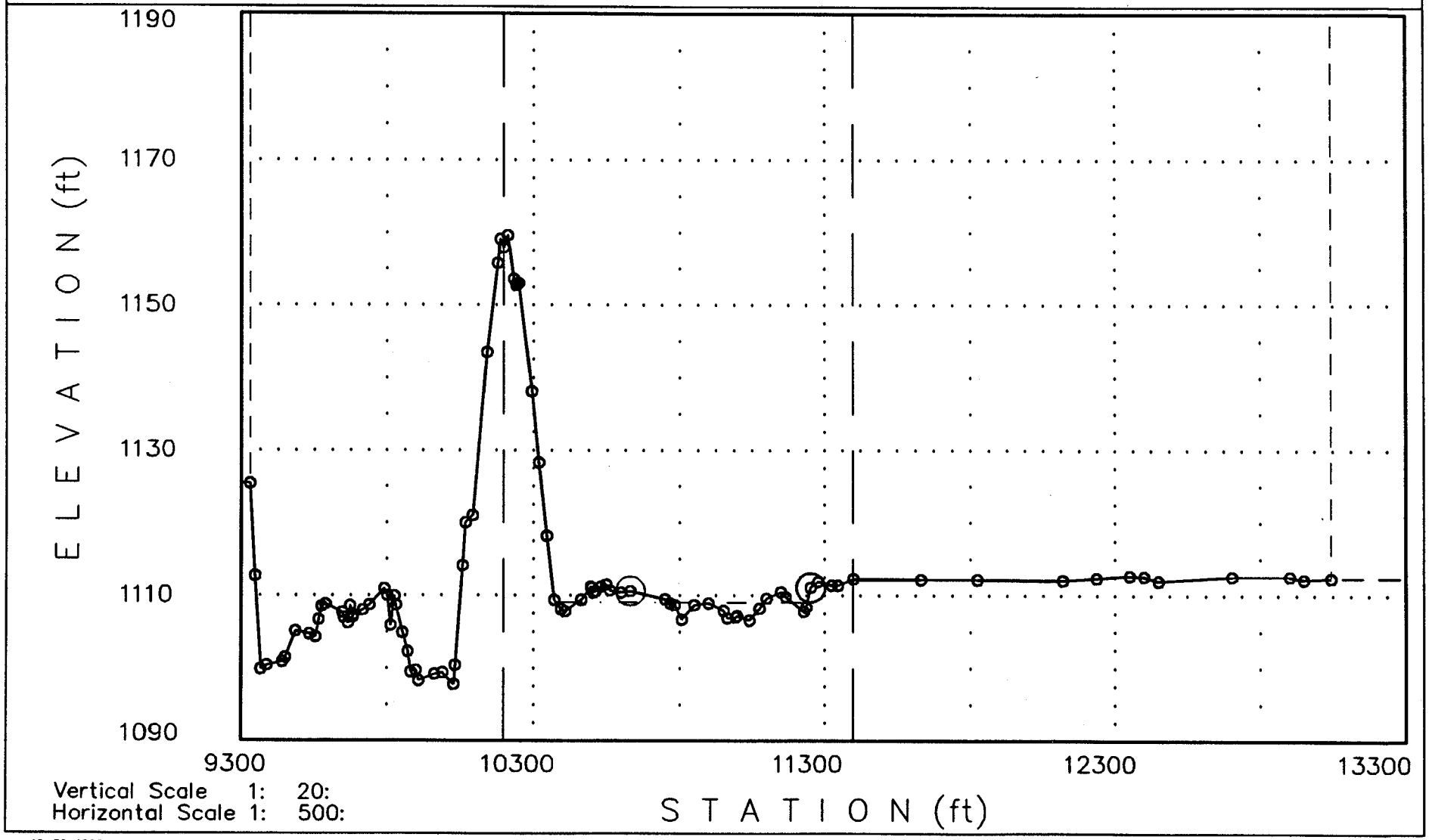
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 15.909: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1109.08

Manning-n Values: LOB: .04 CH: .04 ROB: 0



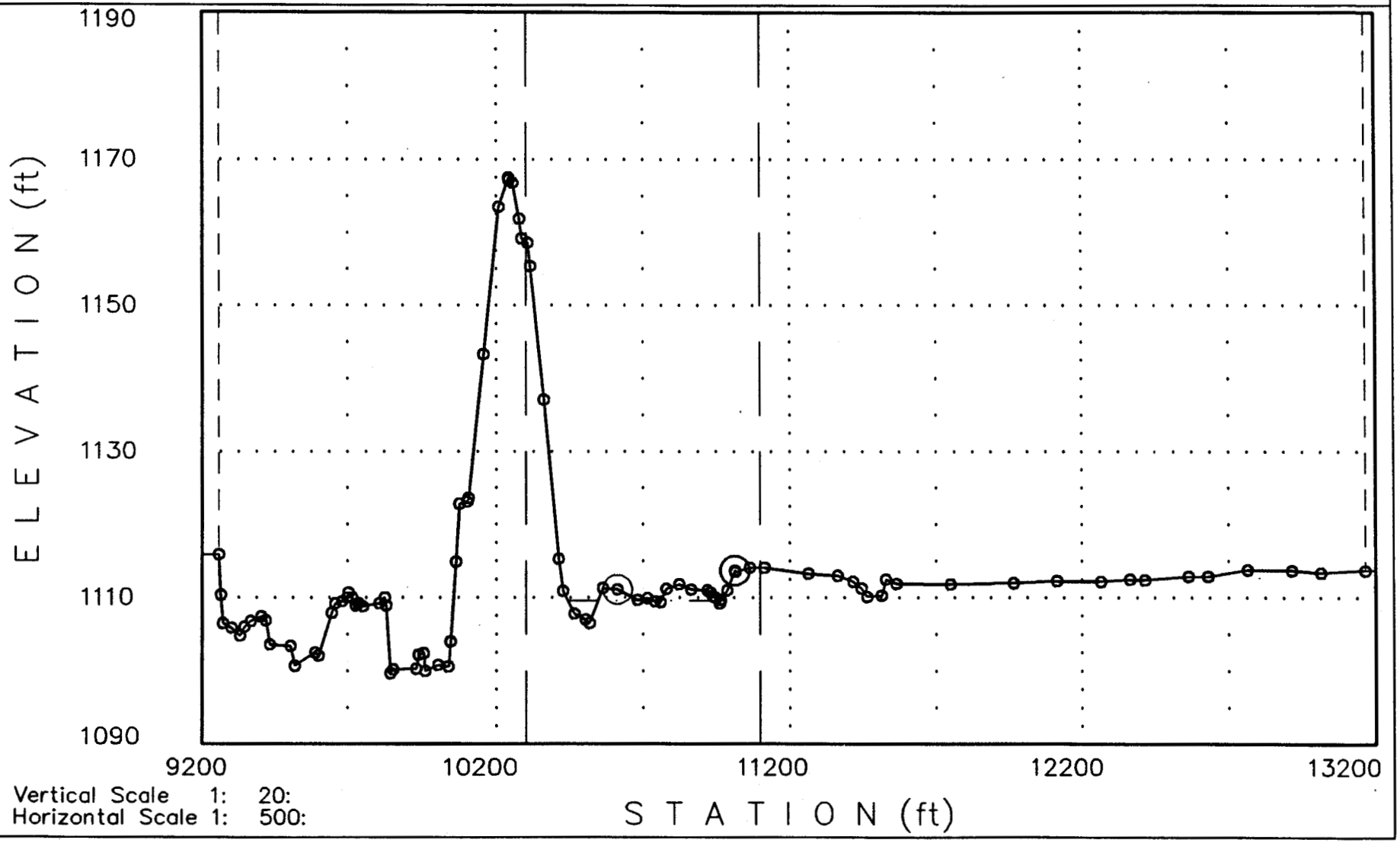
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.004: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1109.57

Manning-n Values: LOB: .04 CH: .04 ROB: 0



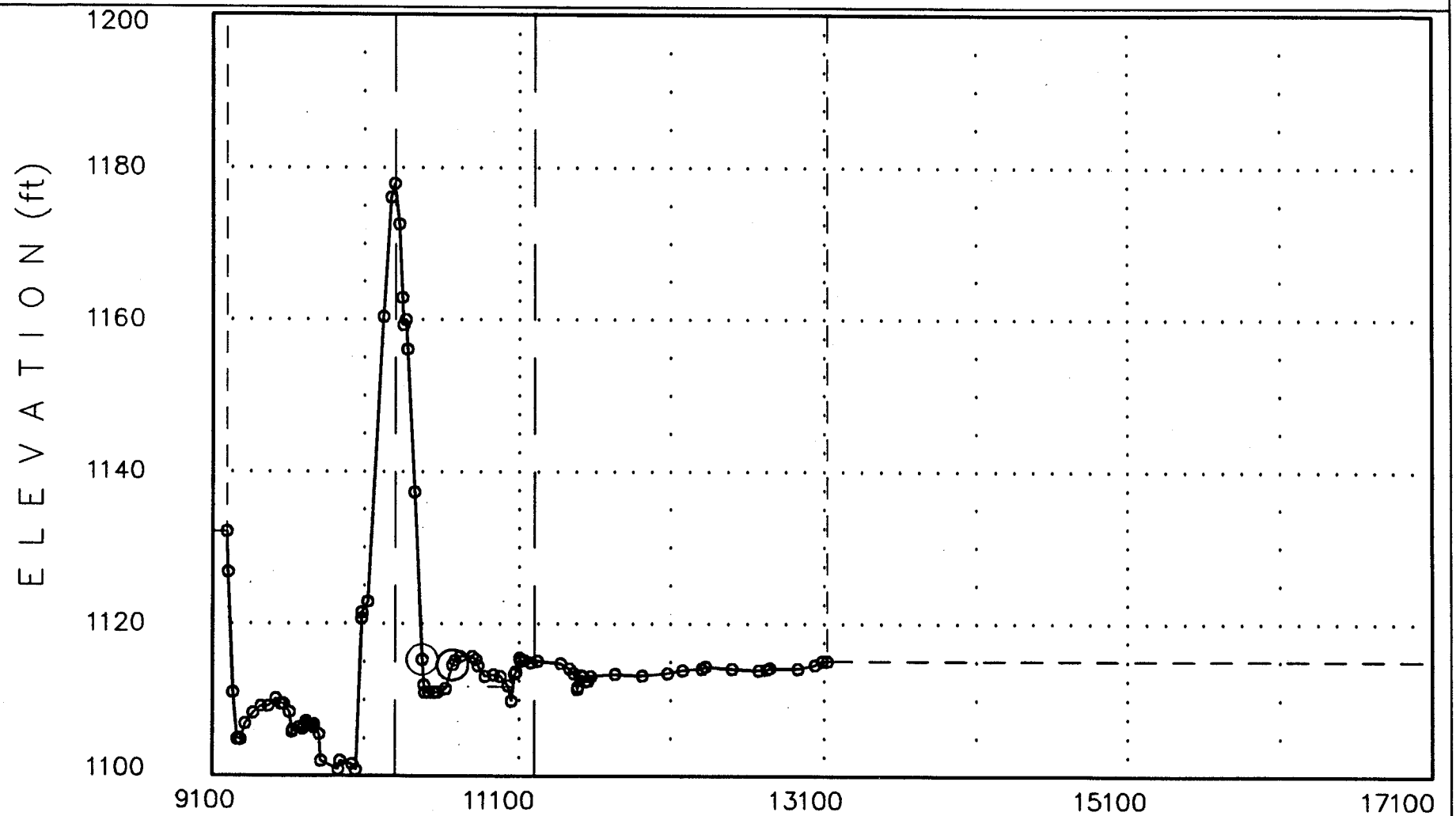
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.099: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1111.78

Manning-n Values: LOB: 0 CH: .04 ROB: .04



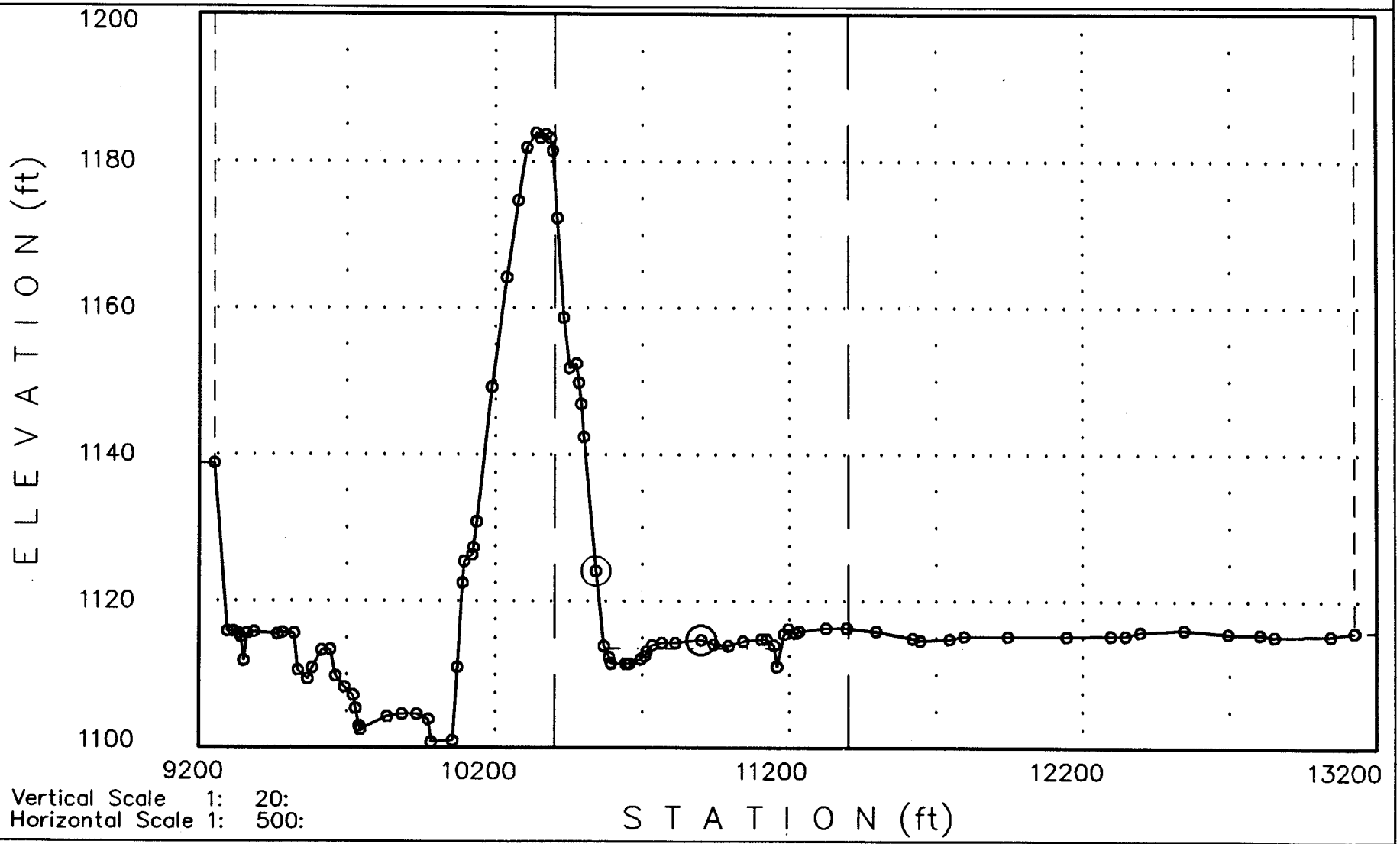
Vertical Scale 1: 20:
Horizontal Scale 1: 1000:

10-30-1996

<<<<<< Cross Section: 16.195: (FN = GRAND.O) >>>>>>

Q1= 500cfs WS1= 1113.62

Manning-n Values: LOB: 0 CH: .04 ROB: .04



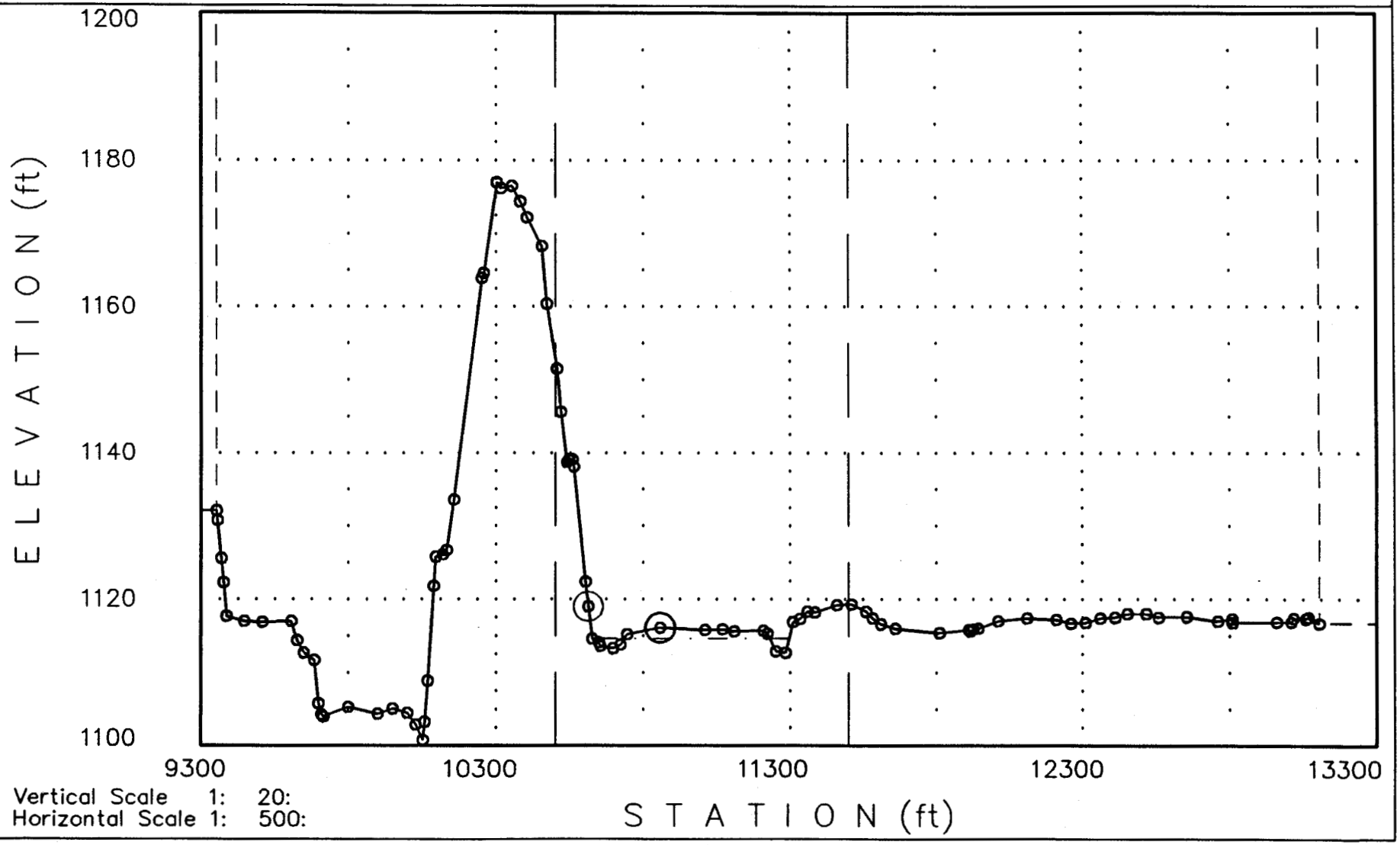
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.289: (FN = GRAND.O) >>>>>>

Q1= 500cfs WS1= 1114.63

Manning-n Values: LOB: 0 CH: .04 ROB: .04



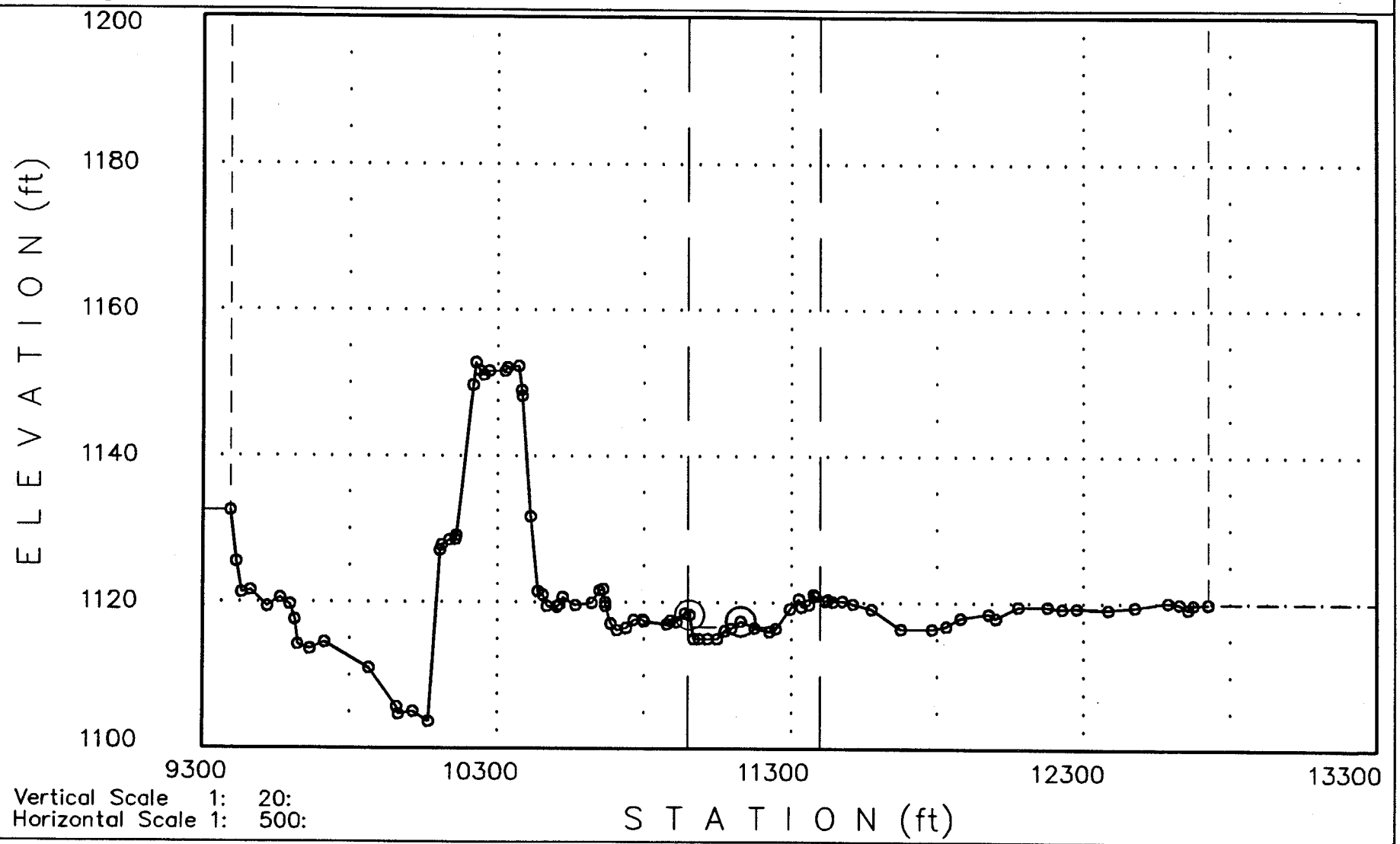
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.385: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1116.67

Manning-n Values: LOB: 0 CH: .04 ROB: .04



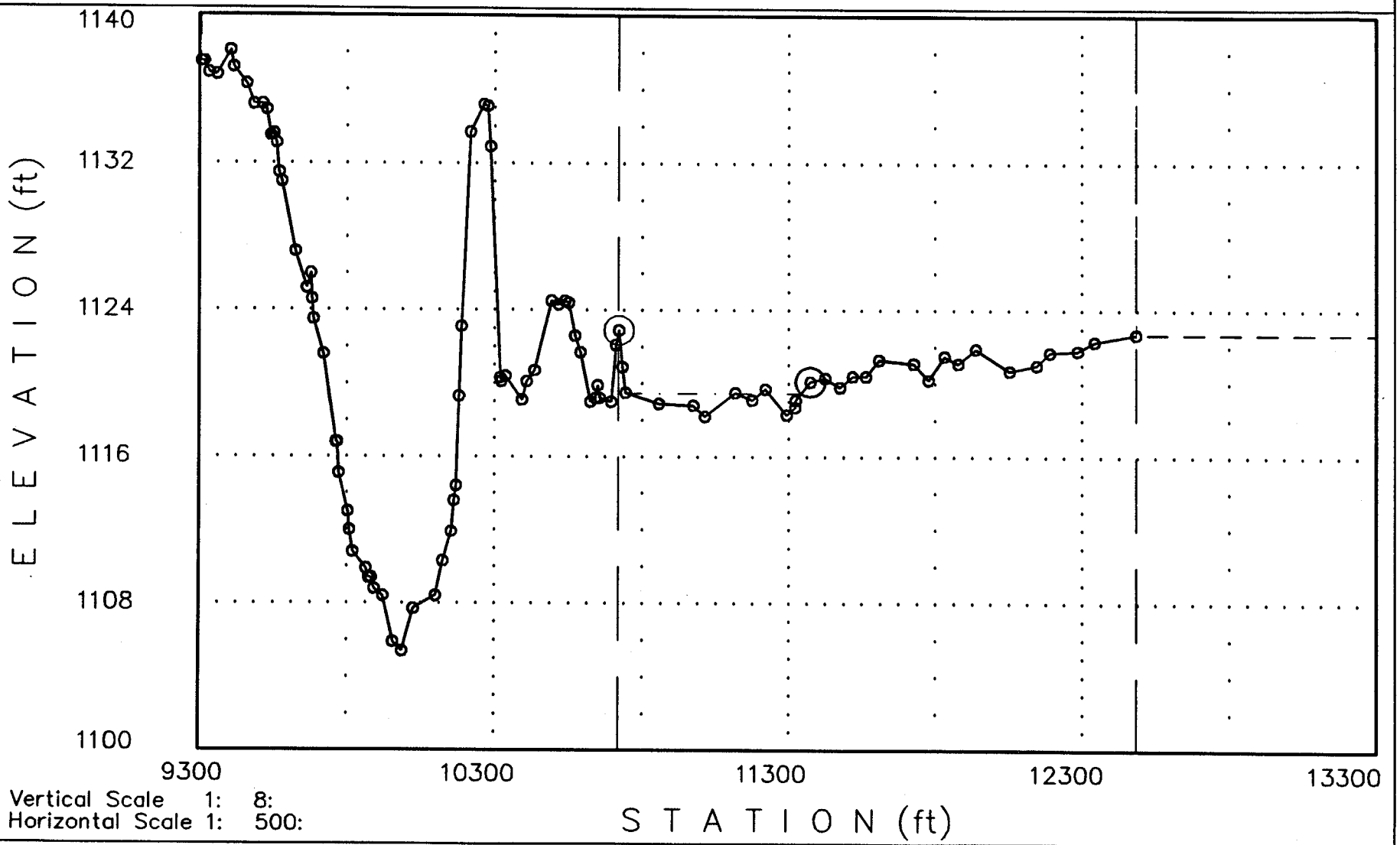
Vertical Scale 1: 20:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.471: (FN = GRAND.O) >>>>>>

Q1= 500cfs WS1= 1119.45

Manning-n Values: LOB: 0 CH: .04 ROB: 0



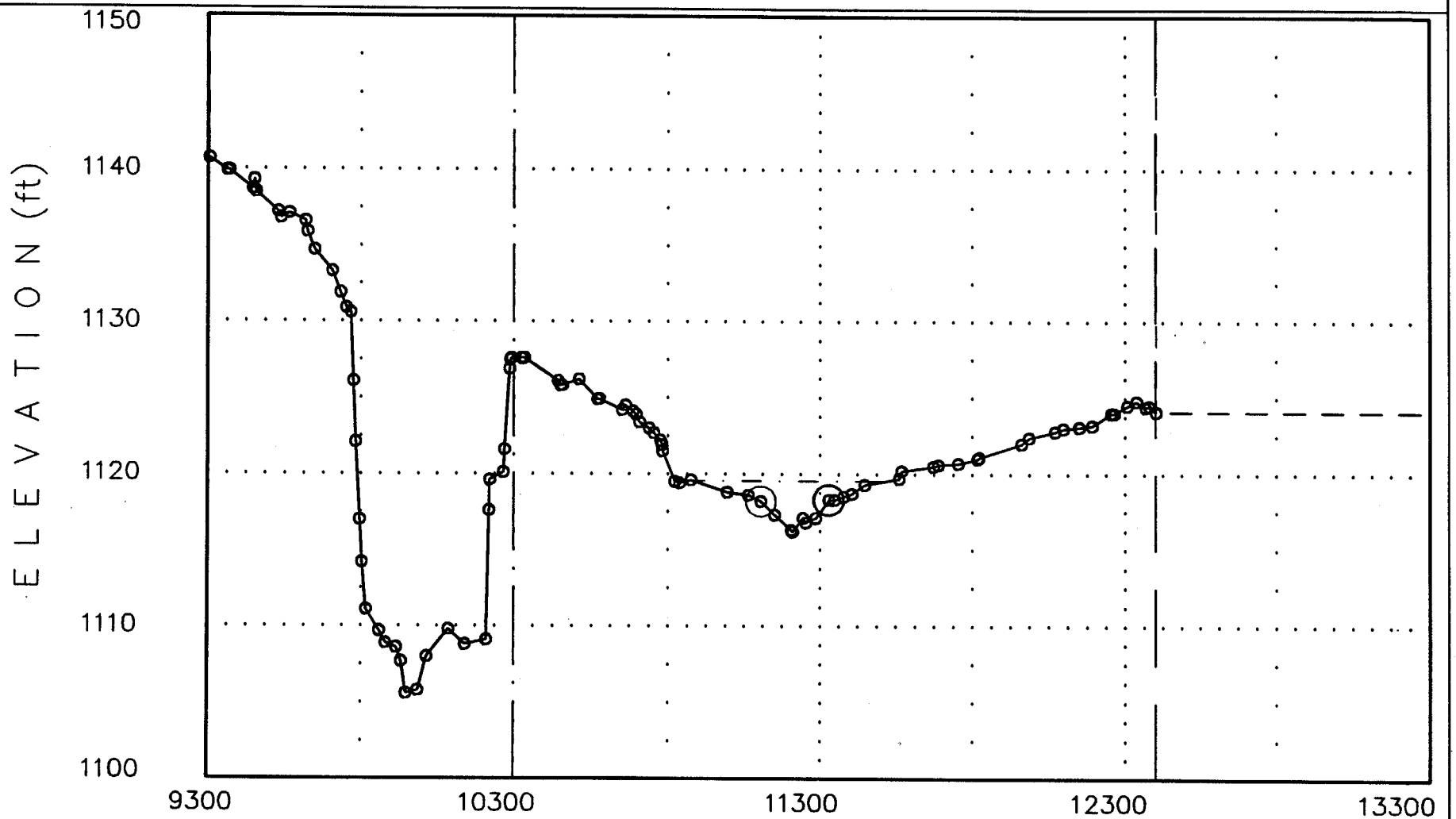
Vertical Scale 1: 8:
Horizontal Scale 1: 500:

10-30-1996

<<<<<< Cross Section: 16.482: (FN = GRAND.0) >>>>>>

Q1= 500cfs WS1= 1119.55

Manning-n Values: LOB: .04 CH: .04 ROB: .04

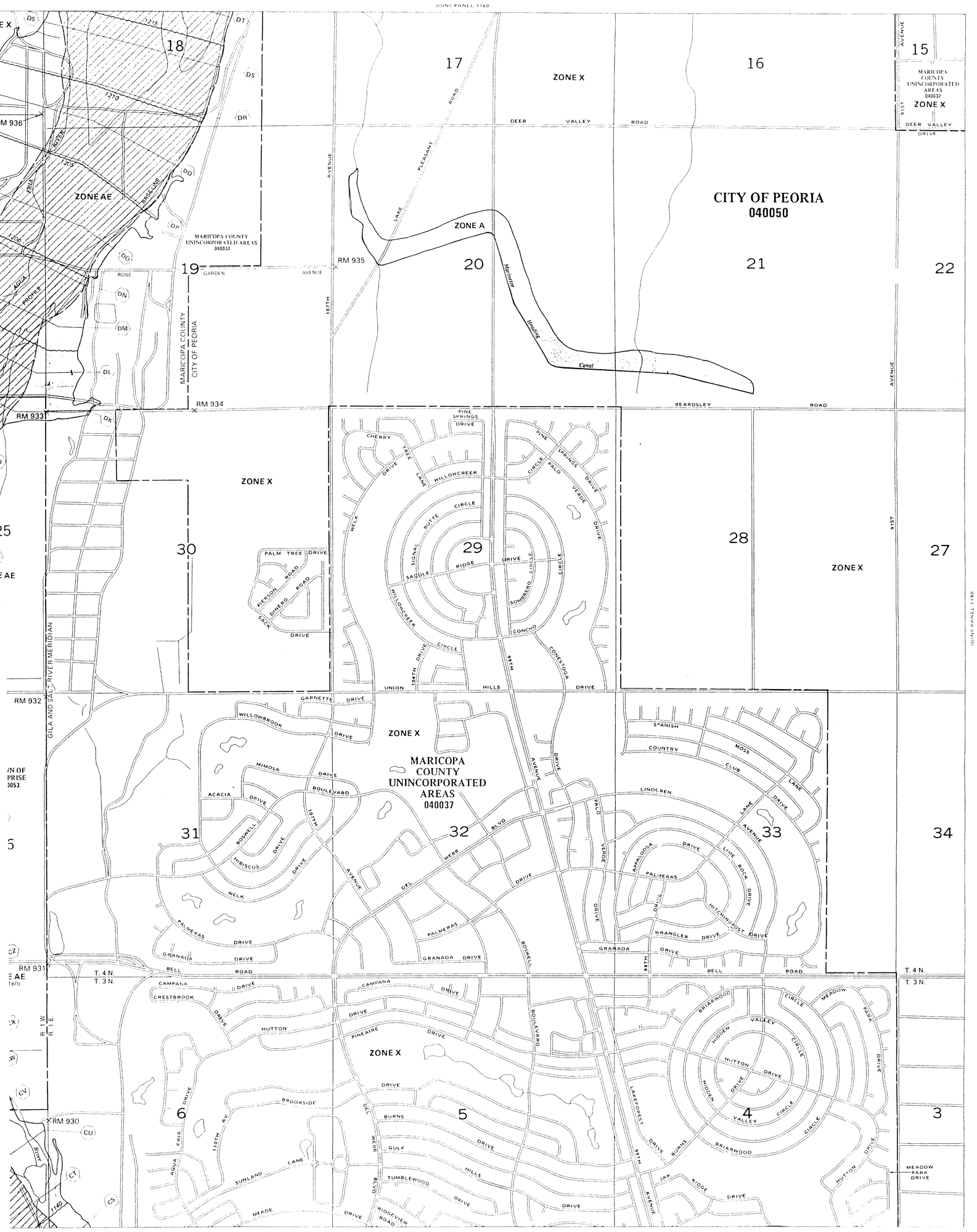


Vertical Scale 1: 10:
Horizontal Scale 1: 500:

10-30-1996

SECTION IX

FLOOD INSURANCE RATE MAPS



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources, or all buildings and other structures located within Special Flood Hazard Areas.

Areas of Special Flood Hazard include Zones A, AE, AH, AO, A1-A99, AR, A, V, VE, and V1-V30.

Certain areas not in Special Flood Hazard Areas may be subject to flooding or ponding when adjacent streams or other watercourses rise above their banks or when storm drainage systems are inadequate to carry the runoff from adjacent areas.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are given in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should verify current corporate limits with the community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 10 of the Flood Insurance Study Report.

For adjoining map panels, see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1170 OF 4350

CONTAINS

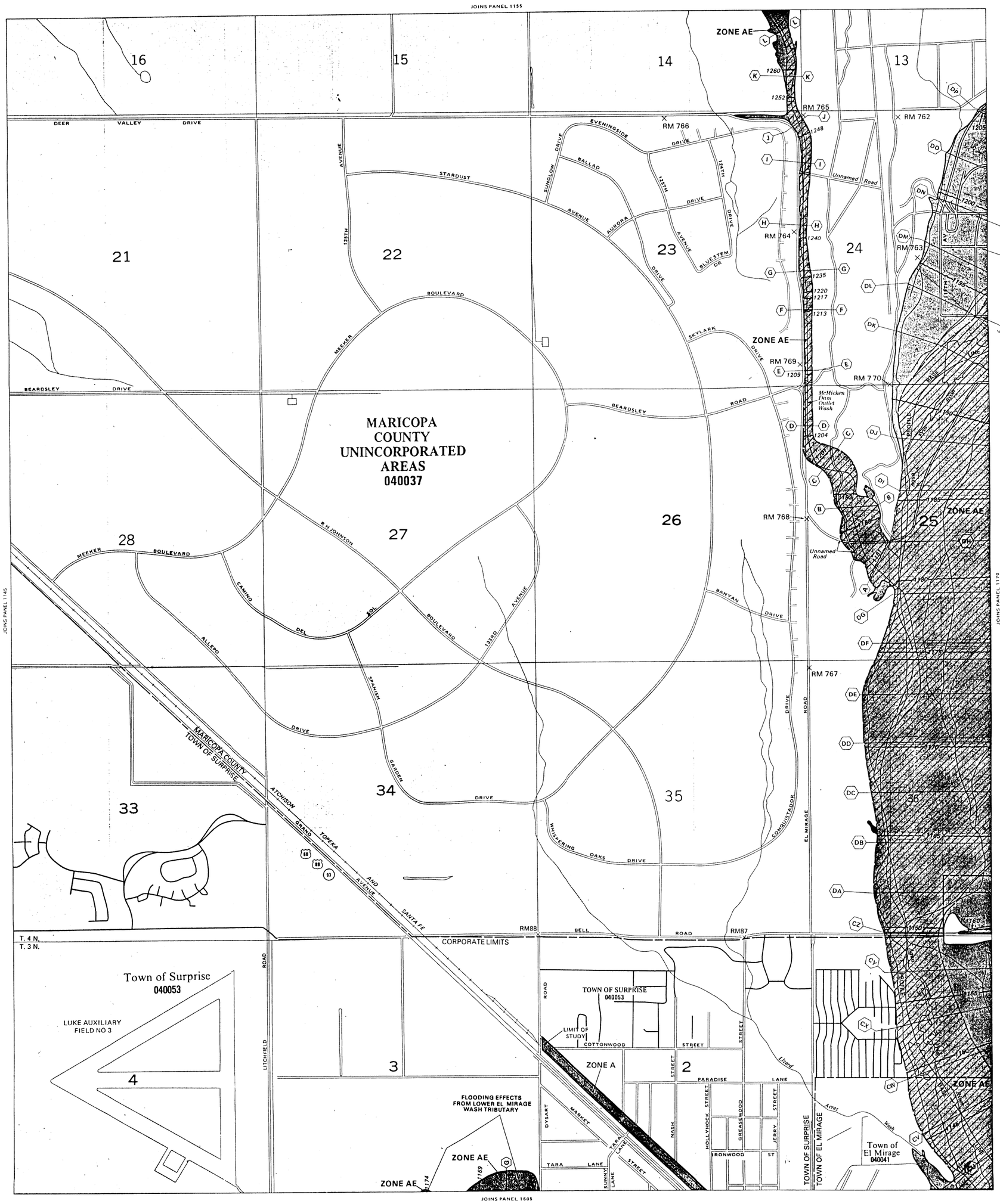
COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1170	F
MARICOPA COUNTY UNINCORPORATED AREAS	040037	1170	F
PEORIA, CITY OF	040050	1170	F
SURPRISE, TOWN OF	040053	1170	F

CURRENT EFFECTIVE FIRMS

MAP NUMBER
04013C1170 F

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM87	1,197.21	Top of pavement at centerline intersection of Bell Road and Greatewood Street
RM88	1,190.26	Top of pavement at centerline intersection of Dysart Road and Bell Road
RM762	1,250.45	Rebar at PP 1018
RM763	1,256.92	Rebar at PP 1028
RM764	1,242.91	Rebar at PP 1027
RM765	1,258.61	Rebar at PP 1019 near corner of Sections 13, 14, 23 and 24
RM766	1,259.69	Rebar at PP 1019A near quarter corner of Sections 14 and 23
RM767	1,202.43	Rebar at PP 1023 near corner of Sections 25, 26, 35 and 36
RM768	1,221.72	Rebar at PP 1030 near quarter corner of Sections 25 and 26
RM769	1,231.31	Rebar at PP 1021
RM770	1,210.79	Rebar at PP 1020

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~ 513 ~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1 30, AE, AH, AO, A99, V, V1 30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:
SEPTEMBER 29, 1989
SEPTEMBER 4, 1991

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY,
ARIZONA AND
INCORPORATED AREAS

PANEL 1165 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1165	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1165	G
SURPRISE, TOWN OF	040053	1165	G

CURRENT EFFECTIVE FIRMS MAP NUMBER
04013C1165 G

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 WEST AND TOWNSHIP 4 NORTH, RANGE 1 WEST
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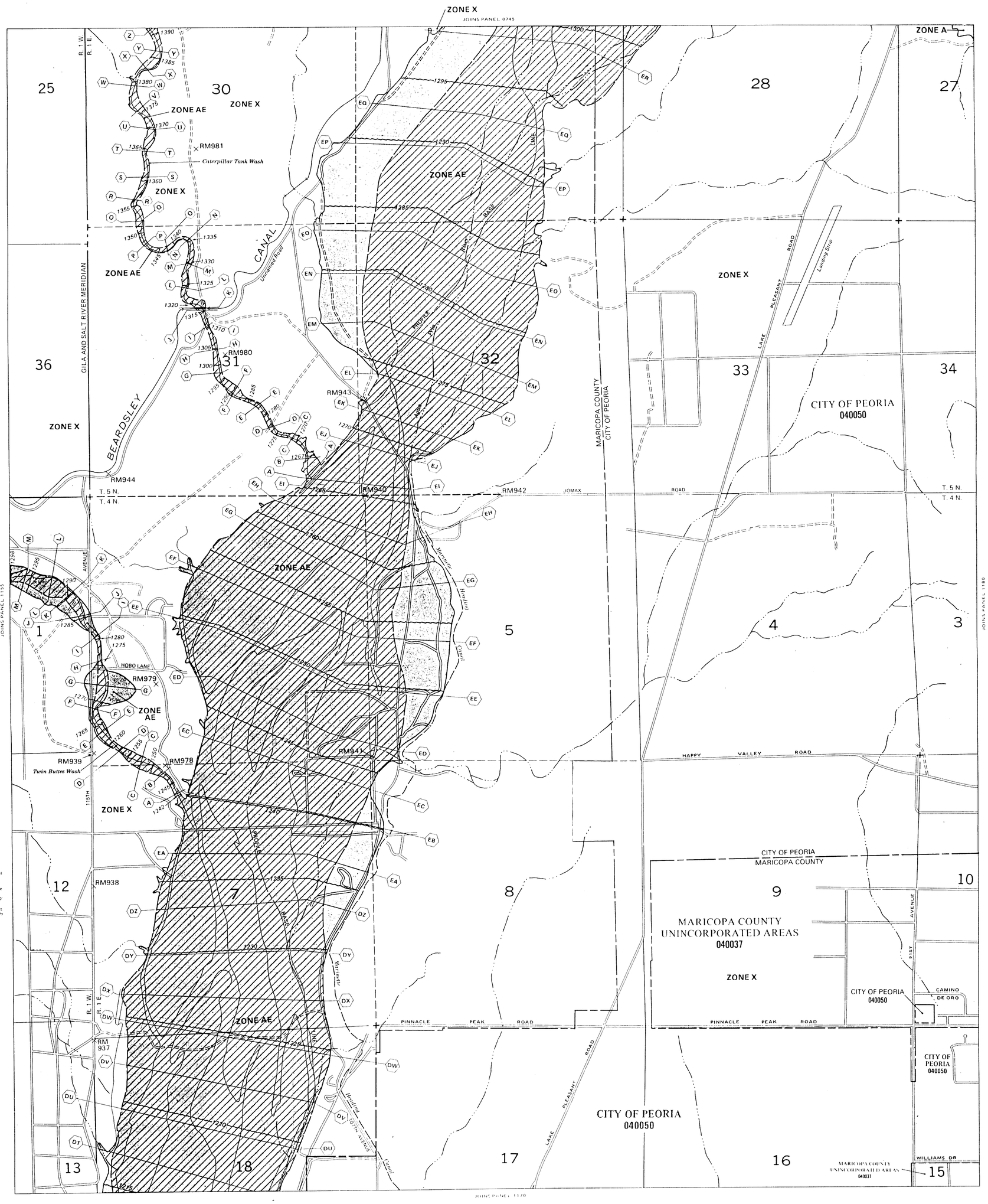


ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF REFERENCE MARK
RM940	1267.78	Top of cover of the southwest corner of Section 30, T4N R1E
RM942	1268.05	Aluminum cap, square brass cap at the east quarter corner of Section 30, T4N R1E
RM943	1279.67	S/R value at the southeast corner of Section 1, T4N R1W
RM944	1279.67	S/R value at the southwest corner of Section 6, T4N R1E
RM941	1246.21	Arizona Public Service brass cap marked "LS 16311" 2 feet south of the centerline of 115th Avenue and Happy Valley Road
RM937	1190.88	Brass cap in S/C of the north quarter corner of Section 19, T4N R1E
RM938	1227.68	Brass cap in S/C, Block 1, Pima concrete, approximately 300 feet east and 1300 feet north of southwest corner of Section 32, T5N R1E
RM939	1254.19	Brass cap in S/C, Block 1, Pima concrete, approximately 300 feet east and 100 feet south of the southwest corner of Section 31, T5N R1E, also approximately 35 feet south centerline of the Tom Boundary Road, 10 feet west of road
RM978	1264.61	Brass cap stamped "18-2" northwest corner section 7, T4N R1E, 1.79' out of ground, set by Arizona Public Service Company
RM979	1275.51	Found 1/2" RB with aluminum cap stamped "520" 800' ± south of Hobo Lane and 111th Avenue, 50' west of Jeep Trail
RM980	1312.85	Found 1/2" RB with aluminum cap stamped "807" Point is 50' ± east and 100' ± north of center section 31, T5N R1E
RM981	1399.95	Set 1/2" RB with aluminum cap stamped "80 501", 2100' ± east and 1500' ± north of the southwest corner section 30, T5N R1E, 1000' ± north of Beardsley Canal and 100' ± east of Caterpillar Tank Road on open area

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letters of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1160 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1160	F
PEORIA, CITY OF	040050	1160	F

CURRENT EFFECTIVE FIRMS

MAP NUMBER 04013C1160 F

MAP REVISED: DECEMBER 3, 1993

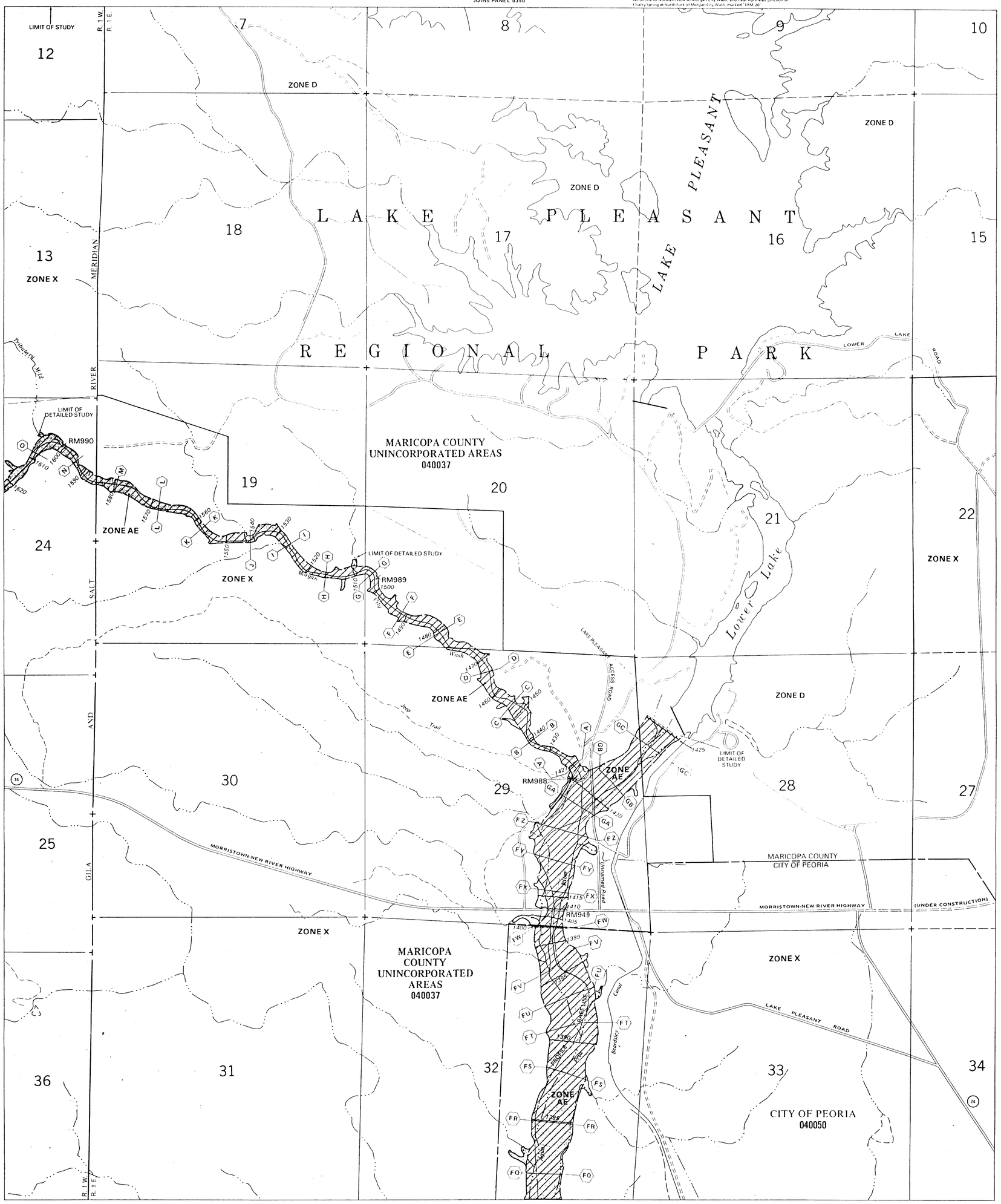
Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM989	1497.435	Beginning at point Morgan East: thence 0.08 mile southeast in Morgan City Wash to RM989 a 5/8" rebar set in concrete approximately 37 feet northeast of centerline of Morgan City Wash at northern edge of bend in wash, and at toe dirt embankment by rock wall, marked "ERM 21"
RM990	1590.715	Beginning at point Morgan East: thence 1.44 miles northwest in Morgan City Wash to RM990 a 5/8" rebar set in concrete approximately 26 feet northeast of centerline of Northern Fork of Morgan City Wash, and near northeast junction of Chalky Spring at North Fork of Morgan City Wash, marked "ERM 20"
RM988	1412.28	A 5/8" rebar set in concrete approximately 105 feet south of centerline of Morgan City Wash, and approximately 50 feet east of centerline of New Waddell Dam Road, and at the southeast corner of New Waddell Dam Road bridge, marked "ERM 22"

To find RM 989 and RM 990: start at the intersection of Carefree Highway, "Highway 74", and Lake Pleasant Road: thence 3.75 miles north on Lake Pleasant Road to New Waddell Dam Road to an access dirt road on southwest side of New Waddell Dam Road (at 2.10 miles: will pass overpass road intersection); thence 0.56 miles southwest on access dirt road down the mountain to the intersection of Morgan City Wash; this point identified as Morgan East.

JOINS PANEL 0350



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 6 NORTH, RANGE 1 EAST AND TOWNSHIP 6 NORTH, RANGE 1 WEST

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This maps for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross-sections and interpolated between cross-sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 735 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0735	F
PEORIA, CITY OF	040050	0735	F

CURRENT EFFECTIVE FIRMS

MAP NUMBER
04013C0735F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency
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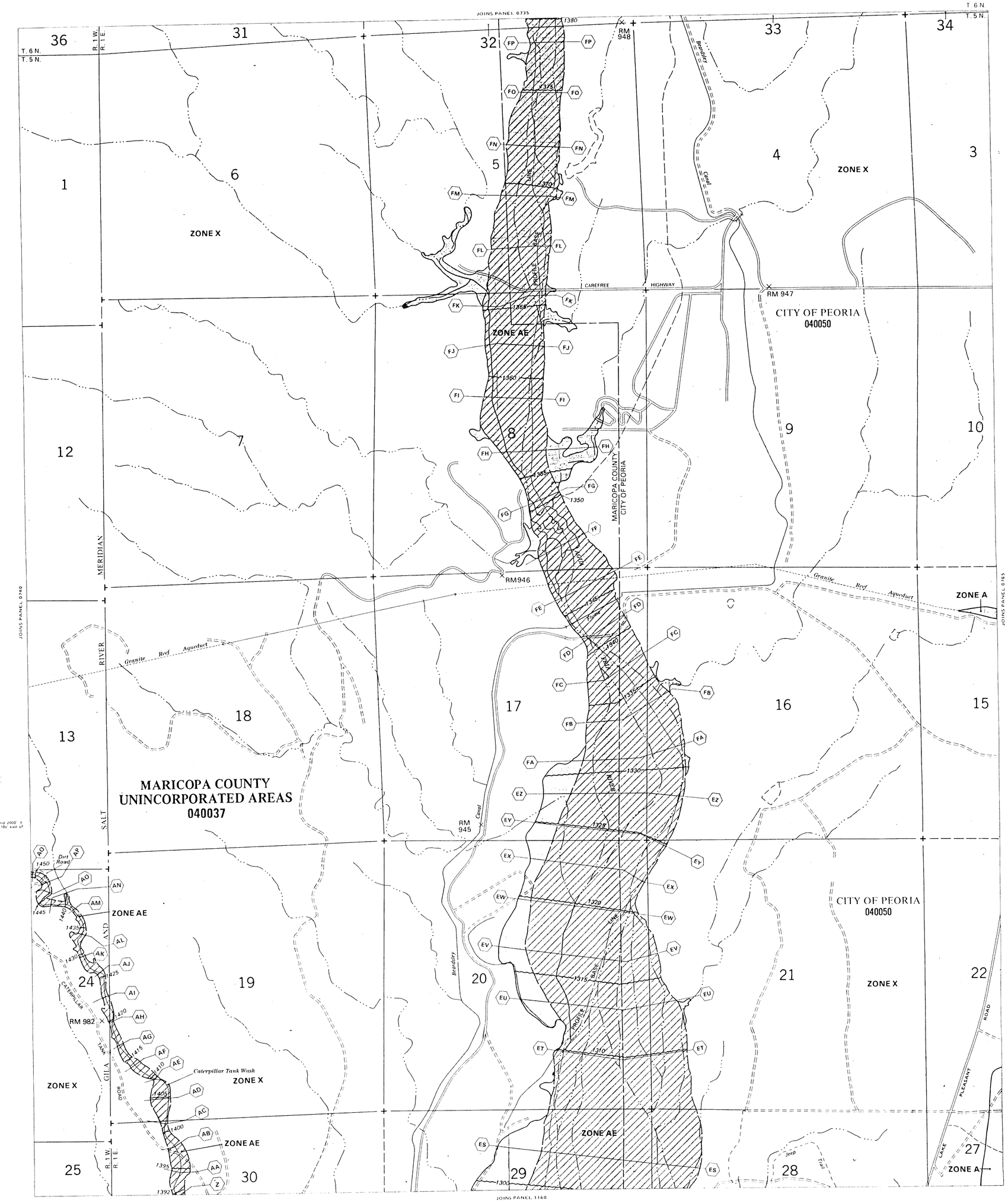


ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet)	Description
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
RM946	1440.35	Set 1/2" RB with aluminum cap stamped "RM 946", 100' ± west and 2000' ± north of the southeast corner section 24, 1S N, R1W, approximately 100' east of Caterpillar Tank Road

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30, AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 745 OF 4350

CONTAINS

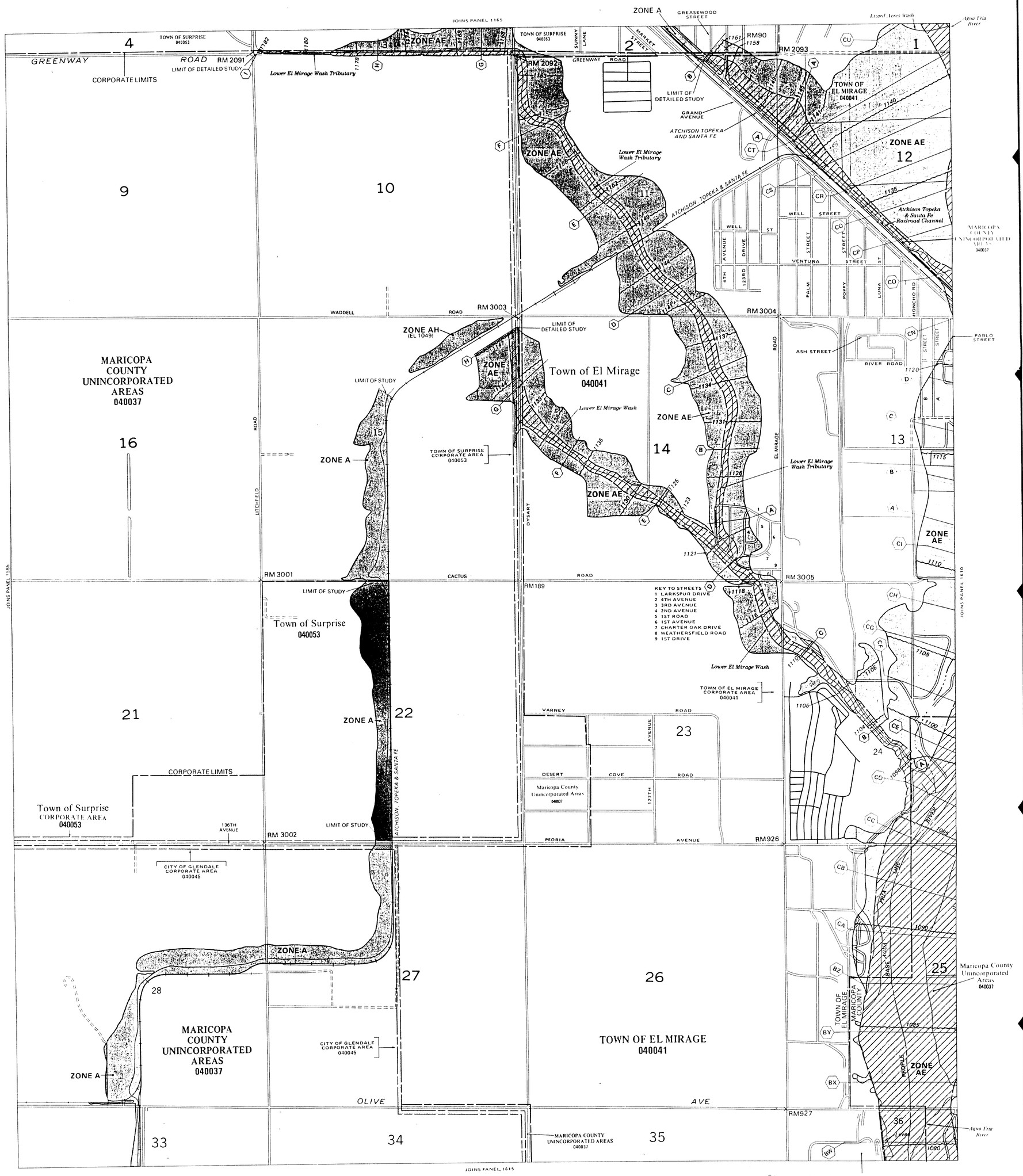
COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0745	F
PEORIA, CITY OF	040050	0745	F

CURRENT EFFECTIVE FIRMS

MAP NUMBER
04013C0745 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency



This area protected from the one percent annual chance (100 – year) flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

[illegible]

[illegible]	[illegible]	[illegible]	Brass cap in handhole El Mirage Road and Peoria Avenue, southeast corner Section 24, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]	Maricopa County Highways Department brass cap flush with pavement, intersection Litchfield Road and Greenway Road, southeast corner Section 4, Township 2 North, Range 1 West
[illegible]	[illegible]	[illegible]	Maricopa County Highways Department brass cap in handhole centerline intersection Dysart Road and Greenway Road, southeast corner Section 4, Township 2 North, Range 1 West
[illegible]	[illegible]	[illegible]	Iron pipe centerline intersection El Mirage Road and Greenway Road, southeast corner Section 2, Township 2 North, Range 1 West
[illegible]	[illegible]	[illegible]	Maricopa County Highways Department brass cap flush with pavement Litchfield Road and Cactus Road, southeast corner Section 16, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]	Top of concrete curb at approximate intersection Litchfield Road and Peoria Avenue, southeast corner Section 24, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]	Chiseled square on top concrete headwall, southeast corner of intersection of Dysart Road and Waddell Road, near southeast corner Section 10, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]	CITY OF EL MIRAGE brass cap in handhole at intersection El Mirage Road and Waddell Road, southeast corner Section 11, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]	Maricopa County Highways Department brass cap in handhole El Mirage Road and Cactus Road, southeast corner Section 24, Township 3 North, Range 1 West

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

(D) — (D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7x Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

[illegible]

Areas of 100-year flood hazard (100-year floodplain) are located in Zones A, AE, AH, AO, AR, A99, V1-V30, and VE.

[illegible]

Floodway [illegible] Maricopa County [illegible]

Floodway [illegible]

Coastal Limit of Floodwaters [illegible] shoreline.

Corporate limits shown are current as of the date of this map. The user should verify the appropriate corporate limits with the appropriate community officials. Underdeveloped or undeveloped areas have flattened contour lines on this map.

For community map revision history prior to countywide mapping, refer to Section II of the Flood Insurance Study report.

Base map information [illegible] Maricopa County.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

SEPTEMBER 4, 1991

DECEMBER 3, 1993

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add or delete zones, and to reflect updated topography. [illegible] to incorporate previously issued letters of map revision and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1605 OF 4350

CONTAINS

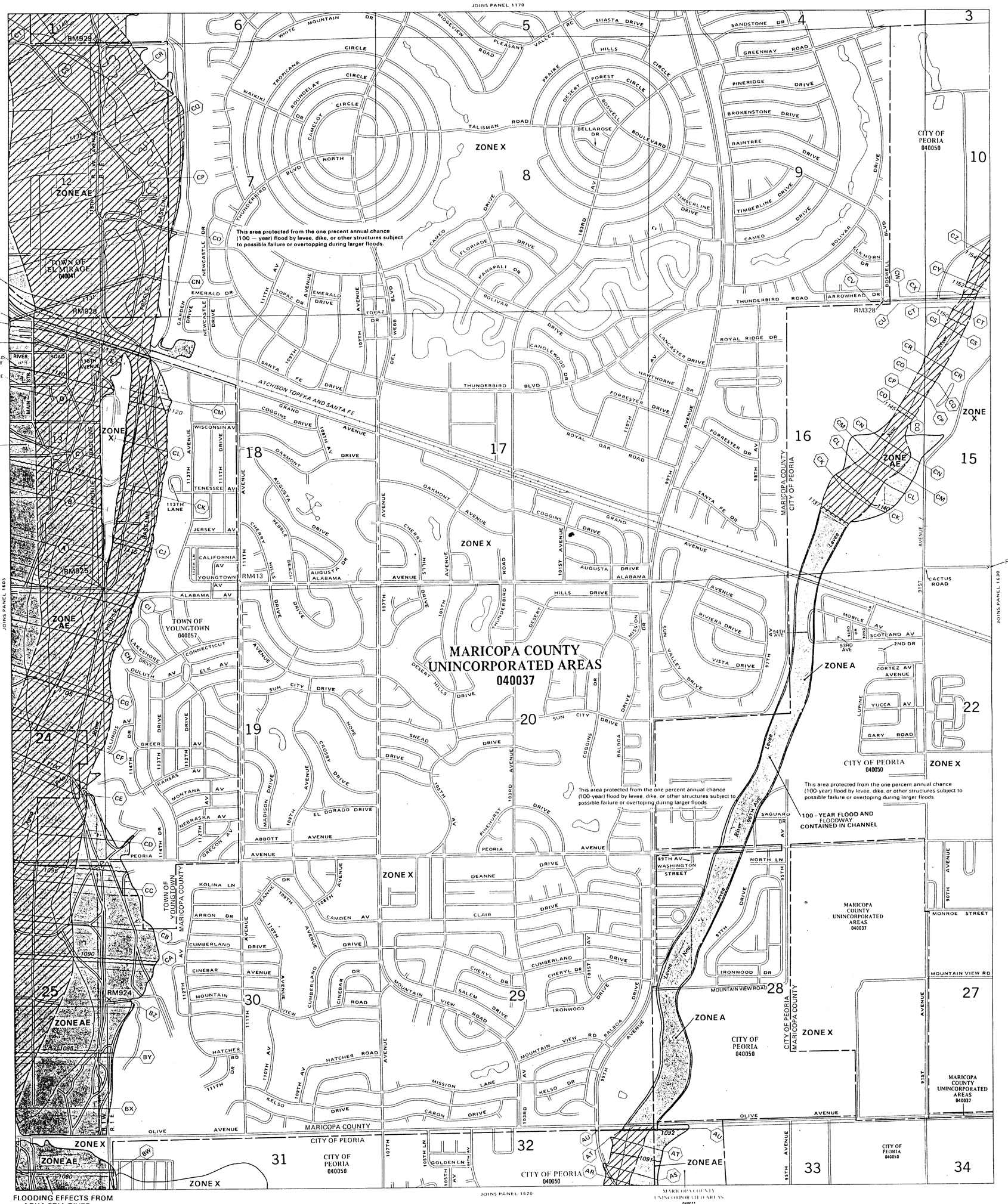
COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1605	G
GLENDALE, CITY OF	040045	1605	G
MARICOPA COUNTY UNINCORPORATED AREAS	040037	1605	G
SURPRISE, TOWN OF	040053	1605	G

CURRENT EFFECTIVE FIRMS

MAP NUMBER 04013C1605 G

MAP REVISED: SEPTEMBER 30, 1995

Federal Emergency Management Agency



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 EAST AND TOWNSHIP 3 NORTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

RM924	1,087.36	Top of stone at the east quarter corner of Section 25 T 3 N R 1 W

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- ZONE A — No base flood elevations determined.
- ZONE AE — Base flood elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99 — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- ZONE V — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100 year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside 500-year flood plain.
- ZONE D — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 x Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, A11-A30, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations, and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1610 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1610	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1610	G
PEORIA, CITY OF	040050	1610	G
YOUNGTOWN, TOWN OF	040057	1610	G

CURRENT EFFECTIVE FIRMS

MAP NUMBER
04013C1610 G

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency

FOLD FOLD FOLD
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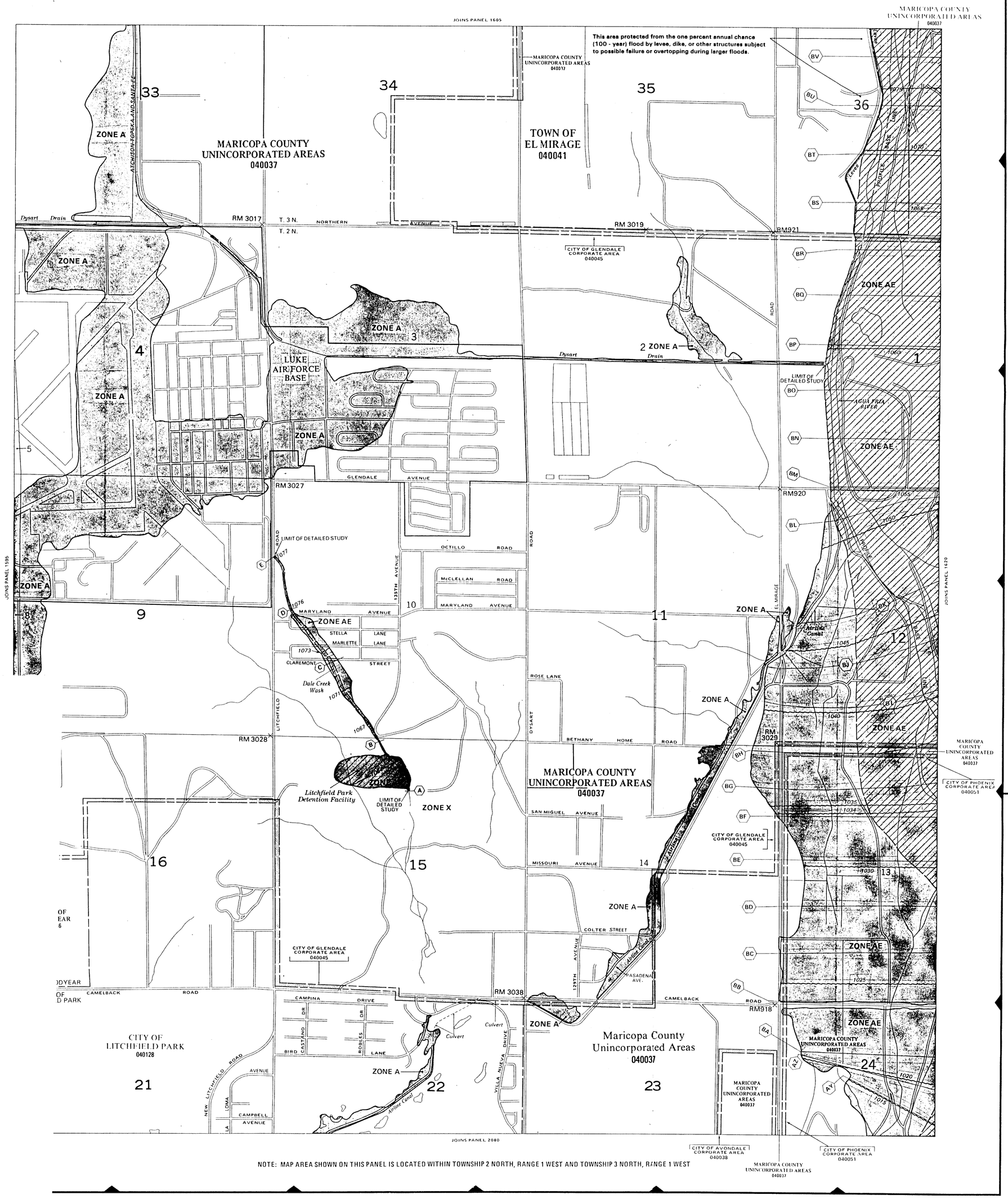

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 2 NORTH, RANGE 1 WEST AND TOWNSHIP 3 NORTH, RANGE 1 WEST

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7$_X$ Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1 30, AE, AH, AO, A99, V, V1 30 AND VE

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

SEPTEMBER 29, 1989

SEPTEMBER 4, 1991

DECEMBER 3, 1993

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1615 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	1615	M
EL MIRAGE, TOWN OF	040041	1615	M
GLENDALE, CITY OF	040045	1615	M
GOODYEAR, TOWN OF	040046	1615	M
LITCHFIELD PARK, CITY OF	040128	1615	M
MARICOPA COUNTY UNINCORPORATED AREAS	040037	1615	M
PHOENIX, CITY OF	040051	1615	M

CURRENT EFFECTIVE FIRMS

MAP NUMBER 04013C1615 H

MAP REVISED: SEPTEMBER 30, 1995

Federal Emergency Management Agency
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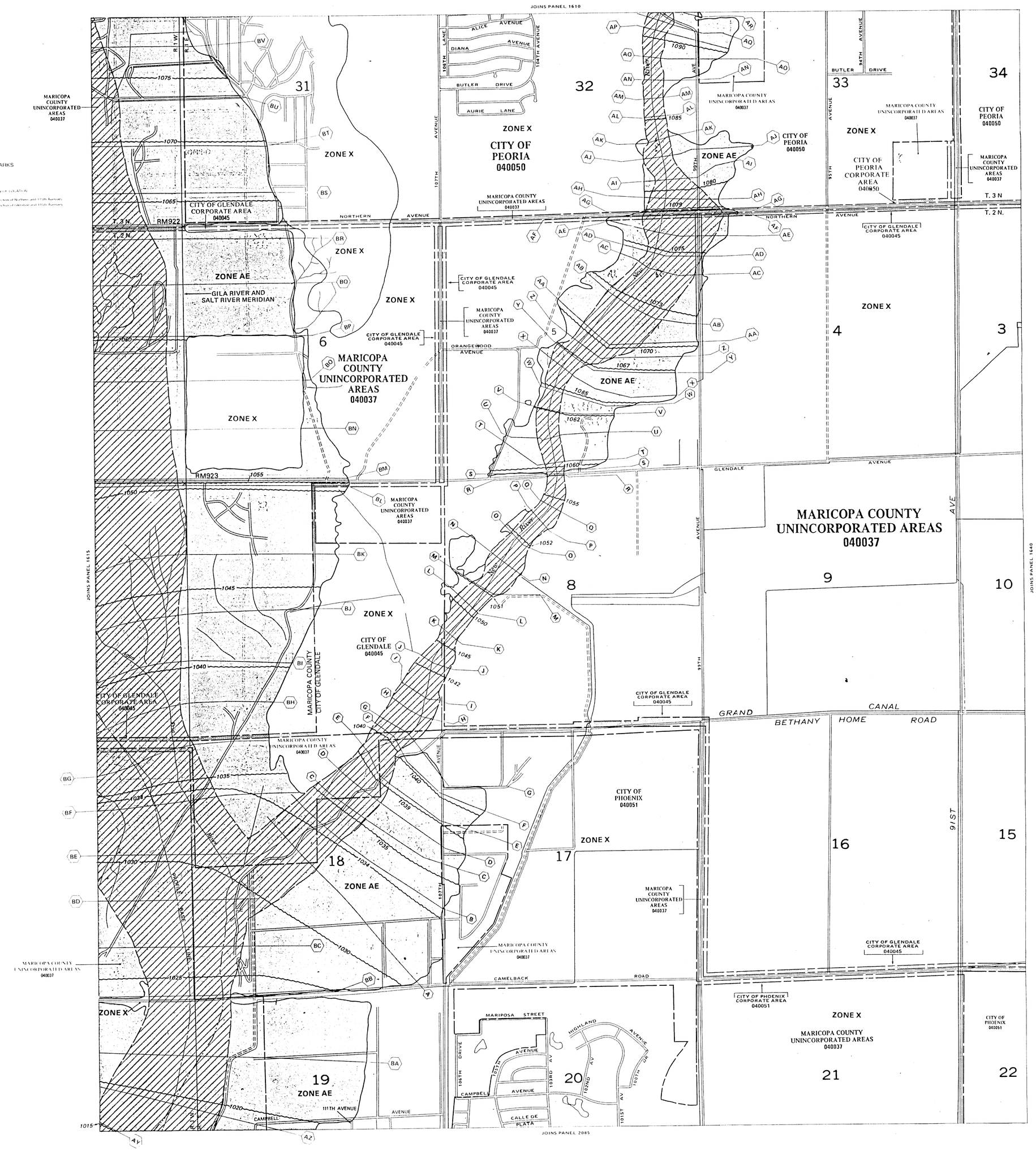


LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30, AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are presented in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1620 OF 4350

CONTAINS:

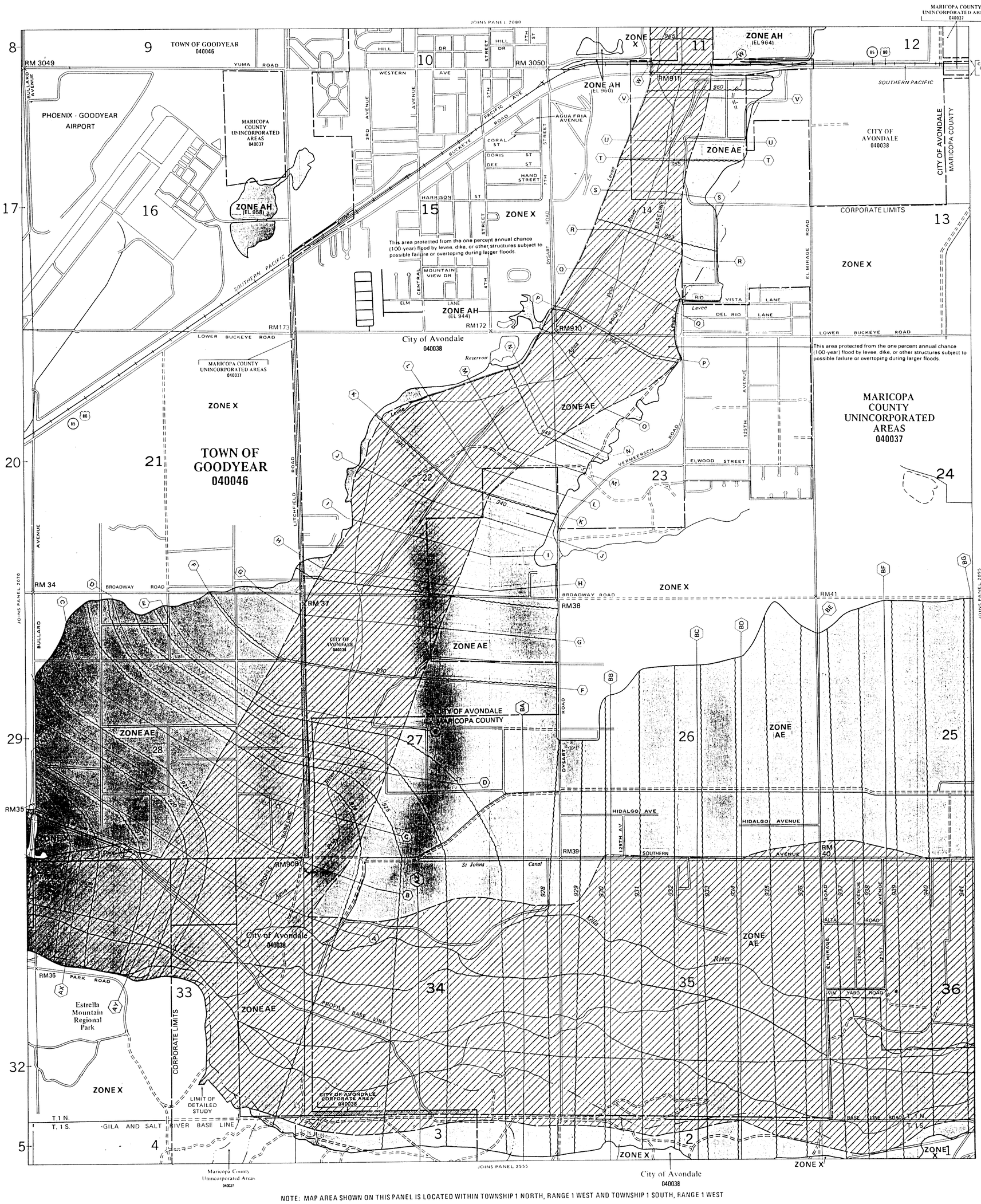
COMMUNITY	NUMBER	PANEL	SUFFIX
GLENDALE, CITY OF	040045	1620	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1620	F
PEORIA, CITY OF	040050	1620	F
PHOENIX, CITY OF	040051	1620	F

CURRENT EFFECTIVE FIRMS

MAP NUMBER 04013C1620 F

MAP REVISED: SEPTEMBER 4, 1991

Federal Emergency Management Agency



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 1 WEST AND TOWNSHIP 1 SOUTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM34	922.28	Top of pavement at centerline intersection of Bullard Avenue and Broadway Road.
RM35	918.63	U.S. Geological Survey brass cap in concrete cylinder 38 feet northwest of canal bridge, on west side of Bullard Avenue; 0.75 mile south of Broadway Road. Marked CANAL.
RM36	911.34	Top of pavement at centerline intersection of Bullard Avenue and Park Road.
RM37	928.91	U.S. Geological Survey brass cap in concrete cylinder 14 feet east of centerline of Litchfield Road extended approximately 150 feet south of Broadway Road. Marked 97Z.
RM38	934.72	U.S. Geological Survey brass cap in concrete cylinder of southwest corner of Dysart Road and Broadway Road. Marked 98Z.
RM39	929.36	Top of pavement at centerline intersection of Dysart Road and Southern Avenue.
RM40	935.19	Top of pavement at centerline intersection of El Mirage Road and Southern Avenue.
RM41	936.84	U.S. Geological Survey brass cap in concrete cylinder at northwest corner of Broadway Road and El Mirage Road. Marked H295.
RM172	946.43	U.S. Army Corps of Engineers brass cap in south end of east curb at northeast corner of Lower Buckeye Road and 4th Street.
RM173	964.64	Brass cap in handhole at centerline intersection of Lower Buckeye and Litchfield Road.
RM908	916.83	U.S. Army Corps of Engineers brass cap on a 2" pipe at the intersection of Southern Avenue and Litchfield Road.
RM909	927.45	Brass cap in pavement at northeast corner of Bullard Road bridge over Gila River.
RM910	944.24	Cotton Spindle Rush with pavement at the intersection of Lower Buckeye and Dysart Roads.
RM911	973.58	Brass cap west end of Buckeye Road bridge over the Agua Fria River.
RM 3049	977.19	Rod in concrete in handhole, Bullard Avenue and Yuma Road, southeast corner Section 8, Township 1 North, Range 1 West.
RM 3050	965.70	Nail in concrete in handhole, Dysart Road and Western Avenue, Southeast corner section 10 T1N, R1W.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross-sections and interpolated between cross-sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP
APRIL 15, 1988
EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL
SEPTEMBER 4, 1991

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2090 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	2090	F
GOODYEAR, TOWN OF	040046	2090	F
MARICOPA COUNTY UNINCORPORATED AREAS	040037	2090	F

CURRENT EFFECTIVE FIRMS

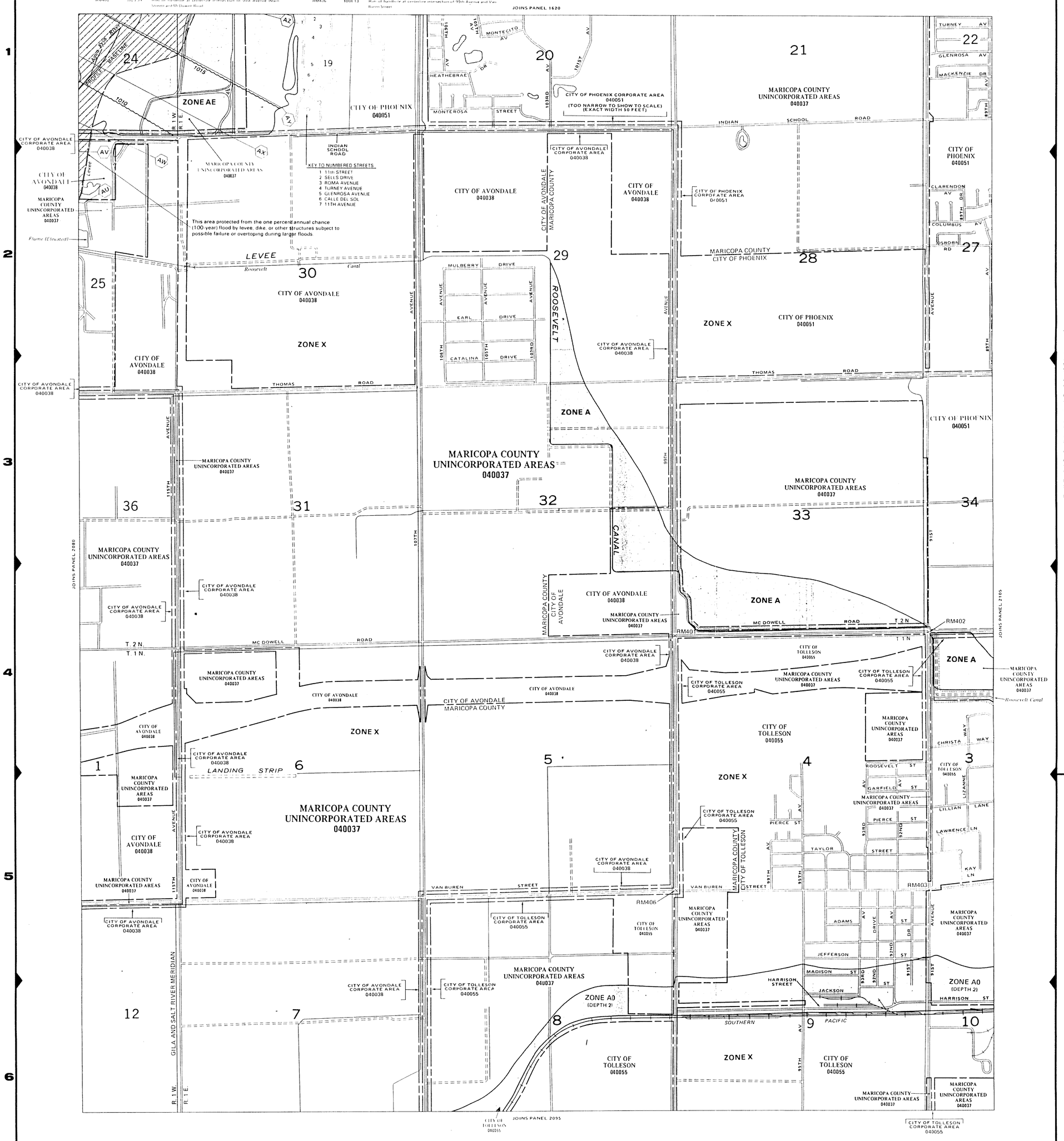
MAP NUMBER
04013C2090 F

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM401	1021.09	Box of handhole at centerline intersection of 99th Avenue and McDowell Road
RM402	1025.39	Box of handhole at centerline intersection of 91st Avenue (Main Street) and McDowell Road
RM403	1034.82	Box of handhole at centerline intersection of 91st Avenue (Main Street) and Van Buren Street
RM406	1008.13	Box of handhole at centerline intersection of 99th Avenue and Van Buren Street



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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Areas of Special Flood Hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30, AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2085 OF 4350

CONTAINS

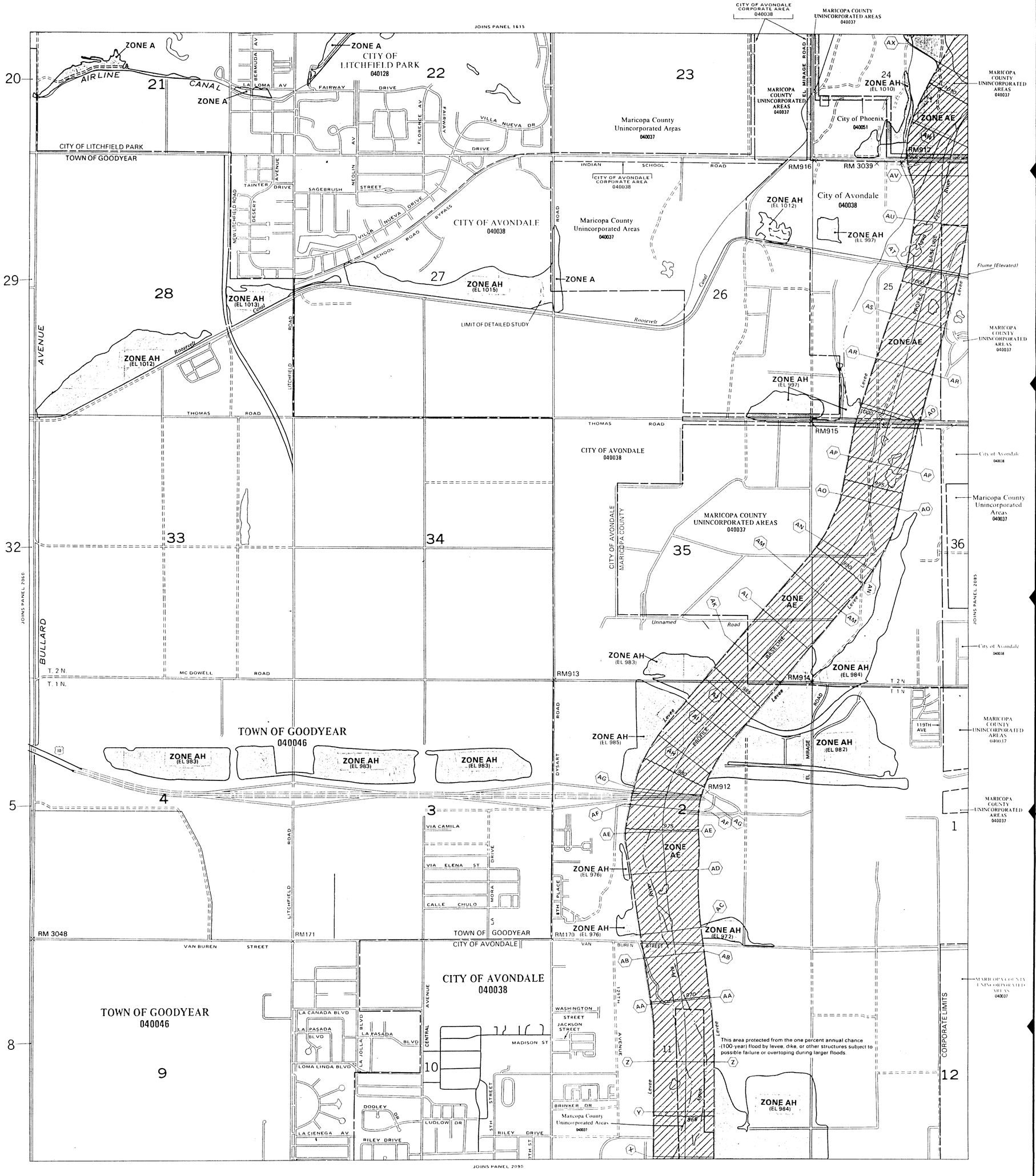
COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	2085	E
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2085	E
PHOENIX, CITY OF	040051	2085	E
TOLLESON, CITY OF	040055	2085	E

CURRENT EFFECTIVE FIRMS

MAP NUMBER
04013C2085E

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

SEPTEMBER 29, 1989

SEPTEMBER 4, 1991

Map revised: SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

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APPROXIMATE SCALE IN FEET

1000 0 1000

ELEVATION REFERENCE MARKS

Reference Mark	Elevation (Feet)	Description of Mark
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
RM 4019	1017.40	Maricopa County Highways Department brass cap flush with pavement, quarter mile east of intersection of El Mirage Road and Indian School Road, approximately quarter mile east of southeast corner Section 24, Township 2 North, Range 1 West
[illegible]	[illegible]	Half inch iron pin in handhole, Bullard Avenue and Van Buren Street, southeast corner Section 5, Township 1 North, Range 1 West

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2080 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	2080	G
GOODYEAR, TOWN OF	040046	2080	G
LITCHFIELD PARK, CITY OF	040128	2080	G
MARICOPA COUNTY UNINCORPORATED AREAS	040037	2080	G
PHOENIX, CITY OF	040051	2080	G

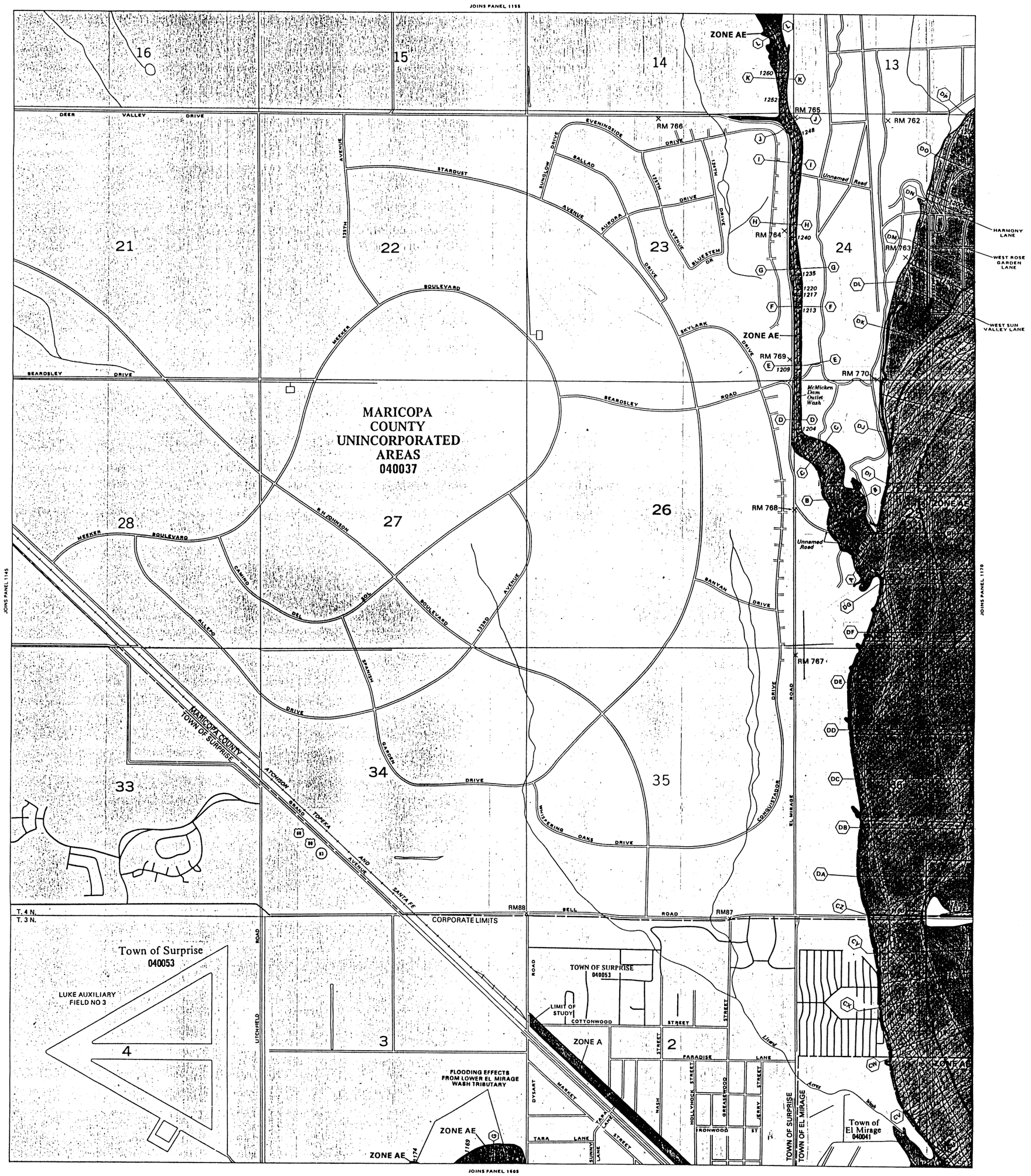
CURRENT EFFECTIVE FIRMS

MAP NUMBER 04013C2080 G

MAP REVISED: SEPTEMBER 30, 1995

Federal Emergency Management Agency

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 1 WEST AND TOWNSHIP 2 NORTH, RANGE 1 WEST



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM87	1,197.21	Top of pavement of centerline intersection of Bell Road and Grassewood Street.
RM88	1,190.26	Top of pavement at centerline intersection of Dysart Road and Bell Road.
RM762	1,270.45	Rebar at PP-1018
RM763	1,256.92	Rebar at PP-1028
RM764	1,242.91	Rebar at PP-1027
RM765	1,258.51	Rebar at PP-1018 near corner of Sections 13, 14, 23 and 24.
RM766	1,259.69	Rebar at PP-1015A near quarter corner of Sections 14 and 23
RM767	1,202.43	Rebar at PP-1023 near corner of Sections 25, 26, 35 and 36.
RM768	1,221.72	Rebar at PP-1030 near quarter corner of Sections 25 and 26
RM769	1,231.31	Rebar at PP-1021
RM770	1,240.79	Rebar at PP-1020

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 WEST AND TOWNSHIP 4 NORTH, RANGE 1 WEST

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR/A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~Base Flood Elevation~~ Line; Elevation in Feet*

Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:
SEPTEMBER 29, 1989
SEPTEMBER 4, 1991

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

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APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1165 OF 4350

CONTAINS

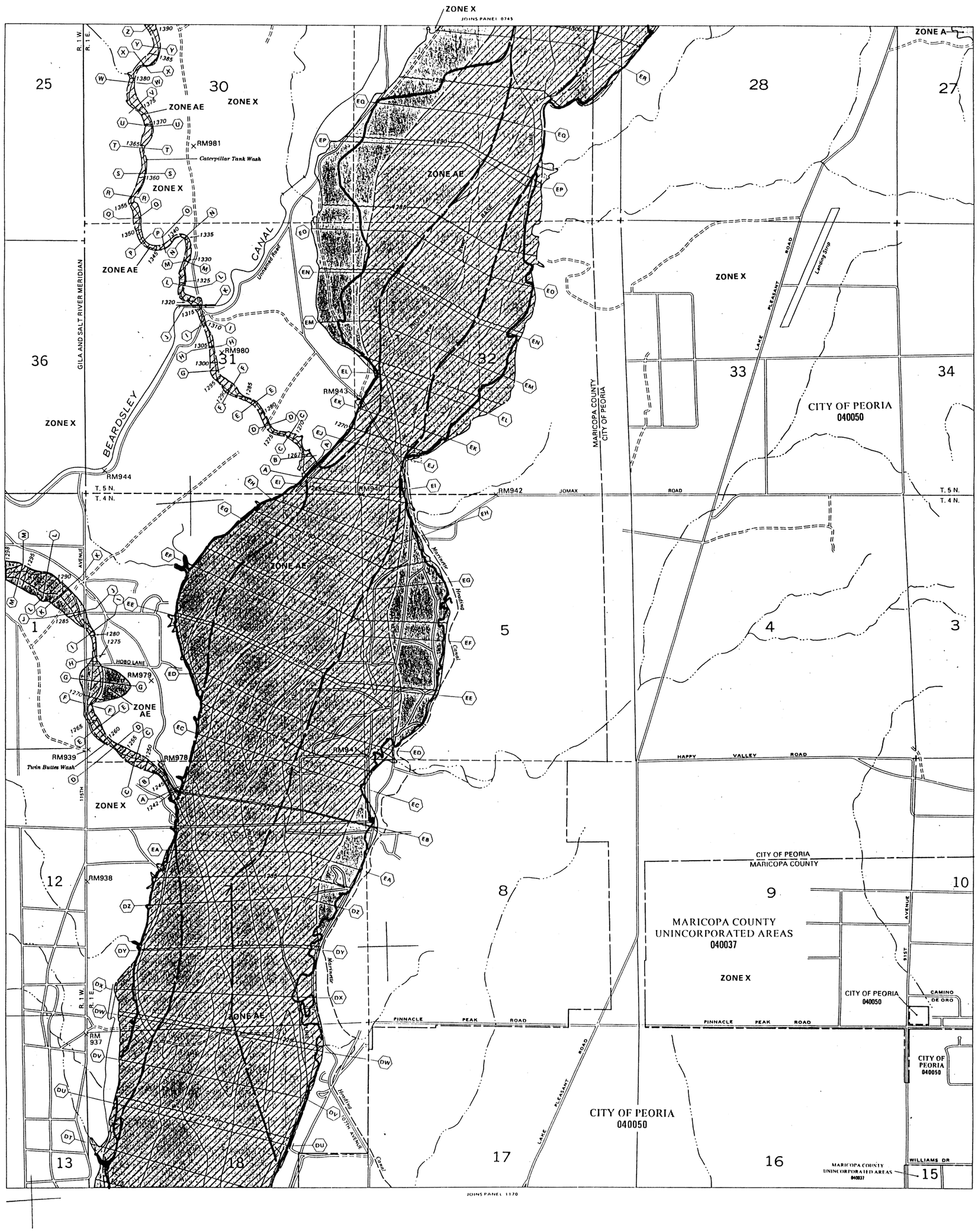
COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1165	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1165	G
SURPRISE, TOWN OF	040053	1165	G

ANNOTATED FIRMS

MAP NUMBER
04013C1165 G

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM937	1,237.28	Top of stone at the northwest corner of Section 18, 1 4N, R1E
RM938	1,261.05	Arizona Public Service brass cap at the east quarter corner of Section 12, 1 4N, R1W
RM939	1,299.47	5/8" rebar at the southeast corner of Section 1, 1 4N, R1W
RM940	1,378.67	G.L.O. brass cap at the northwest corner of Section 6, 1 4N, R1E
RM941	1,241.21	Arizona Public Service brass cap marked "section corner, 1/4 C.F." 1 4N R1E, at the intersection of 107th Avenue and Happy Valley Road
RM942	1,359.88	Brass cap (LS 6177) at the north quarter corner of Section 5, 1 4N, R1E
RM943	1,277.68	Brass cap (LS C.R.G.S.) 1,266 in concrete approximately 100 feet east and 1,900 feet north of southwest corner of Section 32, 1 5N, R1E
RM944	1,353.38	Brass cap (LS C.R.G.S.) 1,366 in concrete located approximately 300 feet east and 300 feet north of the southwest corner of Section 31, 1 5N, R1E also approximately 25 feet south centerline of the lower Beardsley Canal Road and on crest of hill
RM978	1264.61	Brass cap stamped "1/62" northwest corner section 7, 1 4N R1E, 1.75' out of ground, set by Arizona Public Service Company
RM979	1275.51	Found 1/2" RB with aluminum cap stamped "520", 300' ± south of Hobo Lane and 113th Avenue, 50' west of Jeep Trail
RM980	1332.85	Found 1/2" RB with aluminum cap stamped "803" Point is 50' ± east and 100' ± north of center section 31, 1 5N R1E
RM981	1399.95	Set 1/2" RB with aluminum cap stamped "90 501", 2100' ± east and 1500' ± north of the southwest corner section 30, 1 5N R1E, 1300' ± north of Beardsley Canal and 100' ± east of Caterpillar Tank Road on open area

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)——(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letters of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

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N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1160 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1160	F
PEORIA, CITY OF	040050	1160	F

ANNOTATED FIRMS

MAP NUMBER
04013C1160 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency
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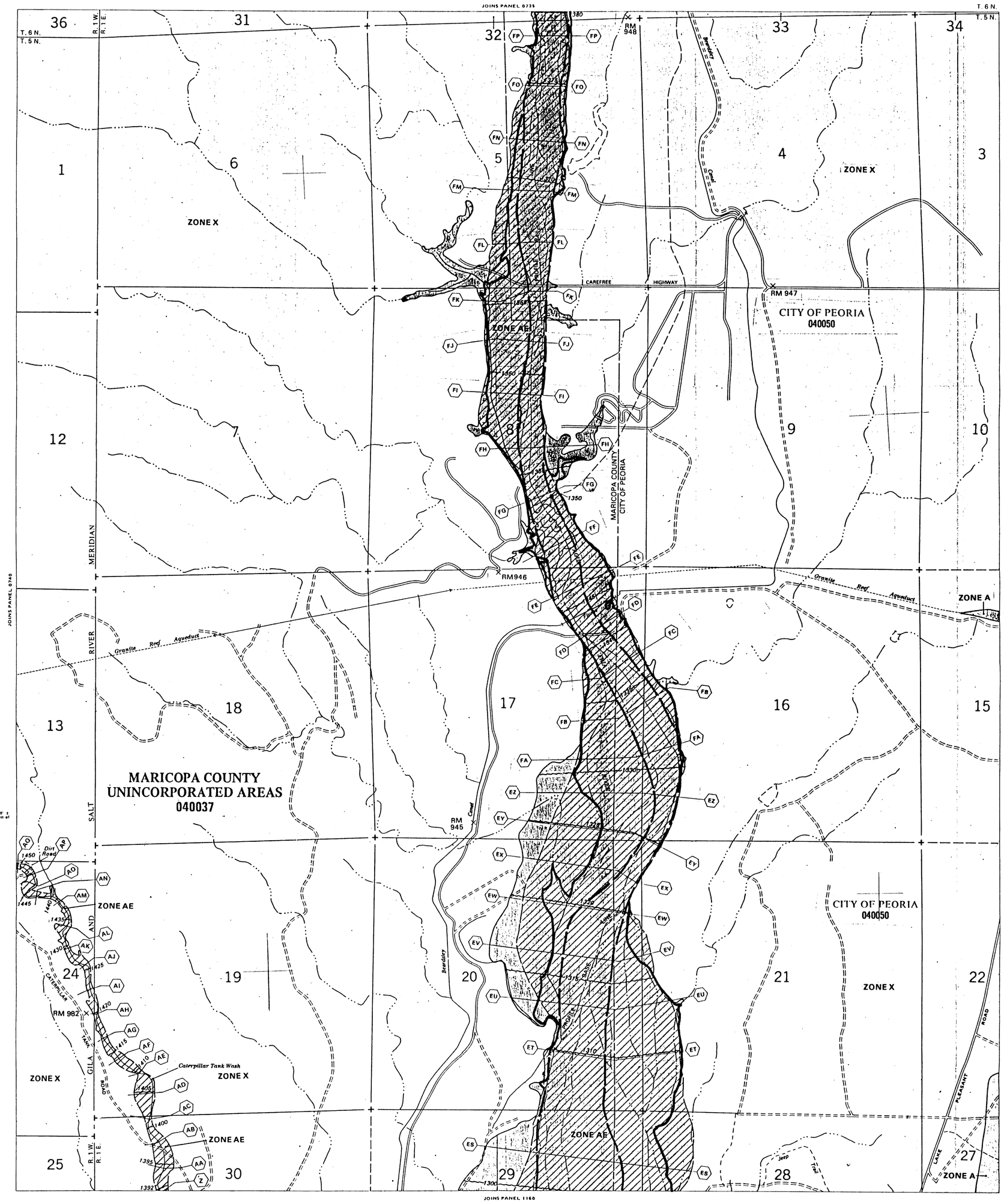

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM945	1,355.76	Cross on northeast corner of cattle guard at the north side of Orchard on Beardsley Canal Road located approximately 1,950 feet east and 400 feet north of southwest corner Section 17, 15N, R1E
RM946	1,372.18	FD 1/2" rebar at the south quarter corner Section 8, 15N, R1E, also approximately 500 feet north and 1,900 feet west of Rurie
RM947	1,454.47	FD 5/8" rebar at south quarter corner Section 4, 15N, R1E, approximately 400 feet east of south top of hill
RM948	1,412.88	FD shiner with marking at the northeast corner Section 5, 15N, R1E
RM982	1440.35	Set 1/2" RB with aluminum cap stamped "90 50.7, 100.3' west and 2000' 3 north of the southeast corner section 24, 15N R1W, approximately 100' east of Caterpillar Tank Road

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
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- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)——(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

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Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 745 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0745	F
PEORIA, CITY OF	040050	0745	F

ANNOTATED FIRMS

MAP NUMBER
04013C0745 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency
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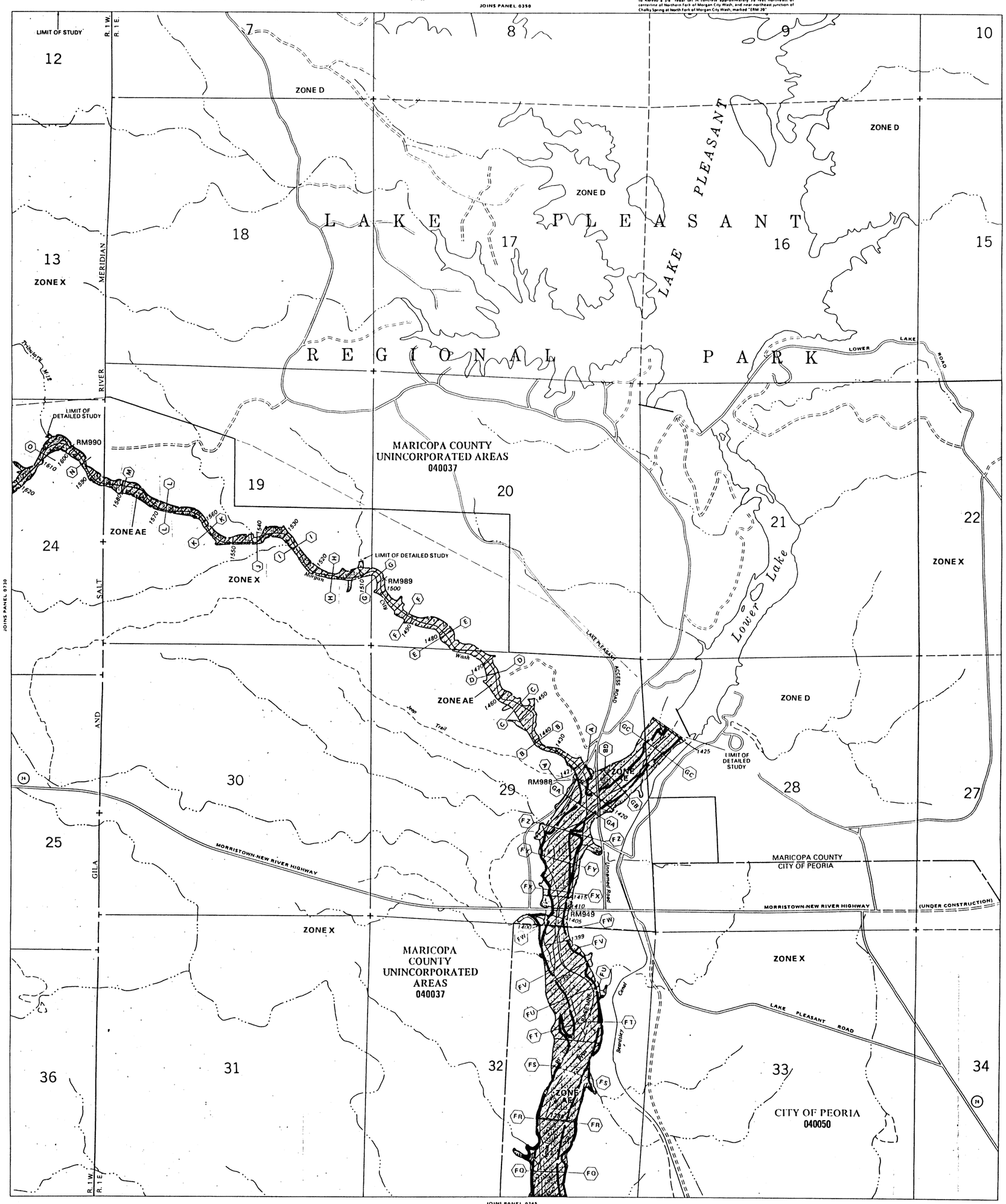
ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
		To find RM 989 and RM 990, start at the intersection of Carefree Highway, "Highway 74", and Lake Pleasant Road, thence 3.75 miles north on Lake Pleasant Road to New Waddell Dam Road (dirt), thence dirt road on southeast side of New Waddell Dam Road (at 2.10 miles, will be dirt road on the left, road intersection), thence 0.56 miles southwest on access dirt road down the mountain to the intersection of Morgan City Wash, the point identified as Morgan East.
RM949	1,469.31	A D O T brass cap cap head bolt at the northeast corner of the east bridge of Lake Pleasant
RM98a	1612.28	A 5/8" rebar set in concrete approximately 105 feet south of centerline of Morgan City Wash, and approximately 50 feet east of centerline of New Waddell Dam Road, and at the southeast corner of New Waddell Dam Road bridge, marked "ERM 22"
RM989	1497.435	Beginning at point Morgan East, thence 0.06 mile southeast in Morgan City Wash to RM989 a 5/8" rebar set in concrete approximately 37 feet northeast of centerline of Morgan City Wash at northern edge of bend in wash, and at toe dirt embankment by rock wall, marked "ERM 21"
RM990	1590.715	Beginning at point Morgan East, thence 1.44 miles northwest in Morgan City Wash to RM990 a 5/8" rebar set in concrete approximately 28 feet northeast of centerline of Northern Fork of Morgan City Wash, and near northeast junction of Chalky Spring at North Fork of Morgan City Wash, marked "ERM 20"



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 6 NORTH, RANGE 1 EAST AND TOWNSHIP 6 NORTH, RANGE 1 WEST

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ — Base Flood Elevation Line; Elevation in Feet*

(D)———(D) — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 735 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	0735	F
PEORIA, CITY OF	040050	0735	F

ANNOTATED FIRMS

MAP NUMBER
04013C0735F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency
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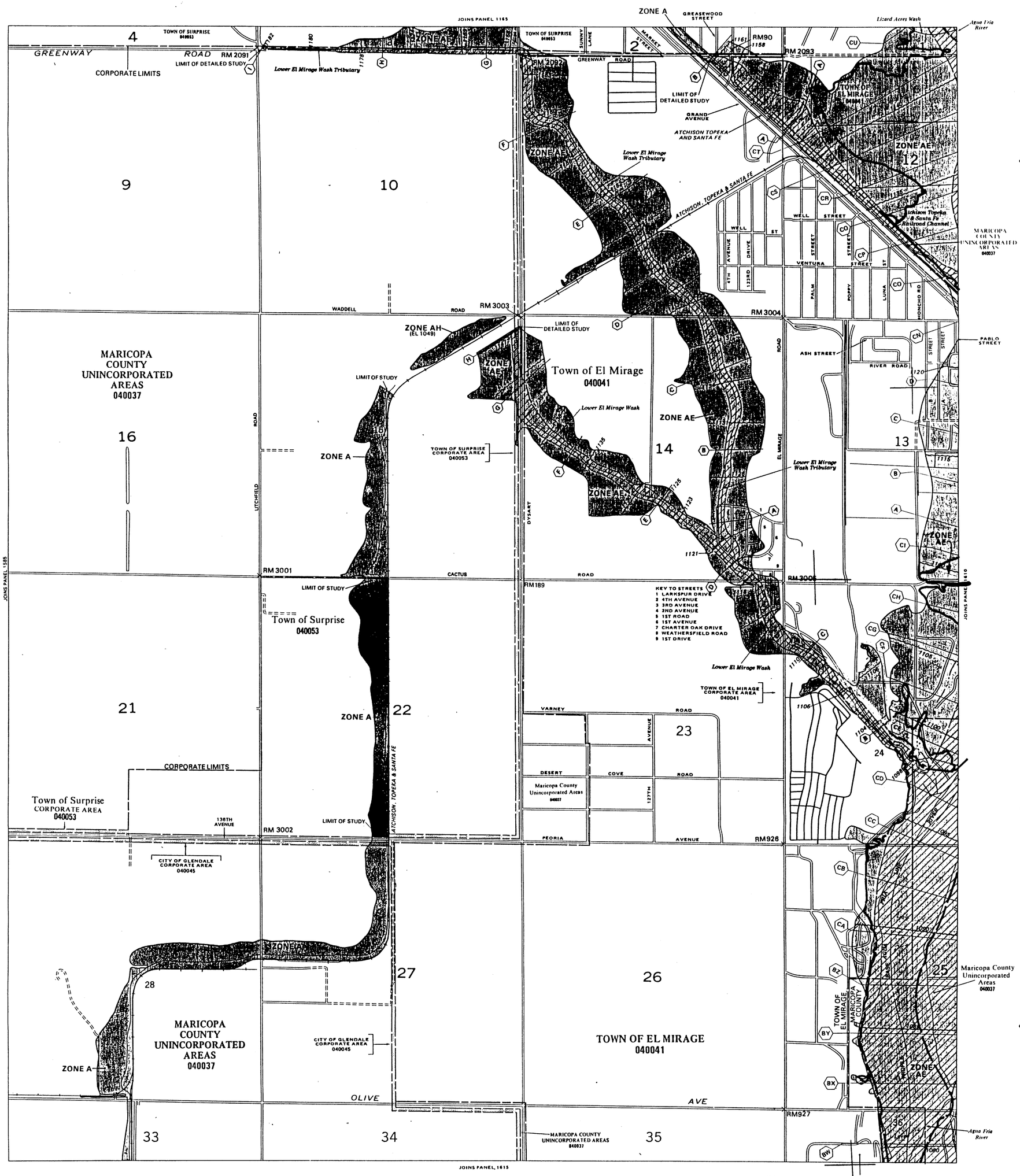

This area protected from the one precent annual chance (100 — year) flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods.

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

[illegible]	Elevation (Ft. NGVD)	DESCRIPTION OF LOCATION
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	1,105.86	Brass cap in handhole El Mirage Road and Peoria Avenue, southeast corner Section 23, Township 3 North, Range 1 West
[illegible]	[illegible]	[illegible]
RM 2091	1,184.57	Maricopa County Highway Department brass cap flush with pavement at intersection of Litchfield Road and Greenway Road, southeast corner Section 4, Township 3 North, Range 1 West
RM 2092	1,164.59	Maricopa County Highway Department brass cap in handhole centerline intersection Dysart Road and Greenway Road, southeast corner Section 3, Township 3 North, Range 1 West
RM 2093	1,149.13	Iron pipe centerline intersection El Mirage Road and Greenway Road, southeast corner Section 2, Township 3 North, Range 1 West
RM 1001	1,139.67	Maricopa County Highway Department brass cap flush with pavement Litchfield Road and Cactus Road, southeast corner Section 16, Township 3 North, Range 1 West
RM 1002	1,123.17	5/8-inch iron bar in potholes Litchfield Road and Peoria Avenue, southeast corner Section 21, Township 3 North, Range 1 West
RM 1003	1,148.19	Chiseled square in top concrete headwall southeast corner of intersection of Dysart Road and Waddell Road, near southeast corner Section 10, Township 3 North, Range 1 West
RM 1004	1,135.50	City of El Mirage brass cap in handhole at intersection of El Mirage Road and Waddell Road, southeast corner Section 11, Township 3 North, Range 1 West
RM 1005	1,116.94	Maricopa County Highway Department brass cap in handhole El Mirage Road and Cactus Road, southeast corner Section 14, Township 3 North, Range 1 West

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

SEPTEMBER 4, 1991

DECEMBER 3, 1993

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

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N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1605 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1605	G
GLENDALE, CITY OF	040045	1605	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1605	G
SURPRISE, TOWN OF	040053	1605	G

ANNOTATED FIRMS

MAP NUMBER
04013C1605 G

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency
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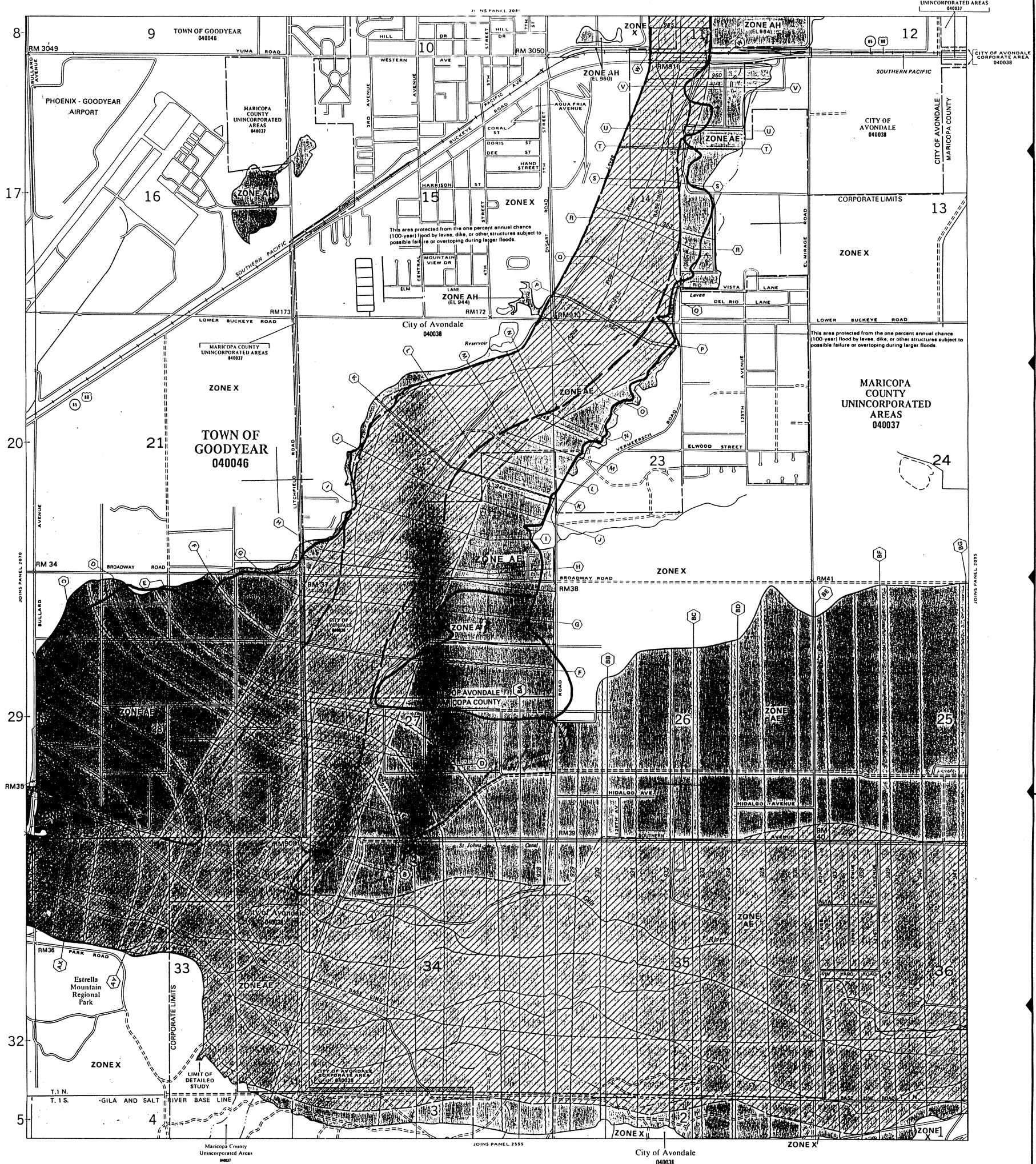

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM34	922.28	Top of pavement at centerline intersection of Bullard Avenue and Broadway Road.
RM35	918.63	U.S. Geological Survey brass cap in concrete cylinder 38 feet northwest of canal bridge; on west side of Bullard Avenue; 0.75 mile south of Broadway Road. Marked CANAL.
RM36	911.34	Top of pavement at centerline intersection of Bullard Avenue and Park Road.
RM37	928.91	U.S. Geological Survey brass cap in concrete cylinder 14 feet east of centerline of Litchfield Road extended approximately 150 feet south of Broadway Road. Marked 872.
RM38	934.72	U.S. Geological Survey brass cap in concrete cylinder of southwest corner of Dysart Road and Broadway Road. Marked 982.
RM39	929.36	Top of pavement at centerline intersection of Dysart Road and Southern Avenue.
RM40	935.19	Top of pavement at centerline intersection of El Mirage Road and Southern Avenue.
RM41	936.84	U.S. Geological Survey brass cap in concrete cylinder at northwest corner of Broadway Road and El Mirage Road. Marked H 995.
RM172	946.43	U.S. Army Corps of Engineers brass cap in south end of east curb at northeast corner of Lower Buckeye Road and 4th Street.
RM173	964.84	Brass cap in handhole at centerline intersection of Lower Buckeye and Litchfield Road.
RM908	916.83	U.S. Army Corps of Engineers brass cap on a 2" pipe at the intersection of Southern Avenue and Litchfield Road
RM909	927.45	Brass cap in parapet at northeast corner of Bullard Road bridge over Gila River
RM910	944.24	Cotton spindle flush with pavement at the intersection of lower Buckeye and Dysart Roads
RM911	973.58	Brass cap west end of Buckeye Road bridge over the Agua Fria River
RM 3049	977.19	Rod in concrete in handhole, Bullard Avenue and Yuma Road, southeast corner Section 8, Township 1 North, Range 1 West
RM 3050	965.70	Nail in concrete in handhole, Dysart Road and Western Avenue, Southeast corner section 10 T1N, R1W.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

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For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:
SEPTEMBER 4, 1991

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

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N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2090 OF 4350

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	2090	F
GOODYEAR, TOWN OF	040046	2090	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2090	F

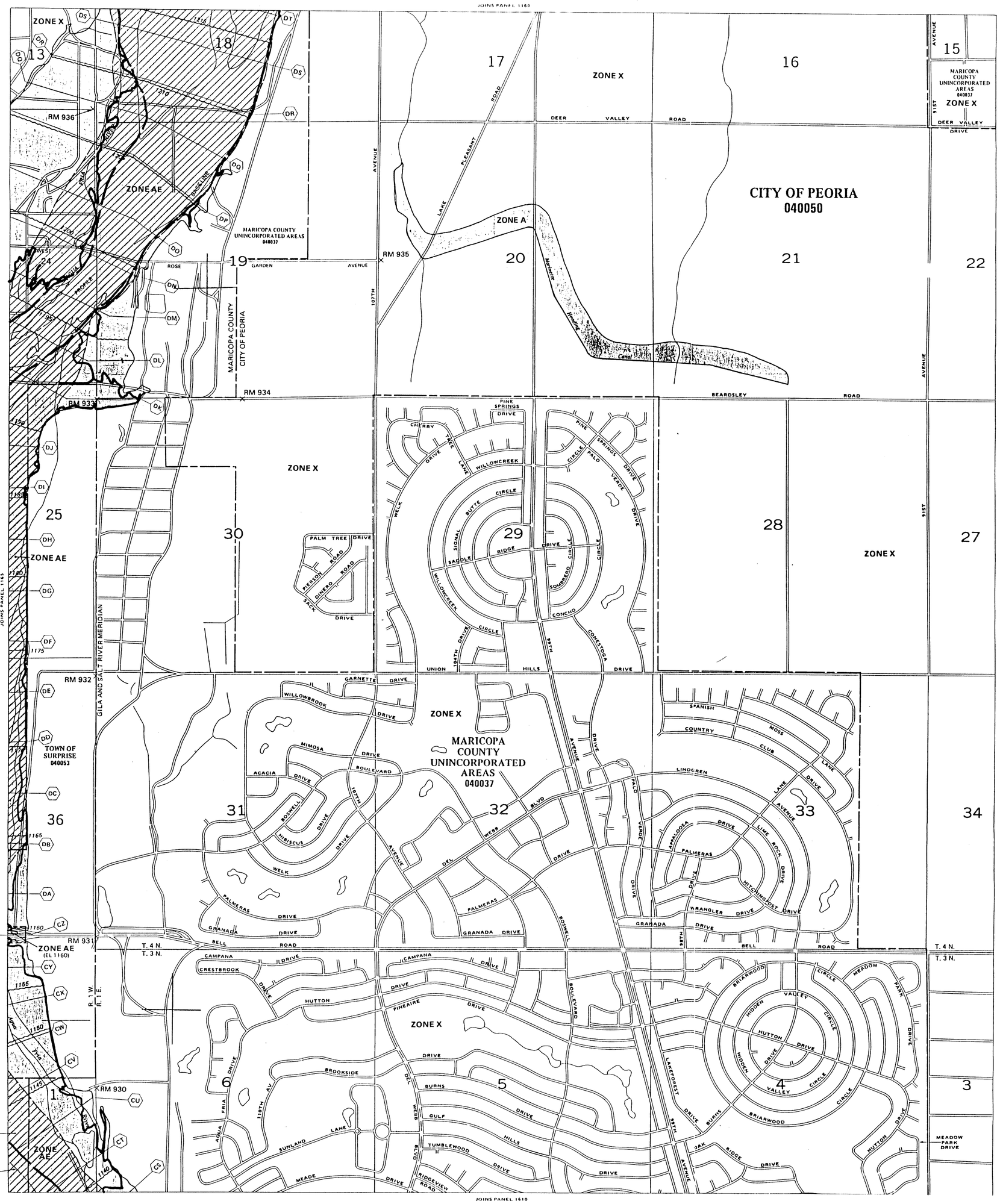
ANNOTATED FIRMS

MAP NUMBER
04013C2090 F

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 1 WEST AND TOWNSHIP 1 SOUTH, RANGE 1 WEST



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM930	1146.04	1.50" iron pin at east quarter corner of Section 1, T.3N., R1W
RM931	1163.03	Brass cap in handhole at the intersection of 115th Avenue and Bell Road
RM932	1173.46	5/8" rebar at the intersection of 115th Avenue and Union Hills Road
RM933	1189.78	Brass cap 0.4' above ground at the northwest corner of Section 30, T.4N., R1E
RM934	1221.86	Brass cap (City of Peoria) flush at the east quarter corner of Section 19, T.4N., R1E
RM935	1248.86	Brass cap (City of Peoria) flush at the west quarter corner of Section 19, T.4N., R1E
RM936	1266.57	1" iron pin at the southeast corner of Section 13, T.4N., R1W

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from other than flood sources, or flood hazards to structures from other than Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30, AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

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Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

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For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1170 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1170	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1170	F
PEORIA, CITY OF	040050	1170	F
SURPRISE, TOWN OF	040053	1170	F

ANNOTATED FIRMS

MAP NUMBER
04013C1170 F

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency
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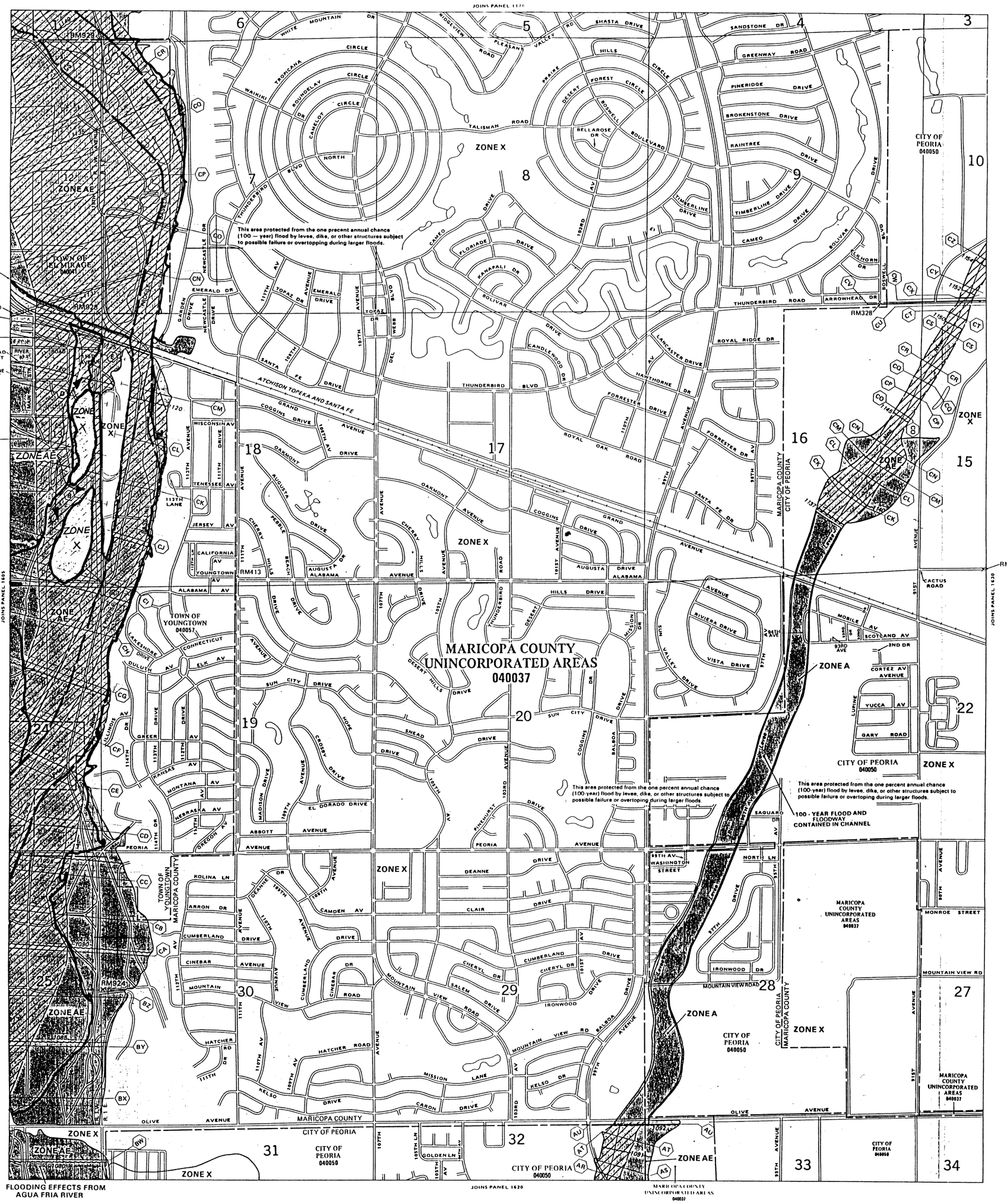


NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 3 NORTH, RANGE 1 EAST AND TOWNSHIP 3 NORTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM328	1,152.46	Top of pavement at centerline intersection of Thunderbird Road and Dysart Boulevard
RM329	1,132.27	Top of pavement at centerline of Cactus Road 0.25 mile east of 91st Avenue at the road mark
RM413	1,132.56	Elk road at centerline of intersection of 111th Avenue and Youngtown Avenue
RM924	1,087.36	Top of stone at the east quarter corner of Section 25, T.3N., R.1W.
RM925	1,105.61	12" rebar at the north end corner of Section 24, T.3N., R.1W.
RM926	1,121.11	Marked stone at south end corner of Section 12, T.3N., R1W.
RM927	1,132.22	12" rebar at northeast corner of Section 12, T.3N., R1W.
RM928	1,087.36	Top of stone at the east quarter corner of Section 25, T.3N., R.1W.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~513~~ — Base Flood Elevation Line; Elevation in Feet*

(D)——(D) — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1610 OF 4350

CONTAINS

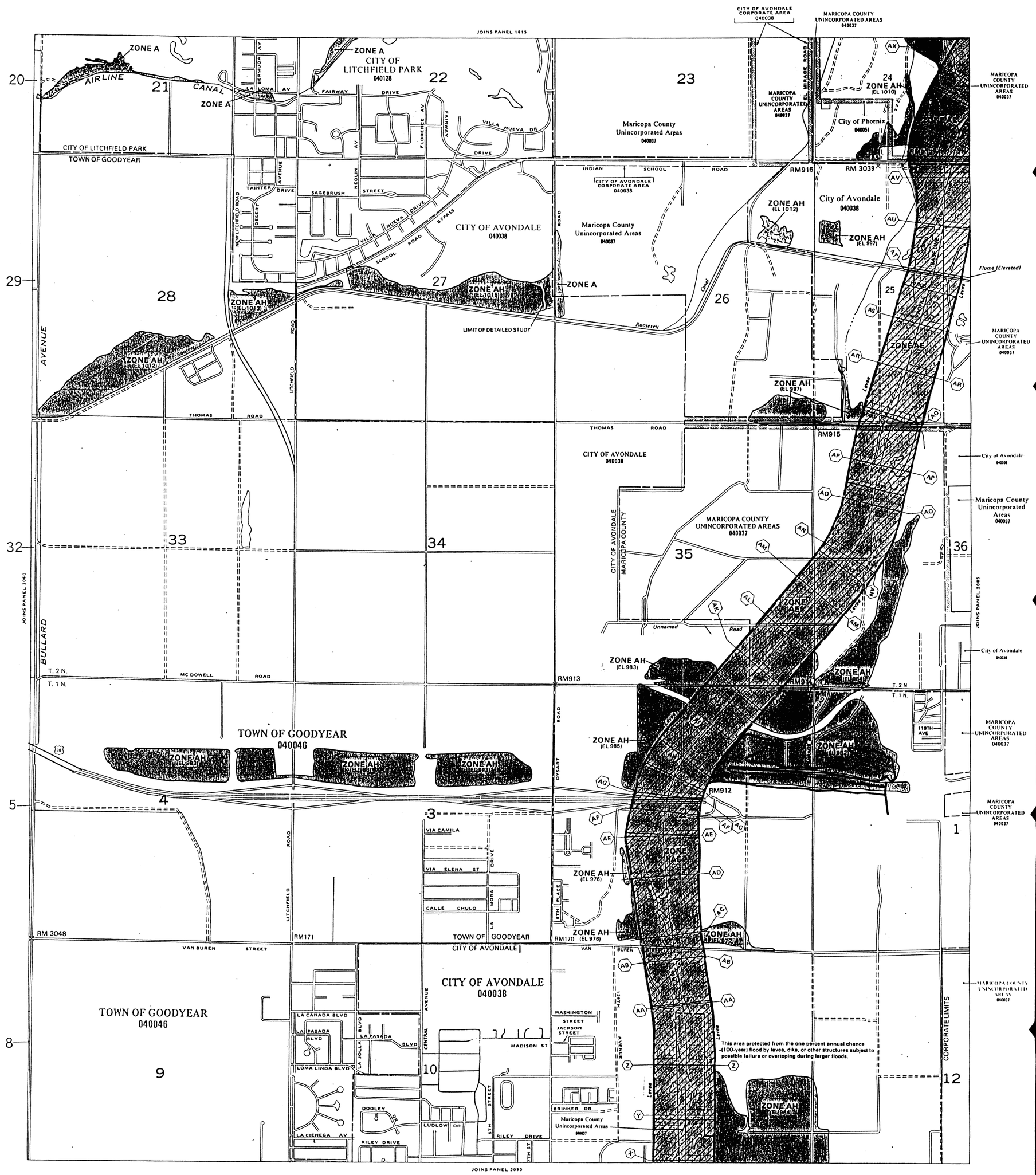
COMMUNITY	NUMBER	PANEL	SUFFIX
EL MIRAGE, TOWN OF	040041	1610	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1610	G
PEORIA, CITY OF	040050	1610	G
YOUNGTOWN, TOWN OF	040057	1610	G

ANNOTATED FIRMS

MAP NUMBER
04013C1610 G

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM170	982.95	Rim of handhole at centerline intersection of Dysart Road and Van Buren Street
RM171	980.42	Rim of handhole at centerline intersection of Van Buren Street and Litchfield Road
RM912	994.71	ADOT brass cap at northeast corner of Interstate Highway 10 bridge over the Agua Fria River
RM913	993.98	Brass cap in handhole at the intersection of McDowell and Dysart Roads
RM914	979.21	5/8" rebar flush with pavement at the intersection of McDowell and El Mirage Roads
RM915	995.24	1/50" iron pin at the intersection of Thomas and El Mirage Roads
RM916	1,016.03	Brass cap in handhole at the intersection of Indian School and El Mirage Roads
RM917	1,022.43	ADOT brass cap at southwest corner of Indian School Road bridge over the Agua Fria River
RM 3039	1,017.40	Maricopa County Highway Department brass cap flush with pavement quarter mile east of intersection of El Mirage Road and Indian School Road, approximately quarter mile east of southeast corner Section 23, Township 2 North, Range 1 West
	987.78	Half-inch iron pin in handhole, Bullard Avenue and Van Buren Street, southeast corner Section 5, Township 1 North, Range 1 West

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 1 WEST AND TOWNSHIP 2 NORTH, RANGE 1 WEST

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

SEPTEMBER 29, 1989

SEPTEMBER 4, 1991

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2080 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040039	2080	G
GOODYEAR, TOWN OF	040046	2080	G
LITCHFIELD PARK, CITY OF	040128	2080	G
MARICOPA COUNTY UNINCORPORATED AREAS	040037	2080	G
PHOENIX, CITY OF	040051	2080	G

ANNOTATED FIRMS

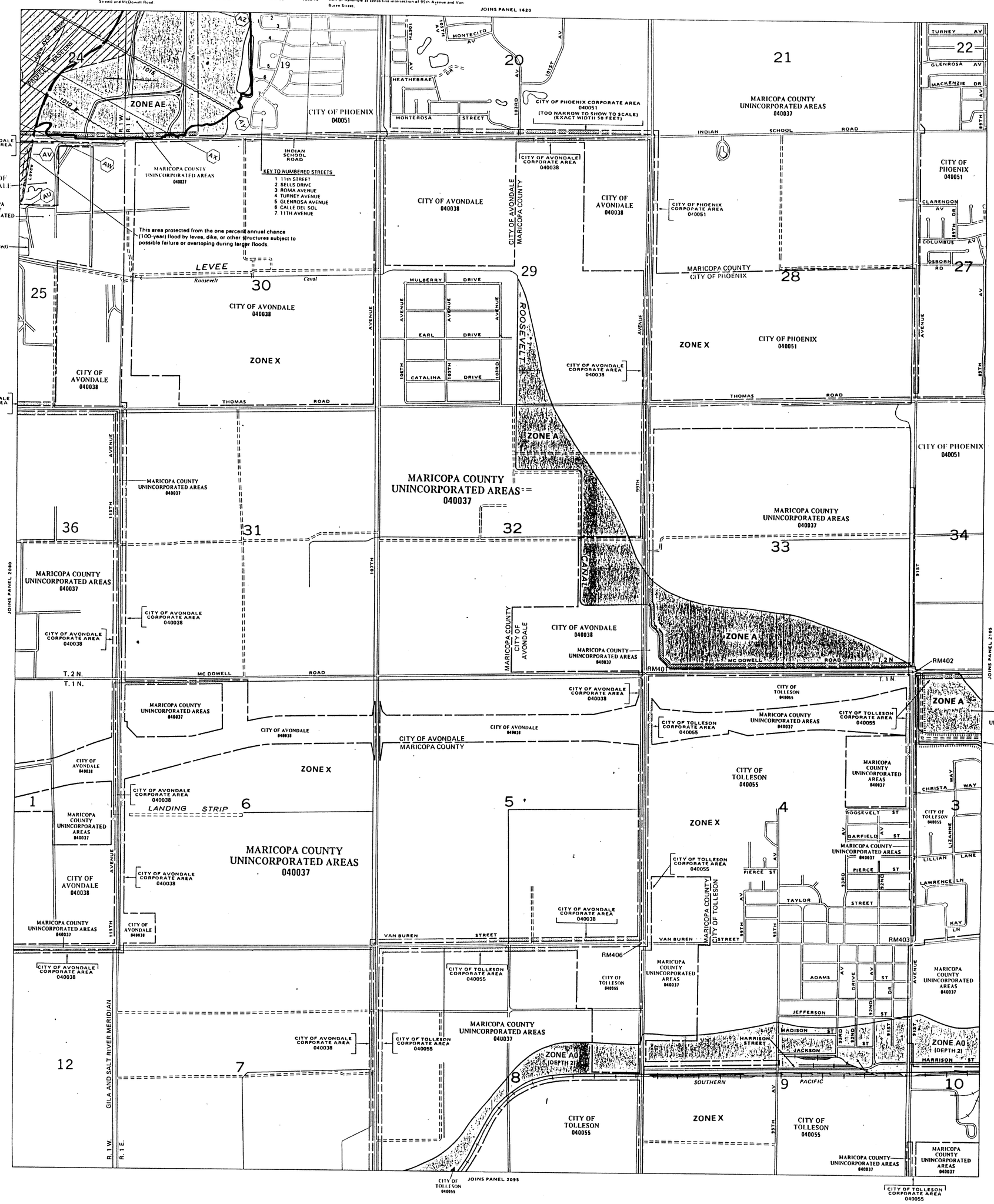
MAP NUMBER 04013C2080 G

MAP REVISED: SEPTEMBER 30, 1995

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM401	1021.03	Rim of handhole at centerline intersection of 99th Avenue and McDowell Road
RM402	1025.39	Rim of handhole at centerline intersection of 91st Avenue (Main Street) and McDowell Road
RM403	1014.82	Rim of handhole at centerline intersection of 91st Avenue (Main Street) and Van Buren Street
RM406	1008.13	Rim of handhole at centerline intersection of 99th Avenue and Van Buren Street



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 x Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100 year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of the map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2085 OF 4350

CONTAINS

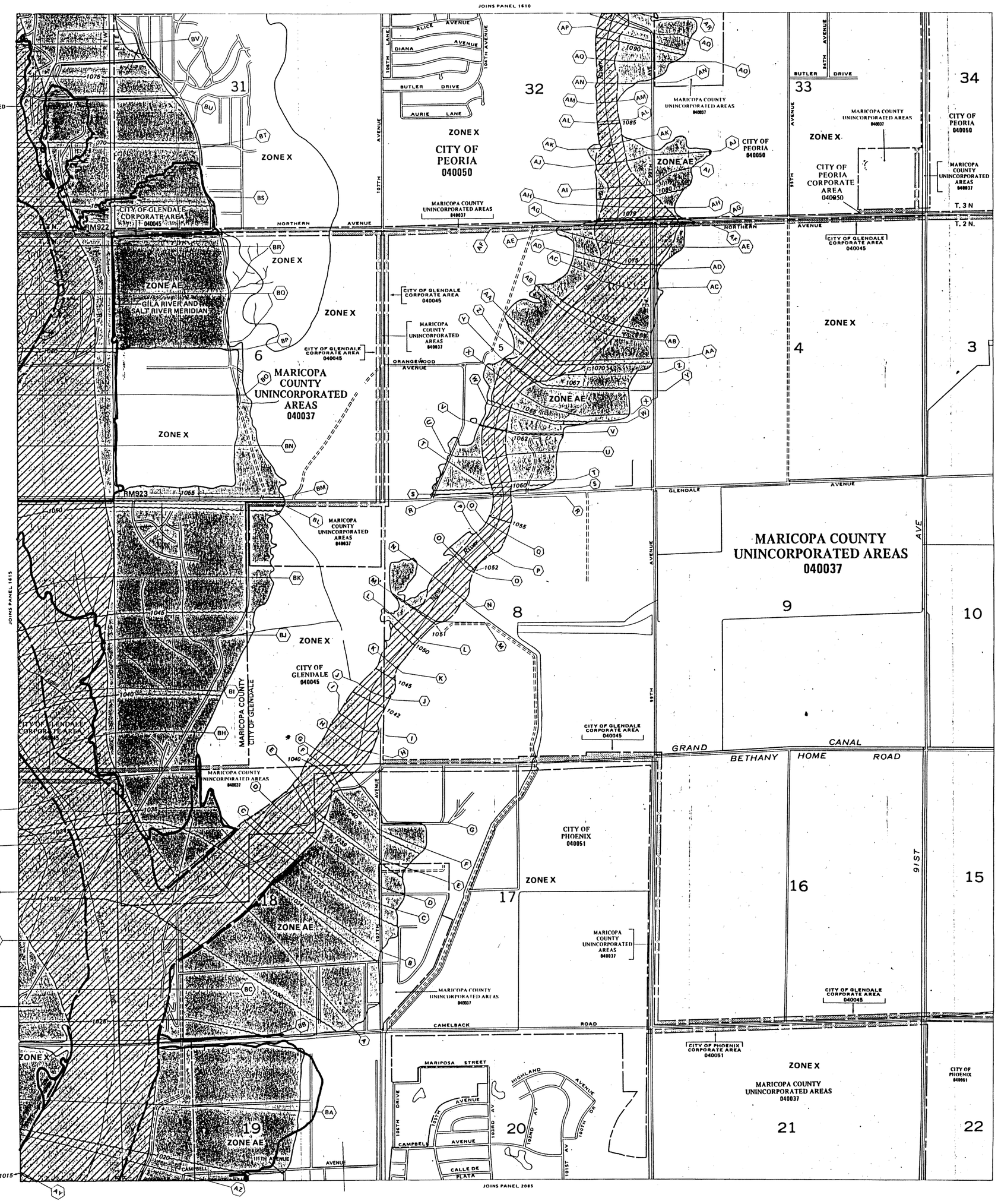
COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	2085	E
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2085	E
PHOENIX, CITY OF	040051	2085	E
TOLLESON, CITY OF	040055	2085	E

ANNOTATED FIRMS

MAP NUMBER
04013C2085E

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM922	1,064.70	Brass cap in handhole at the intersection of Northern and 115th Avenues
RM923	1,054.03	Brass cap in handhole at the intersection of Glendale and 115th Avenues

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ — Base Flood Elevation Line; Elevation in Feet*

(D)———(D) — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

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Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

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For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendment, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1620 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
GLENDALE, CITY OF	040045	1620	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1620	F
PEORIA, CITY OF	040050	1620	F
PHOENIX, CITY OF	040051	1620	F

ANNOTATED FIRMS

MAP NUMBER
04013C1620 F

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency
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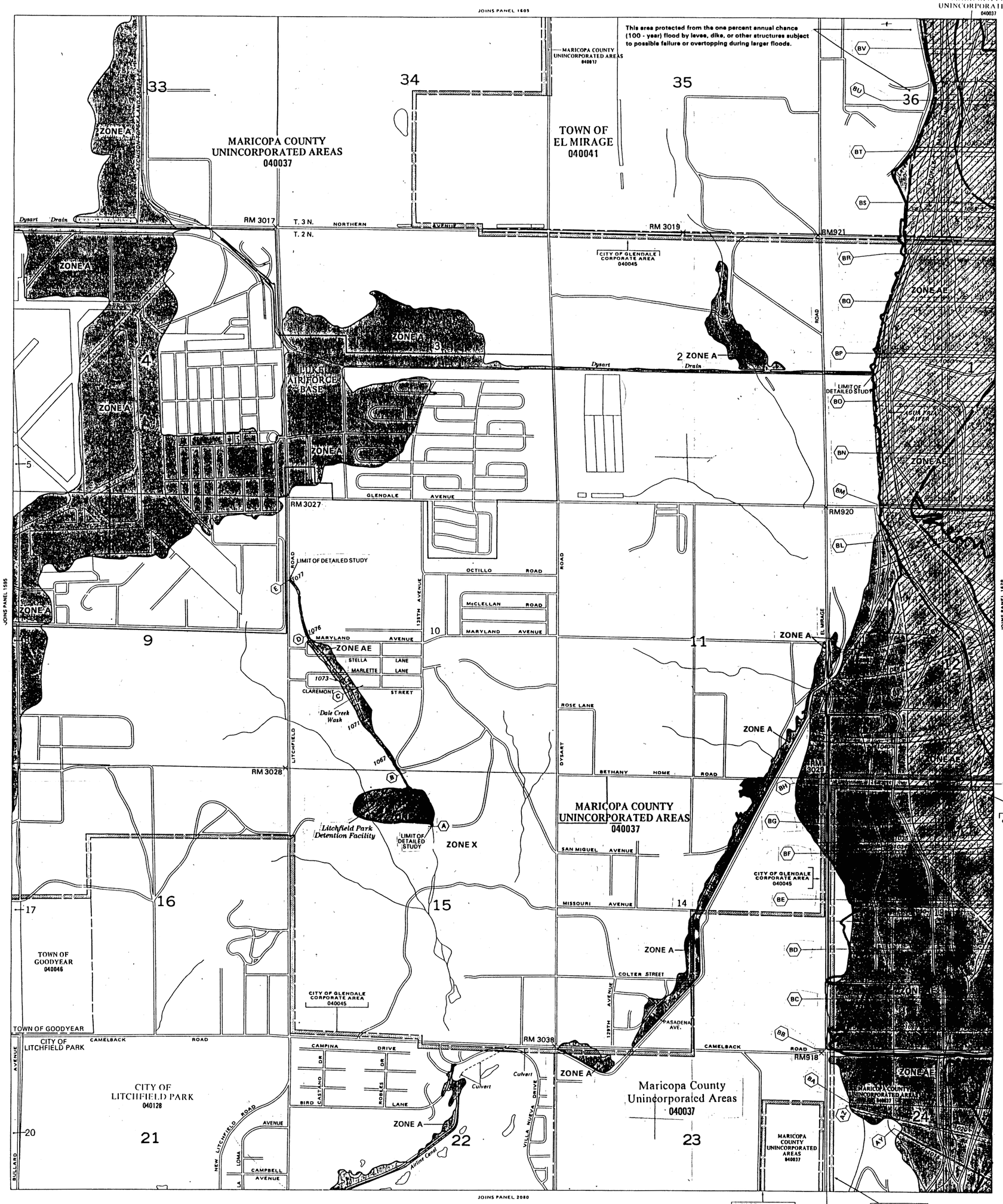

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 2 NORTH, RANGE 1 WEST AND TOWNSHIP 3 NORTH, RANGE 1 WEST

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM918	1,026.56	Brass cap in handhole at the intersection of Camelback and El Mirage Roads
RM920	1,063.68	Brass cap in handhole at the intersection of Glendale Avenue and El Mirage Road
RM921	1,088.09	Brass cap in handhole at the intersection of Northern Avenue and El Mirage Road
RM 3017	1,085.43	Maricopa County Highway Department brass cap in handhole, Litchfield Road and Northern Avenue, southeast corner Section 33, Township 3 North, Range 1 West
RM 3019	1,078.58	Brass cap in handhole on Northern Avenue 1/2 mile east of Dysart Road, southeast quarter corner Section 35, Township 3 North, Range 1 West
RM 3027	1,076.94	Maricopa County Highway Department brass cap in handhole, Litchfield Road and Glendale Avenue, southeast corner Section 4, Township 2 North, Range 1 West
RM 3028	1,077.50	Maricopa County Highway Department brass cap in handhole, Litchfield Road and Bethany Home Road, southeast corner Section 9, Township 2 North, Range 1 West
RM 3029	1,036.44	Half-inch iron pipe in pothole, El Mirage Road and Bethany Home Road, southeast corner Section 11, Township 2 North, Range 1 West
RM 3038	1,043.92	Maricopa County Highway Department brass cap flush with pavement, Dysart Road and Camelback Road, southeast corner Section 15, Township 2 North, Range 1 West

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet*

(D)——(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:
SEPTEMBER 29, 1989
SEPTEMBER 4, 1991
DECEMBER 3, 1993

Map revised SEPTEMBER 30, 1995 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add and update roads and road names, to reflect updated topographic information, to incorporate previously issued letters of map revision, and to incorporate previously issued letters of map amendment.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1615 OF 4350

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
AVONDALE, CITY OF	040038	1615	H
EL MIRAGE, TOWN OF	040041	1615	H
GLENDALE, CITY OF	040045	1615	H
GOODYEAR, TOWN OF	040046	1615	H
LITCHFIELD PARK, CITY OF	040128	1615	H
MARICOPA COUNTY UNINCORPORATED AREAS	040037	1615	H
PHOENIX, CITY OF	040051	1615	H

ANNOTATED FIRMS

MAP NUMBER
04013C1615 H

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency
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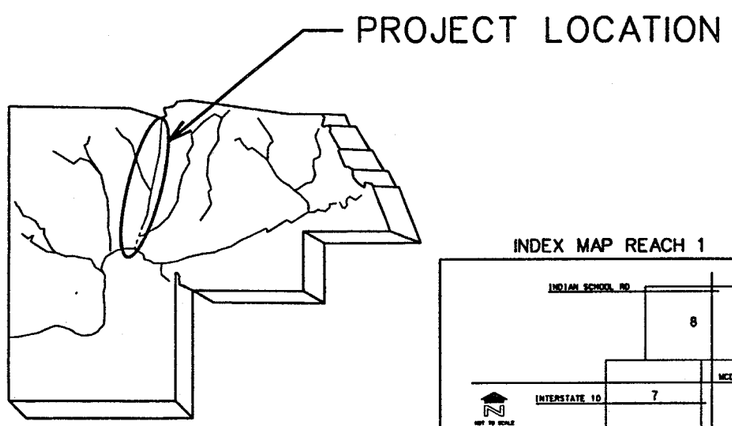
SECTION X

FLOODPLAIN DELINEATION MAPS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
AGUA FRIA RIVER FLOODPLAIN
DELINEATION RE-STUDY
BETWEEN THE GILA RIVER CONFLUENCE
AND THE NEW WADDELL DAM
FCDMC CONTRACT 95-05



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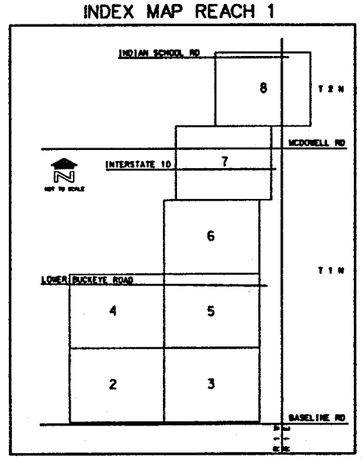

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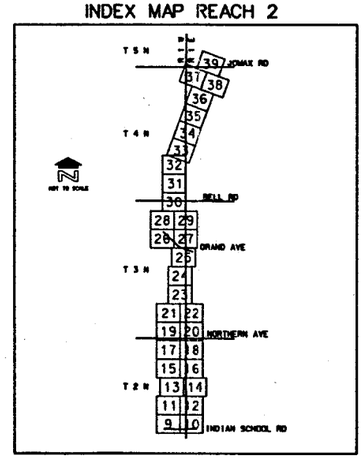
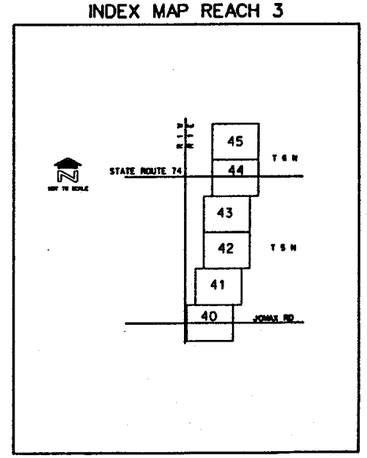
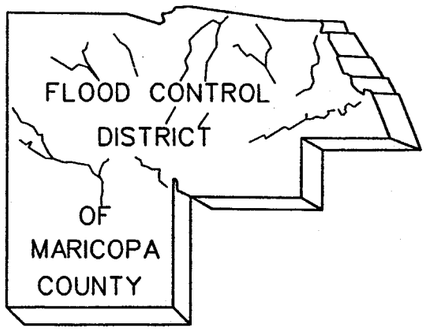


INDEX MAP REACH 3





REDUCED COPY (NOT TO SCALE)

REACH 2 TOPOGRAPHY

CVL	COE & VAN LOO CONSULTANTS, INC.	
DESIGN	BY DB	DATE 9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96
SUBMITTED BY: JACK K. MOODY P.E.	DATE: 9/96	

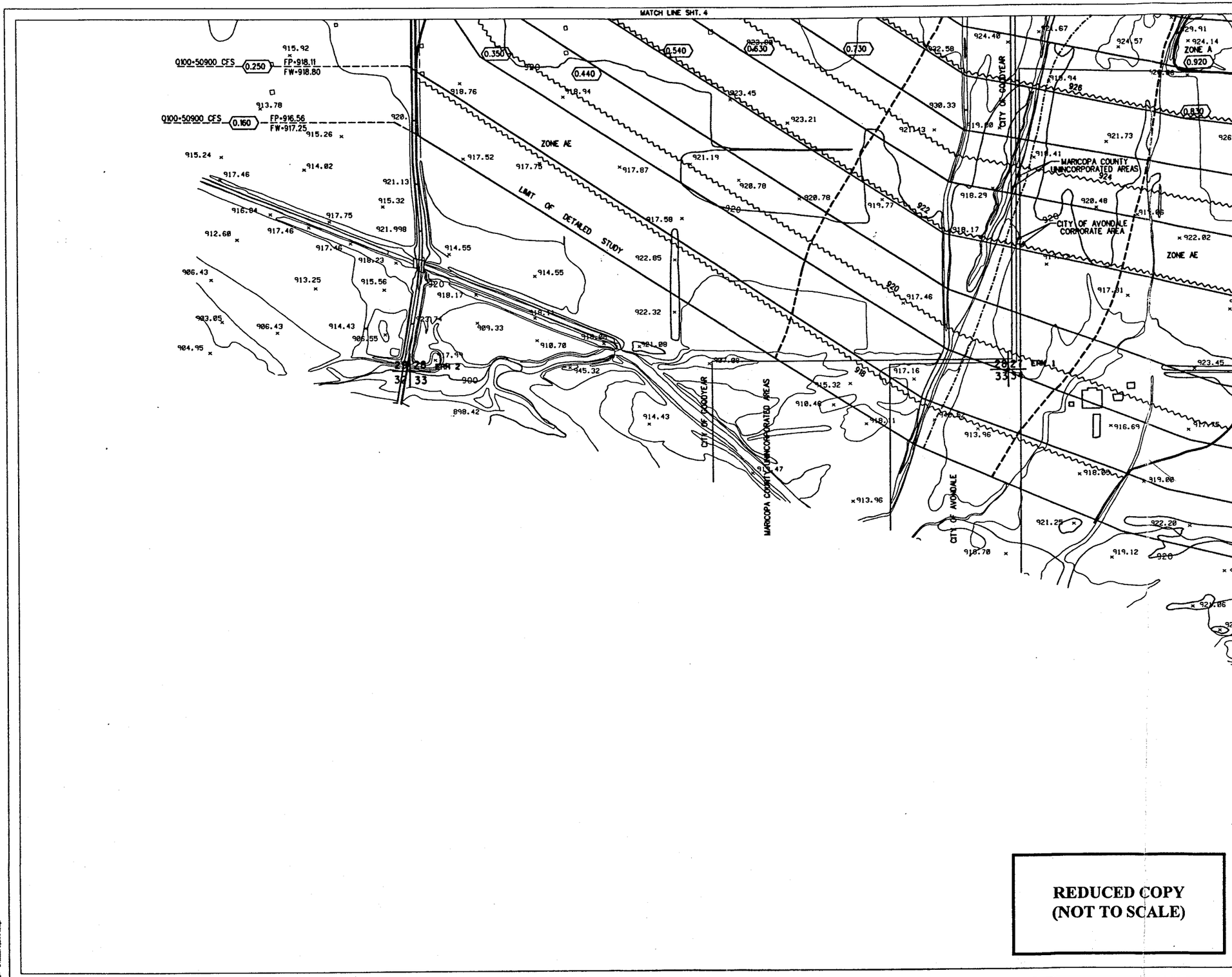
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 45



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

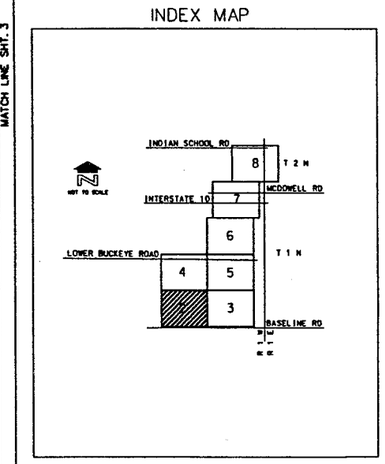
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 1	916.03	U.S. Army Corps of Engineers-brass cap on a 6" pipe at the intersection of Southern Ave. & Litchfield Rd.
ERM 2	927.45	Brass cap in parapet at Northeast corner of Bullard Rd. bridge over the Gila River

INDEX MAP



400 0' 400 800

SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

REDUCED COPY (NOT TO SCALE)

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

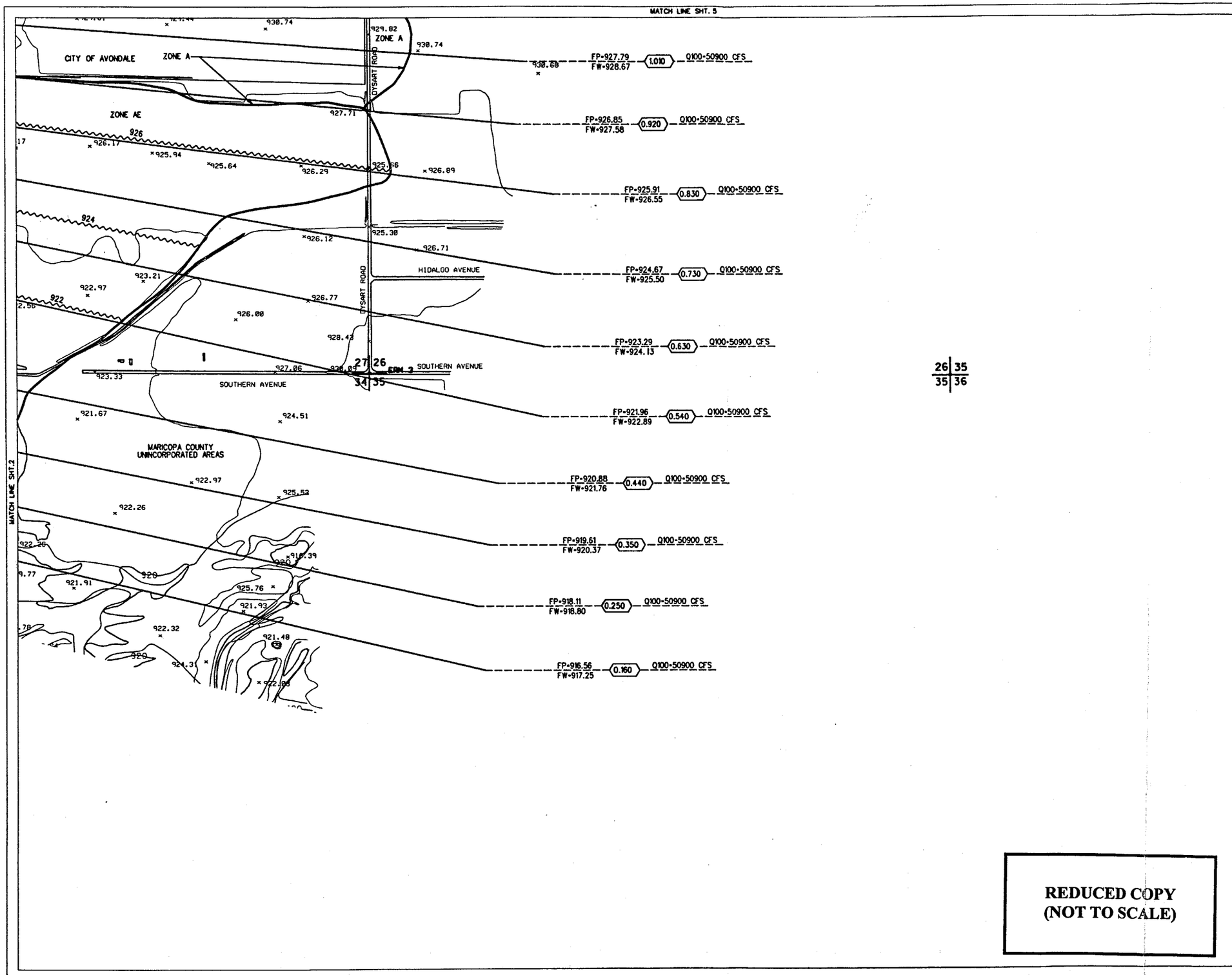
RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 2 OF 45

TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.



TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY B. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

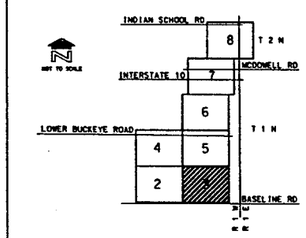
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 3	929.63	Brass cap in handhole at the intersection of Southern Ave. & Dysart Rd.

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 3 OF 45

DATE:- Oct. 22,
TIME:- 11:27:08
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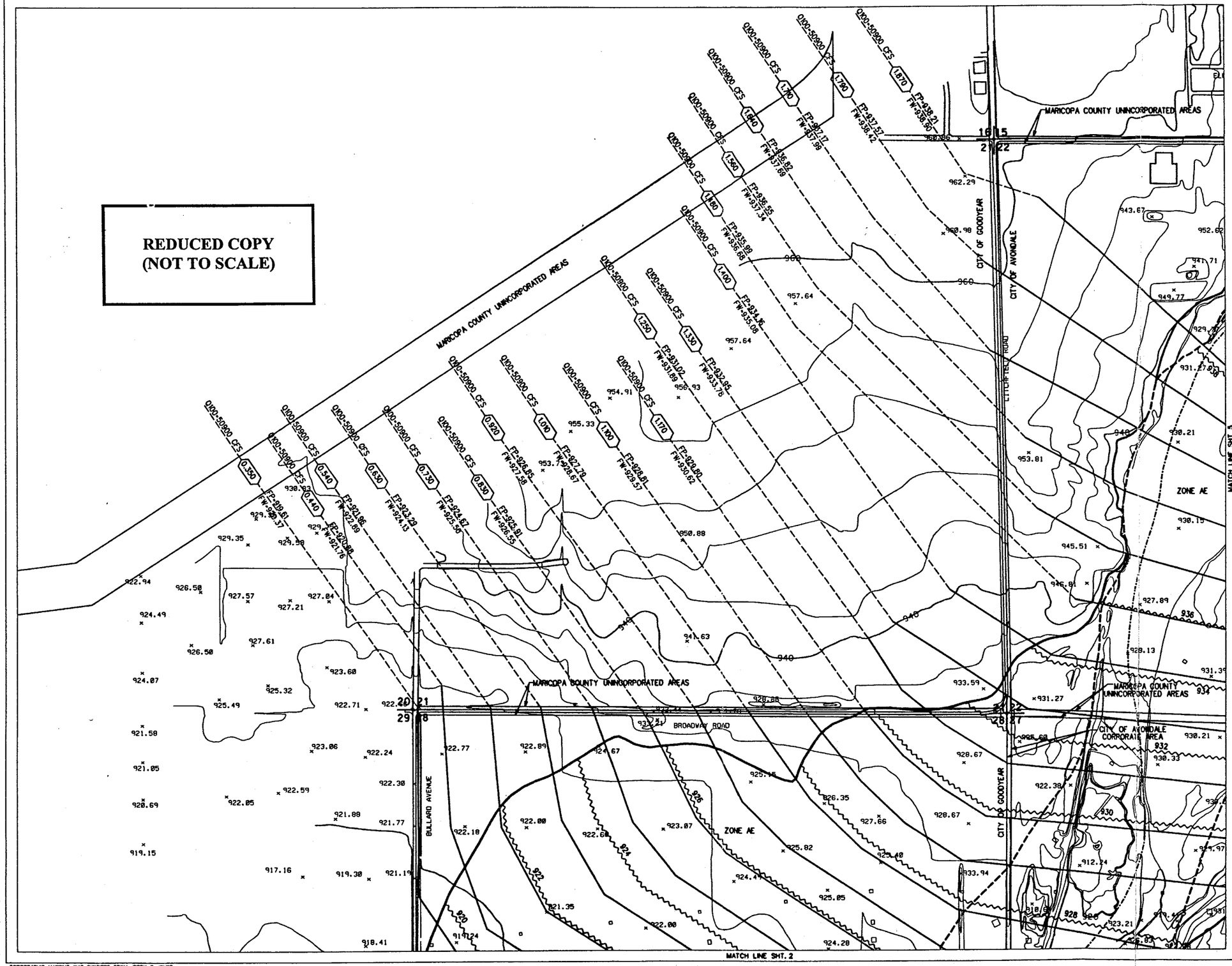


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

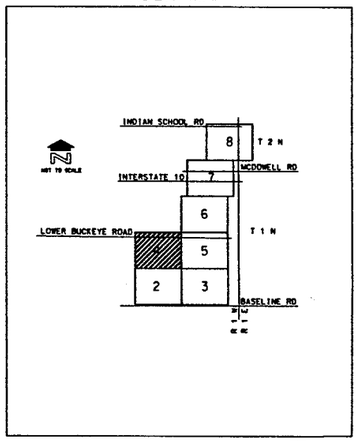
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 4	933.90	See sheet 3
ERM 5	944.24	See sheet 5

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

CYL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

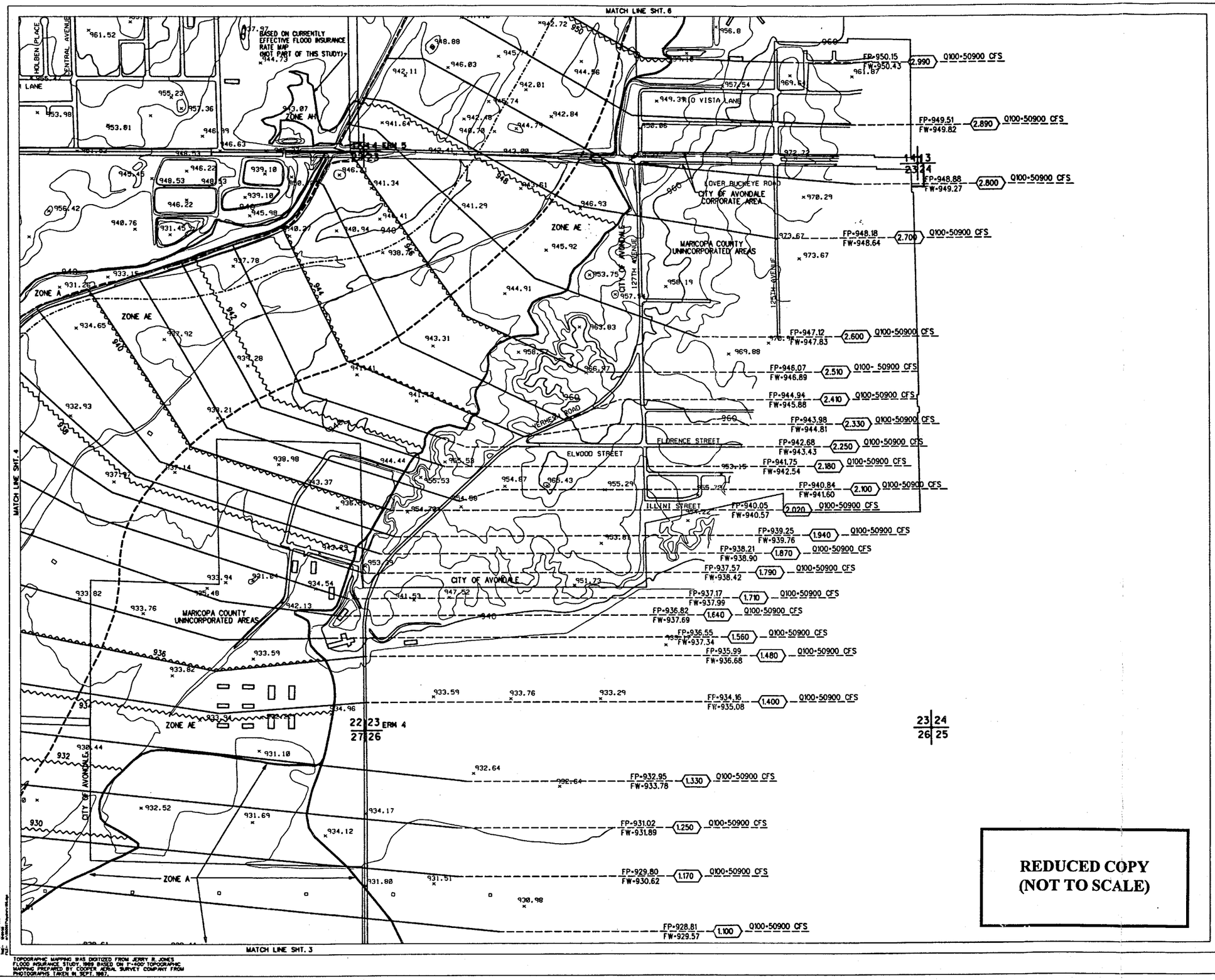
RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 4 OF 45

TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.



TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.

REDUCED COPY (NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

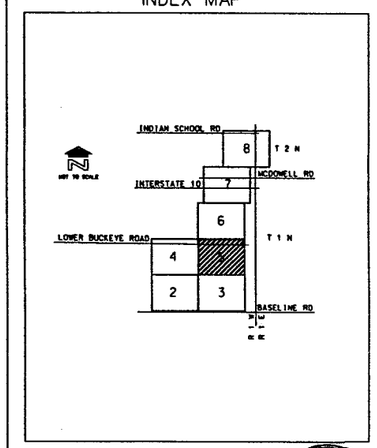
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 4	933.90	Brass cap in manhole at the intersection of Broadway Rd. and Dysart Rd.
ERM 5	944.24	Cotton spindle flush with pavement at the intersection of Lower Buckeye and Dysart Roads

INDEX MAP



22208 JACK K. MOODY ARIZONA

400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

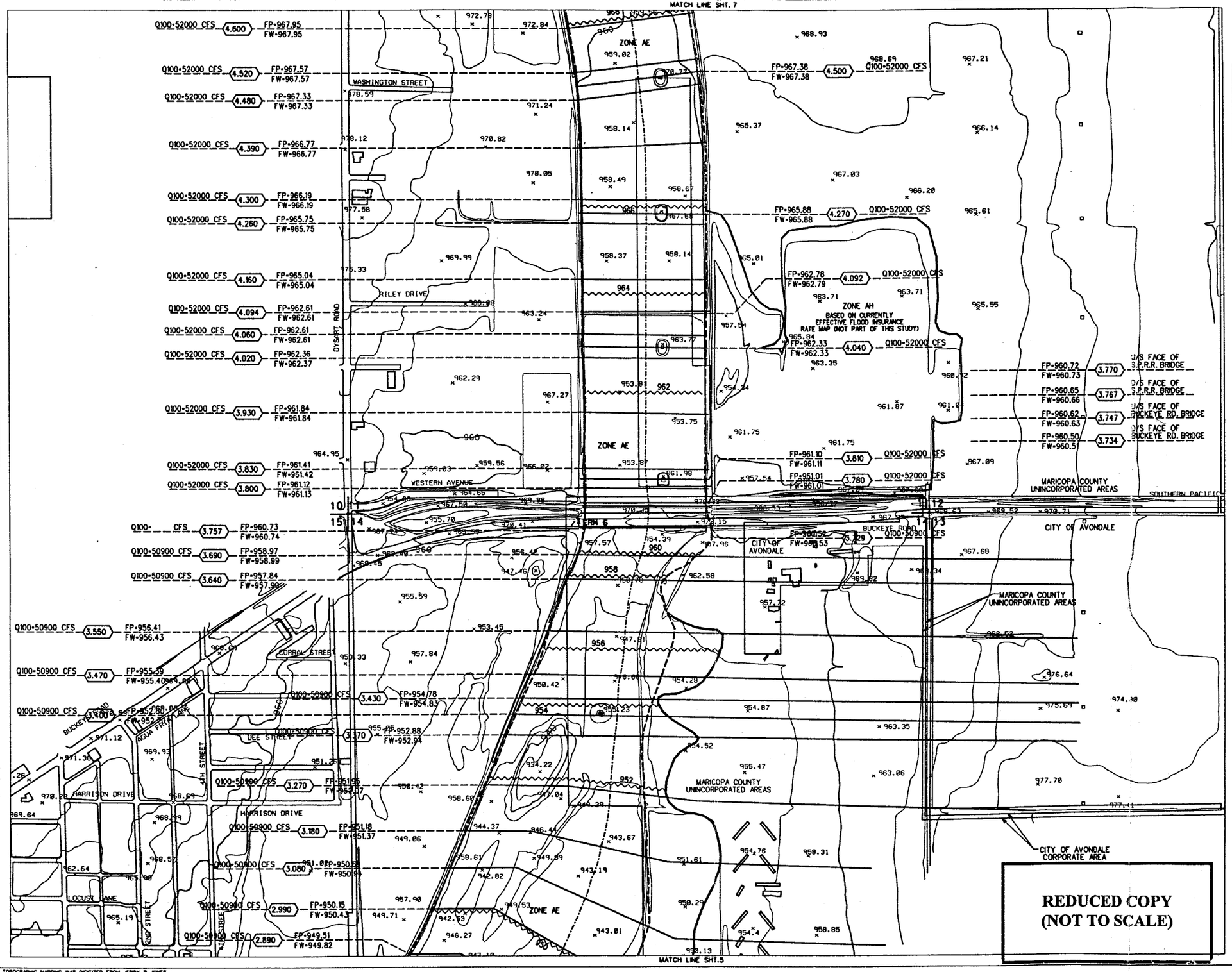
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 5 OF 45



TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

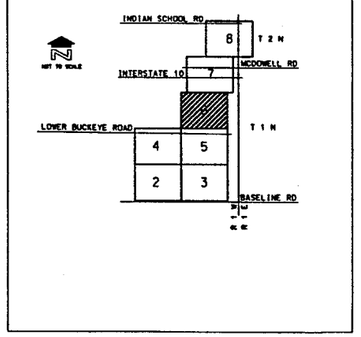
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 6	973.98	Brass cap West end of Buckeye Rd. bridge over Agua Fria River

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

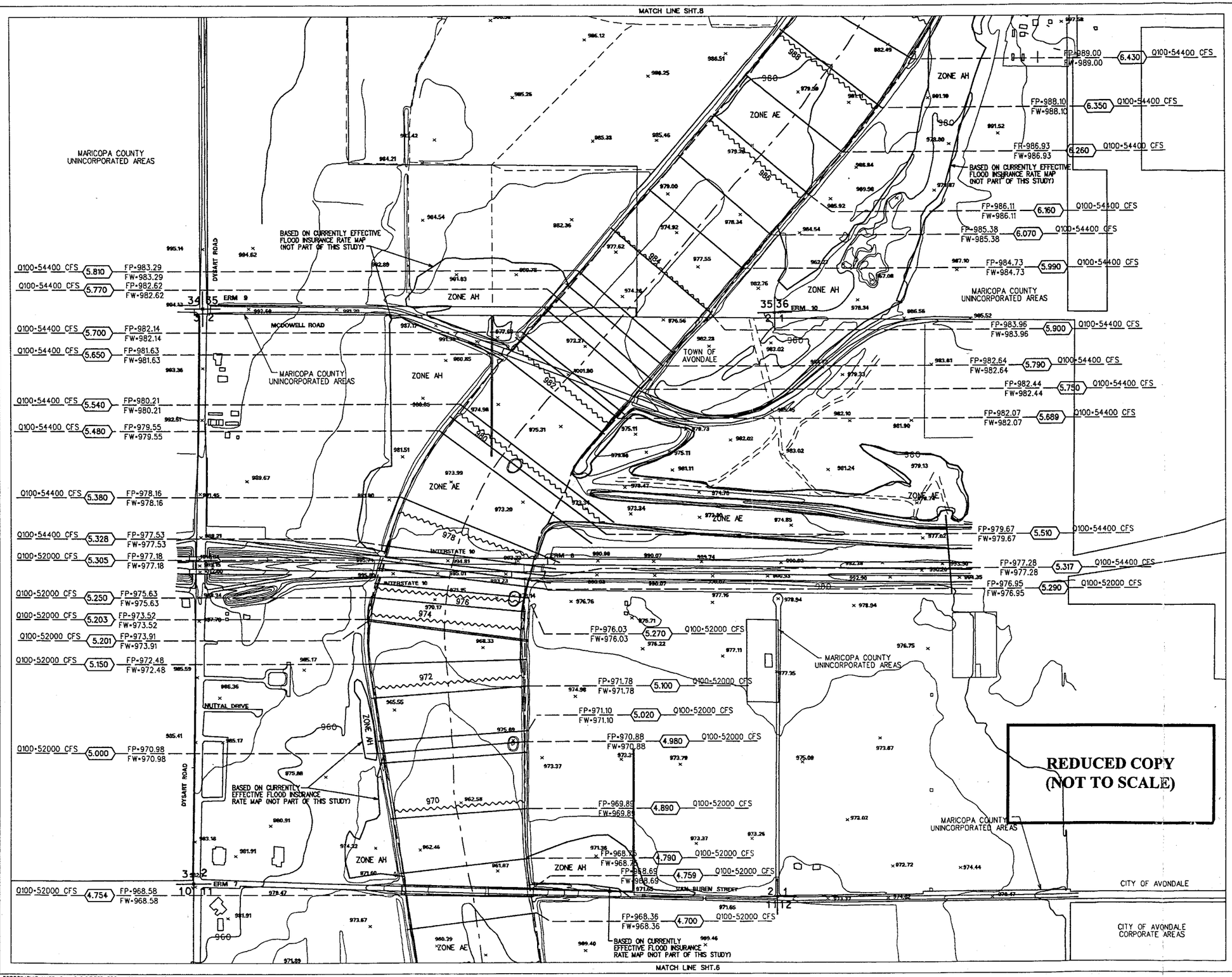
SUBMITTED BY:
Jack K. Moody, P.E. DATE: 9/96

SHEET 6 OF 45

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5



TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM

LEGEND

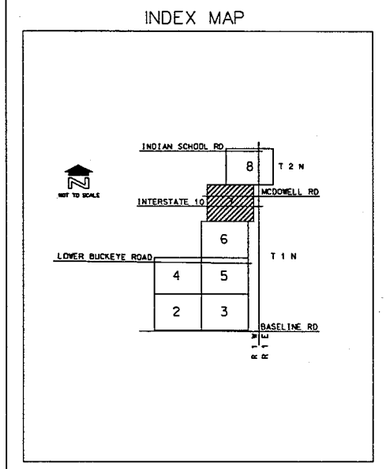
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 7	962.19	½" rebar in handhole at the intersection of Van Buren St. & Dysart Rd.
ERM 8	994.71	A.D.O.T. Brass cap at Northeast corner of Interstate Highway 10 bridge over the Agua Fria River
ERM 9	993.58	Brass cap in handhole at the intersection of McDowell & Dysart Rd.
ERM 10	975.21	¾" rebar flush with pavement at the intersection of McDowell & El Mirage Roads

INDEX MAP



400 0' 400 800

SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

CYL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

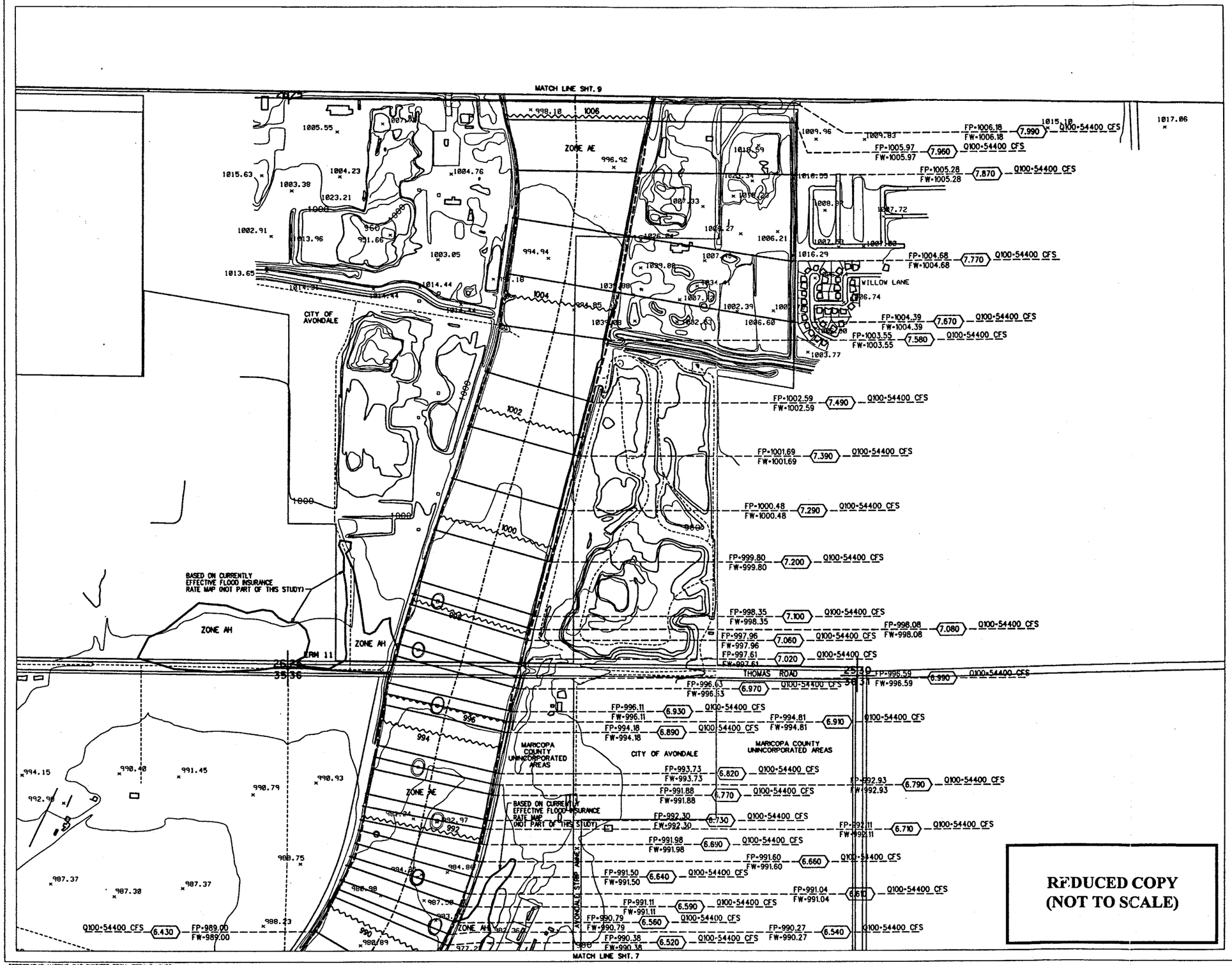
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 7 OF 45



TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

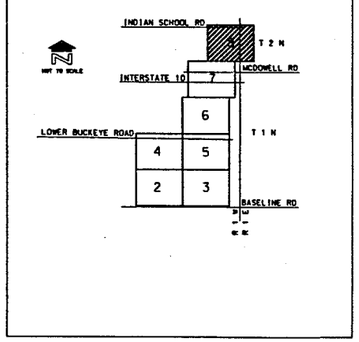
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 11	995.24	1½" iron pin at the intersection of Thomas & El Mirage Roads.
ERM 12	106.05 (105.3 per 1995 survey)	See sheet 9

INDEX MAP



22209 JACK K. MOODY ARIZONA U.S.A.

400 0' 400 800

SCALE: 1" = 400'
CONTOUR INTERVAL - 4 FEET

CYL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

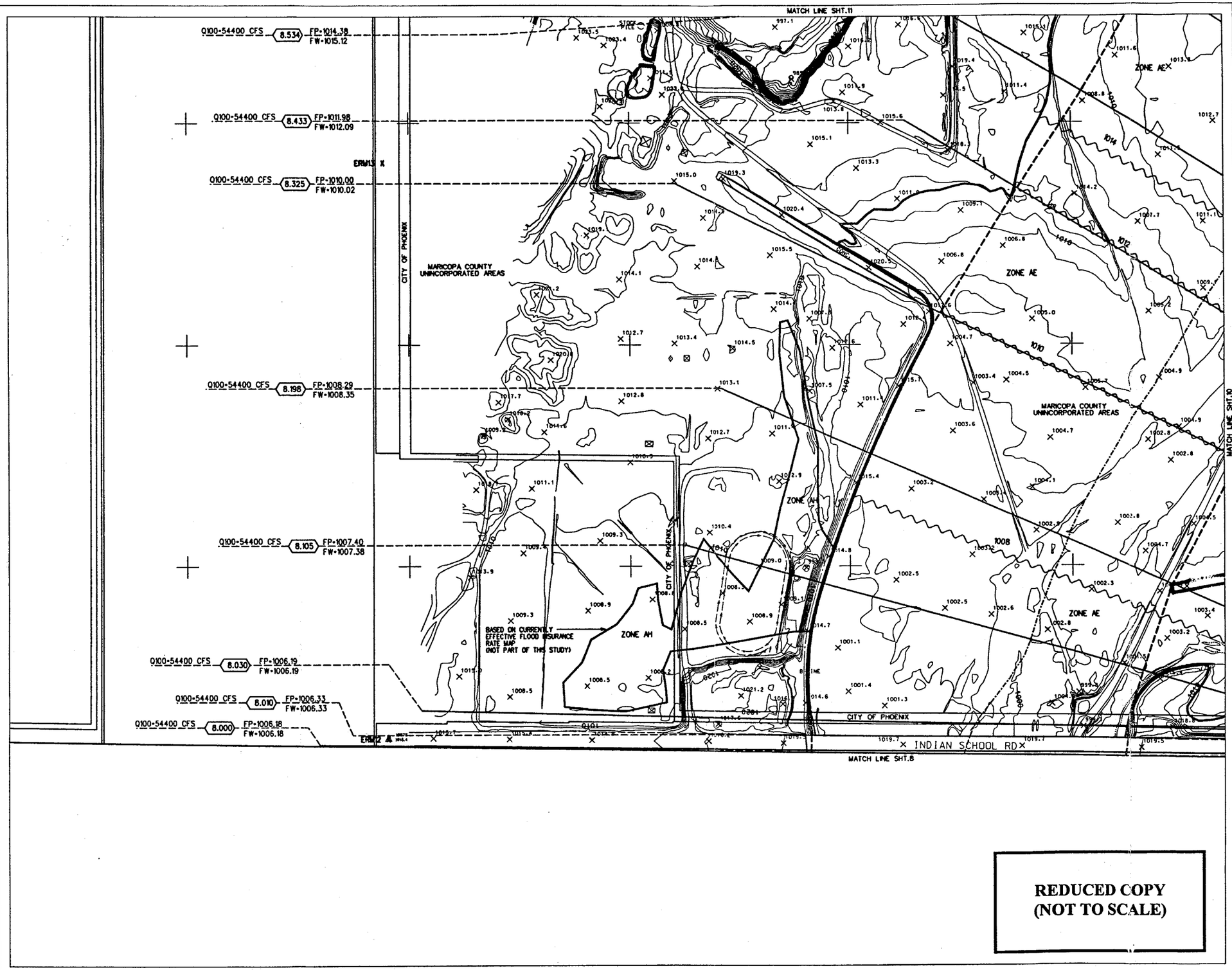
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 8 OF 45



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
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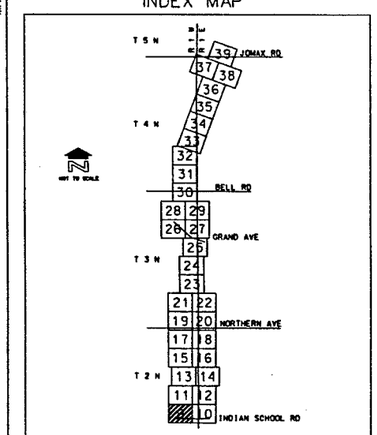
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 12	1016.04 (1016.3 per 1987 survey)	Brass Cap in hand hole at the intersection of Indian School and El Mirage Rd.
ERM 13	1025.30	Brass Cap in hand hole at the Centerline of El Mirage Rd. and projection of Campbell Ave.

INDEX MAP



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

REDUCED COPY (NOT TO SCALE)

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

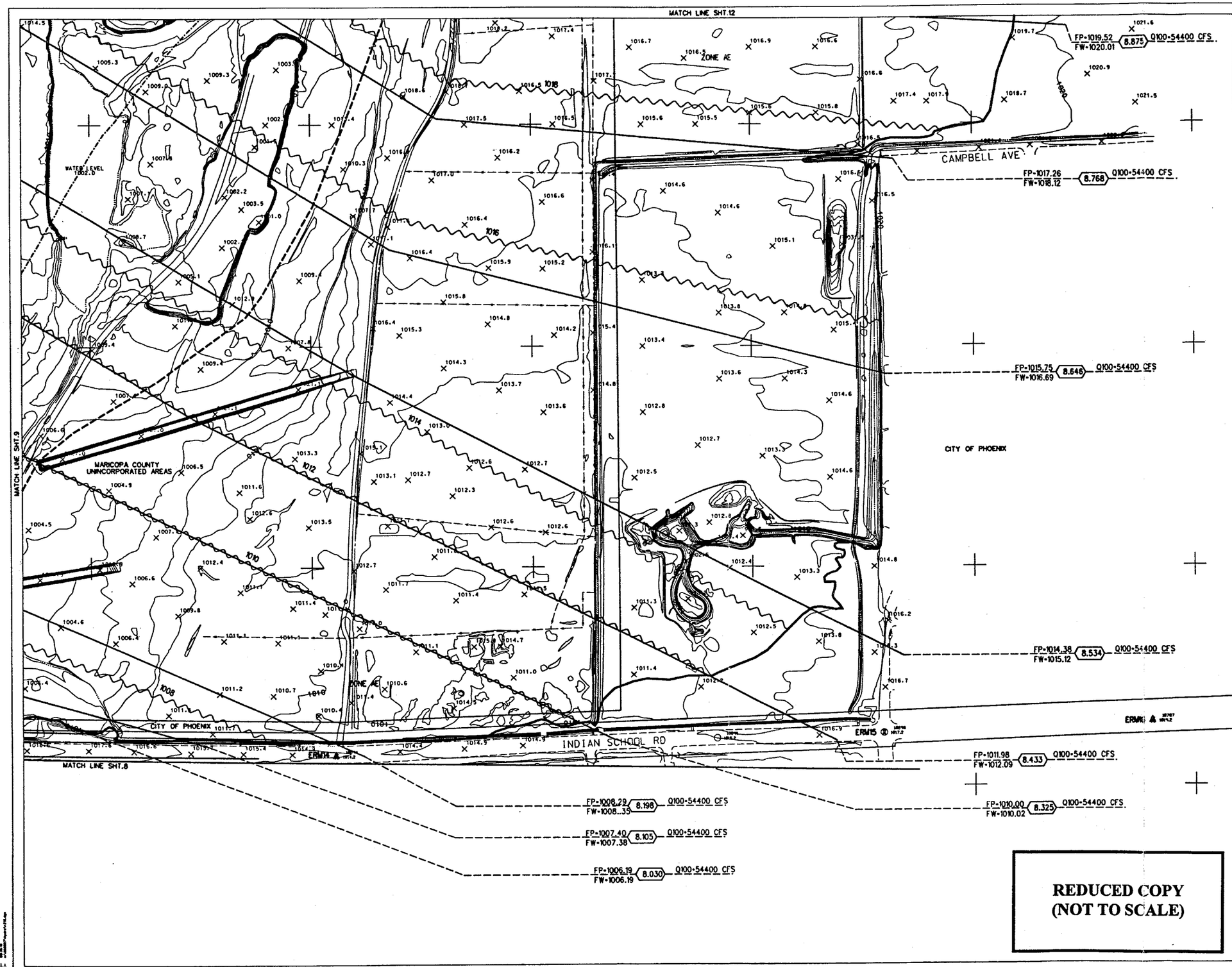
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 9 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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 AERIAL MAPPING COMPANY, INC.



REDUCED COPY (NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

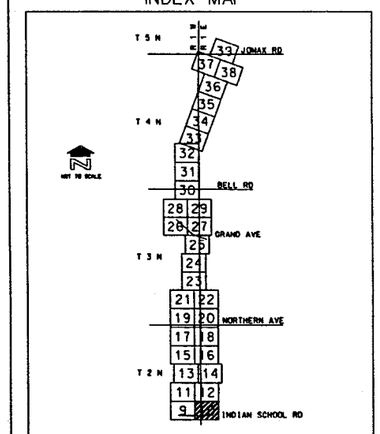
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 14	1014.11	Brass Cap at the intersection of 115th Ave. and Indian School Rd.
ERM 15	1017.25	Brass Cap in hand hole at the intersection of 111th Ave. and Indian School Rd.
ERM 16	1019.10	Cotton picker spindle at the centerline of Indian School Rd. in line to the south-eastern East wall of Salt River Project substation.

INDEX MAP



200 0' 200 400

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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

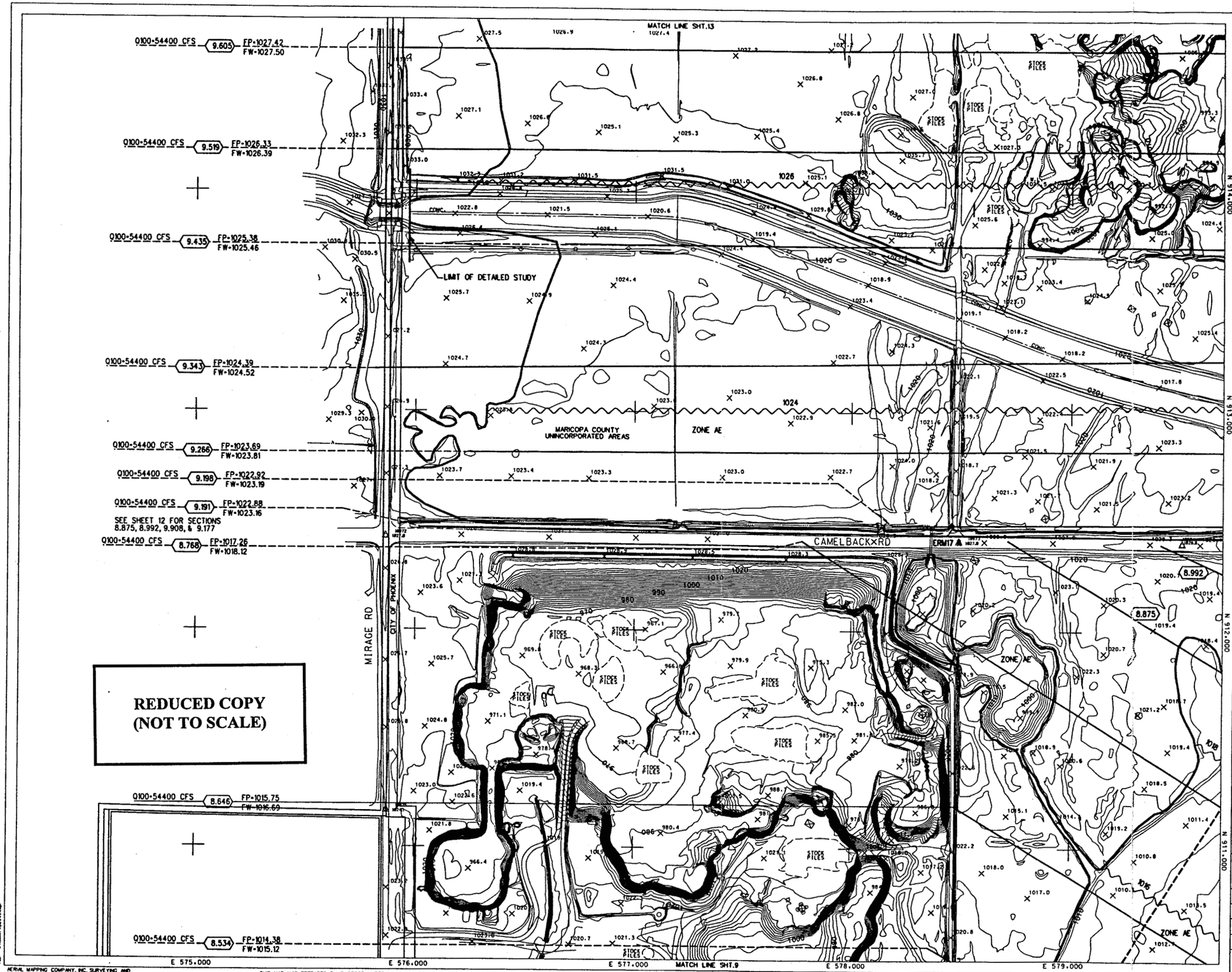
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 10 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

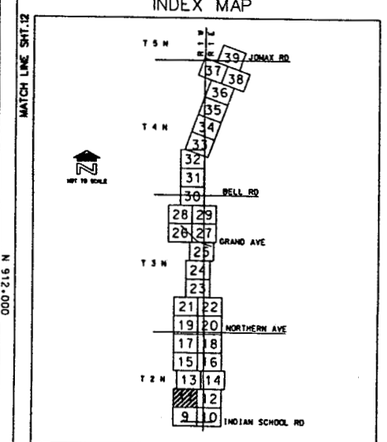
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

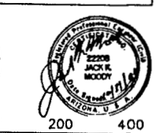
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 13	1025.30	See sheet 9
ERM 17	1026.30	Brass cap in hand hole at the intersection of 119th Ave. and Camelback Rd.

INDEX MAP





200 0' 200 400

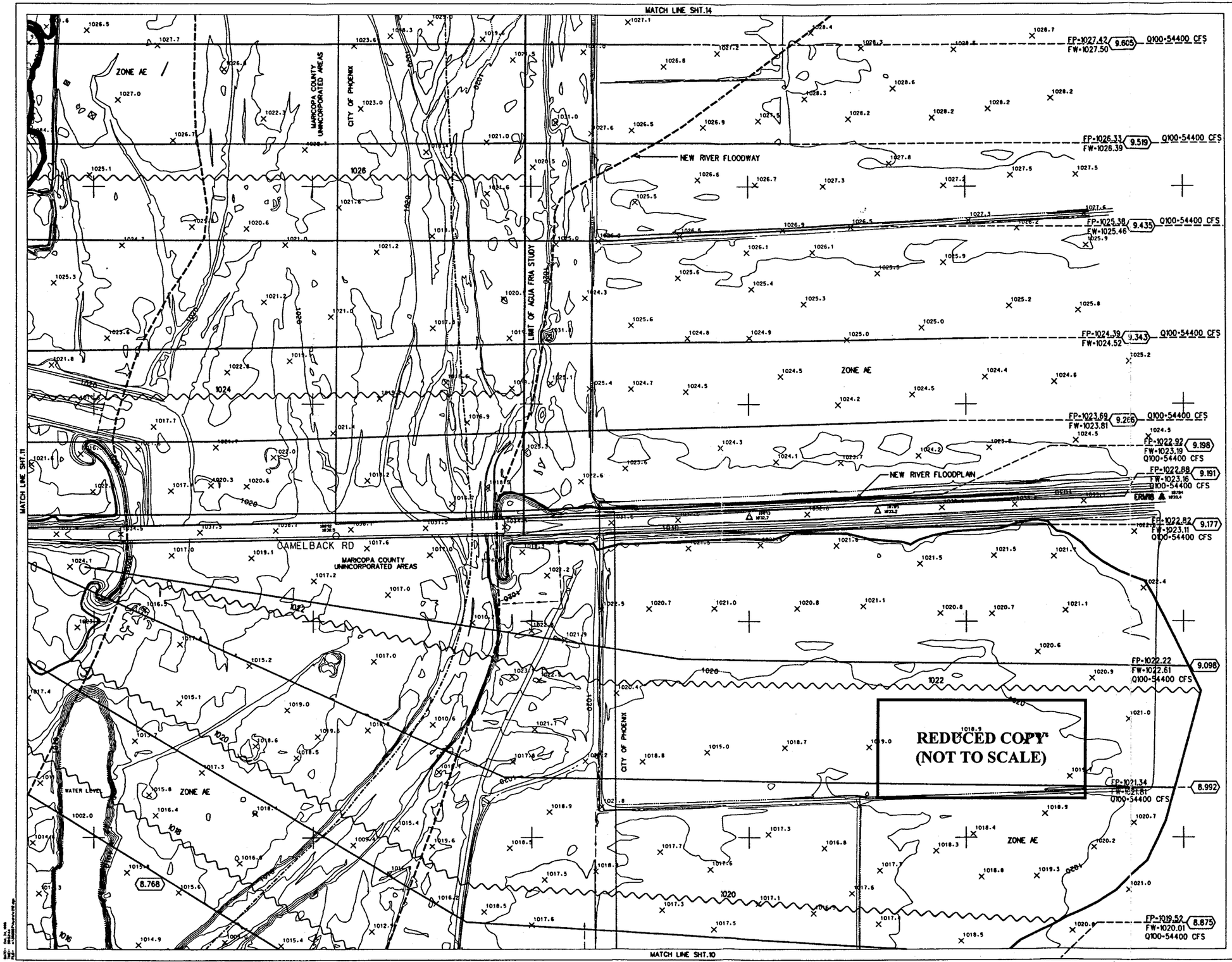
SCALE: 1" = 200'

CONTOUR INTERVAL = 2 FEET

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE	
DESIGN	DB	9/96	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	JM	9/96	
PLANS	PE/KR	9/96	RECOMMENDED BY: DATE
PLANS CHK.	JM	9/96	APPROVED BY: DATE
SUBMITTED BY: Jack K. Moody, P.E.		DATE: 9/96	CHIEF ENGINEER AND GENERAL MANAGER

SHEET 11 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

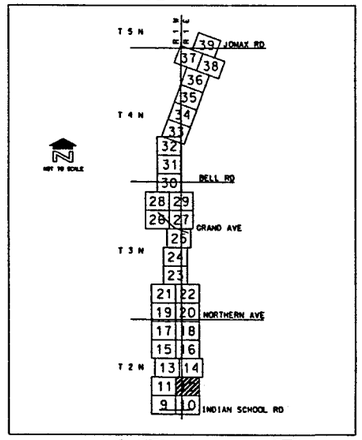
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 15	1017.26	See sheet 10
ERM 18	1033.41	Cotton picker spindle at the centerline of Camelback at approximately 109th Ave.

INDEX MAP



REGISTERED PROFESSIONAL ENGINEER 21890 RICHARD B. COOK ARIZONA, U.S.A.

REGISTERED PROFESSIONAL ENGINEER 22208 JACK K. MOODY ARIZONA, U.S.A.

200 0' 200 400

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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

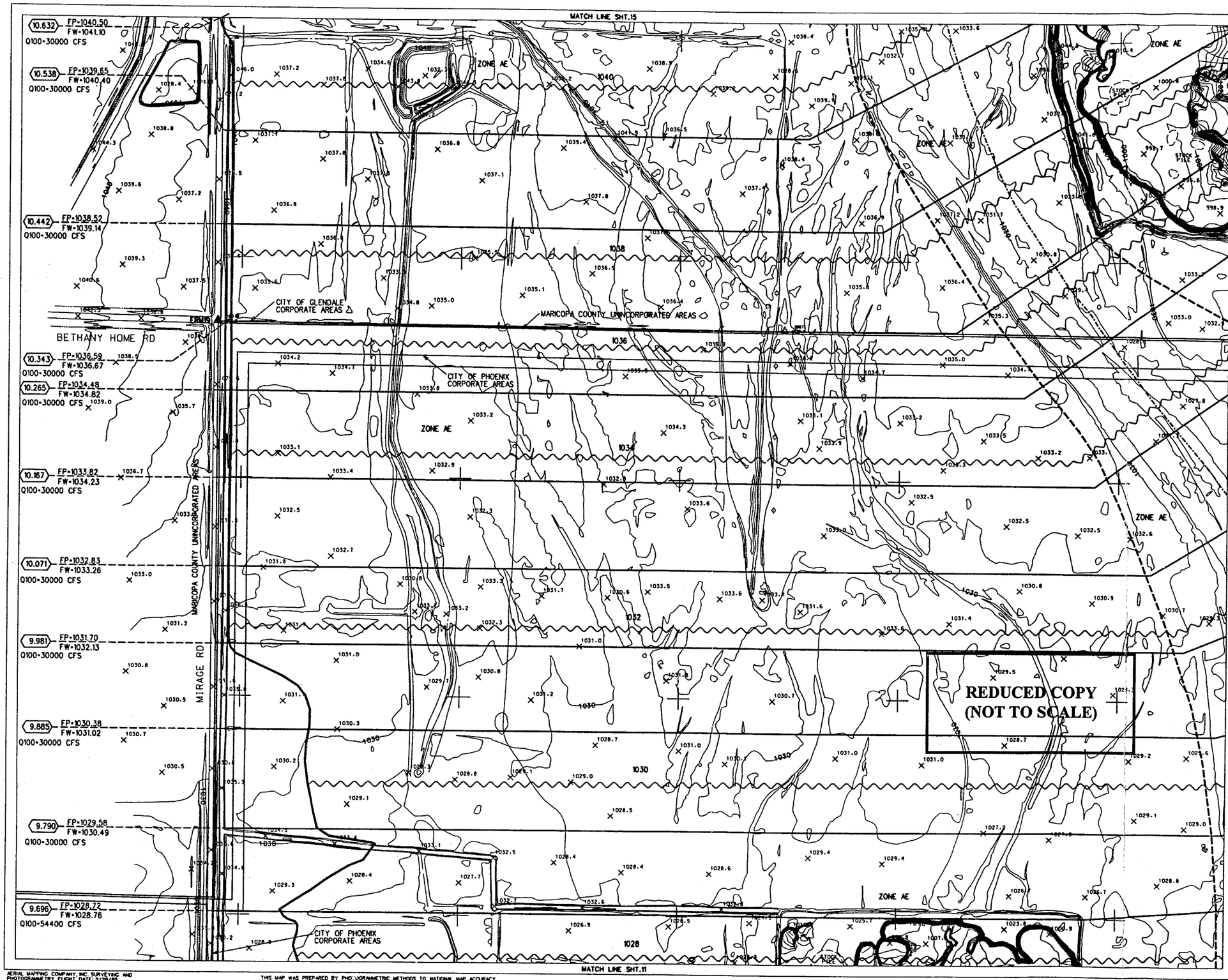
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 12 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

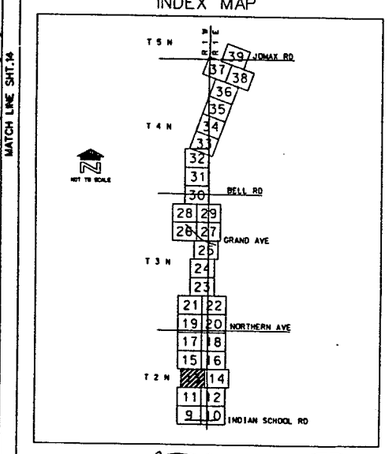
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 19	1036.30	Pipe set in concrete at the intersection of Bethany Home Rd. and El Mirage Rd.
ERM 20	1042.95	See sheet 14

INDEX MAP



200 0' 200 400

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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

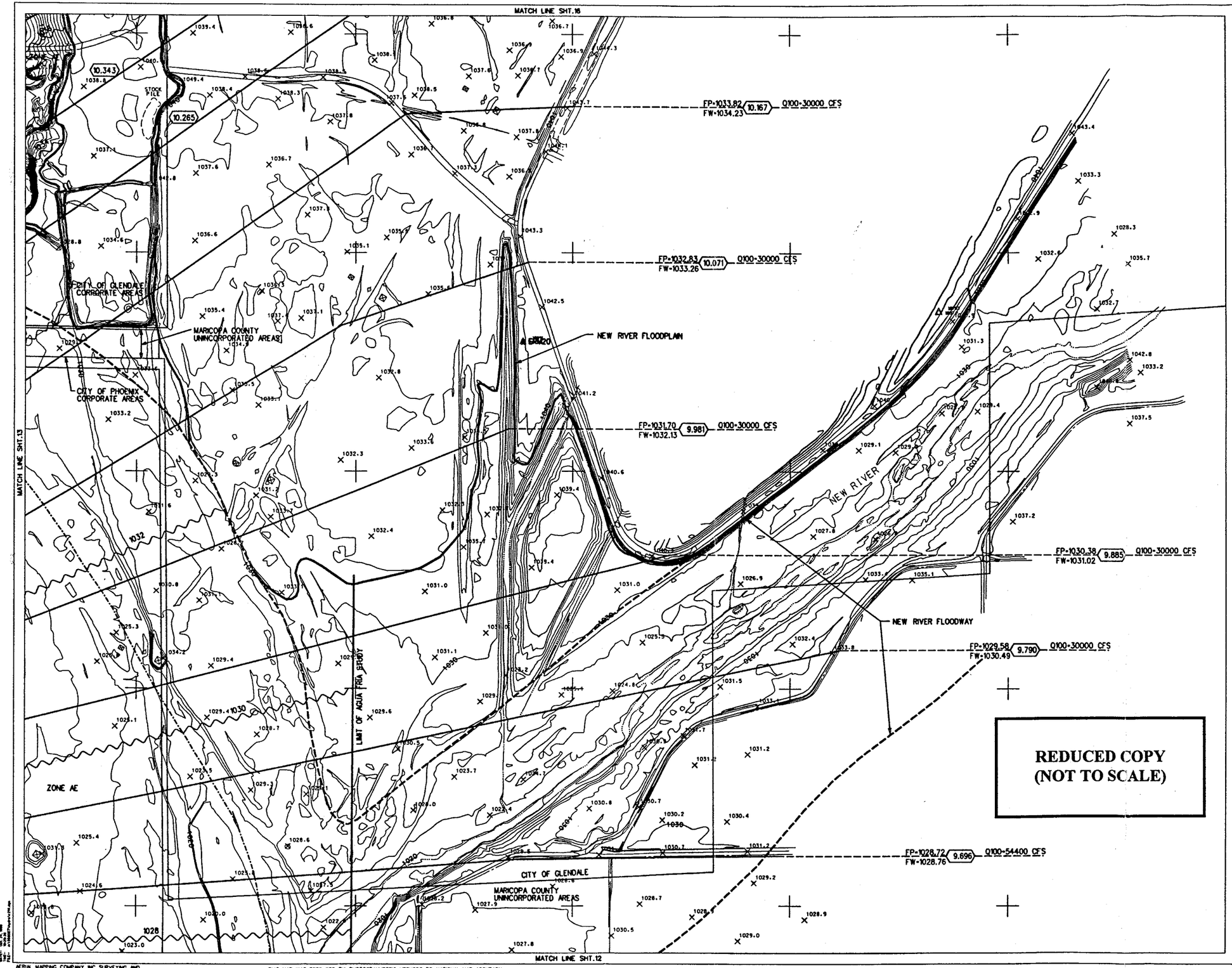
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 13 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

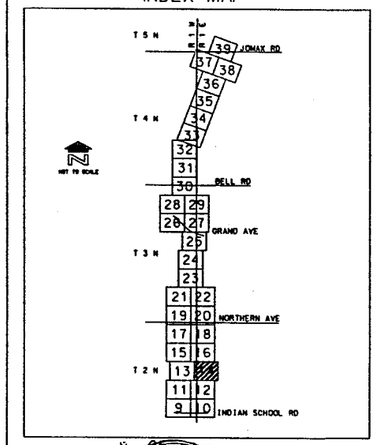
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 19	1036.30	See sheet 13
ERM 20	1042.95	½" rebar with aluminum cap on the west side of berm for fence around airport.

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

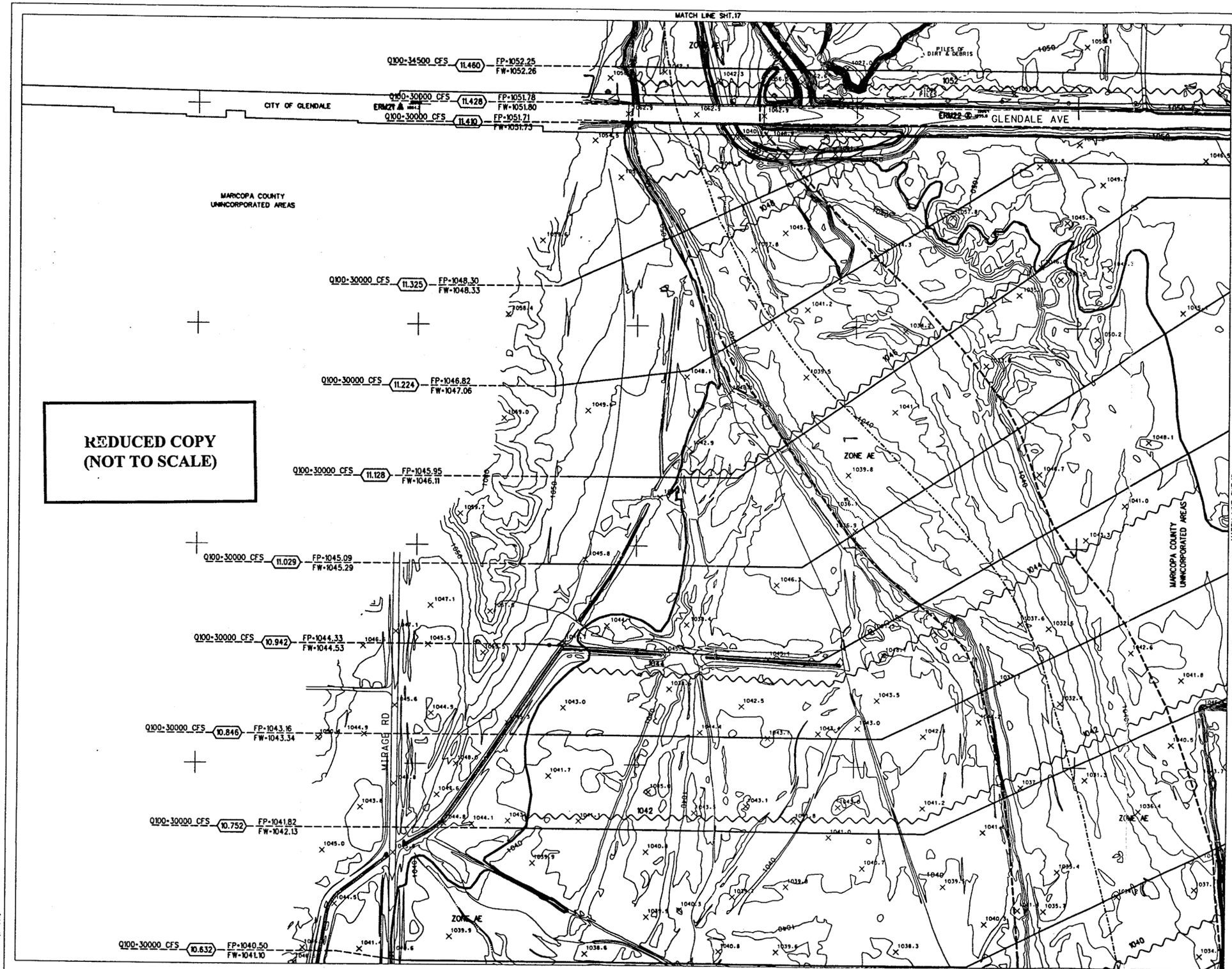
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 14 OF 45



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AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

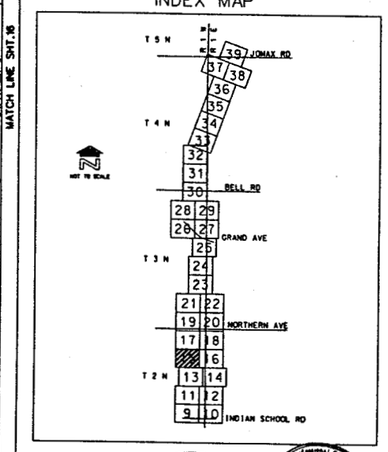
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 21	1063.67	Brass cap in hand hole at the intersection of El Mirage Rd. and Glendale Ave.
ERM 22	1055.00	Brass cap flush with paving in the south, east bound travel lane of Glendale Ave.

INDEX MAP



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

CVL COE & VAN LOO CONSULTANTS, INC.

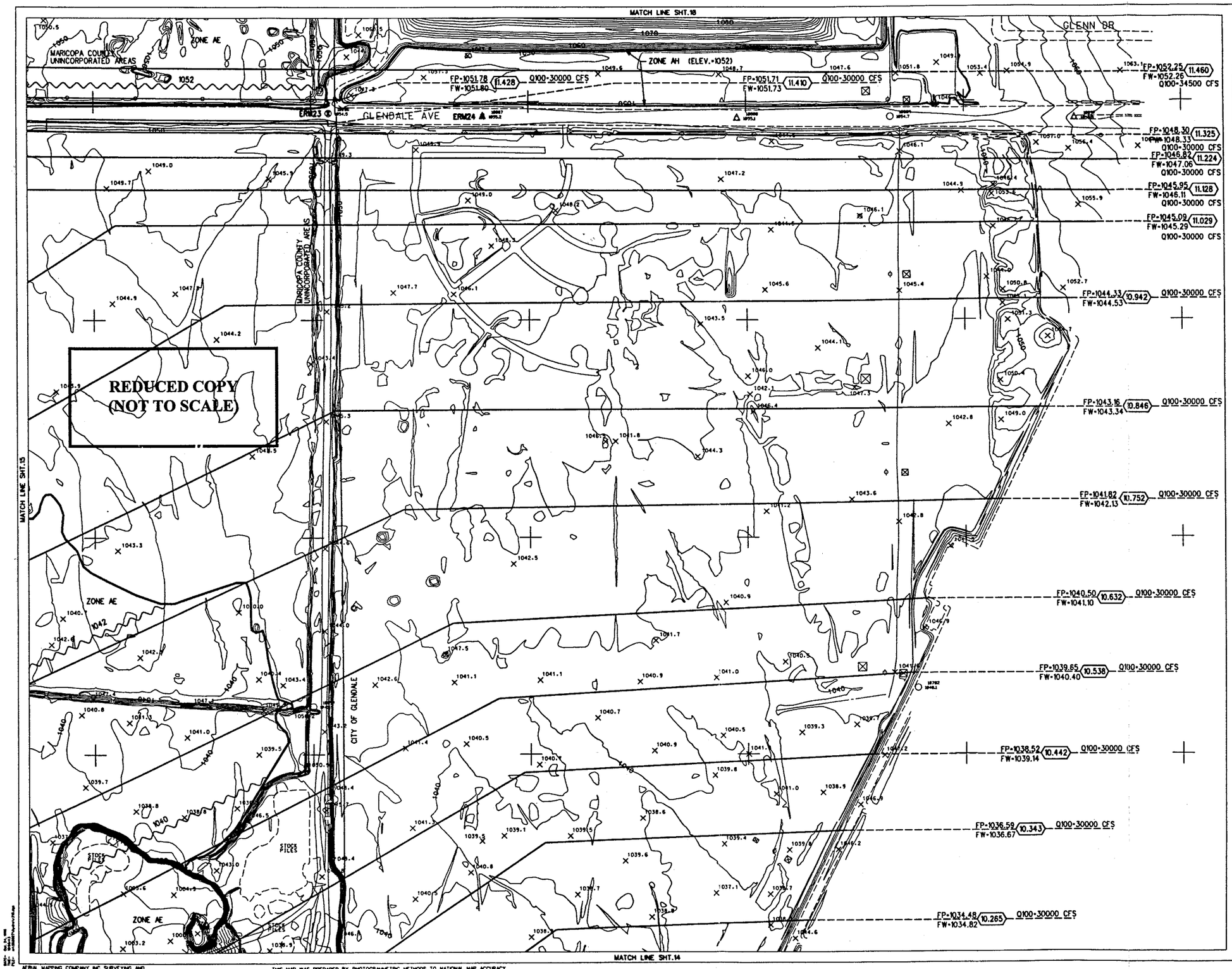
	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 15 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

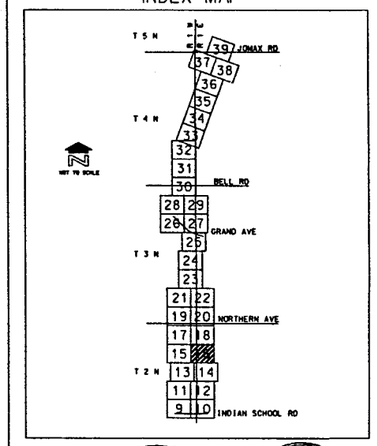
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

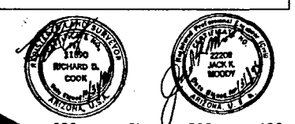
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 23	1053.92	Brass cap in hand hole at the intersection of Glendale Ave. & 115th Ave.
ERM 24	1054.99	Brass cap in the south, westbound travel lane of Glendale Ave. & 111th Ave.

INDEX MAP





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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

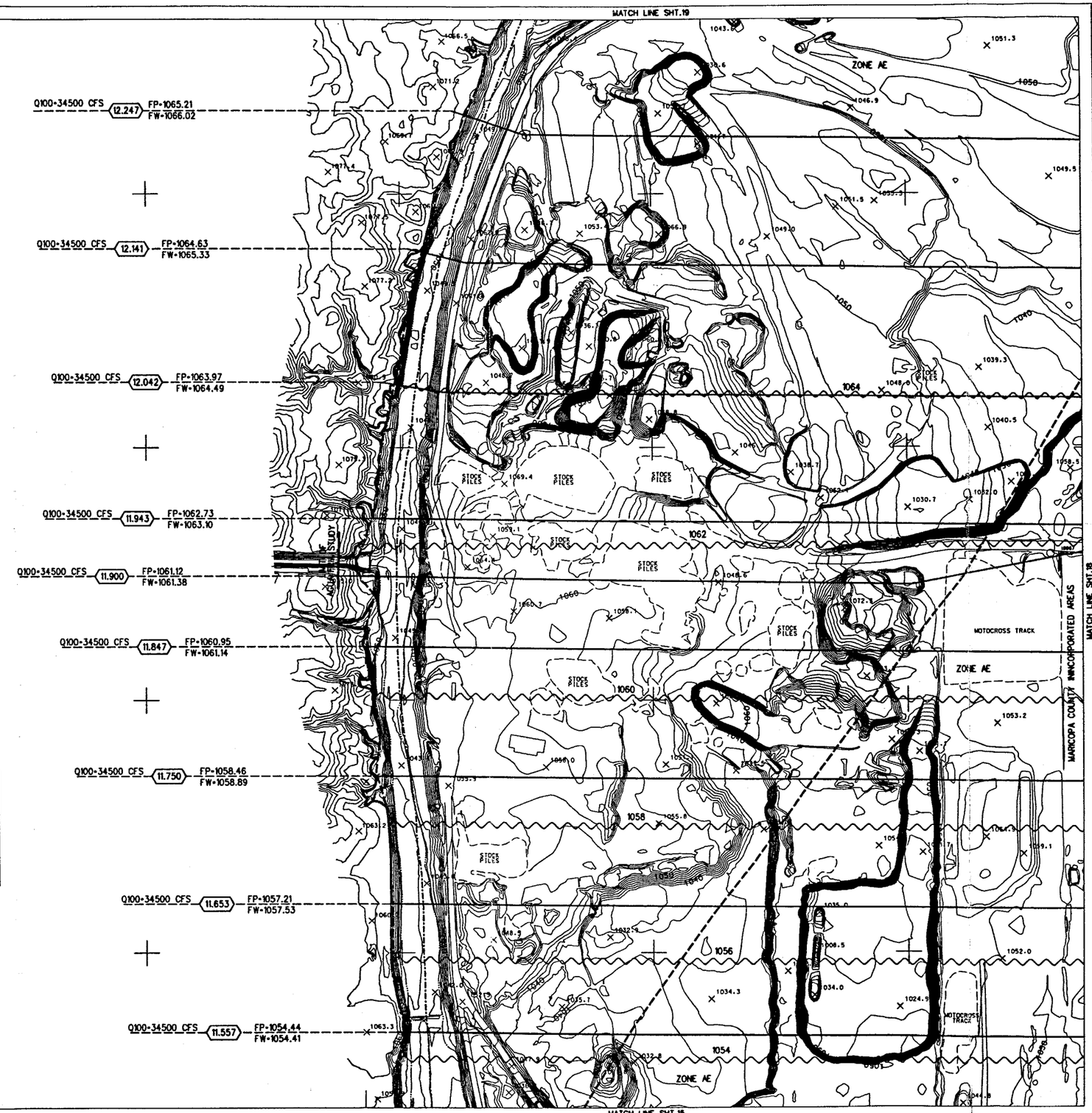
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 16 OF 45



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

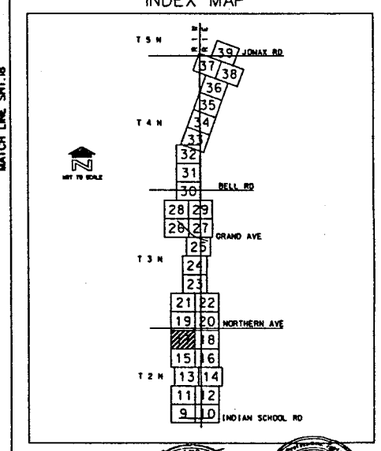
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 21	1063.67	See sheet 15
ERM 25	1069.02	See sheet 15

INDEX MAP



RICHARD D. COOK 11880 ARIZONA U.S.A.

JACK K. MOODY 22208 ARIZONA U.S.A.

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

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 17 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

AERIAL MAPPING COMPANY, INC SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

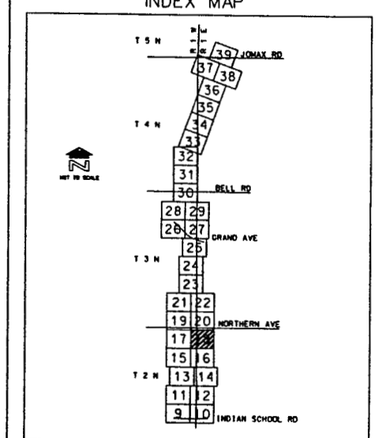
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

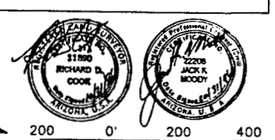
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 23	1053.92	See sheet 16
ERM 27	1060.00	See sheet 20

INDEX MAP





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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

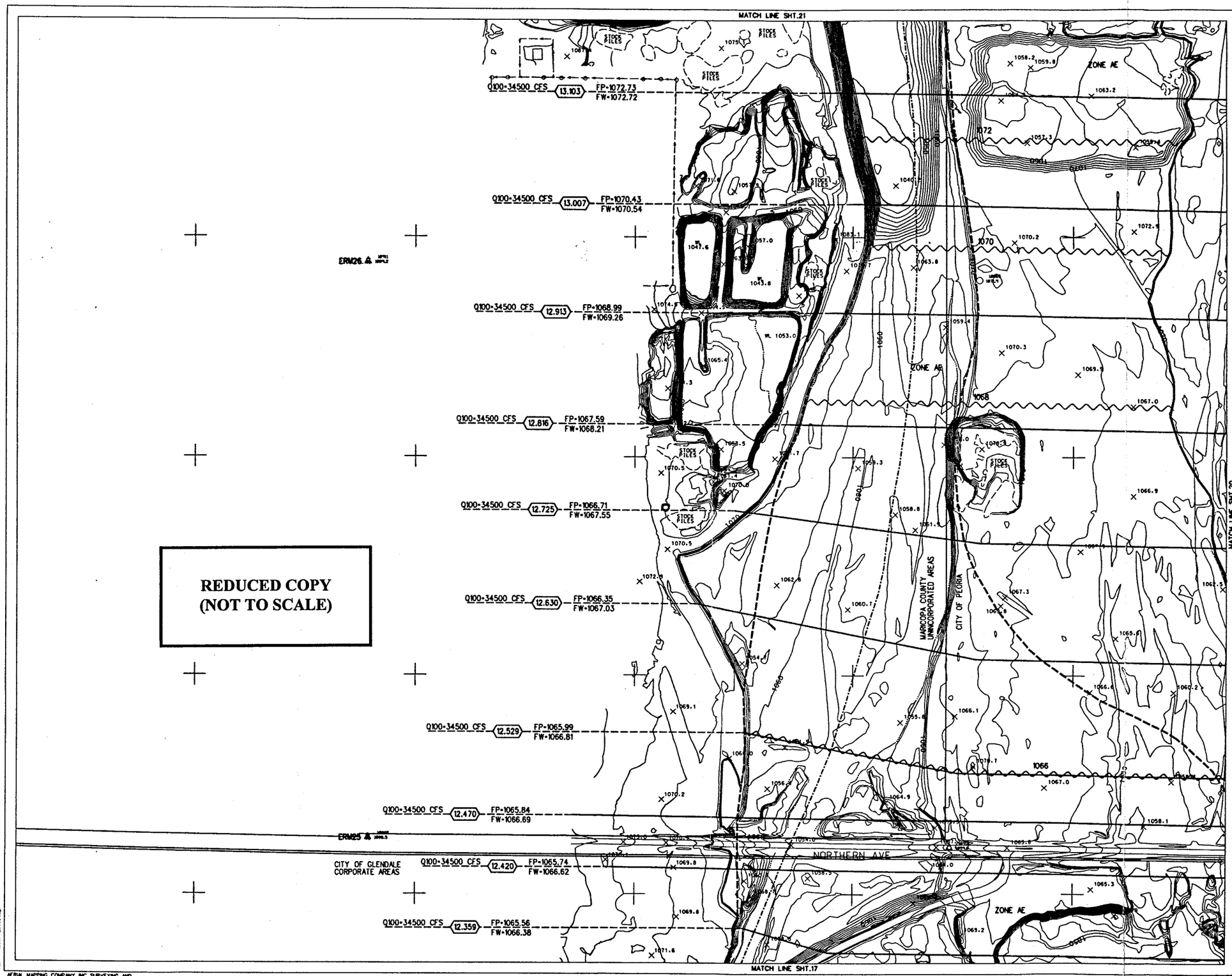
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 18 of 45



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AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

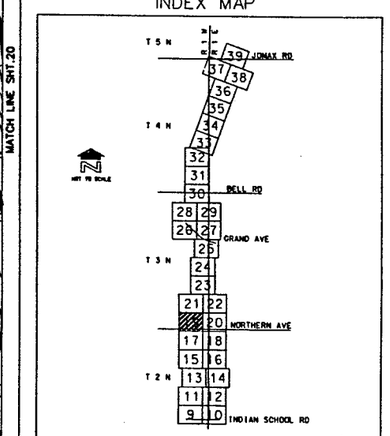
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

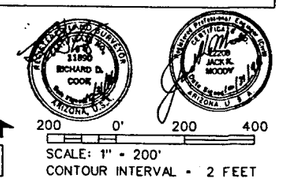
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 25	1088.02	Brass cap in hand hole at the intersection of El Mirage Rd. and Northern Ave.
ERM 26	1089.53	Brass cap flush at the intersection of Butler Ave. and El Mirage Rd.

INDEX MAP





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

CVL COE & VAN LOO CONSULTANTS, INC.

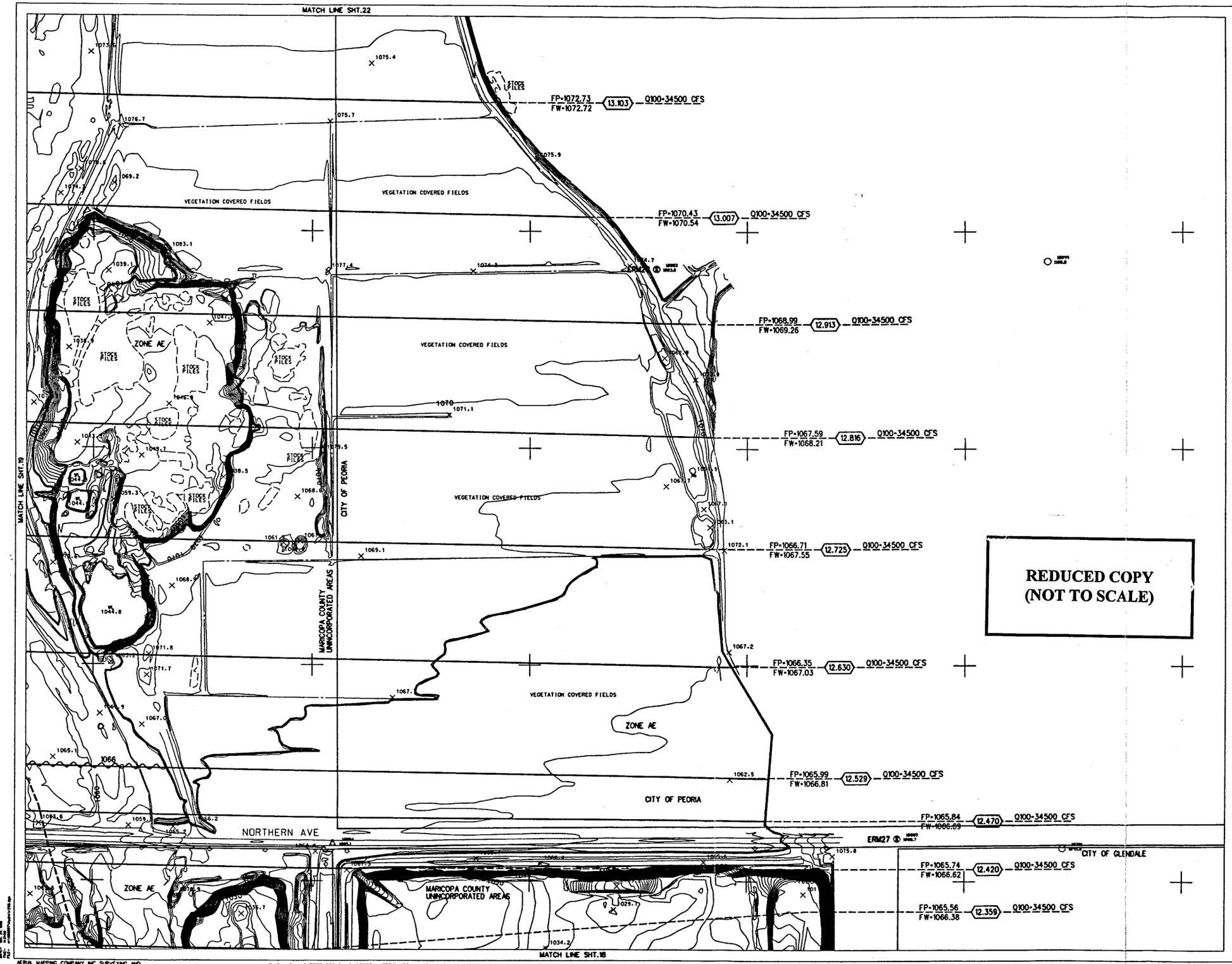
	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/95
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 19 OF 45



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(NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

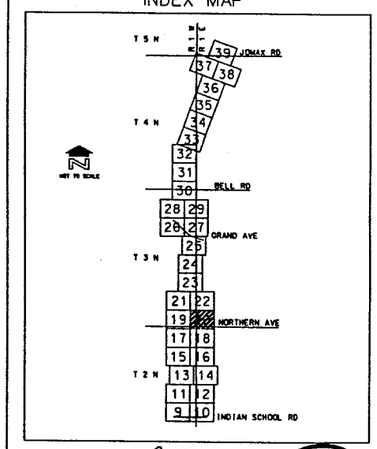
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 27	1066.00	Brass Cap in hand hole at 111 th Ave. and Northern Ave.
ERM 28	1063.90	½" rebar. 1500'± East of 111th Ave. & ½ mile ± North of Northern Ave.

INDEX MAP



RICHARD D. COOK 11890 ARIZONA U.S.A.

JACK K. MOODY 22208 ARIZONA U.S.A.

200 0' 200 400

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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

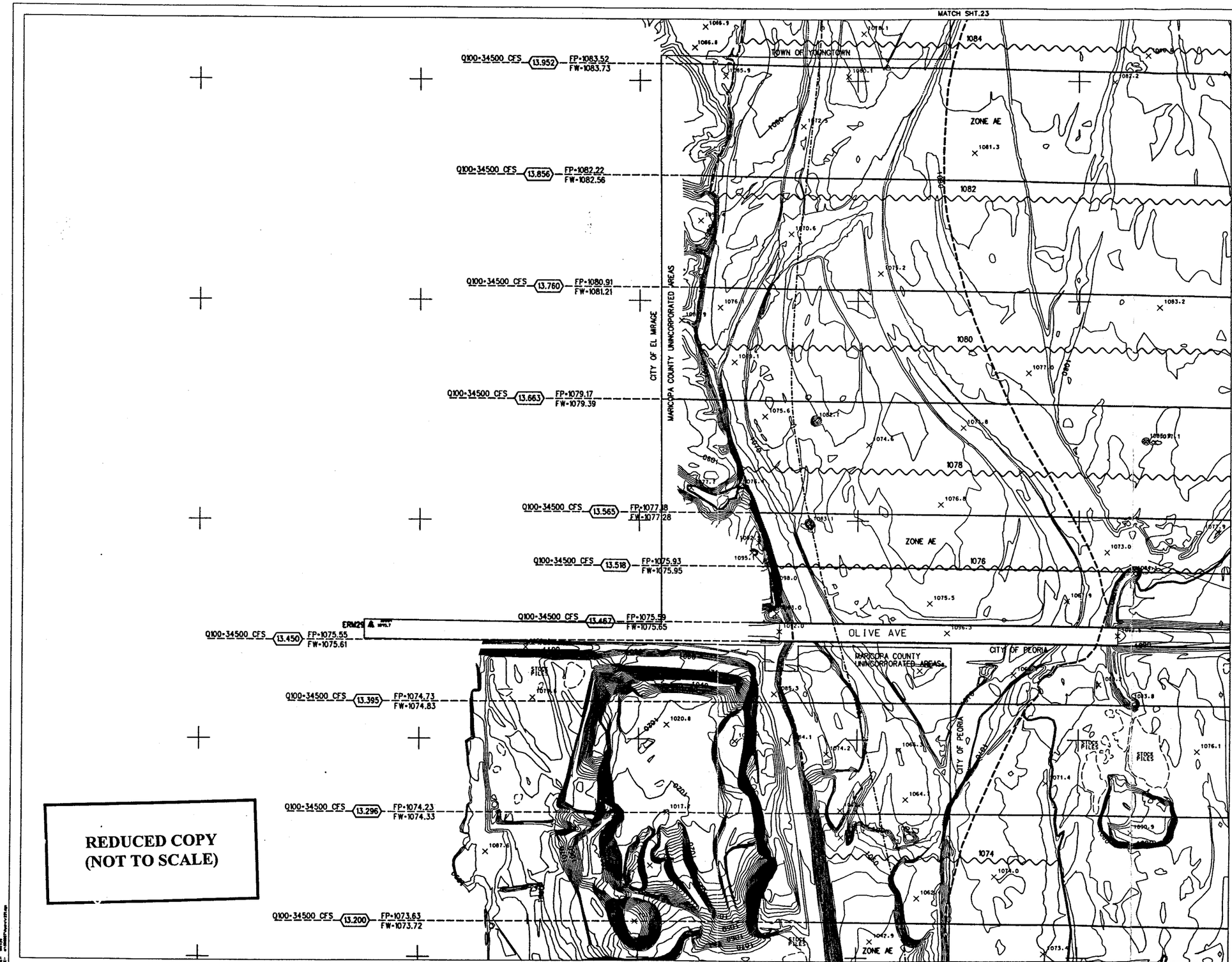
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 20 OF 45



REDUCED COPY
(NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

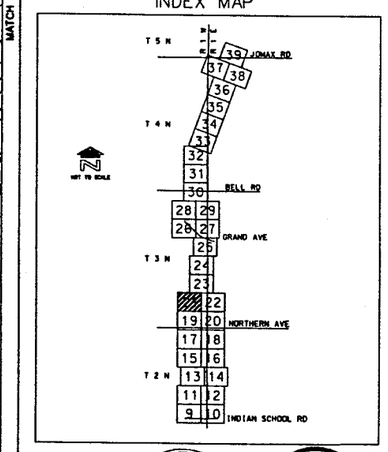
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 26	1089.53	See sheet 19
ERM 29	1096.40	Brass cap in hand hole at the intersection of Olive Ave. and El Mirage Rd.

INDEX MAP



RICHARD D. COOK — ARIZONA, U.S.A.

JACK R. MOODY — ARIZONA, U.S.A.

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

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

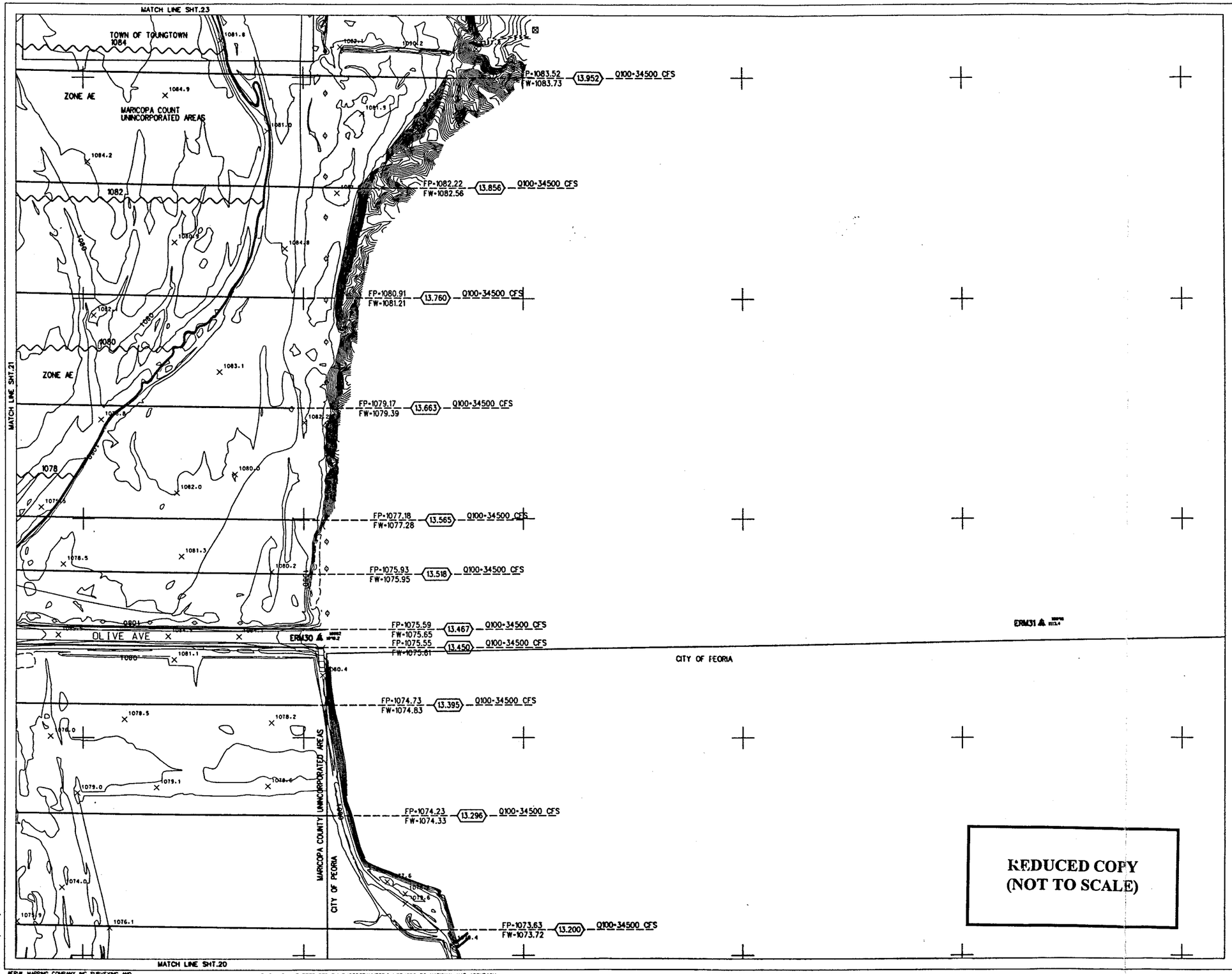
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 21 OF 45



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(NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

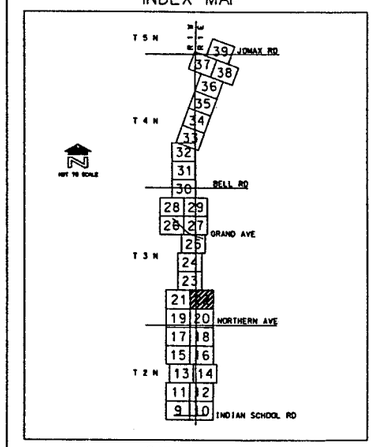
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 30	1090.09	Brass cap in hand hole at the intersection of Olive Ave. and 115th Ave.
ERM 31	1108.09	Brass cap in hand hole at the intersection of 111th Ave. & Olive Ave.

INDEX MAP



RICHARD D. COOK 11890 ARIZONA, U.S.A.

JACK K. MOODY 22938 ARIZONA, U.S.A.

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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
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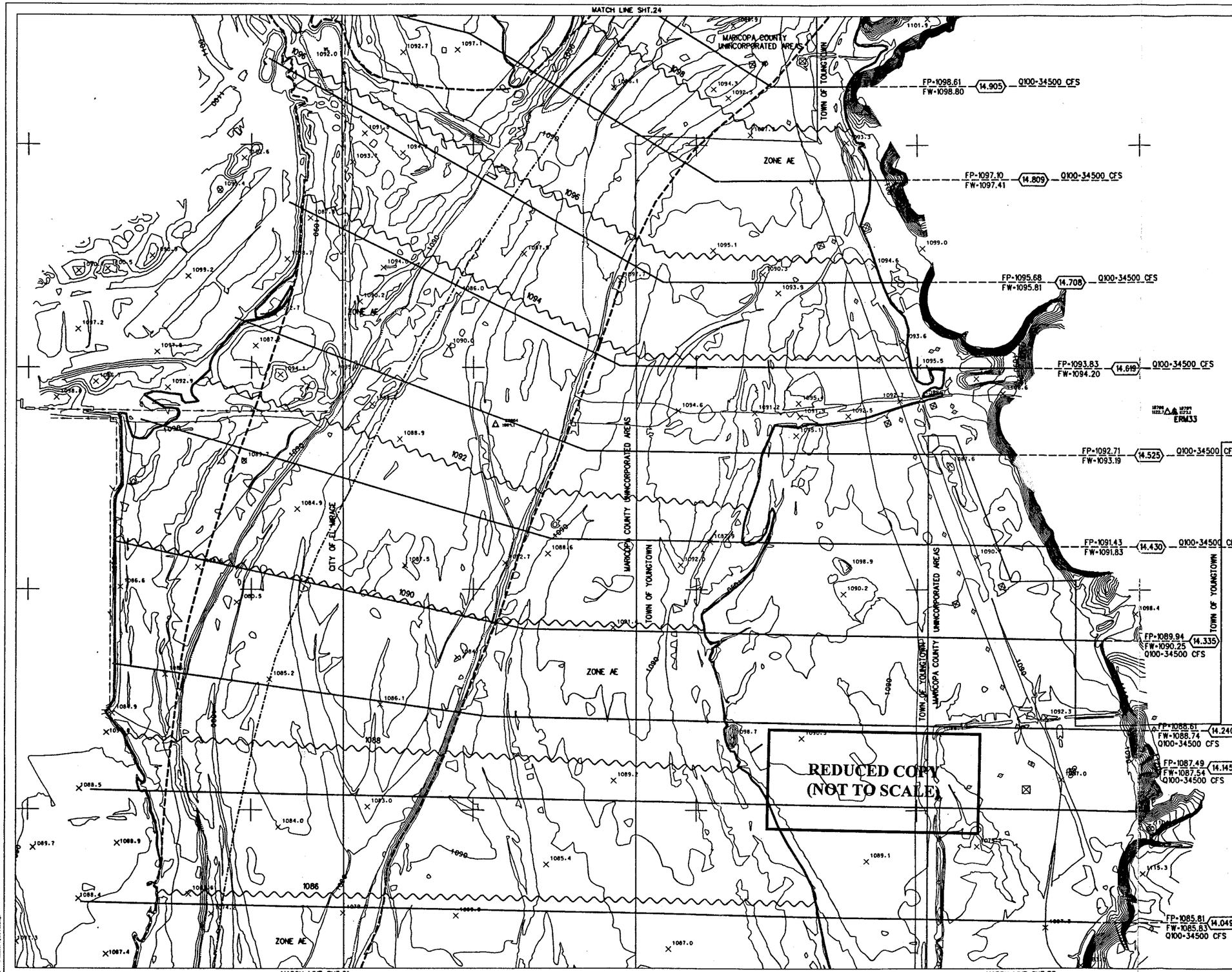
PLANS CHK.	JM	9/96

SUBMITTED BY:
Jock K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 22 OF 45



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

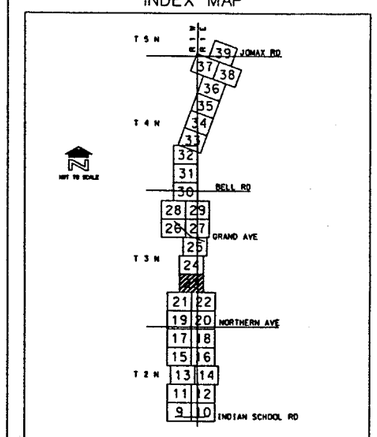
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 32	1109.85	Brass cap in hand hole at the intersection of Peoria Ave. & El Mirage Rd. (Not shown on Mapping)
ERM 33	1118.53	Brass cap in hand hole at the intersection of Peoria Ave. and 99th Ave.

INDEX MAP



SCALE: 1" = 200'
CONTOUR INTERVAL - 2 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

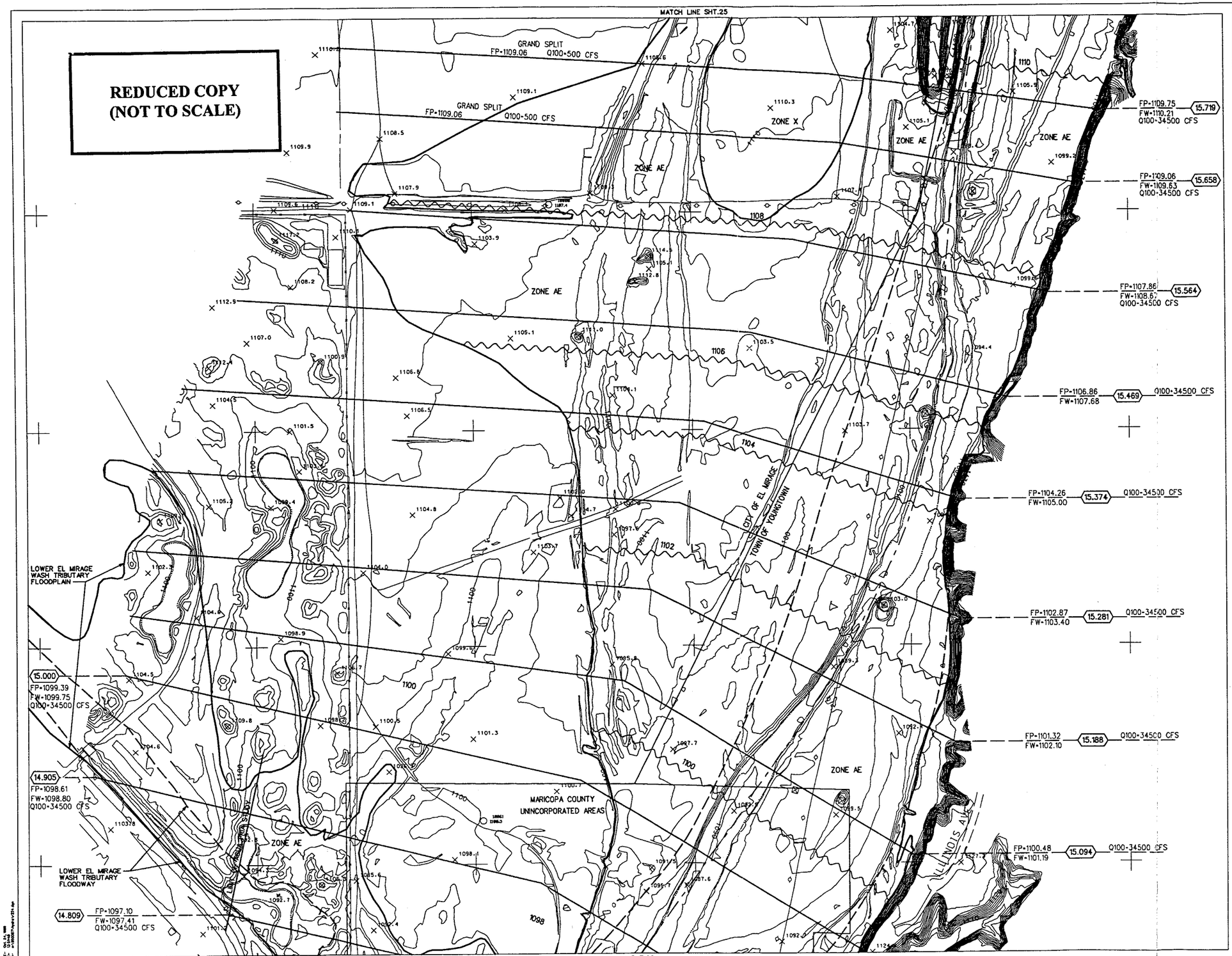
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 23 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

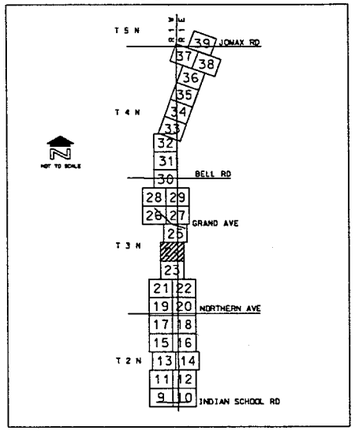
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 34	1107.92	Brass cap at the intersection of Varney Rd. and El Mirage Rd. (Not shown on mapping)
ERM 35	1117.41	Brass cap in hand hole at the intersection of El Mirage Rd. & Cactus Rd. (Not shown on mapping)

INDEX MAP



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

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

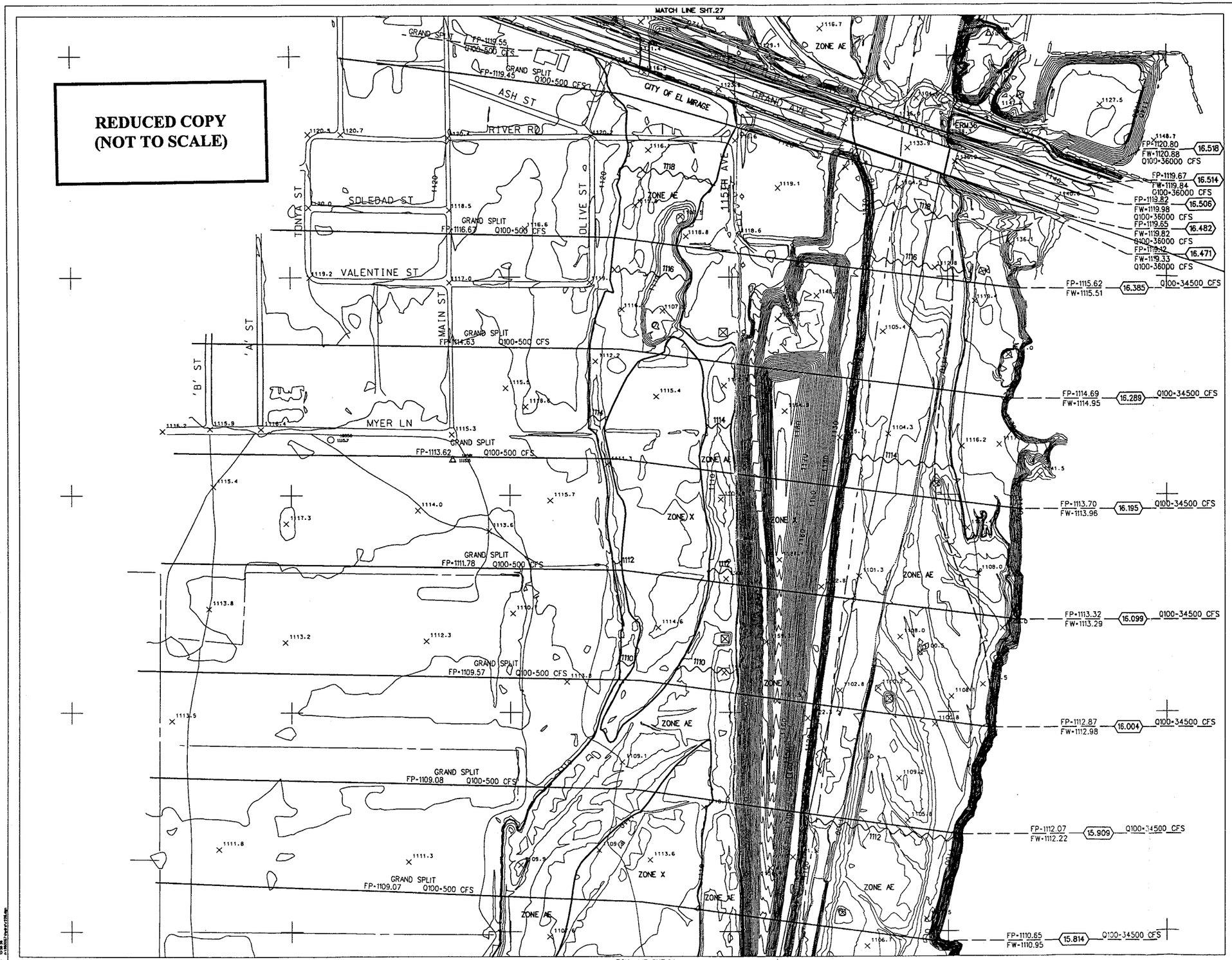
SHEET 24 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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

MATCH LINE SHT.27

REDUCED COPY (NOT TO SCALE)



MATCH LINE SHT.24

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

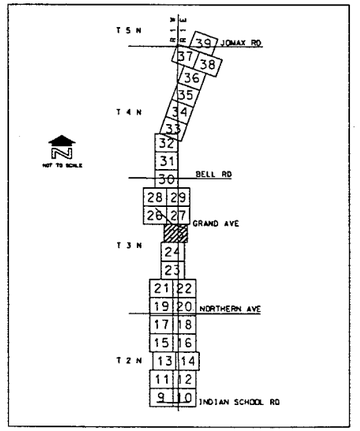
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1928
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 36	1134.59	Brass cap on Southeast footer of Santa Fe railroad bridge.
ERM 37	1148.77	Brass cap in headwall at Northeast corner of Intersection of Grand Ave. & 111th Ave. (Not shown on mapping)
ERM 38	1146.85	Aluminum Cap in top of headwall at Northwest corner of Intersection of Grand Ave. & 111th Ave. (Not shown on mapping)

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

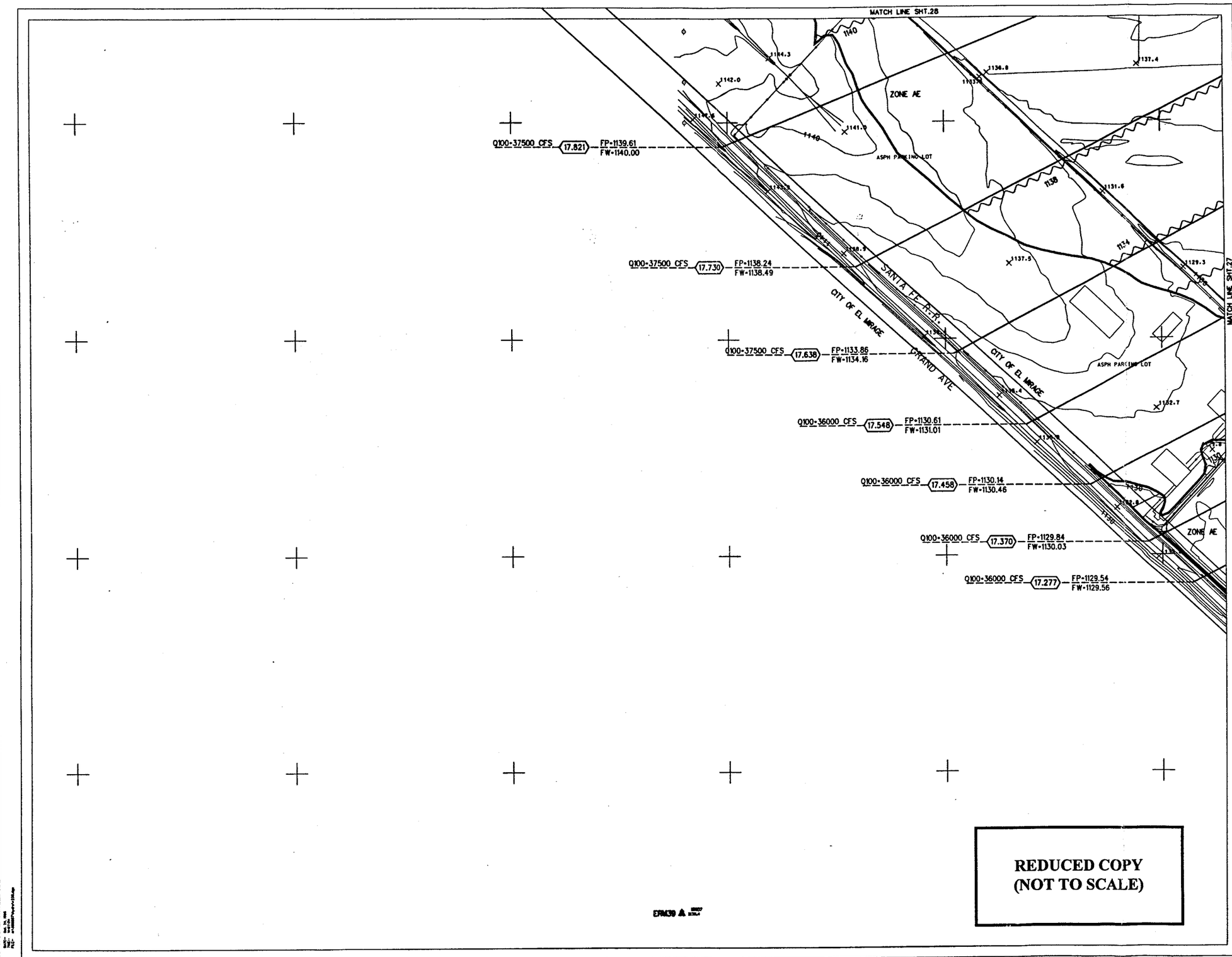
CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

SHEET 25 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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 AERIAL MAPPING COMPANY, INC.



REDUCED COPY
(NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

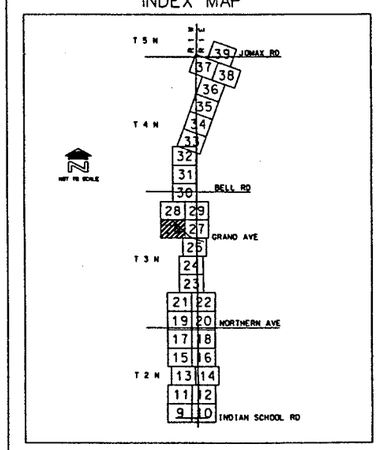
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 36	1136.99	See sheet 25
ERM 39	1135.30	Brass cap in hand hole at the intersection of El Mirage Rd. and Thunderbird Rd.

INDEX MAP



SCALE: 1" = 200'
CONTOUR INTERVAL - 2 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
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SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 26 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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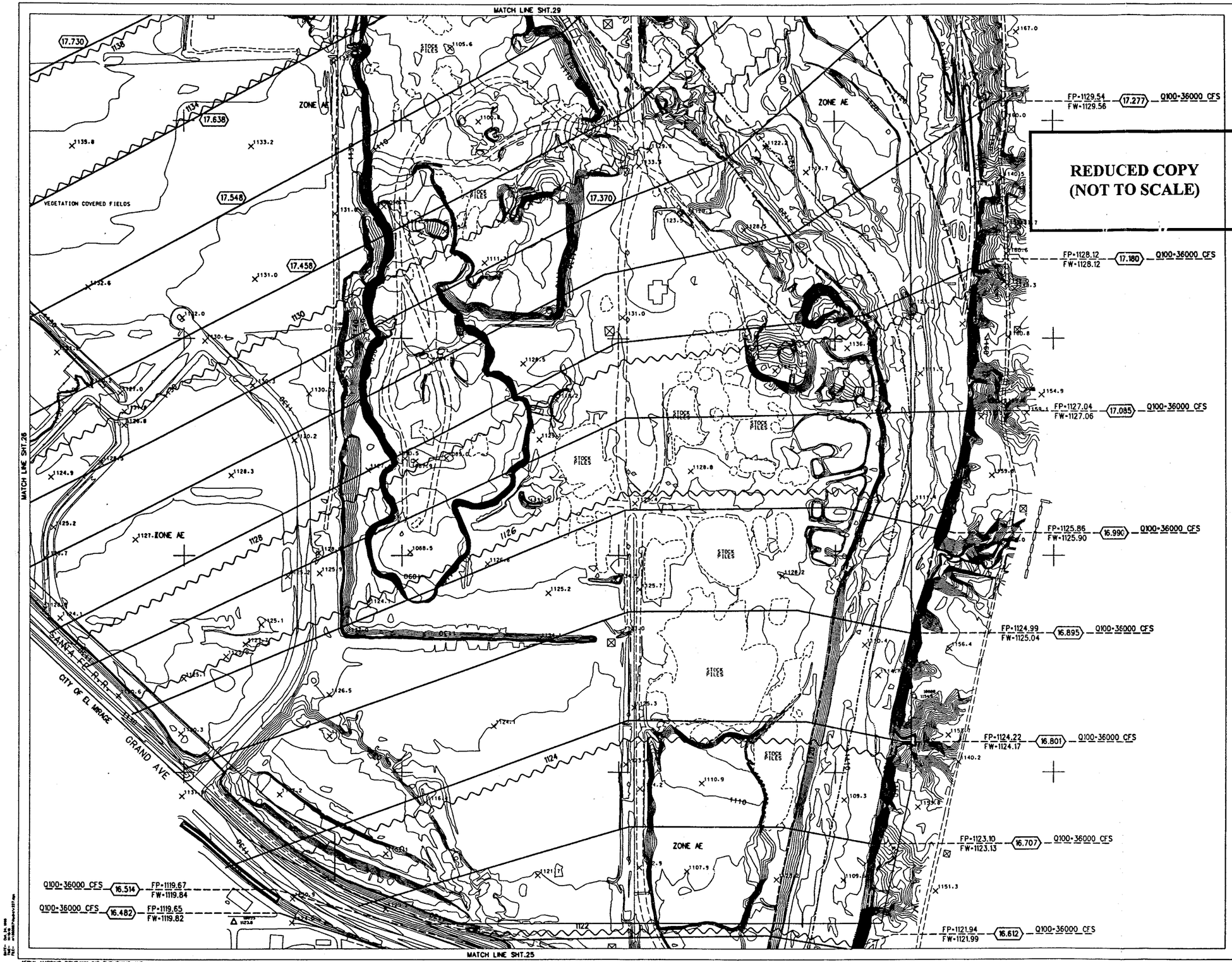

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(NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

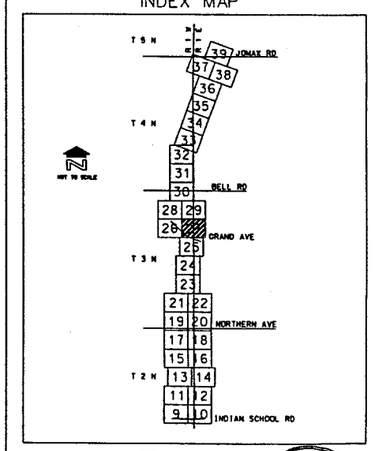
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 36	1136.99	See sheet 25
ERM 39	1139.30	See sheet 26

INDEX MAP



RICHARD D. COOK 11890 ARIZONA U.S.A.

JACK K. MOODY 22205 ARIZONA U.S.A.

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

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY:
Jack K. Moody, P.E. DATE: 9/96

SHEET 27 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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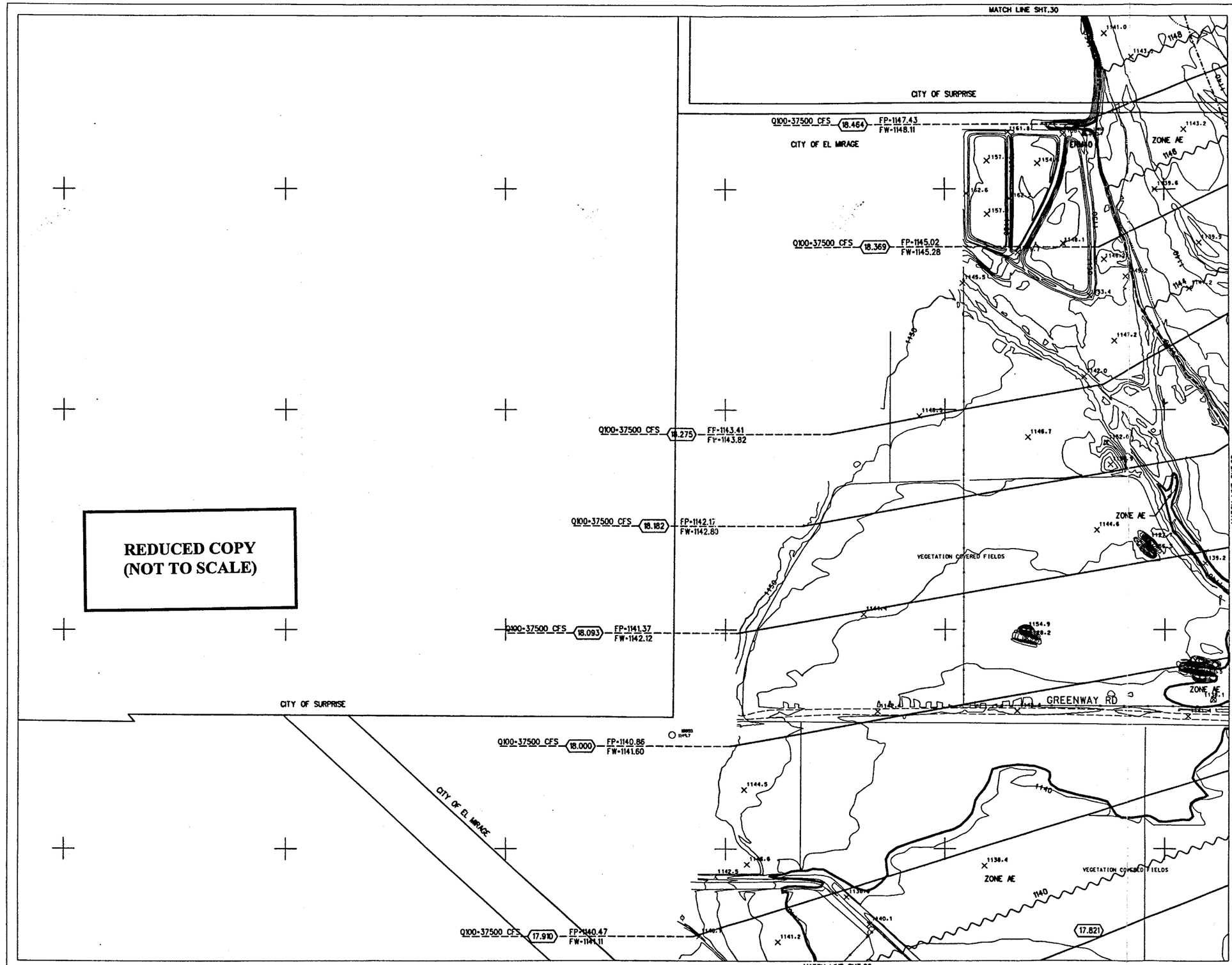


REDUCED COPY (NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

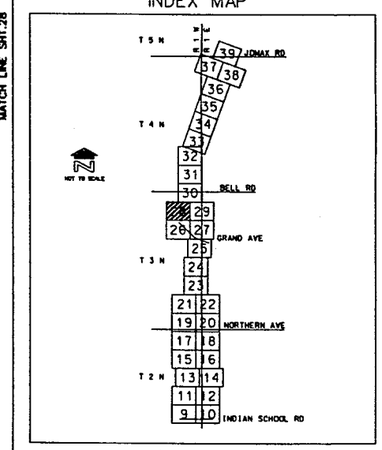
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 39	1139.30	See sheet 27
ERM 40	1153.91	½" rebar with aluminum cap 150' west of bank of Agua Fria River 70' east of berm for evaporation pond.

INDEX MAP



RICHARD D. COOK 11890 ARIZONA U.S.A.

JACK K. MOODY 22208 ARIZONA U.S.A.

200 0' 200 400

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

CVL COE & VAN LOO CONSULTANTS, INC.

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 28 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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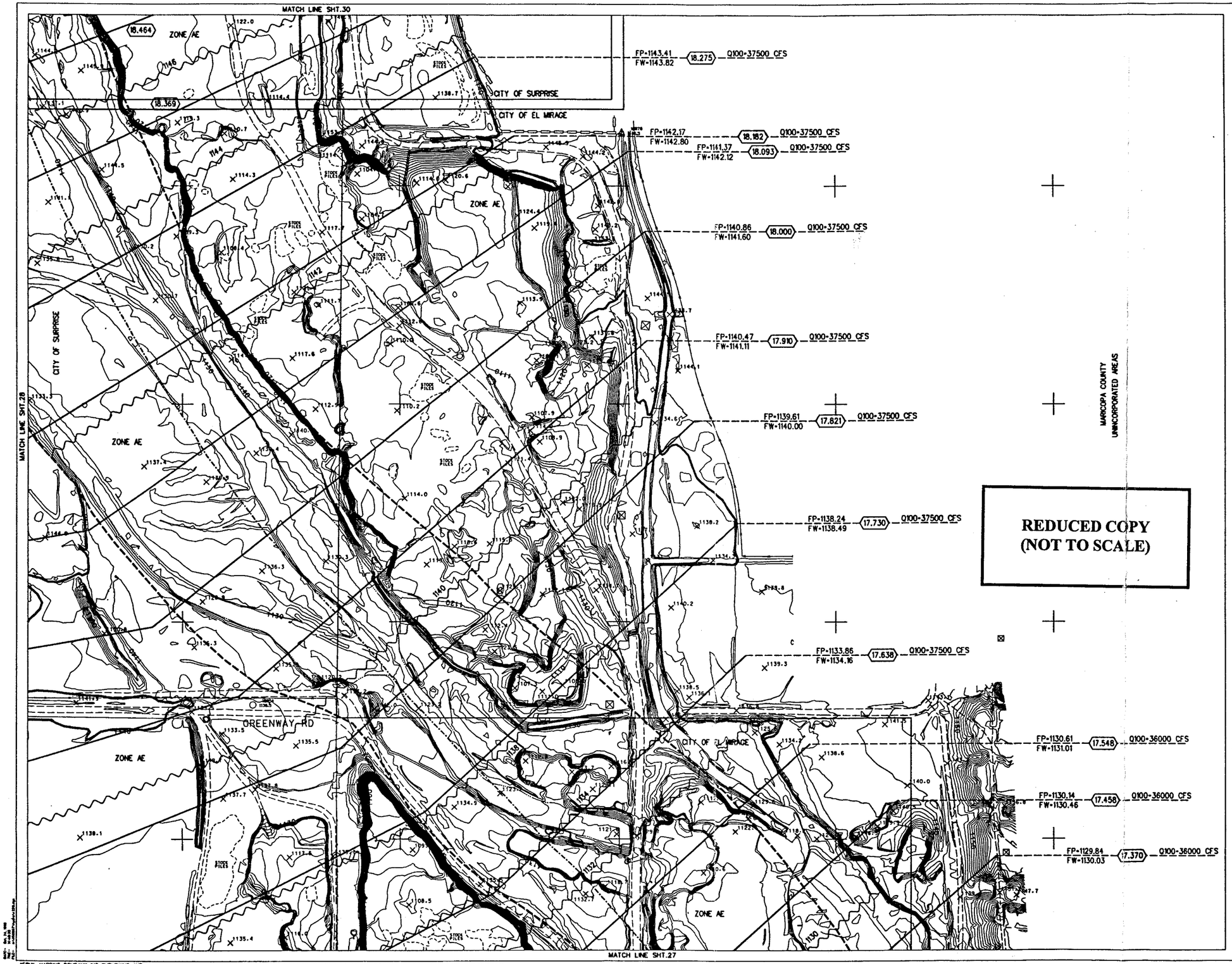

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

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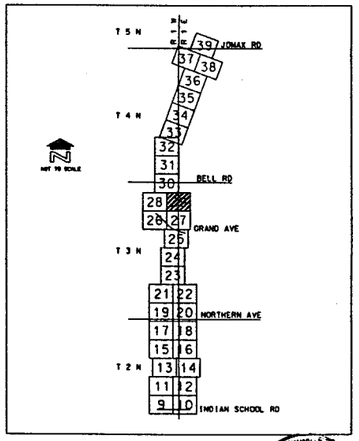
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 40	1153.91	See sheet 20
ERM 43	1163.12	See sheet 30

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

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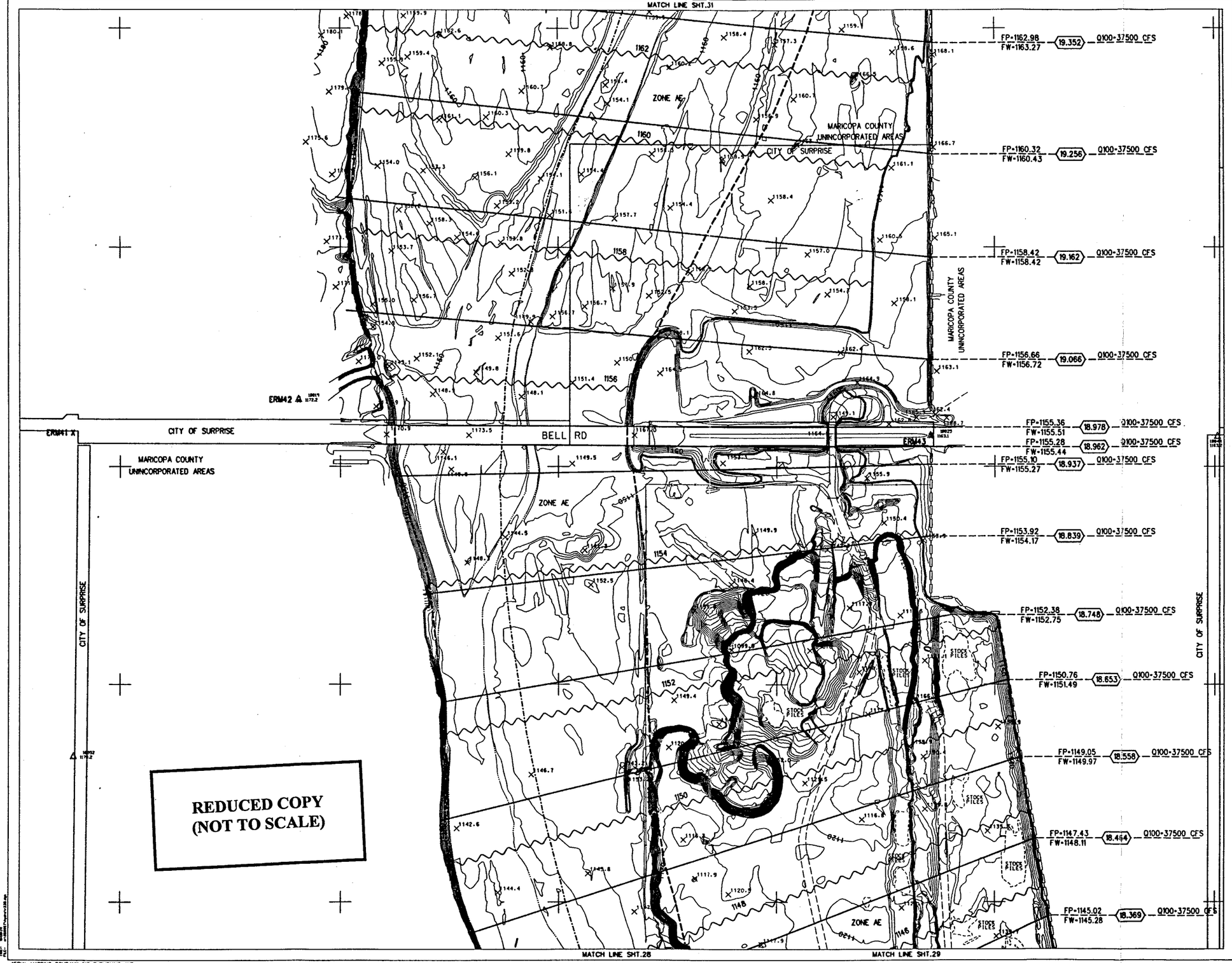
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 29 OF 45



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

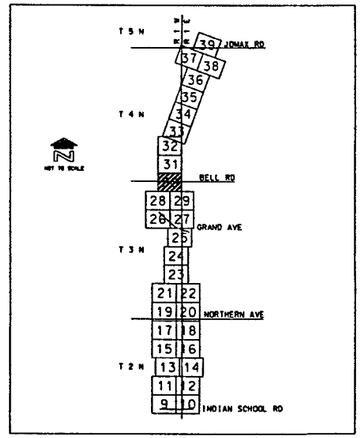
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 41	1176.19	Brass cap in hand hole at the intersection of Bell Rd. & El Mirage Rd.
ERM 42	1172.34	1/2" rebar with aluminum cap 100' north of Bell Rd. 700'± east of El Mirage Rd. north of flood control ditch.
ERM 43	1163.12	PK nail at the bull nose of median curb 1/4 mile 115th Ave., just east of the intersection entrance to Coyote Springs subdivision.

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

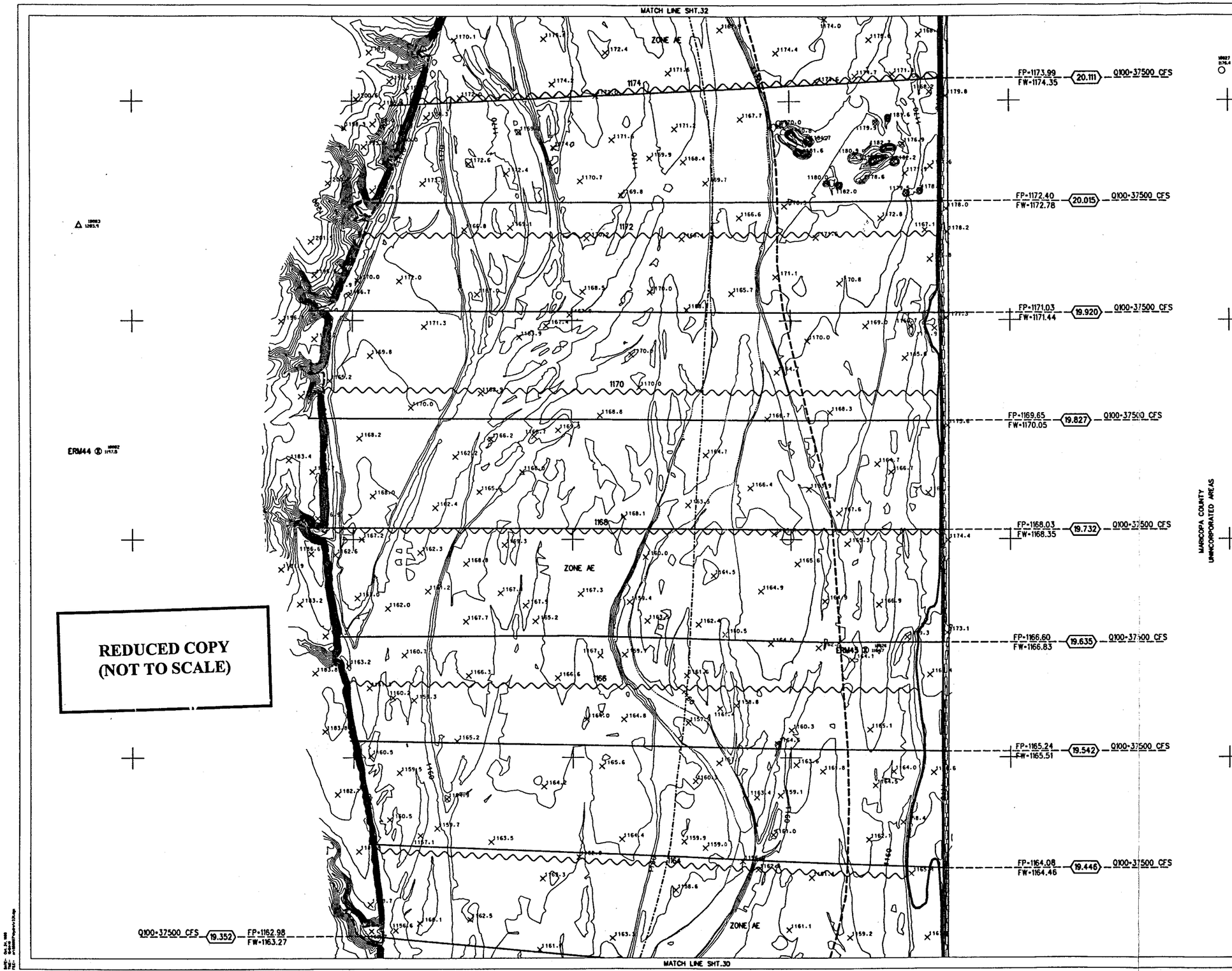
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 30 OF 45



REDUCED COPY (NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

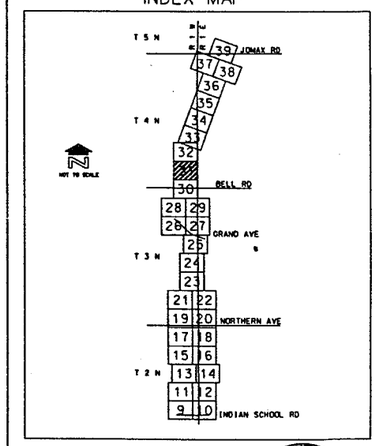
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 44	1197.68	1/2" rebar with aluminum cap 200' west of El Mirage Rd. 3/4 mile north of Bell Rd.
ERM 45	1164.90	1/2" rebar in river bed 2000' north and 200' west of west line of Coyote Springs subdivision.

INDEX MAP



RICHARD D. COOK 11890 ARIZONA U.S.A.

JACK K. MOODY 32005 ARIZONA U.S.A.

200 0' 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL - 2 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

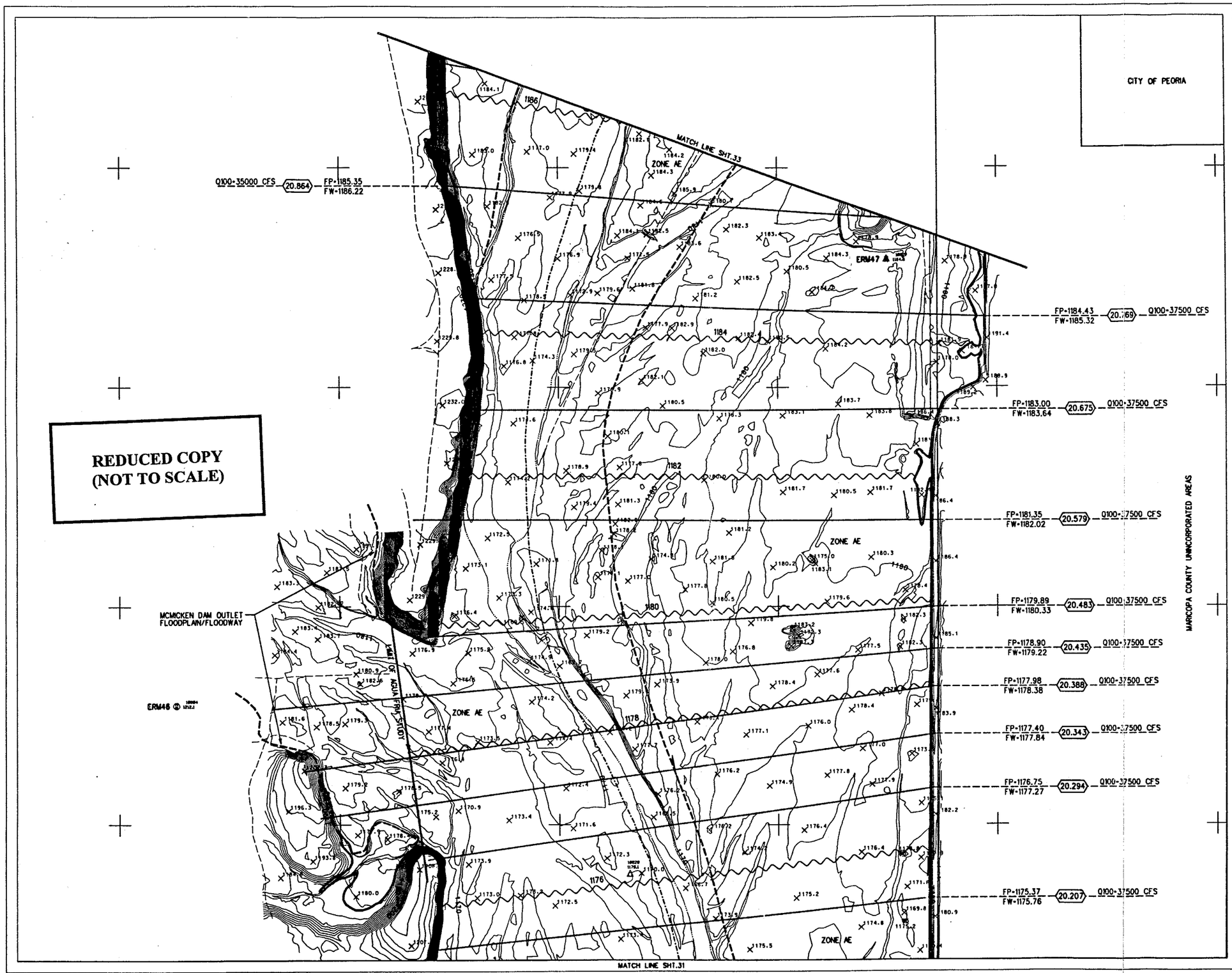
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 31 OF 45



REDUCED COPY (NOT TO SCALE)

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

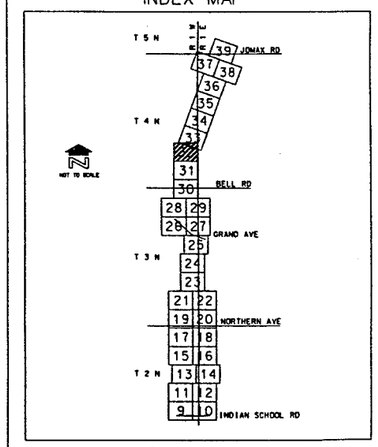
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 46	1212.32	1/2" rebar with aluminum cap at a point east of El Mirage Rd. approximately 800' on finger leading to river.
ERM 47	1176.96	1/2" rebar with aluminum cap ¼ mile west and ¼ mile south of 115th Ave. and Beardsley Rd.

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

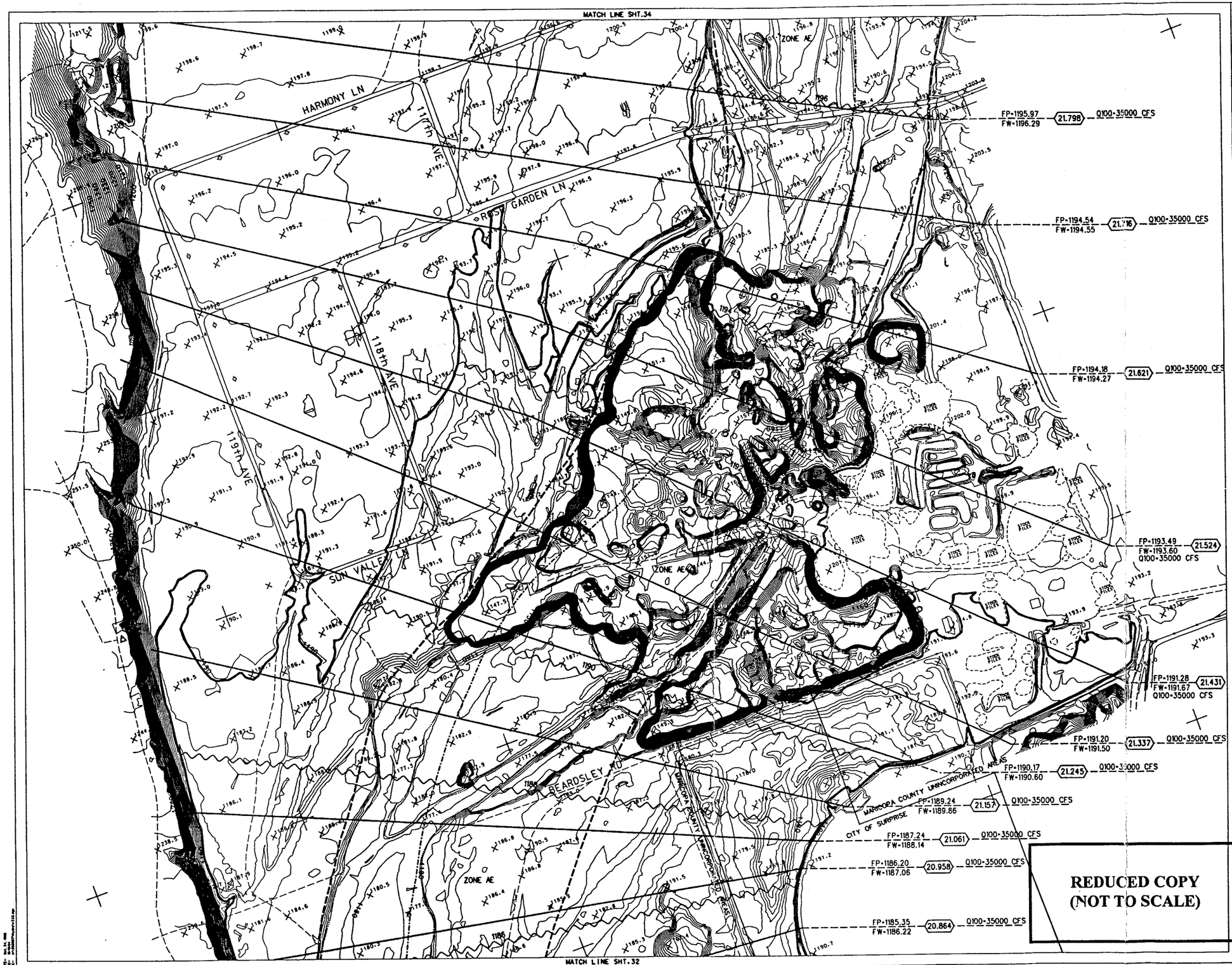
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 32 OF 45



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

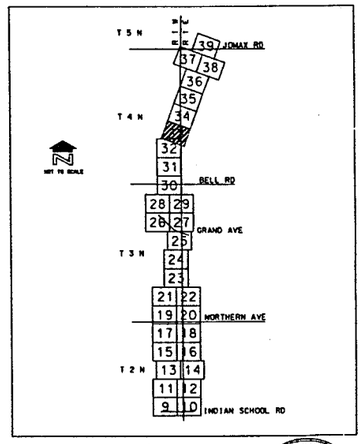
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

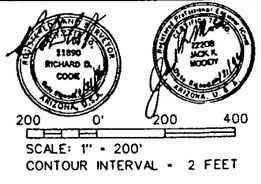
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 47	1176.96	See sheet 32
ERM 48	1201.98	See sheet 34

INDEX MAP





200 0' 200 400

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

REDUCED COPY (NOT TO SCALE)

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
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PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY:
Jack K. Moody, P.E. DATE: 9/96

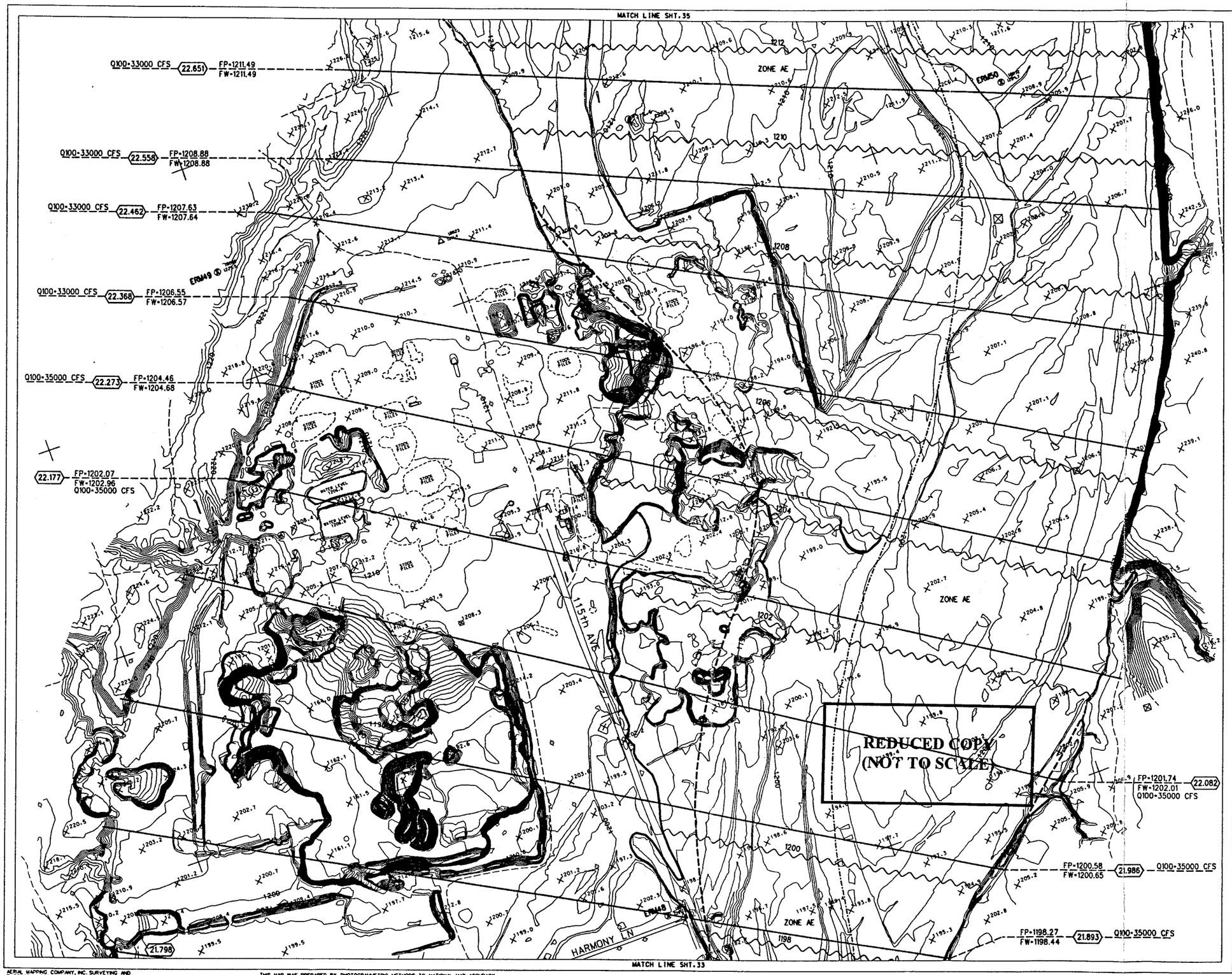
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 33 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.



AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

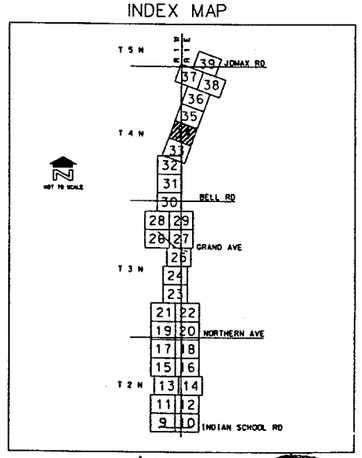
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 48	1201.98	1/2" rebar with aluminum cap 100' ± west of 115th Ave. & 50' north of Harmony Ln.
ERM 49	1229.73	1/2" rebar with aluminum cap 500' west of 115th Ave. and 1/4 mile north of Deer Valley Rd. in raw desert.
ERM 50	1209.71	1/2" rebar in the bottom of the Agua Fria River 500' west of bank 300' north of old road crossing river.

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

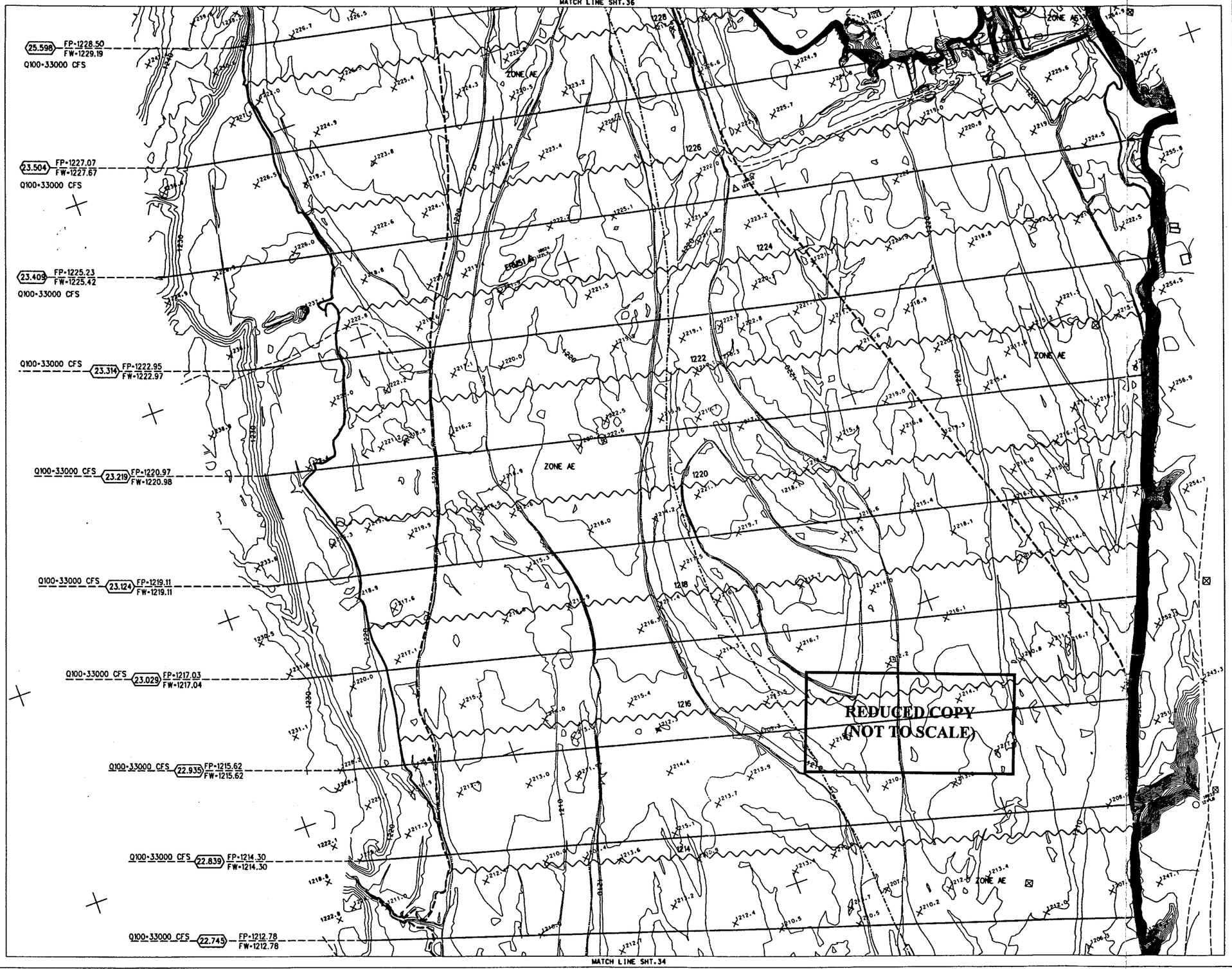
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 34 OF 45



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

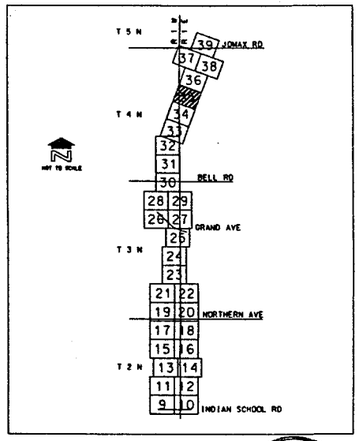
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 50	1209.71	See sheet 34
ERM 51	1221.92	1/2" rebar with aluminum cap at a point 3/4 mile west of 101th Ave. 60' north of wooden pole power line in the bottom of the Agua Fria River.

INDEX MAP



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

CYL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 35 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

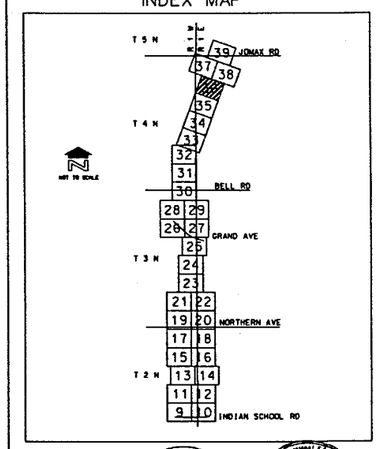
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 52	1235.61	1/2" rebar with aluminum cap at a point 4500' ± west of 107th Ave. on Hatfield Rd. on west bank of Agua Fria River 100' south of centerline of Hatfield Rd., approximately 40' east of fence.
ERM 53	1232.37	1/2" rebar with aluminum cap approximately 1500' SW of Hatfield Rd. and 107th Ave. 40' north of 4 strand barbed wire fence.
ERM 54	1236.10	1/2" rebar with aluminum cap at a point 800' SW of Hatfield Rd. and 107th Ave. 30' south of steel electric tower.

INDEX MAP



RICHARD D. COOIE — ARIZONA U.S.A.

JACK K. MOODY — ARIZONA U.S.A.

200 0' 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL - 2 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

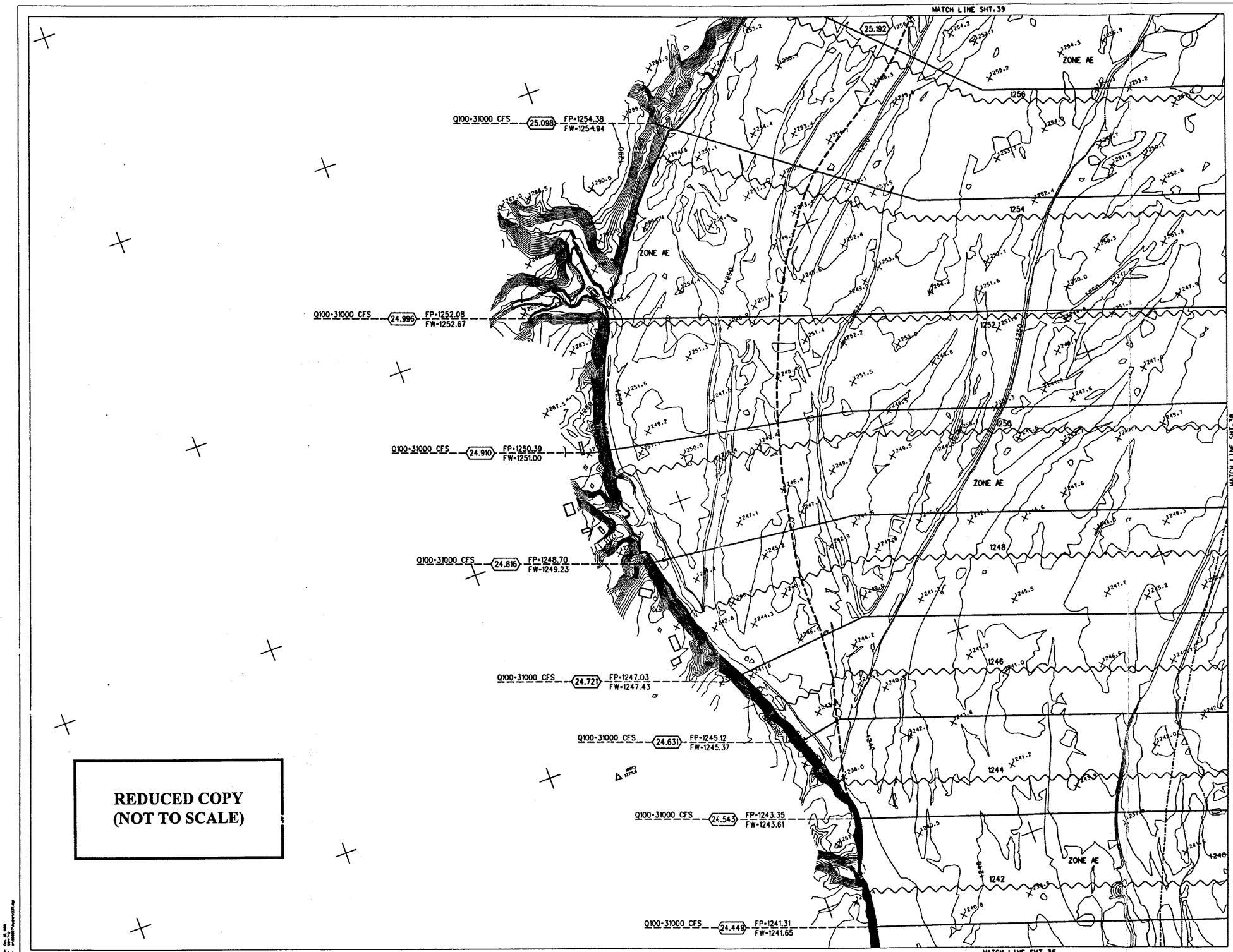
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 36 OF 45



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

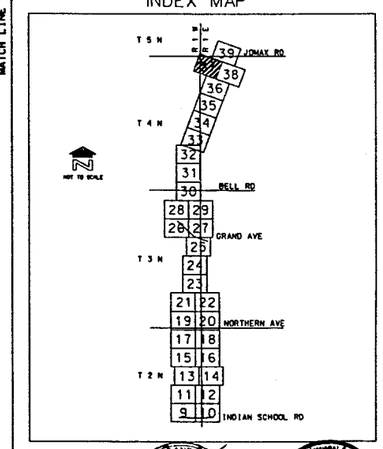
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

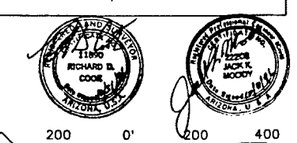
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 52	1259.61	See sheet 36
ERM 95	1249.36	See sheet 38

INDEX MAP





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

CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 37 OF 45

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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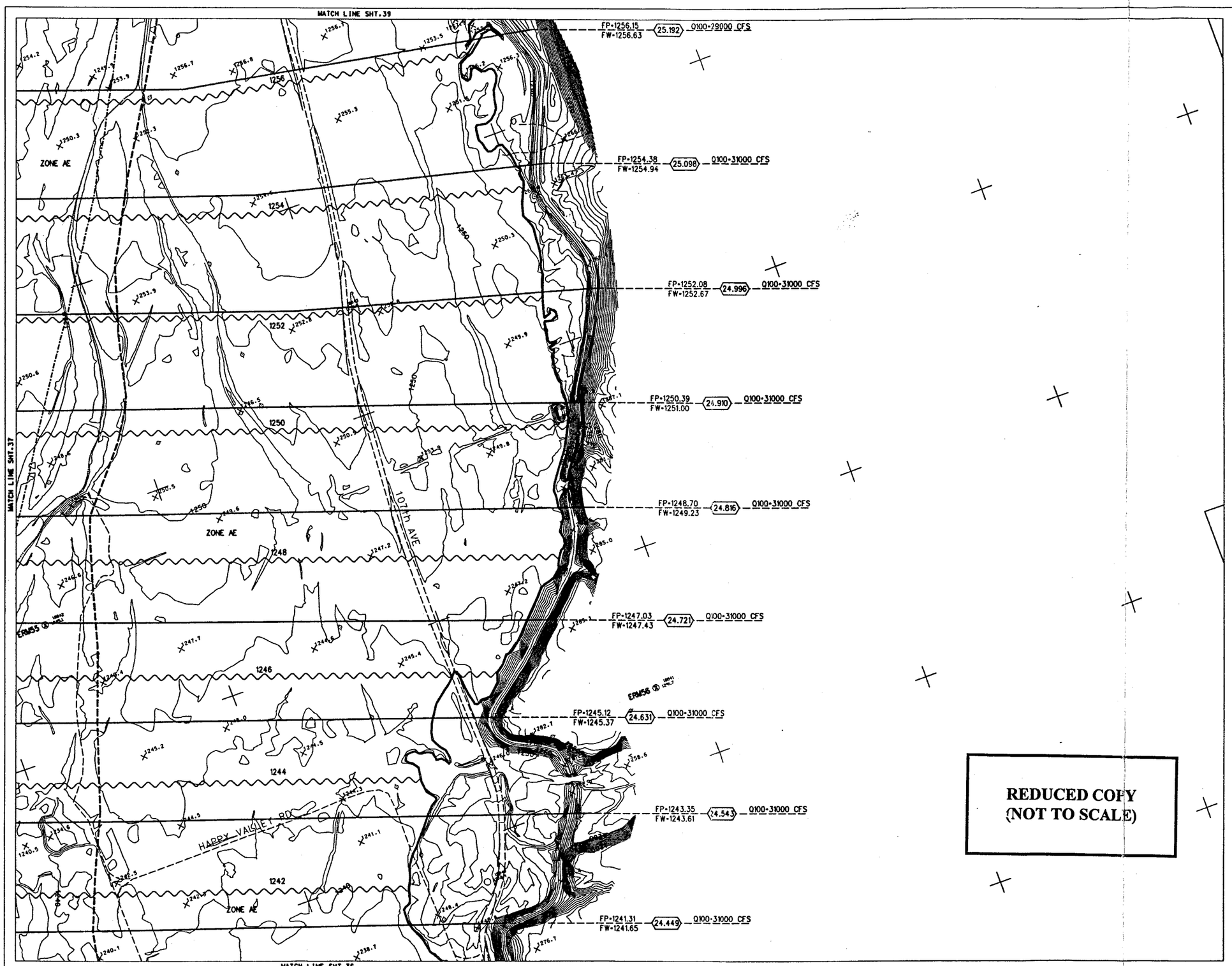

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/28/95

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REDUCED COPY (NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

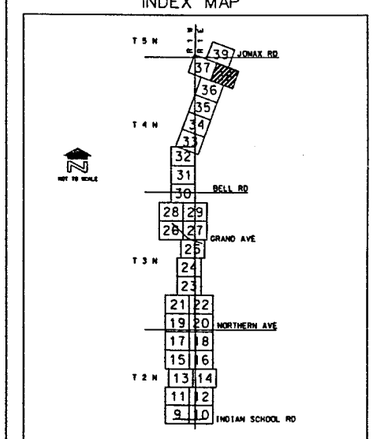
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 95	1245.36	1/2" rebar with aluminum cap 1/4 mile west and 1/2 mile north of the intersection of 107th Ave. and Hatfield Rd. 250' west of 109th Ave.
ERM 56	1291.86	1/2" rebar with aluminum cap at the top of levee east of 107th Ave. approximately 1000' ± 50' north of south 1/4 corner of Sec. 5.

INDEX MAP



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

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
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PLANS CHK.	JM	9/96

SUBMITTED BY: Jack K. Moody, P.E. DATE: 9/96

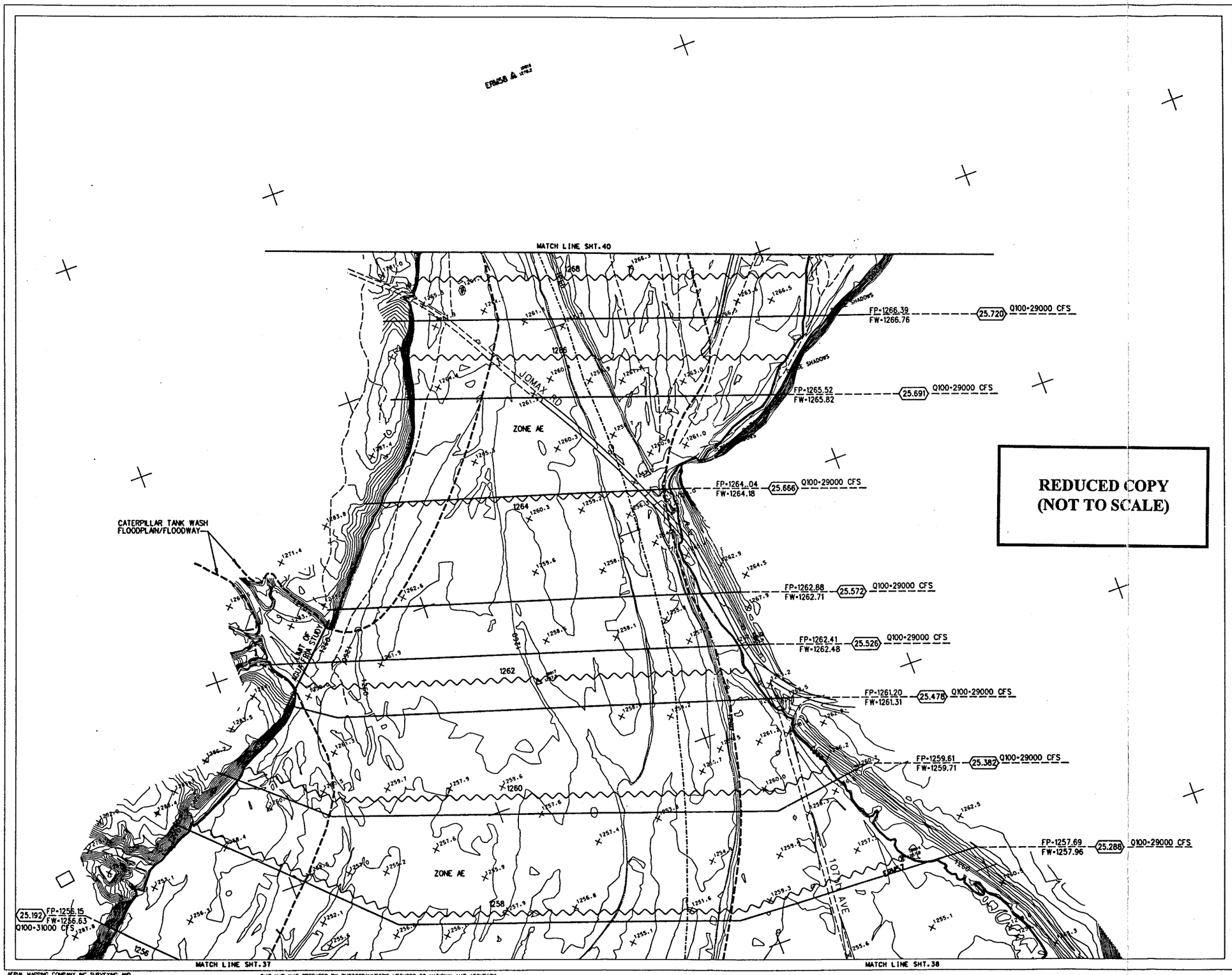
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 38 OF 45



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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 AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

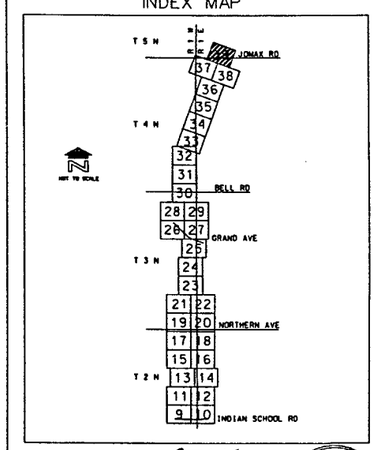
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

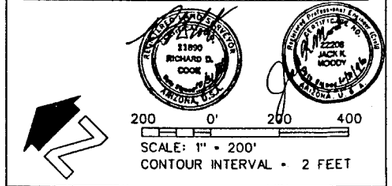
ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 57	1257.19	½" rebar with aluminum cap 500' S. SE of intersection on Jomax Rd. and 107th Ave. SE of old canal by well foundation.
ERM 58	1270.37	½" rebar with aluminum cap approximately 1500' north of Jomax Rd. 500' east of rock outcrop west bank of river on sand bar approximately 80' southwest of Juniper tree 10' high.

INDEX MAP





CVL COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
PLANS CHK.	JM	9/96

SUBMITTED BY: Jock K. Moody, P.E. DATE: 9/96

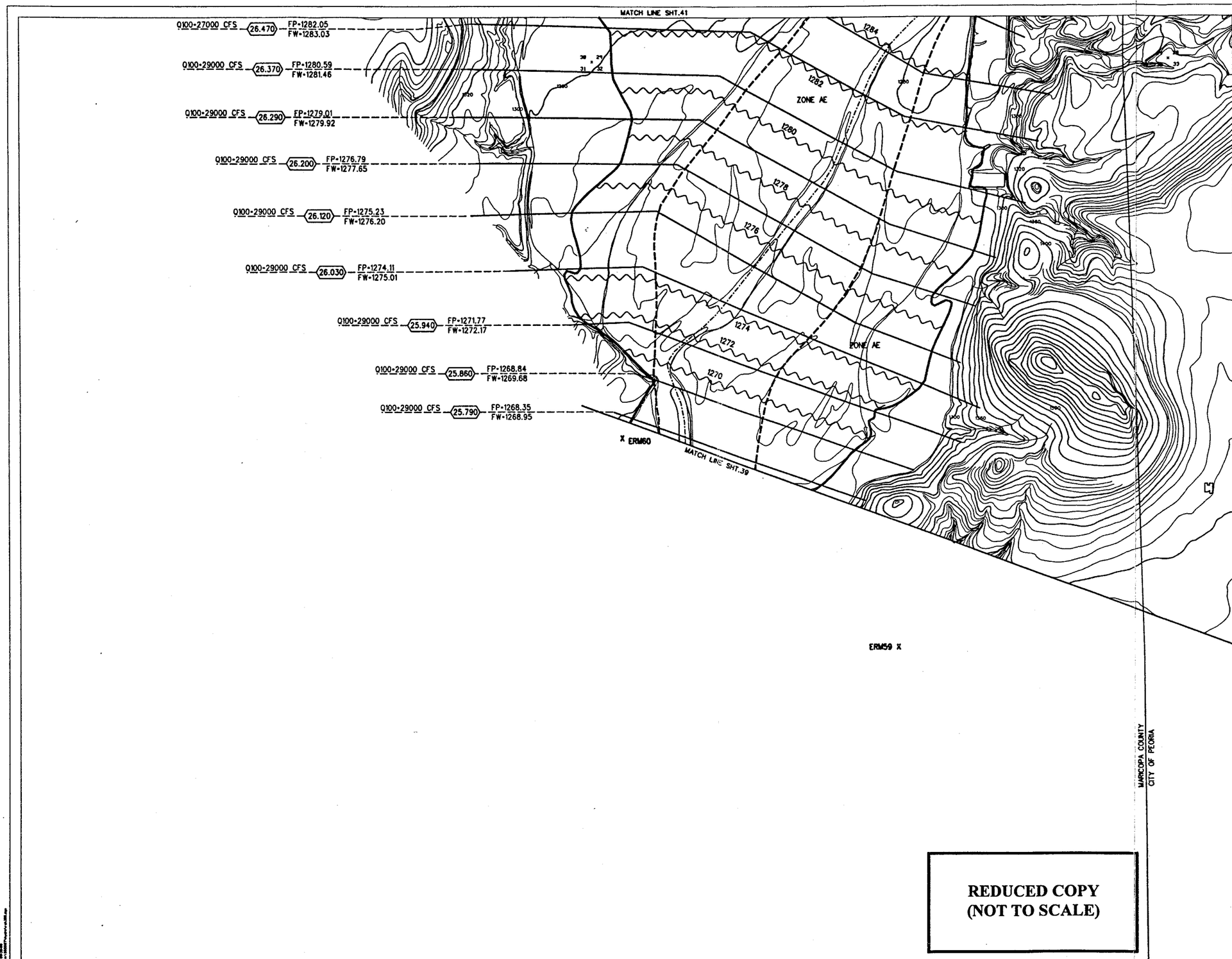
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 39 OF 45



REDUCED COPY
(NOT TO SCALE)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

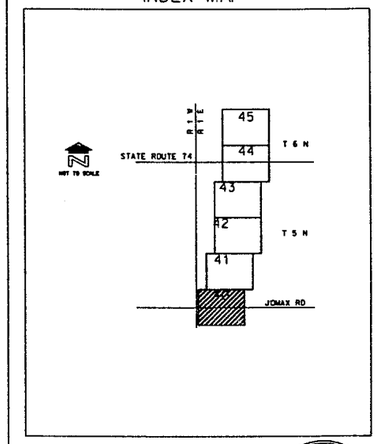
100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1221
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 59	1399.00	Brass cap (LS 6171) at the North quarter corner of Section 5, Township 4 North, Range 1 East
ERM 60	1277.00	Brass cap (U.S. C. & G.S.) L-266 in concrete 100'+ East and 1900'+ North of Southwest corner of Section 32, Township 5 North, Range 1 East

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

COE & VAN LOO CONSULTANTS, INC.

	BY	DATE
DESIGN	DB	9/96
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PLANS CHK.	JM	9/96

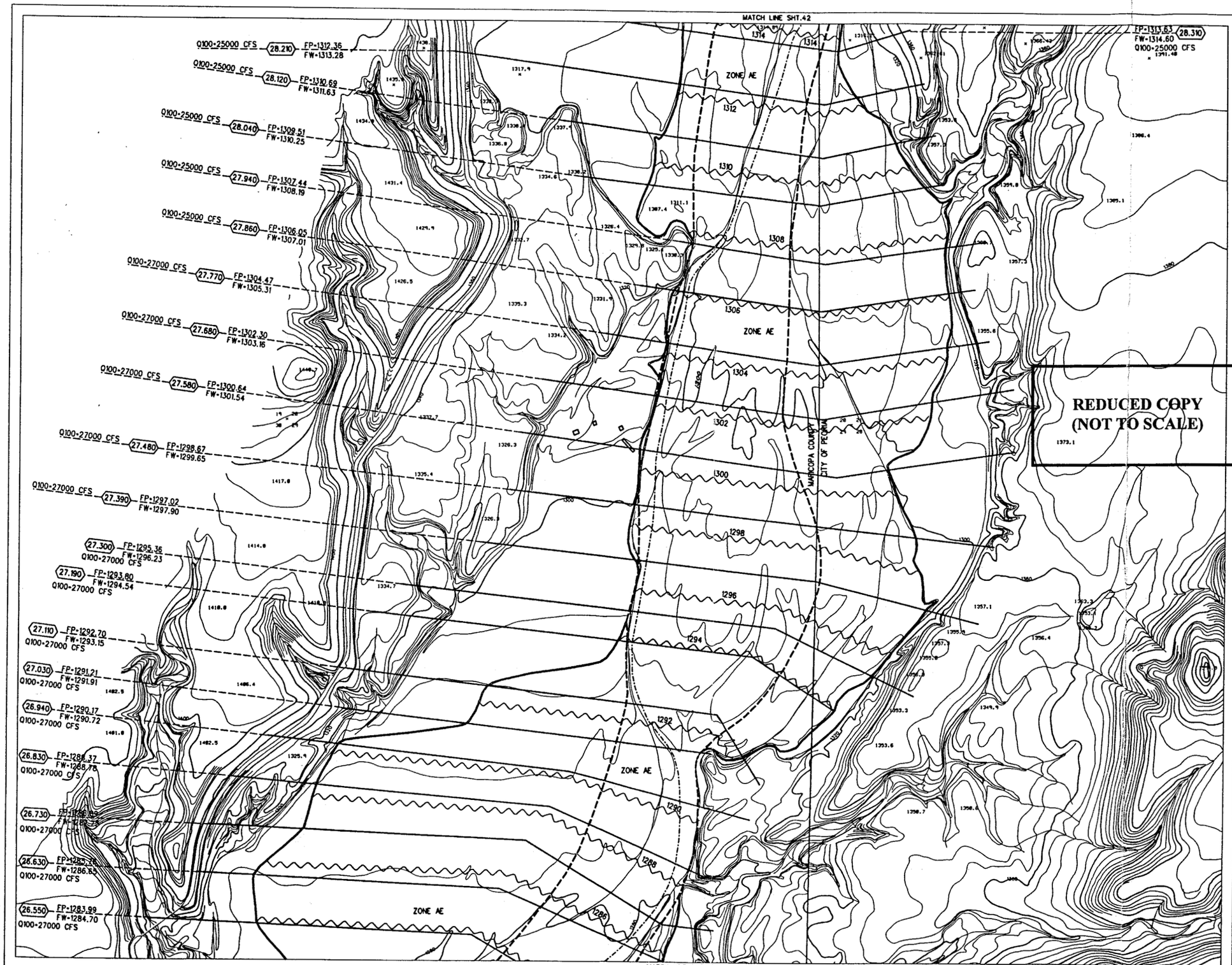
SUBMITTED BY:
Jack K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 40 OF 45

TOPOGRAPHIC MAPPING WAS DIGITIZED FROM JERRY R. JONES FLOOD INSURANCE STUDY, 1989 BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY COOPER AERIAL SURVEY COMPANY FROM PHOTOGRAPHS TAKEN IN SEPT. 1987.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(25.382) FP-100 Yr WSE / FW-Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
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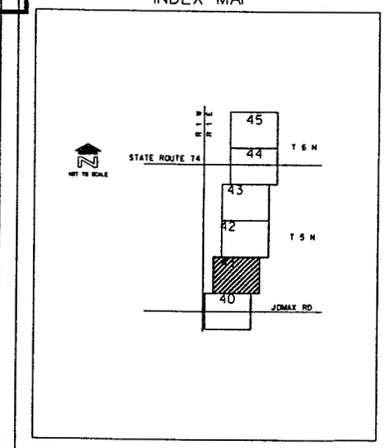
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 60	1277.98	See sheet 40

INDEX MAP



NOT TO SCALE

400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

COE & VAN LOO CONSULTANTS, INC.

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DESIGN CHK.	JM	9/96
PLANS	PE/KR	9/96
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SUBMITTED BY:
Jock K. Moody, P.E. DATE: 9/96

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 41 OF 45

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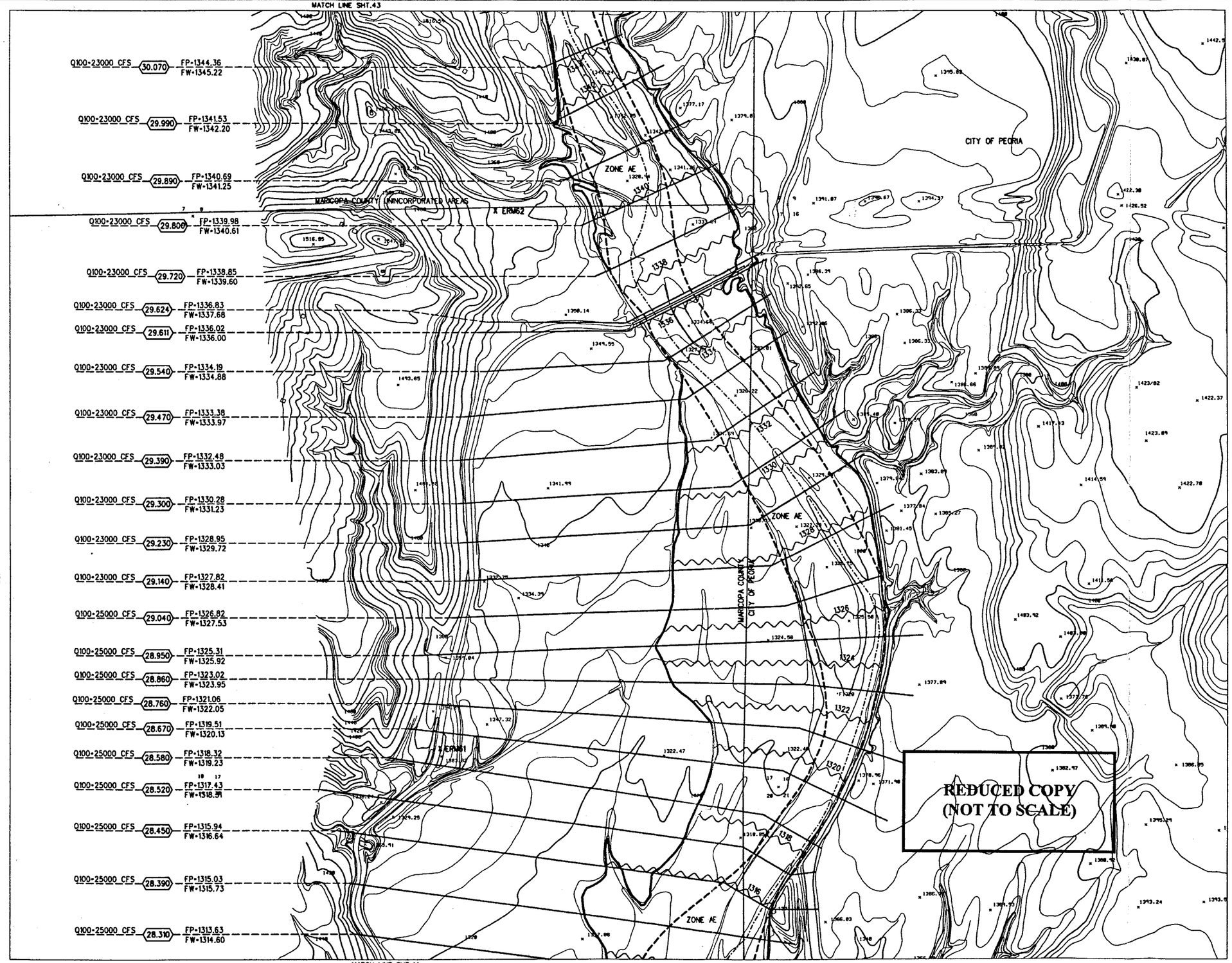

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	25.382 FP-100 Yr WSE / FW-Floodway WSE
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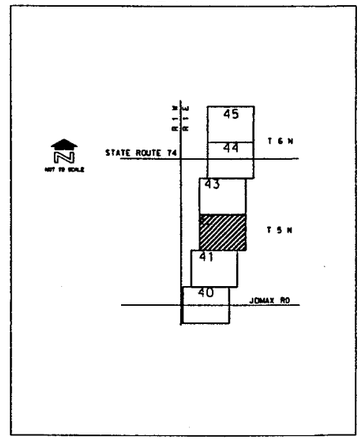
CITY LIMITS	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 61	1355.76	Cross on Northeast corner of cattle guard at the North side of orchard on Beardsley Canal Road located 1990'± East and 400'± North of Southwest corner Section 17, Township 5 North, Range 1 East
ERM 62	1372.10	Found ½" Rebar at the South ¼ corner, Section 8, Township 5 North, Range 1 East, also 900'± North and 1900'± West of flume.

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

CVL COE & VAN LOO CONSULTANTS, INC.

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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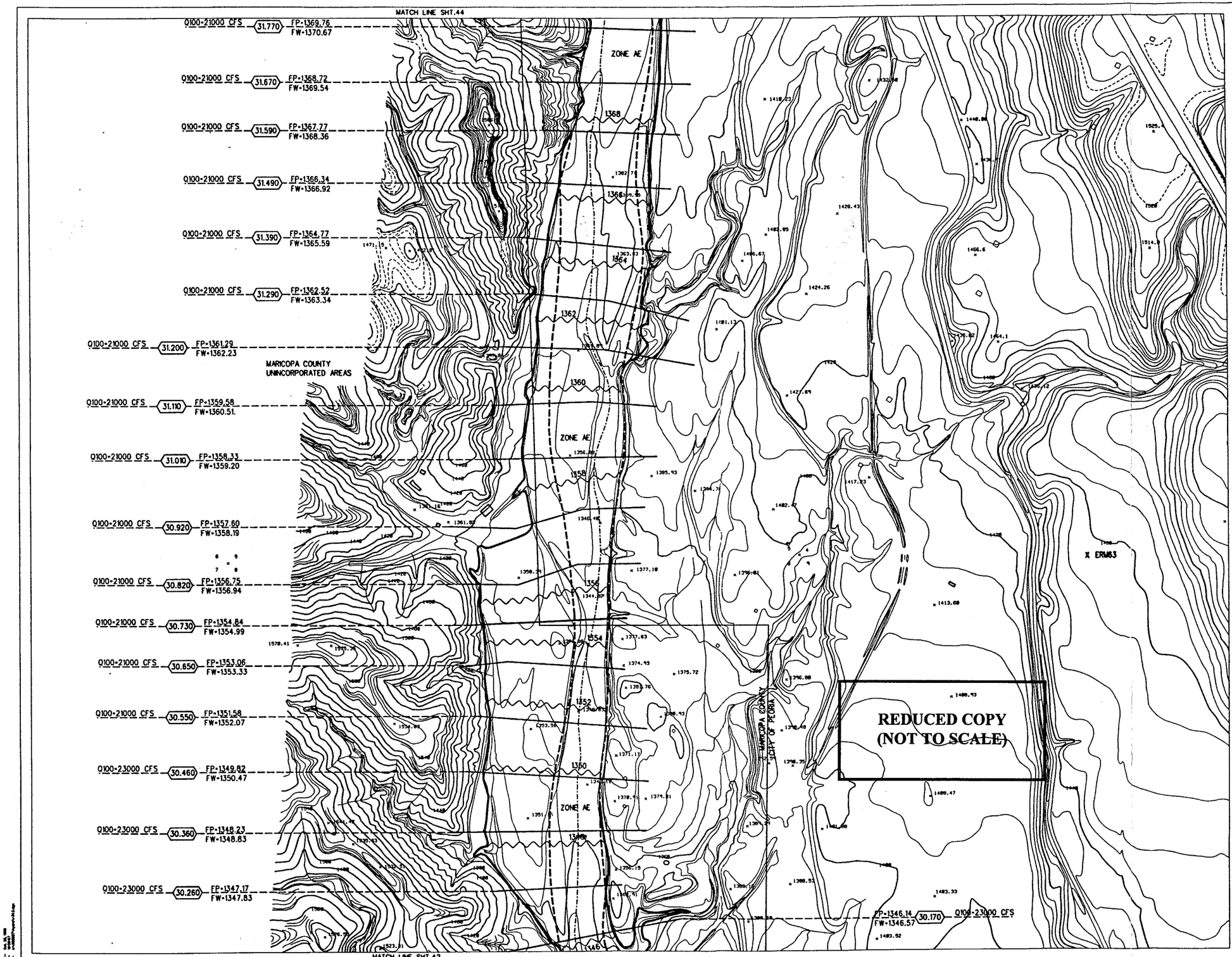
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY:
Jack K. Moody, P.E. DATE: 9/96

SHEET 42 OF 45



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

F.C.D. CONTRACT NO. 95-5

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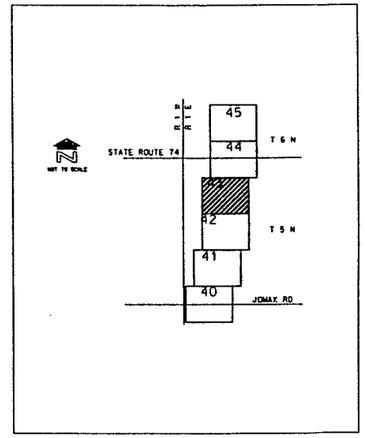
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 63	1454.47	Found ⅝" bar at South ¼ corner, Section 4, Township 5 North, Range 1 East, 400'± East of road, top of hill.

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

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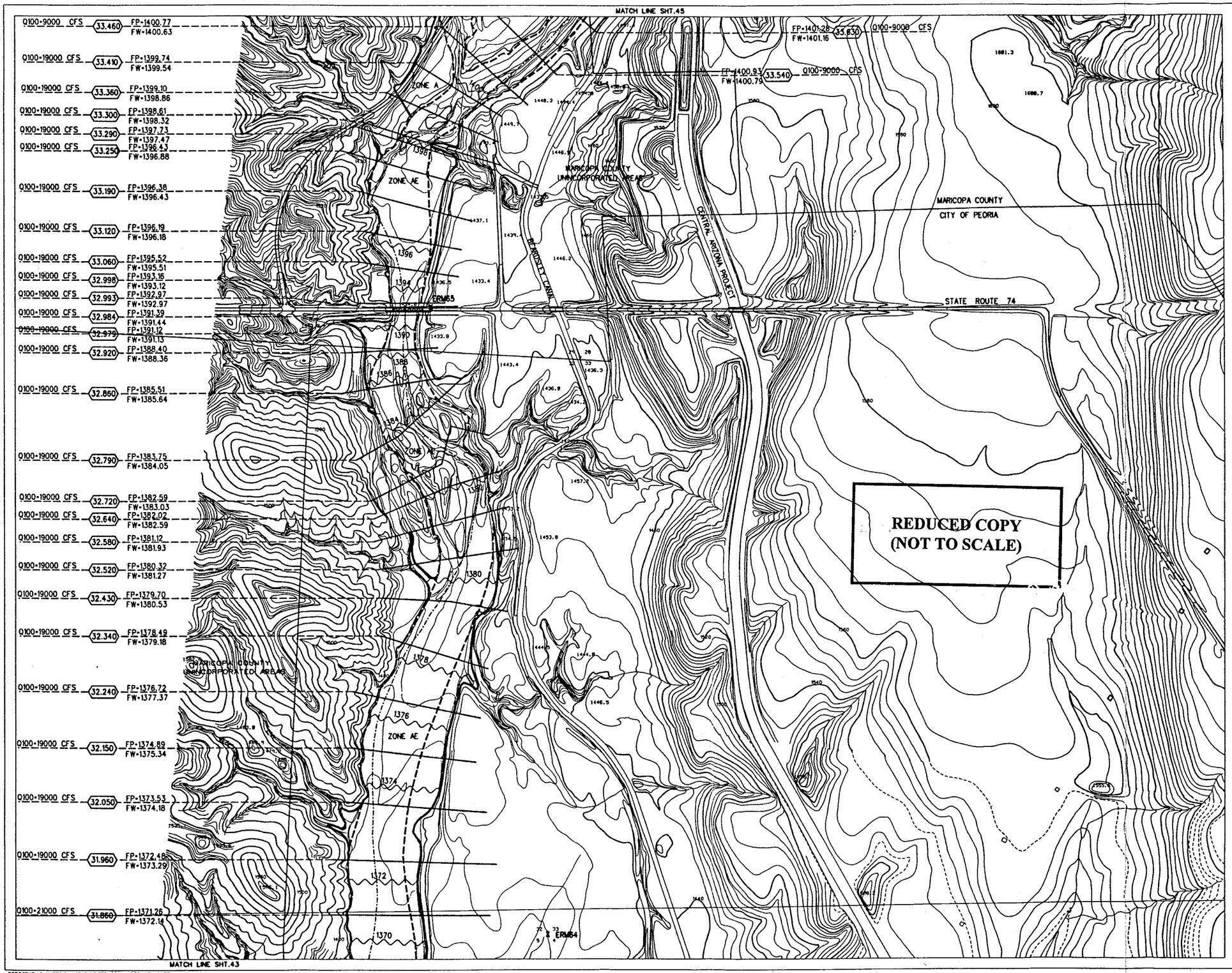
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 43 OF 45



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

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LEGEND

100-YR FLOODPLAIN BOUNDARY	
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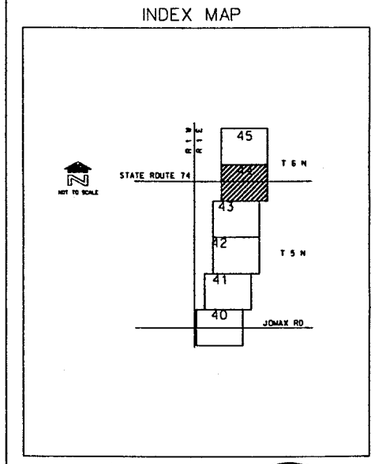
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 64	1412.88	Found stone with marking at the northeast corner, Section 5, Township 5 North, Range 1 East
ERM 65	1469.31	A.D.O.T. brass cap top headwall at the northeast corner of the East bridge on Lake Pleasant

INDEX MAP



400 0' 400 800
SCALE: 1" = 400'
CONTOUR INTERVAL - 4 FEET

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
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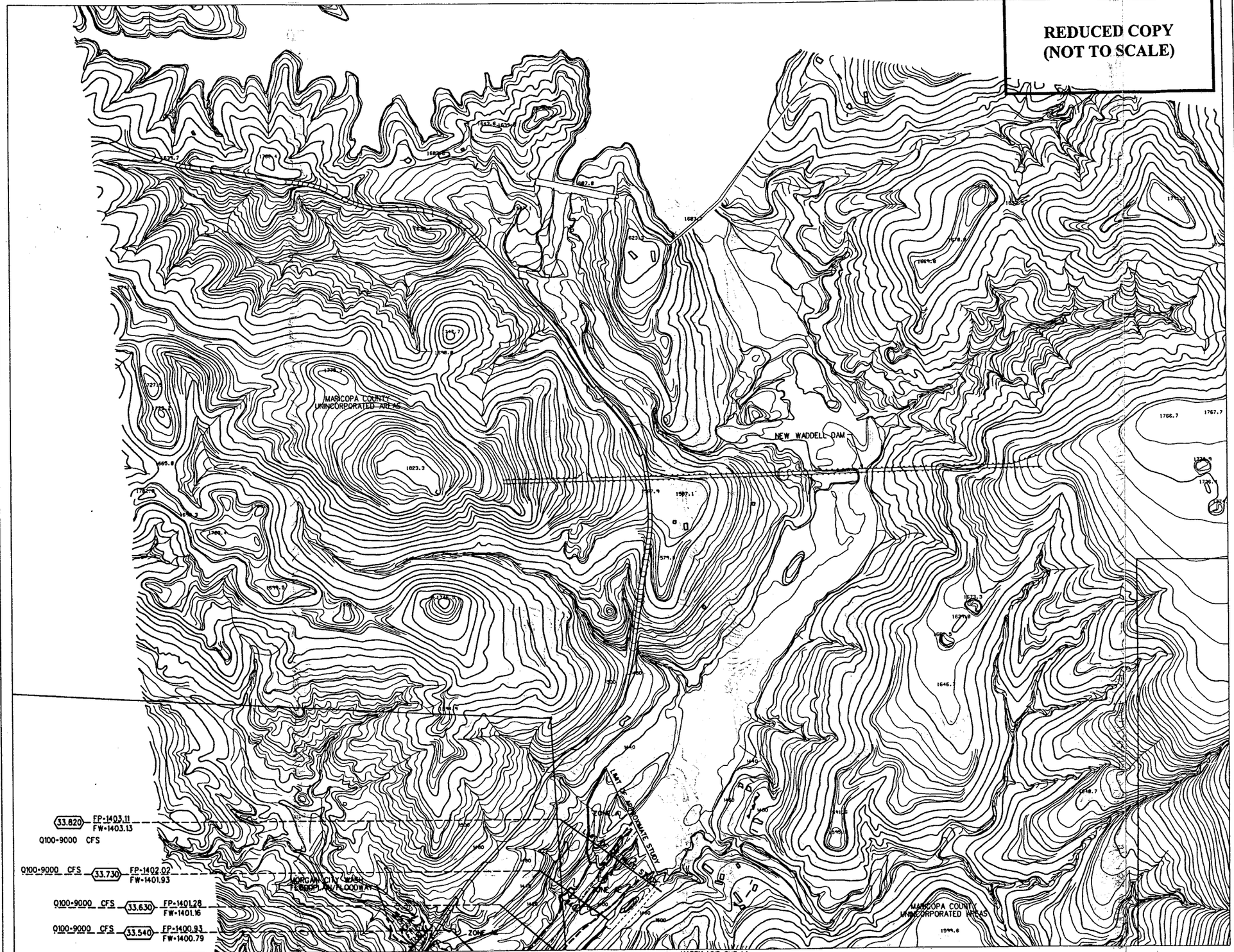
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 44 OF 45

REDUCED COPY (NOT TO SCALE)



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

AGUA FRIA RIVER
FLOODPLAIN DELINEATION RE-STUDY

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100-YR FLOODPLAIN BOUNDARY	
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CROSS SECTION	25.382 FP=100 Yr WSE / FW=Floodway WSE
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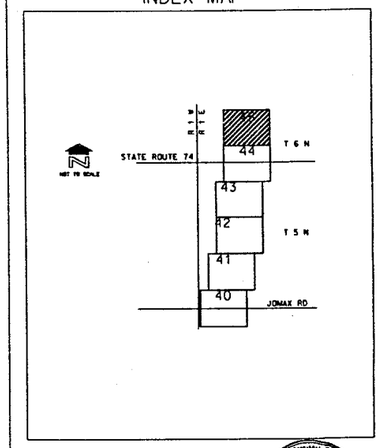
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.081 FEET

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
ERM 65	1469.31	See sheet 44

INDEX MAP



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SCALE: 1" = 400'
CONTOUR INTERVAL = 4 FEET

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Jack K. Moody, P.E. DATE: 9/96

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SHEET 45 OF 45