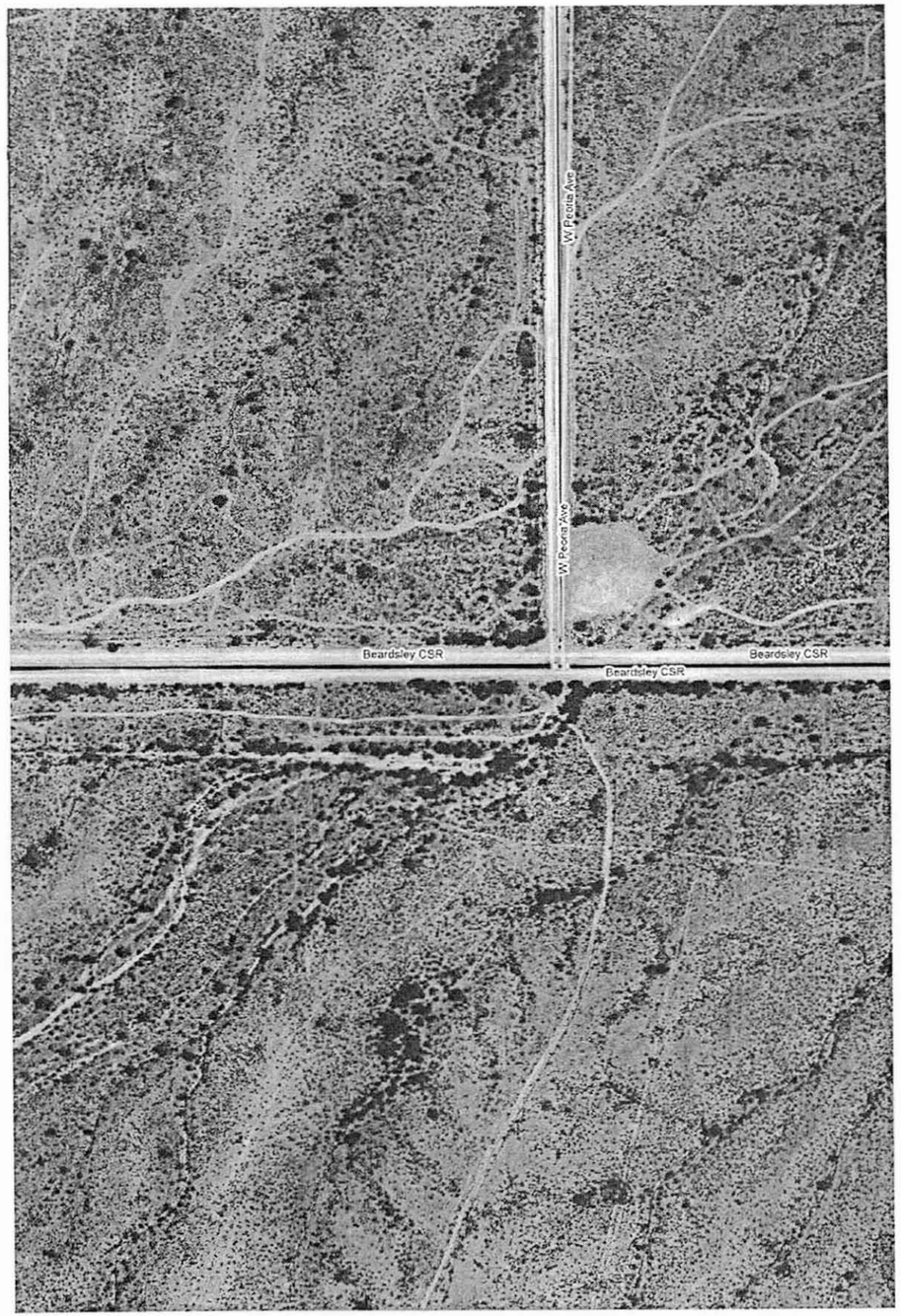
Volume 10: Subbasin Data - "W" Subbasins

Loop 303/White Tanks ADMPU Area Hydrologic Analysis in Maricopa County, Arizona

Flood Control District of Maricopa County

Version 1.2/ September 2009
HDR Project No. 079902
FCD Contract No. 2007C031

CPW01
no diversion
Peoria @
Beardsley CSR



CPW01
no diversion

N 939500

N 939000

150'
(X95)

less
resistance

C:\PW g:\PHX\dm69520\Ind_Haul\Working.dwg, 10/28/2008 2:06:31 PM

N 940500

N 940000

N 939500

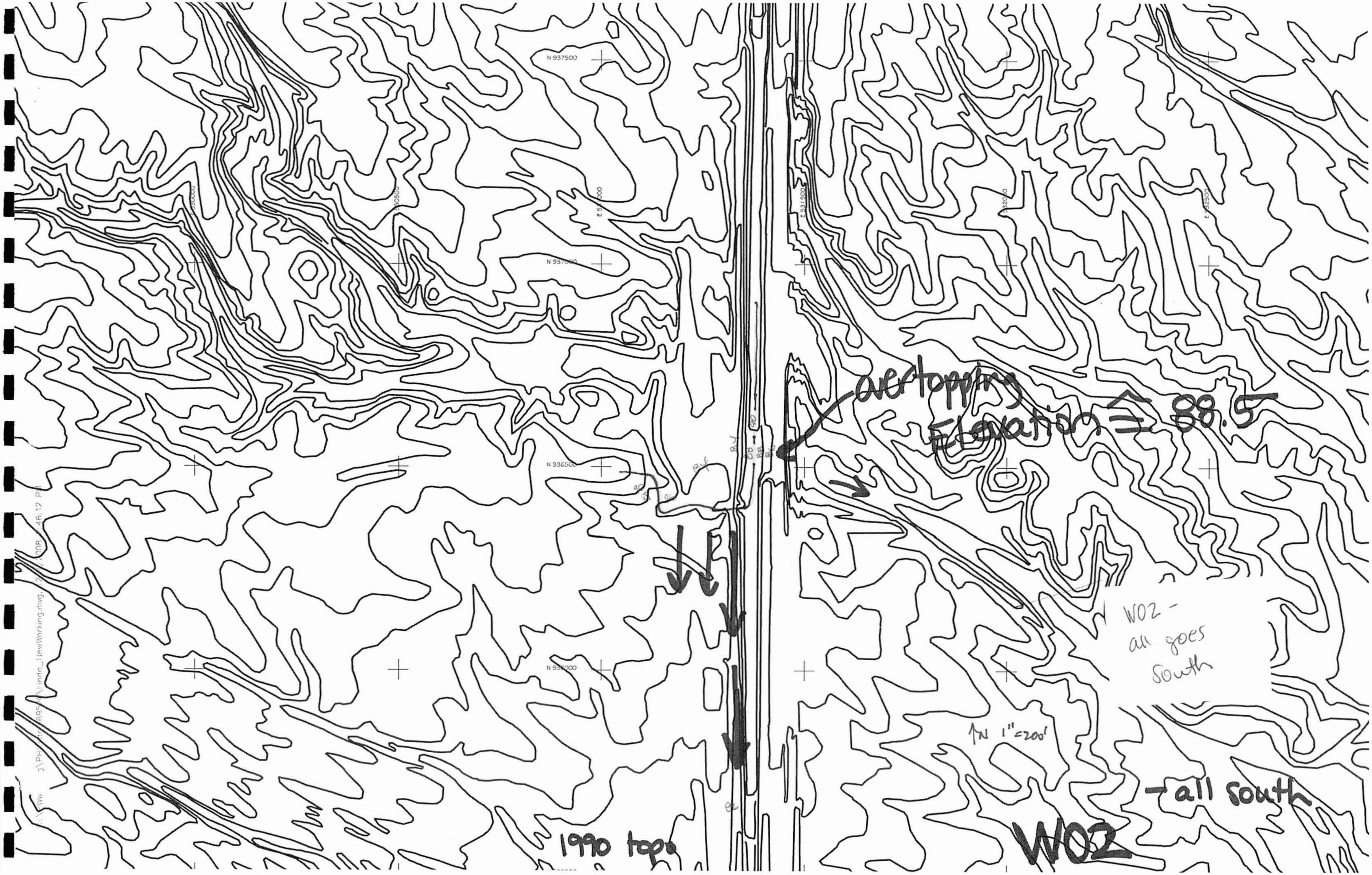
N 939000

Peoria

Beardsley Canal

N

1" = 200'


N 937500
N 937000
N 936500
N 936000
E 531500
overtopping
Elevation ≅ 88.5
W02 -
all goes
South
1"=200'
- all south
W02
1990 topo

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For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

C1P

W05

1**********
* *
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* *
* DATE 10NOV06 TIME 08:31:12 *
* *
****

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID     LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
    2         ID     EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
    3         ID
    4         ID     This HEC-1 Model Is the Combined Model of L303M1L.DAT and PR100-24.DAT
    5         ID     and Used for the NIC and Perryvile Road Wash CLOMR per FCDMC's Direction
    6         ID     The Model PR100-24.DAT Was Used for the FRZR Basin Outlet Channel for the
    7         ID     FCDMC, FCD 2002C009, Stantec Consulting Inc., Proj No. 182000343
    8         ID     Dated 07/07/05.
    9         ID
   10         ID     The Major change are: 1) D215A was added to divert some flow to
   11         ID     subbasin 233; 2) one diversion was used to divert flow from subbasin 215
   12         ID     to subbasin 216; 3) diversion rating curves for subbasin 215 and subbasin
   13         ID     234 were revised based on HEC-RAS modeling results.
   14         ID
   15         ID     Revised by Wood/Patel, Dated November 9, 2006, File Name: L303M3LA.DAT
   16         ID
   17         ID
   18         ID     PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   19         ID     PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   20         ID     TURNED OFF) AT DI189.
   21         ID
   22         ID     THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   23         ID     AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   24         ID     HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   25         ID
   26         ID
   27         ID                                        REVISED BY URS     DATE: 01-14-04
   28         ID                                                           FILE: L303m1L.DAT
   29         ID        NOTES:
   30         ID          1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   31         ID             2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   32         ID          2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   33         ID          3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   34         ID             GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   35         ID             THE WLB MODEL.
   36         ID          4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   37         ID             WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   38         ID             CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   39         ID             DRAINAGE REPORTS.
   40         ID          5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   41         ID             GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   42         ID             ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   43         ID          6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   44         ID          7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   45         ID             STORM.
   46         ID          8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   47         ID          9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   48         ID             THE DATA FILE BY THE FCDMC.
   49         ID         10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   50         ID             AREAS #3 & #4) WERE ESTIMATED BY EEC.
              °DIAGRAM
   51         IT      5                  600
   52         IO      5
   53         IN     15
   54         JD   4.03    .001
```

1 HEC-1 INPUT PAGE 2

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC   .000   .002   .005   .008   .011   .014   .017   .020   .023   .026
   56         PC   .029   .032   .035   .038   .041   .044   .048   .052   .056   .060
   57         PC   .064   .068   .072   .076   .080   .085   .090   .095   .100   .105
   58         PC   .110   .115   .120   .126   .133   .140   .147   .155   .163   .172
   59         PC   .181   .191   .203   .218   .236   .257   .283   .387   .663   .707
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                * Update model L303M1L.DAT
                *
1                                        HEC-1 INPUT                                                    PAGE  4

  LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    132         KK       3A   BASIN
    133         BA    0.290
    134         LG     0.15    0.35    4.30    0.42       0
    135         UI      34.     90.    165.    213.    289.    411.    312.    240.    181.    121.
    136         UI      60.     47.     32.     10.     10.     10.     10.      0.      0.      0.
    137         UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
    138         KK   RCP3A
    139         KM        ROUTE FLOW FROM CP3A TO CP3
    140         RS        2              -1       0
    141         RC      .03     .03     .05    5300   .0060
    142         RX     1000    1023    1032    1046    1058    1067    1250    1540
    143         RY     1289    1288    1286    1284    1284    1286    1288    1291
                *
    144         KK        3   BASIN
    145         BA    0.810
    146         LG     0.15    0.35    4.45    0.38       0
    147         UI      90.    226.    427.    550.    718.   1081.    912.    702.    537.    401.
    148         UI     208.    151.     97.     59.     28.     28.     28.     28.      0.      0.
    149         UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
    150         KK   I1CP3
    151         KM     ADD HYDROGRAPHS AT I1CP3
    152         HC       2     1.1
                *
    153         KK     CP3
    154         KO       2
    155         KM      ADD HYDROGRAPHS AT CP3.
    156         HC       2    4.86
                *
                * PER URS FLOODPLAIN ANALYSIS BY MIKE R.
                * TURN OFF DIVERT PER CULVERT IMPROVEMENT BY 'SONORAN RIDGE REALESTATE'
                * ALSO BY DIRECTION OF MIKE DUNCAN AT FCDMC PER HIS PHONE CONVERSATION
                * WITH SONORAN RIDGE ON 2-14-02.
                *
                * PER PHONE CONVERSATION WITH FCDMC - PROPOSED 2-10'X6' BOX CULVERTS WERE
                * BACKFILLED ON 11-01-02.  THERE IS ALSO AN EXISTING 7' CMP AND AN 8' CMP
                * AT THIS LOCATION
                *
                * ORIGINAL DIVERT DATA COMMENTED OUT
                *
                * KM DIVERT FLOWS THAT WILL OVERTOP THE BEARDSLEY CANAL AT OLIVE AVENUE.  THE
                * KM HEC-2 DIVERSION RATING CURVE MODELED BY THE FLOOD CONTROL DISTRICT IS
                * KM INCORPORATED HERE.
                * FOLLOWING DIVERT DATA PROVIDED BY FCDMC ON 5-14-03
                * THIS INFORMATION IS BASED ON THE CULVERT STRUCTURE CONSTRUCTED PER THE
                * SONORAN RIDGE DEVELOPMENT, SEE 'S02001035' AND 'S02002033'
                * DT DI189
                * DI     0    1432    2823    3000    4000
                * DQ     0       0     622     728    1728
                *
1                                        HEC-1 INPUT                                                    PAGE  5

  LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    157         KK       D3
    158         KM   NORTH INLET CHANNEL SIDE WEIR DIVERSION BY KM ON 7/06/05 AT OLIVE ANENUE
    159         KM    (FROM HEC-RAS)
    160         DT   SIDEWR
    161         DI      600     800    1000    1200    1400    1600    2000    2400    2715    2800
    162         DQ      105     163     361     498     640     792    1100    1437    1605    1630
                *
    163         KK     RCP3
    164         KM          ROUTE FLOW FROM CP3 TO CP10.
    165         RS        2              -1       0
    166         RC      .05     .03     .05    5280   .0083
    167         RX     1010    1015    1020    1050    1100    1275    1580    1750
    168         RY     1251    1249    1249    1245    1245    1250    1250    1254
                *
                *  Cholla wash - input parameters taken from Loop303/White Tanks ADMP Update
                *  model L303M1L.DAT
                *
    169         KK        4
    170         KM          RUNOFF HYDROGRAPH FORM SUB-BASIN 4.
    171         BA      .30
    172         LG      .20     .35    4.35     .44    9.00
    173         UI      47.    191.    286.    443.    513.    346.    237.    115.     67.     36.
    174         UI      14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
    175         UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
    176         KK        5
    177         KM          RUNOFF HYDROGRAPH FROM SUB-BASIN 5.
    178         BA      .72
    179         LG      .20     .35    4.30     .45    9.00
    180         UI     109.    433.    653.    981.   1241.    852.    594.    323.    177.    104.
    181         UI      33.     33.     33.      0.      0.      0.      0.      0.      0.      0.
    182         UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

DW055E

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1**********************************************
*                                            *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)        *
*             JUN  1998                      *
*           VERSION 4.1                      *
*                                            *
*     DATE   18APR07  TIME  11:52:52         *
*                                            *
**********************************************
```


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**********************************************
*                                            *
*    U.S. ARMY CORPS OF ENGINEERS            *
*    HYDROLOGIC ENGINEERING CENTER           *
*          609 SECOND STREET                 *
*       DAVIS, CALIFORNIA 95616              *
*          (916) 756-1104                    *
*                                            *
**********************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID
    2         ID      **********************************************************************
    3         ID      The Basins North of I-10 on each side of Bullard Wash are Modified
    4         ID      ADOT Basin Is Eliminated.  Wood/Patel, February 2007
    5         ID      **********************************************************************
    6         ID
    7         ID      **********************************************************************
    8         ID      The Basin at Northeast Corner of I-10 and Bullard Wash Is Modified
    9         ID      ADOT Basin Is Eliminated.  Wood/Patel, February 2006
   10         ID      **********************************************************************
   11         ID
   12         ID        DRAFT PREFERRED ALTERNATIVE LEVEL III
   13         ID
   14         ID        INCORPORATE ALTERNATIVE #3 FROM CHANGE ORDER #14 INTO
   15         ID        SR 303L OFFSITE FLOOD CONTROL FACILITY - NORTHERN AND CACTUS
   16         ID        BASINS ARE NOW OFFLINE WITH MULTIPLE BASINS LOCATED WITHIN
   17         ID        LUKE AIR FORCE BASE CRASH ZONE AREA
   18         ID
   19         ID        **ADOT BASIN GEOMETRY REPRESENTS MOST RECENT 2' CONTOURS**
   20         ID        WHITE TANKS AREA DRAINAGE MASTER STUDY *UPDATE*
   21         ID        Original MODEL BY THE WLB Group for FCDMC AS PART OF THE WHITE
   22         ID        TANKS/AGUA FRIA ADMS, Date: October 1991
   23         ID
   24         ID        REVISED HYDROLOGY HEC-1 RUN FOR WHITE TANKS ADMS
   25         ID        100-YEAR, 24-HOUR STORM                  original file: WTADMS.24
   26         ID
   27         ID                                        REVISED BY URS     DATE: 01-14-04
   28         ID                                                           FILE: L33PE4H.DAT
   29         ID
   30         ID      NOTES:
   31         ID      1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   32         ID         2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   33         ID      2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   34         ID      3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   35         ID         GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   36         ID         THE WLB MODEL.
   37         ID      4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   38         ID         WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   39         ID         CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   40         ID         DRAINAGE REPORTS.
   41         ID      5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   42         ID         GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   43         ID         ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   44         ID      6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   45         ID      7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   46         ID         STORM.
   47         ID      8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   48         ID      9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   49         ID         THE DATA FILE BY THE FCDMC.
   50         ID     10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   51         ID         AREAS #3 & #4) WERE ESTIMATED BY EEC.
   52         ID
              *DIAGRAM
   53         IT      5                   600
   54         IO      5
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         IN     15
   56         JD   4.03    .001
   57         PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   58         PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   59         PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
```

```
                * KK CP253

5451            KK   !BD3N
5452            KM   ADD HYDROGRAPHS AT CP253
5453            HC      2   42.53
                * KK  R253
                * PER LEVEL III PRELIMINARY-DRAFT PREFERRED ALTERNATIVE

5454            KK   RBD3N
5455            KM   ROUTE FLOW FROM CP253 TO CP268
5456            RS     3.4            -1.0     0.0
5457            RC   0.030   0.030   0.030    5971  0.0027
5458            RX     0.0    70.0    83.0    96.0   109.0   122.0   135.0   205.0
5459            RY  1022.8  1015.8  1015.8  1015.8  1015.8  1015.8  1015.8  1022.8
                * RS     6              -1
                * RC   .03     .03     .03    5500   .0021
                * RX1000.0  1041.7  1047.1  1052.5  1057.9  1063.3  1068.7  1110.4
                * RY1031.0  1024.1  1024.1  1024.1  1024.1  1024.1  1024.1  1031.0
                *

5460            KK     267
5461            KM   BASIN 267
5462            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
5463            KM    L=     1.9  Lca=      .9   S=   12.4  Kn= .030  LAG=  32.4
5464            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
5465            BA    1.19
5466            LG     .23     .25    5.60     .26   14.00
5467            UI    124.    272.    554.    716.    901.   1285.   1465.   1089.    864.    671.
5468            UI    477.    254.    205.    124.     80.     38.     38.     38.     38.      0.
5469            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
5470            UI      0.      0.

5471            KK  267OUT
5472            KM        DIVERT ONSITE RETENTION VOLUME  (Pebble Creek Phase 1)
5473            DT  267RET   105.12
5474            DI       0   10000
5475            DQ       0   10000
                * KK CP267
1                                       HEC-1 INPUT                                                 PAGE147

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

5476            KK   !BD4N
5477            KM   ADD HYDROGRAPHS AT CP267
5478            HC      2   43.72
                * KK  R267
                * PER LEVEL III PRELIMINARY-DRAFT PREFERRED ALTERNATIVE

5479            KK   RBD4N
5480            KM   ROUTE FLOW FROM CP267 TO CP286
5481            RS     1.6            -1.0     0.0                                          B58B59
5482            RC   0.020   0.020   0.020    5299  0.0048
5483            RX     0.0     0.0    18.4    36.7    55.1    73.4    91.8    91.8
5484            RY  1013.1  1005.7  1005.7  1005.7  1005.7  1005.7  1005.7  1013.1
                * RS    11              -1
                * RC   .03     .03     .03    5280  0.0020
                * RX  1000    1042  1055.2  1068.4  1081.6  1094.8    1108    1156
                * RY  1003     996     996     996     996     996     996    1004
                *

5485            KK     286
5486            KM   BASIN 286
5487            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
5488            KM    L=      1.2  Lca=       .4   S=   18.6  Kn= .113  LAG=  70.2
5489            KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
5490            BA     .70
5491            LG     .47     .03    5.80     .30    7.00
5492            UI    37.     37.     39.     77.    111.    181.    220.    202.    293.    267.
5493            UI   309.    309.    309.    309.    259.    257.    280.    224.    194.    217.
5494            UI   149.    140.    116.    104.    115.     77.     67.     59.     52.     45.
5495            UI    44.     34.     34.     34.     22.     21.     21.     21.     21.     10.
5496            UI     5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
5497            UI     5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
5498            UI     5.      5.      0.      0.      0.      0.      0.      0.      0.      0.
5499            UI     0.      0.      0.      0.      0.      0.      0.      0.
                * KK286OUT
                * KM      DIVERSION-RETENTION
                * DT286RET   63.92
                * DI      0   10000
                * DQ      0   10000

5500            KK   1I286
5501            KM        ADD HYDROGRAPHS AT CP286
5502            HC       2   86.98
                *

5503            KK     288
5504            KM        RUNOFF HYDROGRAPH FROM SUB-BASIN 288
5505            BA     .22
5506            LG     .50     .00    4.90    0.47     .00
5507            UI     8.      8.      8.      8.     27.     31.     37.     41.     46.     49.
5508            UI    53.     58.     64.     69.     82.     98.    112.    100.     88.     79.
5509            UI    72.     67.     62.     56.     51.     46.     42.     39.     32.     24.
5510            UI    18.     15.     15.     14.     14.      9.      8.      8.      8.      3.
5511            UI     3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
5512            UI     3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
1                                       HEC-1 INPUT                                                 PAGE148

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

5513            UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

1"=200'

Culvert Analysis Report
Culvert-1

Culvert Summary					
Computed Headwater Elev	1,260.14	ft	Discharge	99.96	cfs
Inlet Control HW Elev.	1,259.97	ft	Tailwater Elevation	986.00	ft
Outlet Control HW Elev.	1,260.14	ft	Control Type	Entrance Control	
Headwater Depth/Height	0.34				

Grades					
Upstream Invert	1,258.44	ft	Downstream Invert	1,256.59	ft
Length	331.00	ft	Constructed Slope	0.005589	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	0.77	ft
Slope Type	Steep		Normal Depth	0.77	ft
Flow Regime	Supercritical		Critical Depth	0.92	ft
Velocity Downstream	6.51	ft/s	Critical Slope	0.003172	ft/ft

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	10.00	ft
Section Size	10 x 5 ft		Rise	5.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	1,260.14	ft	Upstream Velocity Head	0.46	ft
Ke	0.70		Entrance Loss	0.32	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,259.97	ft	Flow Control	Unsubmerged	
Inlet Type	0° wingwall flares		Area Full	100.0	ft²
K	0.06100		HDS 5 Chart	8	
M	0.75000		HDS 5 Scale	3	
C	0.04230		Equation Form	1	
Y	0.82000				

Rating Table Report
SRW05 (2-4'x6' arch culverts)

Range Data:			
	Minimum	Maximum	Increment
Allowable HW E	1,268.00	1,278.00	2.00 ft

HW Elev. (ft)	Discharge (cfs)
1,268.00	0.00
1,270.00	17.38
1,272.00	115.12
1,274.00	251.24
1,276.00	344.20
1,278.00	2,119.47

Culvert Analysis Report
Culvert-1

Culvert Summary					
Computed Headwater Elev	1,271.75	ft	Discharge	100.03	cfs
Inlet Control HW Elev.	1,271.34	ft	Tailwater Elevation	986.00	ft
Outlet Control HW Elev.	1,271.75	ft	Control Type	Entrance Control	
Headwater Depth/Height	0.75				

Grades					
Upstream Invert	1,269.00	ft	Downstream Invert	1,268.00	ft
Length	56.00	ft	Constructed Slope	0.017857	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	1.42	ft
Slope Type	Steep		Normal Depth	1.42	ft
Flow Regime	Supercritical		Critical Depth	1.52	ft
Velocity Downstream	6.96	ft/s	Critical Slope	0.014380	ft/ft

Section					
Section Shape	Arch		Mannings Coefficient	0.028	
Section Material	Aluminum 18Sections 2-2/3x1 Corrugations Historic		Span	6.00	ft
Section Size	72 x 44 inch		Rise	3.67	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	1,271.75	ft	Upstream Velocity Head	0.65	ft
Ke	0.90		Entrance Loss	0.58	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,271.34	ft	Flow Control	Unsubmerged	
Inlet Type	CR structural plate, projecting		Area Full	34.5	ft²
K	0.03000		HDS 5 Chart	35	
M	1.50000		HDS 5 Scale	1	
C	0.04960		Equation Form	1	
Y	0.57000				

Rating Table Report
SRW05 (2-10'x5' RCBC)

Range Data:				
	Minimum	Maximum	Increment	
Allowable HW E	1,268.00	1,278.00	2.00	ft

HW Elev. (ft)	Discharge (cfs)
1,268.00	0.00
1,270.00	45.08
1,272.00	234.26
1,274.00	504.06
1,276.00	834.97
1,278.00	2,792.71

Culvert Analysis Report
Culvert-1

Culvert Summary					
Computed Headwater Elev	1,270.70	ft	Discharge	99.96	cfs
Inlet Control HW Elev.	1,270.50	ft	Tailwater Elevation	986.00	ft
Outlet Control HW Elev.	1,270.70	ft	Control Type	Entrance Control	
Headwater Depth/Height	0.34				

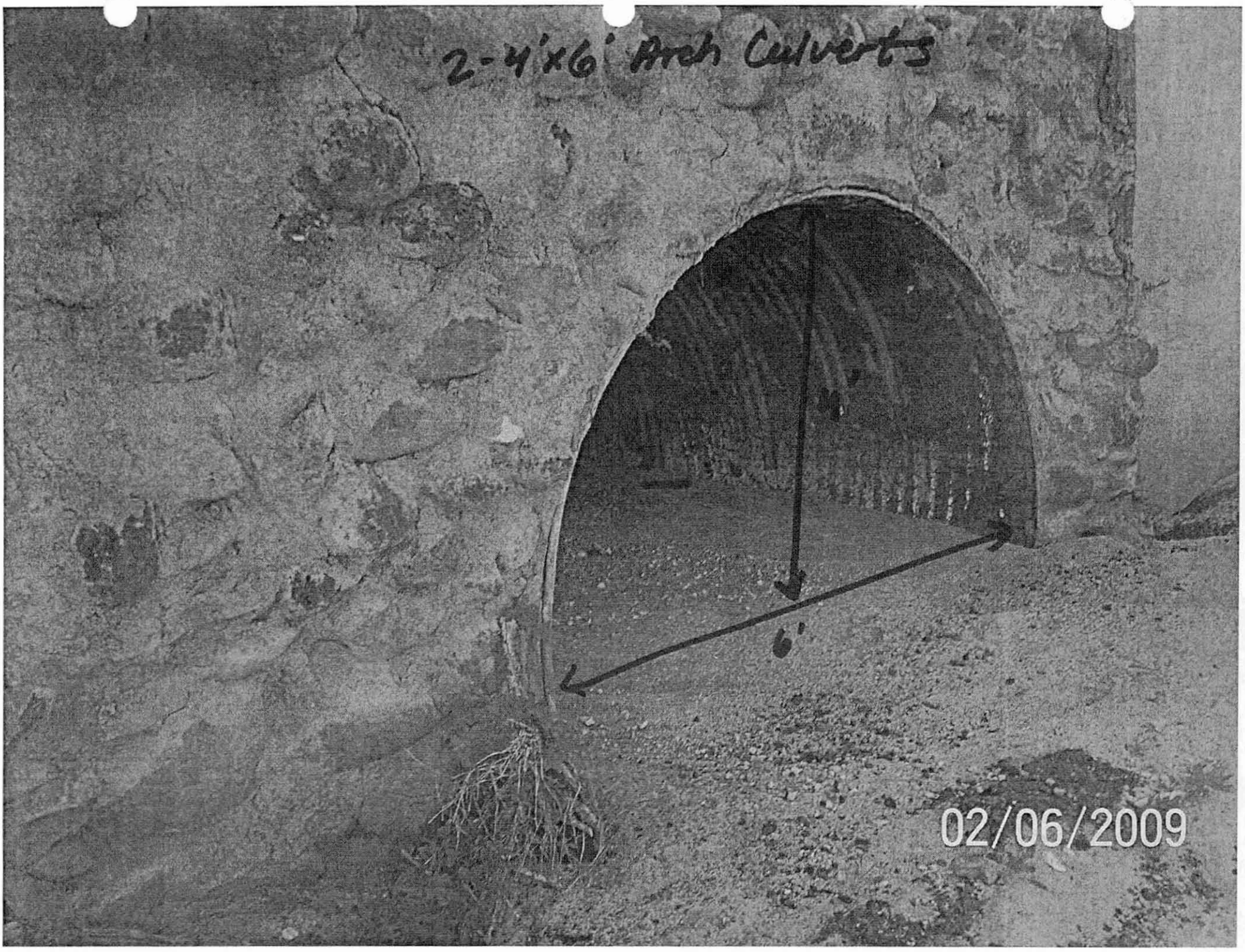
Grades					
Upstream Invert	1,269.00	ft	Downstream Invert	1,268.00	ft
Length	56.00	ft	Constructed Slope	0.017857	ft/ft

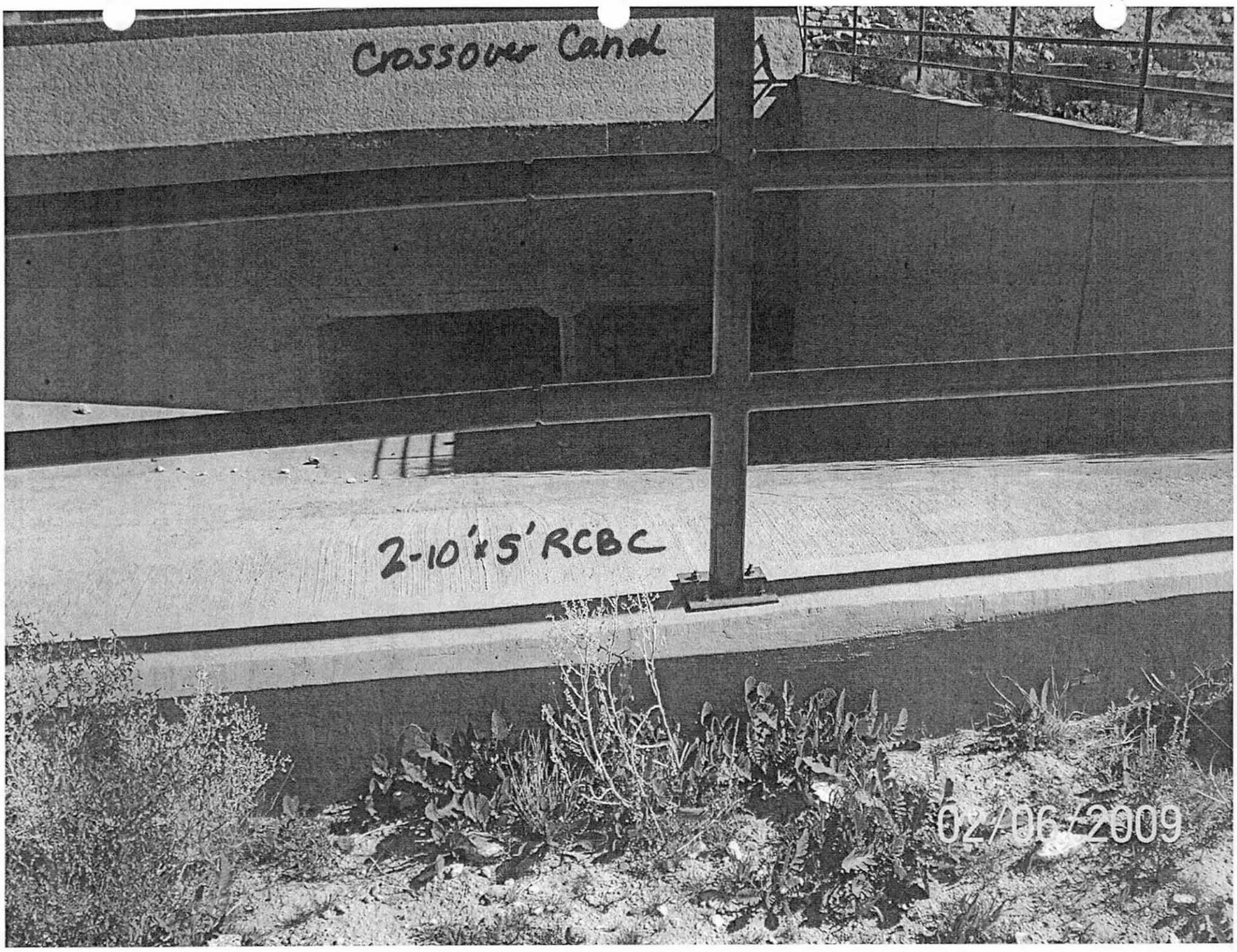
Hydraulic Profile					
Profile	S2		Depth, Downstream	0.57	ft
Slope Type	Steep		Normal Depth	0.53	ft
Flow Regime	Supercritical		Critical Depth	0.92	ft
Velocity Downstream	8.84	ft/s	Critical Slope	0.003172	ft/ft

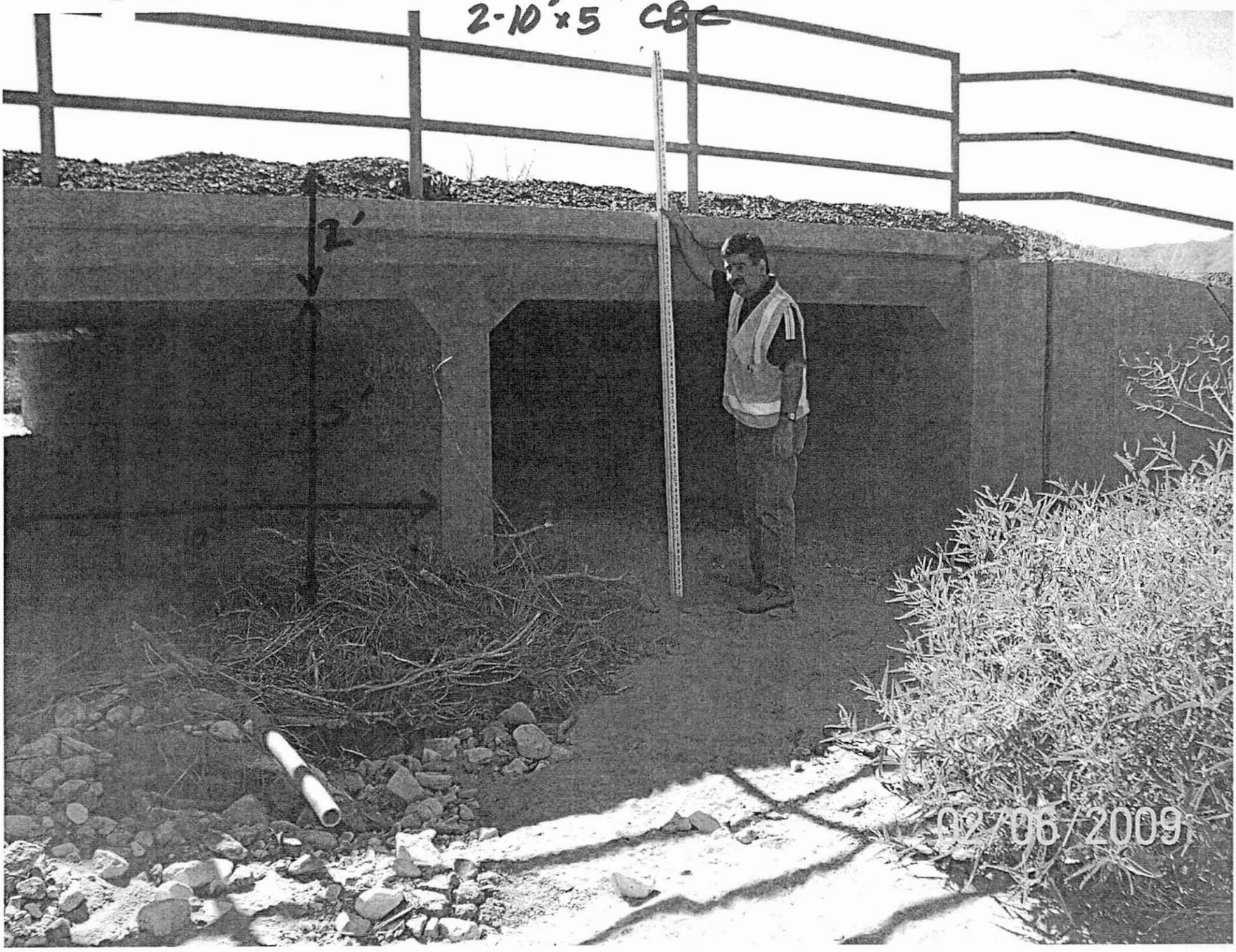
Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	10.00	ft
Section Size	10 x 5 ft		Rise	5.00	ft
Number Sections	2				

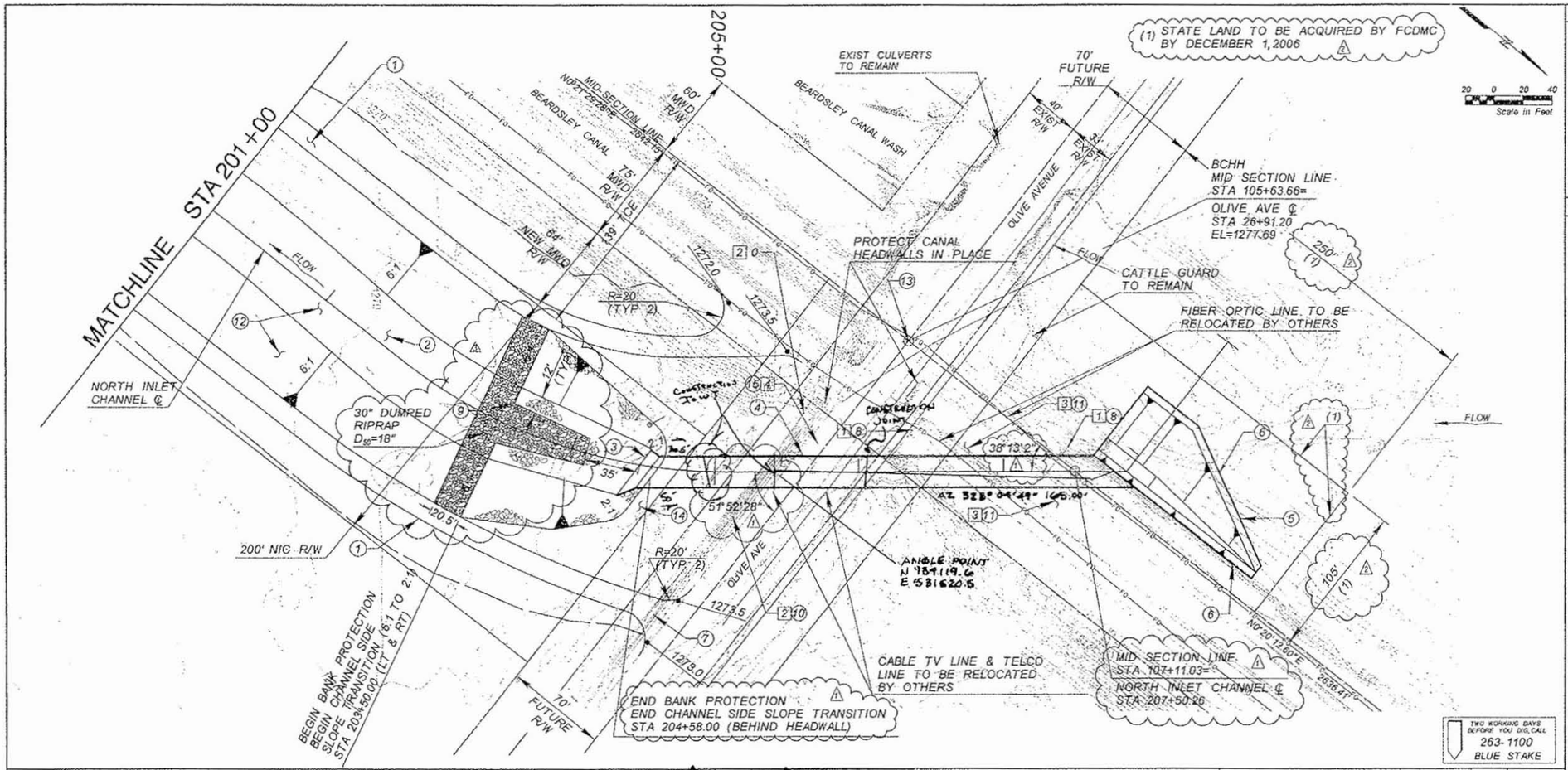
Outlet Control Properties					
Outlet Control HW Elev.	1,270.70	ft	Upstream Velocity Head	0.46	ft
Ke	0.70		Entrance Loss	0.32	ft

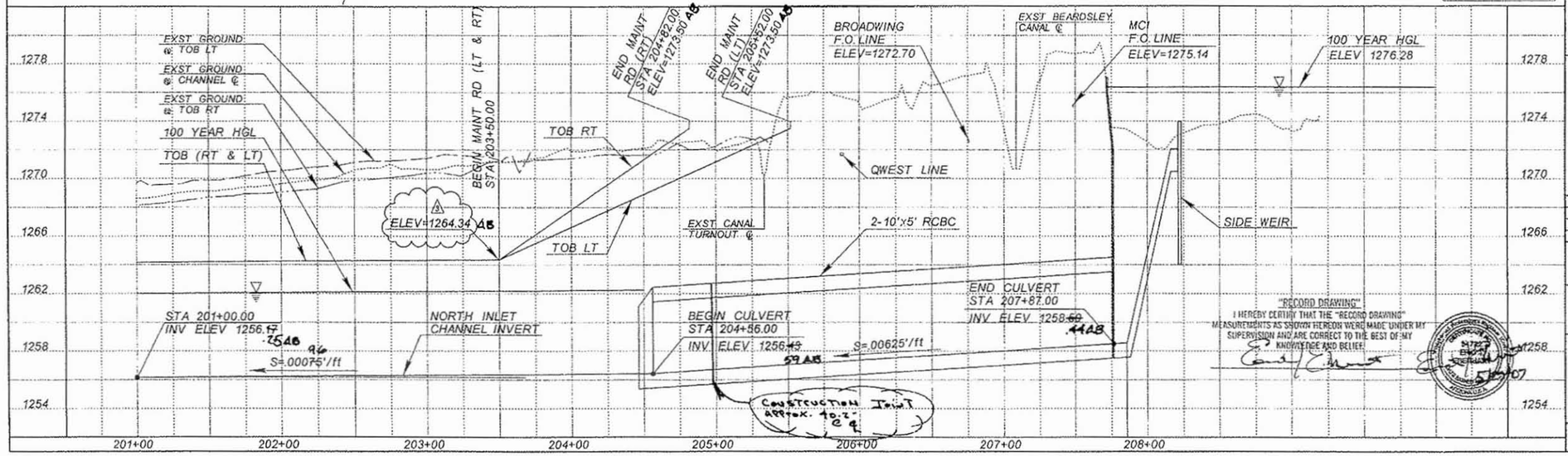
Inlet Control Properties					
Inlet Control HW Elev.	1,270.50	ft	Flow Control	Unsubmerged	
Inlet Type	0° wingwall flares		Area Full	100.0	ft²
K	0.06100		HDS 5 Chart	8	
M	0.75000		HDS 5 Scale	3	
C	0.04230		Equation Form	1	
Y	0.82000				


2-4'x6' Arch Culverts
6'
02/06/2009


Crossover Canal
2-10'x5' RCBC
02/06/2009


2-10'x5' CBC
2'
3'
02/06/2009



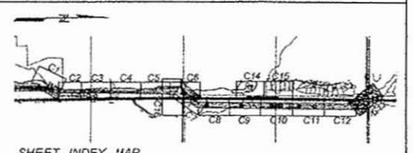


REMOVE

[1]	REMOVE CANAL MAINT ROAD GATE	2 EA
[2]	REMOVE LATERAL 9 CANAL LINING	240 LF
[3]	REMOVE BEARDSLEY CANAL LINING	194 LF
[4]	SAWCUT & REMOVE EXISTING ASPHALT PAVEMENT	318 SY

CONSTRUCT

(1)	O&M ROAD PER TYPICAL SECTION DWG NO. D1	1337 SY
(2)	NIC CHANNEL EXCAVATION PER LIMITS SHOWN, PER TYP SECTION DWG NO. G7 & PER CROSS SECTION DWG NO.S XS11 & XS12	19,833 CY
(3)	OUTLET HEADWALL & WING WALLS PER ADOT STD NO B-04.50, 2:1 SLOPE, 40° SKEW AND OUTLET APRON PER ADOT STD NO B-06.10	1 EA
(4)	2-10'x5' RCBC PER ADOT STD NO B-02.20, TABLE II WITH INCREASE OF TOP SLAB THICKNESS 1/2" CLEAR COVER TO BE 1-1/2" ON BOTTOM REINFORCEMENT IN TOP SLAB	331 LF
(5)	SIDE WEIR/DROP INLET STRUCTURE PER DETAILS DWG NO.'S ST1-ST3	1 EA
(6)	HANDRAIL PER COP STD DET P-1173	201 LF
(7)	PRE-CAST SLAB CROSSING WITH NO CURB PER DET DWG NO. D2 LENGTH=18', WIDTH=16' (2) 8' SLABS. CENTER OVER TURNOUT CANAL	1 EA
(8)	NEW CANAL SECURITY GATE	2 EA
(9)	9" RENO MATTRESS BANK PROTECTION PER LIMITS SHOWN THIS SHEET	1080 SY
(10)	REPLACE LATERAL 9 CANAL LINING PER MWD CANAL REPLACEMENT DETAILS	240 LF
(11)	REPLACE BEARDSLEY CANAL PER MWD CANAL REPLACEMENT DETAILS (SHEETS 61-62)	194 LF
(12)	NATIVE SEEDING	1.20 AC
(13)	NEW SURVEY MARKER PER MAG STD DET 120-2, TYPE 'E'	1 EA
(14)	COMPACTED EMBANKMENT FILL B/W HEADWALL & TURNOUT CANAL (NPI)	250 CY
(15)	REPLACE ASPHALT PAVEMENT PER MAG STD. 200, TYPE "A" WITH 2 LAYERS ASPHALT OVER 12" ABC	318 SY



SHEET INDEX MAP

NO.	REVISION	BY	DATE
3	REDIMENSION RIP RAP / REVISE ELEVATION		12-20-06
2	REV R/W DESCRIPTION		04-25-06
1	ADD SKEW ANGLE, REV STATIONS		04-25-06

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3 - NORTH INLET CHANNEL (NIC) PROJECT
PROJECT CONTROL No. 470-04-31

	BY	DATE
DESIGNED	JKK	10/05
DRAWN	JB/JP	10/05
CHECKED	BJL	01/06

KIRKHAM MICHAEL

DRAWING NO.		SHEET OF
C13	PLAN AND PROFILE STA 201+00 TO STA 209+00	25 56

AB RM 5/21/07

W05, W12, W13

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

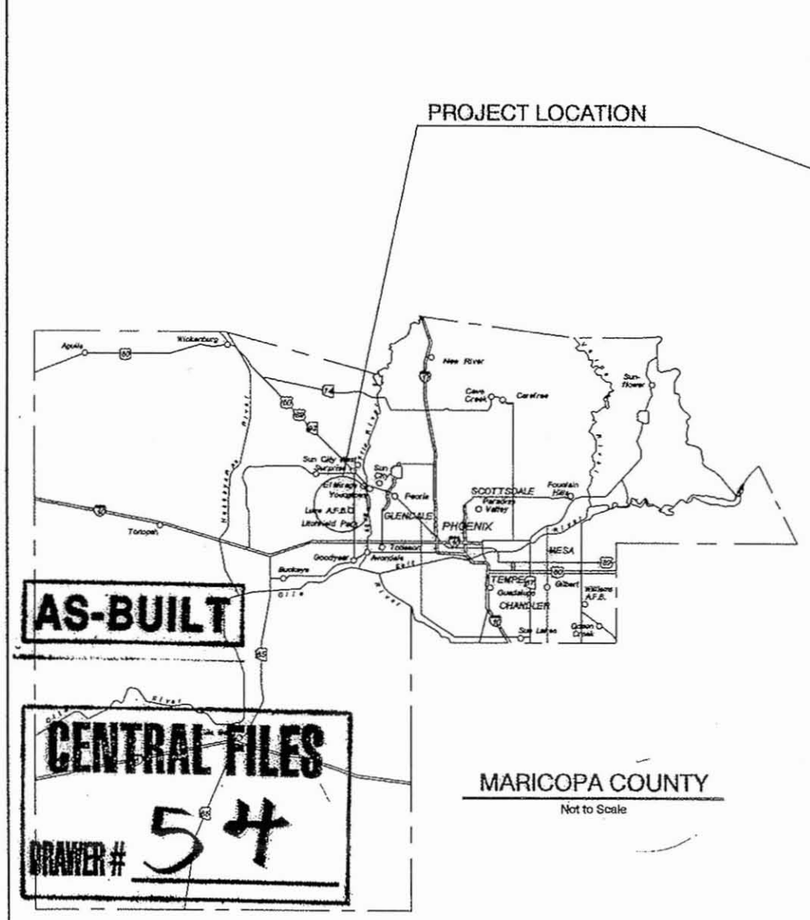
PLANS FOR THE CONSTRUCTION OF

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3

NORTH INLET CHANNEL

PCN 470.04.31

FCD CONTRACT No. 2005C019



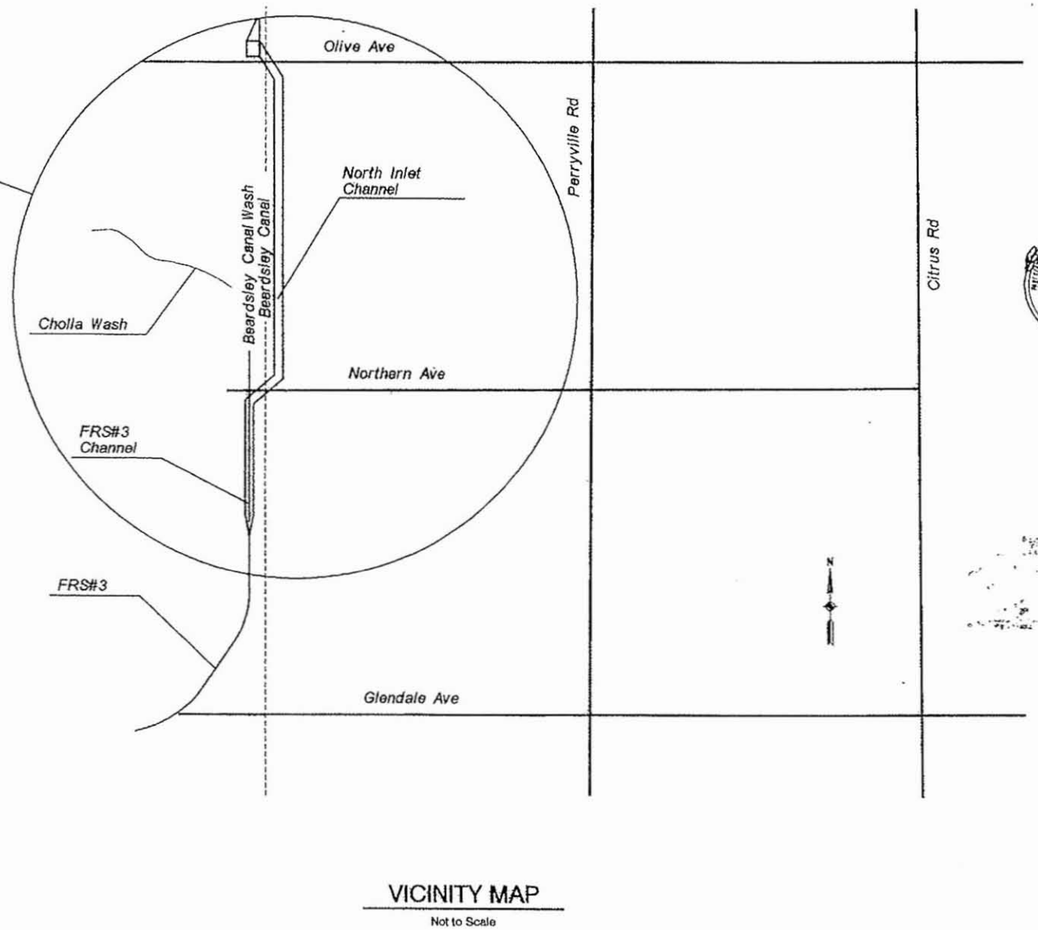
AS-BUILT

CENTRAL FILES

DRAWER # 54

MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

KIRKHAM MICHAEL

9201 North 25th Avenue - Suite 150
Phoenix, AZ 85021 (602)944-5564 Fax (602) 944-6592

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

B A Ola, PE — 3-16-06

PROJECT MANAGER — DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER

JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO.1

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

White Tanks FRS #3 North Inlet Channel As-Builts
FCD 2005C019 #54

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For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

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For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

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Loop 303/White Tanks ADMPU Area Hydrologic Analysis

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For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

C1P

W12

```
1*******************************************
*                                         *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *
*             JUN  1998                   *
*           VERSION 4.1                   *
*                                         *
*      DATE   10NOV06  TIME  08:31:12     *
*                                         *
*******************************************
```

```
*******************************************
*                                         *
*    U.S. ARMY CORPS OF ENGINEERS         *
*    HYDROLOGIC ENGINEERING CENTER        *
*         609 SECOND STREET               *
*       DAVIS, CALIFORNIA 95616           *
*         (916) 756-1104                  *
*                                         *
*******************************************
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```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID     LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
    2         ID     EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
    3         ID
    4         ID     This HEC-1 Model Is the Combined Model of L303M1L.DAT and PR100-24.DAT
    5         ID     and Used for the NIC and Perryvile Road Wash CLOMR per FCDMC's Direction
    6         ID     The Model PR100-24.DAT Was Used for the FRZR Basin Outlet Channel for the
    7         ID     FCDMC, FCD 2002C009, Stantec Consulting Inc., Proj No. 182000343
    8         ID     Dated 07/07/05.
    9         ID
   10         ID     The Major change are: 1) D215A was added to divert some flow to
   11         ID     subbasin 233; 2) one diversion was used to divert flow from subbasin 215
   12         ID     to subbasin 216; 3) diversion rating curves for subbasin 215 and subbasin
   13         ID     234 were revised based on HEC-RAS modeling results.
   14         ID
   15         ID     Revised by Wood/Patel, Dated November 9, 2006, File Name: L303M3LA.DAT
   16         ID
   17         ID
   18         ID     PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   19         ID     PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   20         ID     TURNED OFF) AT DI189.
   21         ID
   22         ID     THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   23         ID     AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   24         ID     HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   25         ID
   26         ID
   27         ID                                        REVISED BY URS     DATE: 01-14-04
   28         ID                                                           FILE: L303M1L.DAT
   29         ID        NOTES:
   30         ID          1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   31         ID             2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   32         ID          2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   33         ID          3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   34         ID             GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   35         ID             THE WLB MODEL.
   36         ID          4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   37         ID             WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   38         ID             CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   39         ID             DRAINAGE REPORTS.
   40         ID          5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   41         ID             GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   42         ID             ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   43         ID          6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   44         ID          7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   45         ID             STORM.
   46         ID          8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   47         ID          9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   48         ID             THE DATA FILE BY THE FCDMC.
   49         ID         10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   50         ID             AREAS #3 & #4) WERE ESTIMATED BY EEC.
   51         ^DIAGRAM
   52         IT       5                    600
   53         IO       5
   54         IN      15
   55         JD    4.03    .001
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   56         PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   57         PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   58         PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   59         PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   60         PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
```

```
*  Update model L303M1L.DAT
*
                                HEC-1 INPUT                                                    PAGE  4
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  132         KK      3A   BASIN
  133         BA   0.290
  134         LG    0.15    0.35    4.30    0.42       0
  135         UI     34.     90.    165.    213.    289.    411.    312.    240.    181.    121.
  136         UI     60.     47.     32.     10.     10.     10.      0.      0.      0.      0.
  137         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
  138         KK   RCP3A
  139         KM        ROUTE FLOW FROM CP3A TO CP3
  140         RS       2              -1       0
  141         RC     .03     .03     .05    5300   .0060
  142         RX    1000    1023    1032    1046    1058    1067    1250    1540
  143         RY    1289    1288    1286    1284    1284    1286    1288    1291
              *
  144         KK       3   BASIN
  145         BA   0.810
  146         LG    0.15    0.35    4.45    0.38       0
  147         UI     90.    226.    427.    550.    718.   1081.    912.    702.    537.    401.
  148         UI    208.    151.     97.     59.     28.     28.     28.     28.      0.      0.
  149         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
  150         KK   I1CP3
  151         KM     ADD HYDROGRAPHS AT I1CP3
  152         HC       2     1.1
              *
  153         KK     CP3
  154         KO       2
  155         KM      ADD HYDROGRAPHS AT CP3.
  156         HC       2    4.86
              *
              * PER URS FLOODPLAIN ANALYSIS BY MIKE R.
              * TURN OFF DIVERT PER CULVERT IMPROVEMENT BY 'SONORAN RIDGE REALESTATE'
              * ALSO BY DIRECTION OF MIKE DUNCAN AT FCDMC PER HIS PHONE CONVERSATION
              * WITH SONORAN RIDGE ON 2-14-02.
              *
              * PER PHONE CONVERSATION WITH FCDMC - PROPOSED 2-10'x6' BOX CULVERTS WERE
              * BACKFILLED ON 11-01-02.  THERE IS ALSO AN EXISTING 7' CMP AND AN 8' CMP
              * AT THIS LOCATION
              *
              * ORIGINAL DIVERT DATA COMMENTED OUT
              *
              * KM DIVERT FLOWS THAT WILL OVERTOP THE BEARDSLEY CANAL AT OLIVE AVENUE.  THE
              * KM HEC-2 DIVERSION RATING CURVE MODELED BY THE FLOOD CONTROL DISTRICT IS
              * KM INCORPORATED HERE.
              * FOLLOWING DIVERT DATA PROVIDED BY FCDMC ON 5-14-03
              * THIS INFORMATION IS BASED ON THE CULVERT STRUCTURE CONSTRUCTED PER THE
              * SONORAN RIDGE DEVELOPMENT, SEE 'S02001035' AND 'S02002033'
              * DT DI189
              * DI      0    1432    2823    3000    4000
              * DQ      0       0     622     728    1728
              *
                                HEC-1 INPUT                                                    PAGE  5
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  157         KK       D3
  158         KM    NORTH INLET CHANNEL SIDE WEIR DIVERSION BY KM ON 7/06/05 AT OLIVE ANENUE
  159         KM    (FROM HEC-RAS)
  160         DT   SIDEWR
  161         DI      600     800    1000    1200    1400    1600    2000    2400    2715    2800
  162         DQ      105     163     361     498     640     792    1100    1437    1605    1630
              *
  163         KK     RCP3
  164         KM          ROUTE FLOW FROM CP3 TO CP10.
  165         RS       2              -1       0
  166         RC     .05     .03     .05    5280   .0083
  167         RX    1010    1015    1020    1050    1100    1275    1580    1750
  168         RY    1251    1249    1249    1245    1245    1250    1250    1254
              *
              *  Cholla wash - input parameters taken from Loop303/White Tanks ADMP Update
              *  model L303M1L.DAT
              *
  169         KK       4
  170         KM         RUNOFF HYDROGRAPH FORM SUB-BASIN 4.
  171         BA     .30
  172         LG     .20     .35    4.35     .44    9.00
  173         UI     47.    191.    286.    443.    513.    346.    237.    115.     67.     36.
  174         UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
  175         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
  176         KK       5
  177         KM         RUNOFF HYDROGRAPH FROM SUB-BASIN 5.
  178         BA     .72
  179         LG     .20     .35    4.30     .45    9.00
  180         UI    109.    433.    653.    981.   1241.    852.    594.    323.    177.    104.
  181         UI     33.     33.     33.      0.      0.      0.      0.      0.      0.      0.
  182         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

W0512A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

PLANS FOR THE CONSTRUCTION OF

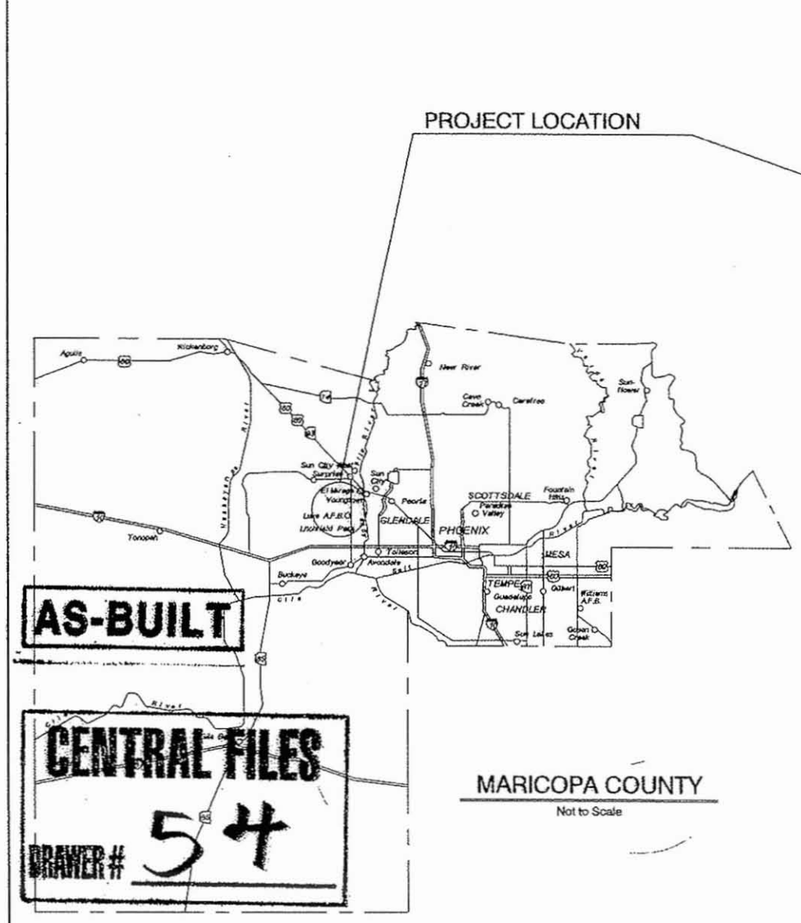
WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3

NORTH INLET CHANNEL

PCN 470.04.31

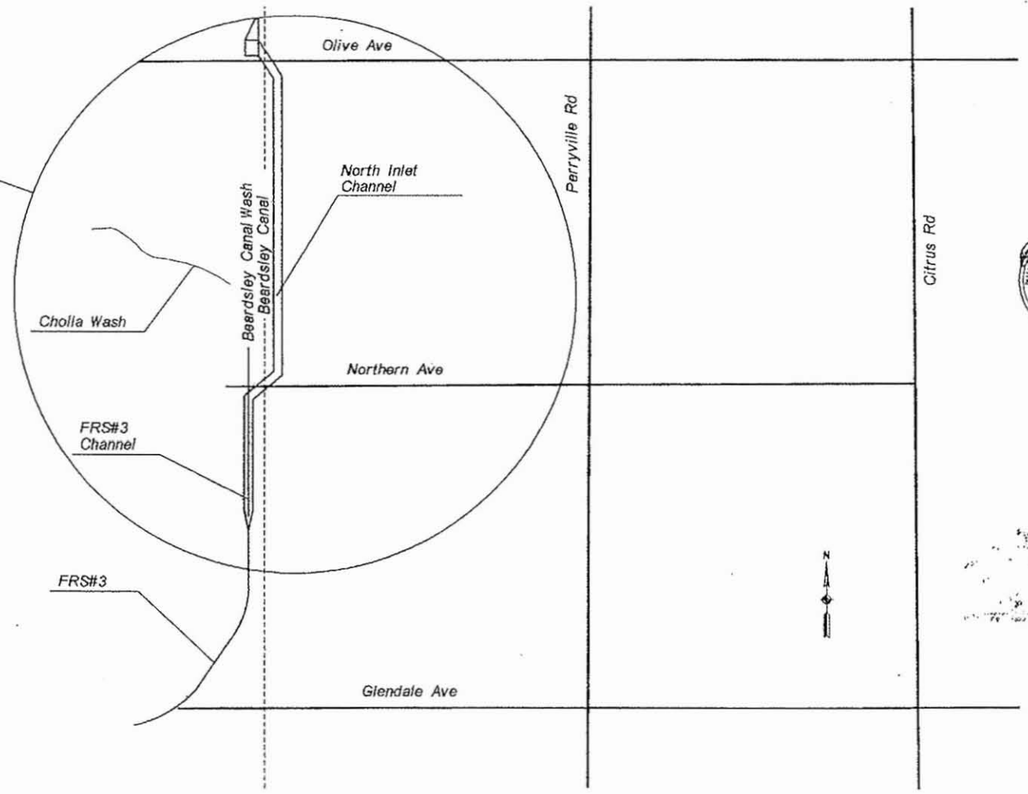
FCD CONTRACT No. 2005C019

W12



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

KIRKHAM MICHAEL

9201 North 29th Avenue - Suite 150
Phoenix, AZ 85021 (602)944-6564 Fax (602) 944-6592

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

B A Wilson PE — 3-16-06

PROJECT MANAGER — DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER

JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO.1

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

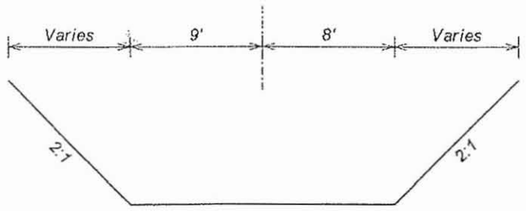
DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

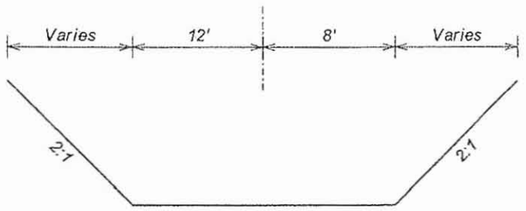
AS-BUILT

CENTRAL FILES
DRAWER # 54

White Tanks FRS #3 North Inlet Channel
As-Builts
FCD 2005C019 #54



SECTION @ STA 539+00
NIC SOUTH INTERIM CHANNELIZATION
NTS



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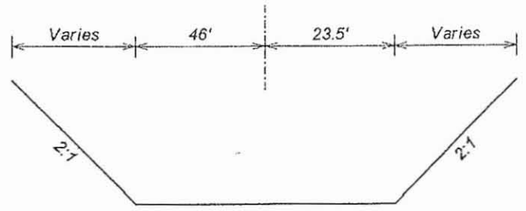
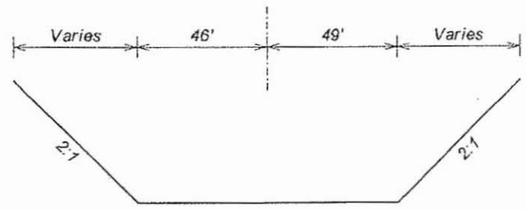
NIC SOUTH INTERIM CHANNELIZATION
NTS



SECTION @ STA 548+00
NIC SOUTH INTERIM CHANNELIZATION
NTS



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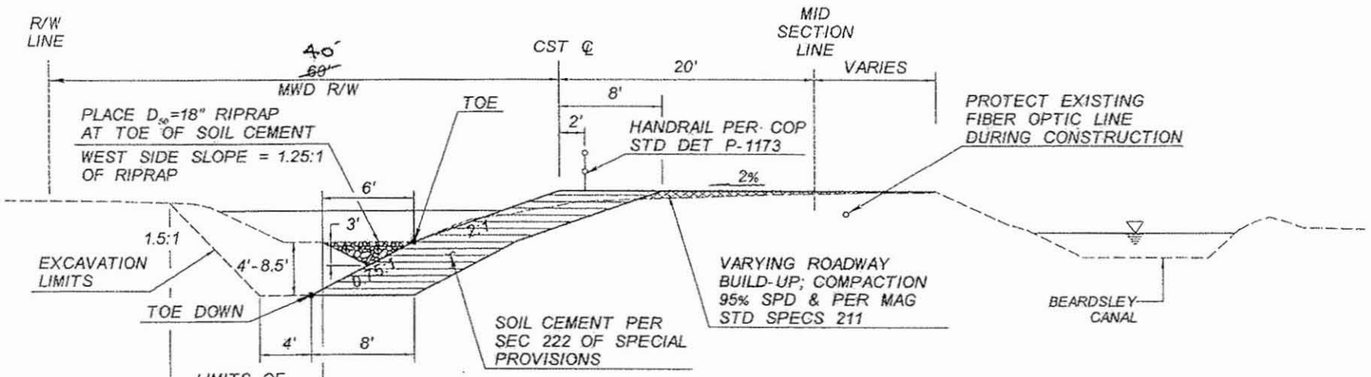
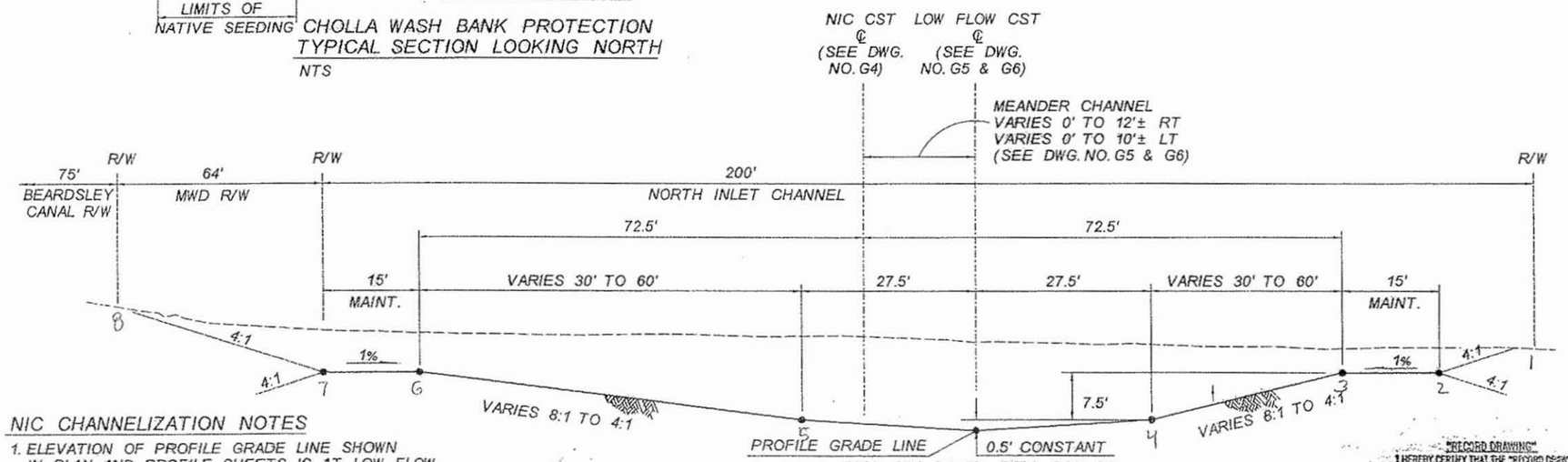
NIC SOUTH INTERIM CHANNELIZATION
NTS



CHOLLA WASH BANK PROTECTION
TYPICAL SECTION LOOKING NORTH
NTS



STA 154+54 To STA 209+22
NORTH INLET CHANNEL
TYPICAL SECTION
NTS

NIC CHANNELIZATION NOTES

1. ELEVATION OF PROFILE GRADE LINE SHOWN IN PLAN AND PROFILE SHEETS IS AT LOW FLOW ELEVATION AND STATIONING IS ALONG NIC CST ℄.

NIC SOUTH INTERIM CHANNELIZATION NOTES

1. SEE DWG NO C6 FOR LOCATION OF INTERSECTION OF CONSTRUCTION CENTERLINE AND NORTHERN AVENUE CENTERLINE
2. ALL TYPICAL SECTIONS ARE LOOKING NORTH UNLESS NOTED OTHERWISE
3. SEE DWG NO C6 FOR CHANNEL LAYOUT FROM STA 547+00 TO NORTHERN AVENUE
4. TRANSITION OF CHANNEL BOTTOM WIDTHS SHALL BE UNIFORM BETWEEN SECTIONS AT LOCATIONS SHOWN

"RECORD DRAWING"
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3 - NORTH INLET CHANNEL (NIC) PROJECT
PROJECT CONTROL No. 470-04-31

	BY	DATE
DESIGNED	ACC/JKK	06/05
DRAWN	JB/JP	06/05
CHECKED	BJL	01/05

KIRKHAM MICHAEL

DRAWING NO.	TYPICAL SECTIONS	SHEET OF
G7		07 56

W12

W05, W12, W13

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

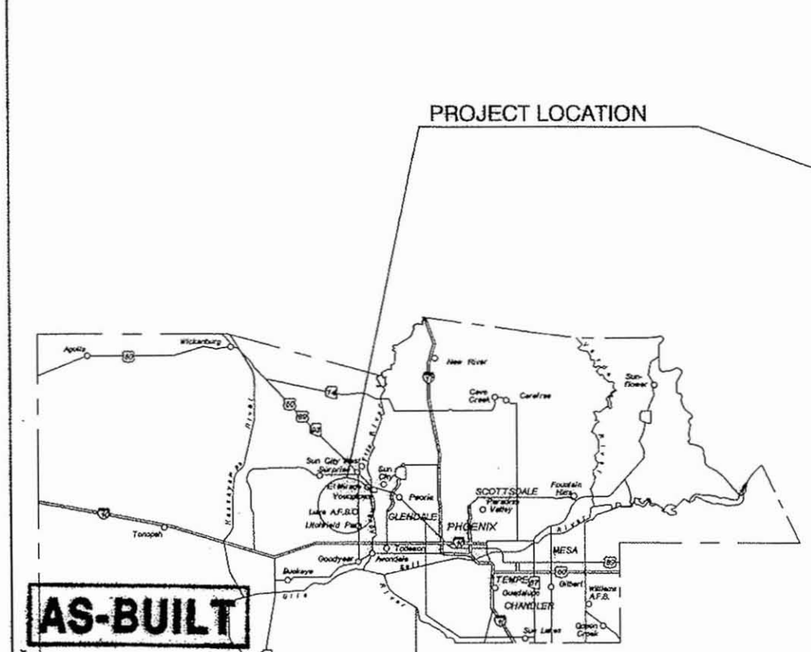
PLANS FOR THE CONSTRUCTION OF

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3

NORTH INLET CHANNEL

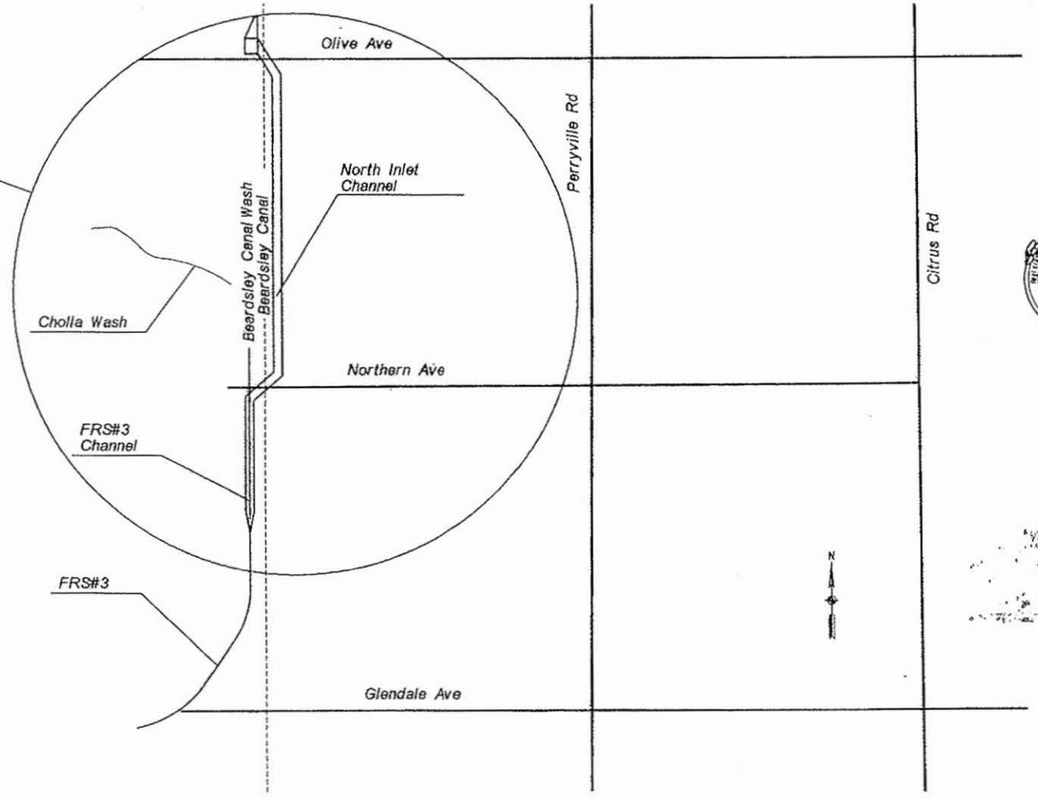
PCN 470.04.31

FCD CONTRACT No. 2005C019



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

KIRKHAM MICHAEL

9201 North 25th Avenue - Suite 150
Phoenix, AZ 85021 (602)944-5564 Fax (602) 944-6592

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

B.A. Ole, P.E. — 3-16-06

PROJECT MANAGER — DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER

JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO.1

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

AS-BUILT

CENTRAL FILES
DRAWER # 54

White Tanks FRS #3 North Inlet Channel
As-Builts
PCD 2005C019 #54

10

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO 1

PLANS FOR THE CONSTRUCTION OF

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3
NORTH INLET CHANNEL (NIC) PROJECT
SOUTH CHANNEL

PCN 470.04.31

FCD CONTRACT NO. 2007C021

W13, W16

AS-BUILT

"AS-BUILT"
Hoskin Ryan Coesultants
201 W. Indian School Rd.
Phoenix, AZ 85013
602-252-8364
SUBMITTED ON:
___/___/___

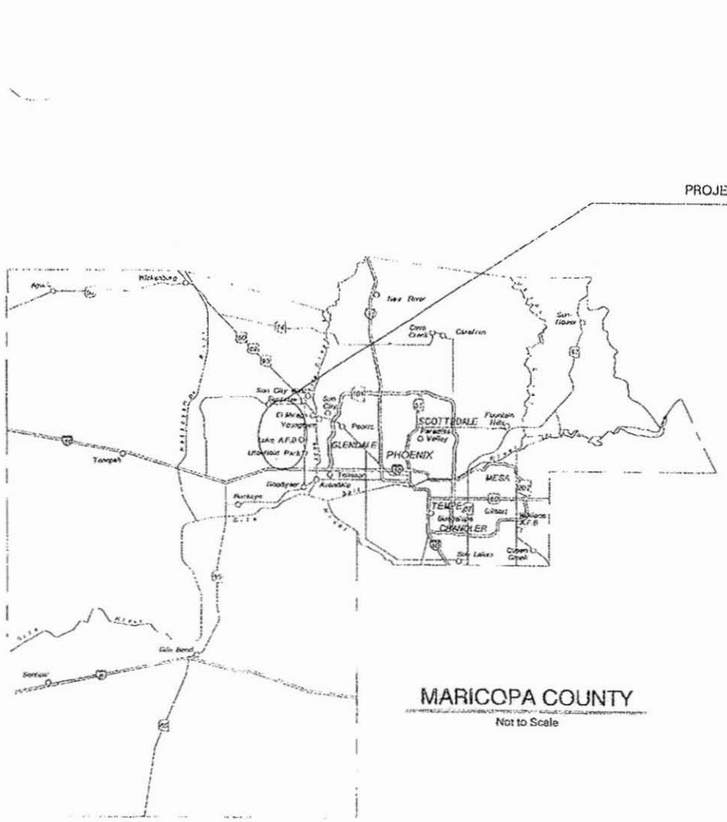
AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

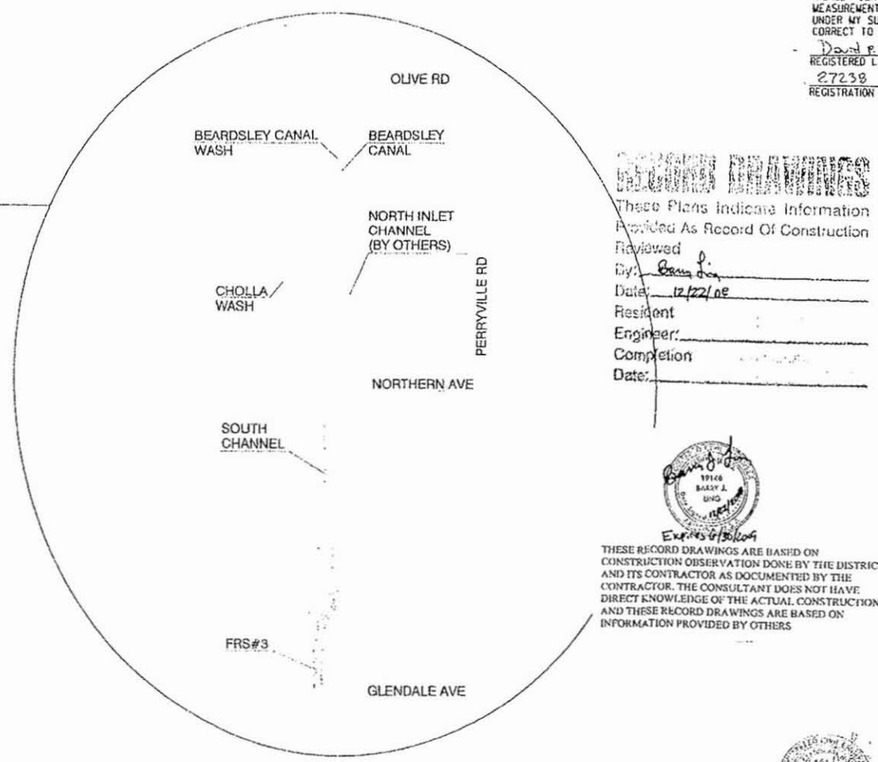
David R. Forney — 9-12-08
REGISTERED LAND SURVEYOR/ENGINEER — DATE

27238
REGISTRATION NUMBER

EXPIRES 6-30-2011



MARICOPA COUNTY
Not to Scale



VICINITY MAP
Not to Scale

RECORD DRAWINGS
These Plans Indicate Information Provided As Record Of Construction
Reviewed By: Barry L.
Date: 12/22/08
Resident Engineer:
Completion Date:

THESE RECORD DRAWINGS ARE BASED ON CONSTRUCTION OBSERVATION DONE BY THE DISTRICT AND ITS CONTRACTOR AS DOCUMENTED BY THE CONTRACTOR. THE CONSULTANT DOES NOT HAVE DIRECT KNOWLEDGE OF THE ACTUAL CONSTRUCTION AND THESE RECORD DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ISSUE RECOMMENDED BY:

Bobbie Ober, P.E. — 6-1-07
PROJECT MANAGER — DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER

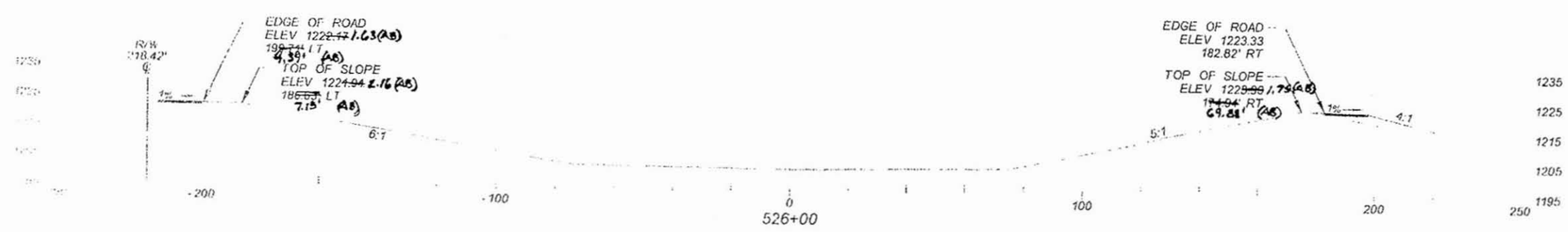
JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

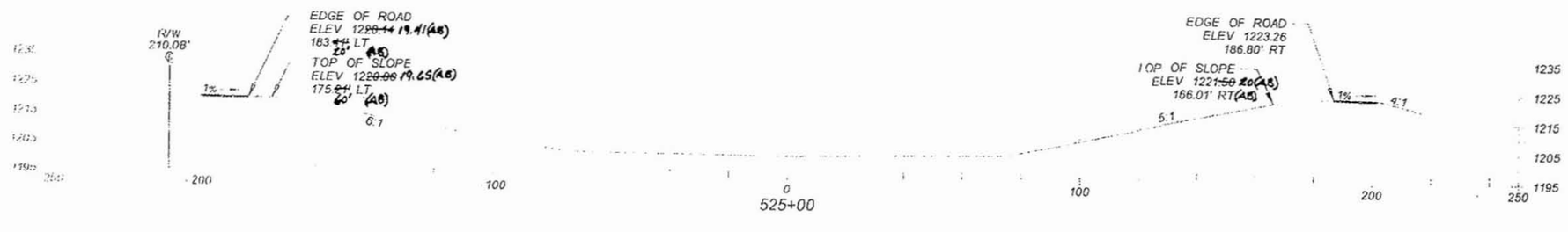
DATE — DATE

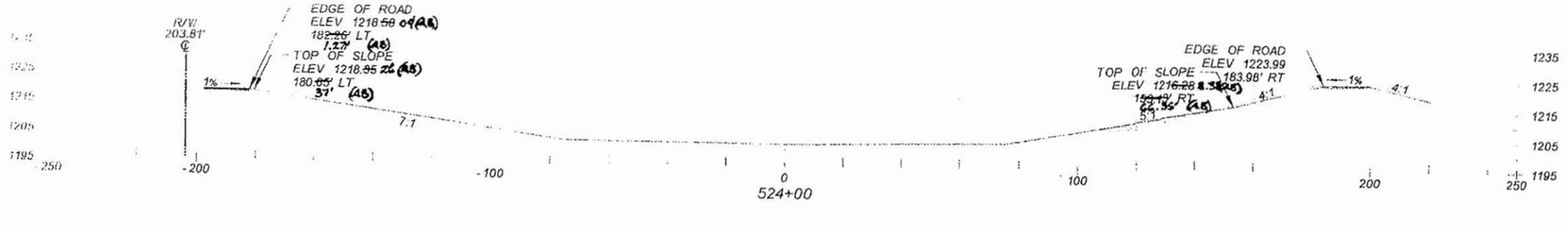
BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

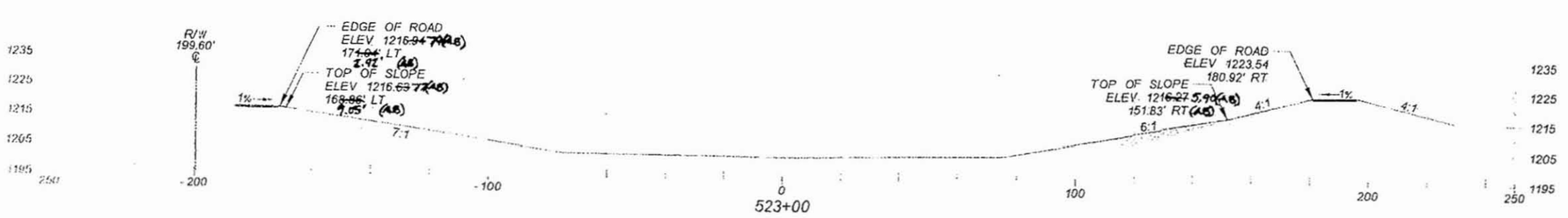
FULTON BROCK - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX









AS-BUILT

"AS-BUILT"
Hoskin Ryan Consultants
201 W. Indian School Rd.
Phoenix, AZ 85013
602-252-8384
SUBMITTED ON:
___/___/___

EXPIRES 6-30-2011

Cross Plans Indicate Information
Inserted As Record Of Construction
Reviewed
By: Barry Lin
Date: 12/22/08
Resident
Engineer:
Completion
Date:

LEGEND
COMPACTED FILL
REMOVE & REPLACE UNSUITABLE MATERIAL

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS)#3 - NORTH INLET CHANNEL (NIC) PROJECT
SOUTH CHANNEL PCN 470-04-31

	BY	DATE
DESIGNED	RD	04/07
DRAWN	PM	04/07
CHECKED	BJL	04/07

DRAWING NO. XS5

CROSS SECTIONS

SHEET OF 30 36

W13W16-W16

W05, W12, W13

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

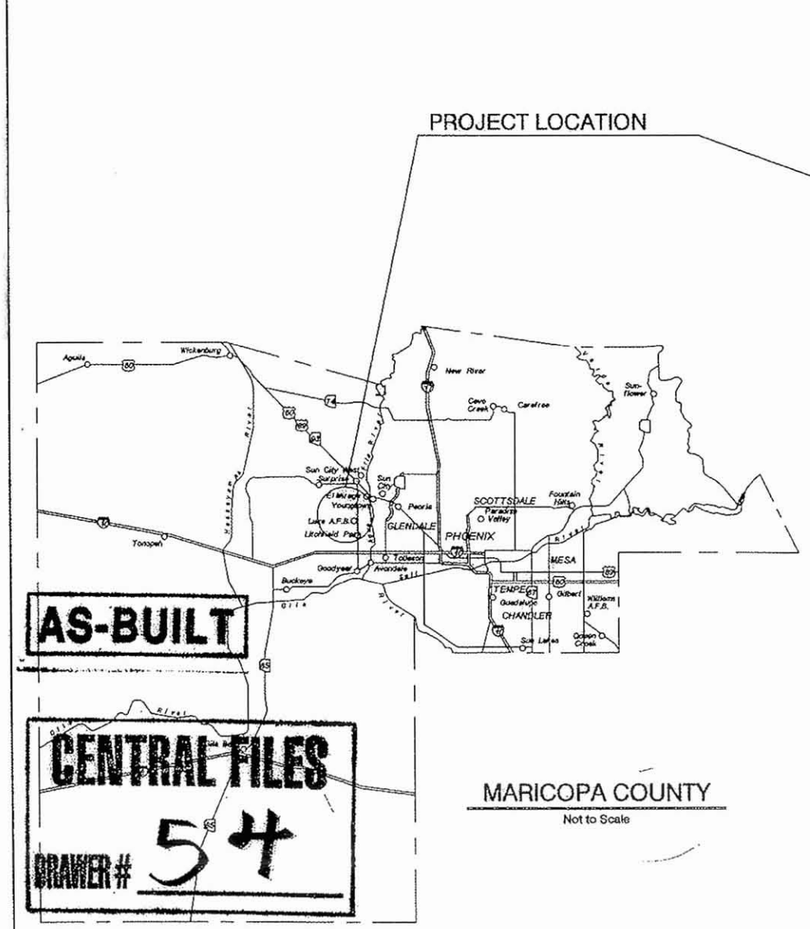
PLANS FOR THE CONSTRUCTION OF

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3

NORTH INLET CHANNEL

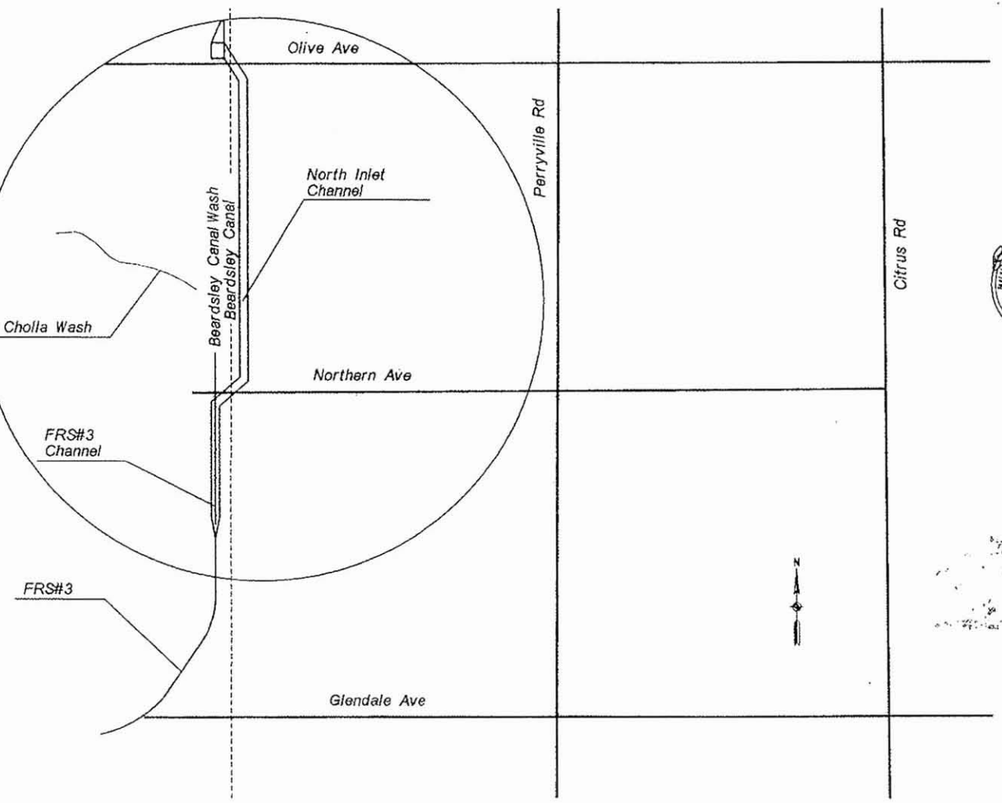
PCN 470.04.31

FCD CONTRACT No. 2005C019



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

AS-BUILT

CENTRAL FILES

DRAWER # 54

KIRKHAM MICHAEL

9201 North 29th Avenue - Suite 150
Phoenix, AZ 85021 (602)944-6564 Fax (602) 944-6592

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

PROJECT MANAGER — DATE 3-16-06

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER

JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO.1

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

White Tanks FRS #3 North Inlet Channel As-Builts
FCD 2005C019 #54

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

10

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO 1

PLANS FOR THE CONSTRUCTION OF

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS) #3

NORTH INLET CHANNEL (NIC) PROJECT

SOUTH CHANNEL

PCN 470.04.31

FCD CONTRACT NO. 2007C021

W13, W16

AS-BUILT

"AS-BUILT"
Hoskin Ryan Consultants
201 W. Indian School Rd.
Phoenix, AZ 85013
602-252-8364
SUBMITTED ON:
____/____/____

AS-BUILT CERTIFICATION

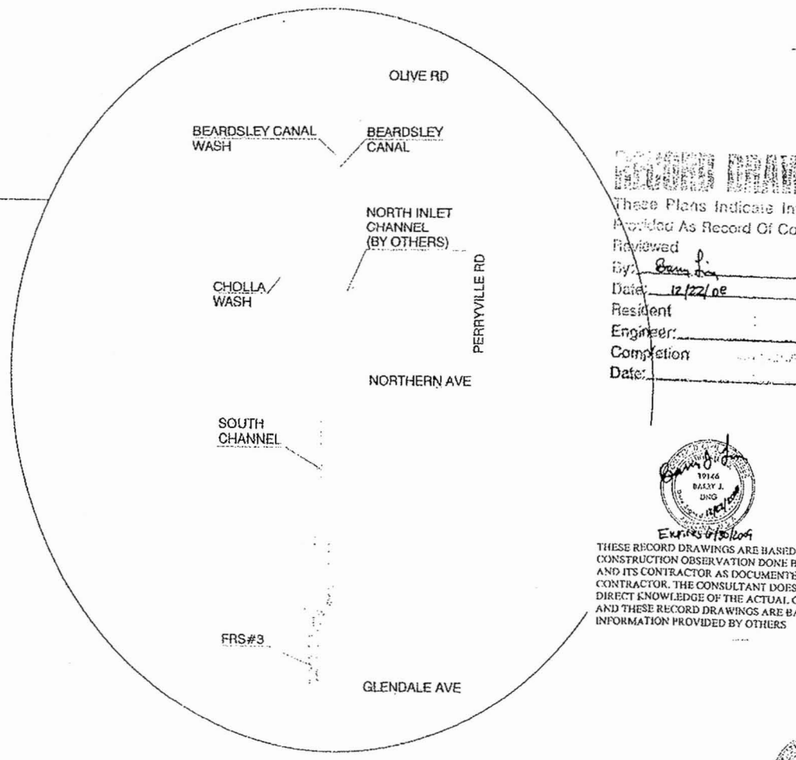
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

David R. Forney — 9-12-08
REGISTERED LAND SURVEYOR/ENGINEER — DATE

27238
REGISTRATION NUMBER

EXPIRES 6-30-2011

MARICOPA COUNTY
Not to Scale



VICINITY MAP
Not to Scale

RECORDS DRAWINGS
These Plans Indicate Information Provided As Record Of Construction
Reviewed
By: Barry Lin
Date: 12/22/08
Resident Engineer:
Completion Date:

BARRY J. DING 19146 REGISTERED ENGINEER

Expires 6/30/09

THESE RECORD DRAWINGS ARE BASED ON CONSTRUCTION OBSERVATION DONE BY THE DISTRICT AND ITS CONTRACTOR AS DOCUMENTED BY THE CONTRACTOR. THE CONSULTANT DOES NOT HAVE DIRECT KNOWLEDGE OF THE ACTUAL CONSTRUCTION AND THESE RECORD DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS

BARRY J. DING 19146 REGISTERED ENGINEER

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ISSUE RECOMMENDED BY:

Bobby Chitsey, P.E. — 6-1-07
PROJECT MANAGER — DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER

12/9/07
JAMES R. SWEENEY
GENERAL MANAGER, MARICOPA COUNTY MUNICIPAL WATER CONSERVATION DISTRICT NO. 1

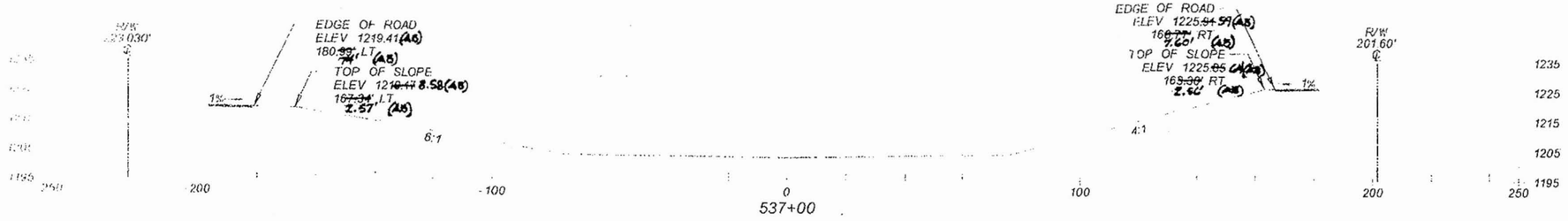
6/6/07
DATE

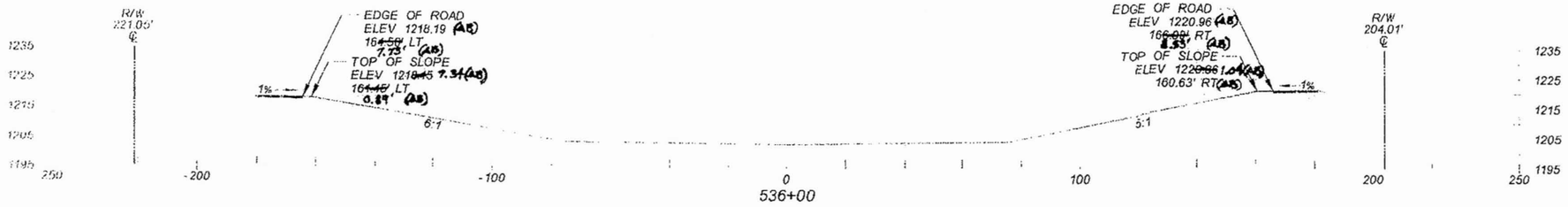
12/9/07
DATE

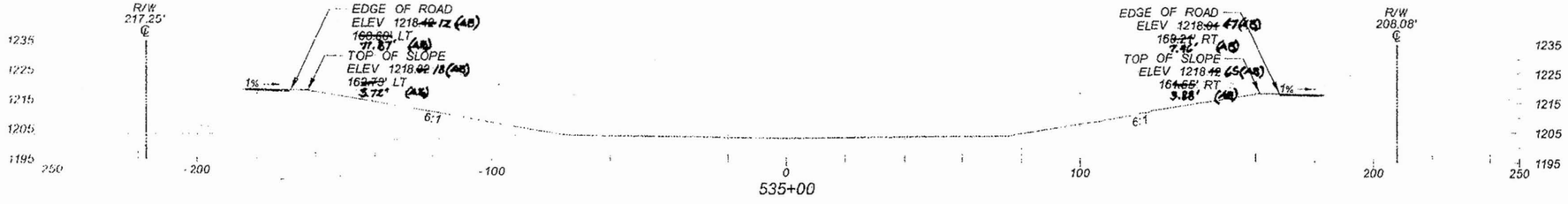
BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

FULTON BROCK - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX







AS-BUILT

W12 W13- W13

"AS-BUILT"
Hoskin Ryan Consultants
201 W. Indian School Rd.
Phoenix, AZ 85013
602-252-8384
SUBMITTED ON:
___/___/___

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
27238
DAVID R.
ROBERTS
ARIZONA U.S.A.

EXPIRES 6-30-2011

...T DRAWINGS
...ed Plans Indicate Information
...plied As Record Of Construction
Reviewed
By:
Date: 12/12/08
Resident
Engineer:
Completion
Date:

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FLOOD RETARDING STRUCTURE (FRS)#3 - NORTH INLET CHANNEL (NIC) PROJECT
SOUTH CHANNEL PCN 470-04-31

	BY	DATE
DESIGNED	RD	04/07
DRAWN	PM	04/07
CHECKED	BJL	04/07

19745 Barry J. Link

DRAWING NO. XS8

CROSS SECTIONS

SHEET OF: 33 36

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

W17

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
39495
CHARLES A. GIDEON
Date Signed 05/10/06
ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*           JUN  1998               *
*         VERSION 4.1               *
*                                   *
*RUN DATE  23JAN06  TIME  10:20:36  *
*                                   *
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```
*************************************
*                                   *
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*       609 SECOND STREET           *
*     DAVIS, CALIFORNIA 95616       *
*       (916) 756-1104              *
*                                   *
*************************************
```

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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          ID   **********************************************************************
   2          ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
   3          ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
   4          ID   DATE:         JAN. 20, 2006
   5          ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
   6          ID                    HECEXE\2553D100.DAT
   7          ID   **********************************************************************
   8          ID
   9          ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
  10          ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
  11          ID
  12          ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
  13          ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
  14          ID    TURNED OFF) AT DI189.
  15          ID
  16          ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
  17          ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
  18          ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
  19          ID
  20          ID
  21          ID                                        REVISED BY URS     DATE: 01-14-04
  22          ID                                                           FILE: L303M1L.DAT
  23          ID       NOTES:
  24          ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
  25          ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
  26          ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
  27          ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
  28          ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
  29          ID          THE WLB MODEL.
  30          ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
  31          ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
  32          ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
  33          ID          DRAINAGE REPORTS.
  34          ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
  35          ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
  36          ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
  37          ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
  38          ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
  39          ID          STORM.
  40          ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
  41          ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
  42          ID          THE DATA FILE BY THE FCDMC.
  43          ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
  44          ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
  45          IT     5                    600
  46          IO     5
  47          IN    15
  48          JD  4.03    .001
  49          PC  .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
  50          PC  .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
  51          PC  .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
  52          PC  .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
  53          PC  .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
  54          PC  .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  55          PC  .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
  56          PC  .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
  57          PC  .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
  58          PC  .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
  59          JD 3.79      10
  60          JD 3.51      50
  61          JD 3.39     100
  62          JD 3.29     200
```

N25, W26, W43, W46
W49, W53, WS1,

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  126     KK      14
  127     KM        RUNOFF HYDROGRAPH FROM SUB-BASIN 14.
  128     BA    1.47
          *     LG    0.35    0.15   7.974   0.082  18.195
  129     LG     .20     .35    4.30     .45    9.00
  130     UI    166.    421.    789.   1018.   1340.   1997.   1636.   1264.    961.    700.
  131     UI    363.    275.    166.     93.     51.     51.     51.      0.      0.      0.
  132     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
  133     KK   RCP14
  134     KM        ROUTE FLOW FROM CP14 TO CP15.
  135     RS       4              -1       0
  136     RC     .06    .035     .06    8800   .02556
  137     RX    1000    1030    1075    1200    1220    1280    1415    1480
  138     RY    1296    1295    1294    1288    1288    1294    1296    1300
          *
  139     KK      15
  140     KM        RUNOFF HYDROGRAPH FROM SUB-BASIN 15.
  141     BA    1.26
          *     LG    0.35   0.194   6.561   0.142   15.67
  142     LG     .18     .35    4.40     .41    7.00
  143     UI    130.    282.    577.    747.    939.   1325.   1550.   1154.    918.    712.
  144     UI    517.    276.    216.    137.     92.     40.     40.     40.     40.      0.
  145     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  146     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
  147     KK  I1CP15
  148     KM        ADD HYDROGRAPHS AT I1CP15
  149     HC       2    2.73
          *
  150     KK      16
  151     KM        RUNOFF HYDROGRAPH FROM SUB-BASIN 16.
  152     BA    1.13
  153     LG     .17     .35    4.65     .34   19.6
  154     UI    115.    239.    502.    650.    811.   1121.   1392.   1050.    840.    656.
  155     UI    500.    270.    194.    138.    102.     35.     35.     35.     35.      0.
  156     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  157     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
  158     KK    SR16
  159     KM         STORAGE ROUTE THROUGH THE CATERPILLAR DETENTION BASIN IN SUBWATERSHED 16
  160     RS       1    STOR       0       0
  161     SV       0       1      31     114     270     502     807    1319    1388    1460
  162     SQ       0       0       0       0       0       0       0       0       0     135
  163     SE    1198    1200    1210    1220    1230    1240    1250    1260    1261    1262
          *
```

SRW19-W19


```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

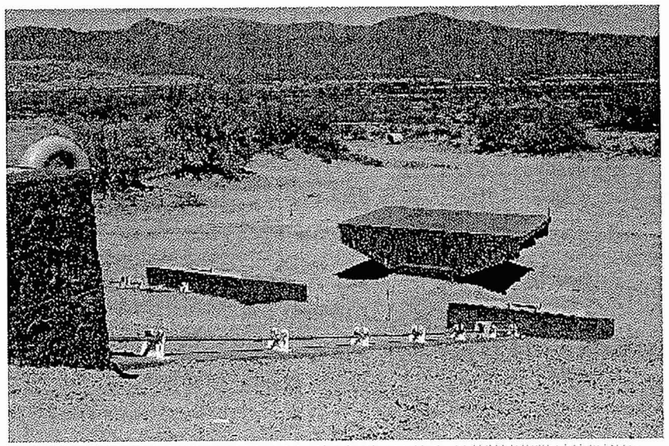
  164     KK    CP15
  165     KM        ADD HYDROGRAPHS AT CP15.
  166     HC       2    3.90
          *
  167     KK   RCP15
  168     KM         ROUTE COMBINED HYDROGRAPHS AT CP15 TO CP17.
  169     RS       3              -1       0
  170     RC     .06    .035     .06    6800   .0079
  171     RX    1000    1310    1380    1540    1640    1670    1700    1910
  172     RY    1234    1232    1228    1226    1226    1228    1232    1235
          *
          *
          * ***********************************************************************
          * ***THE FOLLOWING SECTION TAKEN FROM NEW SUPER BASIN 23 WITH NEW SOILS*****
          * ***********************************************************************
          *
  173     KK      18
  174     KM   BASIN 18
  175     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  176     KM    L=      1.3  Lca=       .6   S=   920.0  Kn= .050  LAG=  18.0
  177     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  178     KM   RAINFALL DEPTH OF 4.03 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
  179     KM   AN AREAL REDUCTION COEFFICIENT OF 1.000 WAS USED
  180     BA    .81
  181     LG     .20     .35    4.20     .48   12.6
  182     UI    211.    714.   1117.   1727.   1163.    730.    304.    173.     52.     46.
  183     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  184     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
  185     KK     R18
  186     KM         ROUTE FLOW FROM CP18 TO CP19.
  187     RS       2              -1       0
  188     RC     .08     .05     .08    7800   .0615
  189     RX    1000    1030    1080    1097    1120    1140    1205    1218
  190     RY    1520    1518    1514    1510    1510    1512    1518    1520
          *
  191     KK      19
  192     KM   BASIN 19
  193     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  194     KM    L=      2.1  Lca=      1.0   S=   353.9  Kn= .050  LAG=  31.6
```

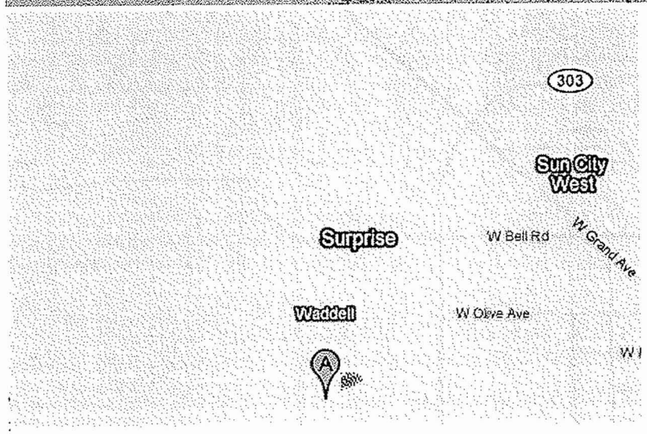
White Tanks #3 FRS - ID # 5418

Current at Gage | Station Description | Q Rating Curve | Vol Rating Curve | Q Rating Table | Vol Rating Table | Dambreak Data

Wednesday, February 18, 2009 :: 1:25:05 pm

Page Last Updated: January 8, 2009





View Larger Map

ID History | Site Data | Brief Rating | Water Year Peaks | Impound History | Staff Gages | Site Precip Data

Reload Page | Setup Parameters | ASWR | Streamflow Homepage | FCD Home Page

GAGE ID HISTORY

ID	Elevation of Instrument in Gage Height	Elevation of Instrument in Datum	Period
5418	0.00 feet	1,196.30 feet NAVD 1988	06/18/2008 -- Current
5418	0.00 feet	1,190.27 feet M.S.L.	08/06/1992 -- 12/14/2005
1638	0.00 feet	1,186.60 feet M.S.L.	10/01/1987 -- 08/06/1992
0085	0.00 feet	1,186.60 feet M.S.L.	03/12/1986 -- 09/30/1987

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SITE DATA

LOCATION	Located on the eastern foothills of the White Tank Mountains, north of Northern Avenue
DRAINAGE AREA	20.5 mi^2
STREAM TYPE	Dam of natural drainage
JURISDICTION	Maricopa County, Arizona
WATERSHED	White Tanks B
SECTION/TOWNSHIP/RANGE	S09 T2N R2W
LATITUDE	N 33° 32' 02.3" | +33.5340
LONGITUDE	W 112° 28' 15.7" | -112.4710
ARIZONA STATE PLANE	E 531079 | N 922261
USGS QUAD SHEET	Waddell 7.5-Minute
STREAMGAGE INSTALLATION DATE	03/12/1986 - WY 1986
PERIOD OF AVAILABLE DATA RECORD	01/01/1988 - Current
LENGTH OF AVAILABLE DATA RECORD (AS OF 10/01/2008)	20.75 Years
GAPS (> 2 DAYS) IN RECORD	12/14/2005 - 06/18/2008
STAGE GAGE TYPE	Pressure Transducer
STAGE GAGE ELEVATION	0.00 feet Gage Height
STAFF GAGES	0
CREST STAGE GAGES	0
ZERO GAGE HEIGHT ELEVATION	1,196.30 feet NAVD 1988
POINT OF ZERO FLOW	1.1 feet Gage Height
SPILLWAY ELEVATION	12.3 feet Gage Height
TOP OF DAM ELEVATION	21.7 feet Gage Height

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BRIEF RATING

Current Discharge Rating = #3 - Applied since 06/18/2008
Current Capacity Rating = #4 - Applied since 06/18/2008

Gage Height (feet)	Elevation (feet NAVD 88)	Discharge (cfs)	Volume (acre-feet)
0.0	1,196.3	0	135
2.7	1,199.0	48	385
4.7	1,201.0	210	810
9.7	1,206.0	323	1,600
12.3	1,208.6	433	2,200
13.7	1,210.0	905	2,560
15.7	1,212.0	1,767	3,175
18.7	1,215.0	16,790	4,300
21.7	1,218.0	45,534	5,500

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WATER YEAR PEAKS

Water Year	Peak Gage Height (feet)	Peak Volume (acre-feet)	Date of Peak
2010			
2009			
2008	None	0	None
2007	None	0	None
2006	None	0	None
2005	None	0	None
2004	0.28	131	10/10/2003
2003	1.83	175	09/04/2003
2002	None	0	None
2001	None	0	None
2000	None	0	None
1999	0.52	137	04/02/1999
1998	0.25	130	02/18/1998
1997	None	0	None
1996	None	0	None
1995	None	0	None
1994	None	0	None
1993	2.60	249	01/11/1993
1992	2.60	249	09/20/1992
1991	0.70	82	03/26/1991
1990	None	0	None
1989	None	0	None
1988	0.60	81	01/25/1988

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IMPOUNDMENT EVENT HISTORY

Date of Peak	Time of Peak	Runoff Start	Runoff End	Duration (hours)	Peak Stage (feet GH)	Peak Volume (acre-feet)	Water Year
View a Graph of These Data							
10/10/2003	07:45	10/10/2003 07:35	10/10/2003 09:20	1.8	0.28	131	2004
09/04/2003	21:30	09/04/2003 21:00	09/05/2003 03:39	6.7	1.83	175	2003
04/02/1999	04:16	04/02/1999 03:28	04/02/1999 06:20	2.9	0.52	137	1999
02/18/1998	06:00	02/18/1998 06:00	single report	0.0	0.25	130	1998
01/11/1993	02:34	01/10/1993 21:07	01/12/1993 13:32	40.4	2.60	249	1993
09/20/1992	01:04	09/20/1992 00:13	09/20/1992 19:20	19.1	2.60	249	1992
03/26/1991	09:17	03/26/1991 08:40	03/26/1991 14:01	5.4	0.70	82	1991
03/20/1991	18:33	03/20/1991 18:08	03/20/1991 19:50	1.7	0.60	81	1991
03/01/1991	18:32	03/01/1991 18:00	03/01/1991 19:15	1.3	0.40	79	1991
01/25/1988	14:57	01/25/1988 07:14	01/26/1988 05:52	22.6	0.60	81	1990

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STAFF GAGES

Staff Gage Range	Staff Gage Information
0	There are currently no staff gages

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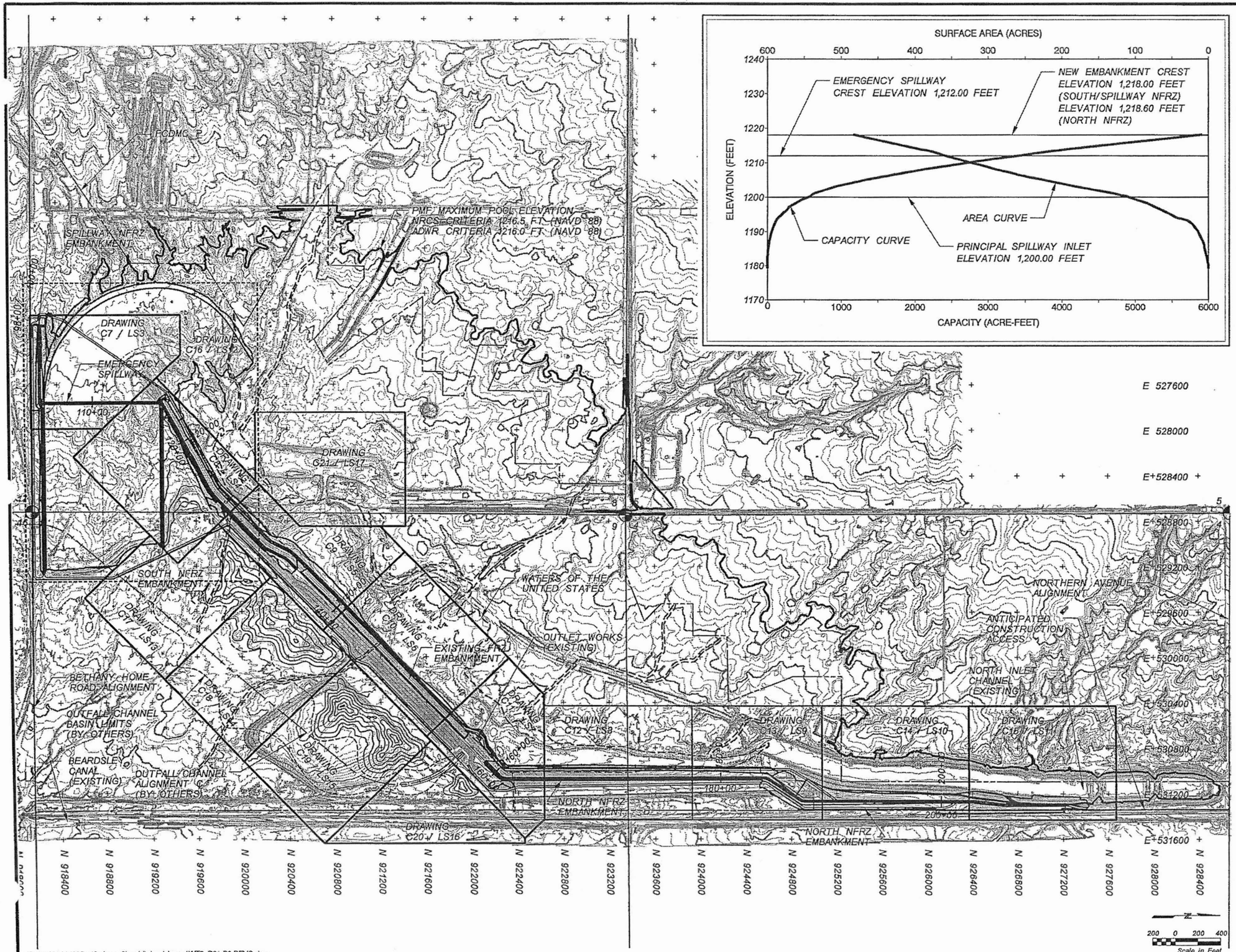
W20



p:\fcdmc\23444295 wt3 phase 2\cadd\sheets\rev-c\WT3_C01-P2-REVC.dgn

REMOVE

7	REMOVAL OF PERIMETER FENCE (350-2)	1 LS
8	REMOVE AND STOCKPILE TOPSOIL (430-1)	500,660 SY

CONSTRUCT

11	UNTREATED BASE (310-1)	8,800 CY
12	DECOMPOSED GRANITE ROAD SURFACE (344-1)	23,200 SY
13	TRAFFIC CONTROL (401-1)	1 LS
15	FENCING (420-1)	22,300 LF

GENERAL NOTES

1. ALL O&M ROADS SHALL BE CONSTRUCTED WITH SMOOTH CURVES AND A MINIMUM RADIUS OF 25 FEET.

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
C	100% DESIGN SUBMITTAL	TER	1-09
B	90% DESIGN SUBMITTAL	TER	8-08
A	60% DESIGN SUBMITTAL	TER	5-08

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
REMEDIATION PROJECT - PHASE 2
PCN 470.04.30, FCD CONTRACT NO. 2008C031

	BY	DATE
DESIGNED	MSJ	1-09
DRAWN	JEO, KLP, RBZ	1-09
CHECKED	TER	1-09

PRELIMINARY NOT FOR CONSTRUCTION

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. C1

GENERAL SITE PLAN

SHEET OF 6 86

Basin Bound
Breakout Unlikely
1" = 200
N

N 191st Ave
N Beardsley Canal Rd
N 19
Beardsley CSR
Beardsley CSR
W Beardsley Canal Rd
W Beardsley Rd

Job No. 79902 | No.

Computation

Project: Loop 303 / White Tanks ADMPU AHA | **Location: Beardsley Canal Overchute, Beth Home Rd (DW21)** | Computed AM | Date 10/27/08

Subject: Weir Flow Analysis | Checked [illegible] | Date 3/10/09

Task: Weir Calculations | Sheet 1 | Of x

Segment	Start Elevation (ft amsl)	End Elevation (ft amsl)	Length L(ft)	Crest Ave Elevation (ft)	Start Calc Elev Iter 1	Iter 1 H (ft)	Q1 (cfs)	Start Calc Elev Iter 2	Iter 2 H (ft)	Q2	Start Calc Elev Iter 3	Iter 3 H (ft)	Q3	Another iteration?	Start Calc Elev Iter 4	Iter 4 H (ft)	Q4	Another iteration?
south	90	88	460	89	85	0	0.00	85.5	0	0.00	86	0	0.00	CHECK	86.5	0	0.00	DONE
south	88	86	55	87	85	0	0.00	85.5	0	0.00	86	0	0.00		86.5	0	0.00	
south	86	85	50	85.5	85	0	0.00	85.5	0	0.00	86	0.5	53.03		86.5	1	150.00	
south	85	84	20	84.5	85	0.5	21.21	85.5	1	60.00	86	1.5	110.23		86.5	2	169.71	
south	84	83.5	40	83.75	85	1.25	167.71	85.5	1.75	277.80	86	2.25	405.00		86.5	2.75	547.24	
south	83.5	84	20	83.75	85	1.25	83.85	85.5	1.75	138.90	86	2.25	202.50		86.5	2.75	273.62	
south	84	86	45	85	85	0	0.00	85.5	0.5	47.73	86	1	135.00		86.5	1.5	248.01	
south	86	88	100	87	85	0	0.00	85.5	0	0.00	86	0	0.00		86.5	0	0.00	
east	88	90	410	89	85	0	0.00	85.5	0	0.00	86	0	0.00		86.5	0	0.00	
					TOTALS:		272.77			524.44			905.76				1388.58	

Graph Computations:

Station	Elevation
0	90
460	88
515	86
565	85
585	84
625	83.5
645	84
690	86
790	88
1200	90

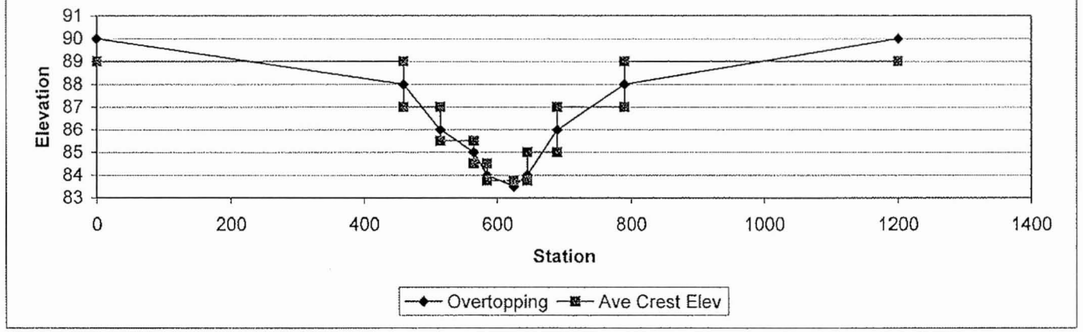
Weir Approximation:

Station	Elevation
0	89
460	89
460	87
515	87
515	85.5
565	85.5
565	84.5
585	84.5
585	83.75
625	83.75
625	83.75
645	83.75
645	85
690	85
690	87
790	87
790	89
1200	89

Culvert Flows (cfs):

south	0
southeast	0
east	0

Cross Section



Iteration Iter 1			Iteration Iter 2			Iteration Iter 3			Iteration Iter 4		
Q(south)	272.77	100%	Q(south)	524.44	100%	Q(south)	905.76	100%	Q(south)	1388.58	100%
Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%
Q(east)	0.00	0%	Q(east)	0.00	0%	Q(east)	0.00	0%	Q(east)	0.00	0%
	272.77			524.44			905.76			1388.58	

First DI	South to East			
Inflow	272.77	524.44	905.76	1388.58
Outflow	0.00	0.00	0.00	0.00

Assumes diversion is to east

Second DI	Southeast to East			
Inflow	0.00	0.00	0.00	0.00
Outflow	0.00	0.00	0.00	0.00

Assumes diversion is to east

Job No. 79902 | No.

Computation

Project: Loop 303 / White Tanks ADMPU AHA

Location: Beardsley Canal Overchute, Beth Home Rd (DW21)

Computed: AM | Date: 10/27/08

Subject: Weir Flow Analysis

Checked: EP | Date: 3/10/09

Task: Weir Calculations

Sheet: 1 | Of: x

Segment	Start Elevation (ft amsl)	End Elevation (ft amsl)	Length L(ft)	Crest Ave Elevation (ft)	Start Calc Elev Iter 1	Iter 1 H (ft)	Q1 (cfs)	Start Calc Elev Iter 2	Iter 2 H (ft)	Q2	Start Calc Elev Iter 3	Iter 3 H (ft)	Q3	Another iteration?	Start Calc Elev Iter 4	Iter 4 H (ft)	Q4	Another iteration?
south	18	16	460	17	13	0	0.00	13.5	0	0.00	14	0	0.00	CHECK	14.5	0	0.00	DONE
south	16	14	55	15	13	0	0.00	13.5	0	0.00	14	0	0.00		14.5	0	0.00	
east	14	12	50	13	13	0	0.00	13.5	0.5	53.03	14	1	150.00		14.5	1.5	275.57	
east	12	10	20	11	13	2	169.71	13.5	2.5	237.17	14	3	311.77		14.5	3.5	392.87	
east	10	10	40	10	13	3	623.54	13.5	3.5	785.75	14	4	960.00		14.5	4.5	1145.51	
east	10	12	20	11	13	2	169.71	13.5	2.5	237.17	14	3	311.77		14.5	3.5	392.87	
east	12	14	45	13	13	0	0.00	13.5	0.5	47.73	14	1	135.00		14.5	1.5	248.01	
east	14	16	100	15	13	0	0.00	13.5	0	0.00	14	0	0.00		14.5	0	0.00	
east	16	18	410	17	13	0	0.00	13.5	0	0.00	14	0	0.00		14.5	0	0.00	
					TOTALS:		962.95			1360.85			1868.54				2454.84	

Graph Computations:

Station	Elevation
0	18
460	16
515	14
565	12
585	10
625	10
645	12
690	14
790	16
1200	18

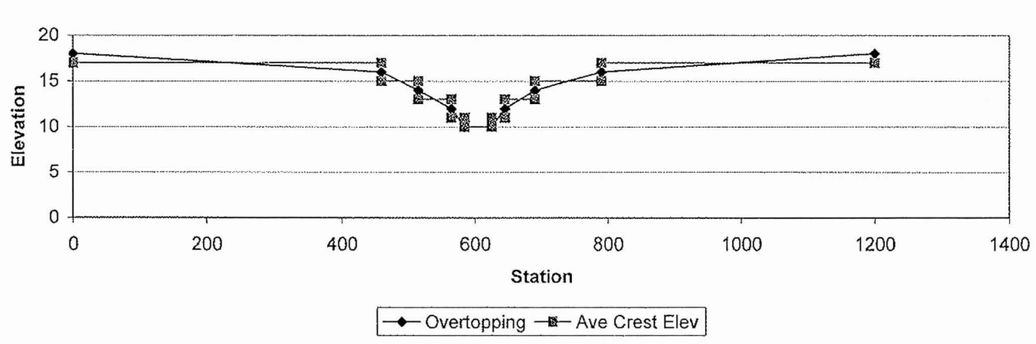
Weir Approximation:

Station	Elevation
0	17
460	17
460	15
515	15
515	13
565	13
565	11
585	11
585	10
625	10
625	11
645	11
645	13
690	13
690	15
790	15
790	17
1200	17

Culvert Flows (cfs):

south	0
southeast	0
east	0

Cross Section



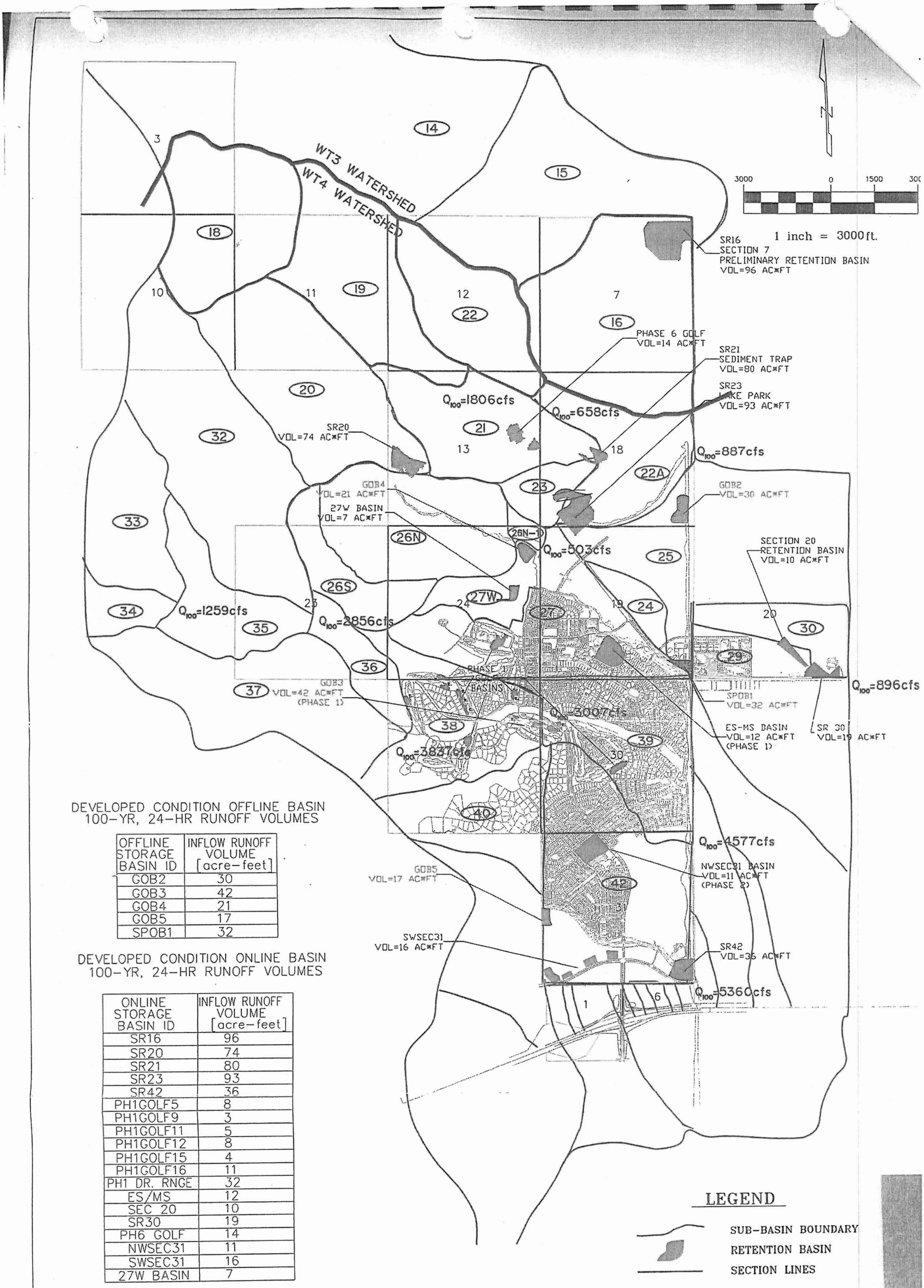
Iteration Iter 1			Iteration Iter 2			Iteration Iter 3			Iteration Iter 4		
Q(south)	0.00	0%	Q(south)	0.00	0%	Q(south)	0.00	0%	Q(south)	0.00	0%
Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%
Q(east)	962.95	100%	Q(east)	1360.85	100%	Q(east)	1868.54	100%	Q(east)	2454.84	100%
	962.95			1360.85			1868.54			2454.84	

First DI	South to East			
Inflow	962.95	1360.85	1868.54	2454.84
Outflow	962.95	1360.85	1868.54	2454.84

Assumes diversion is to east

Second DI	Southeast to East			
Inflow	962.95	1360.85	1868.54	2454.84
Outflow	0.00	0.00	0.00	0.00

Assumes diversion is to east



DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
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ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
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SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

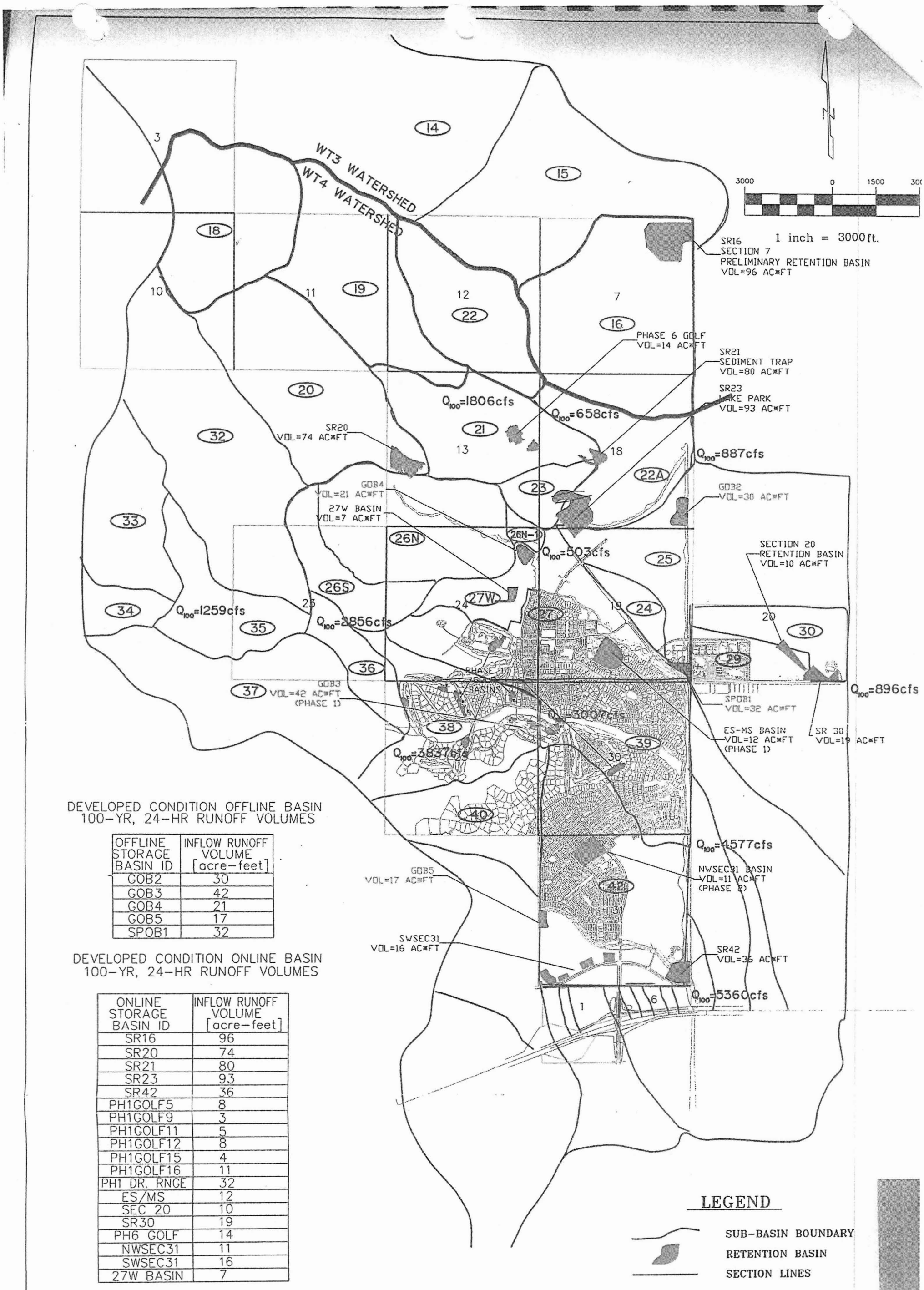
SECTION LINES

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

DMB

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and Land Surveyors
(602) 335-8500

01/19/06
M:\2005\052553\Project support\Hydro\Exhibits\Plate9.DWG



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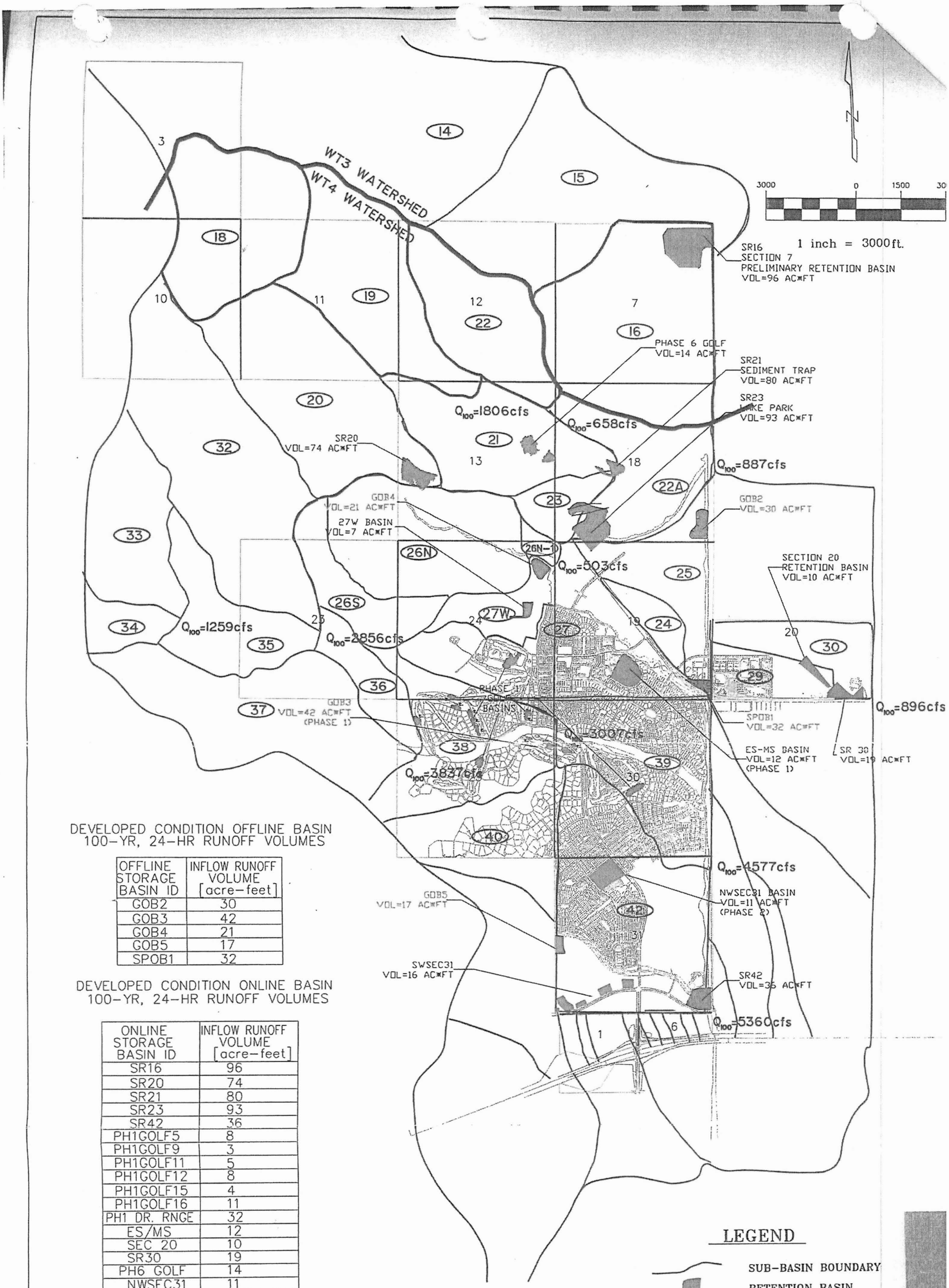

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RETENTION BASIN

SECTION LINES

DMB

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VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
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M:\2005\052553\Project support\Hydro\Exhibits\Plate9.DWG

W25

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
39495
CHARLES A. GIDEON
Date Signed 05/10/06
ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
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*                                    *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1)  *
*            JUN  1998               *
*          VERSION 4.1               *
*                                    *
*  RUN DATE  23JAN06  TIME  10:20:36 *
*                                    *
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**************************************
*                                    *
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*       609 SECOND STREET            *
*     DAVIS, CALIFORNIA 95616        *
*       (916) 756-1104               *
*                                    *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID   **************************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:         JAN. 20, 2006
    5         ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                    HECEXE\2553D100.DAT
    7         ID   **************************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID          THE WLB MODEL.
   30         ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID          DRAINAGE REPORTS.
   34         ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID          STORM.
   40         ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID          THE DATA FILE BY THE FCDMC.
   43         ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT      5                   600
   46         IO      5
   47         IN     15
   48         JD   4.03    .001
   49         PC   .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC   .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC   .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC   .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC   .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC   .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC   .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC   .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC   .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC   .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD  3.79      10
   60         JD  3.51      50
   61         JD  3.39     100
   62         JD  3.29     200
```

W25, W22, W13 W4G
W19, W33 W3S, S5

```
195          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
196          BA   0.77
197          LG    .19     .35    4.45     .41   10.30
198          UI    83.    194.    381.    490.    626.    937.    906.    687.    534.    412.
199          UI   255.    143.    113.     83.     25.     25.     25.     25.      0.      0.
200          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

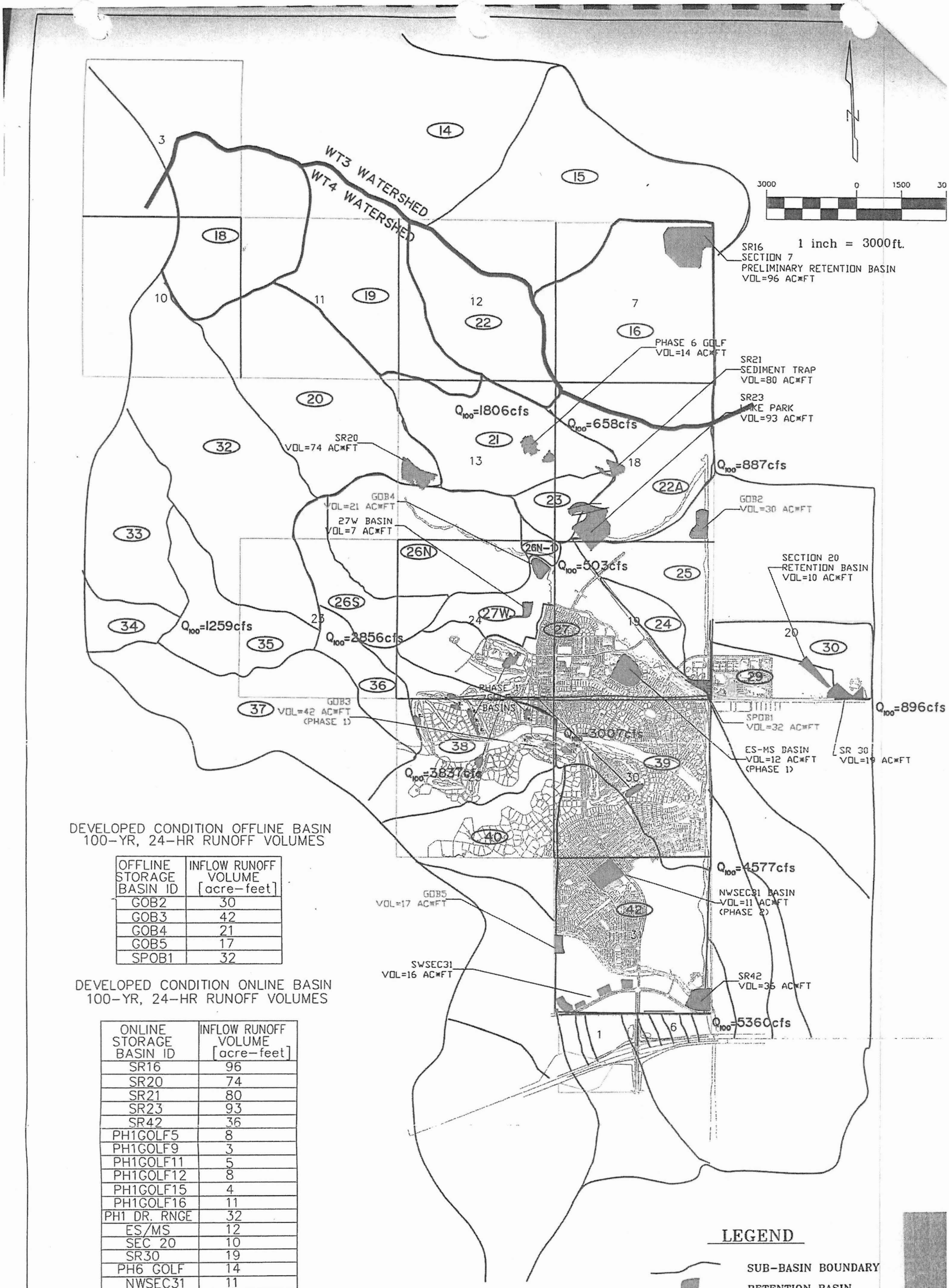
201          KK    CP19
202          KM        ADD HYDROGRAPHS AT CP19.
203          HC       2
             *
204          KK     R19
205          KM        ROUTE COMBINED HYDROGRPAH AT CP19 TO CP21.
206          RS       2          -1       0
207          RC     .06     .04     .06    5772   .0246
208          RX    1000    1010    1025    1040    1055    1069    1080    1100
209          RY    1466    1464    1460    1458    1458    1460    1466    1467
             *
210          KK      21
211          KM   BASIN 21
212          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
213          KM    L=      1.8  Lca=      .9   S=  182.7  Kn= .050  LAG=  31.8
214          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
215          BA    0.64
216          LG     .19     .40    6.00     .20   11.5
217          UI     67.    149.    300.    388.    489.    704.    781.    581.    459.    356.
218          UI    249.    132.    107.     67.     39.     21.     21.     21.     21.      0.
219          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
220          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
221          KK  I1CP21
222          KM        ADD HYDROGRAPHS AT CP21.
223          HC       2
             *
224          KK      20
225          KM   BASIN 20
226          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
227          KM    L=      2.1  Lca=      1.0   S=  425.4  Kn= .050  LAG=  30.3
228          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
229          BA    1.07
230          LG     .19     .35    4.90     .31    8.3
231          UI    119.    295.    561.    722.    941.   1418.   1209.    930.    712.    533.
232          UI    283.    200.    131.     82.     36.     36.     36.     36.      0.      0.
233          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
234          KK    SR20
235          KM        STORAGE ROUTE THROUGH RETENTION BASIN AT CP20.
236          RS       1    STOR       0       0
237          SV       0    1.05    9.43   26.91   54.31   92.89  138.67  176.47  190.08  219.05
238          SV  249.57
239          SQ       0       0       0       0       0       0       0       0     265    1377
240          SQ    2963
241          SE    1443    1446    1450    1454    1458    1462    1466    1469    1470    1472
242          SE    1474
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

243          KK     R20
244          KM        ROUTE REMAINDER OF FLOW AT CP20  TO CP21
245          RS       4          -1       0
246          RC     .06    .045     .06    6240   .0208
247          RX    1000    1012    1025    1032    1050    1057    1070    1092
248          RY    1424    1422    1420    1418    1418    1420    1422    1424
             *
249          KK    CP21
250          KM        ADD HYDROGRAPHS AT CP21.
251          HC       2
             *
252          KK    SR21
253          KM        STORAGE ROUTE THROUGH RETENTION BASIN AT CP21
254          RS       1    STOR       0       0
255          SV       0     .68   20.68   57.58    76.0   95.91  102.34  117.65     130
256          SQ       0       0       0       0       0     100     265    1377    2000
257          SE    1319    1320    1330    1340  1343.4    1347    1348    1350    1351
             *
258          KK     R21
259          KM        ROUTE REMAINDER OF FLOW AT CP21 TO CP23
260          RS       1          -1       0
261          RC     .03     .03     .05    2340   .0196
262          RX    1000    1030    1050    1070    1145    1212    1225    1250
263          RY    1310    1306    1304    1302    1302    1304    1306    1310
             *
264          KK      23
265          KM   BASIN 23
266          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
267          KM    L=        .4  Lca=        .2   S=   90.9  Kn= .050  LAG=  11.7
268          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
269          BA    0.14
```

SRW25-W25
SRW2C-W26



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DMB

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01/19/06
M:\2005\052553\Project support\Hydro\Exhibits\Plate9.DWG

W-E

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

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c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

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2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
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Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
39495
CHARLES A. GIDEON
Date Signed 05/10/06
ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*           JUN  1998               *
*         VERSION 4.1               *
*                                   *
* RUN DATE  23JAN06  TIME  10:20:36 *
*                                   *
*************************************
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```
**********************************
*                                *
*  U.S. ARMY CORPS OF ENGINEERS  *
*  HYDROLOGIC ENGINEERING CENTER *
*       609 SECOND STREET        *
*     DAVIS, CALIFORNIA 95616    *
*       (916) 756-1104           *
*                                *
**********************************
```

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X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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1 HEC-1 INPUT PAGE 1

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    6         ID                    HECEXE\2553D100.DAT
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   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID          THE WLB MODEL.
   30         ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID          DRAINAGE REPORTS.
   34         ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID          STORM.
   40         ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID          THE DATA FILE BY THE FCDMC.
   43         ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT       5                    600
   46         IO       5
   47         IN      15
   48         JD    4.03    .001
   49         PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC    .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD   3.79      10
   60         JD   3.51      50
   61         JD   3.39     100
   62         JD   3.29     200
```

W25, W26, W43, W46
W19, W53, WS-5,

```
195          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
196          BA   0.77
197          LG    .19     .35    4.45     .41   10.30
198          UI    83.    194.    381.    490.    626.    937.    906.    687.    534.    412.
199          UI   255.    143.    113.     83.     25.     25.     25.     25.      0.      0.
200          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
                                        HEC-1 INPUT                                          PAGE  6

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


201          KK    CP19
202          KM       ADD HYDROGRAPHS AT CP19.
203          HC       2
             *

204          KK     R19
205          KM       ROUTE COMBINED HYDROGRPAH AT CP19 TO CP21.
206          RS       2              -1       0
207          RC    .06     .04     .06    5772   .0246
208          RX   1000    1010    1025    1040    1055    1069    1080    1100
209          RY   1466    1464    1460    1458    1458    1460    1466    1467
             *

210          KK      21
211          KM   BASIN 21
212          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
213          KM    L=      1.8  Lca=       .9    S=  182.7  Kn= .050  LAG=  31.8
214          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
215          BA    0.64
216          LG    .19     .40    6.00     .20   11.5
217          UI    67.    149.    300.    388.    489.    704.    781.    581.    459.    356.
218          UI   249.    132.    107.     67.     39.     21.     21.     21.     21.      0.
219          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
220          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

221          KK  I1CP21
222          KM       ADD HYDROGRAPHS AT CP21.
223          HC       2
             *

224          KK      20
225          KM   BASIN 20
226          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
227          KM    L=      2.1  Lca=      1.0    S=  425.4  Kn= .050  LAG=  30.3
228          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
229          BA    1.07
230          LG    .19     .35    4.90     .31    8.3
231          UI   119.    295.    561.    722.    941.   1418.   1209.    930.    712.    533.
232          UI   283.    200.    131.     82.     36.     36.     36.     36.      0.      0.
233          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

234          KK    SR20
235          KM       STORAGE ROUTE THROUGH RETENTION BASIN AT CP20.
236          RS       1    STOR       0       0
237          SV       0    1.05    9.43   26.91   54.31   92.89  138.67  276.47  190.08  219.05
238          SV  249.57
239          SQ       0       0       0       0       0       0       0       0     265    1377
240          SQ    2963
241          SE    1443    1446    1450    1454    1458    1462    1466    1469    1470    1472
242          SE    1474
             *
                                        HEC-1 INPUT                                          PAGE  7

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


243          KK     R20
244          KM       ROUTE REMAINDER OF FLOW AT CP20  TO CP21
245          RS       4              -1       0
246          RC    .06    .045     .06    6240   .0208
247          RX   1000    1012    1025    1032    1050    1057    1070    1092
248          RY   1424    1422    1420    1418    1418    1420    1422    1424
             *

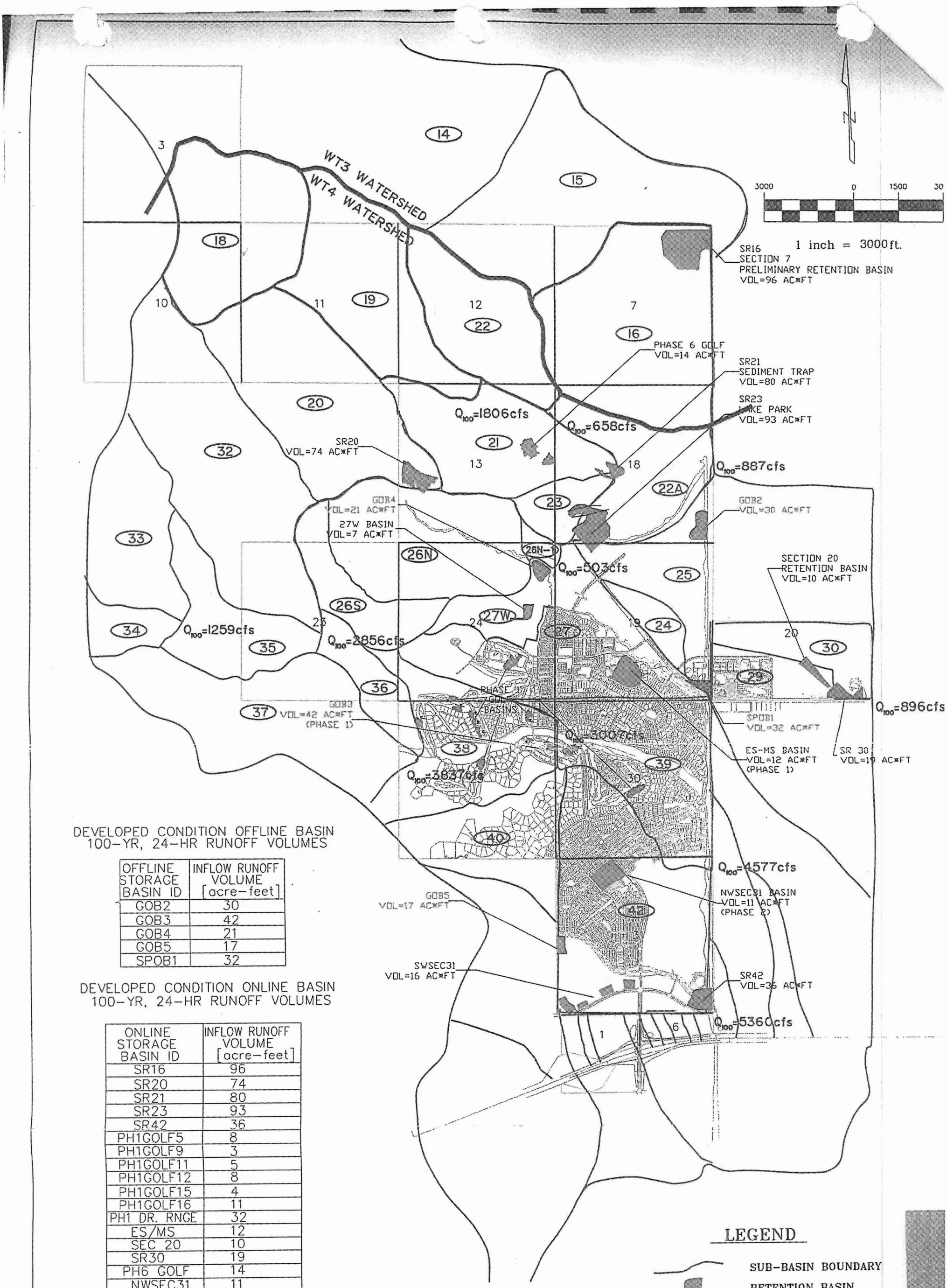
249          KK    CP21
250          KM       ADD HYDROGRAPHS AT CP21.
251          HC       2
             *

252          KK    SR21
253          KM       STORAGE ROUTE THROUGH RETENTION BASIN AT CP21
254          RS       1    STOR       0       0
255          SV       0     .68   20.68   57.58    76.0   95.91  102.34  117.65     130
256          SQ       0       0       0       0       0     100     265    1377    2000
257          SE    1319    1320    1330    1340  1343.4    1347    1348    1350    1351
             *

258          KK     R21
259          KM       ROUTE REMAINDER OF FLOW AT CP21 TO CP23
260          RS       1              -1       0
261          RC    .03     .03     .05    2340   .0196
262          RX   1000    1030    1050    1070    1145    1212    1225    1250
263          RY   1310    1306    1304    1302    1302    1304    1306    1310
             *

264          KK      23
265          KM   BASIN 23
266          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
267          KM    L=       .4  Lca=       .2    S=   90.9  Kn= .050  LAG=  11.7
268          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
269          BA    0.14
```

SRW25-W25
SRW2C-W26



DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and
Land Surveyors
(602) 335-8500

01/19/06
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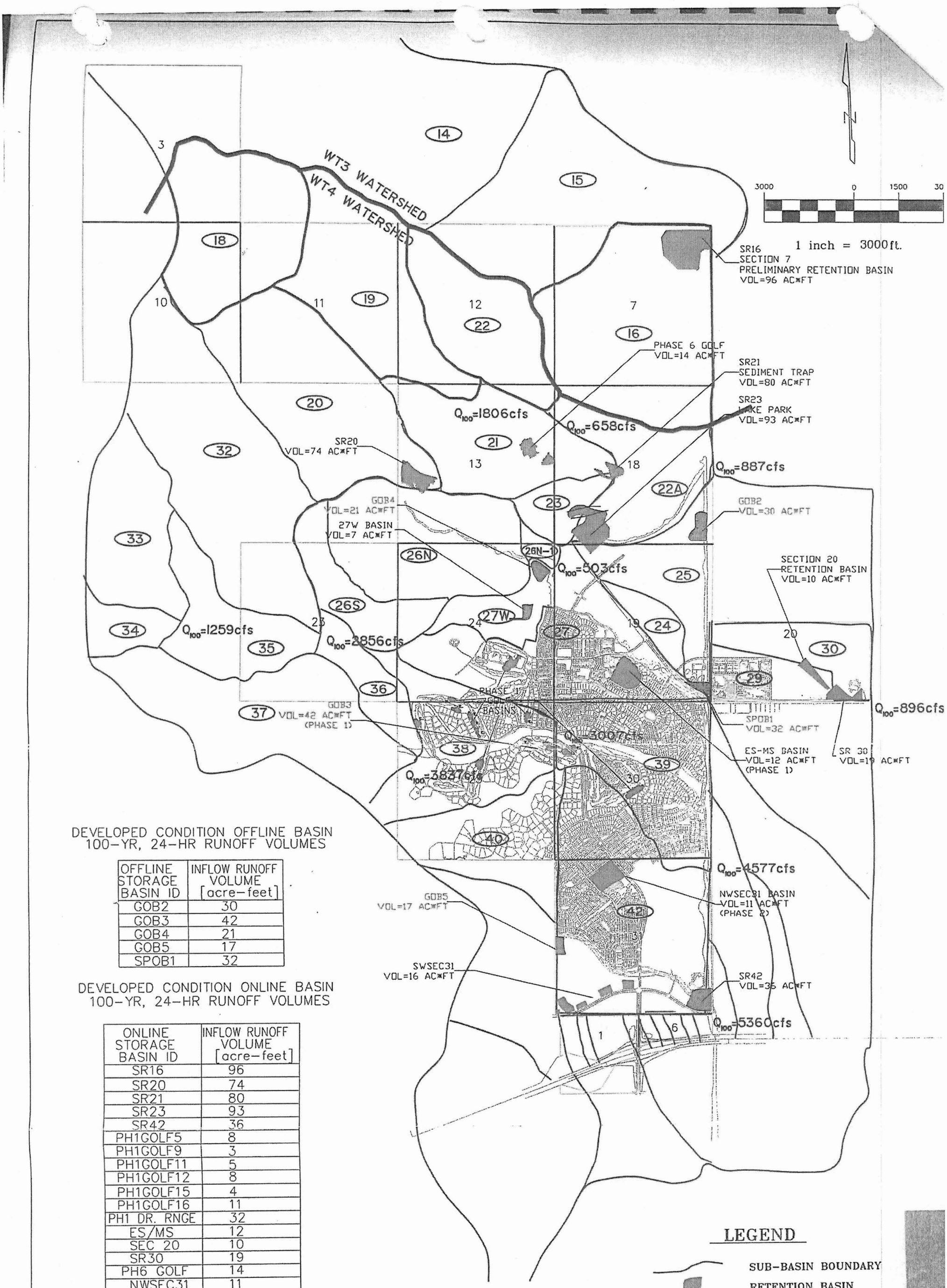

DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and Land Surveyors
(602) 335-8500

01/19/06
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White Tanks FRS No. 3

GLENDALE AVE

BEGIN PROJECT

N

1000 0 1000 2000

Scale in Feet

JACK RABBIT ESTATES

TUTHILL RD

MEDLOCK DRIVE

BEARDSLEY CANAL

CAMELBACK RD

MEADOWBROOK AVE

MINNEZONA AVE

LITCHFIELD HEIGHTS

DETENTION BASIN

INDIAN SCHOOL RD

PASQUALETTI MTN. RANCH

OSBORN RD

CLARENDON AVE

75'X200' DETENTION BASIN

195TH AVE

ENCANTO BLVD

JACKRABBIT TRAIL

191ST AVE

END PROJECT

McDOWELL RD

10

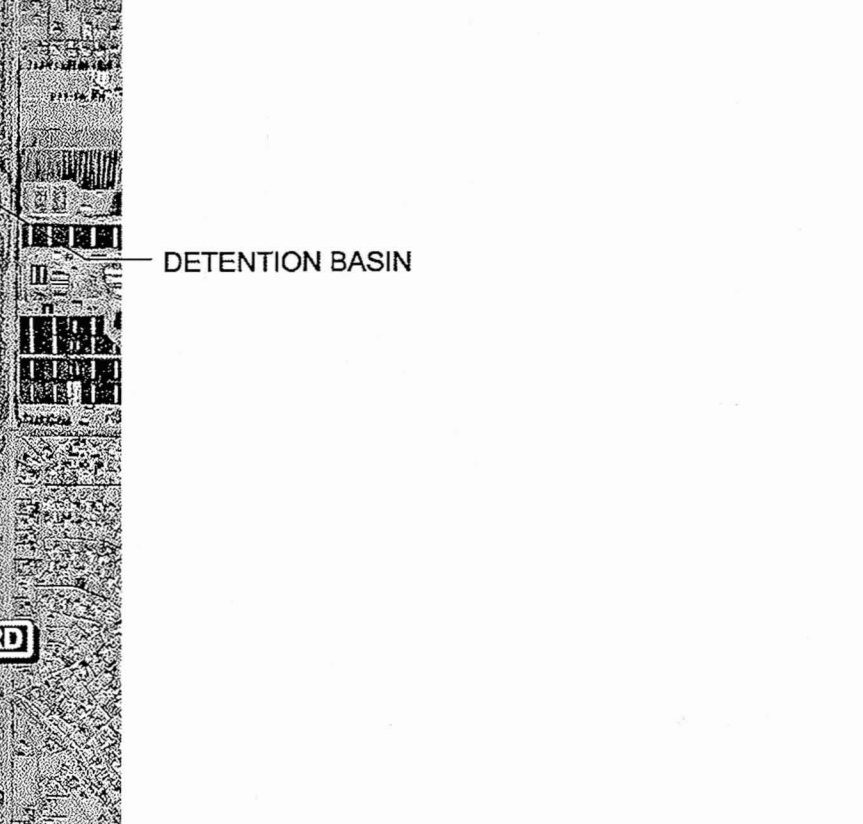
White Tanks FRS No. 4

LEGEND

GENERAL ALIGNMENT OF CHANNEL

EXISTING FLOOD RETARDING STRUCTURE

EXISTING CONCRETE-LINED CHANNEL



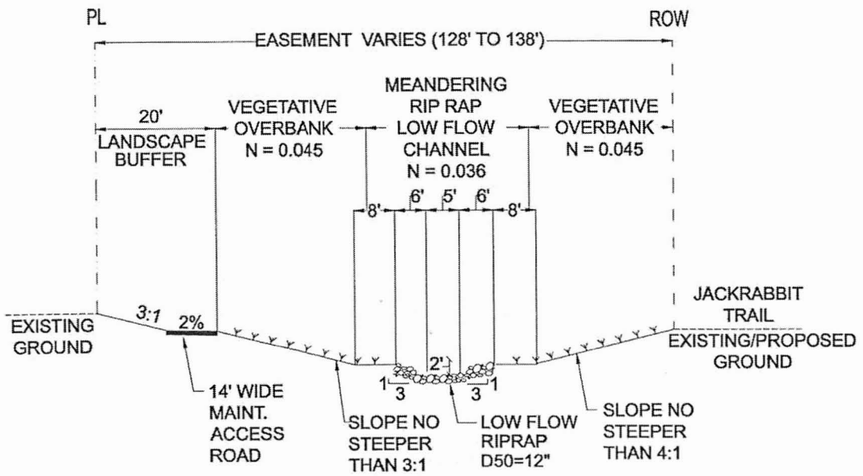
Gannett Fleming

Flood Control District of Maricopa County

White Tanks FRS No. 3
OUTFALL CHANNEL
LOCATION MAP
FIGURE 1

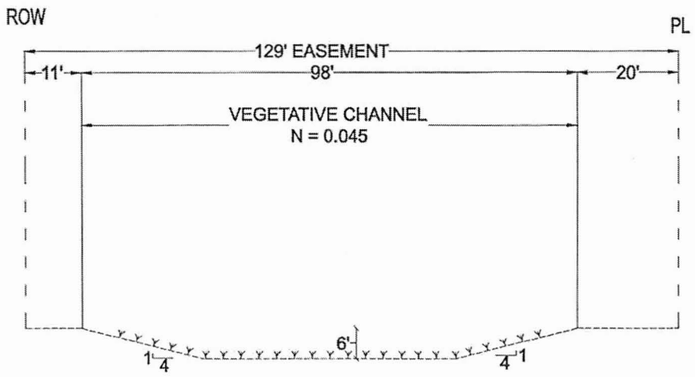
...\Channel\Figures\FIGURE1.dgn 11/13/2008 10:04:36 AM

T2N, R3W



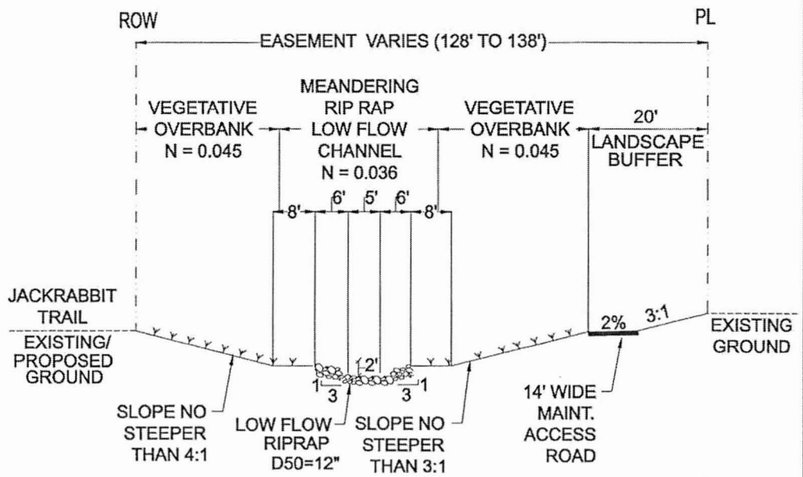
EXISTING CONCRETE CHANNEL
NORTH OF McDOWELL ROAD TO THE
EXISTING PASQUALETTI RANCH CHANNEL
SOUTH OF OSBORN ROAD
STA 0+00 TO 64+00

SOUTH OF INDIAN SCHOOL ROAD TO SELLS ROAD
STA 86+00 TO 116+00



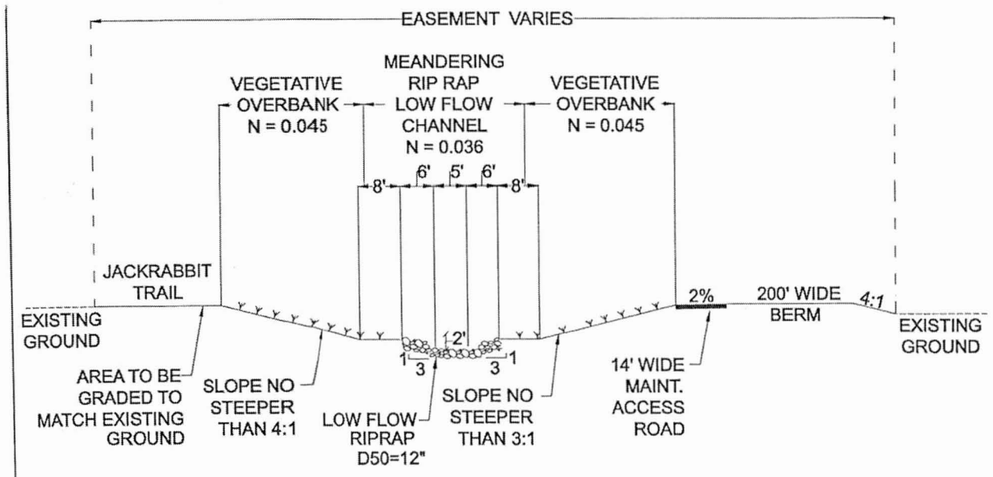
EXISTING PASQUALETTI RANCH CHANNEL
SOUTH OF OSBORN ROAD
TO SOUTH OF INDIAN SCHOOL ROAD

STA 64+00 TO 86+00



CAMELBACK ROAD TO 1000 FEET
NORTH OF COLTER STREET
STA 149+00 TO 175+00

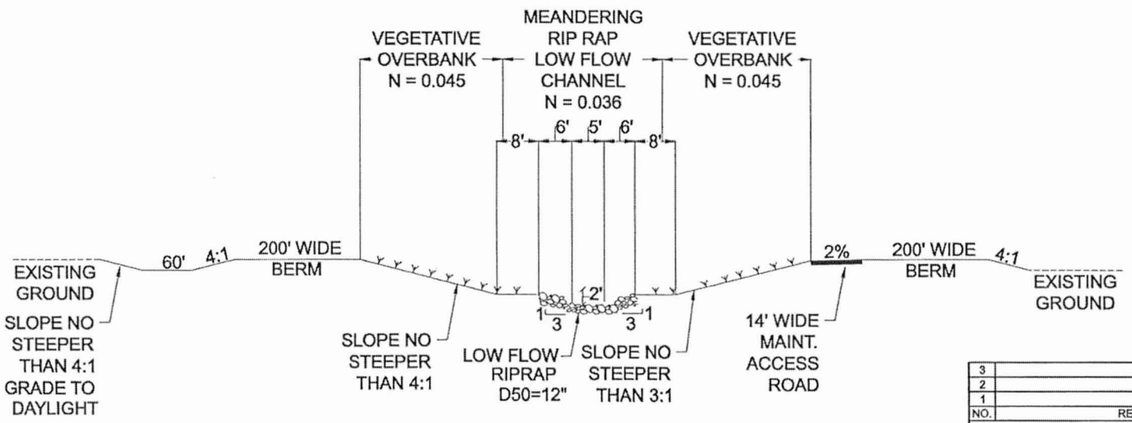
1100 FT SOUTH OF BETHANY HOME ROAD
TO BETHANY HOME ROAD
STA 190+00 TO 201+00



1000 FEET NORTH OF COLTER STREET
TO 1100 FEET SOUTH OF BETHANY HOME ROAD
STA 175+00 TO 190+00

NOTE 1: A 2-CELL 8 FT X 6 FT BOX CULVERT, DETENTION BASIN AND LOW FLOW CHANNEL ARE PROVIDED FROM STA 116+10 TO STA 148+50

NOTE 2: THE LOW FLOW CHANNEL IS SHOWN AT THE CENTER OF THE DRAINAGE CHANNEL CORRIDOR. HOWEVER IT CAN MEANDER AS LONG AS THE SIDE SLOPES OF THE CHANNEL DO NOT EXCEED 4H:1V ALONG JACKRABBIT TRAIL AND 3H:1V ALONG THE RESIDENTIAL SIDE OF THE PROPOSED CHANNEL.



BETHANY HOME ROAD
TO WHITE TANKS FRS NO. 3
PRINCIPAL SPILLWAY OUTLET

STA 201+00 TO 246+00

NOTE 3: THE LOW FLOW CHANNEL WILL NEED TO SHIFT WEST FROM THE PROPOSED CHANNEL CENTER LINE ADJACENT TO THE CUL-DE-SACS WITHIN JACKRABBIT ESTATES

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R BERG	12/08/08
DRAWN	E HYNICK	12/08/08
CHECKED	N RAZA	12/08/08

Gannett Fleming

DRAWING NO.		SHEET OF
C2	CHANNEL TYPICAL SECTIONS	5 27

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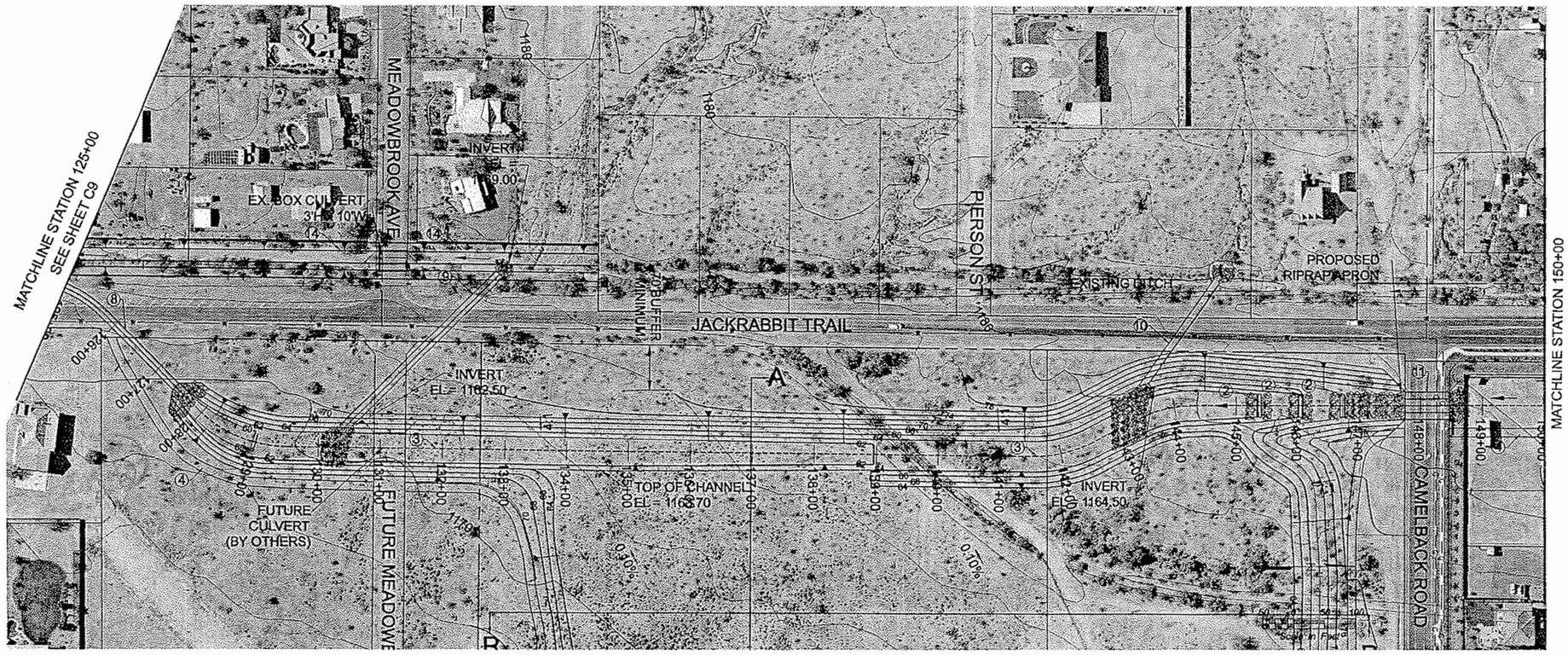

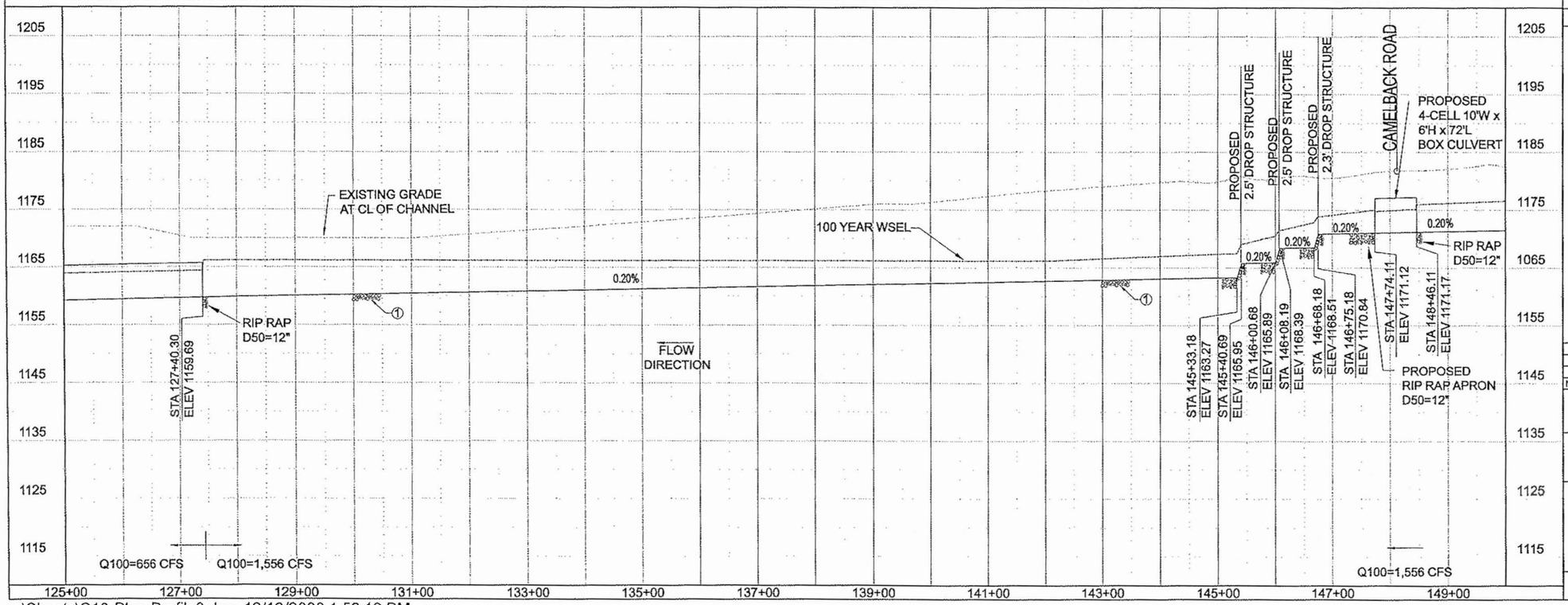

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☐ REMOVE ☐

[1] RELOCATE EXISTING UTILITIES WHERE APPROPRIATE

○ CONSTRUCT ○

① SIGNIFICANT ADJACENT INFLOW LOCATION. CONSTRUCT SIDE INFLOW STRUCTURE PER DETAILS ON DRAWING SHEET ST2

② DROP STRUCTURE PER DETAILS ON SHEET ST1

③ CHANNEL EXCAVATION/CONSTRUCTION AND LOW FLOW CHANNEL RIPRAP PLACEMENT PER TYPICAL SECTION ON SHEET C2

④ O&M ROAD PER TYPICAL SECTIONS ON SHEET C2

⑧ 2-CELL 8'W X 6'H X 1130'L BOX CULVERT

⑨ 2-CELL 8'W X 6'H X 370'L BOX CULVERT

⑩ 1-CELL 10'W X 6'H X 200'L BOX CULVERT

⑪ 4-CELL 10'W X 6'H X 72'L BOX CULVERT

⑭ EXISTING CHANNEL ALONG LITCHFILED HIEHGTS SUBDIVSION TO BE IMPROVED BY REMOVAL OF SEDIMENT. EXISTING CHANNEL FOOTPRINT TO REMAIN. SEE SHEET C16 FOR TYPICAL SECTION

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NO.	REVISION	BY	DATE
3			
2			
1			

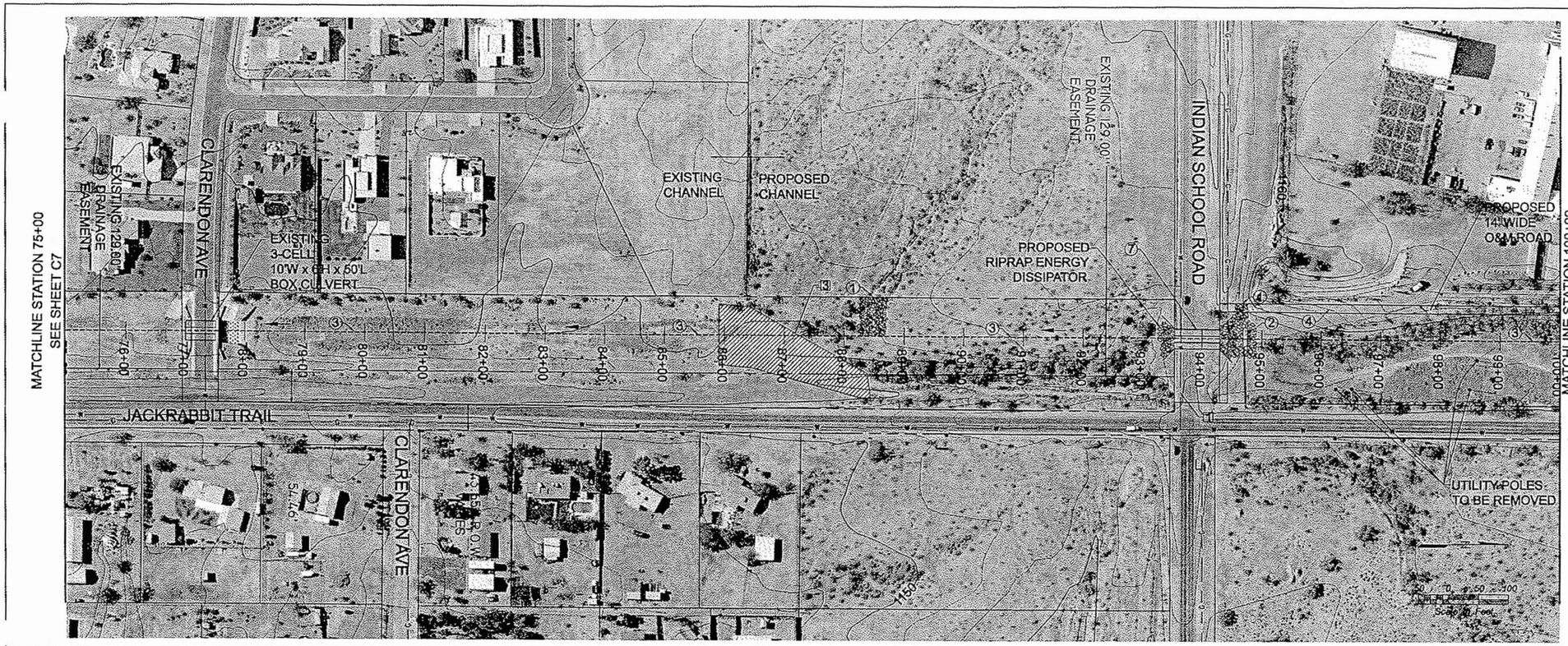
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

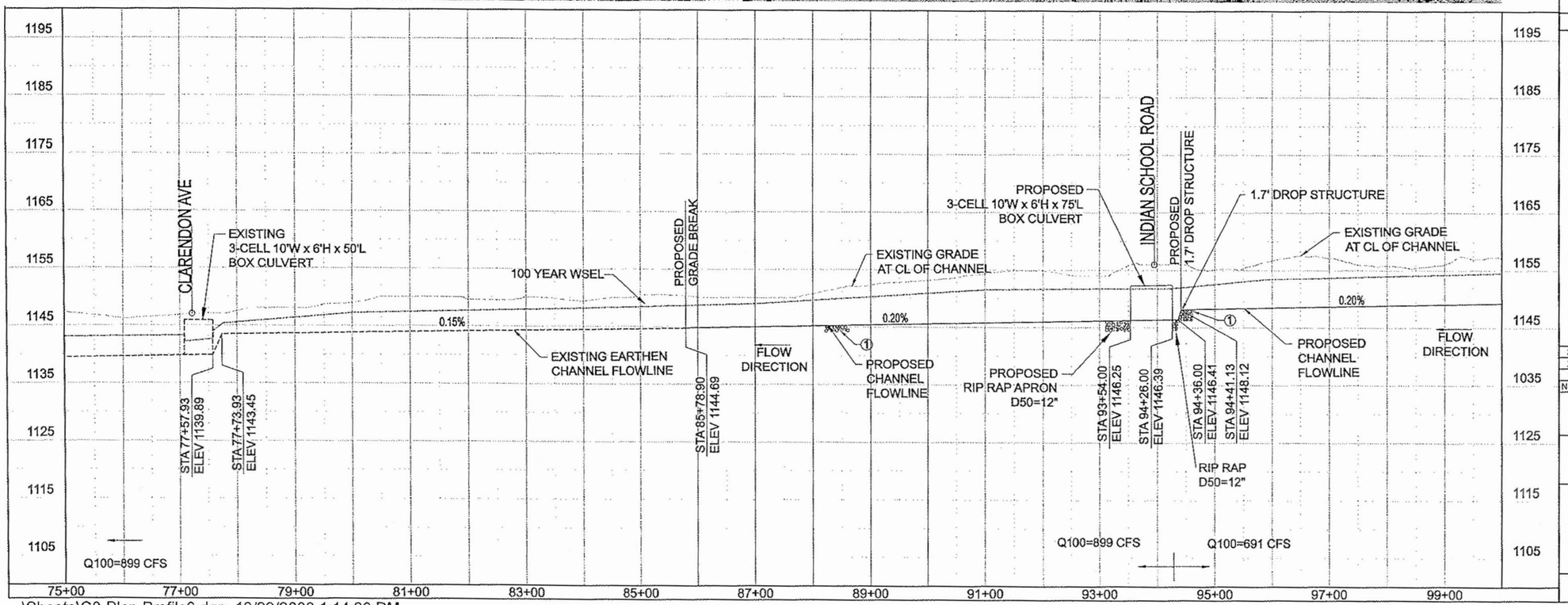
WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	R. BERG	12/08/08
	DRAWN	E. HYNICK & R. BERG	12/08/08
	CHECKED	S. RAZA	12/08/08

Gannett Fleming

DRAWING NO.		SHEET OF
C10	PLAN AND PROFILE 8	13 27





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☐ REMOVE ☐

[1] RELOCATE EXISTING UTILITIES WHERE APPROPRIATE

[3] REMOVE EXISTING GROUTED RIPRAP CHANNEL TRANSITION SEGMENT

○ CONSTRUCT ○

① SIGNIFICANT ADJACENT INFLOW LOCATION. CONSTRUCT SIDE INFLOW STRUCTURE PER DETAILS ON DRAWING SHEET ST2

② DROP STRUCTURE PER DETAILS ON SHEET ST1

③ CHANNEL EXCAVATION/CONSTRUCTION AND LOW FLOW CHANNEL RIPRAP PLACEMENT PER TYPICAL SECTION ON SHEET C2

④ O&M ROAD PER TYPICAL SECTIONS ON SHEET C2

⑦ 3-CELL 10'W X 6'H X 75'L BOX CULVERT

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

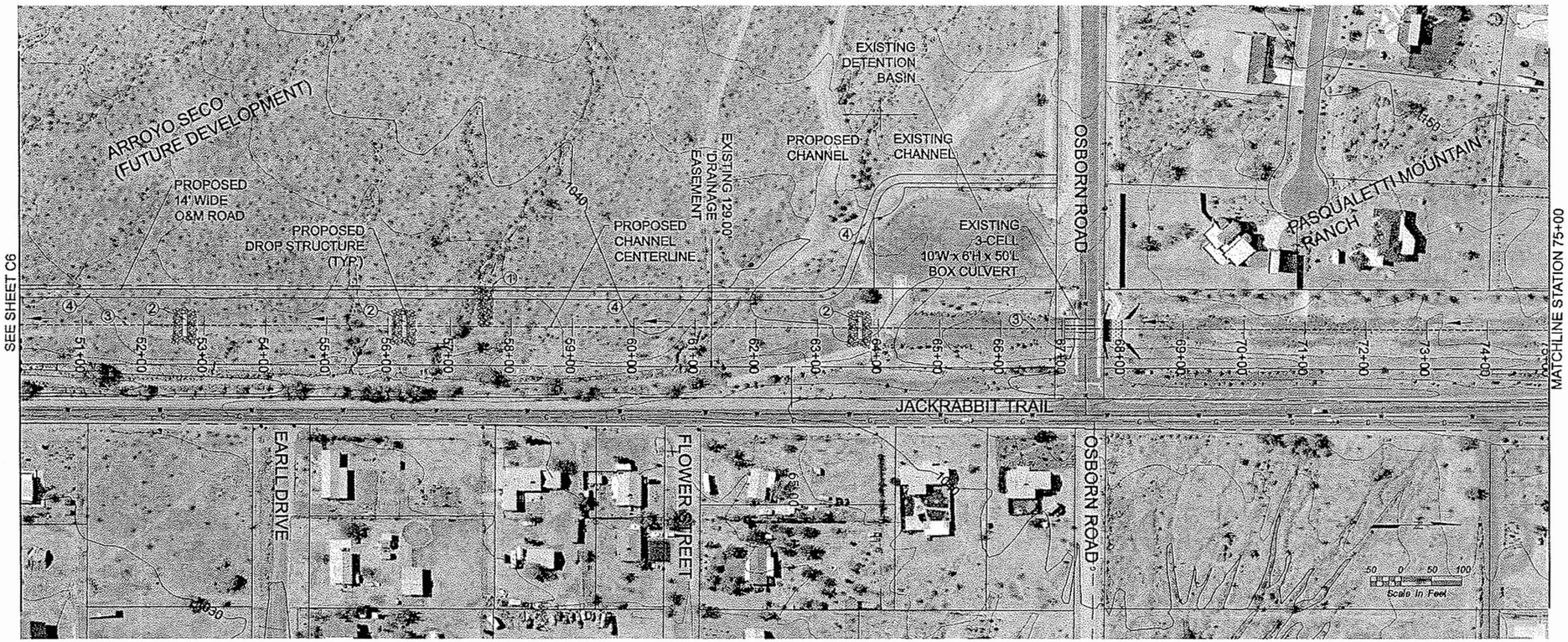
WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

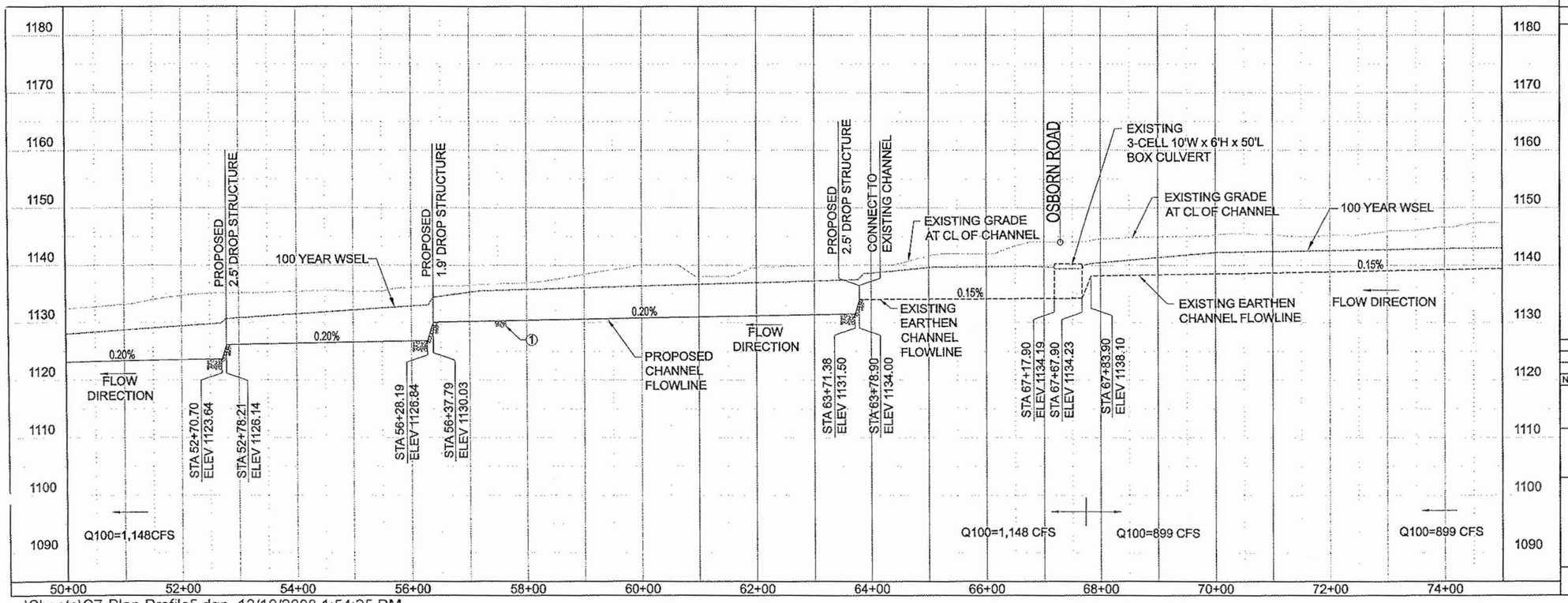
	BY	DATE
DESIGNED	R. BERG	12/08/08
DRAWN	E. HYNICK & R. BERG	12/08/08
CHECKED	S. RAZA	12/08/08

PRELIMINARY NOT FOR CONSTRUCTION

Gannett Fleming

DRAWING NO.		SHEET OF
C8	PLAN AND PROFILE 6	11 27





☐ REMOVE ☐

[1] RELOCATE EXISTING UTILITIES WHERE APPROPRIATE

○ CONSTRUCT ○

① SIGNIFICANT ADJACENT INFLOW LOCATION. CONSTRUCT SIDE INFLOW STRUCTURE PER DETAILS ON DRAWING SHEET ST2

② DROP STRUCTURE PER DETAILS ON SHEET ST1

③ CHANNEL EXCAVATION/CONSTRUCTION AND LOW FLOW CHANNEL RIPRAP PLACEMENT PER TYPICAL SECTION ON SHEET C2

④ O&M ROAD PER TYPICAL SECTIONS ON SHEET C2

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	R. BERG	12/08/08
	DRAWN	E. HYNICK & R. BERG	12/08/08
	CHECKED	S. RAZA	12/08/08

Gannett Fleming

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C7		10 27

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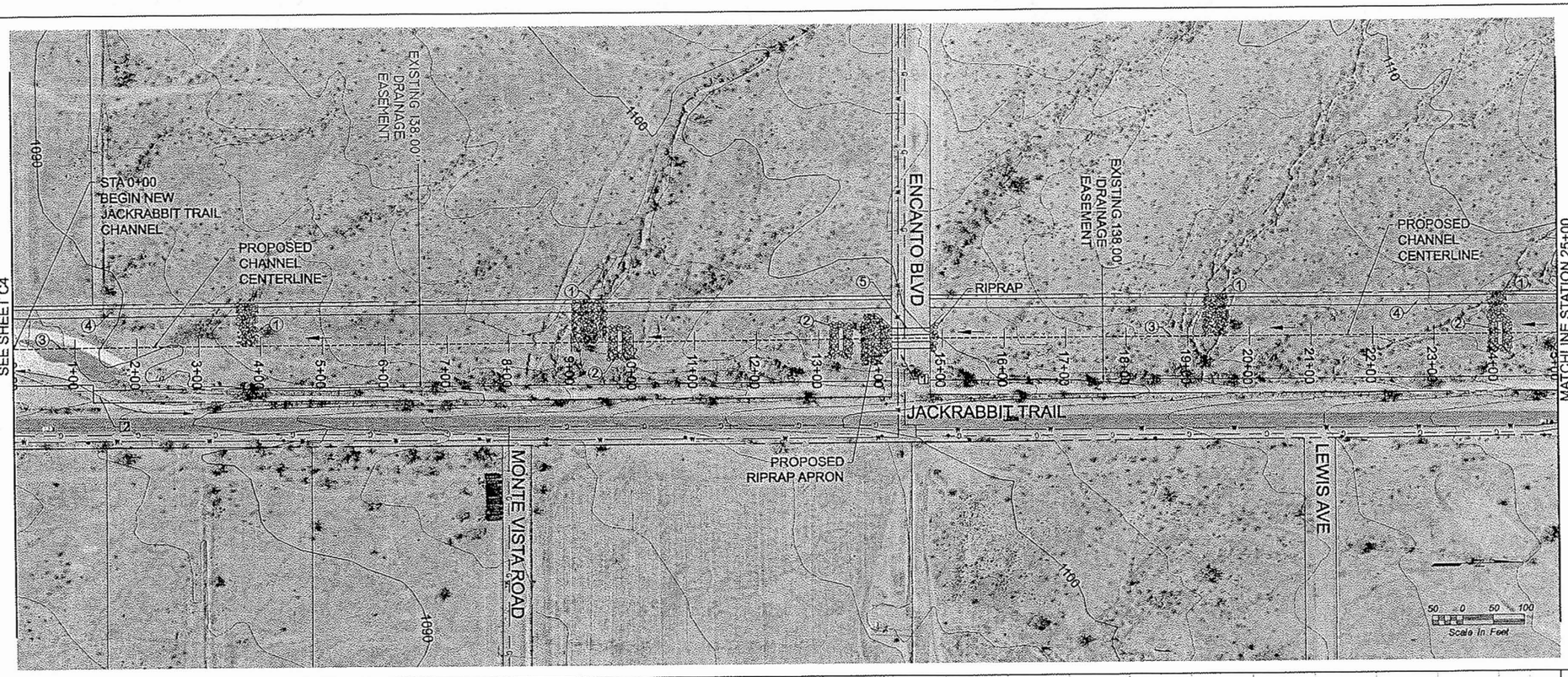

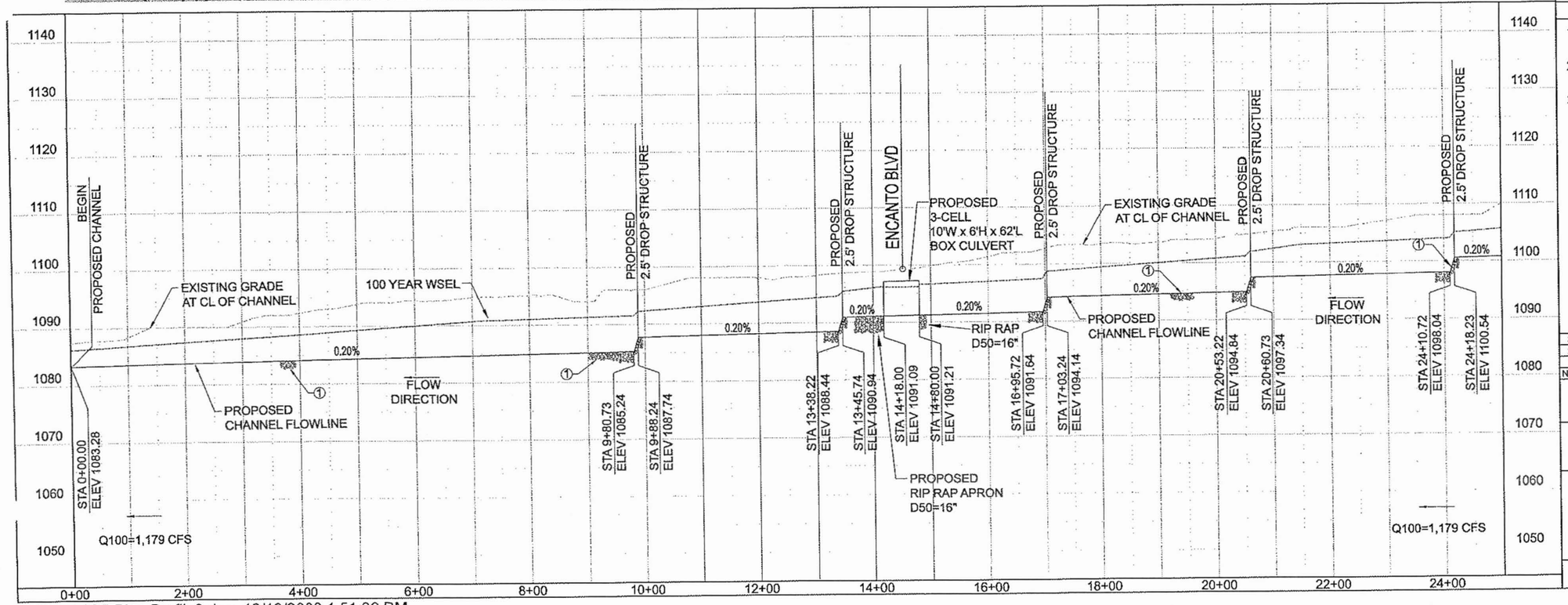

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☐ REMOVE ☐

[1] RELOCATE EXISTING UTILITIES WHERE APPROPRIATE

[2] REMOVE EXISTING CONCRETE CHANNEL CURVILINEAR SEGMENT

○ CONSTRUCT ○

① SIGNIFICANT ADJACENT INFLOW LOCATION. CONSTRUCT SIDE INFLOW STRUCTURE PER DETAILS ON DRAWING SHEET ST2

② DROP STRUCTURE PER DETAILS ON SHEET ST1

③ CHANNEL EXCAVATION/CONSTRUCTION AND LOW FLOW CHANNEL RIPRAP PLACEMENT PER TYPICAL SECTION ON SHEET C2

④ O&M ROAD PER TYPICAL SECTIONS ON SHEET C2

⑤ 3-CELL 10'W X 6'H X 62'L BOX CULVERT

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NO.	REVISION	BY	DATE
3			
2			
1			

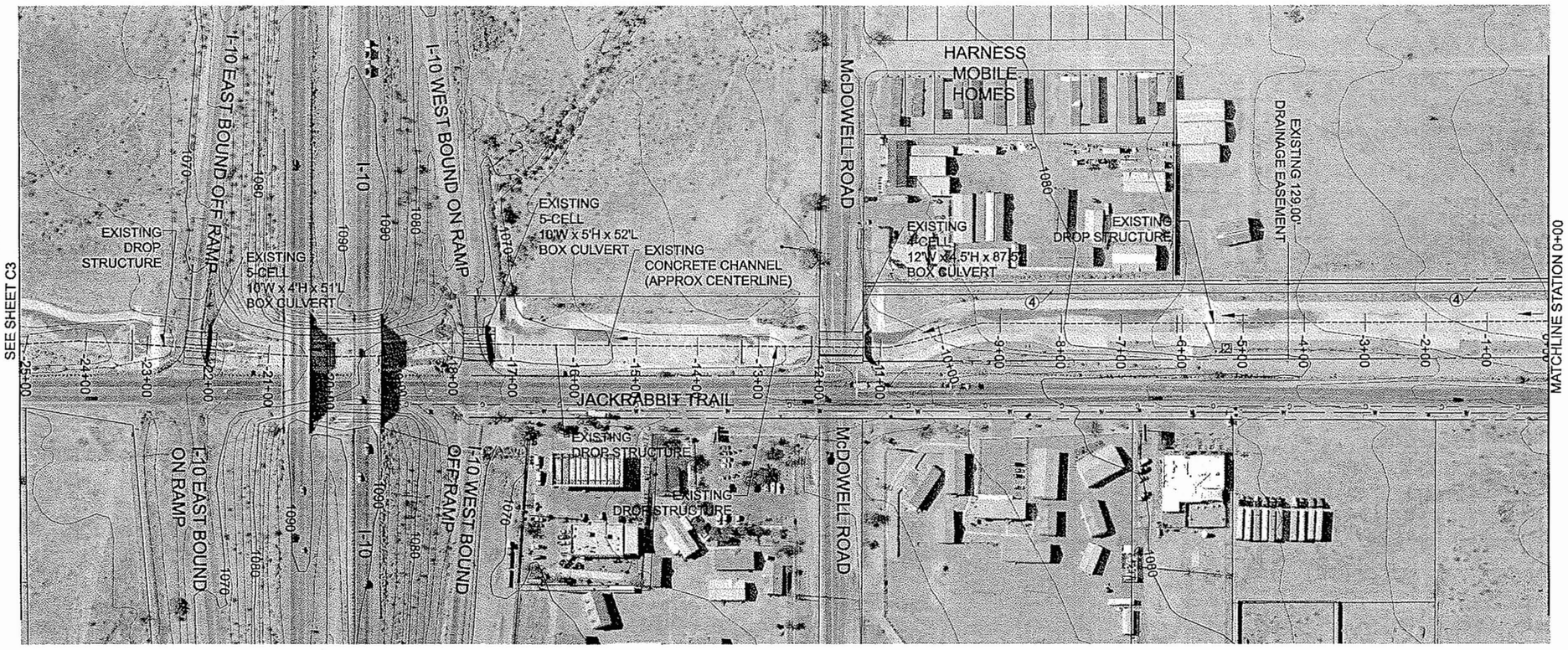
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

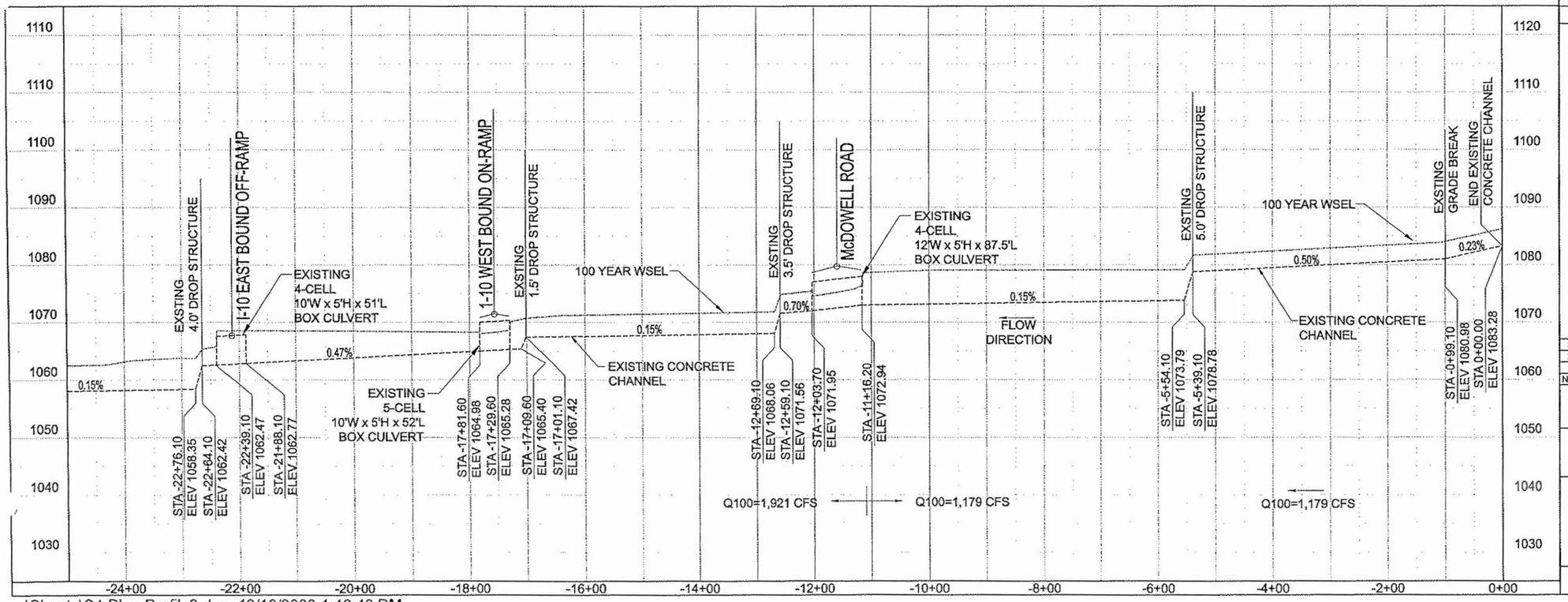
WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	R. BERG	12/08/08
	DRAWN	E. HYNICK & R. BERG	12/08/08
	CHECKED	S. RAZA	12/08/08

Gannett Fleming

DRAWING NO.		SHEET OF
C5	PLAN AND PROFILE 8	8 27





☐ REMOVE ☐

○ CONSTRUCT ○

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NOTE: THIS SHEET IS PROVIDED FOR INFORMATION ABOUT THE EXISTING CHANNEL TO WHITE TANKS FRS NO. 4

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BERG	12/08/08
DRAWN	E. HYNICK & R. BERG	12/08/08
CHECKED	S. RAZA	12/08/08

Gannett Fleming

DRAWING NO. C4

PLAN AND PROFILE 2

SHEET OF 7 27

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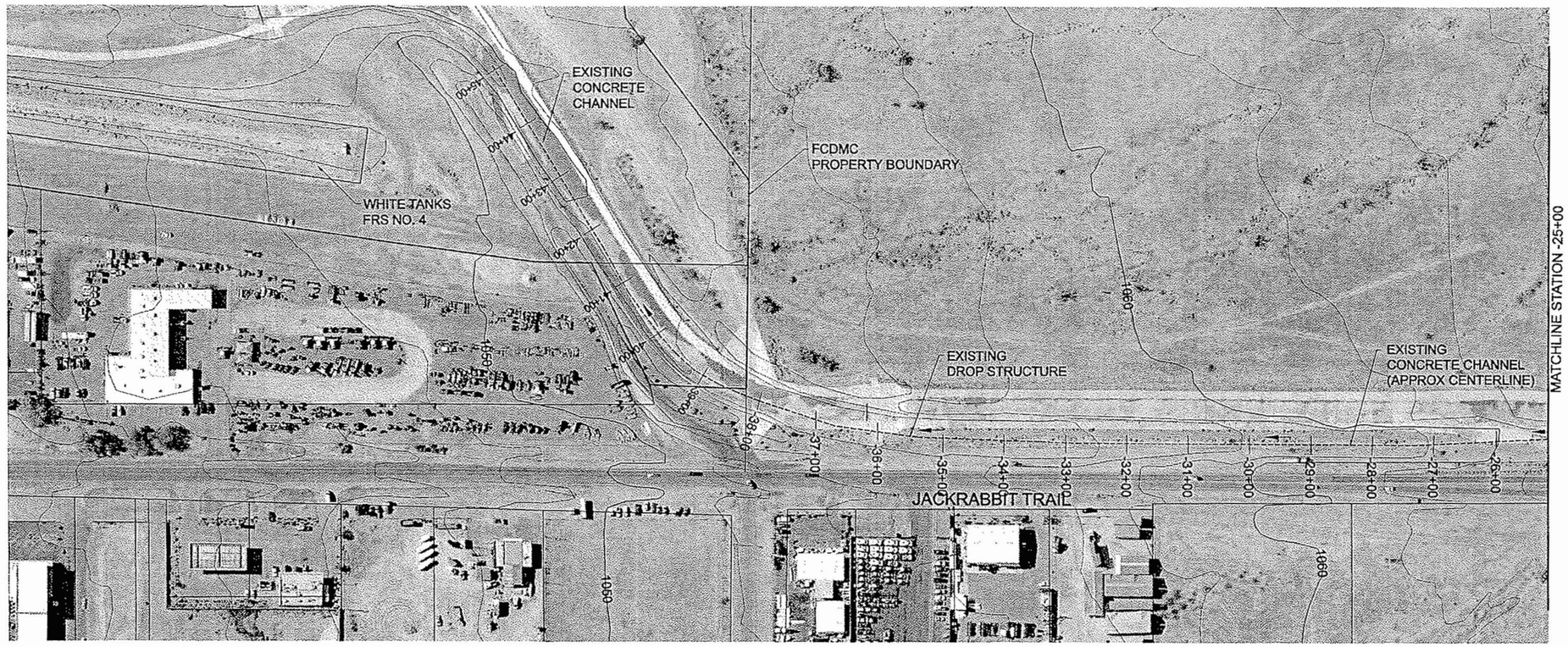

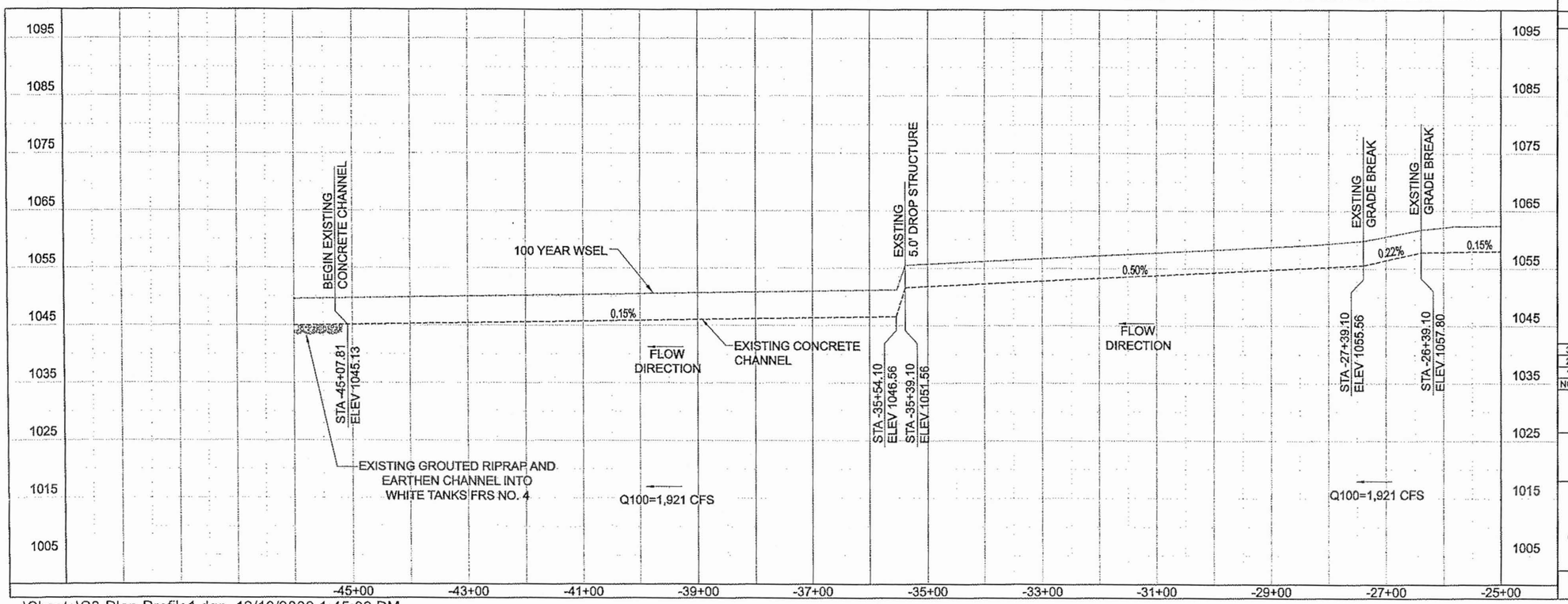

REMOVE

CONSTRUCT

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NOTE: THIS SHEET IS PROVIDED FOR INFORMATION ABOUT THE EXISTING CHANNEL TO WHITE TANKS FRS NO. 4

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BERG	12/08/08
DRAWN	E. HYNICK & R. BERG	12/08/08
CHECKED	S. RAZA	12/08/08

Gannett Fleming

DRAWING NO. C3

PLAN AND PROFILE 1

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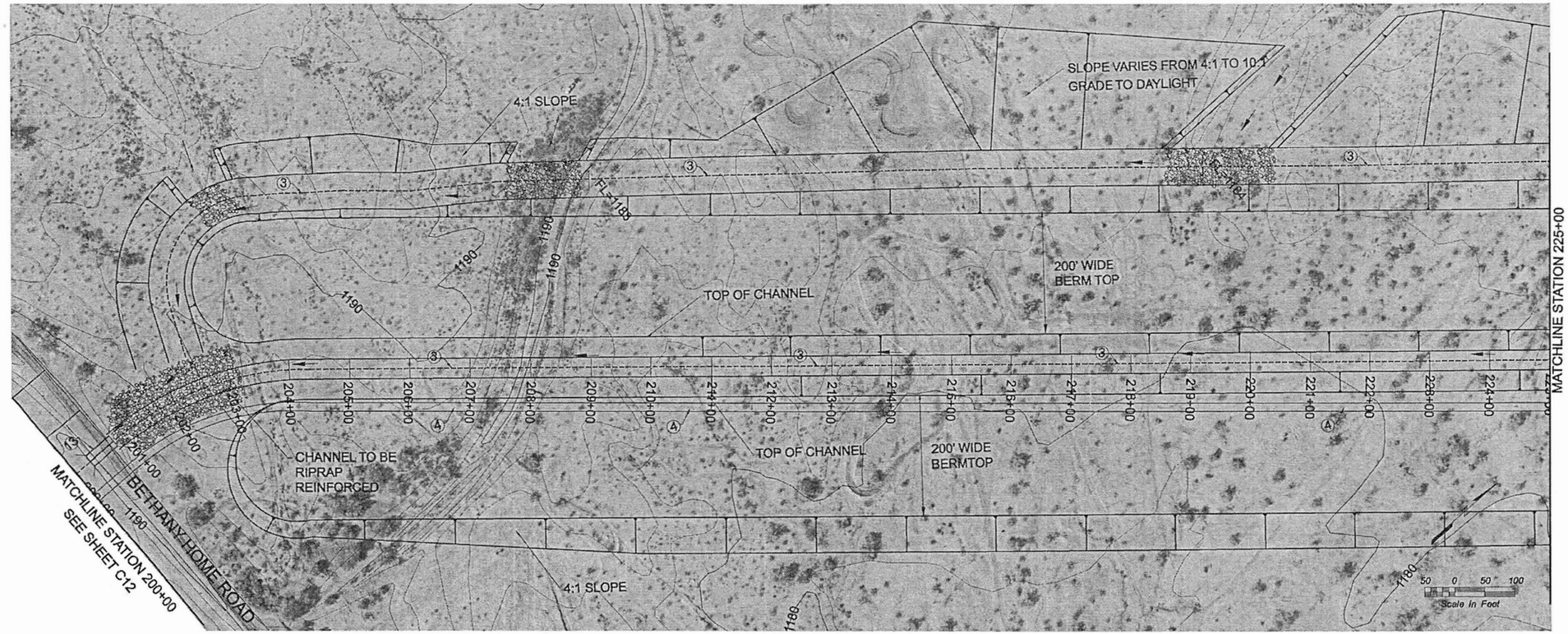

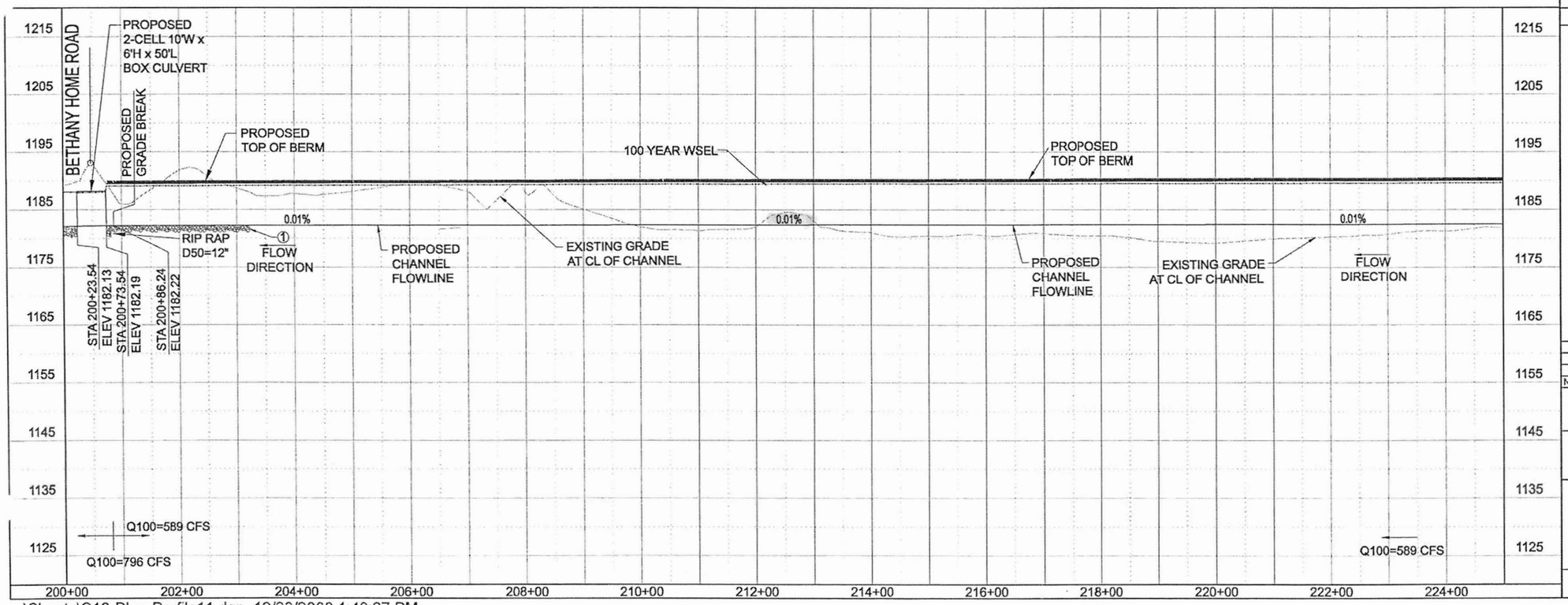

REMOVE

[1] RELOCATE EXISTING UTILITIES WHERE APPROPRIATE

CONSTRUCT

(3) CHANNEL EXCAVATION/CONSTRUCTION AND LOW FLOW CHANNEL RIPRAP PLACEMENT PER TYPICAL SECTION ON SHEET C2

(4) O&M ROAD PER TYPICAL SECTIONS ON SHEET C2

(13) 2-CELL 8'W X 6'H X 50'L BOX CULVERT

GENERAL NOTES

1. THESE PRELIMINARY PLANS ARE NOT FOR CONSTRUCTION .
2. UTILITY LOCATIONS ARE SCHEMATIC AND CULVERT LOCATIONS ARE APPROXIMATE
3. PROFILE SHOWN THROUGH CENTERLINE OF THE PROPOSED CHANNEL ALIGNMENT

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

	BY	DATE
DESIGNED	R. BERG	12/08/08
DRAWN	E. HYNICK & R. BERG	12/08/08
CHECKED	S. RAZA	12/08/08

PRELIMINARY NOT FOR CONSTRUCTION

Gannett Fleming

DRAWING NO. C13

PLAN AND PROFILE 11

SHEET OF 16 27

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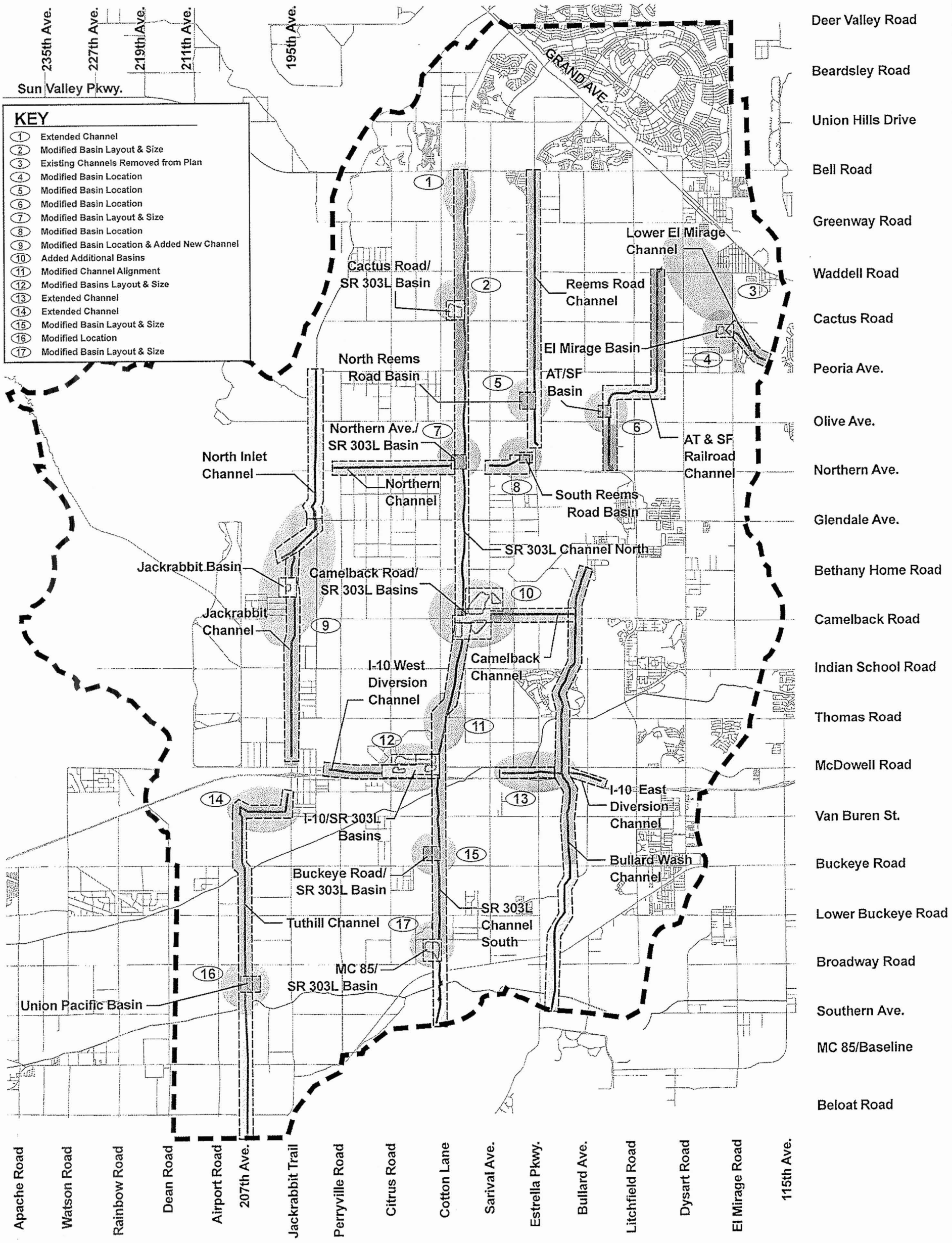
W28, S70, L72, B65, D69
L09, L13, L19, L27, L34

Table 2.4B
Proposed Basin Summary
Existing Condition Hydrology

Channel/ Location ID	Qin (cfs)	Qout (cfs)	Vin (ac-ft)	Peak Storage (ac-ft)	Max. Vol. Provided (ac-ft)	Peak Stage (ft)	on/off line	Combined Total Outflow (cfs)	Length Low-Flow Basin Drain (ft)	Prop. Bot. Elev. (ft)	Prop. Top Elev. (ft)	Design FB (ft)	Actual FB (ft)	Backwater
Jackrabbit Channel														
SRJR1 (N. of Camelback)	850	65	42	41.5	43.9	1185.5	off-line	151	8,323	1,173.5	1,186.0	0.0	0.5	-----
Tuthill Channel														
SRTC5 (@ RxR)	1,646	550	109	108.5	108.5	898.0	off-line	618	4,390	890.0	898.0	0.0	-0.6	-----
I-10 Channel West														
SR10W7	1593	741	282	85.2	85.2	1022.0	on-line	N/A	2,487	1,010.5	1,022.0	0.0	0.0	-----
L303 Channel														
SRLP2 (Cactus Road)	2311	311	543	440	440.0	1212.0	off-line	587	5,630	1,197.0	1,212.0	0.0	0.0	-----
SRLP5 (Northern)	4241	442	354	334	333.0	1141.0	off-line	1380	6,934	1,126.0	1,141.0	0.0	0.0	-----
SRLP8 (Camelback)	2102	340	1081	705.9	700.0	1065.0	on-line	N/A	14,062	1,059.0	1,065.0	0.0	0.0	-----
SRLP12 (I-10)	1781	701	1166	591.5	590.0	1016.0	on-line	N/A	4,961	1,001.0	1,016.0	0.0	0.0	-----
SRLP14 (Yuma/Buckeye)	695	523	823	189.0	190.0	968.0	on-line	N/A	4,092	959.0	968.0	0.0	0.0	-----
SRLP16 (MC85)	751	448	938	325.0	325.0	913.0	on-line	N/A	2,872	903.0	913.0	0.0	0.0	-----
Reems/Northern Channel														
SRRM5 (Olive)	1,752	198	189	165.0	165.0	1134.0	off-line	818	1,449	1,127.0	1,134.0	0.0	0.0	-----
BSNR6(Northern)	477	0	55	55.0	61.1	1107.5	in-line	0	1,413	1,095.0	1,108.5	0.0	1.2	-----
AT&SF Railroad Channel														
SRRR7 (@Olive)	1,770	1285	331	81.3	142.7	1105.6	off-line	1439	1,832	1,097.5	1,111.5	0.0	6.1	-----
Lower El Mirage Channel														
(SRLE4 SW corner of Cactus and El Mirage)	1,312	813	191	56.9	80.0	1111.4	off-line	852	2,069	1,104.5	1,114.0	0.0	2.1	-----
Bullard Wash														
SRBD1S (I-10 and Bullard Wash)	2682	2011	813	134.9	138.0	990.2	off-line	575 - ADOT	4,390	978.5	990.2	0.0	-0.2	-----
								2239 - BLRD						



Basin & Channel Locations

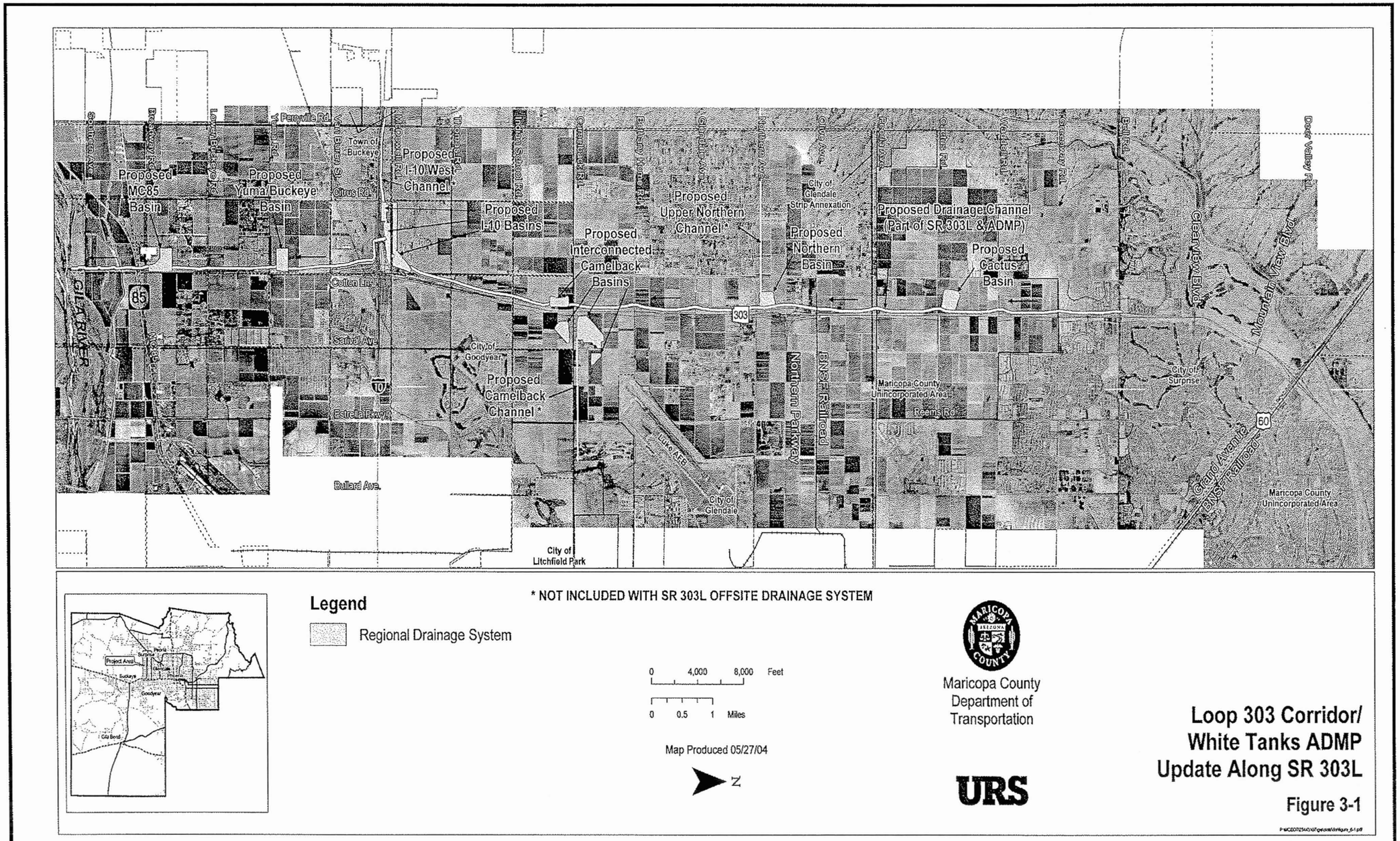


Figure 3 - Loop 303 Corridor/White Tanks ADMP Update Along SR303L

Table 2.2A
Proposed Channel Summary
Existing Condition Hydrology

Channel Name	Concentration Point	Qexist	[1]Approximate Qcap (cfs)	DS Invert (ft)	WSEL (ft)	Flow Depth (ft)	Channel Depth (ft)	Bottom Width (ft)	Side Slope (H:V)	Design s (ft/ft)	(Q/A) V ft/s	Froude Number F_N	Channel [3]Tw (ft)	(WSEL) [3]Tw (ft)
Camelback Channel														
	!CM2	372	372	1052.7	1056.5	3.8	4.7	5	(6:1)	*0.0020*	3.6	0.44	132	51
	!CM3	485	485	1047.5	1051.8	4.2	5.4	5	(6:1)	*0.0020*	3.8	0.45	143	57
	!CM4	783	783	1040.7	1044.8	4.1	6.3	26	(4:1)	*0.0020*	4.5	0.46	152	59
Jackrabbit Channel														
	!JR1	953	953	1177.1	1182.6	5.5	6.9	5	(6:1)	*0.0021*	4.6	0.47	167	71
	!JR2	813	813	1165.0	1169.3	4.3	5.3	15	(6:1)	*0.0025*	4.7	0.51	154	67
	!JR3	933	933	1147.4	1150.4	4.0	4.4	15	(6:1)	*0.0046*	6.1	0.61	140	51
	!JR4	1,324	1,324	1109.9	1114.3	4.4	4.4	25	(6:1)	*0.0035*	5.9	0.61	153	78
	!JR5	1,683	1,683	1080.3	1084.6	4.3	4.3	40	(6:1)	*0.0033*	6.0	0.60	171	92
SR303L URS DCR - Channel														
	!LP0	772	772	1275.6	1279.0	3.4	5.5	10	(2:1)	*0.0049*	13.7	1.57	62	24
	!LP	854	854	1247.9	1251.5	3.5	5.4	10	(2:1)	*0.0050*	14.3	1.61	62	24
	!LP1	1,612	1,612	1227.3	1232.5	5.1	5.9	12	(2:1)	*0.0031*	14.1	1.33	66	33
Cactus Road Basin	!LP2	2,898	2,898	1209.8	1215.9	6.0	6.1	20	(2:1)	*0.0026*	15.0	1.26	74	44
offline low flow/bypass channel	2LP2	587	587	1200.0	1202.6	2.5	4.8	20	(2:1)	*0.0026*	9.3	1.14	69	30
	!LP3	2,140	2,140	1180.8	1185.9	5.0	5.1	21	(2:1)	*0.0027*	13.8	1.26	71	41
	!LP4	2,636	2,636	1160.7	1165.9	5.2	5.2	26	(2:1)	*0.0025*	14.1	1.24	77	47
	!LP5	2,624	2,636	1136.3	1141.5	5.2	5.2	26	(2:1)	*0.0025*	14.0	1.23	77	47
offline low flow/bypass channel	2LP5	1,380	1,380	1130.4	1133.8	3.4	3.7	26	(2:1)	*0.0032*	12.5	1.32	71	40
	!LP6	1,539	1,539	1110.0	1115.1	5.1	6.4	16	(2:1)	*0.0020*	11.6	1.07	72	36
	!LP7	1,770	1,770	1087.1	1092.2	5.0	6.2	19	(2:1)	*0.0021*	12.1	1.10	74	39
	!LP8	2,097	2,097	1065.8	1070.7	4.9	6.1	26	(2:1)	*0.0020*	12.1	1.09	80	46
	!LP9	557	557	1047.9	1052.2	4.2	4.3	5	(2:1)	*0.0023*	9.8	1.08	52	22
	!LP10	624	624	1032.4	1036.1	3.7	3.7	5	(2:1)	*0.0052*	13.7	1.58	50	20
	!LP11	988	988	1014.5	1019.2	4.7	5.7	5	(2:1)	*0.0047*	14.8	1.56	58	24
	!LP13	697	701	984.8	988.5	3.6	3.8	8	(2:1)	*0.0041*	12.7	1.45	53	23
	!LP14	695	701	966.2	969.7	3.5	3.7	8	(2:1)	*0.0048*	13.5	1.54	53	22
	!LP15	676	676	934.2	937.7	3.4	4.2	8	(2:1)	*0.0048*	13.3	1.54	55	22
	!LP16	751	751	914.8	918.3	3.5	4.2	8	(2:1)	*0.0056*	14.5	1.67	55	22
	!LP17	447	448	884.3	888.7	4.3	5.5	5	(2:1)	*0.0013*	7.6	0.82	57	23
Upper Northern Channel														
	!NR1	256	256	1219.0	0.0	2.7	3.6	5	(6:1)	*0.0050*	4.6	0.66	115	37
	!NR2	1,309	1,309	1182.2	1186.3	4.0	4.1	30	(6:1)	*0.0039*	6.1	0.65	155	79
	!NR3	2,246	2,246	1143.5	1148.5	5.0	5.0	45	(6:1)	*0.0028*	6.0	0.56	189	105
	!NR4	2,308	2,308	1136.0	1141.0	5.0	5.0	50	(6:1)	*0.0025*	5.8	0.54	195	110
Lower Northern Channel	!NR5	262	262	1122.6	1125.9	3.3	4.3	5	(6:1)	*0.0020*	3.3	0.43	126	45
	!NR6	477	477	1096.7	1100.2	3.4	4.5	5	(6:1)	*0.0053*	5.5	0.71	129	47
Reems Road Channel														
	[2]RM1	709	516	1222.1	1226.6	4.5	5.7	6.5	(3:1)	*0.0040*	5.8	0.63	105	34
	[2]RM2	957	1,382	1208.2	1214.3	6.0	7.7	11.5	(4:1)	*0.0032*	6.5	0.60	147	60
	!RM3	1,366	1,366	1167.8	1172.0	4.1	4.2	30	(6:1)	*0.0037*	6.0	0.63	157	80
	!RM4	1,640	1,640	1142.7	1147.7	5.0	5.0	30	(6:1)	*0.0025*	5.5	0.53	169	90
	!RM5	2,179	2,179	1119.4	1124.6	5.1	5.2	40	(6:1)	*0.0027*	6.0	0.57	185	102
	!RM6	826	826	1100.6	1105.0	4.3	5.3	10	(6:1)	*0.0034*	5.3	0.59	148	63

Table 2.2A (continued)
Proposed Channel Summary
Existing Condition Hydrology

Channel Name	Concentration Point	Qexist	[1]Approximate Qcap (cfs)	DS Invert (ft)	WSEL (ft)	Flow Depth (ft)	Channel Depth (ft)	Bottom Width (ft)	Side Slope (H:V)	Design s (ft/ft)	(Q/A) V ft/s	Froude Number F_N	Channel [3]Tw (ft)	(WSEL) [3]Tw (ft)
AT&SF Railroad Channel														
	!RR1	425	425	1150.8	1154.5	3.6	3.9	10	(6:1)	*0.0020*	3.7	0.44	126	54
	!RR2	492	492	1146.2	1149.7	3.4	3.5	10	(6:1)	*0.0035*	4.7	0.58	120	52
	!RR3	785	785	1127.9	1131.9	4.0	4.0	10	(6:1)	*0.0046*	5.9	0.68	127	58
	!RR4	936	936	1110.1	1114.4	4.3	4.3	15	(6:1)	*0.0034*	5.4	0.59	139	67
	!RR5	970	970	1103.3	1108.5	5.2	5.2	15	(6:1)	*0.0015*	4.0	0.41	153	77
	!RR6	1,733	1,733	1098.8	1105.5	6.7	6.7	15	(6:1)	*0.0015*	4.7	0.42	176	95
	!RR7	1,770	1,770	1095.1	1101.9	6.8	6.8	15	(6:1)	*0.0015*	4.7	0.42	178	97
	!RR8	1,585	1,585	1081.1	1086.9	5.8	5.8	15	(6:1)	*0.0025*	5.5	0.53	162	85
Lower El Mirage Channel														
	!LE4	1,356	1,356	1107.2	1111.9	4.7	6.8	35	(3:1)	*0.0026*	5.9	0.54	151	63
	!LE5	865	865	1086.6	1090.6	4.0	5.1	15	(6:1)	*0.0038*	5.6	0.63	152	63
Bullard Wash Channel														
	!BD1N	2,103	2,103	1057.0	1047.3	5.2	7.0	45	(6:1)	*0.0020*	5.3	0.49	219	109
	!BD2N	3,244	3,244	1044.1	1049.8	5.7	7.8	65	(6:1)	*0.0020*	5.8	0.49	258	133
	!BD3N	3,410	3,410	1015.6	1020.7	5.0	6.7	65	(10:1)	*0.0027*	5.9	0.56	312	167
	!BD4N	3,248	3,410	1006.0	1010.8	4.7	6.4	102	(9:1)	*0.0018*	5.0	0.47	335	188
	!BD1S	3,556	3,556	985.5	990.4	4.9	6.4	90	(6:1)	*0.0025*	6.1	0.55	269	149
	!BD2S	2,321	2,321	980.9	984.4	3.5	3.8	95	(6:1)	*0.0033*	5.8	0.60	235	137
I-10 West Diversion Channel														
	!10W1	970	970	1045.8	N/A	3.8	4.5	25	(6:1)	*0.0035*	5.4	0.60	155	71
	!10W2	1,010	1,010	1039.7	1043.4	3.7	4.2	25	(6:1)	*0.0042*	5.9	0.66	150	69
	!10W3	1,046	1,046	1032.7	1036.5	3.7	4.1	25	(6:1)	*0.0042*	5.9	0.66	148	71
	!10W4	1,175	1,175	1028.5	1032.4	3.8	4.3	30	(6:1)	*0.0038*	5.8	0.63	158	77
	!10W5	1,588	1,588	1014.6	1018.9	4.3	5.0	35	(6:1)	*0.0036*	6.1	0.62	175	87
	!10W7	1,593	1,593	1014.6	1019.6	5.0	5.7	35	(6:1)	*0.0020*	5.0	0.48	186	95
	!10W8	743	743	1005.8	1010.5	4.6	5.5	10	(6:1)	*0.0020*	4.2	0.46	151	66
Tuthill Channel														
	!TC1	1,417	1,417	998.7	1003.5	4.7	5.8	20	(6:1)	*0.0037*	6.2	0.63	168	78
	!TC2	1,553	1,553	991.8	997.1	5.2	6.1	25	(6:1)	*0.0023*	5.3	0.51	180	89
	!TC3	1,491	1,491	957.0	961.9	4.8	5.1	25	(6:1)	*0.0029*	5.7	0.57	163	84
	!TC4	1,546	1,546	914.7	919.3	4.6	4.6	30	(6:1)	*0.0032*	5.9	0.59	163	85
	!TC5	1,926	1,926	886.8	891.4	4.6	4.6	40	(6:1)	*0.0033*	6.3	0.61	176	95
	!TC6	646	646	882.3	885.9	3.6	3.6	15	(6:1)	*0.0035*	5.0	0.59	128	58
	!TC7	1,323	1,323	863.6	867.8	4.1	4.2	45	(6:1)	*0.0020*	4.6	0.47	176	95
	!TC8	1,506	1,506	859.4	864.6	5.2	5.2	45	(6:1)	*0.0011*	3.8	0.35	192	107
	!TC9	1,503	1,506	854.8	860.1	5.3	5.3	45	(6:1)	*0.0010*	3.7	0.34	193	109
I-10 East Diversion Channel														
	10CE-US	575	575	984.5	988.6	4.1	4.5	12	(6:1)	*0.0019*	3.9	0.44	138	61
	10CE1	556	575	978.5	985.2	4.1	4.5	12	(6:1)	*0.0018*	3.8	0.43	138	62
I-10 Central Channel														
	!10C1	79	79	1005.4	1007.7	2.2	2.3	2	(6:1)	*0.0020*	2.4	0.40	90	29
	!10C2	131	131	1002.6	1005.3	2.7	2.7	2	(6:1)	*0.0020*	2.8	0.41	96	34
	!10C3	170	170	995.9	998.9	3.0	3.0	2	(6:1)	*0.0020*	2.9	0.42	101	38
	!10C4	243	243	982.2	985.5	3.2	3.3	2	(6:1)	*0.0026*	3.6	0.49	105	41

1. By normal depth computation.
2. Channel reach exists.
3. Top width.

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

This Section Intentionally Left Blank

For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

Job No.	79902	No.	

Computation

Project	Loop 303 / White Tanks ADMPU AHA	Location: Interstate 10 near Perryville (DW32)	Computed	AHM	Date	10/28/2008
Subject	Weir Flow Analysis		Checked	GP	Date	3/10/09
Task	Weir Calculations		Sheet	1	Of	x

Segment	Start Elevation (ft amsl)	End Elevation (ft amsl)	Length L(ft)	Crest Ave Elevation (ft)	Start Calc Elev Iter 1	Iter 1 H (ft)	Q1 (cfs)	Start Calc Elev Iter 2	Iter 2 H (ft)	Q2	Start Calc Elev Iter 3	Iter 3 H (ft)	Q3	Another iteration?	Start Calc Elev Iter 4	Iter 4 H (ft)	Q4	Another iteration?
south	1060	1059.2	300	1059.6	1057.5	0	0.00	1058	0	0.00	1058.5	0	0.00	CHECK	1059	0	0.00	DONE
south	1059.2	1059.2	80	1059.2	1057.5	0	0.00	1058	0	0.00	1058.5	0	0.00		1059	0	0.00	
south	1059.2	1058	20	1058.6	1057.5	0	0.00	1058	0	0.00	1058.5	0	0.00		1059	0.4	15.18	
south	1058	1058	10	1058	1057.5	0	0.00	1058	0	0.00	1058.5	0.5	10.61		1059	1	30.00	
east	1058	1057	20	1057.5	1057.5	0	0.00	1058	0.5	21.21	1058.5	1	60.00		1059	1.5	110.23	
east	1057	1057	300	1057	1057.5	0.5	318.20	1058	1	900.00	1058.5	1.5	1653.41		1059	2	2545.58	
east	1057	1058	150	1057.5	1057.5	0	0.00	1058	0.5	159.10	1058.5	1	450.00		1059	1.5	826.70	
east	1058	1059	100	1058.5	1057.5	0	0.00	1058	0	0.00	1058.5	0	0.00		1059	0.5	106.07	
east	1059	1060	100	1059.5	1057.5	0	0.00	1058	0	0.00	1058.5	0	0.00		1059	0	0.00	
					TOTALS:		318.20			1080.31			2174.01				3633.76	

Graph Computations:

Station	Elevation
0	1060
300	1059.2
380	1059.2
400	1058
410	1058
430	1057
730	1057
880	1058
980	1059
1080	1060

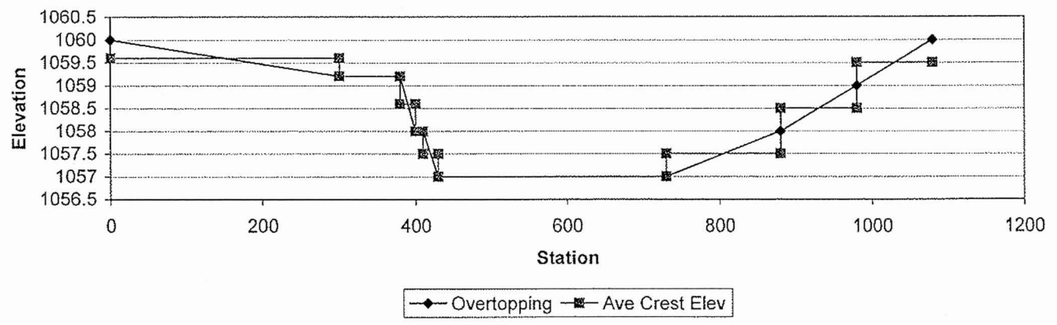
Weir Approximation:

Station	Elevation
0	1059.6
300	1059.6
300	1059.2
380	1059.2
380	1058.6
400	1058.6
400	1058
410	1058
410	1057.5
430	1057.5
430	1057
730	1057
730	1057.5
880	1057.5
880	1058.5
980	1058.5
980	1059.5
1080	1059.5

Culvert Flows (cfs):

south	1524
southeast	0
east	0

Cross Section



Iteration Iter 1			Iteration Iter 2			Iteration Iter 3			Iteration Iter 4		
Q(south)	1524.00	83%	Q(south)	1524.00	59%	Q(south)	1534.61	41%	Q(south)	1569.18	30%
Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%	Q(southeast)	0.00	0%
Q(east)	318.20	17%	Q(east)	1080.31	41%	Q(east)	2163.41	59%	Q(east)	3588.58	70%
	1842.20			2604.31			3698.01			5157.76	

First DI	East to South			
Inflow	1842.20	2604.31	3698.01	5157.76
Outflow	1524.00	1524.00	1534.61	1569.18

Assumes diversion is to south

Second DI	East to Southeast			
Inflow	318.20	1080.31	2163.41	3588.58
Outflow	0.00	0.00	0.00	0.00

Assumes diversion is to southeast

Culvert Calculator Report
I10PerryvilleWash

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	1,059.00 ft	Headwater Depth/Height	1.25
Computed Headwater Elev	1,059.00 ft	Discharge	1,524.22 cfs
Inlet Control HW Elev.	1,059.00 ft	Tailwater Elevation	1,053.00 ft
Outlet Control HW Elev.	1,058.91 ft	Control Type	Inlet Control

Grades			
Upstream Invert	1,054.00 ft	Downstream Invert	1,052.50 ft
Length	120.00 ft	Constructed Slope	0.012500 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	2.15 ft
Slope Type	Steep	Normal Depth	1.92 ft
Flow Regime	Supercritical	Critical Depth	3.07 ft
Velocity Downstream	14.20 ft/s	Critical Slope	0.003208 ft/ft

Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	10.00 ft
Section Size	10 x 4 ft	Rise	4.00 ft
Number Sections	5		

Outlet Control Properties			
Outlet Control HW Elev.	1,058.91 ft	Upstream Velocity Head	1.53 ft
Ke	0.20	Entrance Loss	0.31 ft

Inlet Control Properties			
Inlet Control HW Elev.	1,059.00 ft	Flow Control	Transition
Inlet Type	90° headwall w 45° bevels	Area Full	200.0 ft²
K	0.49500	HDS 5 Chart	10
M	0.66700	HDS 5 Scale	2
C	0.03140	Equation Form	2
Y	0.82000		

Rating Table Report
I10PerryvilleWash

Range Data:			
	Minimum	Maximum	Increment
Allowable HW E	1,056.00	1,060.00	1.00 ft

HW Elev. (ft)	Discharge (cfs)
1,056.00	396.36
1,057.00	728.16
1,058.00	1,121.07
1,059.00	1,524.22
1,060.00	1,869.98

BW32SE
SR W32

N
1" = 200'

1058
1056
1060
1058
1056
1052

5-10'x4' RCBC
S=0.0055 ft/ft
(ADOT)

C:\PW g:\PHX\dms69520\Planning\dwgs 2/28/2019 1:28:27 PM

DW32SE

Culvert Information from I-10 Plans

ID	# of Culverts	Size	Material/Type	Length (ft)	US Inv.	DS Inv.	Inv.	Slope (%)	Notes
28	1	30"	CMP	240			1131.95 @ WB CL	1.125	
29	1	30"	CMP	260			1127.92 @ WB CL	1.154	
30	1	36"	CMP	287			1123.34 @ WB CL	1.436	
31	2	36"	CMP	216			1111.72 @ WB CL	1.62	
32	2	42"	CMP	200			1098.70 @ WB CL	0.75	
33	2	36"	CMP	234	1097.35	1095	1094.32 @ WB CL	1.004	The elevations of the old plans don't match the elevations from the new plans from Verrado
34	1	48"	CMP	234			1092.43 @ WB CL	0.978	
35	1	48"	CMP	214			1090.88 @ WB CL	1.122	
36	1	48"	CMP	218			1091.30 @WB CL	0.78	
37	2	48"	CMP	230	1093.76	1089.79		1.726	
38	1	36"	CMP	250	1095.17	1092.36		1.124	
39	1	36"	CMP	342	1095.7	1092.58		0.912	
40	1	36"	CMP	72	1097.88	1097.33		0.764	
	1	36"	CMP	208			1091.55 @ WB CL	0.961	
	1	36"	CMP	146	1092.98	1091.56		0.973	
1	1	36"	CMP?	226	1098.33	1096.2		0.942	Where there is a ? in the material, the callout only says "pipe culvert"
	1	36"	CMP?	200			1092.43 @ WB CL	0.810	
	1	36"	CMP?	235	1092.51	1089.67		1.209	
2	1	36"	CMP?	152	1098.56	1095.8		1.816	
	1	36"	CMP?	210			1092.38 @ WB CL	1.200	
	1	36"	CMP?	182	1091.26	1089.05		1.214	
3	1	36"	CMP?	486	1093.39	1087.52		1.208	
4	1	36"	CMP?	314	1092.36	1086.91		1.736	
5	1	36"	CMP?	284	1090.22	1089.53		0.243	
6	1	36"	CMP?	280	1087.13	1085.86		0.454	
7	4	10'x8'	Concrete Box Culvert	227			1077.44 @ EB CL	1.11	
8	1	12'x12'	Concrete Box Culvert	193.5			1081.7 EB CL	1.9	DISREGARD- THIS IS FOR EQUIPMENT TO PASS UNDER HIGHWAY
9	2	42"	CMP	260			1083.64 EB CL	0.885	
10	2	36"	CMP	253			1082.89 EB CL	0.315	
11	1	36"	CMP	253			1083.8 EB CL	0.827	
12	2	36"	CMP	259			1082.7 EB CL	1.038	
13	1	36"	CMP	255			1082.63 EB CL	1.117	
14	2	36"	CMP	260			1081.02 EB CL	0.675	
15	2	36"	CMP	239			1080.74 EB CL	0.708	
16	2	36"	CMP	224			1081.49 EB CL	0.893	
17	2	36"	CMP	225			1079.16 EB CL	0.885	
18	3	36"	CMP	216			1077.94 EB CL	0.833	
19	5	10'x4'	Concrete Box Culvert	52			1065.28 @ RD CL	0.55	
	5	10'x4'	Concrete Box Culvert	51			1062.7 @ RD CL	0.55	
20	1	30"	CMP	544			NA	NA	DISREGARD- THIS IS FOR STREET DRAINAGE
21	5	10'x3'	Concrete Box Culvert	223			1052.7 @ HWY CL	0.8	
22	4	36"	RCP or CMP (smooth bore)	256			1036.77 @ HWY CL	0.675	
23	3	36"	RCP or CMP (smooth bore)	205			1032.45 @ HWY CL	0.49	
24	4	36"	RCP or CMP (smooth bore)	246			1019.75 @ HWY CL	0.195	
25	5	29"x45"	HERCP	269			1014.39 @ HWY CL	0.4032	
26	5	29"x45"	HERCP	228			1006.28 @ HWY CL	0.5405	Locations for 26 and 27 were taken from base files from I-10 Plans from Sarival to Dysart
27	1	30"	RGRCP						DISREGARD- This was for irrigation purposes and has been abandoned

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [31])

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS FOR VERRADO WAY TI

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [34])

W33

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

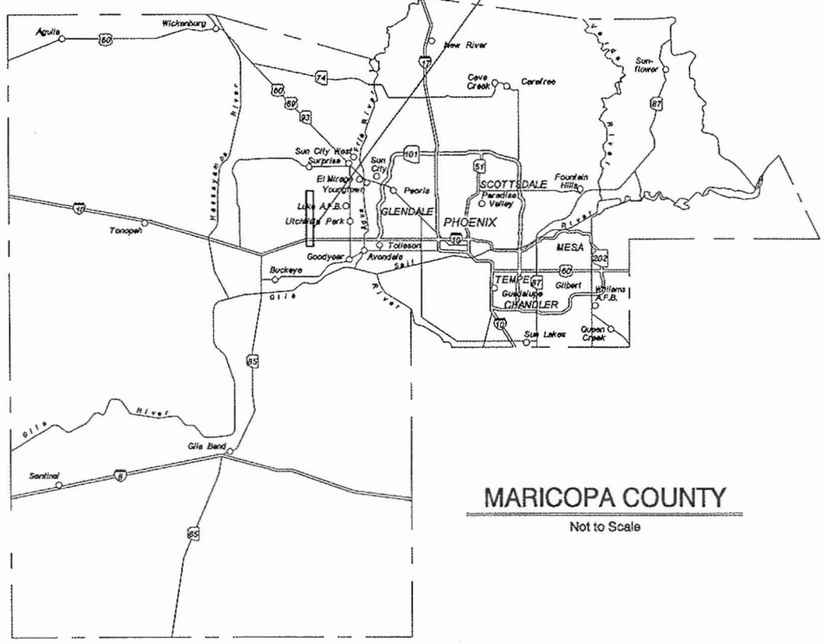
PRELIMINARY DESIGN PLANS

WHITE TANKS FRS NO. 3 OUTFALL CHANNEL

PCN 201.02.26

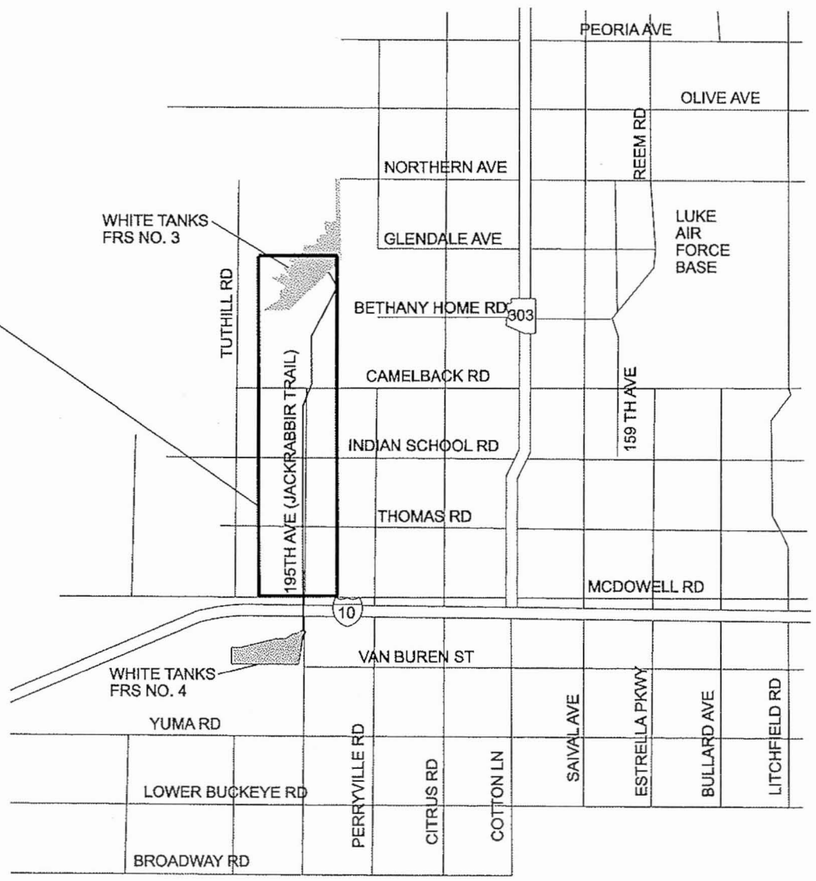
FCD CONTRACT NO. 2004C019

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUE RECOMMENDED BY:

PROJECT MANAGER DATE

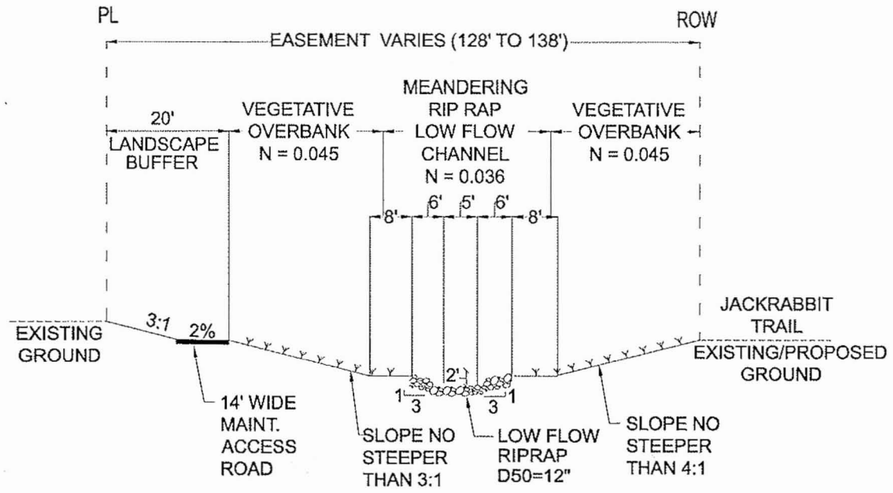
ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER DATE

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

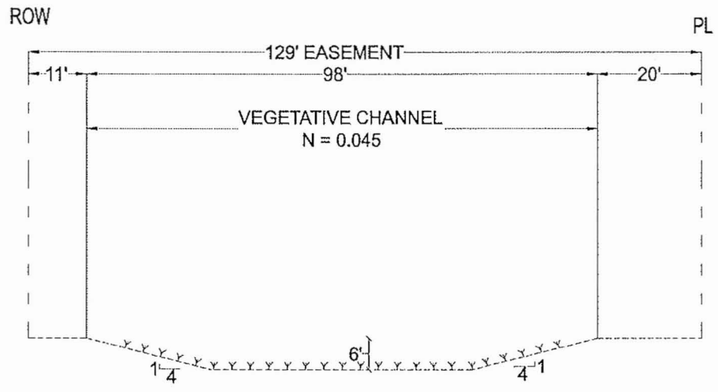
DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX



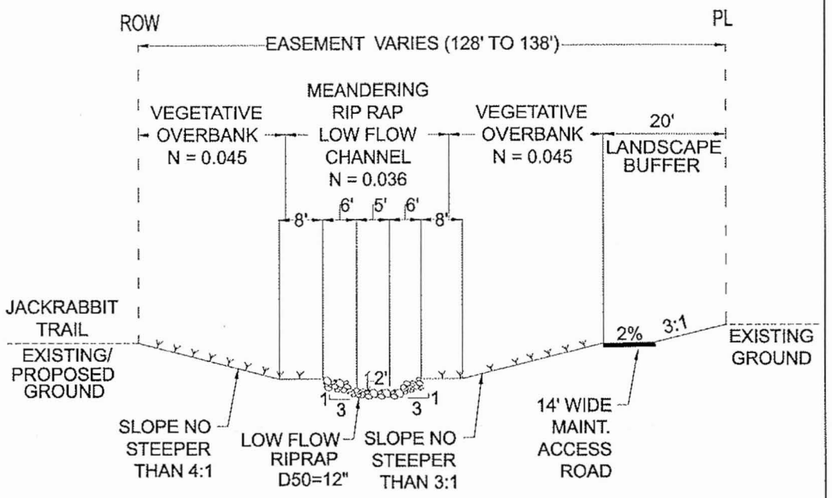
EXISTING CONCRETE CHANNEL
NORTH OF McDOWELL ROAD TO THE
EXISTING PASQUALETTI RANCH CHANNEL
SOUTH OF OSBORN ROAD
STA 0+00 TO 64+00

SOUTH OF INDIAN SCHOOL ROAD TO SELLS ROAD
STA 86+00 TO 116+00



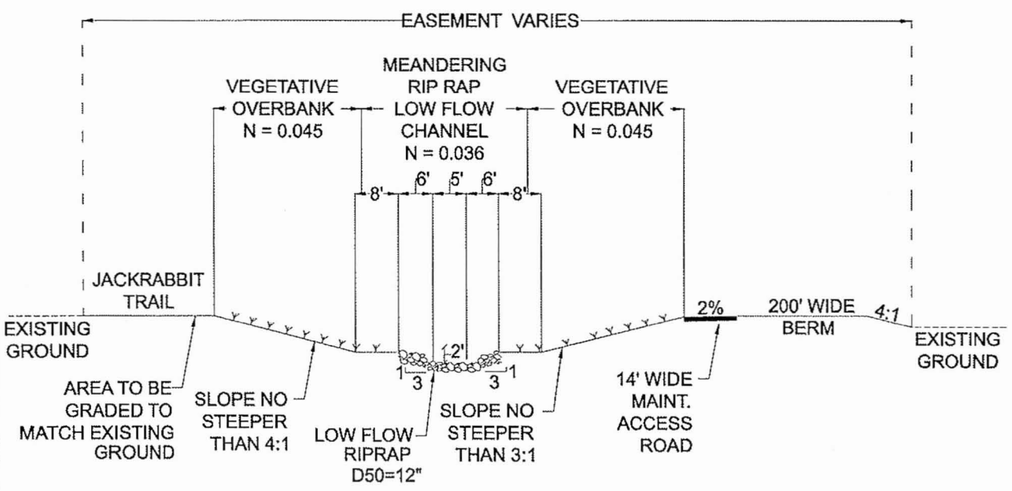
EXISTING PASQUALETTI RANCH CHANNEL
SOUTH OF OSBORN ROAD
TO SOUTH OF INDIAN SCHOOL ROAD

STA 64+00 TO 86+00



CAMELBACK ROAD TO 1000 FEET
NORTH OF COLTER STREET
STA 149+00 TO 175+00

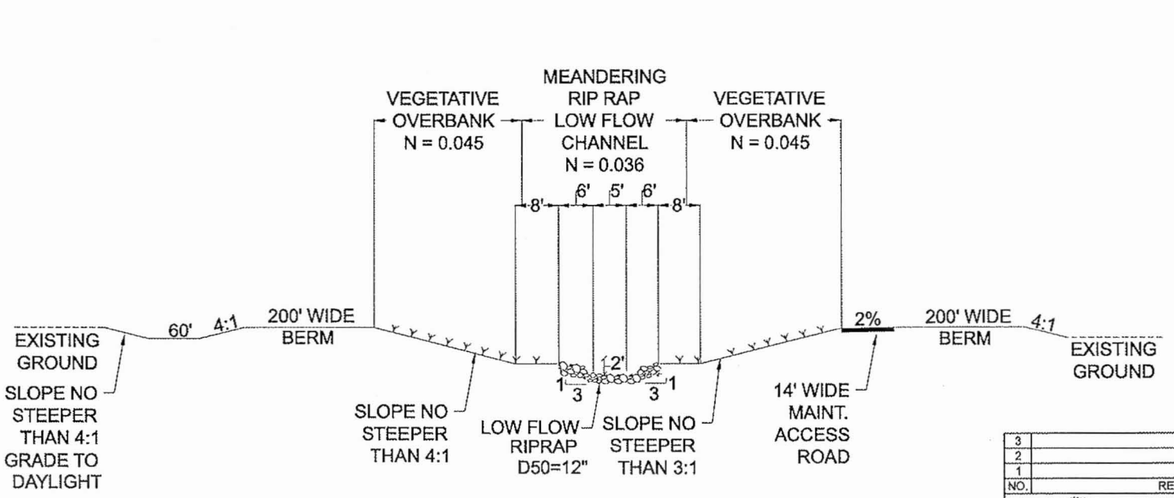
1100 FT SOUTH OF BETHANY HOME ROAD
TO BETHANY HOME ROAD
STA 190+00 TO 201+00



1000 FEET NORTH OF COLTER STREET
TO 1100 FEET SOUTH OF BETHANY HOME ROAD
STA 175+00 TO 190+00

NOTE 1: A 2-CELL 8 FT X 6 FT BOX CULVERT, DETENTION BASIN AND LOW FLOW CHANNEL ARE PROVIDED FROM STA 116+10 TO STA 148+50

NOTE 2: THE LOW FLOW CHANNEL IS SHOWN AT THE CENTER OF THE DRAINAGE CHANNEL CORRIDOR. HOWEVER IT CAN MEANDER AS LONG AS THE SIDE SLOPES OF THE CHANNEL DO NOT EXCEED 4H:1V ALONG JACKRABBIT TRAIL AND 3H:1V ALONG THE RESIDENTIAL SIDE OF THE PROPOSED CHANNEL.



BETHANY HOME ROAD
TO WHITE TANKS FRS NO. 3
PRINCIPAL SPILLWAY OUTLET

STA 201+00 TO 246+00

NOTE 3: THE LOW FLOW CHANNEL WILL NEED TO SHIFT WEST FROM THE PROPOSED CHANNEL CENTER LINE ADJACENT TO THE CUL-DE-SACS WITHIN JACKRABBIT ESTATES

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R BERG	12/08/08
DRAWN	E HYNICK	12/08/08
CHECKED	N RAZA	12/08/08

Gannett Fleming

DRAWING NO.	CHANNEL TYPICAL SECTIONS	SHEET OF
C2		5 27

\Sheets\C2 Typical Section.dgn 12/9/2008 8:40:51 AM

W34

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 39495 CHARLES A. GIDEON Date Signed 05/10/06 ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1**********
*                                    *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1) *
*            JUN  1998               *
*          VERSION 4.1               *
*                                    *
*  RUN DATE   11MAY04  TIME  16:11:46 *
*                                    *
**************************************
```


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


```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          ID   **************************************************************************
   2          ID   V E R R A D O EXISTING CONDITION HYDROLOGY
   3          ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
   4          ID   DATE:         MAY 11, 2004
   5          ID   FILE:         M:\2003\031832\PROJECTSUPPORT\HYDRO\HYDROLOGY\
   6          ID                    EXISTINGCONDITIONHYDROLOGY\031832E100.DAT
   7          ID   **************************************************************************
   8          ID
   9          ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
  10          ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
  11          ID
  12          ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
  13          ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
  14          ID    TURNED OFF) AT DI189.
  15          ID
  16          ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
  17          ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
  18          ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
  19          ID
  20          ID
  21          ID                                        REVISED BY URS     DATE: 01-14-04
  22          ID                                                           FILE: L303M1L.DAT
  23          ID       NOTES:
  24          ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
  25          ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
  26          ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
  27          ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
  28          ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
  29          ID          THE WLB MODEL.
  30          ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
  31          ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
  32          ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
  33          ID          DRAINAGE REPORTS.
  34          ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
  35          ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
  36          ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
  37          ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
  38          ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
  39          ID          STORM.
  40          ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
  41          ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
  42          ID          THE DATA FILE BY THE FCDMC.
  43          ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
  44          ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
  45          IT      5                   600
  46          IO      5
  47          IN     15
  48          JD   4.03    .001
  49          PC   .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
  50          PC   .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
  51          PC   .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
  52          PC   .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
  53          PC   .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
  54          PC   .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  55          PC   .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
  56          PC   .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
  57          PC   .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
  58          PC   .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
  59          JD  3.79     10
  60          JD  3.51     50
  61          JD  3.39    100
  62          JD  3.29    200
```

W34

```
UI   474.   382.   273.   154.   127.    90.    76.    25.    23.    23.
UI    23.    23.     0.     0.     0.     0.     0.     0.     0.     0.
UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
*

KK    R28
KM       ROUTE FLOW FROM CP28 TO CP30
RS       2            -1
RC    .03    .03    .05   2400   .027
RX   1000   1001   1035   1050   1065   1075   1085   1095
RY   1165   1165   1164   1162   1162   1164   1166   1168
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK     30
KM   BASIN 30
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.1  Lca=       .5   S=    60.9  Kn= .050  LAG=  26.3
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .28
LG     .15    .35   3.95    .49  32.00
UI    36.    104.   215.   301.   340.   320.   243.   175.   125.    89.
UI    64.     46.    33.    25.    15.     9.     9.     9.     9.     0.
UI     0.      0.     0.     0.     0.     0.     0.     0.     0.     0.
UI     0.      0.     0.     0.     0.     0.     0.     0.     0.     0.
*

KK   I1CP30
KM        ADD HYDROGRAPHS AT CP30
HC        2
*

KK     29
KM   BASIN 29
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=       .9  Lca=       .4   S=    55.6  Kn= .050  LAG=  23.8
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .22
LG     .15    .35   3.95    .49    .00
UI    31.    113.   176.   245.   370.   276.   199.   135.    64.    42.
UI    23.     10.    10.    10.     0.     0.     0.     0.     0.     0.
UI     0.      0.     0.     0.     0.     0.     0.     0.     0.     0.
*

KK    SR29
KM       STORAGE ROUTE THROUGH RETENTION BASIN AT CP29
RS       1    STOR       0       0
SV       0    0.99   12.73   23.45   36.25   50.68   54.76   59.33   83.20
SQ       0       0       0       0       0       0       0      88    6226
SE  1164.5    1166    1170    1172    1174    1176  1177.5    1178    1180

KK     R29
KM       ROUTE REMAINDER OF FLOW AT CP29 TO CP30
RS       1            -1       0
RC    .05    .03    .05   1200   .0021
RX   1000   1042   1052   1060   1082   1090   1140   1170
RY   1171   1170   1168   1166   1166   1168   1170   1172
*

KK    CP30
KM       ADD HYDROGRAPHS AT CP30
HC       2
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK     R30
KM        ROUTE COMBINED HYDROGRAPHS AT CP30 TO CP31
RS       4              -1       0
RC    .03    .03    .05   6770   .0069
RX   1000   1025   1045   1070   1095   1110   1200   1550
RY   1157   1156   1154   1152   1152   1154   1156   1158
*

KK     31
KM   BASIN 31
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.8  Lca=       .9   S=    56.7  Kn= .050  LAG=  39.8
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .71
LG     .19    .35   4.00    .47    .00
UI    60.     83.   223.   299.   358.   434.   565.   751.   612.   500.
UI   412.    335.   268.   171.   105.    97.    60.    52.    18.    18.
UI    18.     18.    18.     0.     0.     0.     0.     0.     0.     0.
UI     0.      0.     0.     0.     0.     0.     0.     0.     0.     0.
*

KK    CP31
KM        ADD HYDROGRAPHS AT CP31
HC        2
*

KK     R31
KM        ROUTE COMBINED HYDROGRAPH AT CP31 TO CP46
RS       5              -1       0
RC    .03    .03    .05   5800   .0082
RX   1000   1012   1024   1035   1045   1053   1065   1098
RY   1093   1092   1090   1088   1088   1090   1092   1094
*
```

SRW34 - W34

Rating Table for SRW35

Project Description

Solve For	Discharge

Input Data

Headwater Elevation	1162.00	ft
Crest Elevation	1158.00	ft
Weir Coefficient	2.60	US
Crest Length	100.00	ft

Headwater Elevation (ft)	Discharge (ft³/s)	Velocity (ft/s)
1154.00		
1156.00		
1158.00		
1160.00	735.39	3.68
1162.00	2080.00	5.20

HDR | ONE COMPANY *Many Solutions*℠

Project:	Loop 303 ADMPU AHA	Computed:	Date:
Subject:	Hydrology	Checked:	Date:
Task:	Stage-Storage Table		
Job #:	79902		

SRW35

Elevation	Area (sq. ft.)	Volume (ac-ft)
1154	13345	0.00
1156	50174	1.46
1158	109097	7.31
1160	177842	19.76
1162	337175	47.29

1"=200'

W35

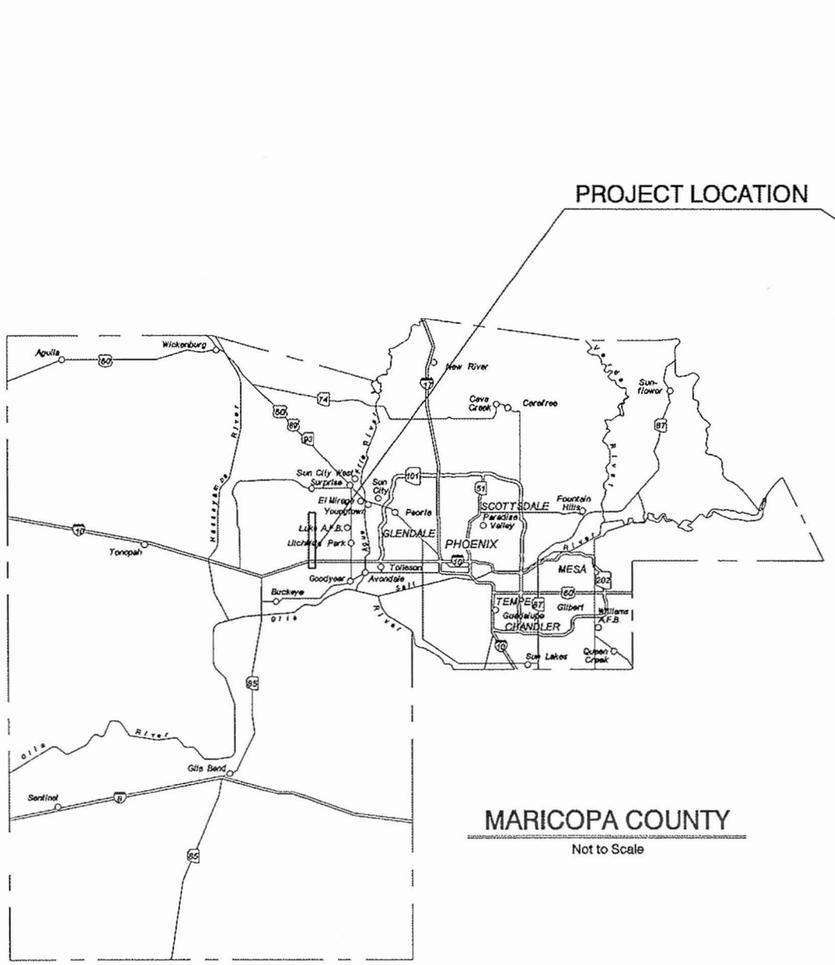
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

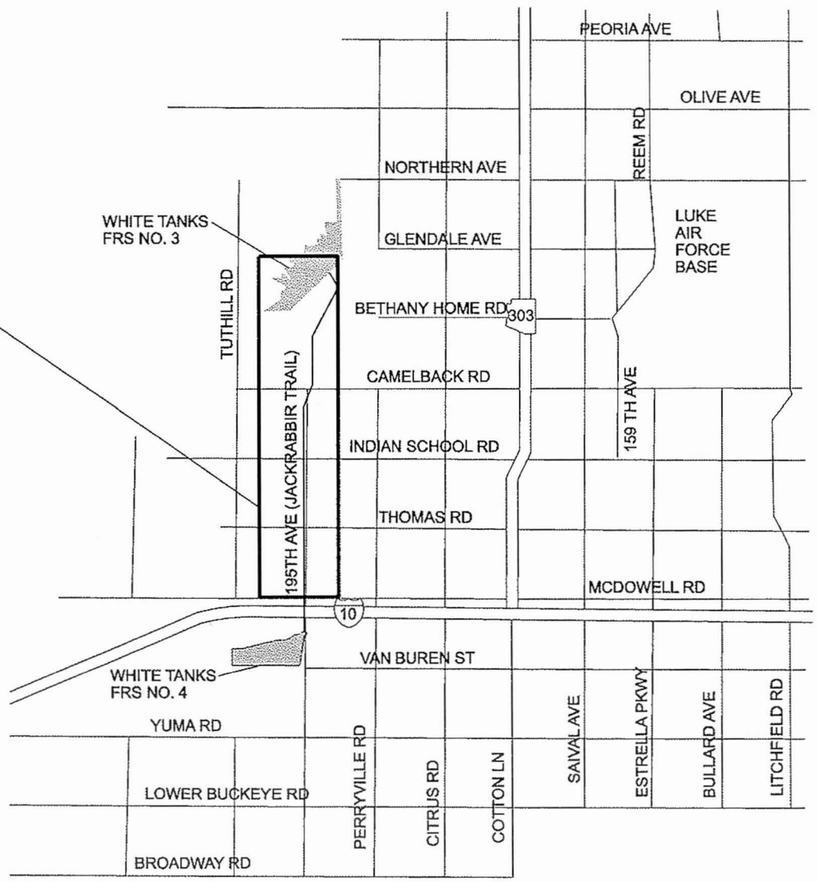
PRELIMINARY DESIGN PLANS

WHITE TANKS FRS NO. 3 OUTFALL CHANNEL

PCN 201.02.26

FCD CONTRACT NO. 2004C019





FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUE RECOMMENDED BY:

PROJECT MANAGER DATE

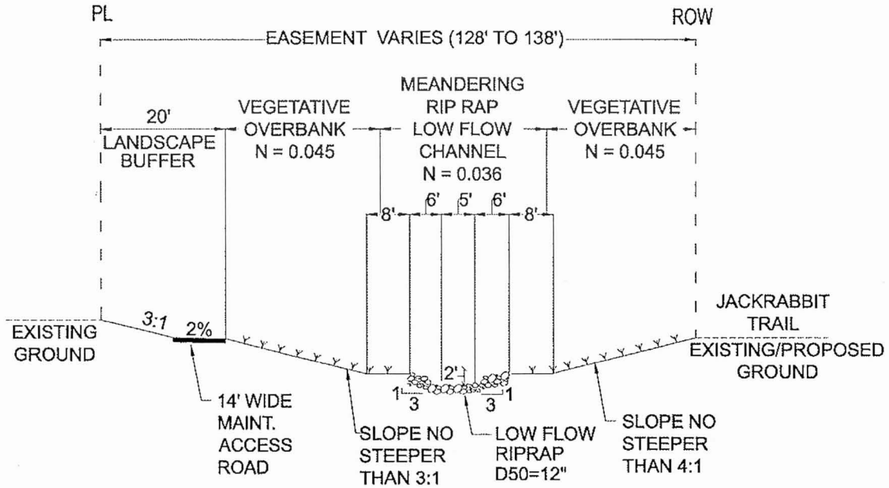
ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER DATE

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

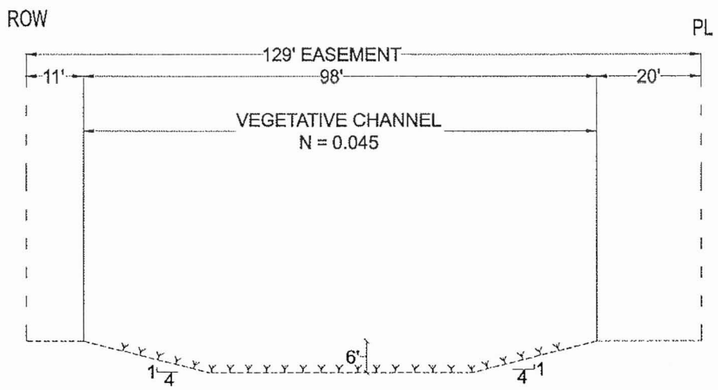


EXISTING CONCRETE CHANNEL NORTH OF McDOWELL ROAD TO THE EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD

STA 0+00 TO 64+00

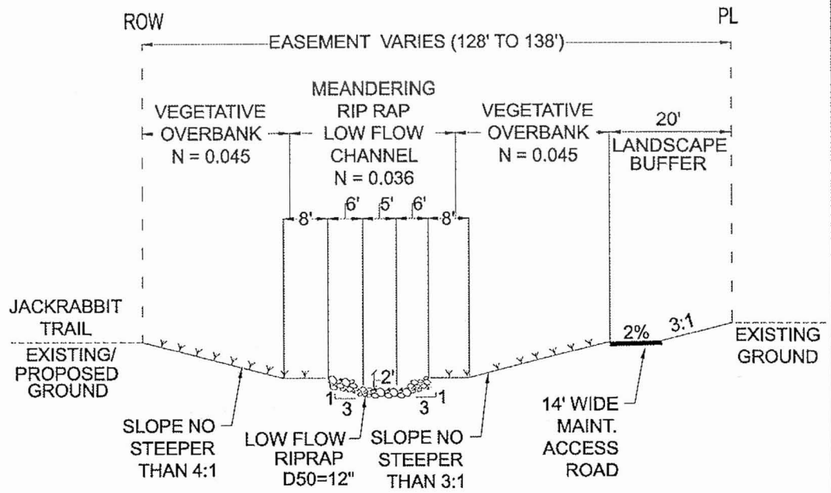
SOUTH OF INDIAN SCHOOL ROAD TO SELLS ROAD

STA 86+00 TO 116+00



EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD TO SOUTH OF INDIAN SCHOOL ROAD

STA 64+00 TO 86+00

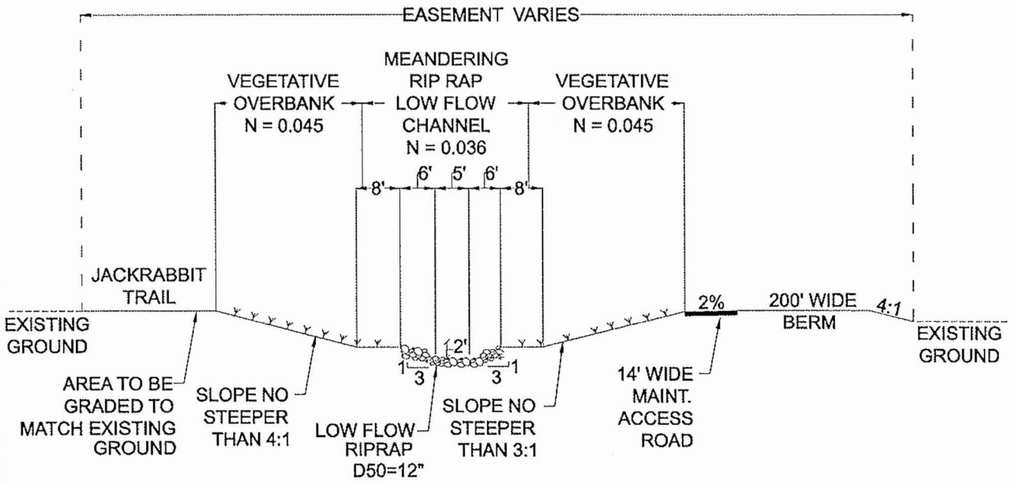


CAMELBACK ROAD TO 1000 FEET NORTH OF COLTER STREET

STA 149+00 TO 175+00

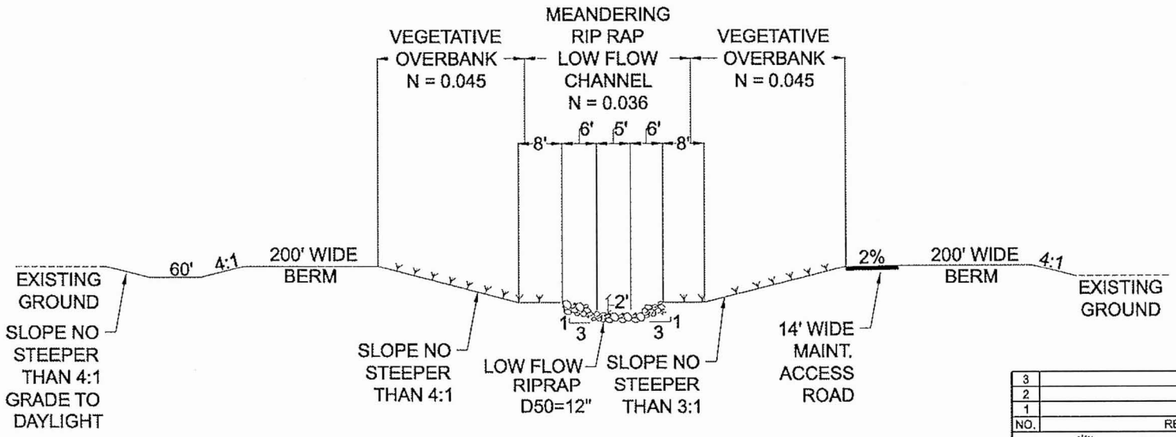
1100 FT SOUTH OF BETHANY HOME ROAD TO BETHANY HOME ROAD

STA 190+00 TO 201+00



1000 FEET NORTH OF COLTER STREET TO 1100 FEET SOUTH OF BETHANY HOME ROAD

STA 175+00 TO 190+00



BETHANY HOME ROAD TO WHITE TANKS FRS NO. 3 PRINCIPAL SPILLWAY OUTLET

STA 201+00 TO 246+00

NOTE 1: A 2-CELL 8 FT X 6 FT BOX CULVERT, DETENTION BASIN AND LOW FLOW CHANNEL ARE PROVIDED FROM STA 116+10 TO STA 148+50

NOTE 2: THE LOW FLOW CHANNEL IS SHOWN AT THE CENTER OF THE DRAINAGE CHANNEL CORRIDOR. HOWEVER IT CAN MEANDER AS LONG AS THE SIDE SLOPES OF THE CHANNEL DO NOT EXCEED 4H:1V ALONG JACKRABBIT TRAIL AND 3H:1V ALONG THE RESIDENTIAL SIDE OF THE PROPOSED CHANNEL.

NOTE 3: THE LOW FLOW CHANNEL WILL NEED TO SHIFT WEST FROM THE PROPOSED CHANNEL CENTER LINE ADJACENT TO THE CUL-DE-SACS WITHIN JACKRABBIT ESTATES

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	R BERG	12/08/08
	DRAWN	E HYNICK	12/08/08
	CHECKED	N RAZA	12/08/08

Gannett Fleming

DRAWING NO.	CHANNEL TYPICAL SECTIONS	SHEET OF
C2		5 27

W36

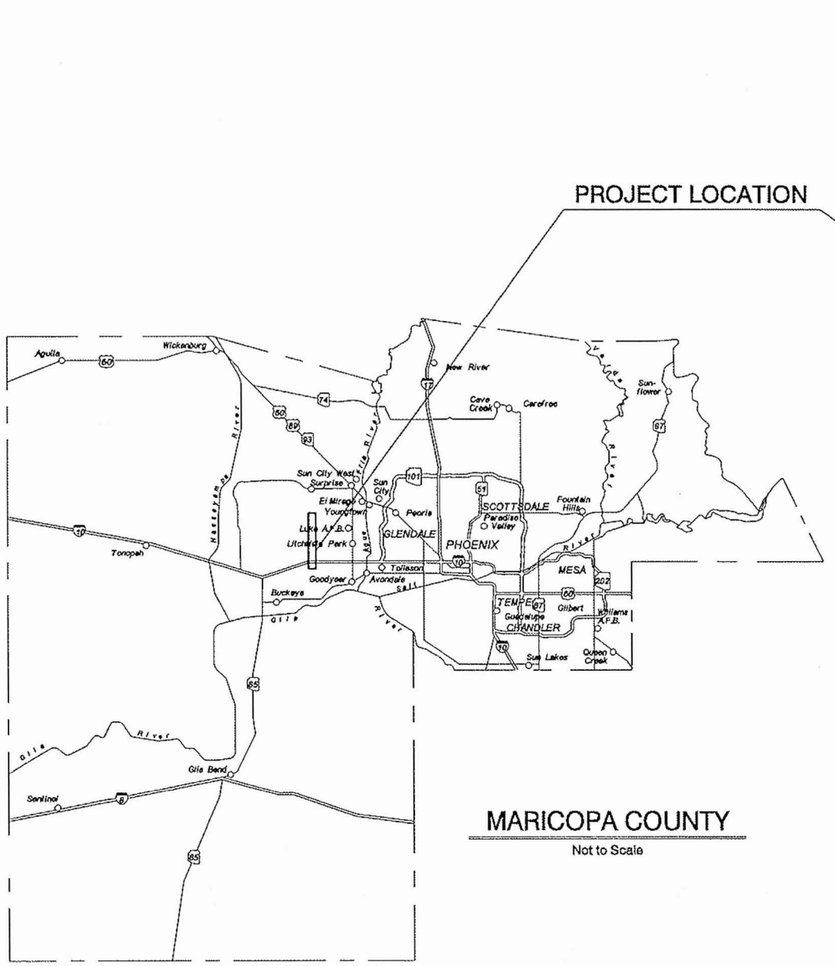
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

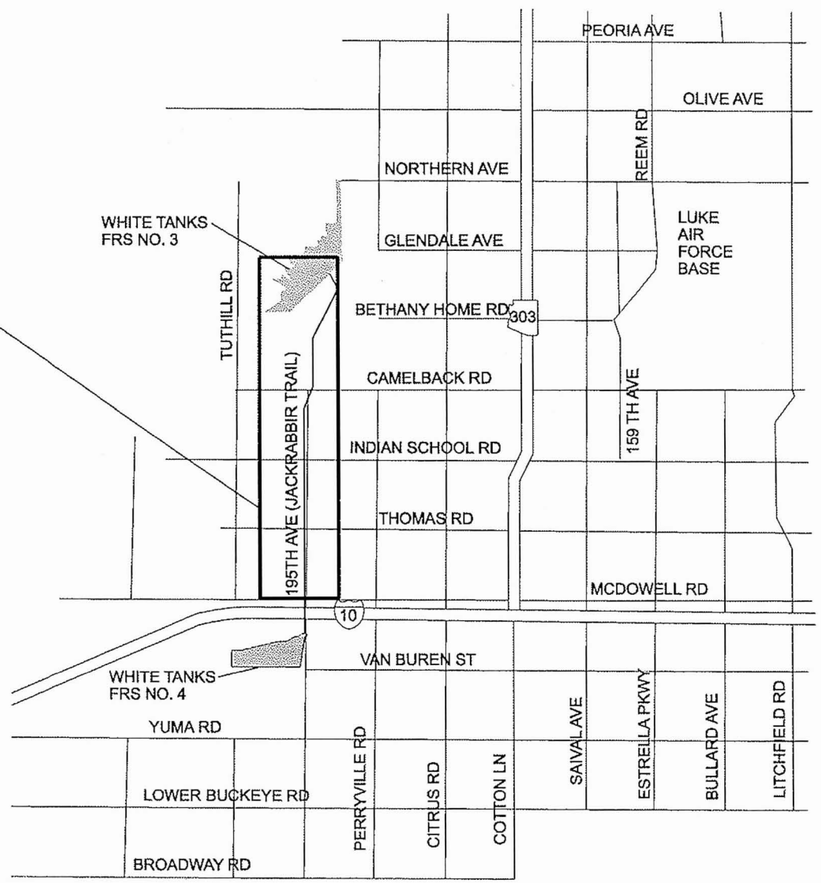
PRELIMINARY DESIGN PLANS

WHITE TANKS FRS NO. 3 OUTFALL CHANNEL

PCN 201.02.26

FCD CONTRACT NO. 2004C019





FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUE RECOMMENDED BY:

PROJECT MANAGER DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER DATE

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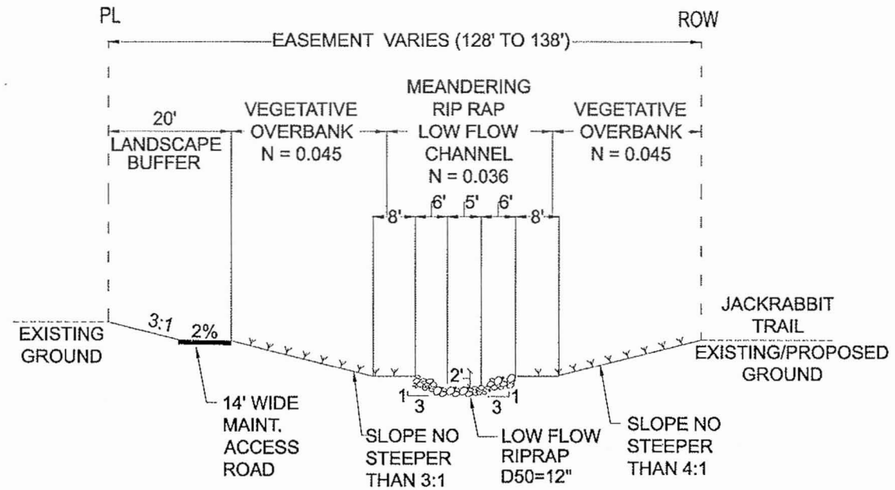
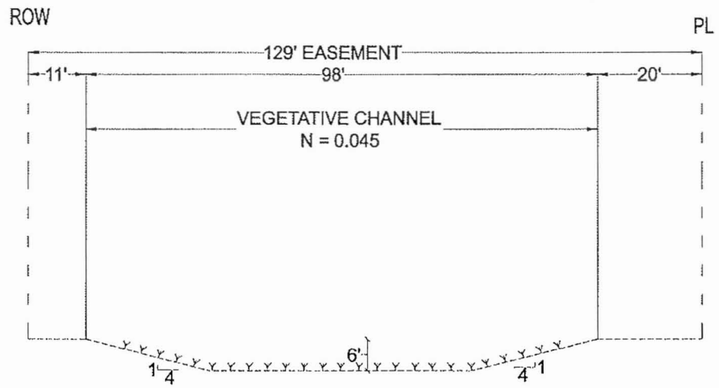


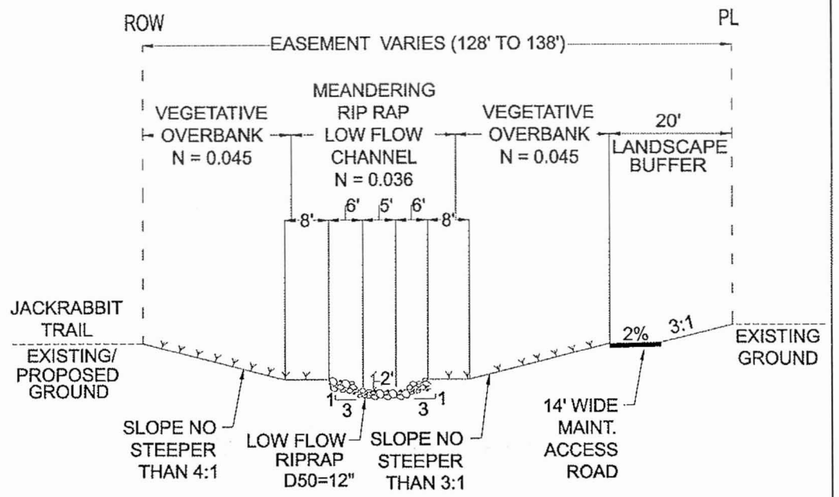
EXISTING CONCRETE CHANNEL NORTH OF McDOWELL ROAD TO THE EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD
STA 0+00 TO 64+00

SOUTH OF INDIAN SCHOOL ROAD TO SELLS ROAD
STA 86+00 TO 116+00



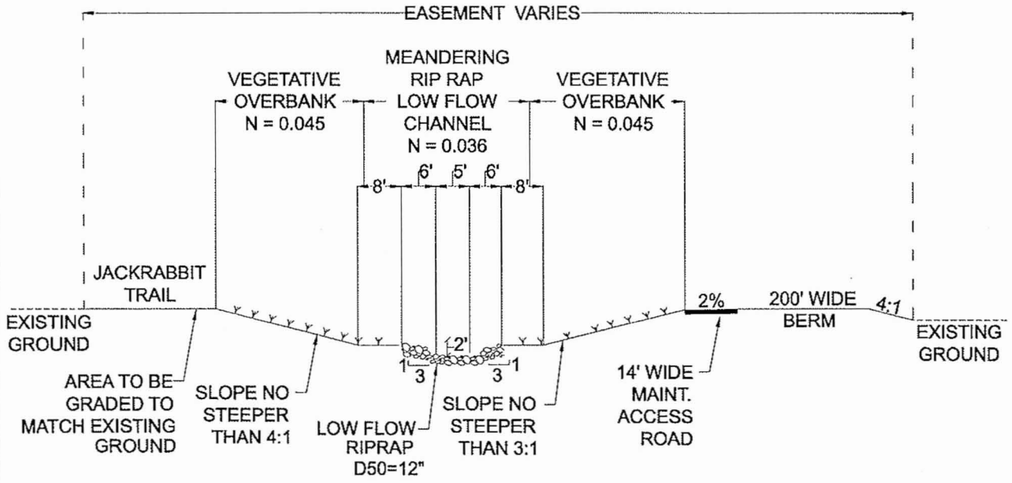
EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD TO SOUTH OF INDIAN SCHOOL ROAD

STA 64+00 TO 86+00



CAMELBACK ROAD TO 1000 FEET NORTH OF COLTER STREET
STA 149+00 TO 175+00

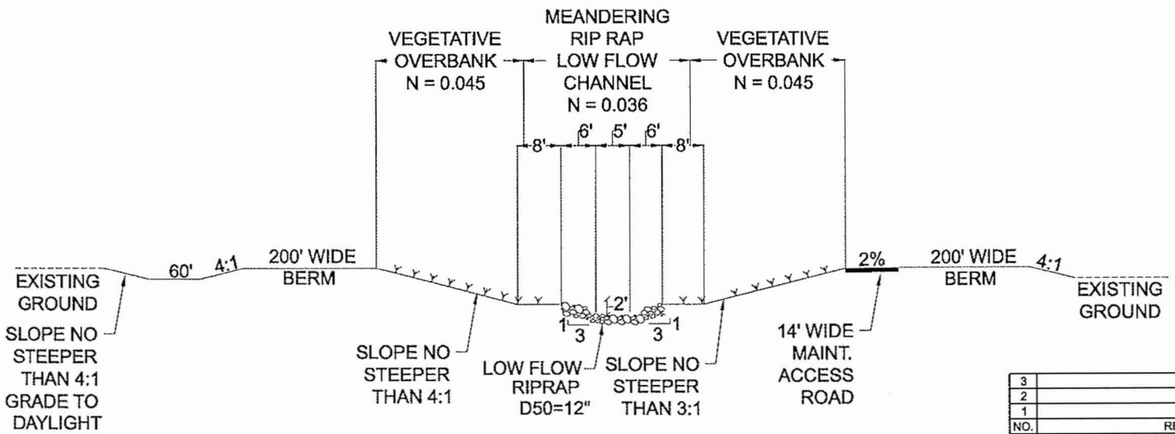
1100 FT SOUTH OF BETHANY HOME ROAD TO BETHANY HOME ROAD
STA 190+00 TO 201+00



1000 FEET NORTH OF COLTER STREET TO 1100 FEET SOUTH OF BETHANY HOME ROAD
STA 175+00 TO 190+00

NOTE 1: A 2-CELL 8 FT X 6 FT BOX CULVERT, DETENTION BASIN AND LOW FLOW CHANNEL ARE PROVIDED FROM STA 116+10 TO STA 148+50

NOTE 2: THE LOW FLOW CHANNEL IS SHOWN AT THE CENTER OF THE DRAINAGE CHANNEL CORRIDOR. HOWEVER IT CAN MEANDER AS LONG AS THE SIDE SLOPES OF THE CHANNEL DO NOT EXCEED 4H:1V ALONG JACKRABBIT TRAIL AND 3H:1V ALONG THE RESIDENTIAL SIDE OF THE PROPOSED CHANNEL.



BETHANY HOME ROAD TO WHITE TANKS FRS NO. 3 PRINCIPAL SPILLWAY OUTLET

STA 201+00 TO 246+00

NOTE 3: THE LOW FLOW CHANNEL WILL NEED TO SHIFT WEST FROM THE PROPOSED CHANNEL CENTER LINE ADJACENT TO THE CUL-DE-SACS WITHIN JACKRABBIT ESTATES

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R BERG	12/08/08
DRAWN	E HYNICK	12/08/08
CHECKED	N RAZA	12/08/08

Gannett Fleming

DRAWING NO. C2 | CHANNEL TYPICAL SECTIONS | SHEET OF 5 27

Pasqueth
Park
W36

DW37

improved

Natural Channel

≈ 60' wide (average)

4' deep

Slope = 0.0096 (average, worst case)

improved

Jackrabbit Channel

Jackrabbit Channel (Natural)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00960	ft/ft
Normal Depth	4.00	ft
Left Side Slope	4.00	ft/ft (H:V)
Right Side Slope	4.00	ft/ft (H:V)
Bottom Width	28.00	ft

Results

Discharge	1484.01	ft^3/s
Flow Area	176.00	ft^2
Wetted Perimeter	60.98	ft
Top Width	60.00	ft
Critical Depth	3.69	ft
Critical Slope	0.01302	ft/ft
Velocity	8.43	ft/s
Velocity Head	1.10	ft
Specific Energy	5.10	ft
Froude Number	0.87	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	ft
Critical Depth	3.69	ft
Channel Slope	0.00960	ft/ft
Critical Slope	0.01302	ft/ft

W37

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

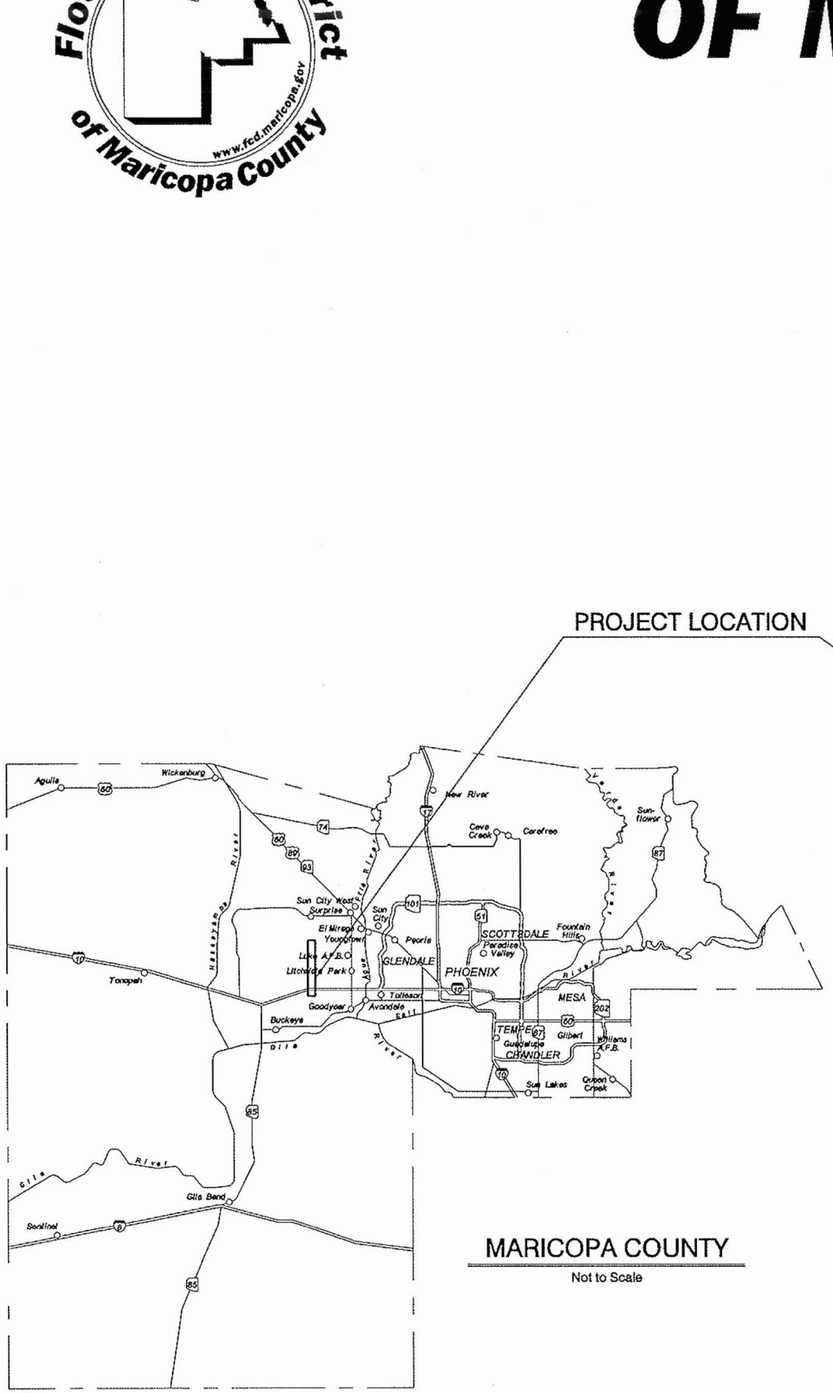
PRELIMINARY DESIGN PLANS

WHITE TANKS FRS NO. 3 OUTFALL CHANNEL

PCN 201.02.26

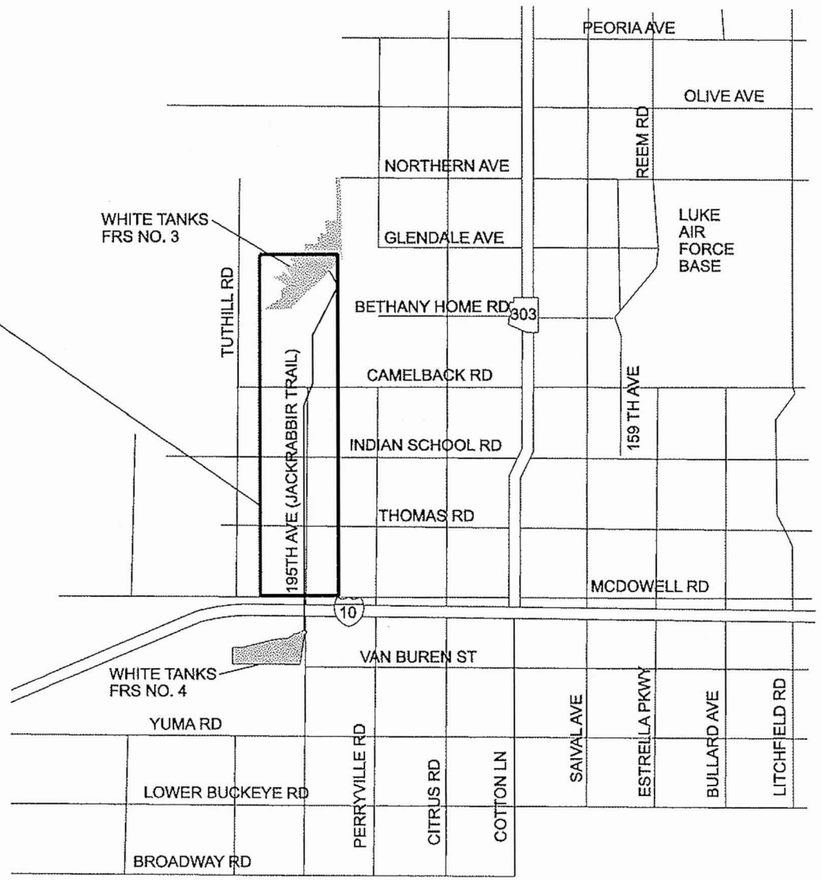
FCD CONTRACT NO. 2004C019

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUE RECOMMENDED BY:

PROJECT MANAGER DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER DATE

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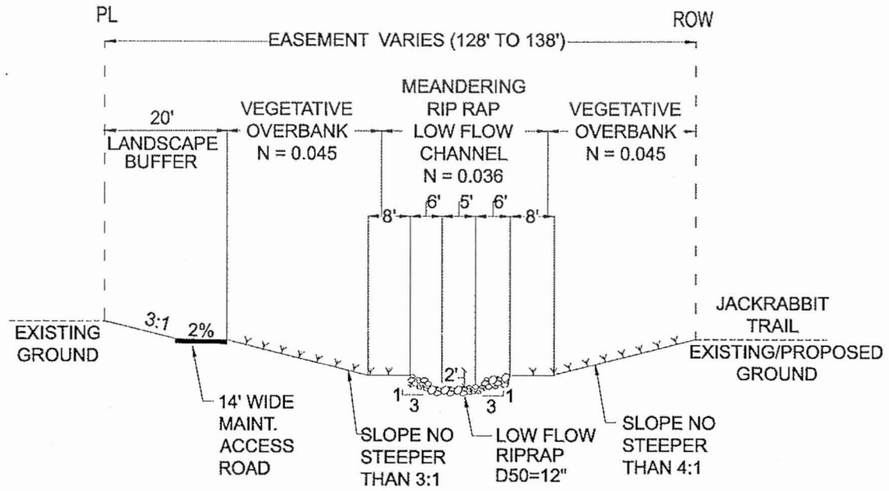
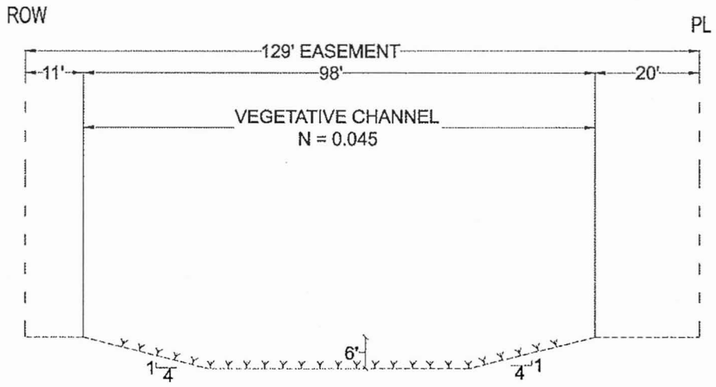
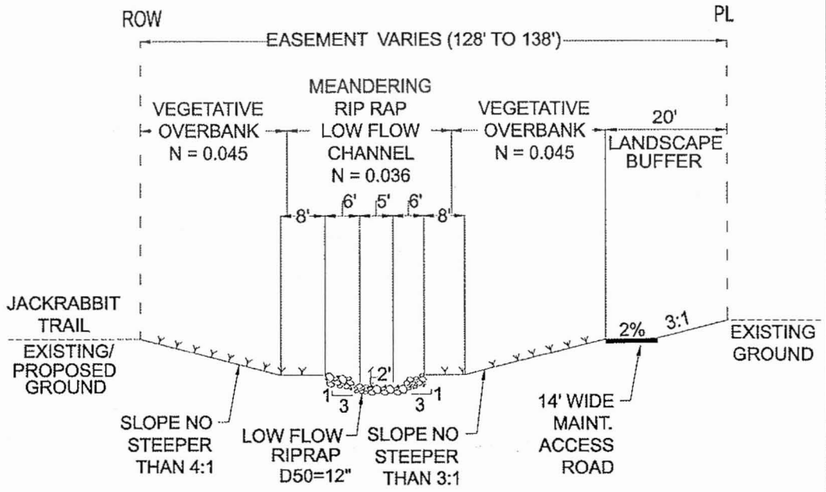


EXISTING CONCRETE CHANNEL NORTH OF McDOWELL ROAD TO THE EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD
STA 0+00 TO 64+00

SOUTH OF INDIAN SCHOOL ROAD TO SELLS ROAD
STA 86+00 TO 116+00

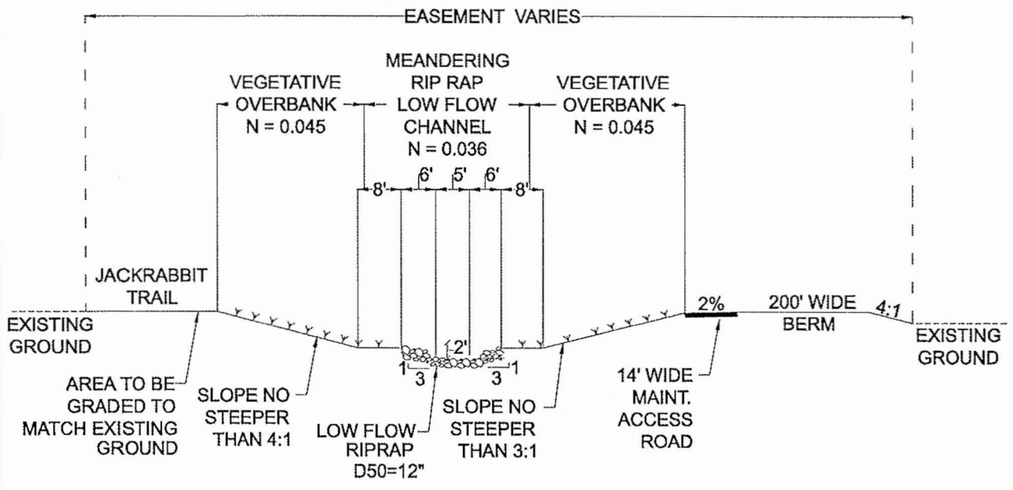


EXISTING PASQUALETTI RANCH CHANNEL SOUTH OF OSBORN ROAD TO SOUTH OF INDIAN SCHOOL ROAD
STA 64+00 TO 86+00

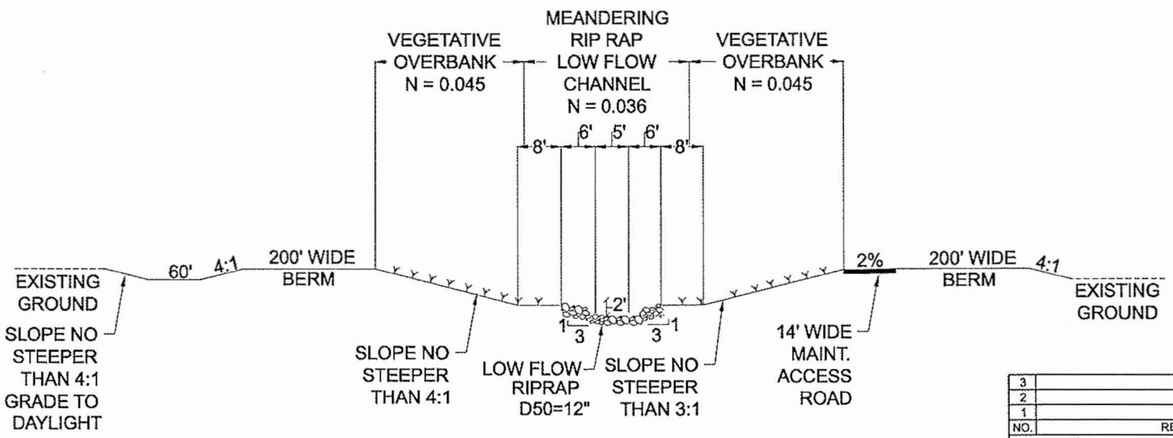


CAMELBACK ROAD TO 1000 FEET NORTH OF COLTER STREET
STA 149+00 TO 175+00

1100 FT SOUTH OF BETHANY HOME ROAD TO BETHANY HOME ROAD
STA 190+00 TO 201+00



1000 FEET NORTH OF COLTER STREET TO 1100 FEET SOUTH OF BETHANY HOME ROAD
STA 175+00 TO 190+00



BETHANY HOME ROAD TO WHITE TANKS FRS NO. 3 PRINCIPAL SPILLWAY OUTLET
STA 201+00 TO 246+00

NOTE 1: A 2-CELL 8 FT X 6 FT BOX CULVERT, DETENTION BASIN AND LOW FLOW CHANNEL ARE PROVIDED FROM STA 116+10 TO STA 148+50

NOTE 2: THE LOW FLOW CHANNEL IS SHOWN AT THE CENTER OF THE DRAINAGE CHANNEL CORRIDOR. HOWEVER IT CAN MEANDER AS LONG AS THE SIDE SLOPES OF THE CHANNEL DO NOT EXCEED 4H:1V ALONG JACKRABBIT TRAIL AND 3H:1V ALONG THE RESIDENTIAL SIDE OF THE PROPOSED CHANNEL.

NOTE 3: THE LOW FLOW CHANNEL WILL NEED TO SHIFT WEST FROM THE PROPOSED CHANNEL CENTER LINE ADJACENT TO THE CUL-DE-SACS WITHIN JACKRABBIT ESTATES

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO.3 OUTFALL CHANNEL
DNC 201.02.26
FCD NO 2004C019

	BY	DATE
DESIGNED	R BERG	12/08/08
DRAWN	E HYNICK	12/08/08
CHECKED	N RAZA	12/08/08

PRELIMINARY NOT FOR CONSTRUCTION

Gannett Fleming

DRAWING NO.	CHANNEL TYPICAL SECTIONS	SHEET OF
C2		5 27

W38W37

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00530	ft/ft
Normal Depth	5.00	ft

Section Definitions

Station (ft)	Elevation (ft)
1+00.00	1083.00
2+03.50	1082.00
4+40.22	1080.00
6+08.07	1078.00
6+86.70	1078.00
7+00.20	1080.00
7+36.20	1082.00
7+58.90	1083.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(1+00.00, 1083.00)	(7+58.90, 1083.00)	0.030

Results

Discharge		11836.24	ft³/s
Elevation Range	1078.00 to 1083.00 ft		
Flow Area		1727.09	ft²
Wetted Perimeter		659.15	ft
Top Width		658.90	ft
Normal Depth		5.00	ft
Critical Depth		4.42	ft
Critical Slope		0.00989	ft/ft
Velocity		6.85	ft/s
Velocity Head		0.73	ft

W38W37

Results

Specific Energy		5.73	ft
Froude Number		0.75	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.00	ft
Critical Depth	4.42	ft
Channel Slope	0.00530	ft/ft
Critical Slope	0.00989	ft/ft

W38W37

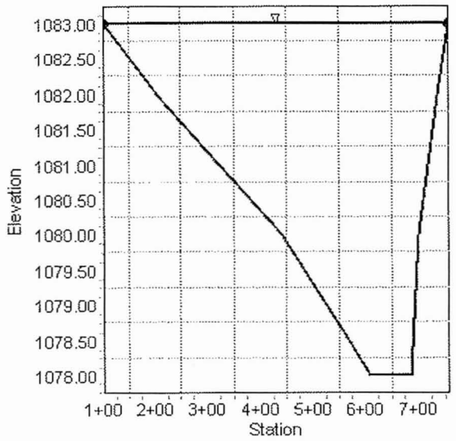
Project Description

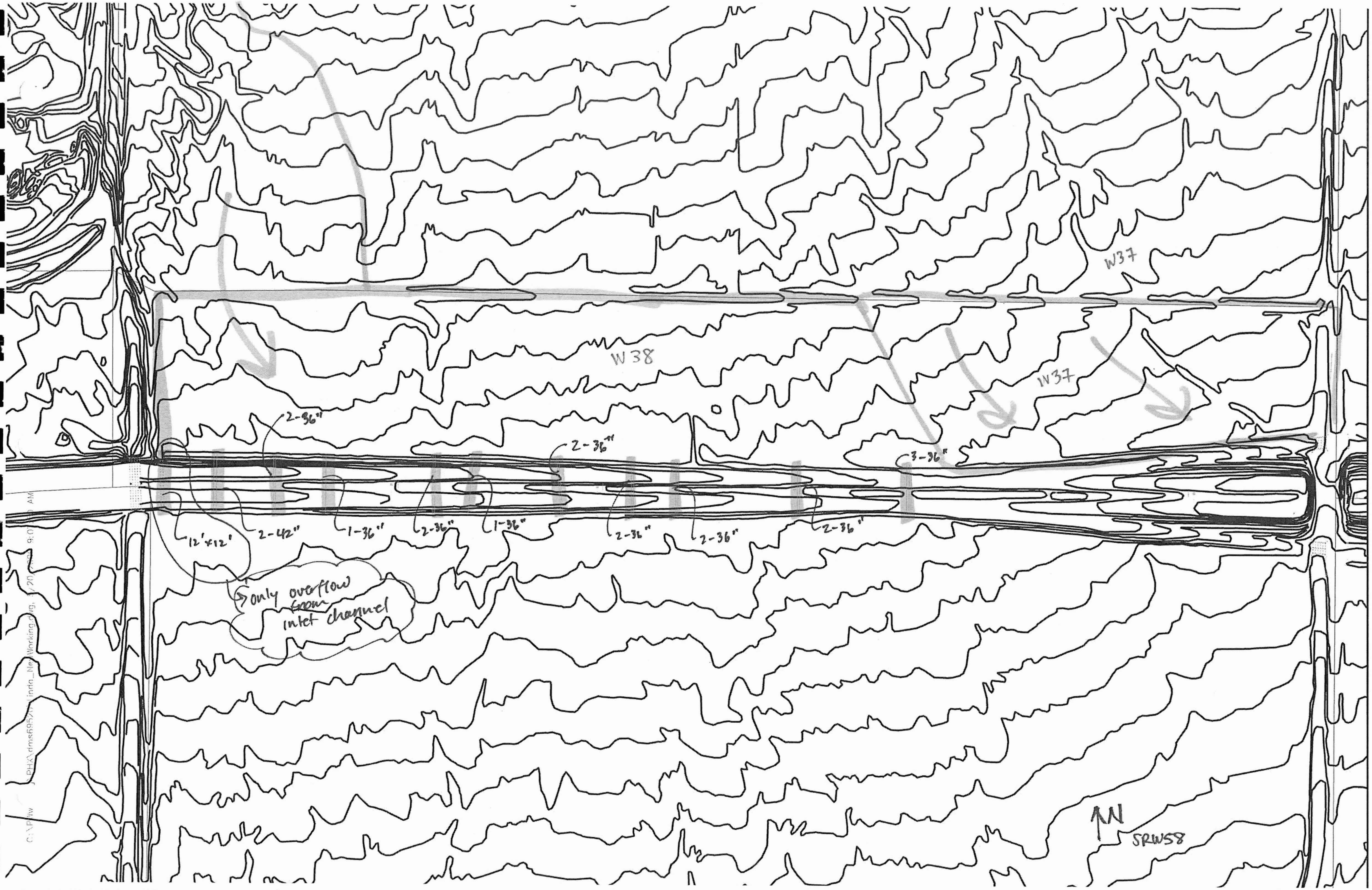
Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00530	ft/ft
Normal Depth	5.00	ft
Discharge	11836.24	ft³/s

Cross Section Image




W37
W38
W37
2-36"
2-36"
3-36"
12'x12'
2-42"
1-36"
2-36"
1-36"
2-36"
2-36"
2-36"
only overflow from inlet channel
N
SRW58

Culvert Information from I-10 Plans

ID	# of Culverts	Size	Material/Type	Length (ft)	US Inv.	DS Inv.	Inv.	Slope (%)	Notes
28	1	30"	CMP	240			1131.95 @ WB CL	1.125	
29	1	30"	CMP	260			1127.92 @ WB CL	1.154	
30	1	36"	CMP	287			1123.34 @ WB CL	1.436	
31	2	36"	CMP	216			1111.72 @ WB CL	1.62	
32	2	42"	CMP	200			1098.70 @ WB CL	0.75	
33	2	36"	CMP	234	1097.35	1095	~~1094.32 @ WB CL~~	1.004	The elevations of the old plans don't match the elevations from the new plans from Verrado
34	1	48"	CMP	234			1092.43 @ WB CL	0.978	
35	1	48"	CMP	214			1090.88 @ WB CL	1.122	
36	1	48"	CMP	218			1091.30 @WB CL	0.78	
37	2	48"	CMP	230	1093.76	1089.79		1.726	
38	1	36"	CMP	250	1095.17	1092.36		1.124	
39	1	36"	CMP	342	1095.7	1092.58		0.912	
40	1	36"	CMP	72	1097.88	1097.33		0.764	
	1	36"	CMP	208			1091.55 @ WB CL	0.961	
	1	36"	CMP	146	1092.98	1091.56		0.973	
1	1	36"	CMP?	226	1098.33	1096.2		0.942	Where there is a ? in the material, the callout only says "pipe culvert"
	1	36"	CMP?	200			1092.43 @ WB CL	0.810	
	1	36"	CMP?	235	1092.51	1089.67		1.209	
2	1	36"	CMP?	152	1098.56	1095.8		1.816	
	1	36"	CMP?	210			1092.38 @ WB CL	1.200	
	1	36"	CMP?	182	1091.26	1089.05		1.214	
3	1	36"	CMP?	486	1093.39	1087.52		1.208	
4	1	36"	CMP?	314	1092.36	1086.91		1.736	
5	1	36"	CMP?	284	1090.22	1089.53		0.243	
6	1	36"	CMP?	280	1087.13	1085.86		0.454	
7	4	10'x8'	Concrete Box Culvert	227			1077.44 @ EB CL	1.11	
8	1	12'x12'	Concrete Box Culvert	193.5			1081.7 EB CL	1.9	**DISREGARD- THIS IS FOR EQUIPMENT TO PASS UNDER HIGHWAY**
9	2	42"	CMP	260			1083.64 EB CL	0.885	
10	2	36"	CMP	253			1082.89 EB CL	0.315	
11	1	36"	CMP	253			1083.8 EB CL	0.827	
12	2	36"	CMP	259			1082.7 EB CL	1.038	
13	1	36"	CMP	255			1082.63 EB CL	1.117	
14	2	36"	CMP	260			1081.02 EB CL	0.675	
15	2	36"	CMP	239			1080.74 EB CL	0.708	
16	2	36"	CMP	224			1081.49 EB CL	0.893	
17	2	36"	CMP	225			1079.16 EB CL	0.885	
18	3	36"	CMP	216			1077.94 EB CL	0.833	
19	5	10'x4'	Concrete Box Culvert	52			1065.28 @ RD CL	0.55	
	5	10'x4'	Concrete Box Culvert	51			1062.7 @ RD CL	0.55	
20	1	30"	CMP	544			**NA**	**NA**	**DISREGARD- THIS IS FOR STREET DRAINAGE**
21	5	10'x3'	Concrete Box Culvert	223			1052.7 @ HWY CL	0.8	
22	4	36"	RCP or CMP (smooth bore)	256			1036.77 @ HWY CL	0.675	
23	3	36"	RCP or CMP (smooth bore)	205			1032.45 @ HWY CL	0.49	
24	4	36"	RCP or CMP (smooth bore)	246			1019.75 @ HWY CL	0.195	
25	5	29"x45"	HERCP	269			1014.39 @ HWY CL	0.4032	
26	5	29"x45"	HERCP	228			1006.28 @ HWY CL	0.5405	Locations for 26 and 27 were taken from base files from I-10 Plans from Sarival to Dysart
27	1	30"	RGRCP						**DISREGARD- This was for irrigation purposes and has been abandoned**

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [31])

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS FOR VERRADO WAY TI

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [34])

WS4

W37

Capacity of Washi=

WS7

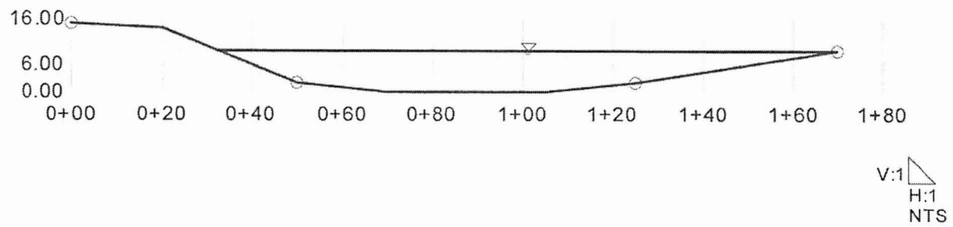
WS4 | WS+ (Verrado)

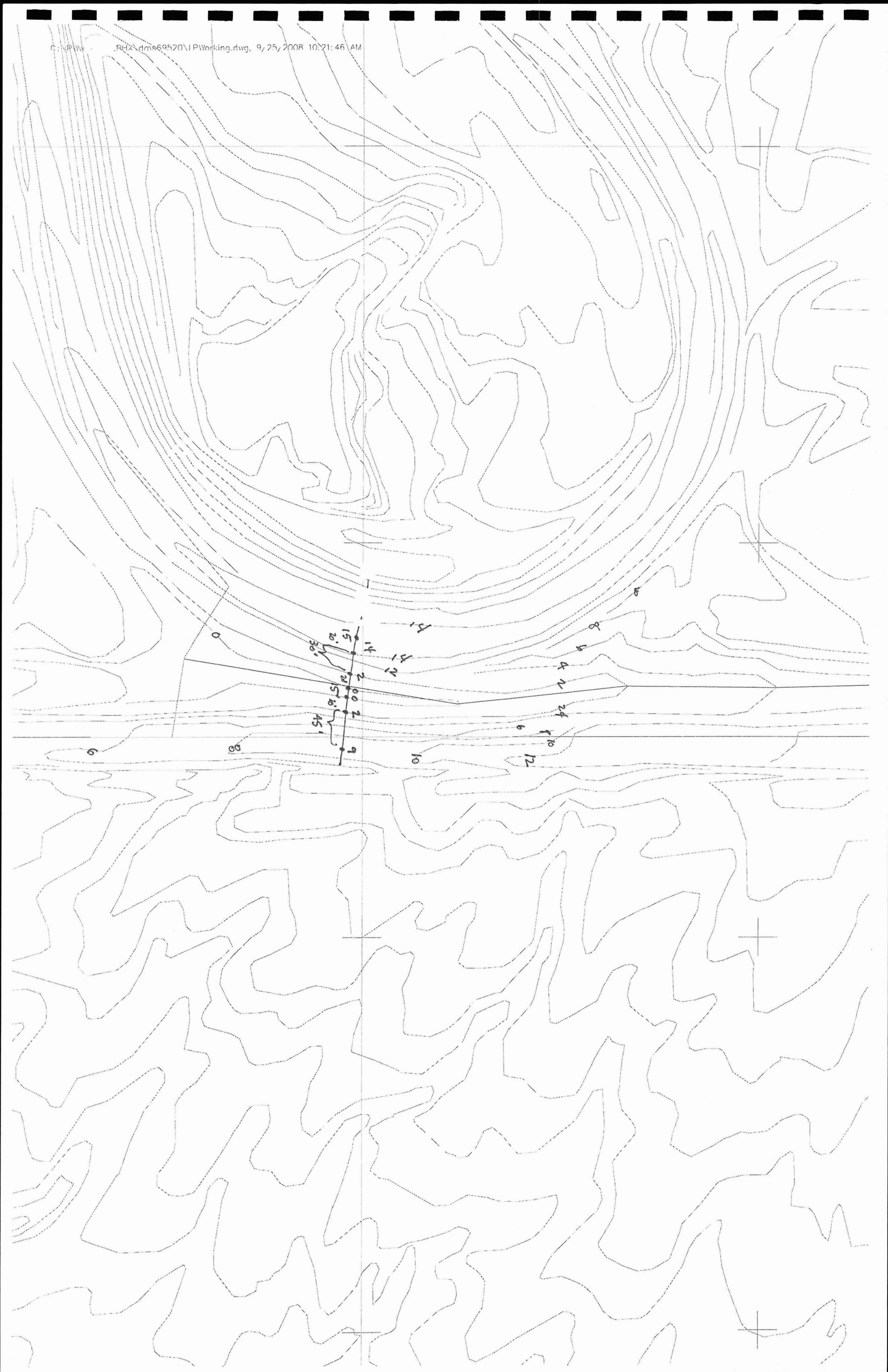
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Verrado Ch
Flow Element	Irregular Ch
Method	Manning's F
Solve For	Discharge

Section Data		
Mannings Coefi	0.036	
Slope	0.010000	ft/ft
Water Surface I	9.00	ft
Elevation Rang	to 15.00	
Discharge	11,779.11	cfs

Capacity of channel
11,779 cfs




C:\APIW... RHX\dm669520\IPWorking.dwg, 9/25/2008 10:21:46 AM

Circular Pipes @ W38 Report

Label	Solve For	Friction Method	Roughness Coefficient
16	Full Flow Capacity	Manning Formula	0.024
15	Full Flow Capacity	Manning Formula	0.024
14	Full Flow Capacity	Manning Formula	0.024
13	Full Flow Capacity	Manning Formula	0.024
12	Full Flow Capacity	Manning Formula	0.024
11	Full Flow Capacity	Manning Formula	0.024
10	Full Flow Capacity	Manning Formula	0.024
9	Full Flow Capacity	Manning Formula	0.024

Channel Slope (ft/ft)	Normal Depth (ft)	Diameter (ft)	Discharge (ft³/s)
0.00893	3.00	3.00	34.14
0.00708	3.00	3.00	30.40
0.00675	3.00	3.00	29.68
0.01117	3.00	3.00	38.18
0.01038	3.00	3.00	36.81
0.00827	3.00	3.00	32.85
0.00315	3.00	3.00	20.28
0.00885	3.50	3.50	51.26

Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)	Critical Depth (ft)
7.07	9.42	0.00	1.90
7.07	9.42	0.00	1.79
7.07	9.42	0.00	1.76
7.07	9.42	0.00	2.01
7.07	9.42	0.00	1.97
7.07	9.42	0.00	1.86

Circular Pipes @ W38 Report

Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)	Critical Depth (ft)
7.07	9.42	0.00	1.45
9.62	11.00	0.00	2.24

Percent Full (%)	Critical Slope (ft/ft)	Velocity (ft/s)	Velocity Head (ft)
100.0	0.01688	4.83	0.36
100.0	0.01604	4.30	0.29
100.0	0.01590	4.20	0.27
100.0	0.01791	5.40	0.45
100.0	0.01754	5.21	0.42
100.0	0.01658	4.65	0.34
100.0	0.01430	2.87	0.13
100.0	0.01620	5.33	0.44

Specific Energy (ft)	Froude Number	Maximum Discharge (ft³/s)	Discharge Full (ft³/s)
3.36	0.00	36.72	34.14
3.29	0.00	32.70	30.40
3.27	0.00	31.93	29.68
3.45	0.00	41.07	38.18
3.42	0.00	39.59	36.81
3.34	0.00	35.34	32.85
3.13	0.00	21.81	20.28
3.94	0.00	55.15	51.26

Slope Full (ft/ft)	Flow Type	Notes	Messages

Circular Pipes @ W38 Report

Slope Full (ft/ft)	Flow Type	Notes	Messages
0.00893	SubCritical		
0.00708	SubCritical		
0.00675	SubCritical		
0.01117	SubCritical		
0.01038	SubCritical		
0.00827	SubCritical		
0.00315	SubCritical		
0.00885	SubCritical		

Pipe ID	Size	Number of Barrels	Q per Pipe	Q Total
9	42	2	51.26	102.52
10	36	2	20.28	40.56
11	36	1	32.85	32.85
12	36	2	36.81	73.62
13	36	1	38.18	38.18
14	36	2	29.68	59.36
15	36	2	30.4	60.8
16	36	2	34.14	68.28
			Total:	**476.17**

W43

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO
39495
CHARLES A.
GIDEON
Date Signed 05/10/06
ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1**********************************
*                                *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1)  *
*        JUN  1998               *
*      VERSION 4.1               *
*                                *
*  RUN DATE  23JAN06  TIME  10:20:36  *
*                                *
**********************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X       X              X
XXXXXXX  XXXX    X        XXXXX X
X     X  X       X              X
X     X  X       X     X        X
X     X  XXXXXXX   XXXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID   **************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:         JAN. 20, 2006
    5         ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                    HECEXE\2553D100.DAT
    7         ID   **************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID         1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID            2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID         2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID         3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID            GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID            THE WLB MODEL.
   30         ID         4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID            WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID            CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID            DRAINAGE REPORTS.
   34         ID         5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID            GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID            ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID         6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID         7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID            STORM.
   40         ID         8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID         9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID            THE DATA FILE BY THE FCDMC.
   43         ID        10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID            AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT      5                   600
   46         IO      5
   47         IN     15
   48         JD   4.03    .001
   49         PC   .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC   .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC   .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC   .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC   .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC   .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC   .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC   .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC   .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC   .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD  3.79      10
   60         JD  3.51      50
   61         JD  3.39     100
   62         JD  3.29     200
```

W25, W26, W13, W4G
W19, W53, W55,

```
 270          LG    .18     .35    3.95     .51    37.0
 271          UI    95.    279.    412.    205.    63.    19.     0.      0.      0.      0.
 272          UI     0.      0.      0.      0.     0.     0.     0.      0.      0.      0.
              *
 273          KK    CP23
 274          KM       ADD HYDROGRAPHS AT CP23
 275          HC       2
              *
 276          KK    SR23
 277          KM       STORAGE ROUTE THROUGH RETENTION BASIN AT CP23.
 278          RS       1    STOR       0       0
 279          SV       0    6.04    20.38   53.82  120.38  216.24  325.98  455.42   606.1  645.49
 280          SV  685.61  767.98
 281          SQ       0       0       0       0       0       0       0       0       0       0
 282          SQ     928    8950
 283          SE    1272    1276    1280    1284    1288    1292    1296    1300    1304    1305
 284          SE    1306    1308
              *
1                                        HEC-1 INPUT                                          PAGE  8
     LINE     ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 285          KK     R23
 286          KM       ROUTE REMAINDER OF FLOW AT CP23 TO CP22A
 287          RS       4              -1       0
 288          RC     .05     .03     .05    4992    .005
 289          RX     930     975    1000    1010    1030    1040    1041    1042
 290          RY    1397  1396.5    1396    1394    1394    1396  1396.5    1397
              *
 291          KK      22
 292          KM   BASIN 22
 293          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 294          KM    L=      1.6  Lca=       .8   S=  426.6  Kn= .050  LAG=  25.0
 295          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 296          BA    0.51
 297          LG     .19     .35    4.80     .33     9.2
 298          UI     69.    231.    374.    504.    796.    666.    488.    352.    192.    116.
 299          UI     70.     30.     21.     21.      0.      0.      0.      0.      0.      0.
 300          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
 301          KK     R22
 302          KM       ROUTE FLOW FROM CP22 TO CP22A
 303          RS       3              -1       0
 304          RC     .05     .03     .05    6230    .025
 305          RX    1000    1030    1060    1070    1100    1115    1125    1150
 306          RY    1294    1292    1290    1288    1288    1290    1292    1294
              *
 307          KK     22A
 308          KM   BASIN 22A
 309          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 310          KM    L=      1.2  Lca=       .5   S=  135.6  Kn= .050  LAG=  22.6
 311          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 312          BA    0.22
 313          LG     .15     .39    5.80     .20    30.8
 314          UI     32.    118.    183.    259.    377.    271.    193.    126.     58.     39.
 315          UI     19.     10.     10.      0.      0.      0.      0.      0.      0.      0.
 316          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
 317          KK   I1C22A
 318          KM       ADD HYDROGRAPHS AT CP22A
 319          HC       2
              *
 320          KK    CP22A
 321          KM       ADD HYDROGRAPHS AT CP22A
 322          HC       2
              *
              * DIVERSION INTO GOLF OFFLINE BASIN #2 IN SECTION 18
              *
1                                        HEC-1 INPUT                                          PAGE  9
     LINE     ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 323          KK    DGOB2
 324          KM       CHANNEL OUTLETS THROUGH 2-48" PIPES
 325          KM       50' WEIR AT 2.5' DEPTH
 326          DT    GOB2
 327          DI       0      70     144     392     722    1114    1551
 328          DQ       0       0      48     248     534     884    1289
              *
 329          KK     R22A
 330          KM       ROUTE COMBINED HYDROGRAPHS AT CP22A TO CP25
 331          RS       4              -1       0
 332          RC     .03     .03     .05    7022   .0079
 333          RX    1000    1030    1040    1047    1070    1097    1120    1200
 334          RY    1255    1254    1250    1248    1250    1252    1254    1255
              *
 335          KK      25
 336          KM   BASIN 25
 337          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 338          KM    L=      1.3  Lca=       .7   S=   86.5  Kn= .050  LAG=  29.5
 339          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 340          BA     .36
 341          LG     .15     .39    5.70     .21   34.70
 342          UI     41.    104.    195.    251.    331.    492.    399.    309.    234.    169.
```

SRW43-W43

5RW43

The WLB Group Inc. WLB

COMPUTATION DATA SHEET

Subject WHITE TANKS / AGUA FRIA ADMS Prepared by JSE Date 5-2-90

STAGE - STORAGE - DISCHARGE TABLE

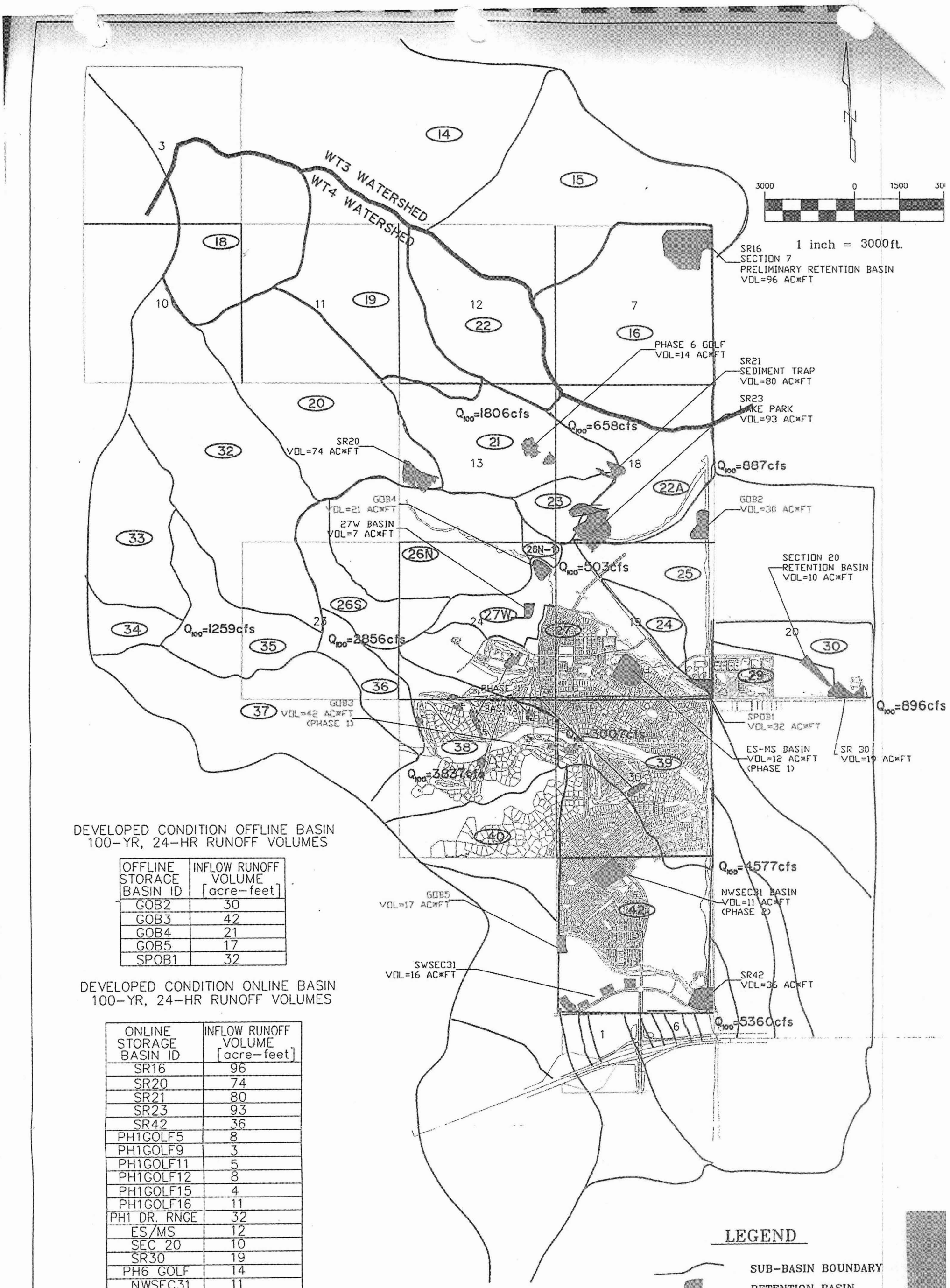
TANK ON SOUTHEAST SIDE OF SUBBASIN # (23)

CATERPILLAR PROVING GROUNDS

ELEV. (FT)	AREA (AC)		VOLUME (AC-FT)	DISCHARGE (CFS)
1272	0.85		0	0
		6.04		
1276	2.17		6.04	0
		14.34		
1280	5.00		20.38	0
		33.44		
1284	11.72		53.82	0
		66.56		
1288	21.56		120.38	0
		95.86		
1292	26.37		216.24	0
		109.74		
1296	28.5		325.98	0
		129.44		
1300	36.22		455.42	0
		150.68		
1304	39.12		606.1	0
		39.39		
*1305	39.66		645.49	0
		40.12		
1306	40.58		685.61	920
		82.37		
1308	41.79		767.98	8950

* Overflow Elevation

Form 209



DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and Land Surveyors
(602) 335-8500

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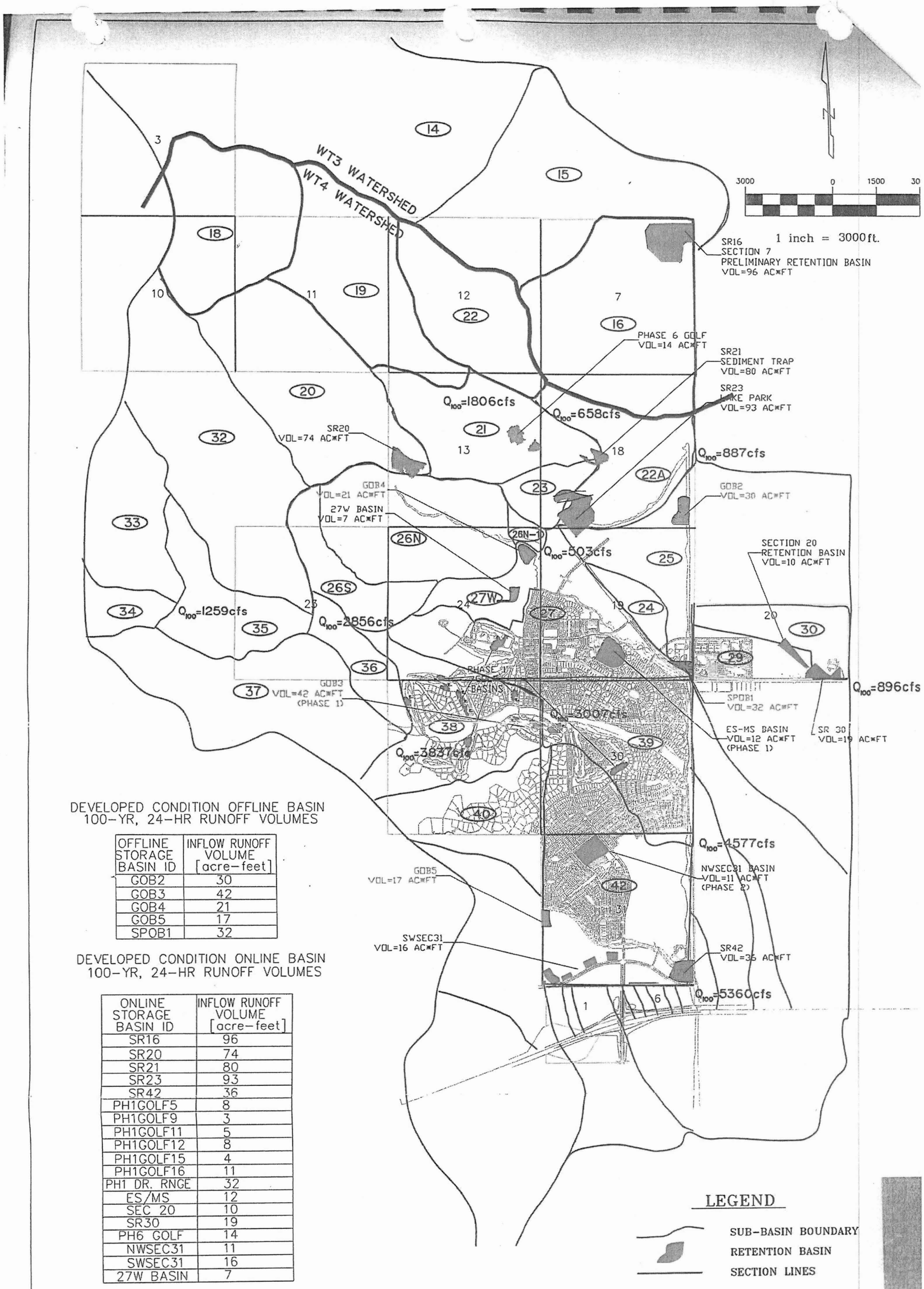

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100-YR, 24-HR RUNOFF VOLUMES

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PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

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VERRADO
BUCKEYE, ARIZONA

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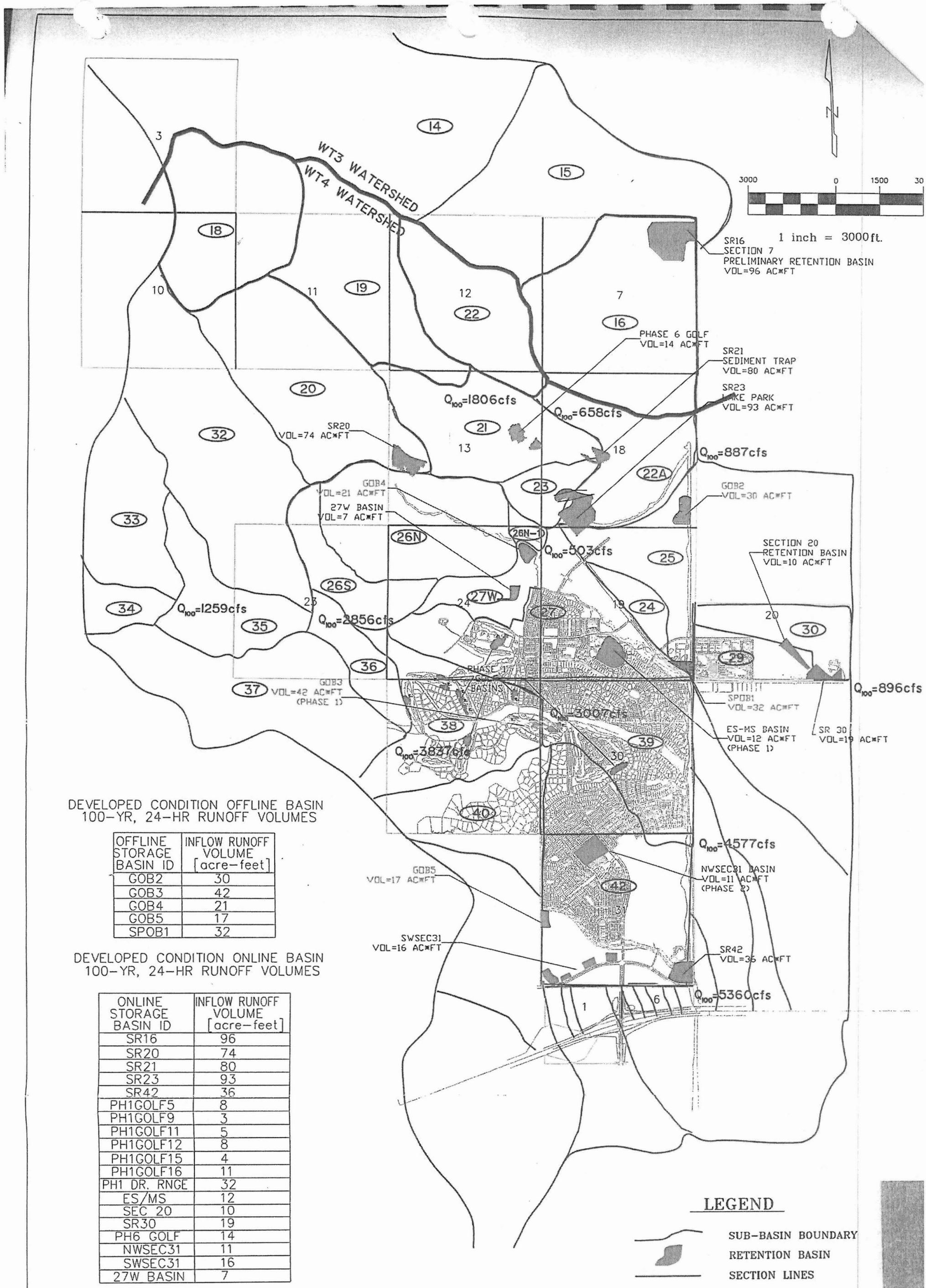

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100-YR, 24-HR RUNOFF VOLUMES

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PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

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W40

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

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100 North Apache
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Buckeye, AZ 85326
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Submitted by:

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Phoenix, AZ 85021
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Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 39495 CHARLES A. GIDEON Date Signed 05/10/06 ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1**********************************
*                                *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1)  *
*        JUN  1998               *
*      VERSION 4.1               *
*                                *
*  RUN DATE  23JAN06  TIME  10:20:36  *
*                                *
**********************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1         ID   **************************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:         JAN. 20, 2006
    5         ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                    HECEXE\2553D100.DAT
    7         ID   **************************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 21, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID          THE WLB MODEL.
   30         ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID          DRAINAGE REPORTS.
   34         ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID          STORM.
   40         ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID          THE DATA FILE BY THE FCDMC.
   43         ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT      5                   600
   46         IO      5
   47         IN     15
   48         JD   4.03    .001
   49         PC   .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC   .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC   .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC   .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC   .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC   .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   55         PC   .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC   .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC   .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC   .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD  3.79      10
   60         JD  3.51      50
   61         JD  3.39     100
   62         JD  3.29     200
```

W25, W26, W43, W46
W19, W53, W55

```
406          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

407          KK  ICP26N
408          KM       COMBINE HYDROGRAPHS R26N AND 26N-1
409          HC       2
             *

410          KK  SR26N1
411          KM       STORAGE ROUTE EXISTING STORAGE PIT IN 26N-1 UPSTREAM OF
412          KM       ROAD CROSSING, 2-60" RCP'S
413          RS       1    STOR       0       0
414          SV       0       7     9.5    12.1    14.9      18    21.6    24.5    27.5    30.5
415          SQ       0       0      15      56     114     182     252     316     376     424
416          SE    1312    1319    1320    1321    1322    1323    1324    1325    1326    1327
             *

417          KK     26S
418          KM   BASIN 26S
419          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
420          KM    L=      1.7  Lca=        .9    S=  534.1  Kn= .050  LAG=  25.7
421          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
422          BA     .35
423          LG     .35     .38    6.40     .15    6.90
424          UI     47.    150.    248.    331.    518.    478.    349.    254.    160.     80.
425          UI     56.     30.     14.     14.     14.      0.      0.      0.      0.      0.
426          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

427          KK    R26S
428          KM        ROUTE FLOW FROM 26S TO I1CP26
429          RS        1              -1       0
430          RC     .04     .04     .04    3875    .025
431          RX        0       6      16      26      31      41      51      57
432          RY     1368    1365    1360    1355    1355    1360    1365    1368
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

433          KK     27W
434          KM   BASIN 27W
435          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
436          KM    L=       .9  Lca=        .3    S=  166.0  Kn= .050  LAG=  17.6
437          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
438          BA     .13
439          LG     .15     .36    6.80     .13   14.60
440          UI     35.    117.    186.    277.    180.    108.     45.     23.      8.      8.
441          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
442          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

443          KK  ICP27W
444          KM     COMBINE HYDROGRAPHS AT CP27W
445          HC       2
             *

446          KK    CP26
447          KM    COMBINE HYDROGRAPHS AT CP26
448          HC       2
             *

449          KK    R26C
450          RS       2              -1       0
451          RC     .07    .035     .07    8300     .02
452          RX        0      15      21      25      40      45      52      63
453          RY     1275    1270    1267    1265    1265    1267    1270    1275
             *

454          KK      27
455          KM   BASIN 27
456          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
457          KM    L=      1.2  Lca=        .8    S=   84.2  Kn= .050  LAG=  31.1
458          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
459          BA     .40
460          LG     .15     .36    6.80     .13   36.40
461          UI     43.    103.    200.    258.    330.    497.    466.    355.    276.    210.
462          UI    127.     74.     57.     41.     13.     13.     13.     13.      0.      0.
463          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

464          KK  I1CP27
465          KM        ADD HYDROGRAPHS AT CP27
466          HC       2
             *
             * DIVERSION INTO SPORTS COMPLEX OFFLINE BASIN IN SECTION 19
             *

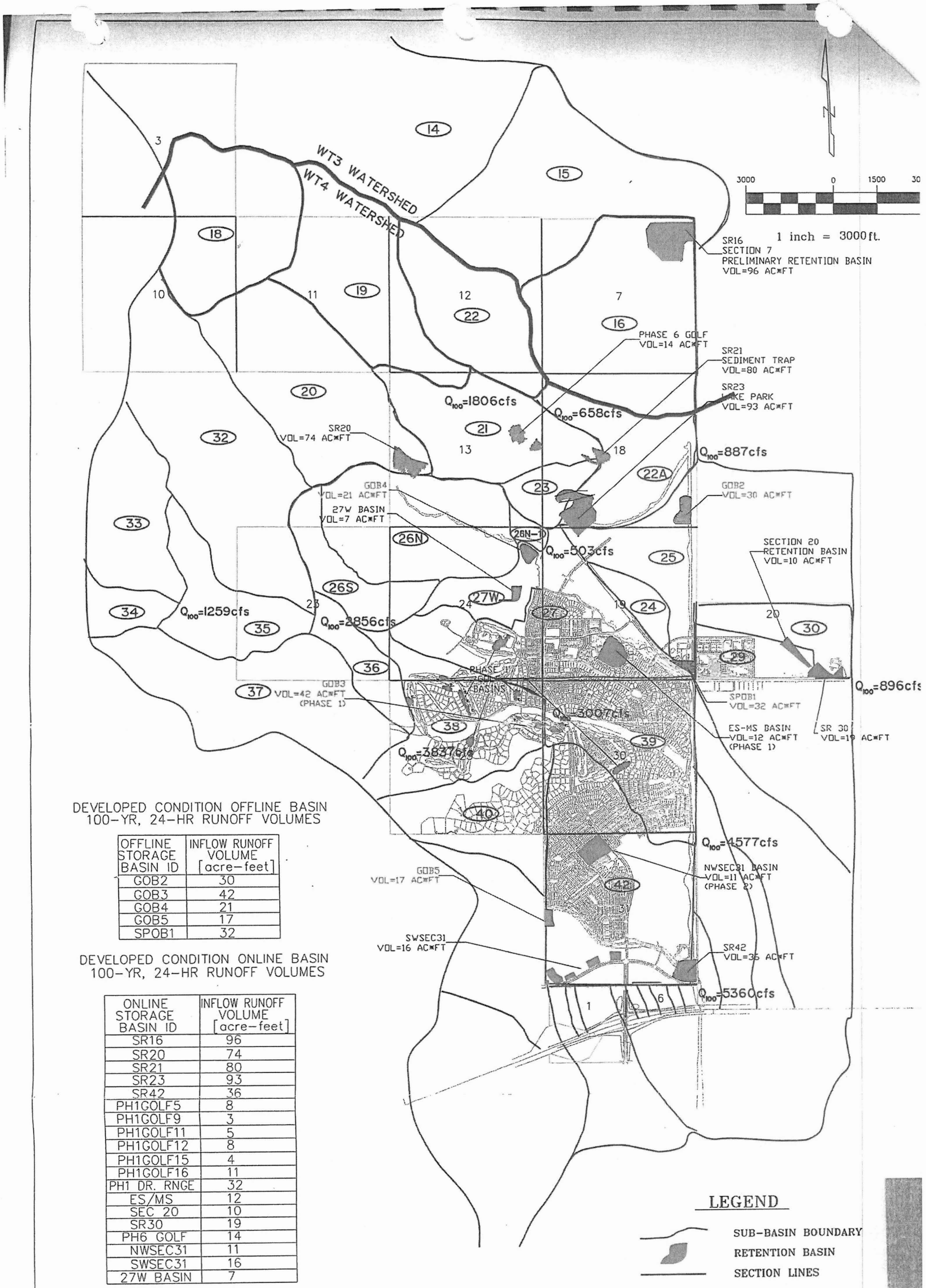
467          KK  DSPOB1
468          KO       5
469          KM        CHANNEL OUTLETS THROUGH 1-12 X 8 ARCH CULVERT
470          KM        50' WEIR AT 4.4' FEET ABOVE CHANNEL, APPROXIMATELY 24.4
471          DT   SPOB1
472          DI       0      35      98     179     276     520     888    1339    1859    2439
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

473          DQ       0       0       0       0       0     135     382     701    1080    1509
             *
             *  SR27
             *      STORAGE ROUTE THROUGH RETENTION BASIN AT CP27
             *      1    STOR       0       0
             *      0     .13    5.77    9.37   11.42   13.71   19.21
```

DW 47679 - MM



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100-YR, 24-HR RUNOFF VOLUMES

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GOB5	17
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SR16	96
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SR21	80
SR23	93
SR42	36
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PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and
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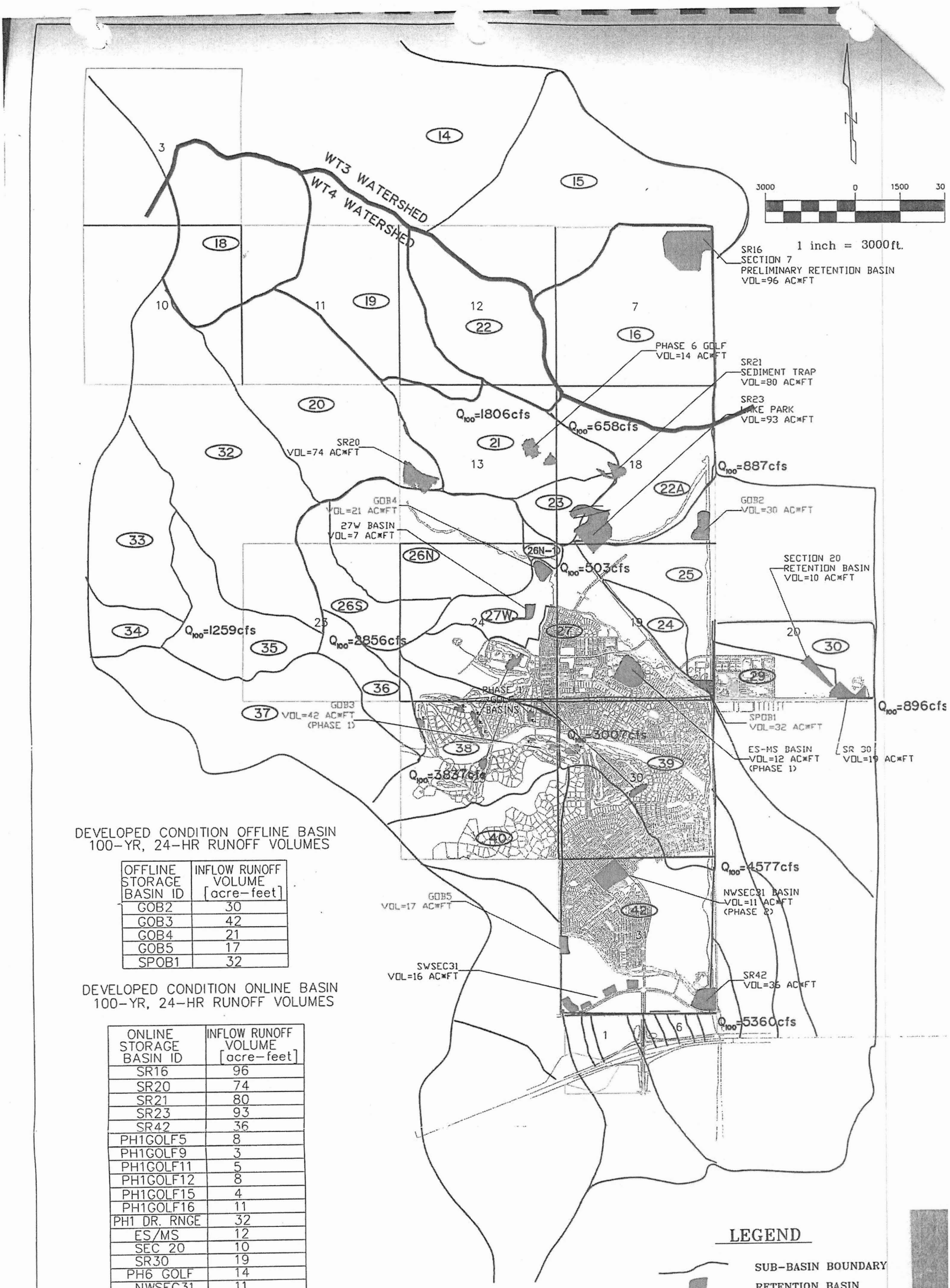

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PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

DMB

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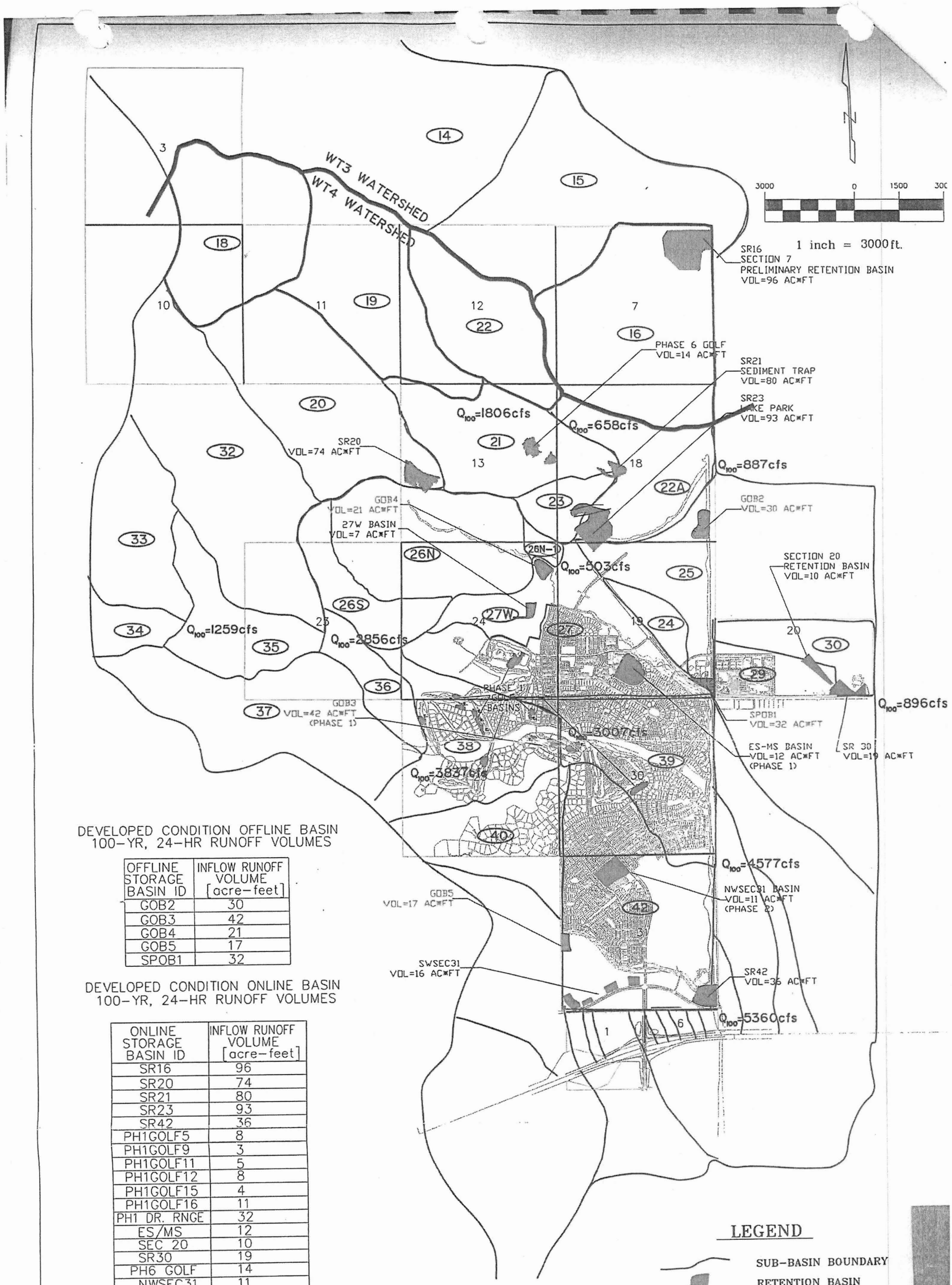

DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
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PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

DMB

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and Land Surveyors
(602) 335-8500

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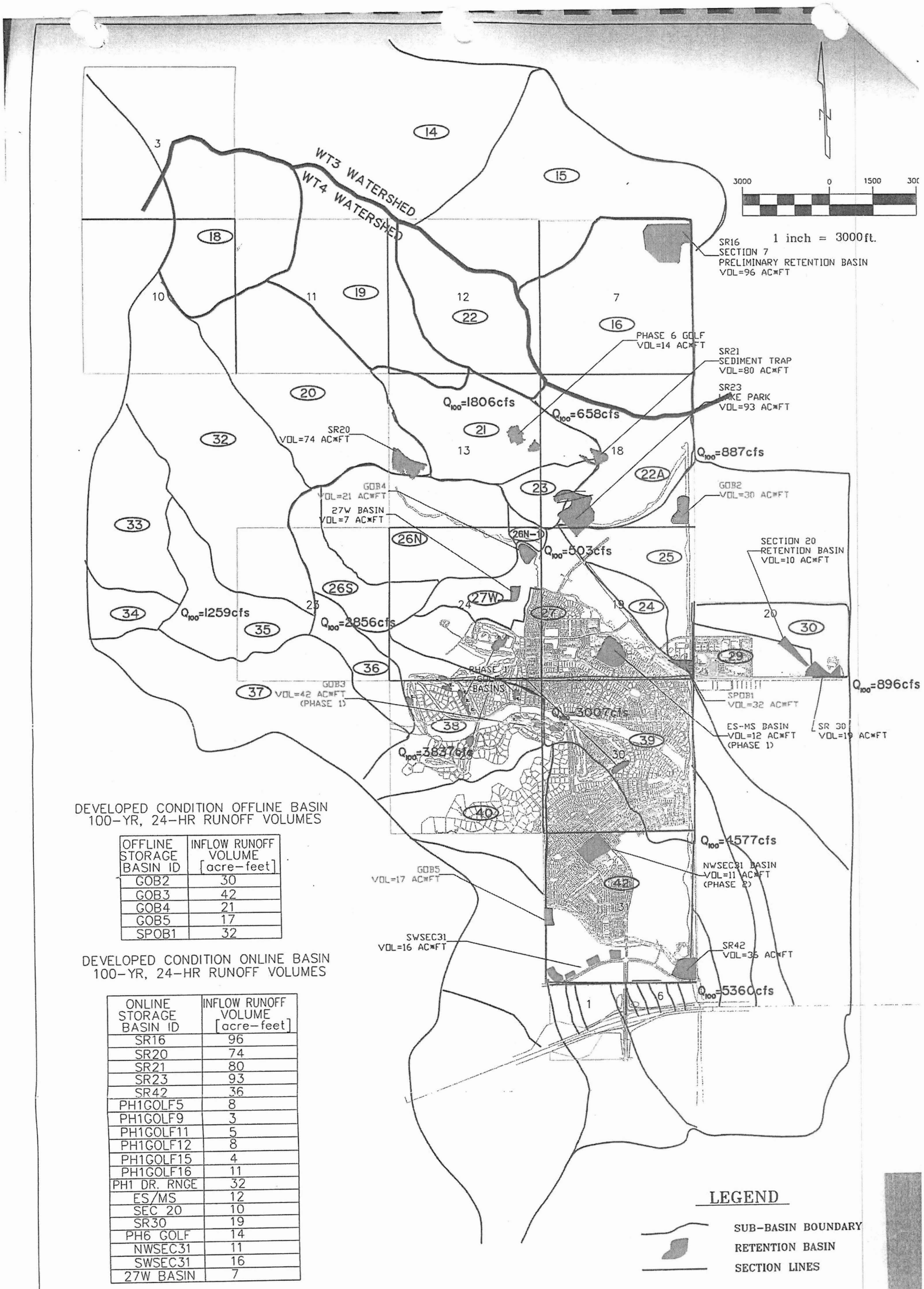

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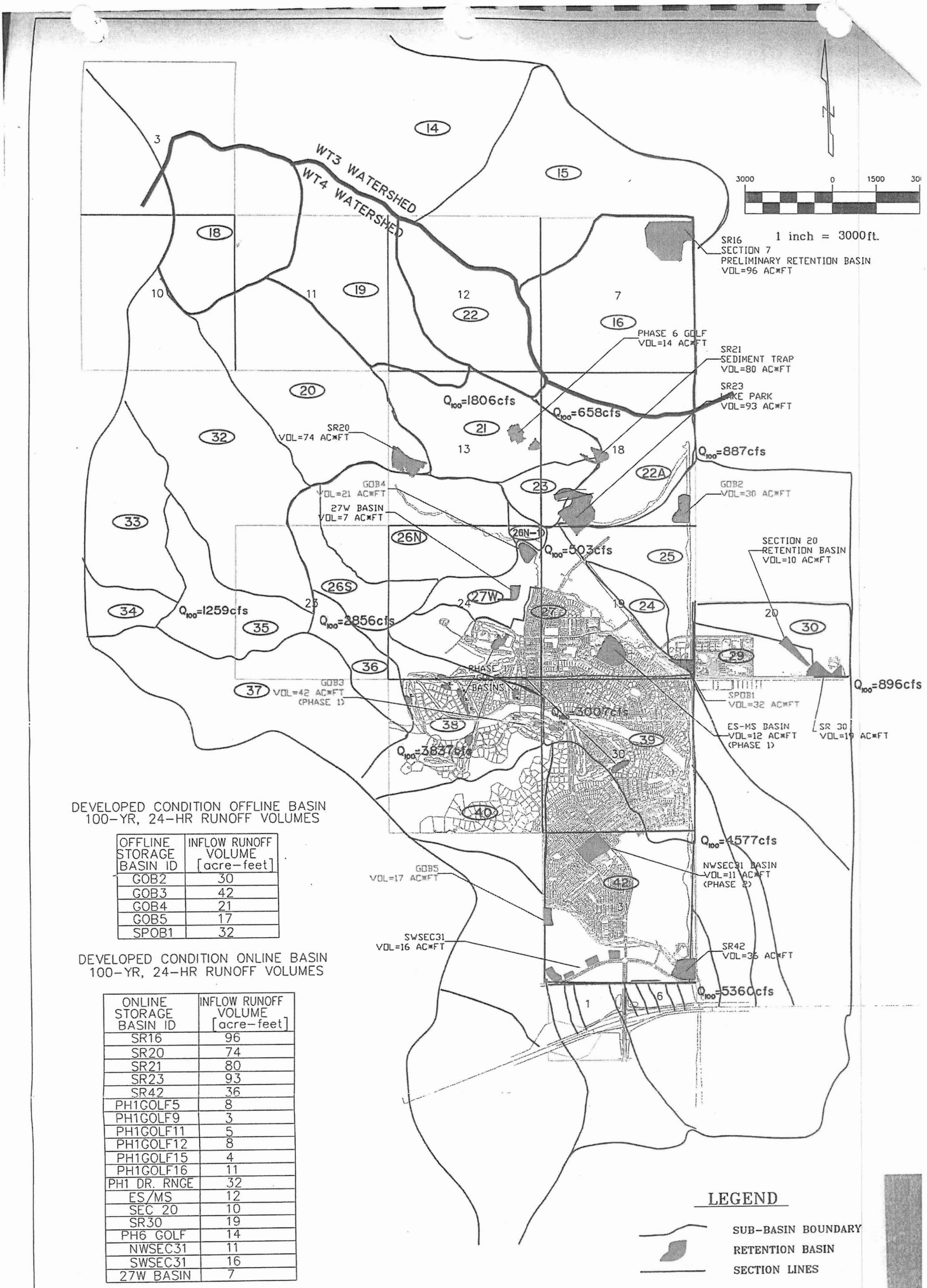

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RETENTION BASIN

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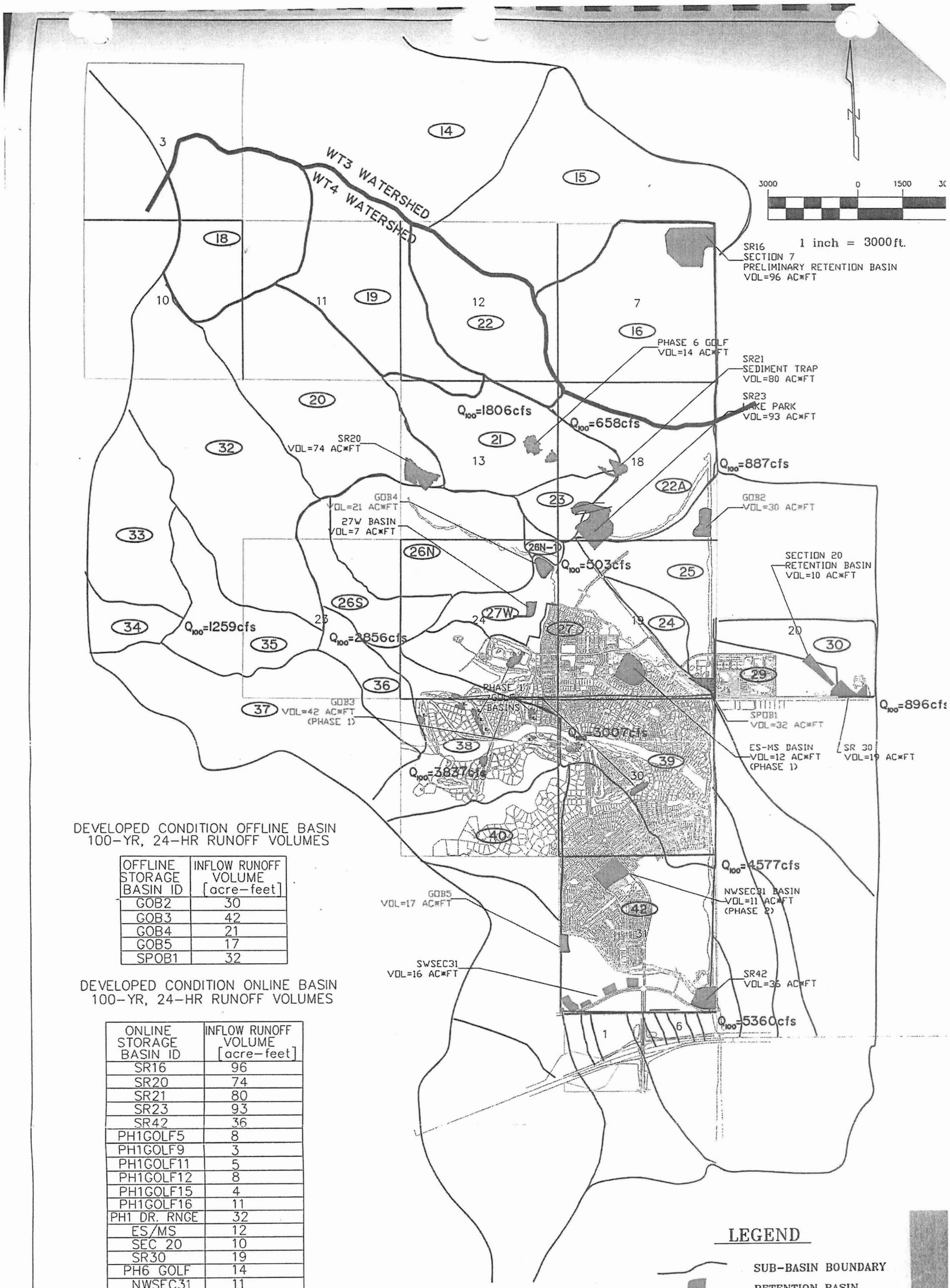

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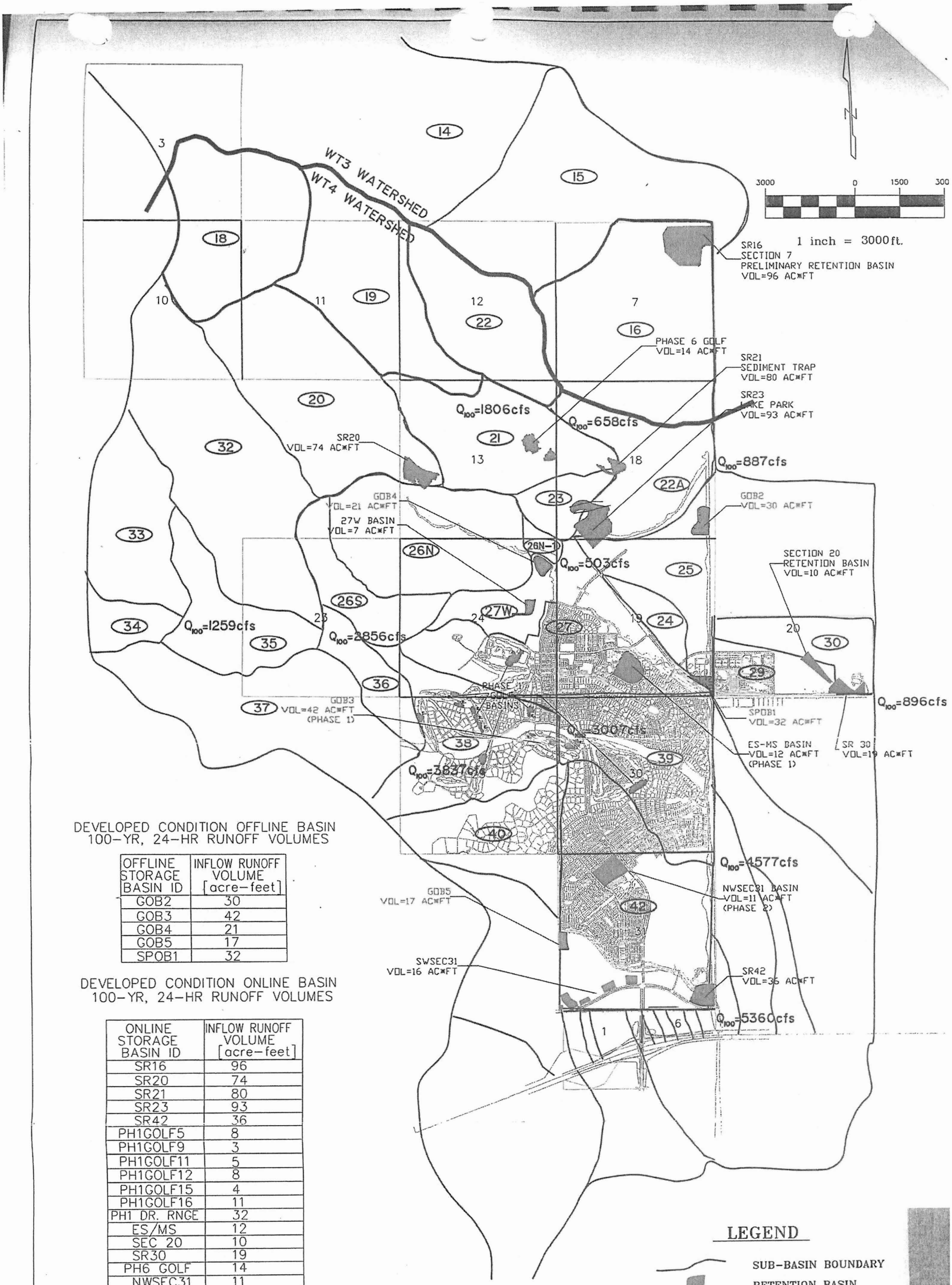

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VERRADO
BUCKEYE, ARIZONA

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W53

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 39495 CHARLES A. GIDEON Date Signed 05/10/06 ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*        JUN  1998                  *
*      VERSION 4.1                  *
*                                   *
* RUN DATE  23JAN06  TIME  10:20:36 *
*                                   *
*************************************
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*************************************
*                                   *
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*       609 SECOND STREET           *
*     DAVIS, CALIFORNIA 95616       *
*         (916) 756-1104            *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID   ************************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:         JAN. 20, 2006
    5         ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                    HECEXE\2553D100.DAT
    7         ID   ************************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT D1189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID          THE WLB MODEL.
   30         ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID          DRAINAGE REPORTS.
   34         ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID          STORM.
   40         ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID          THE DATA FILE BY THE FCDMC.
   43         ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT       5                    600
   46         IO       5
   47         IN      15
   48         JD    4.03    .001
   49         PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC    .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD   3.79      10
   60         JD   3.51      50
   61         JD   3.39     100
   62         JD   3.29     200
```

W25, W26, W43, W46
W19, W53, WS5,

```
KK     36
KM   BASIN 36
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.2  Lca=       .6   S=  178.0  Kn= .050  LAG=  23.7
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .19
LG     .16     .35    4.30     .42   11.10
UI    27.     98.    153.    214.    321.    237.    171.    115.     54.     36.
UI    19.      8.      8.      8.      0.      0.      0.      0.      0.      0.
UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK  I1CP36
KM       ADD HYDROGRAPHS AT CP36
HC       2
*

KK     37
KM   BASIN 37
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      2.3  Lca=      1.0   S=  224.6  Kn= .050  LAG=  35.4
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .95
LG     .19     .35    4.40     .42   10.70
UI    90.    167.    374.    489.    599.    766.   1106.    941.    747.    597.
UI   474.    343.    189.    151.    102.     80.     28.     28.     28.     28.
UI    28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK    CP36
KM       ADD HYDROGRAPHS AT CP 36
HC       2
*

KK     R36
KM       ROUTE COMBINED HYDROGRAPHS AT CP36 TO CP38
RS       2              -1       0
RC     .05     .03     .05    4836   .0198
RX    1000    1008    1020    1032    1050    1112    1135    1183
RY    1344    1342    1340    1338    1338    1340    1342    1344
*

KK     38
KM   BASIN 38
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.3  Lca=       .6   S=  155.0  Kn= .050  LAG=  25.1
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .42
LG     .17     .35    4.30     .43   14.30
UI    56.    189.    306.    412.    649.    551.    403.    292.    162.     95.
UI    59.     26.     17.     17.      0.      0.      0.      0.      0.      0.
UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*
```



```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK    CP38
KM       ADD HYDROGRAPHS AT CP38
HC       2
*
* DIVERSION INTO GOLF OFFLINE BASIN #3 IN SECTION 25\30
*

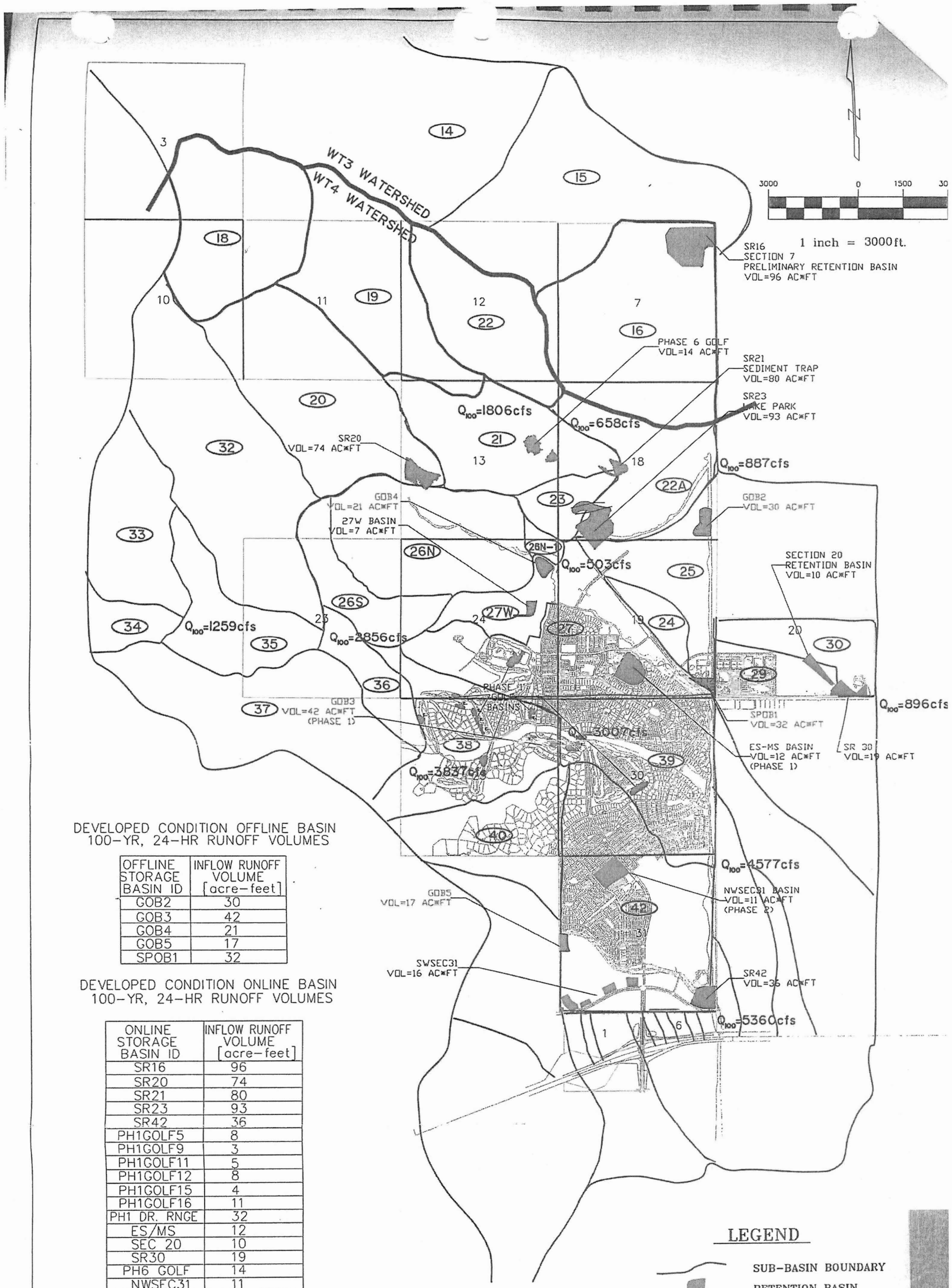
KK   DGOB3
KM            OFFLINE BASIN IN PHASE I GOLF HOLE #2
KM            160' WEIR APPROXIMATELY 2.5' ABOVE ADJACENT FLOWLINE
KM            RATING CURVE BASED ON HEC-RAS MODELING OF ADJACENT CHANNEL
DT    GOB3      42
DI       0    1000    1500    2000    2500    3000    3500    4000    4145    4500
DQ       0      10     115     290     460     715     920    1100    1145    1260
*
*  SR38
*      STORAGE ROUTE THROUGH RETENTION BASIN AT CP38
*     1    STOR        0       0
*     0    1.83   15.38   39.25   41.76   47.45   60.58
*     0       0       0       0      44    2223    6550
*  1275    1280    1290  1297.5    1298    1300    1301
*

KK     R38
KM       ROUTE REMAINDER OF FLOW AT CP38 TO CP39
RS       3              -1       0
RC     .05     .03     .05    5438   .0167
RX    1000    1005    1010    1025    1055    1085    1175    1250
RY    1212    1211    1210    1202    1202    1204    1206    1208
*

KK     39
KM   BASIN 39
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      2.0  Lca=      1.0   S=   75.6  Kn= .050  LAG=  41.2
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA     .59
LG     .15     .35    4.20     .44   21.90
UI    48.     60.    174.    236.    280.    336.    418.    590.    532.    425.
UI   357.    293.    238.    174.    102.     82.     65.     48.     29.     15.
UI    15.     15.     15.     15.      0.      0.      0.      0.      0.      0.
UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK  I1CP39
KM       ADD HYDROGRAPHS AT CP39
```

DW53RE-WS3



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WS4
W37
W57
Capacity of Wach=

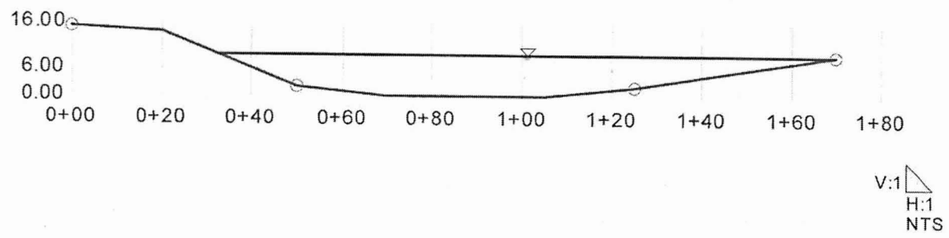
WS4 | WS7 (Verrado)

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	Verrado Ch
Flow Element	Irregular Ch
Method	Manning's F
Solve For	Discharge

Section Data		
Mannings Coefficient	0.036	
Slope	0.010000	ft/ft
Water Surface Elevation	9.00	ft
Elevation Range	0 to 15.00	
Discharge	11,779.11	cfs

Capacity of channel
11,779 cfs



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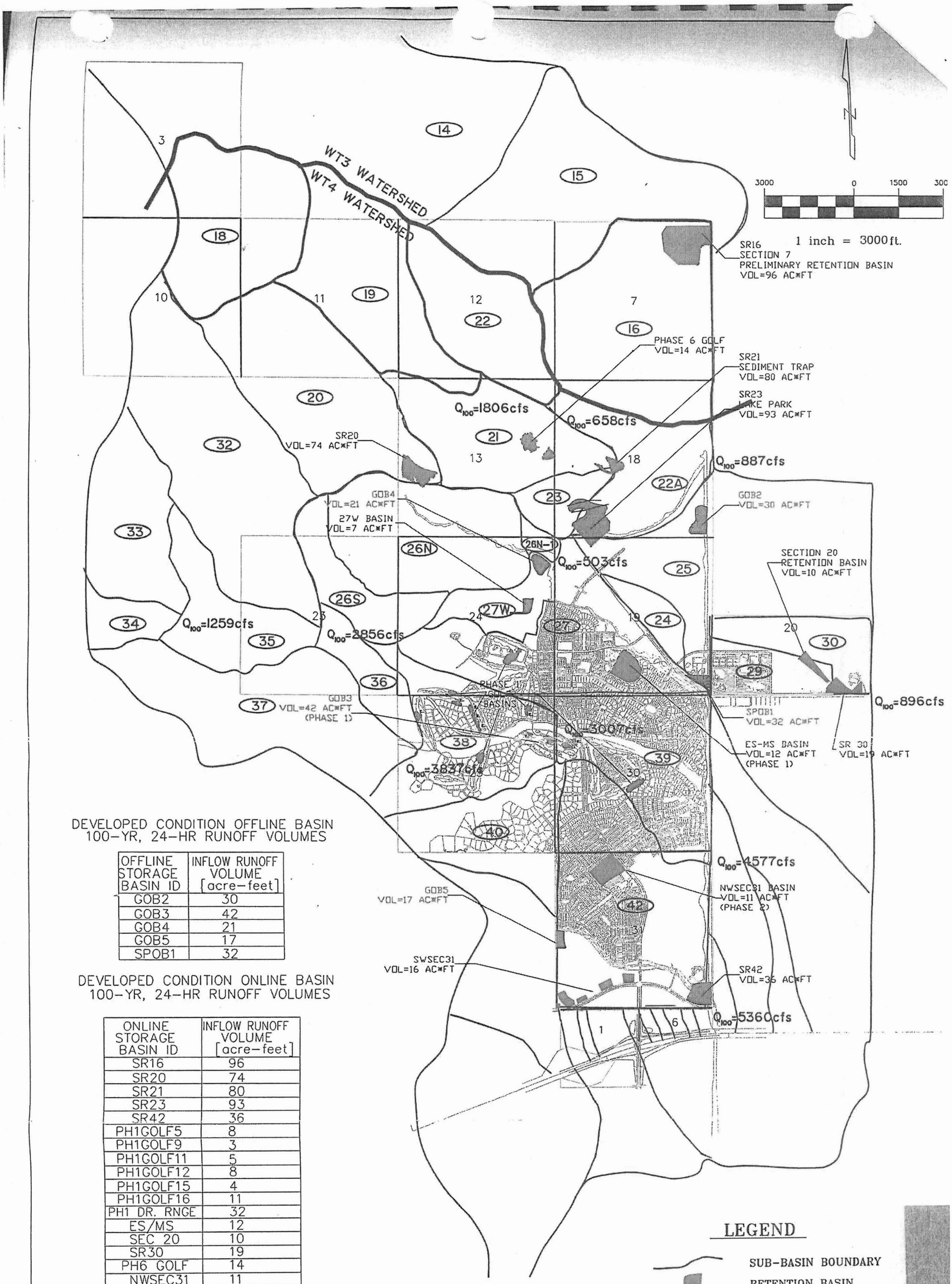
\\RHX-dms69520\IPWorking.dwg, 9/25/2008 10:21:46 AM



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PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and
Land Surveyors
(602) 335-8500

01/19/06
M:\2005\052553\Project support\Hydro\Exhibits\Plate9.DWG

W55

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

Wood, Patel & Associates, Inc.
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
39495
CHARLES A.
GIDEON
Date Signed 05/10/06
ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1**********************************
*                                *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1)  *
*        JUN  1998               *
*      VERSION 4.1               *
*                                *
*  RUN DATE  23JAN06  TIME  10:20:36  *
*                                *
**********************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID   **************************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:        JAN. 20, 2006
    5         ID   FILE:        M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                   HECEXE\2553D100.DAT
    7         ID   **************************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID         1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID            2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID         2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID         3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID            GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID            THE WLB MODEL.
   30         ID         4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID            WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID            CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID            DRAINAGE REPORTS.
   34         ID         5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID            GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID            ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID         6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID         7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID            STORM.
   40         ID         8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID         9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID            THE DATA FILE BY THE FCDMC.
   43         ID        10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID            AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT       5                    600
   46         IO       5
   47         IN      15
   48         JD    4.03    .001
   49         PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC    .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD   3.79      10
   60         JD   3.51      50
   61         JD   3.39     100
   62         JD   3.29     200
```

W25, W26, W43, W46
W19, W53, W55,

```
617          HC       2
             *
1                                    HEC-1 INPUT                                                    PAGE 17

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

618          KK    CP39
619          KM        ADD HYDROGRAPHS AT CP39
620          HC       2
             *

621          KK     R39
622          KM        ROUTE COMBINED HYDROGRAPH AT CP39 TO CP42
623          RS       2              -1       0
624          RC     .03     .03      .05    4836   .0141
625          RX    1000    1005     1015    1025    1055    1070    1087    1130
626          RY    1143    1142     1140    1132    1132    1136    1140    1142
             *

627          KK      40
628          KM   BASIN 40
629          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
630          KM    L=      1.5  Lca=       .6   S=  264.5  Kn= .050  LAG=  24.0
631          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
632          BA     .51
633          LG     .18     .35    4.00     .50   14.00
634          UI     72.     256.   402.    557.    850.    643.    467.    321.    153.    100.
635          UI     58.     22.    22.     22.      0.      0.      0.      0.      0.      0.
636          UI      0.      0.     0.      0.      0.      0.      0.      0.      0.      0.
             *

637          KK   DGOB5
638          KM        2-10X4 CBC'S WITH 400' WEIR AT 1.5 FEET ABOVE CHANNEL BOTTOM
639          DT   GOB5
640          DI       0      55     101     537    1297    2269    4708    7684   11074
641          DQ       0       0       0     382    1080    1984    4269    7072   10310
             *

642          KK     R40
643          KM        ROUTE FLOW FROM CP40 TO CP42
644          RS       4              -1       0
645          RC     .05     .03      .05    6396   .0086
646          RX    1000    1010     1065    1095    1135    1155    1215    1220
647          RY    1115    1114     1112    1110    1110    1112    1113    1113
             *

648          KK      42
649          KM   BASIN 42
650          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
651          KM    L=      2.1  Lca=      1.0   S=   99.0  Kn= .050  LAG=  39.9
652          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
653          BA     .76
654          LG     .21     .35    4.70     .31   30.50
655          UI     64.     88.    238.    319.    382.    463.    599.    805.    658.    537.
656          UI    443.    361.    288.    187.    113.    105.     64.     57.     20.     20.
657          UI     20.     20.     20.      0.      0.      0.      0.      0.      0.      0.
658          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
1                                    HEC-1 INPUT                                                    PAGE 18

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

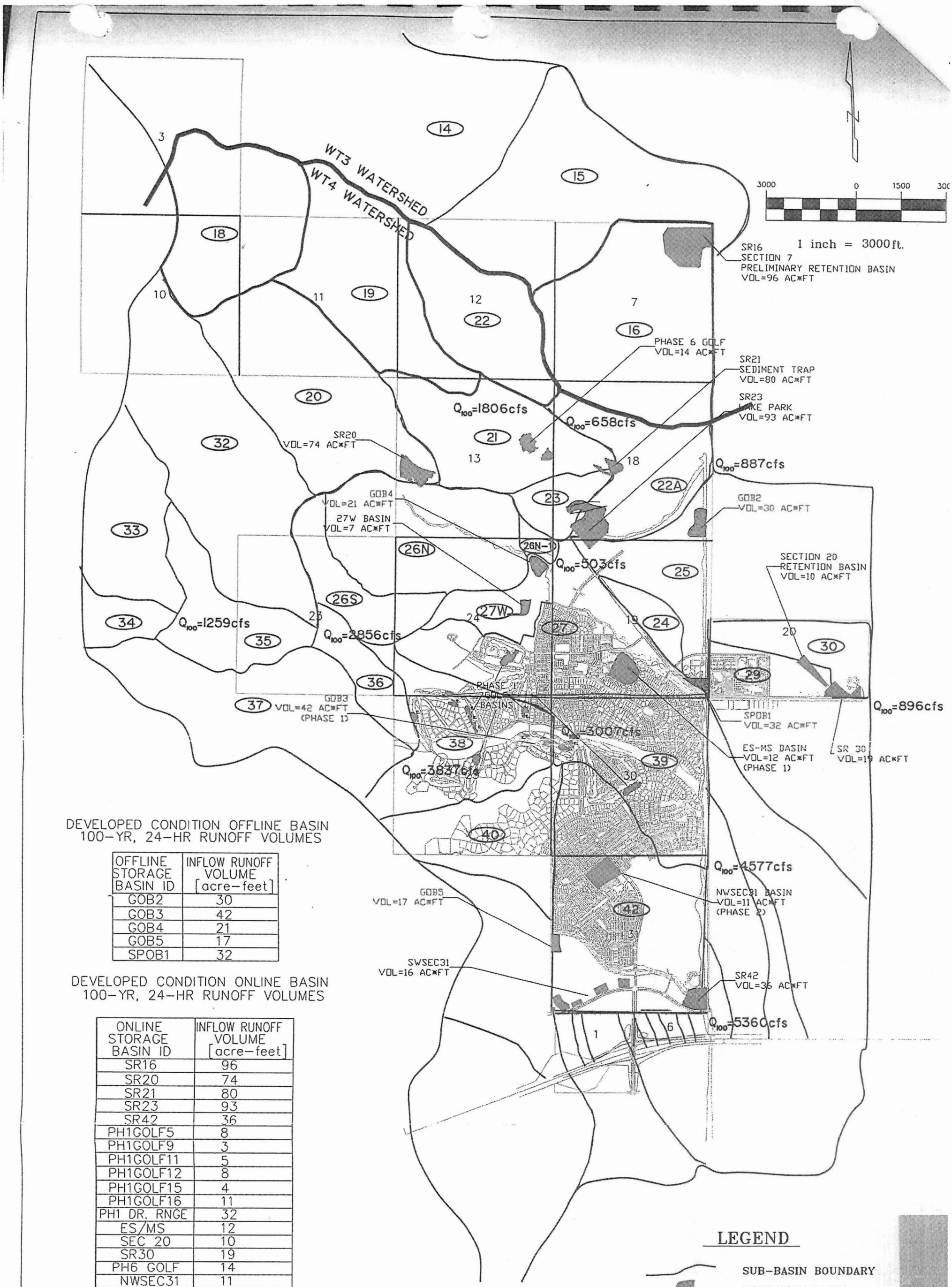
659          KK  I1CP42
660          KM        ADD HYDROGRAPHS AT CP42
661          HC       2
             *

662          KK    CP42
663          KM        ADD HYDROGRAPHS AT CP42
664          HC       2
             *

665          KK    SR42
666          KO       5
667          KM        STORAGE ROUTE THROUGH RETENTION BASIN AT CP42
668          KM        8 FEET OF DEAD STORAGE BELOW BASIN OUTFALL
669          KM        BASIN OUTFALLS THROUGH A 140' WEIR
670          RS       1    STOR       0       0
671          SV       0    24.4    29.6    35.7      42    48.5    55.2    62.2    69.3    76.7
672          SQ       0       0       0       0     368    1040    1912    2944    4114    5410
673          SE    1084    1090    1091    1092    1093    1094    1095    1096    1097    1098
             *
             * SR42-2
             *       STORAGE ROUTE THROUGH RETENTION BASIN AT CP42
             *       3 FEET OF DEAD STORAGE BELOW BASIN OUTFALL
             *       BASIN OUTFALLS THROUGH A NATURAL OUTFALL
             *      1    STOR       0       0
             *      0    18.0    24.3    31.1    38.1    45.4    53.1    61.0    69.3    77.9
             *   86.8    95.8   104.8
             *      0       0    19.1    70.0   157.7   287.7   464.9   939.3  1795.0  3047.2
             * 5559.5  9110.8 13417.7
             *   1079    1082    1083    1084    1085    1086    1087    1088    1089    1090
             *   1091    1092    1093
             *

674          KK     R42
675          KM        ROUTE REMAINDER OF HYDROGRAPH AT CP42 TO CP43
676          RS       1              -1       0
677          RC     .03     .03      .05     858   .0151
678          RX     900     950     1000    1030    1060    1075    1085    1090
679          RY    1091    1088     1086    1084    1084    1086    1088    1091
             *
```

PN55ME - WS5
SRW51 - WS7



DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and
Land Surveyors
(602) 335-8500

01/19/06
M:\2005\052553\Project support\Hydro\Exhibits\Plate9.DWG

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For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

WS7

VOLUME 4.04B

VERRADO
PLANNING UNIT DRAINAGE PLAN
FOR PORTIONS OF
PLANNING UNIT V
(PHASE 3 NORTH – SOUTH OF TRACTOR WASH AND INTRAWEST RESORT)
AND UPDATE TO
MASTER DRAINAGE PLAN

APPROVED
6-19-06

Prepared for:

DMB White Tank, LLC
c/o DMB Associates, Inc.
7600 East Doubletree Ranch Road
Suite 300
Scottsdale, AZ 85258

Submitted to:

Town of Buckeye
100 North Apache
Suite A
Buckeye, AZ 85326
Phone: (623) 386-2487

Submitted by:

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2051 West Northern
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Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Email address: sgookin@woodpatel.com
Website: www.woodpatel.com

Peer Reviewer

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO 39495 CHARLES A. GIDEON Date Signed 05/10/06 ARIZONA U.S.A.

Engineer

SUBMITTAL # 2
REVIEW SET ☐
EXTRA SET ☒

RECEIVED
MAY 17 2006
W.C. SCOUTTEN, INC.

Reviewed and Accepted
by the Town Engineer
of the Town of Buckeye

Signature_____

Date_____

May 10, 2006
WP #052553.03

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*        JUN  1998                  *
*      VERSION 4.1                  *
*                                   *
*  RUN DATE  23JAN06  TIME 10:20:36 *
*                                   *
*************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
    1         ID   **************************************************************************
    2         ID   V E R R A D O POST-DEVELOPMENT CONDITION HYDROLOGY
    3         ID   DESIGN EVENT: 100-YEAR, 24-HOUR FLOOD EVENT
    4         ID   DATE:         JAN. 20, 2006
    5         ID   FILE:         M:\2005\052553\PROJECT SUPPORT\HYDRO\HYDROLOGY\
    6         ID                    HECEXE\2553D100.DAT
    7         ID   **************************************************************************
    8         ID
    9         ID    LOOP 303 CORRIDOR-WHITE TANKS AREA DRAINAGE MASTER PLAN UPDATE
   10         ID    EXISTING CONDITION HYDROLOGY MODEL 'WITHOUT PROJECTS IN PLACE'
   11         ID
   12         ID    PER DIRECTION AND BY PROVISION OF THE FCDMC, URS HAS ADDED THE
   13         ID    PROVIDED DIVERT DATA FOR THE EXISTING DIVERSION (PREVIOUSLY
   14         ID    TURNED OFF) AT DI189.
   15         ID
   16         ID    THE RESULTS OF THE FLOODPLAIN FLOW SPLIT ANALYSIS
   17         ID    AT PERRYVILLE & 83RD AVE BETWEEN GLENDALE AND BETHANY
   18         ID    HOME ROAD HAVE BEEN INCORPORATED INTO THIS MODEL
   19         ID
   20         ID
   21         ID                                        REVISED BY URS     DATE: 01-14-04
   22         ID                                                           FILE: L303M1L.DAT
   23         ID       NOTES:
   24         ID       1. THIS HEC-1 MODEL CONTAINS THE FOLLOWING SUPER BASINS: WHITE TANKS 3,
   25         ID          2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2 & 3, 4 THRU 26.
   26         ID       2. REVISED TO REFLECT UPDATED SOILS MAPS AND NEW DEVELOPMENT.
   27         ID       3. AVERAGE XKSAT VALUES FOR EACH SUBBASIN WAS RECEIVED FROM FCDMC
   28         ID          GIS DATA AND THEN ADJUSTED FOR VEGETATION, OR LEFT AS ORIGINALLY IN
   29         ID          THE WLB MODEL.
   30         ID       4. FOR NEW DEVELOPMENTS ONLY 80% OF REPORTED PROVIDED RETENTION
   31         ID          WAS INCLUDED IN THIS MODEL (AS A CONSERVATIVE ESTIMATE). RETENTION
   32         ID          CAPACITIES WERE ESTIMATED BY EEC FOR DEVELOPMENTS WITH NO
   33         ID          DRAINAGE REPORTS.
   34         ID       5. REVISED DRAINAGE BOUNDARIES BASED UPON FIELD INSPECTION OF SUN CITY.
   35         ID          GRAND.  COMBINED SEVERAL BASINS TOGETHER TO MAKE NEW BASINS 114 &115.
   36         ID          ALSO REROUTED SUBBASINS 100A, 101, 102A AND 106 TO THE SOUTH TO 113A.
   37         ID       6. CHANNEL ROUTE ALONG REEMS ROAD UPDATED TO REFLECT NEW CONSTRUCTION.
   38         ID       7. REVISED SCS TYPE II RAINFALL DISTRIBUTION FOR THE 24-HOUR GENERAL
   39         ID          STORM.
   40         ID       8. REVISED RAINFALL DEPTH-AREA REDUCTION FACTORS.
   41         ID       9. PSIF WERE ADJUSTED BASED ON THE VALUES OF XKSAT AND WERE EDITED INTO
   42         ID          THE DATA FILE BY THE FCDMC.
   43         ID      10. AVERAGE XKSAT VALUES FOR SUBBASINS WITH BORROW PITS (WHITE TANKS
   44         ID          AREAS #3 & #4) WERE ESTIMATED BY EEC.
              *DIAGRAM
   45         IT      5                    600
   46         IO      5
   47         IN     15
   48         JD   4.03    .001
   49         PC   .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
   50         PC   .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   51         PC   .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   52         PC   .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   53         PC   .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   54         PC   .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   55         PC   .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   56         PC   .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   57         PC   .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   58         PC   .983    .986    .989    .992    .995    .998   1.00   1.000   1.000   1.000
   59         JD  3.79      10
   60         JD  3.51      50
   61         JD  3.39     100
   62         JD  3.29     200
```

W25, W26, W43, W46
W19, W53, WS5,

```
 617          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10


 618          KK    CP39
 619          KM        ADD HYDROGRAPHS AT CP39
 620          HC        2
              *

 621          KK     R39
 622          KM        ROUTE COMBINED HYDROGRAPH AT CP39 TO CP42
 623          RS        2              -1         0
 624          RC     .03      .03      .05     4836    .0141
 625          RX    1000     1005     1015     1025     1055     1070     1087     1130
 626          RY    1143     1142     1140     1132     1132     1136     1140     1142
              *

 627          KK      40
 628          KM    BASIN 40
 629          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 630          KM     L=       1.5  Lca=        .6    S=  264.5  Kn= .050  LAG=  24.0
 631          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 632          BA      .51
 633          LG      .18      .35     4.00      .50    14.00
 634          UI     72.     256.     402.     557.     850.     643.     467.     321.     153.     100.
 635          UI     58.      22.      22.      22.       0.       0.       0.       0.       0.       0.
 636          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

 637          KK    DGOB5
 638          KM         2-10X4 CBC'S WITH 400' WEIR AT 1.5 FEET ABOVE CHANNEL BOTTOM
 639          DT     GOB5
 640          DI        0       55      101      537     1297     2269     4708     7684    11074
 641          DQ        0        0        0      382     1080     1984     4269     7072    10310
              *

 642          KK     R40
 643          KM        ROUTE FLOW FROM CP40 TO CP42
 644          RS        4              -1         0
 645          RC     .05      .03      .05     6396    .0086
 646          RX    1000     1010     1065     1095     1135     1155     1215     1220
 647          RY    1115     1114     1112     1110     1110     1112     1113     1113
              *

 648          KK      42
 649          KM    BASIN 42
 650          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 651          KM     L=       2.1  Lca=       1.0    S=   99.0  Kn= .050  LAG=  39.9
 652          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 653          BA      .76
 654          LG      .21      .35     4.70      .31    30.50
 655          UI     64.      88.     238.     319.     382.     463.     599.     805.     658.     537.
 656          UI    443.     361.     288.     187.     113.     105.      64.      57.      20.      20.
 657          UI     20.      20.      20.       0.       0.       0.       0.       0.       0.       0.
 658          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

1                                        HEC-1 INPUT                                                    PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10


 659          KK  I1CP42
 660          KM        ADD HYDROGRAPHS AT CP42
 661          HC        2
              *

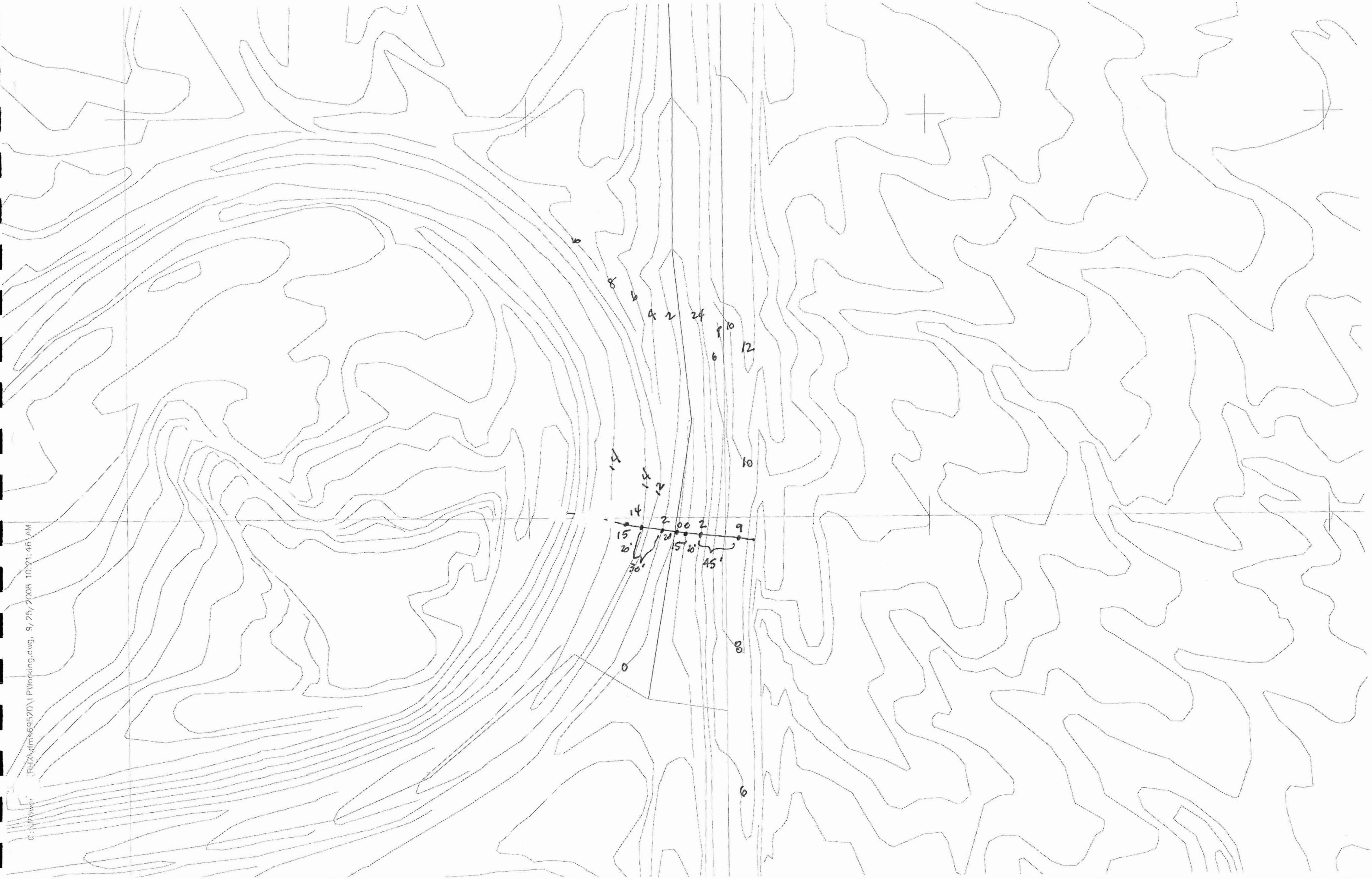
 662          KK    CP42
 663          KM        ADD HYDROGRAPHS AT CP42
 664          HC        2
              *

 665          KK    SR42
 666          KO        5
 667          KM        STORAGE ROUTE THROUGH RETENTION BASIN AT CP42
 668          KM        8 FEET OF DEAD STORAGE BELOW BASIN OUTFALL
 669          KM        BASIN OUTFALLS THROUGH A 140' WEIR
 670          RS        1    STOR        0        0
 671          SV        0     24.4     29.6     35.7       42     48.5     55.2     62.2     69.3     76.7
 672          SQ        0        0        0        0      368     1040     1912     2944     4114     5410
 673          SE     1084     1090     1091     1092     1093     1094     1095     1096     1097     1098
              *
              * SR42-2
              *       STORAGE ROUTE THROUGH RETENTION BASIN AT CP42
              *       3 FEET OF DEAD STORAGE BELOW BASIN OUTFALL
              *       BASIN OUTFALLS THROUGH A NATURAL OUTFALL
              *      1    STOR        0        0
              *      0    18.0     24.3     31.1     38.1     45.4     53.1     61.0     69.3     77.9
              *   86.8    95.8    104.8
              *      0       0     19.1     70.0    157.7    287.7    464.9    939.3  1795.0  3047.2
              * 5559.5  9110.8 13417.7
              *   1079     1082     1083     1084     1085     1086     1087     1088     1089     1090
              *   1091     1092     1093
              *

 674          KK     R42
 675          KM        ROUTE REMAINDER OF HYDROGRAPH AT CP42 TO CP43
 676          RS        1              -1         0
 677          RC     .03      .03      .05      858    .0151
 678          RX     900      950     1000     1030     1060     1075     1085     1090
 679          RY    1091     1088     1086     1084     1084     1086     1088     1091
              *
```

DN552E - WSS
SW551 - WSS

WS4
W37
WS7
Capacity of Wash=


14
2
0 0
2
9
15
20'
30'
5
10'
45'
10
12
8
6
0

WS4 | WS7 (Verrado)

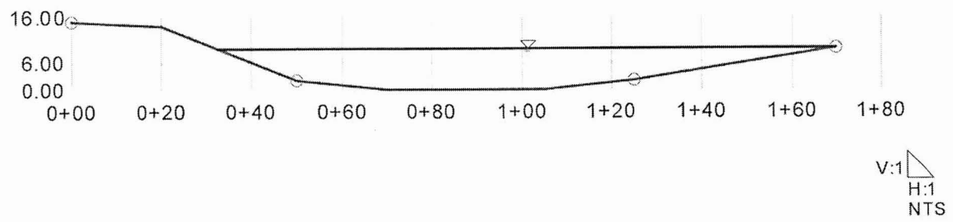
Cross Section

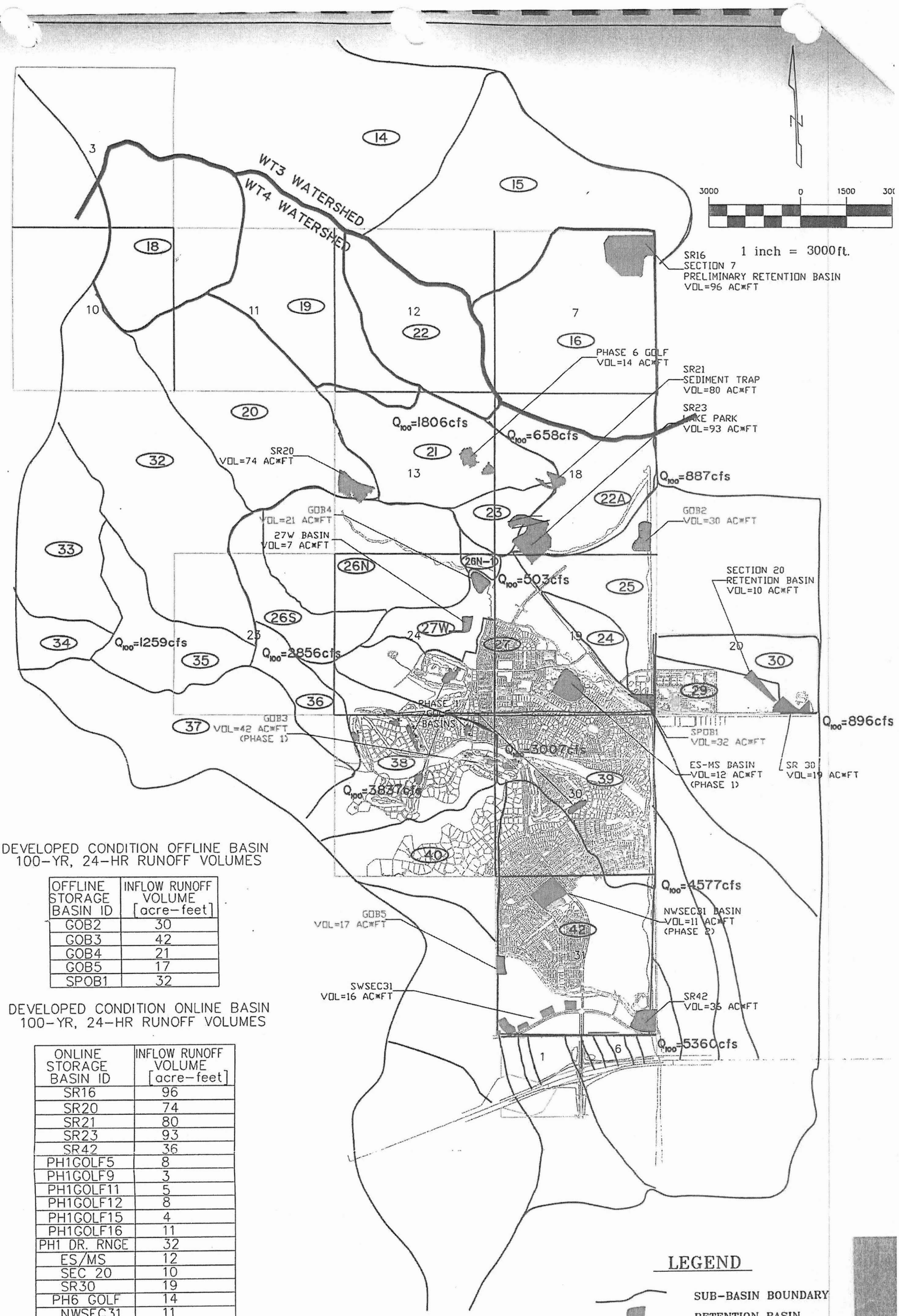
Cross Section for Irregular Channel

Project Description	
Worksheet	Verrado Ch
Flow Element	Irregular Ch
Method	Manning's F
Solve For	Discharge

Section Data		
Mannings Coefficient	0.036	
Slope	0.010000	ft/ft
Water Surface Elevation	9.00	ft
Elevation Range	to 15.00	
Discharge	11,779.11	cfs

Capacity of channel
11,779 cfs





DEVELOPED CONDITION OFFLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

OFFLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
GOB2	30
GOB3	42
GOB4	21
GOB5	17
SPOB1	32

DEVELOPED CONDITION ONLINE BASIN
100-YR, 24-HR RUNOFF VOLUMES

ONLINE STORAGE BASIN ID	INFLOW RUNOFF VOLUME [acre-feet]
SR16	96
SR20	74
SR21	80
SR23	93
SR42	36
PH1GOLF5	8
PH1GOLF9	3
PH1GOLF11	5
PH1GOLF12	8
PH1GOLF15	4
PH1GOLF16	11
PH1 DR. RNGE	32
ES/MS	12
SEC 20	10
SR30	19
PH6 GOLF	14
NWSEC31	11
SWSEC31	16
27W BASIN	7

LEGEND

SUB-BASIN BOUNDARY

RETENTION BASIN

SECTION LINES

DMB

PLATE 9
DEVELOPED CONDITION DRAINAGE PLAN
VERRADO
BUCKEYE, ARIZONA

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists and
Land Surveyors
(602) 335-8500

01/19/06
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W58

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Culvert Information from I-10 Plans

ID	# of Culverts	Size	Material/Type	Length (ft)	US Inv.	DS Inv.	Inv.	Slope (%)	Notes
28	1	30"	CMP	240			1131.95 @ WB CL	1.125	
29	1	30"	CMP	260			1127.92 @ WB CL	1.154	
30	1	36"	CMP	287			1123.34 @ WB CL	1.436	
31	2	36"	CMP	216			1111.72 @ WB CL	1.62	
32	2	42"	CMP	200			1098.70 @ WB CL	0.75	
33	2	36"	CMP	234	1097.35	1095	~~1094.32 @ WB CL~~	1.004	The elevations of the old plans don't match the elevations from the new plans from Verrado
34	1	48"	CMP	234			1092.43 @ WB CL	0.978	
35	1	48"	CMP	214			1090.88 @ WB CL	1.122	
36	1	48"	CMP	218			1091.30 @WB CL	0.78	
37	2	48"	CMP	230	1093.76	1089.79		1.726	
38	1	36"	CMP	250	1095.17	1092.36		1.124	
39	1	36"	CMP	342	1095.7	1092.58		0.912	
40	1	36"	CMP	72	1097.88	1097.33		0.764	
	1	36"	CMP	208			1091.55 @ WB CL	0.961	
	1	36"	CMP	146	1092.98	1091.56		0.973	
1	1	36"	CMP?	226	1098.33	1096.2		0.942	Where there is a ? in the material, the callout only says "pipe culvert"
	1	36"	CMP?	200			1092.43 @ WB CL	0.810	
	1	36"	CMP?	235	1092.51	1089.67		1.209	
2	1	36"	CMP?	152	1098.56	1095.8		1.816	
	1	36"	CMP?	210			1092.38 @ WB CL	1.200	
	1	36"	CMP?	182	1091.26	1089.05		1.214	
3	1	36"	CMP?	486	1093.39	1087.52		1.208	
4	1	36"	CMP?	314	1092.36	1086.91		1.736	
5	1	36"	CMP?	284	1090.22	1089.53		0.243	
6	1	36"	CMP?	280	1087.13	1085.86		0.454	
7	4	10'x8'	Concrete Box Culvert	227			1077.44 @ EB CL	1.11	
8	1	12'x12'	Concrete Box Culvert	193.5			1081.7 EB CL	1.9	**DISREGARD- THIS IS FOR EQUIPMENT TO PASS UNDER HIGHWAY**
9	2	42"	CMP	260			1083.64 EB CL	0.885	
10	2	36"	CMP	253			1082.89 EB CL	0.315	
11	1	36"	CMP	253			1083.8 EB CL	0.827	
12	2	36"	CMP	259			1082.7 EB CL	1.038	
13	1	36"	CMP	255			1082.63 EB CL	1.117	
14	2	36"	CMP	260			1081.02 EB CL	0.675	
15	2	36"	CMP	239			1080.74 EB CL	0.708	
16	2	36"	CMP	224			1081.49 EB CL	0.893	
17	2	36"	CMP	225			1079.16 EB CL	0.885	
18	3	36"	CMP	216			1077.94 EB CL	0.833	
19	5	10'x4'	Concrete Box Culvert	52			1065.28 @ RD CL	0.55	
	5	10'x4'	Concrete Box Culvert	51			1062.7 @ RD CL	0.55	
20	1	30"	CMP	544			**NA**	**NA**	**DISREGARD- THIS IS FOR STREET DRAINAGE**
21	5	10'x3'	Concrete Box Culvert	223			1052.7 @ HWY CL	0.8	
22	4	36"	RCP or CMP (smooth bore)	256			1036.77 @ HWY CL	0.675	
23	3	36"	RCP or CMP (smooth bore)	205			1032.45 @ HWY CL	0.49	
24	4	36"	RCP or CMP (smooth bore)	246			1019.75 @ HWY CL	0.195	
25	5	29"x45"	HERCP	269			1014.39 @ HWY CL	0.4032	
26	5	29"x45"	HERCP	228			1006.28 @ HWY CL	0.5405	Locations for 26 and 27 were taken from base files from I-10 Plans from Sarival to Dysart
27	1	30"	RGRCP						**DISREGARD- This was for irrigation purposes and has been abandoned**

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [31])

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS FOR VERRADO WAY TI

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [34])

Culvert Designer/Analyzer Report
W58

Analysis Component			
Storm Event	Design	Discharge	7,344.00 cfs

Peak Discharge Method: User-Specified			
Design Discharge	7,344.00 cfs	Check Discharge	0.00 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	1,084.00 ft

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	4-10 x 8 ft Box	5,027.27 cfs	1,098.23 ft	20.00 ft/s
Weir	Roadway	2,316.73 cfs	1,098.23 ft	N/A
Total	----------	7,344.00 cfs	1,098.23 ft	N/A

Culvert Designer/Analyzer Report
W58

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	1,098.23	ft	Discharge	5,027.27	cfs
Inlet Control HW Elev.	1,098.23	ft	Tailwater Elevation	1,084.00	ft
Outlet Control HW Elev.	1,095.81	ft	Control Type	Inlet Control	
Headwater Depth/Height	2.03				

Grades					
Upstream Invert	1,082.00	ft	Downstream Invert	1,080.00	ft
Length	200.00	ft	Constructed Slope	0.010000	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	6.29	ft
Slope Type	Steep		Normal Depth	5.72	ft
Flow Regime	Supercritical		Critical Depth	7.89	ft
Velocity Downstream	20.00	ft/s	Critical Slope	0.004372	ft/ft

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	10.00	ft
Section Size	10 x 8 ft		Rise	8.00	ft
Number Sections	4				

Outlet Control Properties					
Outlet Control HW Elev.	1,095.81	ft	Upstream Velocity Head	3.94	ft
Ke	0.50		Entrance Loss	1.97	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,098.23	ft	Flow Control	N/A	
Inlet Type	90 and 15° wingwall flares		Area Full	320.0	ft²
K	0.06100		HDS 5 Chart	8	
M	0.75000		HDS 5 Scale	2	
C	0.04000		Equation Form	1	
Y	0.80000				

Culvert Designer/Analyzer Report
W58

Component:Weir

Hydraulic Component(s): Roadway				
Discharge	2,316.73 cfs	Allowable HW Elevation	1,098.23 ft	
Roadway Width	15.00 ft	Overtopping Coefficient	2.89 US	
Low Point	1,095.00 ft	Headwater Elevation	1,098.23 ft	
Discharge Coefficient (Cr)	2.89	Submergence Factor (Kt)	1.00	
Tailwater Elevation	1,084.00 ft			

Sta (ft)	Elev. (ft)
100.00	1,101.00
231.23	1,099.00
390.18	1,097.00
573.84	1,095.00
581.23	1,095.00
609.57	1,097.00
616.79	1,098.00
624.35	1,101.00

Culvert Information from I-10 Plans

ID	# of Culverts	Size	Material/Type	Length (ft)	US Inv.	DS Inv.	Inv.	Slope (%)	Notes
28	1	30"	CMP	240			1131.95 @ WB CL	1.125	
29	1	30"	CMP	260			1127.92 @ WB CL	1.154	
30	1	36"	CMP	287			1123.34 @ WB CL	1.436	
31	2	36"	CMP	216			1111.72 @ WB CL	1.62	
32	2	42"	CMP	200			1098.70 @ WB CL	0.75	
33	2	36"	CMP	234	1097.35	1095	~~1094.32 @ WB CL~~	1.004	The elevations of the old plans don't match the elevations from the new plans from Verrado
34	1	48"	CMP	234			1092.43 @ WB CL	0.978	
35	1	48"	CMP	214			1090.88 @ WB CL	1.122	
36	1	48"	CMP	218			1091.30 @WB CL	0.78	
37	2	48"	CMP	230	1093.76	1089.79		1.726	
38	1	36"	CMP	250	1095.17	1092.36		1.124	
39	1	36"	CMP	342	1095.7	1092.58		0.912	
40	1	36"	CMP	72	1097.88	1097.33		0.764	
	1	36"	CMP	208			1091.55 @ WB CL	0.961	
	1	36"	CMP	146	1092.98	1091.56		0.973	
1	1	36"	CMP?	226	1098.33	1096.2		0.942	Where there is a ? in the material, the callout only says "pipe culvert"
	1	36"	CMP?	200			1092.43 @ WB CL	0.810	
	1	36"	CMP?	235	1092.51	1089.67		1.209	
2	1	36"	CMP?	152	1098.56	1095.8		1.816	
	1	36"	CMP?	210			1092.38 @ WB CL	1.200	
	1	36"	CMP?	182	1091.26	1089.05		1.214	
3	1	36"	CMP?	486	1093.39	1087.52		1.208	
4	1	36"	CMP?	314	1092.36	1086.91		1.736	
5	1	36"	CMP?	284	1090.22	1089.53		0.243	
6	1	36"	CMP?	280	1087.13	1085.86		0.454	
7	4	10'x8'	Concrete Box Culvert	227			1077.44 @ EB CL	1.11	
8	1	12'x12'	Concrete Box Culvert	193.5			1081.7 EB CL	1.9	**DISREGARD- THIS IS FOR EQUIPMENT TO PASS UNDER HIGHWAY**
9	2	42"	CMP	260			1083.64 EB CL	0.885	
10	2	36"	CMP	253			1082.89 EB CL	0.315	
11	1	36"	CMP	253			1083.8 EB CL	0.827	
12	2	36"	CMP	259			1082.7 EB CL	1.038	
13	1	36"	CMP	255			1082.63 EB CL	1.117	
14	2	36"	CMP	260			1081.02 EB CL	0.675	
15	2	36"	CMP	239			1080.74 EB CL	0.708	
16	2	36"	CMP	224			1081.49 EB CL	0.893	
17	2	36"	CMP	225			1079.16 EB CL	0.885	
18	3	36"	CMP	216			1077.94 EB CL	0.833	
19	5	10'x4'	Concrete Box Culvert	52			1065.28 @ RD CL	0.55	
	5	10'x4'	Concrete Box Culvert	51			1062.7 @ RD CL	0.55	
20	1	30"	CMP	544			**NA**	**NA**	**DISREGARD- THIS IS FOR STREET DRAINAGE**
21	5	10'x3'	Concrete Box Culvert	223			1052.7 @ HWY CL	0.8	
22	4	36"	RCP or CMP (smooth bore)	256			1036.77 @ HWY CL	0.675	
23	3	36"	RCP or CMP (smooth bore)	205			1032.45 @ HWY CL	0.49	
24	4	36"	RCP or CMP (smooth bore)	246			1019.75 @ HWY CL	0.195	
25	5	29"x45"	HERCP	269			1014.39 @ HWY CL	0.4032	
26	5	29"x45"	HERCP	228			1006.28 @ HWY CL	0.5405	Locations for 26 and 27 were taken from base files from I-10 Plans from Sarival to Dysart
27	1	30"	RGRCP						**DISREGARD- This was for irrigation purposes and has been abandoned**

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [31])

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS FOR VERRADO WAY TI

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [34])

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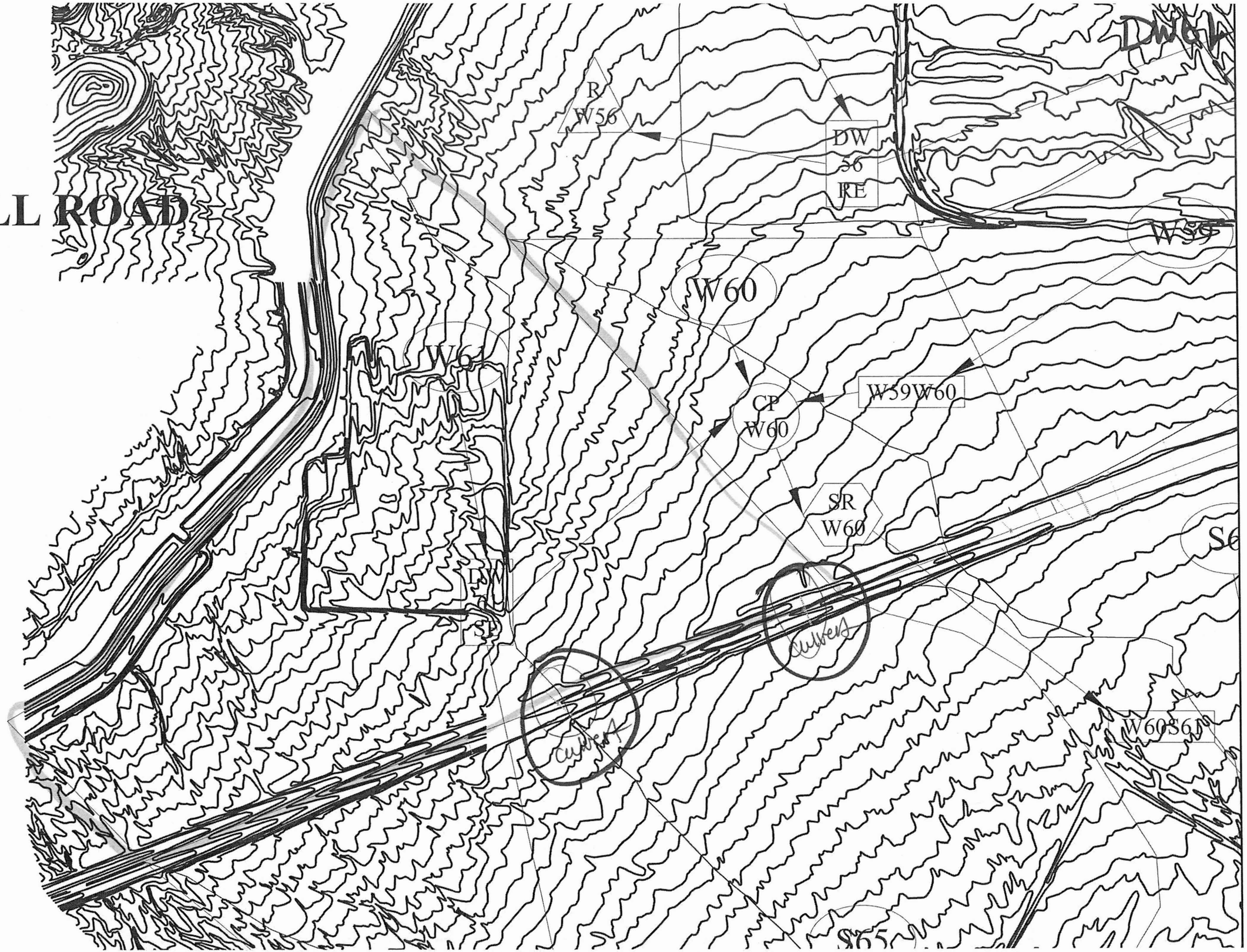
For information on this sub-basin, reference the hydrology model
Loop 303/White Tanks ADMPU Area Hydrologic Analysis

DW61

MCDOWELL ROAD



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Culvert Calculator Report
Double 36" CMP

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	110.00	ft	Headwater Depth/Height	3.33	
Computed Headwater Elev	110.00	ft	Discharge	125.15	cfs
Inlet Control HW Elev.	105.94	ft	Tailwater Elevation	99.00	ft
Outlet Control HW Elev.	110.00	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	100.00	ft	Downstream Invert	98.00	ft
Length	230.00	ft	Constructed Slope	0.008696	ft/ft

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	2.55	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	2.55	ft
Velocity Downstream	9.78	ft/s	Critical Slope	0.028316	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	3.00	ft
Section Size	36 inch		Rise	3.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	110.00	ft	Upstream Velocity Head	1.22	ft
Ke	0.90		Entrance Loss	1.10	ft

Inlet Control Properties					
Inlet Control HW Elev.	105.94	ft	Flow Control	N/A	
Inlet Type	Projecting		Area Full	14.1	ft²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

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Culvert Calculator Report
36" CMP

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	110.00	ft	Headwater Depth/Height	3.33	
Computed Headwater Elev	110.00	ft	Discharge	62.57	cfs
Inlet Control HW Elev.	105.94	ft	Tailwater Elevation	99.00	ft
Outlet Control HW Elev.	110.00	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	100.00	ft	Downstream Invert	98.00	ft
Length	230.00	ft	Constructed Slope	0.008696	ft/ft

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	2.55	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	2.55	ft
Velocity Downstream	9.78	ft/s	Critical Slope	0.028317	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	3.00	ft
Section Size	36 inch		Rise	3.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	110.00	ft	Upstream Velocity Head	1.22	ft
Ke	0.90		Entrance Loss	1.10	ft

Inlet Control Properties					
Inlet Control HW Elev.	105.94	ft	Flow Control	Submerged	
Inlet Type	Projecting		Area Full	7.1	ft²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

Culvert Information from I-10 Plans

ID	# of Culverts	Size	Material/Type	Length (ft)	US Inv.	DS Inv.	Inv.	Slope (%)	Notes
28	1	30"	CMP	240			1131.95 @ WB CL	1.125	
29	1	30"	CMP	260			1127.92 @ WB CL	1.154	
30	1	36"	CMP	287			1123.34 @ WB CL	1.436	
31	2	36"	CMP	216			1111.72 @ WB CL	1.62	
32	2	42"	CMP	200			1098.70 @ WB CL	0.75	
33	2	36"	CMP	234	1097.35	1095	~~1094.32 @ WB CL~~	1.004	The elevations of the old plans don't match the elevations from the new plans from Verrado
34	1	48"	CMP	234			1092.43 @ WB CL	0.978	
35	1	48"	CMP	214			1090.88 @ WB CL	1.122	
36	1	48"	CMP	218			1091.30 @WB CL	0.78	
37	2	48"	CMP	230	1093.76	1089.79		1.726	
38	1	36"	CMP	250	1095.17	1092.36		1.124	
39	1	36"	CMP	342	1095.7	1092.58		0.912	
40	1	36"	CMP	72	1097.88	1097.33		0.764	
	1	36"	CMP	208			1091.55 @ WB CL	0.961	
	1	36"	CMP	146	1092.98	1091.56		0.973	
1	1	36"	CMP?	226	1098.33	1096.2		0.942	Where there is a ? in the material, the callout only says "pipe culvert"
	1	36"	CMP?	200			1092.43 @ WB CL	0.810	
	1	36"	CMP?	235	1092.51	1089.67		1.209	
2	1	36"	CMP?	152	1098.56	1095.8		1.816	
	1	36"	CMP?	210			1092.38 @ WB CL	1.200	
	1	36"	CMP?	182	1091.26	1089.05		1.214	
3	1	36"	CMP?	486	1093.39	1087.52		1.208	
4	1	36"	CMP?	314	1092.36	1086.91		1.736	
5	1	36"	CMP?	284	1090.22	1089.53		0.243	
6	1	36"	CMP?	280	1087.13	1085.86		0.454	
7	4	10'x8'	Concrete Box Culvert	227			1077.44 @ EB CL	1.11	
8	1	12'x12'	Concrete Box Culvert	193.5			1081.7 EB CL	1.9	**DISREGARD- THIS IS FOR EQUIPMENT TO PASS UNDER HIGHWAY**
9	2	42"	CMP	260			1083.64 EB CL	0.885	
10	2	36"	CMP	253			1082.89 EB CL	0.315	
11	1	36"	CMP	253			1083.8 EB CL	0.827	
12	2	36"	CMP	259			1082.7 EB CL	1.038	
13	1	36"	CMP	255			1082.63 EB CL	1.117	
14	2	36"	CMP	260			1081.02 EB CL	0.675	
15	2	36"	CMP	239			1080.74 EB CL	0.708	
16	2	36"	CMP	224			1081.49 EB CL	0.893	
17	2	36"	CMP	225			1079.16 EB CL	0.885	
18	3	36"	CMP	216			1077.94 EB CL	0.833	
19	5	10'x4'	Concrete Box Culvert	52			1065.28 @ RD CL	0.55	
	5	10'x4'	Concrete Box Culvert	51			1062.7 @ RD CL	0.55	
20	1	30"	CMP	544			**NA**	**NA**	**DISREGARD- THIS IS FOR STREET DRAINAGE**
21	5	10'x3'	Concrete Box Culvert	223			1052.7 @ HWY CL	0.8	
22	4	36"	RCP or CMP (smooth bore)	256			1036.77 @ HWY CL	0.675	
23	3	36"	RCP or CMP (smooth bore)	205			1032.45 @ HWY CL	0.49	
24	4	36"	RCP or CMP (smooth bore)	246			1019.75 @ HWY CL	0.195	
25	5	29"x45"	HERCP	269			1014.39 @ HWY CL	0.4032	
26	5	29"x45"	HERCP	228			1006.28 @ HWY CL	0.5405	Locations for 26 and 27 were taken from base files from I-10 Plans from Sarival to Dysart
27	1	30"	RGRCP						**DISREGARD- This was for irrigation purposes and has been abandoned**

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [31])

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS FOR VERRADO WAY TI

INVERT AND SLOPES TAKEN FROM ADOT ASBUILT PLANS-- (I-10-2 [34])