VOLCANO HEIGHTS
MASTER DRAINAGE REPORT

GOLF COURSE ROAD TO KIMMICK DRIVE

APRIL 2010

Prepared For

City of Albuquerque
Albuquerque, NM

Prepared By

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HYDROLOGY
SECTION

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SECTION 1 – PURPOSE

The purpose of this drainage report is to establish the drainage flows for two drainage watersheds. First is the Paseo del Norte (PdN) Corridor between Golf Course Road and Kimmick Road. The second is the Universe Blvd south of the Grant line and Unser Blvd NW from The Trails Unit IV to the Proposed Boca Negra Dam. This report will analyze the ultimate flows from Paseo del Norte and Unser Blvds into Piedras Mercadas Arroyo and Unser and Universe Blvds into Boca Negra Dam.

1.1 Introduction

This report summarizes proposed hydrologic conditions; provides the design for fully developed peak flows; provides recommendations; and evaluates downstream drainage capacities.

1.2 Existing Reports

Existing drainage reports providing information used in this report include:

"La Cuentista Subdivision Drainage Report", dated November 2003, by Wilson & Company, Inc.

"Paseo del Norte Drainage Report", dated August 16, 2004, by Wilson & Company, Inc.

"Amendment to the Trails Unit II Drainage Master Plan", dated August 2007, by Wilson & Company, Inc.

Guidelines and recommendations from the above reports were incorporated into this drainage report where possible.

SECTION 2 - HYDROLOGIC ANALYSIS

The area includes two watersheds: The first watershed accepts storm water runoff between north of proposed Paseo del Norte and west of proposed Unser Blvd into the Piedras Marcadas Arroyo. The second watershed accepts storm water runoff from east and west of Universe Blvd. and east of Unser Blvd. south of Paseo del Norte Blvd. into the proposed Boca Negra Dam. See Figure 1 for Vicinity map.

2.1 Methodology

Hydrologic modeling for this report is performed using the 1997 version of The Arid-Lands Hydrologic Model (AHYMO) in accordance with the City of Albuquerque Development process Manual (DPM), section 22.2, December 1999 for the given 100-year, 6-hour storm event. The AHYMO input, summary and output files for the developed conditions are included in Appendix A. Hydraflow Storm Sewers 2005 software by Intelisolve was used to size the underground storm systems. See Appendix B for calculations summary.

2.2 Design Storm Precipitation

AHYMO was used to calculate proposed runoff. The rainfall values used were for the 1 and 6 - hour precipitation for a 100 year storm event. Rainfall values were obtained from precipitation frequency data server NOAA Atlas 14.

100	2.2	1.7

2.3 Land Treatments

Proposed land treatment percentages used in the AHYMO Computer model are based on the original Paseo del Norte drainage report dated August 2004. See Table 2 below for land treatment percentages.

Table 2: Land Treatment Percentages

Land Use	Type A	Type B	Type C	Type D
Residential/Town homes	0%	15%	35%	50%
Residential	0%	10%	40%	50%
Commercial	0%	10%	10%	80%
Open Space	100%	0%	0%	0%
Roadway	0%	10%	0%	90%

2.1 Existing and Proposed Conditions

2.4.1 Existing Conditions

The existing topography slopes generally from west to south and southeast. The downstream section of the storm drain system in Paseo del Norte is currently built. The existing storm drain system includes 2700 LF of 72" RCP which joins approximately 530 LF of 84" RCP. This system connects to an 84" RCP which discharges into an RCP box along with a pipe parallel to it. Flows then ultimately drain into the Piedras Marcadas Arroyo.

2.4.2 Proposed Conditions

The Unser and Paseo del Norte Blvds sub-basins have been modeled with 3 detention ponds. Pond 1 detains flows from sub-basins west of proposed Unser Blvd while Pond 2 detains flows from sub-basins between north of proposed Paseo del Norte and east of Unser Blvds. The outlet pipe from Pond 2 is connected into the existing 72" pipe. Flows detained from Ponds 1, 2 and 9 is added to the runoff from open space and other sub-basins north of Paseo del Norte which ultimately drain into the existing concrete culvert boxes discharging into the Piedras Marcadas

Arroyo. A small basin immediately north of proposed Paseo del Norte Blvd. and west of proposed Unser Blvd. drains into Pond 10 which is ultimately directed south and therefore separated from flows into Proposed Paseo del Norte Blvd.
Universe and Unser Blvds. sub-basins include 3 detention ponds with Pond 3 connected to the Unser Blvd. storm drain system and ultimately discharging into the proposed Boca Negra Dam. Flows generated east and west of Unser Blvd. below elevation 5339 are not part of proposed Unser Blvd. storm drain system. Flows generated in Ponds 4 and 5 which are located in SAD 228 connect to the storm drain system carrying the overflow from the Boca Negra Dam which is discharged into the Mariposa Arroyo.
Pond 6 is a shallow pond detaining flows generated in the sub-basin north of it which is then discharged south. Ponds 7 and 8 detain flows before discharging allowable flows into the Mariposa Arroyo. Refer to Plate 1 in Appendix B for pond locations. See Table 3 for Basin Summary.

BASIN	AREA (SQ.MI)	AREA (ACRE)	POND TREATMENT (%)				Q100 (CFS)	VOLUME (AC-FT)
			A	B	C	D		
BASINS DRAINING INTO POND-1 130 Ac								
K1	0.0238	15.23	0	10	10	80	55	2.17
K3	0.0148	9.47	0	10	10	80	34	1.35
PDN1	0.0196	12.51	0	10	0	90	37	1.89
K4	0.0196	12.54	0	10	10	80	45	1.79
ST11	0.0091	5.81	0	10	0	90	19	0.88
1	0.0132	8.47	0	10	15	75	27	0.97
2	0.0113	7.23	0	10	15	75	25	1.00
U1	0.0158	10.14	0	10	0	90	38	1.53
K2	0.0059	3.78	0	10	10	80	13	0.54
3	0.0151	9.66	0	10	15	75	34	1.33
E1	0.0118	7.52	0	15	35	50	24	0.86
*E2[1]	0.0128	8.21	0	15	35	50	57	0.94
U2	0.0242	15.49	0	10	0	90	45	2.34
F	0.0035	2.23	0	15	35	50	7	0.26
11A	0.0066	4.20	0	10	10	80	15	0.60
BASINS DRAINING INTO POND 9 35 Ac								
4A	0.0388	24.83	0	10	10	80	89	3.54
4B	0.0080	5.12	0	10	10	80	18	0.73
PDN2	0.0148	9.50	0	10	0	90	35	1.43

BASINS DRAINING INTO POND-2 310 Ac								
5	0.0275	17.62	0	10	10	80	63	2.51
7	0.0354	22.66	0	10	10	80	77	3.23
12B	0.0144	9.22	0	10	10	80	33	1.31
PDN3	0.0187	11.97	0	10	0	90	30	1.46
PDN4	0.0111	7.13	0	10	0	90	24	1.08
13	0.0626	40.06	0	10	10	80	139	5.70
6	0.0355	22.70	0	10	10	80	81	3.23
6A	0.0153	9.77	0	10	10	80	33	1.39
8	0.0198	12.67	0	10	10	80	45	1.80
9	0.0316	20.20	0	10	10	80	72	2.88
12A	0.0308	19.71	0	10	10	80	71	2.81
10	0.0567	36.29	0	10	10	80	118	5.17
ST1	0.0141	9.04	0	10	0	90	30	1.37
ST2	0.0109	7.00	0	10	0	90	23	1.06
11B	0.0553	35.37	0	10	0	90	113	5.04
ST3	0.0069	4.39	0	10	0	90	15	0.66
ST4	0.0077	4.94	0	10	0	90	16	0.75
11C	0.0332	21.23	0	10	10	80	76	3.02
BASINS DRAINING INTO PIEDRAS MARCADAS								
A	0.0351	22.46	0	15	35	50	61	2.58
PDN5	0.0198	12.66	0	10	0	90	47	1.92
B	0.0211	13.53	100	0	0	0	16	0.45
G	0.1032	66.05	100	0	0	0	79	2.20
PDN6	0.0185	11.82	0	10	0	90	44	1.79
F1	0.0204	13.08	0	60	40	0	28	0.78
H	0.3826	244.84	100	0	0	0	280	8.16

BASINS DRAINING INTO BOCA NEGRA DAM								
UNIVERSE BLVD								
P1	0.0313	20.00	25	26	27	22	44	1.52
P2	0.1094	70.02	0	25	25	50	151	7.85
P3	0.0515	32.96	0	25	25	50	63	3.70
UNSER BLVD								
T1	0.0890	56.96	0	10	40	50	147	6.62
M1	0.1381	88.38	0	10	40	50	232	10.26
*N1[2]	0.0097	6.19	0	10	40	50	145	6.05
N2	0.0246	15.74	0	10	40	50	50	1.83
*U0[3]	0.0233	14.91	0	10	40	50	49	2.37
M2-B	0.0201	21.79	0	10	40	50	41	1.49
BASIN DRAINING INTO BOCA NEGRA DAM OVERFLOW								
M2-A	0.1145	64.35	5	30	35	30	141	6.51
M3	0.1793	114.75	0	10	40	50	300	13.33
BASIN DRAINING INTO POND-6								
M3-1	0.0534	34.17	0	10	40	50	107	3.97
BASIN DRAINING INTO POND-7								
M4	0.0172	11.01	0	10	40	50	35	1.28
BASIN DRAINING INTO POND-8								
M5	0.1793	114.75	0	10	40	50	305	13.33

NOTES:

* DIVIDED FLOW

1 - 45 CFS FROM BASIN E2 DRAINS INTO CHAMISA STORM DRAIN (5 CFS/LOT)

2- 90 CFS DRAINS INTO LA CUENTISTA SUBDIVISION

3 - 19 CFS DRAINS INTO THE 48" OUTLET FROM BOCA NEGRA DAM

SECTION 3 – HYDRAULIC ANALYSIS

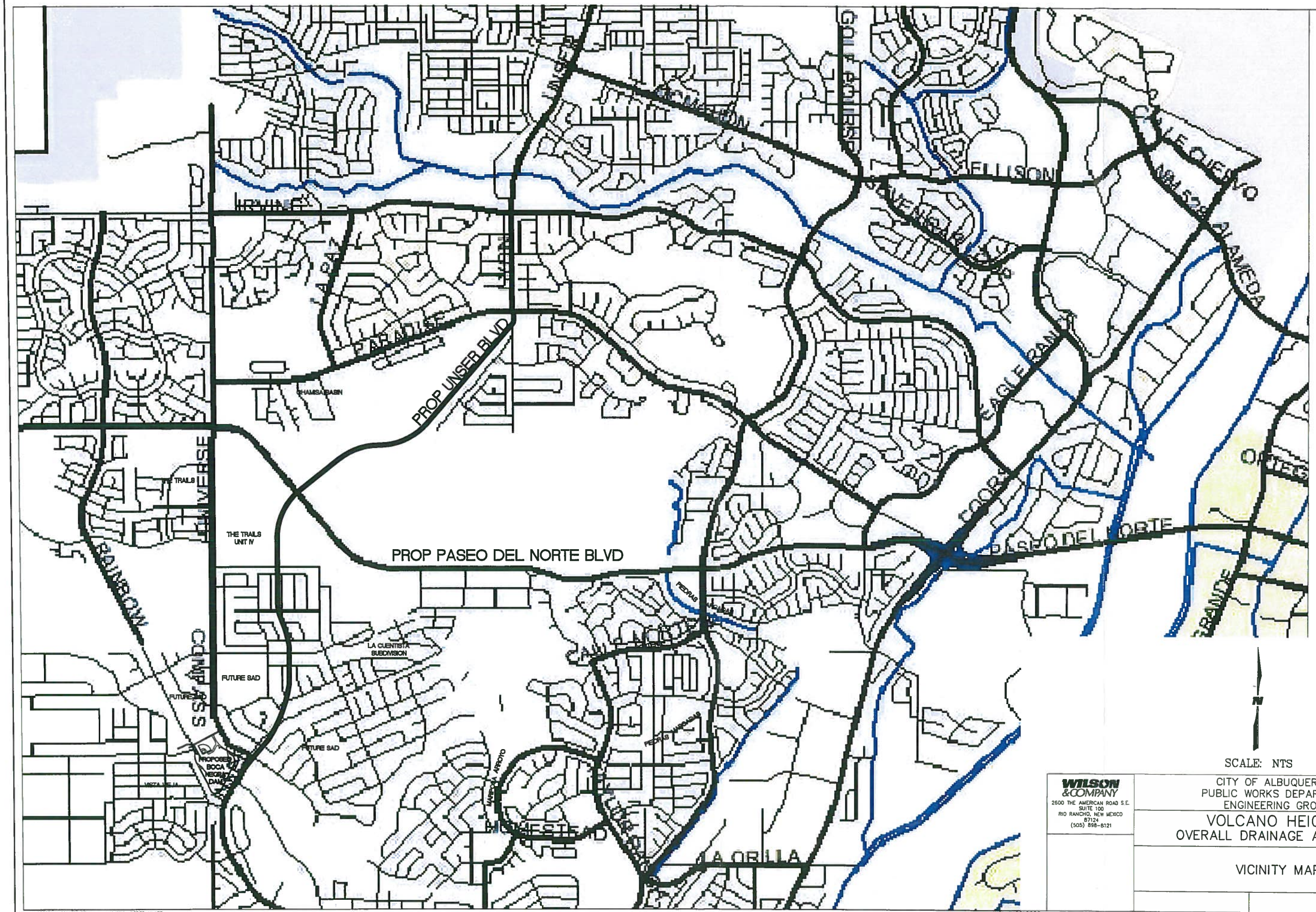
3.1 Storm Drain Analysis

Analyses for these systems were modeled using HydraFlow Storm Sewers 2005 by Intelisolve. The conceptual storm drain systems may be found on Plate 1 in Appendix B.

SECTION 4 - CONCLUSION AND RECOMMENDATIONS

Proposed storm drain facilities are designed to convey developed runoff. Pipe sizes are noted on Plate 1. Although the Paseo del Norte storm drain system works with the number of ponds shown on Plate 1, it is recommended that a detention pond upstream of Pond 2 be added to decrease flow amount draining into Pond 2 and reducing pipe sizes. The following is a summary of the 100 year design flows recommended to be used for the design of proposed Paseo del Norte and Unser Blvds.

Analysis Point	Location	Q100 (cfs)
AP1	PdN at the Petoglyph national Monument	625
AP2	PdN at Sub-Basin B Entry	647
AP3	PdN Xing of Piedras Marcadas	280
AP4	Piedras Marcadas Arroyo below PdN	821
AP5	The Trails at Proposed Unser Blvd	227
AP6	Proposed Unser Blvd at Rosa Parks	330
AP7	Universe Blvd at proposed Boca Negra Dam	239
AP8	Proposed Unser Blvd at SAD 228	439
AP9	Universe Blvd at Aluquerque Public School	176
AP10	Proposed Unser Blvd at Boca Negra Dam Overflow	80



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	VOLCANO HEIGHTS OVERALL DRAINAGE AREA MAP	
	VICINITY MAP	
		FIGURE 1

D:\PERSONAL\PDW\FIGURE Lsteg 4/16/2010 9:27:59 AM MST

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APPENDIX A

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -            - VERSION:  1997.02c     RUN DATE (MON/DAY/YR) =04/19/2010
INPUT FILE = C:\PERSONAL\PDN\AHYMO\PDN.WPD                                   USER NO.= AHYMO-C-9803c01UNMLIB-AH

                              FROM  TO               PEAK       RUNOFF              TIME TO   CFS      PAGE =   1
                 HYDROGRAPH    ID   ID      AREA    DISCHARGE   VOLUME    RUNOFF     PEAK     PER
COMMAND        IDENTIFICATION  NO.  NO.   (SQ MI)    (CFS)     (AC-FT)   (INCHES)  (HOURS)   ACRE      NOTATION

*S*******************************************************************************
*S
*S                100 YEAR 6 HOUR STORM - PROPOSED RUNOFF ANALYSIS
*S                RAINFALL DATA FROM NOAA ATLAS 14
*S
*S*******************************************************************************
START                                                                                        TIME=       .00
LOCATION                      BERNALILLO COUNTY
RAINFALL   TYPE= 1                                                                           RAIN6=     2.200
*S
*S
*S -----------------------------------------------------------------------------
*S SUB-BASINS NORTH AND WEST OF UNSER BLVD. TO POND 1,
*S ULTIMATELY DISCHARGING TO AP3
*S -----------------------------------------------------------------------------
*S COMPUTE BASIN "1" ************************************************************
COMPUTE NM HYD              1.10   -    1     .01324      26.81       .973    1.37733   1.500    3.164 PER IMP=  50.00
*S
*S COMPUTE BASIN "2" ************************************************************
COMPUTE NM HYD              1.20   -    2     .01130      25.46       .998    1.65533   1.500    3.520 PER IMP=  75.00
*S
*S ADD SUB-BASINS "1" AND "2" +++++++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                     1.30  1& 2  11    .02454      52.27      1.970    1.50532   1.500    3.328
*S
*S COMPUTE BASIN "U1" (UNSER TO PDN)*********************************************
COMPUTE NM HYD              1.40   -    4     .01580      37.55      1.530    1.81559   1.500    3.713 PER IMP=  90.00
*S
*S ADD SUB-BASINS "1", "2" AND "U1"  ++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                     1.50 11& 4  13    .04034      89.82      3.500    1.62684   1.500    3.479
*S
*S THE TRAILS UNIT 4 - NORTH BASINS
*S COMPUTE BASIN "K1" ***********************************************************
COMPUTE NM HYD              1.60   -    **    .02380      54.57      2.168    1.70813   1.500    3.583 PER IMP=  80.00
*S
*S COMPUTE BASIN "K3" ***********************************************************
COMPUTE NM HYD              1.70   -    **    .01480      33.94      1.348    1.70813   1.500    3.583 PER IMP=  80.00
*S
*S ADD SUB-BASINS "K1" AND "K3" +++++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                     1.80 **&**  **    .03860      88.51      3.516    1.70812   1.500    3.583
*S
*S COMPUTE BASIN "PDN1" *********************************************************
COMPUTE NM HYD              1.90   -    **    .01955      36.70      1.893    1.81559   1.600    2.933 PER IMP=  90.00
*S
*S ADD SUB-BASINS "K1", "K3" AND "PDN1" +++++++++++++++++++++++++++++++++++++++++
ADD HYD                     2.00 **&**  **    .05815     118.53      5.409    1.74424   1.500    3.185
*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3" AND "PDN1"+++++++++++++++++++++++
ADD HYD                     2.10 13&**  **    .09849     208.35      8.910    1.69616   1.500    3.305
*S
*S COMPUTE BASIN "K4" ***********************************************************

                              FROM  TO               PEAK       RUNOFF              TIME TO   CFS      PAGE =   2
                 HYDROGRAPH    ID   ID      AREA    DISCHARGE   VOLUME    RUNOFF     PEAK     PER
COMMAND        IDENTIFICATION  NO.  NO.   (SQ MI)    (CFS)     (AC-FT)   (INCHES)  (HOURS)   ACRE      NOTATION
```

```
COMPUTE NM HYD          2.20   -    **        .01959        44.92       1.785      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S COMPUTE BASIN "ST11" ********************************************************
COMPUTE NM HYD          2.30   -    **        .00908        18.70        .879      1.81559    1.550    3.218 PER IMP=  90.00
*S
*S ADD SUB-BASINS "K4" AND "ST11"  ++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 2.40 **&**  **        .02867        62.09       2.664      1.74214    1.500    3.384
*S
*S COMPUTE BASIN "K2" ********************************************************
COMPUTE NM HYD          2.41   -    **        .00590        13.54        .537      1.70813    1.500    3.585 PER IMP=  80.00
*S
*S
*S ADD SUB-BASINS "K4","ST11" AND "K2"  ++++++++++++++++++++++++++++++++++++++++
ADD HYD                 2.42 **&**  **        .03457        75.63       3.201      1.73633    1.500    3.418
*S
*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3", "PDN1","K4","ST11" AND "K2" +++
ADD HYD                 2.50 **&**  **        .13306       283.98      12.111      1.70659    1.500    3.335
*S
*S COMPUTE BASIN "3" ********************************************************
COMPUTE NM HYD          2.60   -     3        .01510        34.02       1.333      1.65533    1.500    3.520 PER IMP=  75.00
*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3", "PDN1","K4", "ST11" AND "3"++++
ADD HYD                 2.70 **& 3  14        .14816       318.00      13.444      1.70137    1.500    3.354
*S
*S COMPUTE BASIN "E1" ********************************************************
COMPUTE NM HYD          2.80   -    10        .01175        23.79        .863      1.37733    1.500    3.164 PER IMP=  50.00
*S
*S ADD SUB-BASINS "E1", "1", "2","3" AND "U1" ++++++++++++++++++++++++++++++++++
ADD HYD                 2.90 10&14  15        .15991       341.79      14.307      1.67756    1.500    3.340
*S
*S COMPUTE BASIN "E2" ********************************************************
COMPUTE NM HYD          3.00   -    11        .05560       101.65       4.084      1.37733    1.500    2.857 PER IMP=  50.00
*S
*S DIVIDE BASIN E2 TO ALLOW 5 CFS PER LOT TO THE CHAMISA STORM DRAIN ///////////
DIVIDE HYD            999.00   11   99        .04277        45.00       3.142      1.37733    1.400    1.644
                        3.10  and    2        .01283        56.65        .943      1.37733    1.500    6.898
*S
*S ADD SUB-BASINS "E2","E1", "1", "2","3" AND "U1" ++++++++++++++++++++++++++++++
ADD HYD                 3.20 15& 2  16        .17274       398.44      15.250      1.65525    1.500    3.604
*S COMPUTE BASIN "U2" (UNSER NORTH OF PDN)*************************************
*S
COMPUTE NM HYD          3.30   -    20        .02420        44.99       2.343      1.81558    1.600    2.905 PER IMP=  90.00
*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1" AND "U2"  ++++++++++++++++++++++++
ADD HYD                 3.40 20&16  17        .19694       434.13      17.593      1.67495    1.500    3.444
*S
*S COMPUTE BASIN "F" *********************************************************
*S
COMPUTE NM HYD          3.50   -    21        .00433         8.78        .318      1.37733    1.500    3.167 PER IMP=  50.00
*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1", "U2" AND "F"++++++++++++++++++++
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD		3.60	17&21	18	.20127	442.91	17.911	1.66855	1.500	3.438

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*S
*S COMPUTE BASIN "11A" *******************************************************
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```
*S
COMPUTE NM HYD          3.70   -    22        .00656        15.05        .598      1.70813    1.500    3.585 PER IMP=  80.00
*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1", "U2", "F" AND "11A"+++++++++++++
ADD HYD                 3.80 18&22  19        .20783       457.96      18.509      1.66980    1.500    3.443
*S
*S ROUTE THROUGH POND-1  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
ROUTE RESERVOIR        POND1   19   **        .20783       116.31      18.509      1.66979    1.950     .874 AC-FT=    9.631
*S ROUTE BASINS TO AP-3 THROUGH PNM BOUNDARY
*S
*S COMPUTE BASIN "F1" ************************************************************
*S
COMPUTE NM HYD          3.90   -    23        .02044        28.32        .777       .71281    1.500    2.165 PER IMP=    .00
*S
*S ADD SUB-BASINS "F1" AND DISCHARGE FROM POND-1 ++++++++++++++++++++++++
ADD HYD                 4.00 **&23  24        .22827       119.54      19.286      1.58410    1.850     .818
*S ROUTE THROUGH SUB-BASIN "H" IN CHANNEL "H" TO AP-3
ROUTE MCUNGE            4.10   24   25        .22827       119.39      19.219      1.57863    2.550     .817 CCODE =      .1
*S
*S COMPUTE BASIN "H" *************************************************************
*S
COMPUTE NM HYD          4.20   -    26        .38256       279.96       8.163       .40007    1.550    1.143 PER IMP=    .00
*S
*S ADD SUB-BASINS "F1", DISCHARGE FROM POND-1 AND "H"+++++(AP-3)+++++++++++++++
ADD HYD                 4.30 26&25  27        .61083       280.08      27.382       .84051    1.550     .716
*S
*S
*S ---------------------------------------------------------------------------
*S BASINS FLOWING SOUTH OF PASEO DEL NORTE BLVD
*S ---------------------------------------------------------------------------
*S
*S COMPUTE BASIN "4A" ************************************************************
*S
COMPUTE NM HYD          5.00   -    40        .03880        88.96       3.535      1.70813    1.500    3.582 PER IMP=  80.00
*S COMPUTE BASIN "4B" ************************************************************
*S
COMPUTE NM HYD          5.50   -    70        .00800        18.35        .729      1.70813    1.500    3.585 PER IMP=  80.00
*S
*S ADD SUB-BASINS "4A"AND "4B"++++++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 5.60 70&40  43        .04680       107.31       4.263      1.70812    1.500    3.583
*S
*S
*S COMPUTE BASIN "PDN2" ************************************************************
*S
COMPUTE NM HYD          5.30   -    60        .01480        35.17       1.433      1.81559    1.500    3.713 PER IMP=  90.00
*S
*S ADD SUB-BASINS "4A", "4B" AND "PDN2"++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 5.40 60&43  42        .06160       142.49       5.697      1.73394    1.500    3.614
*S
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION

PAGE = 4

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*S
*S ROUTE THROUGH POND-9  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
ROUTE RESERVOIR        POND9   42   **        .06160        62.08       5.697      1.73393    1.700    1.575 AC-FT=    2.675
*S
*S
*S ---------------------------------------------------------------------------
*S BASINS NORTH OF PASEO DEL NORTE BLVD TO POND 2
```

```
*S ----------------------------------------------------------------------
*S
*S COMPUTE BASIN "5" ***********************************************************
*S
COMPUTE NM HYD          5.10   -    50        .02753        63.12       2.508      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S COMPUTE BASIN "7" ***********************************************************
*S
COMPUTE NM HYD          5.70   -    80        .03540        76.53       3.225      1.70813    1.500    3.378 PER IMP=  80.00
*S
*S ADD SUB-BASINS "5" AND "7"+++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 5.80 80&50  44        .06293       139.65       5.733      1.70813    1.500    3.467
*S
*S COMPUTE BASIN "12B" *********************************************************
*S
COMPUTE NM HYD          5.90   -    90        .01440        33.03       1.312      1.70813    1.500    3.584 PER IMP=  80.00
*S
*S ADD SUB-BASINS "5", 7" AND "12B"++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 6.00 90&44  45        .07733       172.68       7.045      1.70812    1.500    3.489
*S
*S COMPUTE BASIN "PDN3" ********************************************************
*S
COMPUTE NM HYD          6.10   -    **        .01509        29.75       1.461      1.81558    1.550    3.081 PER IMP=  90.00
*S
*S ADD SUB-BASINS "5", "7", "12B" AND "PDN3"++++++++++++++++++++++++++++++++
ADD HYD                 6.20 **&45  46        .09242       198.77       8.506      1.72567    1.500    3.360
*S ADD INTERNAL STREET TO PDN SUB-BASINS
*S
*S COMPUTE BASIN "6A" **********************************************************
*S
COMPUTE NM HYD          7.00   -    60        .01527        32.63       1.391      1.70813    1.500    3.339 PER IMP=  80.00
*S
*S COMPUTE BASIN "6" ***********************************************************
*S
COMPUTE NM HYD          7.10   -    61        .03547        81.33       3.231      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S ADD SUB-BASINS "6" AND "6A"+++++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                 7.20 60&61  50        .05074       113.96       4.622      1.70812    1.500    3.509
*S
*S COMPUTE BASIN "8" ***********************************************************
*S
COMPUTE NM HYD          7.30   -    62        .01980        45.40       1.804      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S ADD SUB-BASINS "6","6A" AND "8"++++++++++++++++++++++++++++++++++++++++++++
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION

PAGE = 5

```
ADD HYD                 7.40 50&62  51        .07054       159.36       6.426      1.70812    1.500    3.530
*S
*S COMPUTE BASIN "9" ***********************************************************
*S
COMPUTE NM HYD          7.50   -    63        .03156        72.36       2.875      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S ADD SUB-BASINS "6","6A","8" AND "9"++++++++++++++++++++++++++++++++++++++++
ADD HYD                 7.60 51&63  52        .10210       231.72       9.301      1.70812    1.500    3.546
*S
*S ROUTE SUB-BASINS THROUGH PIPE IN UPPER HALF "ST1">>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE MCUNGE            7.51   52    1        .10210       227.67       9.302      1.70822    1.500    3.484 CCODE =      .2
```

```
*S
*S COMPUTE BASIN "12A" ************************************************************
*S
COMPUTE NM HYD          7.70   -    64        .03080        70.62       2.806      1.70813    1.500    3.583 PER IMP=  80.00
*S
*S ADD SUB-BASINS "6","6A","8","9" AND "12A"+++++++++++++++++++++++++++++++++++++
ADD HYD                 7.80  1&64  53        .13290       298.29      12.108      1.70819    1.500    3.507
*S
*S COMPUTE BASIN "10" *************************************************************
*S
COMPUTE NM HYD          7.90   -    65        .05670       118.49       5.165      1.70813    1.500    3.265 PER IMP=  80.00
*S
*S ADD SUB-BASINS "6","6A","8","9","12A" AND "10"++++++++++++++++++++++++++++++++
ADD HYD                 8.00 53&65  54        .18960       416.78      17.273      1.70817    1.500    3.435
*S
*S
*S COMPUTE BASIN "ST1" ************************************************************
*S
COMPUTE NM HYD          8.10   -    66        .01413        30.04       1.368      1.81559    1.550    3.321 PER IMP=  90.00
*S
*S ADD SUB-BASINS "6","6A","8","9","12A","10" AND "ST1"++++++++++++++++++++++++++
ADD HYD                 8.20 66&54  55        .20373       446.29      18.641      1.71562    1.500    3.423
*S
*S
*S DIVERT 276 CFS TO PDN//////////////////////////////////////////////
DIVIDE HYD             99.90   55   99        .15135       170.00      13.848      1.71562    1.400    1.755
                      661.10  and   **        .05238       276.29       4.793      1.71562    1.500    8.242
*S
*S
*S COMPUTE BASIN "ST2"************************************************************
*S
COMPUTE NM HYD          8.30   -    67        .01094        23.26       1.059      1.81559    1.550    3.322 PER IMP=  90.00
*S
*S ADD SUB-BASINS "6","6A","8","9","12A","10","ST1" AND "ST2"+++++++++++++++++++
ADD HYD                 8.40 **&67  56        .06332       299.14       5.852      1.73289    1.500    7.382
*S
*S
*S
*S ADD INTERNAL STREET SUB-BASINS TO PDN++++++++++++++++++++++++++++++++++++++++
ADD HYD                 8.41 56&46  57        .15574       497.91      14.358      1.72860    1.500    4.995
*S
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION

```
*S
*S
*S ROUTE SUB-BASINS THROUGH PIPE IN "PDN4">>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE MCUNGE            6.21   57    1        .15574       496.57      14.353      1.72801    1.550    4.982 CCODE =      .2
*S
*S
*S COMPUTE BASIN "PDN4" ************************************************************
*S
COMPUTE NM HYD          6.30   -    **        .01114        24.34       1.079      1.81559    1.500    3.414 PER IMP=  90.00
*S
*S ADD SUB-BASINS "4A","5","PDN2","4B","7","12B","PDN3" AND "PDN4"+++++++++++++
ADD HYD                 6.40 **& 1  47        .16688       520.38      15.432      1.73385    1.550    4.872
*S
*S COMPUTE BASIN "13" *************************************************************
```

```
*S
COMPUTE NM HYD          6.50   -    **        .06260       138.75       5.703      1.70813    1.500    3.463 PER IMP=  80.00
*S
*S ADD SUB-BASINS FROM PDN AND INTERNAL STREETS ++++++++++++++++++++++++++++++++
*S STORM DRAIN SYSTEM IN PDN TO POND2 +++++++++++++++++++++++++++++
*S
ADD HYD                 6.60 **&47  48        .22948       648.46      21.135      1.72684    1.550    4.415
*S
*S
*S ---------------------------------------------------------------------------
*S REMAINDER OF SUB-BASINS IN INTERNAL STREET TO POND 2
*S ---------------------------------------------------------------------------
*S COMPUTE BASIN "11B" ***********************************************************
*S
COMPUTE NM HYD          8.50   -    68        .05527       112.99       5.035      1.70813    1.550    3.194 PER IMP=  80.00
*S
*S ADD REST OF DIVIDED FLOWS FROM INTERNAL STREETS TO 11B+++++++++++++++++++++++
ADD HYD                 6.60 99&68  **        .20662       282.99      18.884      1.71362    1.550    2.140
*S
*S
*S COMPUTE BASIN "ST3" ***********************************************************
*S
COMPUTE NM HYD          8.70   -    69        .00686        14.59        .664      1.81559    1.550    3.323 PER IMP=  90.00
*S
*S ADD SUB-BASINS "11B" AND "ST3"+++++++++++++++++++++++++++++++++
ADD HYD                 8.80 **&69  58        .21348       297.58      19.548      1.71689    1.550    2.178
*S
*S COMPUTE BASIN "ST4" ***********************************************************
*S
COMPUTE NM HYD          8.90   -    **        .00772        16.42        .748      1.81559    1.550    3.323 PER IMP=  90.00
*S
*S ADD SUB-BASINS "11B","ST3" AND "ST4"+++++++++++++++++++++++++++++++++
ADD HYD                 9.00 58&**  59        .22120       314.00      20.295      1.72034    1.550    2.218
*S
*S COMPUTE BASIN "11C" ***********************************************************
*S
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	9.10	-	71	.03317	76.05	3.022	1.70813	1.500	3.583	PER IMP= 80.00


```
*S
*S ADD SUB-BASINS "11B","ST3","ST4" AND "11C"+++++++++++++++++++++++++++++++++
*S
ADD HYD                 9.20 71&59  60        .25437       387.34      23.317      1.71874    1.500    2.379
*S
*S
*S COMPUTE BASIN "A" *************************************************************
*S
COMPUTE NM HYD          9.30   -    72        .03509        61.13       2.578      1.37733    1.550    2.722 PER IMP=  50.00
*S ADD SUB-BASINS NORTH OF PDN AND "A" ++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                 9.40 72&48  73        .26457       709.60      23.712      1.68048    1.550    4.191
*S
*S
*S ADD ALL SUB-BASINS NORTH OF PDN,"A" AND SOUTH OF UNSER++++++++++++++++++++++
*S DISCHARGING TO POND 2
*S
ADD HYD                 9.50 73&60  74        .51894      1090.17      47.029      1.69924    1.550    3.282
*S
```

```
*S ROUTE THROUGH POND-2  >>>>>>>>>>>>>>>>>>>>>>>>>> (AP-1) >>>>>>>>>>>>>>>>>>>>>>
ROUTE RESERVOIR        POND2  74   **        .51894      620.23      47.029      1.69923    1.700     1.867 AC-FT=   17.873
*S
*S
*S ROUTE AP-1 THROUGH PIPE IN "PDN5" (AP-1 TO AP-2)>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE MCUNGE            9.60   **    1        .51894      614.85      47.027      1.69914    1.700     1.851 CCODE =      .2
*S COMPUTE BASIN "PDN5" *************************************************************
*S
COMPUTE NM HYD          9.70   -    75        .01978       47.01       1.915      1.81559    1.500     3.713 PER IMP=  90.00
*S
*S ADD ALL SUB-BASINS NORTH OF PDN, SOUTH OF UNSER,"A" AND "PDN5"+++++++++++++++
ADD HYD                 9.80  1&75  76        .53872      635.83      48.942      1.70342    1.700     1.844
*S COMPUTE BASIN "B" ****************************************************************
*S
COMPUTE NM HYD          9.90   -    77        .02114       15.85        .451       .40007    1.500     1.171 PER IMP=    .00
*S
*S ADD ALL SUB-BASINS N. OF PDN, S. UNSER,"A","PDN5"AND "B"++++++++(AP-2)+++++++
ADD HYD                10.00 76&77  78        .55986      642.64      49.393      1.65420    1.700     1.794
*S
*S ROUTE THROUGH "PDN6" IN PIPE (AP-2 TO AP4)>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE MCUNGE           10.10   78    1        .55986      640.19      49.323      1.65186    1.750     1.787 CCODE =      .1
*S
*S COMPUTE BASIN "G" ****************************************************************
*S
COMPUTE NM HYD         10.11   -    28        .10320       78.86       2.202       .40007    1.500     1.194 PER IMP=    .00
*S
*S
*S ADD ALL SUB-BASINS NORTH OF PDN, SOUTH OF UNSER,"A","B","PDN5"AND "G"++++++++
*S
ADD HYD                10.12 28& 1  **        .66306      664.48      51.525      1.45703    1.750     1.566
*S

                                FROM  TO                   PEAK       RUNOFF                 TIME TO    CFS       PAGE =   8
                  HYDROGRAPH     ID   ID        AREA     DISCHARGE    VOLUME      RUNOFF      PEAK      PER
COMMAND         IDENTIFICATION   NO.  NO.     (SQ MI)      (CFS)      (AC-FT)    (INCHES)   (HOURS)    ACRE       NOTATION

*S COMPUTE BASIN "PDN6" *************************************************************
*S
COMPUTE NM HYD         10.20   -    79        .01847       43.89       1.788      1.81559    1.500     3.713 PER IMP=  90.00
*S
*S ADD ALL SUB-BASINS TO "PDN6"++++++++++(AP-4)+++++++++++++++++++++++++++++++++
ADD HYD                10.30 **&79  80        .68153      681.63      53.314      1.46674    1.750     1.563
*S
*S
*S ADD FLOWS FROM AP-3 TO AP-4++++(PIEDRAS MARCADAS)+++++++++++++++++++++++++++
ADD HYD                10.40 27&80  81       1.29236      820.36      80.695      1.17075    1.700      .992
*S
*S ---------------------------------------------------------------------------
*S UNIVERSE STORM DRAIN TO BOCA NEGRA DAM
*S ---------------------------------------------------------------------------
*S
*S  COMPUTE STATE LAND OFFICE BASIN, P1 (SPLIT FROM SCHOOL SITE)****************
COMPUTE NM HYD           P2B   -    50        .03125       43.97       1.515       .90908    1.500     2.199 PER IMP=  22.00
*S
*S
*S ROUTE THROUGH PIPE IN UNIVERSE BLVD>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
ROUTE MCUNGE          TRSLO1   50   71        .03125       43.92       1.515       .90929    1.550     2.196 CCODE =      .2
*S
*S  BASIN P2 (HIGH SCHOOL) FROM UNIVERSE STORM DRAIN STUDY**********************
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```
COMPUTE NM HYD          P2A    -    72      .10940    151.48     7.853    1.34596   1.600   2.163 PER IMP=  50.00
*S ADD STATE LAND OFFICE & HIGH SCHOOL++++++++++++++++++++++++++++++++++++++++++++
ADD HYD                TR.HS 71&72  73      .14065    189.19     9.369    1.24893   1.600   2.102
*S
*S ROUTE THROUGH PIPE IN UNIVERSE BLVD>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
ROUTE MCUNGE           TRHS   73    74      .14065    176.34     9.288    1.23819   1.650   1.959 CCODE =     .2
*S
*S BASIN P3 (FUTURE SAD) FROM UNIVERSE STORM DRAIN STUDY*****************
COMPUTE NM HYD          P3     -    75      .05150     62.88     3.697    1.34596   1.700   1.908 PER IMP=  50.00
*S
*S ADD UNIVERSE SUB-BASINS TO BOCA NEGRA DAM++++++++++++++++++++++++++++++++++++++
ADD HYD                TR.HS 74&75  76      .19215    239.12    12.985    1.26707   1.650   1.944
*S
*S ----------------------------------------------------------------------------
*S UNSER BLVD SOUTH OF THE GRANT LINE TO BOCA NEGRA DAM
*S ----------------------------------------------------------------------------
*S
*S COMPUTE SUB-BASIN THE TRAILS UNIT 4****************************************
*S ASSUME AN AREA OF 10 ACRES FOR THE THREE PONDS IN THIS SUB-BASIN
*S
COMPUTE NM HYD         10.10   -    10      .08900    147.15     6.617    1.39400   1.550   2.583 PER IMP=  50.00
*S
*S RECALL POND K DISCHARGE FROM THE TRAILS SUBDIVISION**************************
*S
RECALL HYD         TRAIL.POND  -    70     1.01791     80.03    52.693     .97061   2.050    .123
*S
*S ADD POND K DISCHARGE FROM THE TRAILS SUBDIVISION++++++++++++++++++++++++++++
*S

                                FROM  TO                   PEAK        RUNOFF                TIME TO   CFS     PAGE =   9
                   HYDROGRAPH    ID   ID        AREA      DISCHARGE    VOLUME      RUNOFF     PEAK     PER
COMMAND          IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)      (AC-FT)    (INCHES)   (HOURS)   ACRE     NOTATION

ADD HYD                TR.HS 10&70  12     1.10691    227.17    59.310    1.00465   1.550    .321
*S
*S SAD 228 WEST OF UNSER BLVD
*S
*S COMPUTE SUB-BASIN M1 - WEST OF UNSER*******************************************
COMPUTE NM HYD         10.20   -    13      .13800    232.23    10.260    1.39400   1.550   2.629 PER IMP=  50.00
*S
*S ROUTE SUB-BASIN M1 THROUGH POND-3>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR        POND3  13    **      .13800     98.25    10.260    1.39399   1.850   1.112 AC-FT=    4.456
*S
*S
*S ADD BASINS M1 AND TRAILS UNIT IV+++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                10.30 12&**  14     1.24491    285.40    69.570    1.04781   1.600    .358
*S
*S COMPUTE SUB-BASIN N1 - EAST OF UNSER*******************************************
COMPUTE NM HYD         10.40   -    15      .08140    144.92     6.052    1.39400   1.550   2.782 PER IMP=  50.00
*S
*S
*S DIVIDE BASIN N1 FOR ALLOWABLE EXISTING FLOWS THROUGH LA CUENTISTA //////////
DIVIDE HYD             10.50  15     9      .07173     90.00     5.333    1.39399   1.450   1.960
                       10.60 and    16      .00967     54.92      .719    1.39399   1.550   8.878
*S
*S ADD SUB-BASINS M1 AND N1(DIVIDED)++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                10.70 16&14  17     1.25457    330.48    70.288    1.05048   1.550    .412
*S
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```
*S COMPUTE SUB-BASIN N2 - EAST OF UNSER********************************************
COMPUTE NM HYD          10.80    -     18        .02460       50.47       1.829       1.39400    1.500     3.206 PER IMP=   50.00
*S
*S ADD SUB-BASINS "N1", "M1" AND N2++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                 10.90 18&17  19       1.27917      375.01      72.117       1.05709    1.550      .458
*S
*S
*S COMPUTE SUB-BASIN UNSER*****************************************************
COMPUTE NM HYD          11.10    -     20        .03190       48.80       2.372       1.39400    1.600     2.390 PER IMP=   50.00
*S
*S
*S DIVIDE SUB BASIN UNSER- SEPARATE BYPASS FLOWS FROM BOCA NEGRA DAM////////////
*S
DIVIDE HYD              30.10   20    30        .02273       19.00       1.690       1.39398    1.450     1.306
                        30.20  and    31        .00917       29.80        .681       1.39398    1.600     5.080
*S
*S ADD SUB-BASINS EAST AND WEST OF UNSER++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                 11.20 31&19  21       1.28834      402.10      72.799       1.05948    1.550      .488
*S
*S
*S COMPUTE SUB-BASIN M2-A - WEST OF UNSER****************************************
COMPUTE NM HYD          11.30    -     22        .11450      140.83       6.511       1.06618    1.600     1.922 PER IMP=   28.57
*S

                                 FROM  TO                   PEAK       RUNOFF                 TIME TO    CFS        PAGE =  10
                  HYDROGRAPH      ID   ID         AREA     DISCHARGE   VOLUME      RUNOFF      PEAK      PER
COMMAND         IDENTIFICATION    NO.  NO.       (SQ MI)     (CFS)     (AC-FT)    (INCHES)   (HOURS)    ACRE        NOTATION

*S
*S ROUTE SUB-BASIN M2-A THROUGH POND-4>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR         POND4   22    **        .11450       24.80       6.508       1.06573    2.200      .338 AC-FT=      4.263
*S
*S COMPUTE SUB-BASIN M2-B - WEST OF UNSER****************************************
COMPUTE NM HYD          11.40    -     24        .02010       40.89       1.494       1.39400    1.500     3.179 PER IMP=   50.00
*S
*S
*S ADD ALL UNSER BLVD SUB-BASINS TO BOCA NEGRA DAM
*S
ADD HYD                 11.50 21&24  25       1.30844      438.65      74.293       1.06462    1.550      .524
*S
*S SAD 228 EAST OF UNSER BLVD
*S
*S COMPUTE SUB-BASIN M3 - EAST OF UNSER******************************************
COMPUTE NM HYD          11.70    -     26        .17930      300.48      13.330       1.39400    1.550     2.618 PER IMP=   50.00
*S
*S
*S ROUTE SUB-BASIN M3 THROUGH POND-5>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR         POND5   26    **        .17930       49.70      13.330       1.39399    2.150      .433 AC-FT=      8.441
*S
*S
*S
*S ADD ROUTED FLOWS FROM PONDS 4 AND 5+++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                 11.80 **&**  27        .29380       74.50      19.838       1.26606    2.200      .396
*S
*S
*S ADD ROUTED FLOWS FROM POND-4, POND-5 AND 19 CFS UNSER BLVD BYPASS++++++++++++
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```
*S
ADD HYD               11.90 27&30  29        .31653         89.96     21.528      1.27525   1.950     .444
*S
*S
*S COMPUTE SUB-BASIN M4 - SOUTH OF LA CUENTISTA SUBD.*****************************
COMPUTE NM HYD        12.20   -    **        .01720         35.30      1.279      1.39400   1.500    3.206 PER IMP=   50.00
*S
*S
*S ROUTE SUB-BASIN M4 THROUGH POND-7 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR       POND7   **   **        .01720          6.06      1.279      1.39398   2.050     .551 AC-FT=      .813
*S
*S
*S COMPUTE SUB-BASIN M5 - SOUTH OF LA CUENTISTA SUBD.*****************************
COMPUTE NM HYD        12.30   -    **        .07078        121.65      5.262      1.39400   1.550    2.686 PER IMP=   50.00
*S
*S
*S ROUTE SUB-BASIN M5 THROUGH POND-8 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR       POND8   **   **        .07078         44.79      5.262      1.39399   1.850     .989 AC-FT=     2.388
*S

                              FROM  TO                 PEAK        RUNOFF               TIME TO   CFS       PAGE =  11
                  HYDROGRAPH  ID    ID      AREA     DISCHARGE     VOLUME     RUNOFF     PEAK     PER
COMMAND       IDENTIFICATION  NO.   NO.    (SQ MI)     (CFS)       (AC-FT)   (INCHES)   (HOURS)   ACRE      NOTATION

*S
*S
*S COMPUTE SUB-BASIN M3-1 - EAST OF UNSER*****************************************
COMPUTE NM HYD        13.30   -    **        .05339        106.92      3.969      1.39400   1.500    3.129 PER IMP=   50.00
*S
*S
*S ROUTE SUB-BASIN M3-1 THROUGH POND-6 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR       POND6   **   **        .05339         39.79      3.918      1.37601   1.750    1.164 AC-FT=     2.095
*S
*S
*S
FINISH
```

```
* PASEO DEL NORTE DRAINAGE ANALYSIS
* WILSON & COMPANY PROJECT 08-400-104-00
* DEVELOPED CONDITIONS MODEL
* 100 YR 6 HR STORM EVENT
* DATE: April 2010
* FILE: X:\Public\PROJECTS\X3210022\Drainage Report\DOCS\AHYMO\PDN.WPD

*S*******************************************************************************
*S
*S      100 YEAR 6 HOUR STORM - PROPOSED RUNOFF ANALYSIS
*S      RAINFALL DATA FROM NOAA ATLAS 14
*S
*S*******************************************************************************

START           0.0 HOURS
LOCATION        BERNALILLO COUNTY
RAINFALL        TYPE=1  RAIN QUARTER=0.0 IN     RAIN ONE=1.70 IN
                RAIN SIX=2.20 IN        RAIN DAY=0 IN   DT=0.05 HR


*S
*S
*S ---------------------------------------------------------------------------
*S SUB-BASINS NORTH AND WEST OF UNSER BLVD. TO POND 1,
*S ULTIMATELY DISCHARGING TO AP3
*S ---------------------------------------------------------------------------

*S COMPUTE BASIN "1" ******************************************************************
*

COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=275 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD  ID=1    HYD NO=1.1      DA=0.01324 SQ MI
                PER A=0   PER B=15  PER C=35   PER D=50
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=1    CODE=1
*S

*S COMPUTE BASIN "2" ******************************************************************
*
COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=280 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD  ID=2    HYD NO=1.2      DA=0.0113 SQ MI
                PER A=0   PER B=10  PER C=15   PER D=75
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=2    CODE=1

*S
*S ADD SUB-BASINS "1" AND "2" ++++++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=11   HYD NO=1.3      ID I=1  ID II=2
PRINT HYD       ID=11   CODE=1
*S

*S COMPUTE BASIN "U1" (UNSER TO PDN)*****************************************************
*
COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=280 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD  ID=4    HYD NO=1.4      DA=0.0158 SQ MI
                PER A=0   PER B=10  PER C=0   PER D=90
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=4    CODE=1

*S
*S ADD SUB-BASINS "1", "2" AND "U1"  ++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=13   HYD NO=1.5      ID I=11 ID II=4
PRINT HYD       ID=13   CODE=1
*S
```

```
*S THE TRAILS UNIT 4 - NORTH BASINS
*S COMPUTE BASIN "K1" ********************************************************************
*

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=600 FT  SLOPE=0.02   K=2.0
                 LENGTH=100 FT  SLOPE=0.02   K=3.0

COMPUTE NM HYD   ID=200  HYD NO=1.6      DA=0.0238 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=200  CODE=1

*S
*S COMPUTE BASIN "K3" ********************************************************************

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=600 FT  SLOPE=0.020   K=2.0
                 LENGTH=100 FT  SLOPE=0.020   K=3.0

COMPUTE NM HYD   ID=201  HYD NO=1.7      DA=0.0148 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=201  CODE=1

*S
*S ADD SUB-BASINS "K1" AND "K3" ++++++++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=202  HYD NO=1.8      ID I=200        ID II=201
PRINT HYD        ID=202  CODE=1

*S
*S COMPUTE BASIN "PDN1" ******************************************************************
*

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=2510 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD   ID=203  HYD NO=1.9      DA=0.01955 SQ MI
                 PER A=0   PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=203  CODE=1

*S
*S ADD SUB-BASINS "K1", "K3" AND "PDN1" ++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=204  HYD NO=2.0      ID I=202        ID II=203
PRINT HYD        ID=204  CODE=1

*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3" AND "PDN1"++++++++++++++++++++++++++++++

ADD HYD          ID=205  HYD NO=2.1      ID I=13 ID II=204
PRINT HYD        ID=205  CODE=1

*S
*S COMPUTE BASIN "K4" ********************************************************************

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=590 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD   ID=206  HYD NO=2.2      DA=0.01959 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=206  CODE=1

*S
*S COMPUTE BASIN "ST11" ******************************************************************
*

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
```

```
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=1730 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD  ID=207  HYD NO=2.3      DA=0.00908 SQ MI
                PER A=0   PER B=10  PER C=0   PER D=90
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=207  CODE=1

*S
*S ADD SUB-BASINS "K4" AND "ST11"  ++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=208  HYD NO=2.4      ID I=206        ID II=207
PRINT HYD       ID=208  CODE=1
*S
*S COMPUTE BASIN "K2" ********************************************************************

COMPUTE LT TP   LCODE=1 NK=1 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7

COMPUTE NM HYD  ID=209  HYD NO=2.41     DA=0.0059 SQ MI
                PER A=0   PER B=10  PER C=10   PER D=80
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=209  CODE=1

*S
*S
*S ADD SUB-BASINS "K4","ST11" AND "K2"  ++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=210  HYD NO=2.42     ID I=208        ID II=209
PRINT HYD       ID=210  CODE=1
*S
*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3", "PDN1","K4","ST11" AND "K2" ++++++++++++++++++++++++++

ADD HYD         ID=211  HYD NO=2.5      ID I=210        ID II=205
PRINT HYD       ID=211  CODE=1

*S
*S COMPUTE BASIN "3" *********************************************************************
*

COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=470 FT  SLOPE=0.020   K=2.0

COMPUTE NM HYD  ID=3    HYD NO=2.6      DA=0.0151 SQ MI
                PER A=0   PER B=10  PER C=15   PER D=75
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=3    CODE=1

*S
*S ADD SUB-BASINS "1", "2", "U1" AND "K1", "K3", "PDN1","K4", "ST11" AND "3"+++++++++++++++++

ADD HYD         ID=14   HYD NO=2.7      ID I=211        ID II=3
PRINT HYD       ID=14   CODE=1

*S
*S COMPUTE BASIN "E1" ********************************************************************
*
COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.030  K=0.7
                LENGTH=1060 FT  SLOPE=0.030   K=2.0

COMPUTE NM HYD  ID=10   HYD NO=2.8      DA=0.01175 SQ MI
                PER A=0   PER B=15  PER C=35   PER D=50
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=10   CODE=1

*S
*S ADD SUB-BASINS "E1", "1", "2","3" AND "U1" ++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=15   HYD NO=2.9      ID I=10 ID II=14
PRINT HYD       ID=15   CODE=1

*S
```

```
*S COMPUTE BASIN "E2" ******************************************************************
*
COMPUTE LT TP   LCODE=1 NK=3 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.030  K=0.7
                LENGTH=600 FT  SLOPE=0.030  K=2.0
                LENGTH=1800 FT  SLOPE=0.030   K=3.0

COMPUTE NM HYD  ID=11   HYD NO=3.0      DA=0.0556 SQ MI
                PER A=0   PER B=15  PER C=35   PER D=50
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=11   CODE=1

*S
*S DIVIDE BASIN E2 TO ALLOW 5 CFS PER LOT TO THE CHAMISA STORM DRAIN ////////////////////

DIVIDE HYD      ID=11   Q=45    ID I=99 HYD=999
                                ID II=2 HYD=3.1

PRINT HYD       ID=99   CODE=1
PRINT HYD       ID=2    CODE=1

*S
*S ADD SUB-BASINS "E2","E1", "1", "2","3" AND "U1" ++++++++++++++++++++++++++++++++++++++++

ADD HYD         ID=16   HYD NO=3.2      ID I=15 ID II=2
PRINT HYD       ID=16   CODE=1

*S COMPUTE BASIN "U2" (UNSER NORTH OF PDN)*****************************************************
*S

COMPUTE LT TP   LCODE=1 NK=3 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.02  K=0.7
                LENGTH=600 FT  SLOPE=0.02   K=2.0
                LENGTH=2550 FT  SLOPE=0.02   K=3.0

COMPUTE NM HYD  ID=20   HYD NO=3.3      DA=0.0242 SQ MI
                PER A=0   PER B=10  PER C=0   PER D=90
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=20   CODE=1

*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1" AND "U2"  ++++++++++++++++++++++++++

ADD HYD         ID=17   HYD NO=3.4      ID I=20 ID II=16
PRINT HYD               ID=17   CODE=1

*S
*S COMPUTE BASIN "F" *******************************************************************
*S

COMPUTE LT TP   LCODE=1 NK=1 ISLOPE=-1
                LENGTH=320 FT  SLOPE=0.020  K=0.7

COMPUTE NM HYD  ID=21   HYD NO=3.5      DA=0.00433 SQ MI
                PER A=0   PER B=15  PER C=35   PER D=50
                TP=0.0  MASS RAIN=-1

PRINT HYD       ID=21   CODE=1

*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1", "U2" AND "F"++++++++++++++++++++++++++

ADD HYD         ID=18   HYD NO=3.6      ID I=17 ID II=21
PRINT HYD       ID=18   CODE=1

*S
*S COMPUTE BASIN "11A" *****************************************************************
*S

COMPUTE LT TP   LCODE=1 NK=2 ISLOPE=-1
                LENGTH=400 FT  SLOPE=0.020  K=0.7
                LENGTH=80 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD  ID=22   HYD NO=3.7      DA=0.00656 SQ MI
                PER A=0   PER B=10  PER C=10   PER D=80
                TP=0.0  MASS RAIN=-1
```

```
PRINT HYD        ID=22    CODE=1

*S
*S ADD SUB-BASINS "E1","E1", "1", "2","3","U1", "U2", "F" AND "11A"+++++++++++++++++++++++

ADD HYD          ID=19    HYD NO=3.8      ID I=18 ID II=22
PRINT HYD        ID=19    CODE=1


*S
*S ROUTE THROUGH POND-1  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

ROUTE RESERVOIR          ID=220   HYD=POND1        INFLOW ID=19 CODE=10
                         OUTFLOW(CFS)    STORAGE(AC-FT)   ELEV(FT)
                                 0               0          5314
                                 40              2.0        5316
                                 60              4.0        5318
                                 80              6.0        5320
                                 100             8.0        5322
                                 120             10.0       5324

PRINT HYD        ID=220   CODE=10

*S ROUTE BASINS TO AP-3 THROUGH PNM BOUNDARY
*S
*S COMPUTE BASIN "F1" ***********************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=1 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7

COMPUTE NM HYD   ID=23    HYD NO=3.9      DA=0.02044 SQ MI
                 PER A=0    PER B=60  PER C=40   PER D=0
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=23    CODE=1

*S
*S ADD SUB-BASINS "F1" AND DISCHARGE FROM POND-1 ++++++++++++++++++++++

ADD HYD          ID=24    HYD NO=4.0      ID I=220        ID II=23
PRINT HYD        ID=24    CODE=1


*S ROUTE THROUGH SUB-BASIN "H" IN CHANNEL "H" TO AP-3

COMPUTE RATING CURVE     CID=1    VS NO=1 NO SEGS=1
                         MIN ELEV=0       MAX ELEV=4.50
                         CH SLOPE=0.020  FP SLOPE=0.020
                         N=0.038          DIST=52.0
                         DIST     ELEV    DIST     ELEV
                         0.0      5.0     6.0      0.0
                         46.0     0.0     52.0     5.0

ROUTE MCUNGE             ID=25    HYD NO=4.1       INFLOW ID=24
                         DT=0.0  L=6500 FT        NS=0     SLOPE=0.020
                         MATCODE=0        REGCODE=0        CCODE=0 MM CODE=0

PRINT HYD        ID=25    CODE=1

*S
*S COMPUTE BASIN "H" ************************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.040  K=0.7
                 LENGTH=2100 FT  SLOPE=0.060  K=2.0
                 LENGTH=4000 FT  SLOPE=0.060  K=3.0

COMPUTE NM HYD   ID=26    HYD NO=4.2      DA=0.38256 SQ MI
                 PER A=100   PER B=0  PER C=0    PER D=0
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=26    CODE=1

*S
*S ADD SUB-BASINS "F1", DISCHARGE FROM POND-1 AND "H"+++++(AP-3)+++++++++++++++++++++

ADD HYD          ID=27    HYD NO=4.3      ID I=26 ID II=25
```

```
PRINT HYD        ID=27    CODE=1
*S
*S
*S ------------------------------------------------------------------------------
*S BASINS FLOWING SOUTH OF PASEO DEL NORTE BLVD
*S ------------------------------------------------------------------------------

*S
*S COMPUTE BASIN "4A" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=760 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=40    HYD NO=5.0      DA=0.0388 SQ MI
                 PER A=0    PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=40    CODE=1

*S COMPUTE BASIN "4B" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=410 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=70    HYD NO=5.5      DA=0.0080 SQ MI
                 PER A=0    PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=70    CODE=1

*S
*S ADD SUB-BASINS "4A"AND "4B"++++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=43    HYD NO=5.6      ID I=70 ID II=40
PRINT HYD        ID=43    CODE=1
*S
*S

*S COMPUTE BASIN "PDN2" ***********************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=750 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=60    HYD NO=5.3      DA=0.0148 SQ MI
                 PER A=0    PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=60    CODE=1


*S
*S ADD SUB-BASINS "4A", "4B" AND "PDN2"+++++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=42    HYD NO=5.4      ID I=60 ID II=43
PRINT HYD        ID=42    CODE=1

*S

*S

*S ROUTE THROUGH POND-9  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

ROUTE RESERVOIR            ID=421  HYD=POND9       INFLOW ID=42 CODE=10
                           OUTFLOW(CFS)     STORAGE(AC-FT)  ELEV(FT)
                                   0               0         0
                                   5               1         1
                                   10              2         2
                                   64              2.7       5


PRINT HYD        ID=421   CODE=10
*S
*S
```

```
*S ---------------------------------------------------------------------------
*S BASINS NORTH OF PASEO DEL NORTE BLVD TO POND 2
*S ---------------------------------------------------------------------------
*S
*S COMPUTE BASIN "5" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=650 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=50   HYD NO=5.1      DA=0.02753 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=50   CODE=1

*S

*S COMPUTE BASIN "7" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=1150 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=80   HYD NO=5.7      DA=0.0354 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=80   CODE=1

*S
*S ADD SUB-BASINS "5" AND "7"+++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=44   HYD NO=5.8      ID I=80 ID II=50
PRINT HYD        ID=44   CODE=1

*S
*S COMPUTE BASIN "12B" **********************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=800 FT  SLOPE=0.020  K=2.0

COMPUTE NM HYD   ID=90   HYD NO=5.9      DA=0.0144 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=90   CODE=1

*S
*S ADD SUB-BASINS "5", 7" AND "12B"+++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=45   HYD NO=6.0      ID I=90 ID II=44
PRINT HYD        ID=45   CODE=1

*S
*S COMPUTE BASIN "PDN3" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=500 FT  SLOPE=0.020  K=2.0
                 LENGTH=2130 FT  SLOPE=0.020  K=3.0

COMPUTE NM HYD   ID=100  HYD NO=6.1      DA=0.01509 SQ MI
                 PER A=0   PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=100  CODE=1

*S
*S ADD SUB-BASINS "5", "7", "12B" AND "PDN3"++++++++++++++++++++++++++++++++

ADD HYD          ID=46   HYD NO=6.2      ID I=100        ID II=45
PRINT HYD        ID=46   CODE=1
```

```
*S ADD INTERNAL STREET TO PDN SUB-BASINS
*S

*S COMPUTE BASIN "6A" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.020  K=0.7
                 LENGTH=500 FT  SLOPE=0.020  K=2.0
                 LENGTH=1040 FT  SLOPE=0.020  K=3.0

COMPUTE NM HYD   ID=60   HYD NO=7.0      DA=0.01527 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=60   CODE=1

*S
*S COMPUTE BASIN "6" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=600 FT  SLOPE=0.02  K=2.0
                 LENGTH=150 FT  SLOPE=0.02  K=3.0

COMPUTE NM HYD   ID=61   HYD NO=7.1      DA=0.03547 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=61   CODE=1

*S
*S ADD SUB-BASINS "6" AND "6A"+++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=50   HYD NO=7.2      ID I=60 ID II=61
PRINT HYD        ID=50   CODE=1

*S
*S COMPUTE BASIN "8" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=480 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=62   HYD NO=7.3      DA=0.0198 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=62   CODE=1

*S
*S ADD SUB-BASINS "6","6A" AND "8"++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=51   HYD NO=7.4      ID I=50 ID II=62
PRINT HYD        ID=51   CODE=1

*S
*S COMPUTE BASIN "9" *************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=890 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=63   HYD NO=7.5      DA=0.03156 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=63   CODE=1

*S
*S ADD SUB-BASINS "6","6A","8" AND "9"+++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=52   HYD NO=7.6      ID I=51 ID II=63
PRINT HYD        ID=52   CODE=1

*S
```

```
*S ROUTE SUB-BASINS THROUGH PIPE IN UPPER HALF "ST1">>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
COMPUTE RATING CURVE    CID=1    VS NO=1 CODE=-1 SLP=0.022
                        DIA=5.0 FT       N=0.013

ROUTE MCUNGE        ID=1     HYD NO=7.51     INFLOW ID=52
                    DT=0.0  L=1566  NS=0     SLP=0.022
                    MATCODE=0        REGCODE=0        CCODE=0 MM CODE=0

PRINT HYD           ID=1     CODE=1
*S
*S COMPUTE BASIN "12A" ************************************************************
*S

COMPUTE LT TP       LCODE=1 NK=2 ISLOPE=-1
                    LENGTH=400 FT  SLOPE=0.02  K=0.7
                    LENGTH=820 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD      ID=64    HYD NO=7.7      DA=0.0308 SQ MI
                    PER A=0    PER B=10  PER C=10    PER D=80
                    TP=0.0  MASS RAIN=-1

PRINT HYD           ID=64    CODE=1

*S
*S ADD SUB-BASINS "6","6A","8","9" AND "12A"+++++++++++++++++++++++++++++++++++++++++++++++++++++++++

ADD HYD             ID=53    HYD NO=7.8      ID I=1  ID II=64
PRINT HYD           ID=53    CODE=1

*S
*S COMPUTE BASIN "10" ************************************************************
*S

COMPUTE LT TP       LCODE=1 NK=2 ISLOPE=-1
                    LENGTH=400 FT  SLOPE=0.02  K=0.7
                    LENGTH=1270 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD      ID=65    HYD NO=7.9      DA=0.0567 SQ MI
                    PER A=0    PER B=10  PER C=10    PER D=80
                    TP=0.0  MASS RAIN=-1

PRINT HYD           ID=65    CODE=1

*S
*S ADD SUB-BASINS "6","6A","8","9","12A" AND "10"+++++++++++++++++++++++++++++++++++++++++++

ADD HYD             ID=54    HYD NO=8.0      ID I=53 ID II=65
PRINT HYD           ID=54    CODE=1

*S
*S
*S COMPUTE BASIN "ST1" ************************************************************
*S

COMPUTE LT TP       LCODE=1 NK=2 ISLOPE=-1
                    LENGTH=400 FT  SLOPE=0.02  K=0.7
                    LENGTH=1400 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD      ID=66    HYD NO=8.1      DA=0.01413 SQ MI
                    PER A=0    PER B=10  PER C=0    PER D=90
                    TP=0.0  MASS RAIN=-1

PRINT HYD           ID=66    CODE=1

*S
*S ADD SUB-BASINS "6","6A","8","9","12A","10" AND "ST1"+++++++++++++++++++++++++++++++++++++

ADD HYD             ID=55    HYD NO=8.2      ID I=66 ID II=54
PRINT HYD           ID=55    CODE=1
*S
*S
*S DIVERT 276 CFS TO PDN/////////////////////////////////////////////////

DIVIDE HYD          ID=55    Q=170    ID I=99 HYD=99.9
                                      ID II=661       HYD=661.1

PRINT HYD           ID=99    CODE=1
PRINT HYD           ID=661   CODE=1
```

```
*S
*S
*S COMPUTE BASIN "ST2"***************************************************************
*S
COMPUTE LT TP      LCODE=1 NK=2 ISLOPE=-1
                   LENGTH=400 FT  SLOPE=0.02  K=0.7
                   LENGTH=1400 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD     ID=67    HYD NO=8.3       DA=0.01094 SQ MI
                   PER A=0    PER B=10   PER C=0    PER D=90
                   TP=0.0   MASS RAIN=-1

PRINT HYD          ID=67    CODE=1

*S
*S ADD SUB-BASINS "6","6A","8","9","12A","10","ST1" AND "ST2"++++++++++++++++++++++++++++++++++

ADD HYD            ID=56    HYD NO=8.4       ID I=661        ID II=67
PRINT HYD          ID=56    CODE=1
*S
*S
*S
*S ADD INTERNAL STREET SUB-BASINS TO PDN+++++++++++++++++++++++++++++++++++++++++++

ADD HYD            ID=57    HYD NO=8.41      ID I=56 ID II=46
PRINT HYD          ID=57    CODE=1
*S
*S
*S
*S ROUTE SUB-BASINS THROUGH PIPE IN "PDN4">>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
COMPUTE RATING CURVE     CID=1    VS NO=1 CODE=-1 SLP=0.01
                         DIA=7.0 FT       N=0.013

ROUTE MCUNGE       ID=1     HYD NO=6.21      INFLOW ID=57
                   DT=0.0  L=1500  NS=0      SLP=0.01
                   MATCODE=0         REGCODE=0         CCODE=0 MM CODE=0

PRINT HYD          ID=1     CODE=1
*S
*S
*S COMPUTE BASIN "PDN4" **************************************************************
*S

COMPUTE LT TP      LCODE=1 NK=3 ISLOPE=-1
                   LENGTH=400 FT   SLOPE=0.020  K=0.7
                   LENGTH=500 FT   SLOPE=0.020  K=2.0
                   LENGTH=1130 FT   SLOPE=0.020  K=3.0

COMPUTE NM HYD     ID=110  HYD NO=6.3       DA=0.01114 SQ MI
                   PER A=0    PER B=10  PER C=0    PER D=90
                   TP=0.0  MASS RAIN=-1

PRINT HYD          ID=110  CODE=1

*S
*S ADD SUB-BASINS "4A","5","PDN2","4B","7","12B","PDN3" AND "PDN4"+++++++++++++++++++++

ADD HYD            ID=47    HYD NO=6.4       ID I=110        ID II=1
PRINT HYD          ID=47    CODE=1

*S
*S COMPUTE BASIN "13" *************************************************************
*S

COMPUTE LT TP      LCODE=1 NK=3 ISLOPE=-1
                   LENGTH=400 FT   SLOPE=0.020  K=0.7
                   LENGTH=600 FT   SLOPE=0.020  K=2.0
                   LENGTH=680 FT   SLOPE=0.020  K=3.0

COMPUTE NM HYD     ID=120  HYD NO=6.5       DA=0.0626 SQ MI
                   PER A=0    PER B=10  PER C=10    PER D=80
                   TP=0.0  MASS RAIN=-1

PRINT HYD          ID=120  CODE=1

*S
*S ADD SUB-BASINS FROM PDN AND INTERNAL STREETS ++++++++++++++++++++++++++++++++++++++
*S STORM DRAIN SYSTEM IN PDN TO POND2 +++++++++++++++++++++++++++++
```

```
*S
ADD HYD          ID=48   HYD NO=6.6      ID I=120        ID II=47
PRINT HYD        ID=48   CODE=1
*S
*S
*S ---------------------------------------------------------------------------
*S REMAINDER OF SUB-BASINS IN INTERNAL STREET TO POND 2
*S ---------------------------------------------------------------------------
*S COMPUTE BASIN "11B" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=1400 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=68   HYD NO=8.5      DA=0.05527 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=68   CODE=1
*S
*S ADD REST OF DIVIDED FLOWS FROM INTERNAL STREETS TO 11B+++++++++++++++++++++++++++++

ADD HYD          ID=681  HYD NO=6.6      ID I=99 ID II=68
PRINT HYD        ID=681  CODE=1
*S

*S
*S COMPUTE BASIN "ST3" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=1400 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=69   HYD NO=8.7      DA=0.00686 SQ MI
                 PER A=0   PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=69   CODE=1

*S
*S ADD SUB-BASINS "11B" AND "ST3"+++++++++++++++++++++++++++++++

ADD HYD          ID=58   HYD NO=8.8      ID I=681        ID II=69
PRINT HYD        ID=58   CODE=1

*S
*S COMPUTE BASIN "ST4" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=1400 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=588  HYD NO=8.9      DA=0.00772 SQ MI
                 PER A=0   PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=588  CODE=1

*S
*S ADD SUB-BASINS "11B","ST3" AND "ST4"++++++++++++++++++++++++++++++++

ADD HYD          ID=59   HYD NO=9.0      ID I=58 ID II=588
PRINT HYD        ID=59   CODE=1

*S
*S COMPUTE BASIN "11C" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.02  K=0.7
                 LENGTH=50 FT  SLOPE=0.02  K=2.0

COMPUTE NM HYD   ID=71   HYD NO=9.1      DA=0.03317 SQ MI
                 PER A=0   PER B=10  PER C=10   PER D=80
                 TP=0.0  MASS RAIN=-1
```

```
PRINT HYD        ID=71    CODE=1

*S
*S ADD SUB-BASINS "11B","ST3","ST4" AND "11C"+++++++++++++++++++++++++++++++++
*S
ADD HYD          ID=60    HYD NO=9.2       ID I=71 ID II=59
PRINT HYD        ID=60    CODE=1
*S
*S
*S COMPUTE BASIN "A" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=2 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.03  K=0.7
                 LENGTH=2500 FT  SLOPE=0.03  K=2.0

COMPUTE NM HYD   ID=72    HYD NO=9.3       DA=0.03509 SQ MI
                 PER A=0    PER B=15  PER C=35    PER D=50
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=72    CODE=1

*S ADD SUB-BASINS NORTH OF PDN AND "A" +++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD          ID=73    HYD NO=9.4       ID I=72 ID II=48
PRINT HYD        ID=73    CODE=1
*S
*S
*S ADD ALL SUB-BASINS NORTH OF PDN,"A" AND SOUTH OF
UNSER+++++++++++++++++++++++++++++++++++++++++++++++
*S DISCHARGING TO POND 2
*S
ADD HYD          ID=74    HYD NO=9.5       ID I=73 ID II=60

PRINT HYD        ID=74    CODE=1

*S
*S ROUTE THROUGH POND-2  >>>>>>>>>>>>>>>>>>>>>>>>> (AP-1) >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

ROUTE RESERVOIR          ID=601  HYD=POND2        INFLOW ID=74 CODE=10
                         OUTFLOW(CFS)    STORAGE(AC-FT)  ELEV(FT)
                                0               0          5290
                                20              4.0        5291
                                40              8.0        5292
                                200             10.0       5293
                                400             15.0       5295
                                630             18.0       5297

PRINT HYD        ID=601   CODE=10
*S
*S
*S ROUTE AP-1 THROUGH PIPE IN "PDN5" (AP-1 TO AP-2)>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
COMPUTE RATING CURVE     CID=1    VS NO=1 CODE=-1 SLP=0.01
                         DIA=7.0 FT       N=0.013

ROUTE MCUNGE     ID=1     HYD NO=9.6       INFLOW ID=601
                 DT=0.0  L=1500  NS=0     SLP=0.01
                 MATCODE=0        REGCODE=0        CCODE=0 MM CODE=0

PRINT HYD        ID=1     CODE=1

*S COMPUTE BASIN "PDN5" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=50 FT  SLOPE=0.02  K=0.7
                 LENGTH=250 FT  SLOPE=0.02  K=2.0
                 LENGTH=900 FT  SLOPE=0.02  K=3.0

COMPUTE NM HYD   ID=75    HYD NO=9.7       DA=0.01978 SQ MI
                 PER A=0    PER B=10  PER C=0    PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=75    CODE=1

*S
*S ADD ALL SUB-BASINS NORTH OF PDN, SOUTH OF UNSER,"A" AND
"PDN5"+++++++++++++++++++++++++++++++++++++++++++
```

```
ADD HYD          ID=76   HYD NO=9.8      ID I=1  ID II=75

PRINT HYD        ID=76   CODE=1

*S COMPUTE BASIN "B" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=200 FT  SLOPE=0.03  K=0.7
                 LENGTH=200 FT  SLOPE=0.02  K=2.0
                 LENGTH=1000 FT  SLOPE=0.03  K=3.0

COMPUTE NM HYD   ID=77   HYD NO=9.9      DA=0.02114 SQ MI
                 PER A=100   PER B=0  PER C=0   PER D=0
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=77   CODE=1

*S
*S ADD ALL SUB-BASINS N. OF PDN, S. UNSER,"A","PDN5"AND
"B"++++++++(AP-2)++++++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=78   HYD NO=10.0     ID I=76 ID II=77

PRINT HYD        ID=78   CODE=1

*S
*S ROUTE THROUGH "PDN6" IN PIPE (AP-2 TO AP4)>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
COMPUTE RATING CURVE    CID=1   VS NO=1 CODE=-1 SLP=0.01
                        DIA=7.0 FT      N=0.013

ROUTE MCUNGE     ID=1    HYD NO=10.1     INFLOW ID=78
                 DT=0.0  L=1000  NS=0    SLP=0.01
                 MATCODE=0       REGCODE=0        CCODE=0 MM CODE=0

PRINT HYD        ID=1    CODE=1
*S
*S COMPUTE BASIN "G" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=400 FT  SLOPE=0.060  K=0.7
                 LENGTH=350 FT  SLOPE=0.060  K=2.0
                 LENGTH=1050 FT  SLOPE=0.060  K=3.0

COMPUTE NM HYD   ID=28   HYD NO=10.11    DA=0.1032 SQ MI
                 PER A=100   PER B=0  PER C=0   PER D=0
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=28   CODE=1
*S
*S

*S ADD ALL SUB-BASINS NORTH OF PDN, SOUTH OF UNSER,"A","B","PDN5"AND
"G"++++++++++++++++++++++++++++++++++++++++

*S
ADD HYD          ID=281  HYD NO=10.12    ID I=28 ID II=1

PRINT HYD        ID=281  CODE=1
*S

*S COMPUTE BASIN "PDN6" ************************************************************
*S

COMPUTE LT TP    LCODE=1 NK=3 ISLOPE=-1
                 LENGTH=50 FT  SLOPE=0.02  K=0.7
                 LENGTH=250 FT  SLOPE=0.02  K=2.0
                 LENGTH=1200 FT  SLOPE=0.02  K=3.0

COMPUTE NM HYD   ID=79   HYD NO=10.2     DA=0.01847 SQ MI
                 PER A=0   PER B=10  PER C=0   PER D=90
                 TP=0.0  MASS RAIN=-1

PRINT HYD        ID=79   CODE=1

*S
```

```
*S ADD ALL SUB-BASINS TO "PDN6"++++++++++(AP-4)+++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=80   HYD NO=10.3     ID I=281        ID II=79

PRINT HYD        ID=80   CODE=1
*S
*S
*S ADD FLOWS FROM AP-3 TO AP-4++++(PIEDRAS MARCADAS)++++++++++++++++++++++++++++++++++++++

ADD HYD          ID=81   HYD NO=10.4     ID I=27 ID II=80

PRINT HYD        ID=81   CODE=1
*S
*S ---------------------------------------------------------------------------------
*S UNIVERSE STORM DRAIN TO BOCA NEGRA DAM
*S ---------------------------------------------------------------------------------
*S

*S  COMPUTE STATE LAND OFFICE BASIN, P1 (SPLIT FROM SCHOOL
SITE)***********************************************
*
COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                             LENGTH=400  SLOPE=0.0148  K=1.0
                             LENGTH=1100  SLOPE=0.0148  K=2.0
*
COMPUTE NM HYD       ID=50  HYD=P2B  DA=0.03125 SQ MI
                             A=25  B=26 C=27  D=22
                             TP=0.0  MASSRAIN=-1
PRINT HYD                    ID=50  CODE=5
*S
*S
*S ROUTE THROUGH PIPE IN UNIVERSE BLVD>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLP=0.02
                             DIA=2.5  N=0.013
ROUTE MCUNGE           ID=71  HYD=TRSLO1  INFLOW ID=50
                             DT=0.0   L=1100  NS=0   SLOPE=0.022
                             MATCODE=0  REGCODE=0  CCODE=0  MM CODE=0
PRINT HYD              ID=71 CODE=5
*S
*S  BASIN P2 (HIGH SCHOOL) FROM UNIVERSE STORM DRAIN STUDY**********************
*
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                             LENGTH=400  SLOPE=0.0148  K=1.0
                             LENGTH=1600  SLOPE=0.0148  K=2.0
                             LENGTH=1300  SLOPE=0.0148  K=3.0
*
COMPUTE NM HYD       ID=72  HYD=P2A  DA=0.1094 SQ MI
                             A=0  B=25 C=25  D=50
                             TP=0.0  MASSRAIN=-1
PRINT HYD                    ID=72  CODE=5
*S ADD STATE LAND OFFICE & HIGH SCHOOL++++++++++++++++++++++++++++++++++++++++++
ADD HYD               ID=73 HYD=TR.HS  ID I=71 II=72
PRINT HYD             ID=73 CODE=5
*S
*S ROUTE THROUGH PIPE IN UNIVERSE BLVD>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLP=0.013
                             DIA=4  N=0.013
*
ROUTE MCUNGE           ID=74  HYD=TRHS  INFLOW ID=73
                             DT=0.0   L=1700  NS=0   SLOPE=0.013
                             MATCODE=0  REGCODE=0  CCODE=0  MM CODE=0
PRINT HYD              ID=74  CODE=5
*S
*S BASIN P3 (FUTURE SAD) FROM UNIVERSE STORM DRAIN STUDY*****************
*
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                             LENGTH=400  SLOPE=0.0084  K=0.7
                             LENGTH=1600  SLOPE=0.0084  K=2.0
                             LENGTH=400  SLOPE=0.0084  K=3.0
*
COMPUTE NM HYD       ID=75  HYD=P3  DA=0.0515 SQ MI
                             A=0  B=25  C=25  D=50
                             TP=0.0  MASSRAIN=-1
PRINT HYD
                     ID=75  CODE=5
*S
*S ADD UNIVERSE SUB-BASINS TO BOCA NEGRA DAM++++++++++++++++++++++++++++++++++++
ADD HYD               ID=76 HYD=TR.HS  ID I=74 II=75
PRINT HYD             ID=76 CODE=5
```

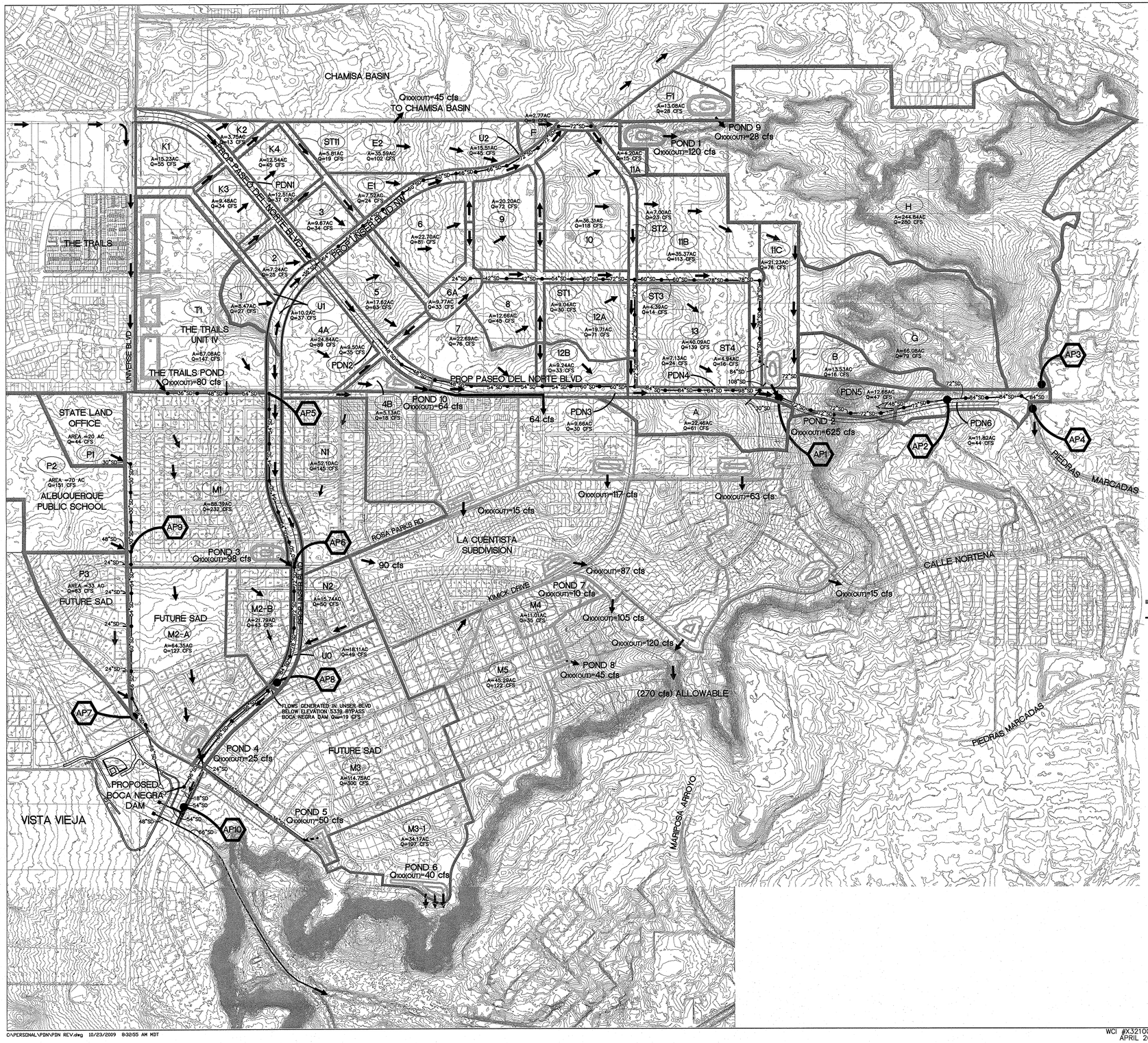
```
*S
*S ---------------------------------------------------------------------------
*S UNSER BLVD SOUTH OF THE GRANT LINE TO BOCA NEGRA DAM
*S ---------------------------------------------------------------------------
*S
*S COMPUTE SUB-BASIN THE TRAILS UNIT 4*************************************
*S ASSUME AN AREA OF 10 ACRES FOR THE THREE PONDS IN THIS SUB-BASIN
*S
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=900  SLOPE=0.02  K=2.0
                            LENGTH=1500  SLOPE=0.02  K=3.0

COMPUTE NM HYD      ID=10  HYD=10.1  DA=0.089 SQ MI
                        A=0  B=10  C=40  D=50
                    TP=0.0  MASSRAIN=-1

PRINT HYD               ID=10  CODE=5
*S
*S RECALL POND K DISCHARGE FROM THE TRAILS SUBDIVISION*********************************
*S
RECALL HYD      ID=70   HYD=TRAIL.POND  DT=0.0
PRINT HYD       ID=70   CODE=5
*S

*S ADD POND K DISCHARGE FROM THE TRAILS SUBDIVISION+++++++++++++++++++++++++++
*S
ADD HYD              ID=12 HYD=TR.HS  ID I=10 II=70
PRINT HYD            ID=12 CODE=5
*
*S
*S SAD 228 WEST OF UNSER BLVD
*S
*S COMPUTE SUB-BASIN M1 - WEST OF UNSER*****************************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=800  SLOPE=0.02  K=2.0
                            LENGTH=1500  SLOPE=0.02  K=3.0

COMPUTE NM HYD     ID=13  HYD=10.2  DA=0.138 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=13  CODE=5
*S
*S ROUTE SUB-BASIN M1 THROUGH POND-3>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR         ID=113  HYD=POND3       INFLOW ID=13 CODE=10
                        OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                                0               0       0
                                20              1.0     1
                                40              2.0     2
                                60              3.0     3
                                80              4.0     4.0
                                100             4.5     5.0

PRINT HYD       ID=113  CODE=10
*S
*S
*S ADD BASINS M1 AND TRAILS UNIT IV++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD              ID=14 HYD=10.3  ID I=12 II=113
PRINT HYD            ID=14 CODE=5
*S

*S COMPUTE SUB-BASIN N1 - EAST OF UNSER*****************************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=600  SLOPE=0.02  K=2.0
                            LENGTH=1390  SLOPE=0.02  K=3.0

COMPUTE NM HYD     ID=15  HYD=10.4  DA=0.0814 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=15  CODE=5
*S
*S
*S DIVIDE BASIN N1 FOR ALLOWABLE EXISTING FLOWS THROUGH LA CUENTISTA ////////////////////
```

```
DIVIDE HYD      ID=15   Q=90    ID I=9  HYD=10.5
                                ID II=16        HYD=10.6

PRINT HYD       ID=9    CODE=1
PRINT HYD       ID=16   CODE=1
*S
*S ADD SUB-BASINS M1 AND N1(DIVIDED)+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD              ID=17 HYD=10.7  ID I=16 II=14
PRINT HYD            ID=17 CODE=5
*S
*
*S COMPUTE SUB-BASIN N2 - EAST OF UNSER*****************************************************
COMPUTE LT TP         LCODE=1  NK=2  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=700  SLOPE=0.02  K=2.0

COMPUTE NM HYD     ID=18  HYD=10.8  DA=0.0246 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=18  CODE=5
*S
*S ADD SUB-BASINS "N1", "M1" AND N2+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD              ID=19 HYD=10.9  ID I=18 II=17
PRINT HYD            ID=19 CODE=5
*S
*S
*S COMPUTE SUB-BASIN UNSER*****************************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=700  SLOPE=0.02  K=2.0
                            LENGTH=4125  SLOPE=0.02  K=3.0

COMPUTE NM HYD     ID=20  HYD=11.1  DA=0.0319 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=20  CODE=5
*S
*S
*S DIVIDE SUB BASIN UNSER- SEPARATE BYPASS FLOWS FROM BOCA NEGRA DAM/////////////////////
*S
DIVIDE HYD      ID=20   Q=19    ID I=30 HYD=30.1
                                ID II=31        HYD=30.2
PRINT HYD       ID=30   CODE=1
PRINT HYD       ID=31   CODE=1
*S
*S ADD SUB-BASINS EAST AND WEST OF UNSER++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD              ID=21 HYD=11.2  ID I=31 II=19
PRINT HYD            ID=21 CODE=5
*S
*S
*S COMPUTE SUB-BASIN M2-A - WEST OF UNSER*****************************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=600  SLOPE=0.02  K=2.0
                            LENGTH=2600  SLOPE=0.02  K=3.0

COMPUTE NM HYD     ID=22  HYD=11.3  DA=0.1145 SQ MI
                A=5  B=35  C=35  D=30
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=22  CODE=5
*S
*S
*S ROUTE SUB-BASIN M2-A THROUGH POND-4>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR         ID=124  HYD=POND4       INFLOW ID=22 CODE=10
                        OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                        0                       0               0
                        3                       1.0             1
                        16                      2.0             2
                        18                      3.0             3
                        25                      4.3             4
```

```
PRINT HYD        ID=124  CODE=10
*S
*S COMPUTE SUB-BASIN M2-B - WEST OF UNSER************************************************************
COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                              LENGTH=400  SLOPE=0.02  K=0.7
                              LENGTH=600  SLOPE=0.02  K=2.0
                              LENGTH=500  SLOPE=0.02  K=3.0

COMPUTE NM HYD      ID=24  HYD=11.4  DA=0.0201 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD        ID=24  CODE=5
*S
*S
*S ADD ALL UNSER BLVD SUB-BASINS TO BOCA NEGRA DAM
*S
ADD HYD                ID=25 HYD=11.5  ID I=21 II=24
PRINT HYD              ID=25 CODE=5
*S


*S SAD 228 EAST OF UNSER BLVD
*S
*S COMPUTE SUB-BASIN M3 - EAST OF UNSER*******************************************
COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                              LENGTH=400  SLOPE=0.02  K=0.7
                              LENGTH=800  SLOPE=0.02  K=2.0
                              LENGTH=1500  SLOPE=0.02  K=3.0

COMPUTE NM HYD      ID=26  HYD=11.7  DA=0.1793 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD        ID=26  CODE=5
*S
*S
*S ROUTE SUB-BASIN M3 THROUGH POND-5>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR          ID=125  HYD=POND5       INFLOW ID=26 CODE=10
                         OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                         0                       0               0
                         20                      1.0             1.5
                         30                      1.8             2.5
                         40                      6.5             6.5
                         50                      8.5             7.5

*S
PRINT HYD        ID=125  CODE=10
*S
*S
*S ADD ROUTED FLOWS FROM PONDS 4 AND 5++++++++++++++++++++++++++++++++++++++++++++++
*S
ADD HYD                ID=27 HYD=11.8  ID I=124 II=125
PRINT HYD              ID=27 CODE=5
*S
*S

*S ADD ROUTED FLOWS FROM POND-4, POND-5 AND 19 CFS UNSER BLVD BYPASS+++++++++++++++++++++++
*S
ADD HYD                ID=29 HYD=11.9  ID I=27 II=30
PRINT HYD              ID=29 CODE=5
*S
*S

*S COMPUTE SUB-BASIN M4 - SOUTH OF LA CUENTISTA SUBD.******************************************
COMPUTE LT TP           LCODE=1  NK=2  ISLOPE=-1
                              LENGTH=400  SLOPE=0.02  K=0.7
                              LENGTH=600  SLOPE=0.02  K=2.0

COMPUTE NM HYD      ID=241  HYD=12.2  DA=0.0172 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD        ID=241  CODE=5
*S
*S
*S ROUTE SUB-BASIN M4 THROUGH POND-7 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
```

```
ROUTE RESERVOIR          ID=127  HYD=POND7       INFLOW ID=241 CODE=10
                         OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                         0                       0              0
                         5                       0.6            1
                         7                       1.0            2
                         10                      1.5            2.2

*S
PRINT HYD       ID=127  CODE=10
*S


*S COMPUTE SUB-BASIN M5 - SOUTH OF LA CUENTISTA SUBD.****************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=800  SLOPE=0.02  K=2.0
                            LENGTH=1400  SLOPE=0.02  K=3.0

COMPUTE NM HYD      ID=251  HYD=12.3  DA=0.07078 SQ MI
                    A=0  B=10  C=40  D=50
                    TP=0.0  MASSRAIN=-1

PRINT HYD         ID=251  CODE=5
*S
*S


*S ROUTE SUB-BASIN M5 THROUGH POND-8 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S

ROUTE RESERVOIR          ID=128  HYD=POND8       INFLOW ID=251 CODE=10
                         OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                         0                       0              0
                         20                      1              1
                         45                      2.4            3

*S
PRINT HYD       ID=128  CODE=10
*S
*S
*S COMPUTE SUB-BASIN M3-1 - EAST OF UNSER*****************************************
COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                            LENGTH=400  SLOPE=0.02  K=0.7
                            LENGTH=800  SLOPE=0.02  K=2.0
                            LENGTH=300  SLOPE=0.02  K=3.0

COMPUTE NM HYD      ID=254  HYD=13.3  DA=0.05339 SQ MI
                A=0  B=10  C=40  D=50
                TP=0.0  MASSRAIN=-1

PRINT HYD       ID=254  CODE=5
*S
*S
*S ROUTE SUB-BASIN M3-1 THROUGH POND-6 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
*S
ROUTE RESERVOIR          ID=129  HYD=POND6       INFLOW ID=254 CODE=10
                         OUTFLOW (CFS)   STORAGE (AC-FT) ELEV (FT)
                         0                       0              0
                         2                       1.3            1
                         40                      2.1            1.5

*S
PRINT HYD       ID=129  CODE=10
*S


*S
FINISH

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

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

APPENDIX B



BASIN	AREA (SQ MI)	AREA (ACRE)	LAND TREATMENT (%) A	B	C	D	Q_{100} (CFS)	VOL_{100} (AC-FT)
BASINS DRAINING INTO POND-1								
K1	0.0238	15.23	0	10	10	80	55	2.17
K3	0.0148	9.47	0	10	10	80	34	1.35
PDN1	0.0196	12.51	0	10	0	90	37	1.89
K4	0.0196	12.54	0	10	10	80	45	1.79
ST11	0.0091	5.81	0	10	0	90	19	0.88
1	0.0132	8.47	0	10	15	75	27	0.97
2	0.0113	7.23	0	10	15	75	25	1.00
U1	0.0158	10.14	0	10	0	90	38	1.53
K2	0.0059	3.78	0	10	10	80	13	0.54
3	0.0151	9.66	0	10	15	75	34	1.33
E1	0.0118	7.52	0	15	35	50	24	0.86
*E2[1]	0.0128	8.21	0	15	35	50	57	0.94
U2	0.0242	15.49	0	10	0	90	45	2.34
F	0.0035	2.23	0	15	35	50	7	0.26
11A	0.0066	4.20	0	10	10	80	15	0.60
BASINS DRAINING INTO POND 9								
4A	0.0388	24.83	0	10	10	80	89	3.54
4B	0.0080	5.12	0	10	10	80	18	0.73
PDN2	0.0148	9.50	0	10	0	90	35	1.43
BASINS DRAINING INTO POND-2								
5	0.0275	17.62	0	10	10	80	63	2.51
7	0.0354	22.66	0	10	10	80	77	3.23
12B	0.0144	9.22	0	10	10	80	33	1.31
PDN3	0.0187	11.97	0	10	0	90	30	1.46
PDN4	0.0111	7.13	0	10	0	90	24	1.08
13	0.0626	40.06	0	10	10	80	139	5.70
6	0.0355	22.70	0	10	10	80	81	3.23
6A	0.0153	9.77	0	10	10	80	33	1.39
8	0.0198	12.67	0	10	10	80	45	1.80
9	0.0316	20.20	0	10	10	80	72	2.88
12A	0.0308	19.71	0	10	10	80	71	2.81
10	0.0567	36.29	0	10	10	80	118	5.17
ST1	0.0141	9.04	0	10	0	90	30	1.37
ST2	0.0109	7.00	0	10	0	90	23	1.06
11B	0.0553	35.37	0	10	0	90	113	5.04
ST3	0.0069	4.39	0	10	0	90	15	0.66
ST4	0.0077	4.94	0	10	0	90	16	0.75
11C	0.0332	21.23	0	10	10	80	76	3.02
BASINS DRAINING INTO PIEDRAS MARCADAS								
A	0.0351	22.46	0	15	35	50	61	2.58
PDN5	0.0198	12.66	0	10	0	90	47	1.92
B	0.0211	13.53	100	0	0	0	16	0.45
G	0.1032	66.05	100	0	0	0	79	2.20
PDN6	0.0185	11.82	0	10	0	90	44	1.79
F1	0.0204	13.08	0	60	40	0	28	0.78
H	0.3826	244.84	100	0	0	0	280	8.16
BASINS DRAINING INTO BOCA NEGRA DAM								
UNIVERSE BLVD								
P1	0.0313	20.00	25	26	27	22	44	1.52
P2	0.1094	70.02	0	25	25	50	151	7.85
P3	0.0515	32.96	0	25	25	50	63	3.70
UNSER BLVD								
T1	0.0890	56.96	0	10	40	50	147	6.62
M1	0.1381	88.38	0	10	40	50	232	10.26
*N1[2]	0.0097	6.19	0	10	40	50	145	6.05
N2	0.0246	15.74	0	10	40	50	50	1.83
*U0[3]	0.0233	14.91	0	10	40	50	49	2.37
M2-B	0.0201	21.79	0	10	40	50	41	1.49
BASIN DRAINING INTO BOCA NEGRA DAM OVERFLOW								
M2-A	0.1145	64.35	5	30	35	30	141	6.51
M3	0.1793	114.75	0	10	40	50	300	13.33
BASIN DRAINING INTO POND-6								
M3-1	0.0534	34.17	0	10	40	50	107	3.97
BASIN DRAINING INTO POND-7								
M4	0.0172	11.01	0	10	40	50	35	1.28
BASIN DRAINING INTO POND-8								
M5	0.0708	45.29	0	10	40	50	122	5.26

NOTES:

* DIVIDED FLOW

1 - 45 CFS FROM BASIN E2 DRAINS INTO CHAMISA STORM DRAIN (5 CFS/LOT)

2- 90 CFS DRAINS INTO LA CUENTISTA SUBDIVISION

3 - 19 CFS DRAINS INTO THE 48" OUTLET FROM BOCA NEGRA DAM

ANALYSIS POINT	FLOW (CFS)
AP1	625
AP2	647
AP3	280
AP4	821
AP5	227
AP6	330
AP7	239
AP8	439
AP9	176
AP10	80

LEGEND

- G — BASIN ID
- BASIN BOUNDARY
- STORM DRAIN
- FLOW DIRECTION
- AP3 — ANALYSIS POINT ID

N

GRAPHIC SCALE

600 0 300 600 1200 2400

(IN FEET)
1 inch = 600 ft.

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

VOLCANO HEIGHTS
OVERALL DRAINAGE/CONCEPTUAL STORM DRAIN LAYOUT PLAN

PLATE 1

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WCI #X3210022
APRIL 2010