Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

CITY OF SCOTTSDALE

DESERT GREENBELT
PIMA ROAD THREE BASINS PROJECT

Ultimate Condition Design Hydrology Report

The Desert Greenbelt
SCOTTSDALE, ARIZONA

STANTEC CONSULTING INC.
7776 Pointe Parkway West, Suite 290
Phoenix, Arizona 85044
(602) 438-2200

SCI Project No: 28900082

March 1999

CITY OF SCOTTSDALE

DESERT GREENBELT
PIMA ROAD THREE BASINS PROJECT

Ultimate Condition Design Hydrology Report

The Desert Greenbelt
SCOTTSDALE, ARIZONA

STANTEC CONSULTING INC.
7776 Pointe Parkway West, Suite 290
Phoenix, Arizona 85044
(602) 438-2200

SCI Project No: 28900082

March 1999

Registered Professional Engineer (Civil)
CERTIFICATE NO.
17928
GEORGE V.
SABOL
Date Signed 11 March 99
ARIZONA, U.S.A.

Table of Contents

		Page
1.0	**INTRODUCTION**	**1**
	1.1 General	1
	1.2 Background	2
2.0	**WATERSHED BASE MAPS**	**3**
3.0	**HYDROLOGY**	**4**
	3.1 Refinements and Revisions	5
4.0	**WATERSHED MODEL RESULTS**	**9**
5.0	**PR3B DETENTION BASIN PERFORMANCE**	**14**

TABLES

Table 1: Summary of Watershed Maps
Table 2: Brief Description of HEC-1 Models for the East System
Table 3: Brief Description of HEC-1 Models for the West System
Table 4: Summary of Peak Design Discharges for the East System
Table 5: Summary of Peak Design Discharges for the West Basin
Table 6: Summary of Detention Basin Characteristics
Table 7: Summary of Detention Basin Operations

APPENDICES

Appendix A: Subbasin Input Parameter Summary Table
Appendix B: Happy Valley Basin Stage, Storage, Discharge Relations and Supporting Technical Calculations and Output
Appendix C: Deer Valley Basin Stage, Storage, Discharge Relations and Supporting Technical Calculations and Output
Appendix D: Pima Freeway East-Basin Stage, Storage, Discharge Relations
Appendix E: Pima Freeway West-Basin Stage, Storage, Discharge Relations
Appendix F: East Side Ultimate Build-Out and No Clogging Condition 100-year, 6-hour Output File Printout (E-1)

Appendix G: East Side Ultimate Build-Out and 50% Clogging Condition 100-year, 6-hour Output File Printout (E-2)

Appendix H: East Side Ultimate Build-Out and No Clogging Condition 50-year, 24-hour Output File Printout (E-3)

Appendix I: East Side Ultimate Build-Out and 50% Clogging Condition 50-year, 24-hour Output File Printout (E-4)

Appendix J: East Side Ultimate Build-Out and 50% Clogging Condition 100-year, 24-hour Output File Printout (E-5)

Appendix K: West Side Ultimate Build-Out and No Clogging Condition 100-year, 6-hour Output File Printout (W-1)

Appendix L: West Side Ultimate Build-Out and 50% Clogging Condition 100-year, 6-hour Output File Printout (W-2)

Appendix M: West Side Ultimate Build-Out and No Clogging Condition 50-year, 24-hour Output File Printout (W-3)

Appendix N: West Side Ultimate Build-Out and 50% Clogging Condition 50-year, 24-hour Output File Printout (W-4)

Appendix O: West Side Ultimate Build-Out and 50% Clogging Condition 100-year, 24-hour Output File Printout (W-5)

Appendix P: Happy Valley Basin Emergency Spillway Operation for the 100-year, 24-hour Output File Printout (HV-1)

Appendix Q: Diskette of HEC-1 Files

Appendix R: Pima Freeway Basins Outflow Hydrographs

PLATES

Plate 1: Overall Watershed Map

Plate 2: DC Ranch Onsite Watershed Map

Plate 3: Grayhawk Onsite Watershed Map

1.0 Introduction

1.1 GENERAL

The basis of the watershed hydrology including mapping, methodology and model input parameters, is presented in the Watershed Hydrology and Concept Design Report (November 1997). That report was issued as a draft in January 1997 under the title Desert Greenbelt Project, Pima Road Channel, Design Hydrology Memorandum, by George V. Sabol Consulting Engineers, Inc. (GVSCE). That report was prepared and submitted as part of the design review of the Pima Road Channel for the City of Scottsdale by GVSCE. In October 1996, the firm GVSCE was acquired by Stantec Consulting Inc., and the design review was subsequently completed by GVSCE. The previous Design Hydrology Memorandum by GVSCE was finalized by Stantec as part of the **Pima Road Three Basins (PR3B) Project** and was submitted as the Watershed Hydrology and Concept Design Report, November 1997, which is herein referred to as the Concept Hydrology Report.

The PR3B designs and analyses identified areas and locations within the project watershed that required refinement or revision to the peak discharges and detention basin stage/storage/discharge characteristics presented in the Concept Hydrology Report. Most of the changes are due to updated information regarding land use, drainage patterns, a decision by the City of Scottsdale concerning which of the Deer Valley Basin options to pursue and revisions to the original design concept. Revisions to the original design concept include additional drainage areas west of Grayhawk, modification of the Union Hills Detention Basin (reconfigured along with the Miller Road Basin and those two basins are now referred to as the Pima Freeway East- and West-Basins), and a revised conveyance system downstream of the Deer Valley Basin. The results presented in this document are for the ultimate condition which includes the overall watershed and all detention basins (Happy Valley, Deer Valley and the Pima Freeway East- and West-Basins). The purpose of this report is to update, refine, and/or revise the results presented in the Concept Hydrology Report as required to produce design hydrology for the PR3B Project.

1.2 BACKGROUND

Several hydrology studies of the PR3B watershed have been conducted by various entities and consultants for the purposes of FEMA flood hazard delineation, highway drainage studies, land development, and the City of Scottsdale, Desert Greenbelt Project. Most of those models and analyses were either reviewed, revised, and/or incorporated into the final Concept Hydrology Report.

The Concept Hydrology Report documents the results of a detailed comparison between the predominant modeling methodology originally established for the watershed in the late 1980s and widely used to date (referred to as the City of Scottsdale method), and the Flood Control District of Maricopa County's methodology. The conclusion of that comparative analysis was to adopt the City of Scottsdale modeling methodology in order to provide regionally consistent hydrologic modeling.

2.0 Watershed Base Maps

All watershed maps for this design memorandum essentially duplicate those used in the Concept Hydrology Report, with the exception of the changes previously discussed. Table 1 summarizes the watershed maps used for this design memorandum.

TABLE 1

Summary of Watershed Maps

Map Name	Map Title	Description	Map Scale
(1)	(2)	(3)	(4)
Plate 1	Overall Watershed Map	General map of the entire watershed showing all subbasins and points of concentration (2 sheets).	1 inch = 1,000 feet
Plate 2	DC Ranch Onsite Watershed Map	Map of subbasin delineation, identifications, and routing schematic per Wood/Patel & Associates, Inc.	1 inch = 300 feet
Plate 3	Grayhawk Onsite Watershed Map	Map of subbasin delineation identifications, and routing schematic per Development Engineering Inc.	1 inch = 400 feet

Topographic base mapping for the project hydrology was supplied by the City of Scottsdale. That mapping is either 1-foot or 2-foot contour interval topography compiled at a plan scale of 1 inch = 100 feet and is based on 1993 aerial photography. Survey control for the mapping was provided by Greiner, Inc. and the photogrammetry was performed by Michael Baker Jr. Consulting Engineers, Inc.

On-site hydrology maps for DC Ranch and Grayhawk are respectively shown in Plates 2 and 3. DC Ranch hydrology modeling and mapping were obtained from Wood/Patel &Associates, Inc. Grayhawk hydrology modeling and mapping were obtained from Development Engineering, Inc. Subbasin naming and concentration point numbering for each of the models are maintained, and minor operational adjustments were made for insertion of those models into the PR3B modeling. In general, however, the models for both parcels of land developments are unchanged.

3.0 Hydrology

Hydrologic modeling is performed using the U.S. Army Corps of Engineers' (USACOE) HEC-1 Flood Hydrograph Package computer model, version 4.0.1E, September 1990, as implemented by Dodson and Associates. The 100-year, 6-hour; 100-year, 24-hour and 50-year, 24-hour storms are modeled for the entire watershed. The hypothetical rainfall distribution option in HEC-1 is used for all storms. Key rainfall depth-duration-frequency statistics are obtained from the Precipitation-Frequency Atlas for Arizona (NOAA Atlas II), with point rainfall depth-duration-frequency data developed by the PREFRE program. Precipitation reduction is applied for all storms. The precipitation reduction of the 6-hour storm is based on the depth-area curve developed for the historic storm of 1954 over the Queen Creek, Arizona area. That curve is listed in the Flood Control District of Maricopa County Drainage Design Manual, Volume I, Hydrology. Appropriate depth-area factors are simulated in HEC-1 using the JD record option. Precipitation reduction for the 24-hour storms are performed using the total watershed area field on the PH record in HEC-1, and that rainfall depth-area reduction is based on the curve provided in NOAA Atlas II. Subbasin rainfall/runoff characteristics are modeled using kinematic wave methodology. Rainfall losses are estimated by the use of SCS curve numbers for pervious areas and an estimate of percent effective impervious area (RTIMP). Channel routing is accomplished using the normal depth option of the Modified Puls method. Reservoir storage routing is performed using the level pool option of the Modified Puls method.

Subbasin boundaries and watershed flow patterns are determined from 1- or 2-foot contour interval worksheets of the watershed, field reconnaissance, construction drawings, and inspection of aerial photography. Curve number (CN) selection is generally per City of Scottsdale, Design Standards and Procedures Manual, Chapter 2, Section 2.2, Hydrology (COS Design Manual), and is based on soil type and vegetation. Vegetation cover is estimated to be natural desert in "poor" condition. Land use type and densities are obtained from current zoning classifications and discussions with City of Scottsdale staff. Those densities are used to select the RTIMP for each subbasin. All rainfall loss parameters assume future full build-out conditions with the exception of currently undeveloped tracts of land along the Pima Freeway. Rainfall loss parameters for these undeveloped tracts of land are modeled

as existing condition to account for future on-site retention that will be required by the City of Scottsdale.

3.1 REFINEMENTS AND REVISIONS

Hydrologic changes from the Concept Hydrology Report (November 1997) include subbasin additions and boundary adjustments, with a majority of those changes occurring in the watershed immediately upstream of the Pima Freeway and in the upper portions of the watershed generally north of the Deer Valley Road alignment. Changes from the hydrologic analyses as presented in the Concept Hydrology Report, to those presented in the final hydrologic analyses, herein, include:

- Reconfiguration of the Union Hills Detention Basin to extend from Hayden Road to the proposed Union Hills Drive alignment along the north side of the Pima Freeway. The revised basin is herein referred to as the Pima Freeway East-Basin.

- Addition of approximately 0.9 square miles of watershed that is located west of Grayhawk and north of the Pima Freeway. That additional area drains to a separate detention basin. That basin, herein referred to as Pima Freeway West-Basin, extends from Scottsdale Road to Hayden Road along the north side of the Pima Freeway.

- Change the design criteria for the Pima Freeway Basins from 100-year, 6-hour to that which produces the highest water surface elevation by either the 100-year, 6-hour or 50-year, 24-hour storm. Additionally, the ponding inundation for both the Pima Freeway East- and West-Basins produced by the 100-year, 24-hour storm is evaluated.

- Realignment of the combined Pima Freeway East- and West-Basins outlet conduit to follow the Hayden Road alignment to a channel through the Tournament Players Club Desert Golf Course south of Bell Road.

- Change in the conveyance system from the Deer Valley Basin to the Pima Freeway East-Basin.

- Addition of a spur-dike along the new Union Hills Drive alignment from the new Pima Road alignment to the Pima Freeway.

In general, the overall watershed delineation and subbasin modeling parameters are essentially the same as that shown in the Concept Hydrology Report, with the exception of the following specific changes:

- Subbasin S34.1 is divided into two subbasins, S34.1 and S34.2.
- Subbasin S36R1 is divided into two subbasins, S36R1A and S36R1B.
- Subbasin S36R2 is divided into two subbasins, S36R2A and S36R2B.
- Subbasin SCN5C is divided into two subbasins, SCN5C and SCN5D to reflect revised drainage boundaries along the Pima Freeway East-Basin.
- Subbasin SCN6 is divided into four subbasins, SCN6B, SCN6C, SCN6D, and SCN6E to account for better delineation of the Water Campus, CAP Water Treatment Plant and Solid Waste Transfer Station. Rainfall loss and kinematic wave parameters are revised to reflect the proposed land uses. Areas within the Water Campus, CAP Water Treatment Plant and Solid Waste Transfer Station that will store intercepted rainfall (i.e. lagoons, filter beds, water treatment/storage structures exposed to the atmosphere, etc.) are excluded from the subbasin area and indicated as "NC" for non-contributing.
- Subbasins SCN6A and S54 are eliminated from the watershed due to a proposed spur dike that will be built along the Union Hills Drive alignment.
- Minor basin boundary shifts in Subbasins S53A and S53A1
- Addition of subbasins SCNA1, SCNA2, SCNA3, SCNA4 and SCNA5 as well as a portion of the Grayhawk model west of the Hayden Road alignment and north of Thompson Peak Parkway.

Table A-1 of Appendix A summarizes the revised/refined subbasin modeling parameters for the "ultimate" PR3B hydrology models.

The following are specific changes to the Concept Hydrology Report with regard to combining and routing operations:

- Added combine operation C34.2 to provide a discharge entering Happy Valley Basin from the north.

- Revised the combine operation C34.1, to provide a discharge entering Happy Valley Basin from the east.
- Added combine operation HVDB-I to provided basin inflow hydrograph and renamed storage routing operation to HVDB-O.
- Added combine operation C36R1A to provide a discharge in the channel approximately 1,000 feet north of Pinnacle Peak Road and Pima Road.
- Renamed the combine operation C36R1 to C36R1B.
- Added combine operation C36R2A to provide a discharge in the channel approximately 2,000 feet south (East Paraiso Drive) of Pinnacle Peak Road and Pima Road.
- Renamed the combine operation C36R2 to C36R2B.
- Renamed combine operation C51.1I at Deer Valley Basin to DVDB-I and storage routing operation C51.1O to DVDB-O.
- Moved combine operation C53A to provide discharge in the pipeline approximately 1,400 feet west of Pima Road.
- Pima Channel routing lengths and geometry changed to reflect the proposed PR3B designs.
- Revised stage/storage/discharge rating relations for Happy Valley, Deer Valley, and Pima Freeway East- and West-Basins to reflect the refined and/or revised basin and discharge conduit configurations of the PR3B Project.
- Added combine operations CN5D, CN6D, CP6D, CP6C, CP5D, CA2, CPA2, CPA3 and CPA4 to provide design discharges at various locations along the Pima Freeway East- and West-Basins.
- Renamed combine operation UHDB-I at the Pima Freeway East-Basin to EAST-I and storage routing operation UHDB-O to EAST-O.

Plate 1 is a general map of the watershed and shows all subbasins and points of concentration. Detailed subbasin delineation for the DC Ranch and Grayhawk developments are shown in Plates 2 and 3, respectively.

The design discharges for the PR3B system are contingent upon the routing characteristics of the four detention basins. The stage-storage-discharge relations for the Happy Valley Basin are based on the 10% design of the PR3B system as presented in the Desert Greenbelt Pima Road Three Basins Project 10% Design Report, November 1997. The Happy Valley Basin relations and supporting technical calculations are provided in Appendix B. The stage-storage-discharge relationships for the Deer Valley Basin are based on a refined analysis and new stage-discharge rating curve as shown in Appendix C.

The stage-discharge relationships for the Pima Freeway East- and West-Basins are based on inlet control of the outlet conduits. The outlet conduits for the East- and West-Basins are 2 – 96" and 1 – 48" conduits, respectively. The stage-storage relations for the basins are based on 3-dimensional CAD models with allowances for sedimentation dead storage. The stage-storage-discharge relations plus supporting technical documentation for the Pima Freeway East- and West-Basins are provided in Appendices D and E, respectively.

4.0 Watershed Model Results

Numerous HEC-1 models are developed for the hydrologic analysis of the PR3B system. These models cover a variety of conditions and are separated into two systems; East and West. The East system models cover the portion of the total watershed that contributes runoff to the Pima Freeway East-Basin. The contributing drainage area for this system is approximately 11.05 square miles. The West system models cover that portion of the total watershed area that contributes runoff to the Pima Freeway West-Basin. The contributing drainage area for this system is approximately 0.93 square miles. Both systems were analyzed for two conditions at the Pima Freeway East- and West-Basin outlets; that is, with clogging and without clogging of these basin outlets. Clogging of the Happy Valley Basin outlet is not considered in this hydrology report. The with outlet clogging condition at the basin will need to be considered in the final design of that basin, but that condition will not increase downstream discharges or drainage facility sizing. In general, the clogging condition only applies to the design water surface elevations of the detention basins. The 50-year, 24-hour models are only used for the design evaluation of the Pima Freeway East- and West-Basins.

Tables 2 and 3 provide a brief description of the various HEC-1 models, as presented herein:

All models for the East system (E-1 through E-5) are for full build-out conditions. Flow splits which occur in the watershed upstream of the Happy Valley Basin are modeled as presented in the Concept Hydrology Report, except for the 100-year, 24-hour models. For model E-5, 100% of the flow splits are routed to the Deer Valley Basin. This condition provides a check of the most reasonable maximum inflow that the basin can receive. For model HV-1, 100% of the flow splits are routed to the Happy Valley Basin. This condition provides a check of the most reasonable maximum inflow that the basin can receive. Models for the West system (W-1 through W-5) are for existing (undeveloped) conditions to reflect the retention requirement for future development.

TABLE 2

Brief Description of HEC-1 Models for the East System (11.05 square miles)

	STORM					
	Frequency Duration		Outlet Conditions			
Model	Years	Hours	HVB	DVB	PFE-B	Model Purpose
E-1	100	6	u	u	u	Design discharge for the PR3B East system and maximum discharge from PFE-B for comparison to result from E-3.
E-2	100	6	u	c	c	Maximum water surface elevation in DVB and maximum water surface elevation in PFE-B for comparison to results from E-4.
E-3	50	24	u	u	u	Maximum discharge from PFE-B for comparison to results from E-1.
E-4	50	24	u	u	c	Maximum water surface elevation in PFE-B for comparison to results from E-2.
E-5	100	24	u	c	c	Determination of flood inundation limits for PFE-B and check of maximum water surface elevation in DVB.

NOTES:

u: No clogging of the basin outlet
c: 50% clogging of the basin outlet
HVB: Happy Valley Basin
DVB: Deer Valley Basin
PFE-B Pima Freeway East-Basin

TABLE 3

Brief Description of HEC-1 Models for the West System (0.93 square miles)

	STORM			
	Frequency	Duration	Outlet Conditions	
Model	**Years**	**Hours**	**PFW-B**	**Model Purpose**
W-1	100	6	u	Design discharge for the PR3B West system and maximum discharge from PFW-B for comparison to result from W-3.
W-2	100	6	c	Maximum water surface elevation in PFW-B for comparison to results from W-4.
W-3	50	24	u	Maximum discharge from PFW-B for comparison to results from W-1.
W-4	50	24	c	Maximum water surface elevation in PFW-B for comparison to results from W-2.
W-5	100	24	c	Determination of flood inundation limits for PFW-B.

NOTES:

u: No clogging of the basin outlet
c: 50% clogging of the basin outlet
PFW-B Pima Freeway West-Basin

Printouts of the output files for HEC-1 models are provided in Appendices F through O. An additional HEC-1 model (HV-1) for the 100-year, 24-hour storm is provided for estimating the Happy Valley Basin spillway operation, and the printout of the output file is in Appendix P. Digital input and output files are provided in Appendix Q.

Table 4 summarizes the design peak discharges for key locations and subbasins within the PR3B watershed upstream of the Pima Freeway East-Basin. The design discharges shown in that table are for the 100-year, 6-hour storm with no clogging of the basin outlets (model E-1).

TABLE 4

Summary of Peak Design Discharges for the East System

HEC-1 ID	Drainage Area sq. miles	100-yr, 6-hr Peak Discharges cfs
S30N	0.65	1277
C31.1	0.92	1508
C34.2	1.36	2177
C34.1	1.54	1896
HVDB-I	2.90	4015
HVDB-O	2.90	133
C36.1	3.04	244
C36R1A	4.05	1230
C36R1B	4.64	1804
C36R2A	4.77	1862
C36R2B	5.01	2018
S51.1	1.13	1058
DVDB-I	6.14	2966
DVDB-O	6.14	251
C52A	6.27	389
C52	7.92	2227
CPC5	2.10	1242
C53	8.10	2436
C53A	8.43	2850
SCN6B	0.05	158
SCN6D	0.04	68
SCN6C	0.14	347
SCN5C	0.19	240
SCN6E	0.04	35
EAST-I	11.05	4381

Because the Pima Freeway East-and West-Basins are designed to operate independently, the contributing watersheds are modeled as independent systems. Table 5 summarizes the ultimate condition design discharges for the PR3B system upstream of the Pima Freeway West-Basin. The design discharges shown in that table are for the 100-year, 6-hour storm (model W-1).

TABLE 5

Summary of Peak Design Discharges for the West System

HEC-1 ID	Drainage Area sq. miles	100-yr, 6-hr Peak Discharges cfs
SCNA1	0.12	142
CA2	0.46	474
SCNA3	0.12	126
SCNA4	0.16	204
SCNA5	0.07	49
WEST-I	0.93	953

The design discharge for the Hayden Road Conduits is determined from the maximum result of the combining of the outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour (E-1 and W-1) or the 50-year, 24-hour (E-3 and W-3) storms. The determination of the maximum combined discharged is computed outside of the HEC-1 models because the systems are designed to function independently. Modeling of the total, combined watershed would result in slightly reduced discharge due to the aerial reduction curves employed in the modeling. Therefore, the outflow hydrographs at the basin outflows are combined manually. The maximum discharge for the Hayden Road Conduits results from the 50-year, 24-hour storm and is 2,197 cfs, as shown in Appendix R.

5.0 PR3B Detention Basin Performance

The basins and outlets are sized to evacuate the floodwaters within 36 hours after the end of the design storm. Happy Valley and Deer Valley Basins are sized such that the spillways do not operate for the 6-hour storm. Those basins are also checked for performance during a 100-year, 24-hour storm with an assumption that upstream flow splits direct 100 percent of the runoff to each basin, respectively. This checking presents the most severe reasonable conditions for the two basins.

The Pima Freeway Basins are designed to detain runoff from the worst case of either the 100-year, 6-hour or 50-year, 24-hour storms with a minimum of 1-foot of freeboard. An earthen berm is provided on the south side of each basin to increase the efficiencies of the basins storage capacities. These berms function as weirs during the 100-year, 24-hour storm. The resulting water surface elevation is used to evaluate the inundation limits for the 100-year, 24-hour storm.

Table 6 summarizes the physical characteristics of each detention basin. Table 7 summarizes the operational performance of each basin for both all of the storms. The design water surface elevation for the Pima Freeway East- and West-Basins reflects a 50% clogging of the basin outlet trashracks. The additional headloss produced by 50% clogging of the trashracks is calculated using U.S. Bureau of Reclamation procedures, as shown in Appendices D and E. The design discharge for the outlet conduit for each basin is the largest discharge from either the 100-year, 6-hour or 50-year, 24-hour, no clogging models.

TABLE 6
Summary of Detention Basin Characteristics

Detention Basin	Basin Minimum Grade Elevation	Emergency Spillway Elevation	Top of Embankment (Overtopping)	Outlet Conduit Diameter	Storage Volume to Emergency Spillway Crest	Storage Volume to Top of Embankment
	feet	feet	feet	inches	acre-feet	acre-feet
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Happy Valley	2,065.0	2,089.5	2,091.0	42	216.9	240.0
Deer Valley	1,855.8	1,879.5	1,881.0	54	203.2	224.1
Pima Freeway East	1589.9	1,612.5[1]	1,612.5	2 - 96	145.1	145.1
Pima Freeway West	1,595.0	1,608.0[1]	1,608.0	48	50.7	50.7

NOTE: 1 Elevation of south berm which effectively acts as emergency spillway.

TABLE 7
Summary of Detention Basin Operations (Model designation is shown in parenthesis)

	Peak Inflow, in cfs			Max. Water Surface Elev.			Peak Outflow, in cfs		
	100-yr, 6-hr	50-yr, 24-hr	100-yr, 24-hr	100-yr, 6-hr	50-yr, 24-hr	100-yr, 24-hr	100-yr, 6-hr	50-yr, 24-hr	100-yr, 24-hr
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Happy Valley	4,015 (E-1)	---	4,758 (HV-1)	2,088.9 (E-2)	---	2,090.5 (HV-1)	133 (E-1)	---	684 (HV-1)
Deer Valley	2,966 (E-1)	---	4,137 (E-5)	1,878.0 (E-2)	---	1,880.6 (E-5)	251 (E-1)	---	899 (E-5)
Pima Freeway East	4,381 (E-1)	4,444 (E-3)	5,508 (E-5)	1,611.0 (E-2)	1,611.4 (E-4)	1,612.8 (E-5)	1,976 (E-1)	2,006 (E-3)	3,460 (E-5)
Pima Freeway West	953 (W-1)	1,022 (W-3)	1,253 (W-5)	1,606.4 (W-2)	1,606.9 (W-4)	1,607.9 (W-5)	186 (W-1)	191 (W-3)	217 (W-5)

APPENDIX A

SUBBASIN INPUT PARAMETER SUMMARY TABLE

Table A-1

Subbasin input parameters for Pima Road Three Basins
Future full build-out conditions (ultimate)

Subbasin	Drainage	Rainfall Losses		Overland Flow Element				Collector Channel Element							Main Channel Element					
ID	Area sq. mi.	Curve No.	RTIMP %	Length feet	Slope ft/ft	n	% Contributing	Length feet	Slope ft/ft	n	Contrib. Area sm	Shape	Bottom Width	Side Slopes	Length feet	Slope ft/ft	n	Shape	Bottom Width	Side Slopes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
S30N	0.6518	82.0	13	300	0.350	0.13	20	1550	0.069	0.045	0.0096	TRAP	0	12	10520	0.038	0.040	TRAP	15	15
		82.0	13	300	0.050	0.13	80													
S31.1	0.2663	76.6	13	300	0.567	0.13	10	1950	0.056	0.045	0.0147	TRAP	0	10	7600	0.035	0.040	TRAP	22	8
		76.6	13	300	0.050	0.13	90													
S34.2	0.4441	77.3	12	50	0.100	0.13	10	2200	0.045	0.045	0.0538	TRAP	0	10	8150	0.039	0.045	TRAP	0	10
		77.3	12	300	0.040	0.13	90													
S35N	0.5482	82.0	13	300	0.491	0.13	15	2700	0.079	0.045	0.0242	TRAP	3	6	5050	0.028	0.040	TRAP	15	15
		82.0	13	300	0.113	0.13	85													
S36.2	0.2087	76.6	13	300	0.580	0.13	5	1800	0.036	0.045	0.0145	TRAP	10	10	3520	0.028	0.040	TRAP	20	6
		76.6	13	300	0.100	0.13	95													
S34.1	1.1635	77.3	12	300	0.590	0.13	25	2570	0.085	0.045	0.0214	TRAP	0	10	8800	0.033	0.040	TRAP	20	10
		77.3	12	300	0.040	0.13	75													
S36.1	0.1394	73.4	11	300	0.042	0.13	100	2330	0.032	0.045	0.0134	TRAP	10	30	3200	0.027	0.040	TRAP	20	30
S36R1A	0.6310	74.3	10	300	0.020	0.13	100	1420	0.032	0.045	0.0061	TRAP	0	13	10800	0.033	0.040	TRAP	10	9
S36R1B	0.0586	74.3	10	300	0.020	0.13	100	1420	0.032	0.045	0.0061	TRAP	0	13	8500	0.033	0.040	TRAP	10	9
S36R2A	0.1325	72.0	20	100	0.045	0.13	100	1900	0.032	0.017	0.0150	TRAP	15	7	800	0.030	0.040	TRAP	30	10
S36R2B	0.2417	72.0	12	280	0.045	0.10	100	1900	0.032	0.017	0.0150	TRAP	15	7	7360	0.030	0.040	TRAP	30	10
S51.1	1.1300	73.9	12	300	0.037	0.13	100	1800	0.038	0.045	0.0161	TRAP	0	12	14400	0.032	0.040	TRAP	40	15
								*** BEGIN DC RANCH WATERSHED ***												
52D4	0.0700	75	15	120	0.01	0.15	100	---	---	---	---	---	---	---	3100	0.035	0.045	TRAP	30	10
52D4B	0.0220	75	63	120	0.01	0.15	100	---	---	---	---	---	---	---	2200	0.033	0.045	TRAP	30	10
52D5A	0.0232	75	63	120	0.01	0.15	100	---	---	---	---	---	---	---	1300	0.032	0.045	TRAP	30	10
52C3	0.0060	75	65	100	0.02	0.1	100	---	---	---	---	---	---	---	800	0.033	0.045	TRAP	30	10
52C3B	0.0160	75	60	100	0.02	0.1	100	---	---	---	---	---	---	---	1400	0.034	0.045	TRAP	30	10
51C	0.0972	74	15	100	0.02	0.1	100	---	---	---	---	---	---	---	3900	0.0375	0.045	TRAP	30	10
52C1	0.0290	75	21	100	0.02	0.1	100	---	---	---	---	---	---	---	1350	0.021	0.045	TRAP	30	10
52C2A	0.0190	75	2	100	0.02	0.1	100	---	---	---	---	---	---	---	1500	0.033	0.045	TRAP	30	10
52C2B	0.0275	75	11	100	0.02	0.1	100	---	---	---	---	---	---	---	2000	0.03	0.045	TRAP	30	10
52C2C	0.0140	75	62	100	0.02	0.1	100	---	---	---	---	---	---	---	1500	0.04	0.045	TRAP	30	10
52C4	0.0170	75	60	100	0.02	0.1	100	---	---	---	---	---	---	---	1550	0.03	0.045	TRAP	30	10
52C13	0.0230	75	31	100	0.02	0.1	100	---	---	---	---	---	---	---	950	0.04	0.045	TRAP	30	10
52C15	0.0460	75	64	100	0.02	0.1	100	---	---	---	---	---	---	---	2050	0.036	0.045	TRAP	30	10
52C14A	0.0410	75	68	100	0.02	0.1	100	---	---	---	---	---	---	---	2050	0.031	0.045	TRAP	30	10
52C5	0.0160	75	27	100	0.02	0.1	100	---	---	---	---	---	---	---	1200	0.03	0.045	TRAP	30	10
52C6	0.0360	75	31	100	0.02	0.1	100	---	---	---	---	---	---	---	3100	0.035	0.045	TRAP	30	10
51B	0.5711	72	13	100	0.02	0.1	100	---	---	---	---	---	---	---	8900	0.03	0.045	TRAP	50	25
52C7	0.0060	75	27	100	0.02	0.1	100	---	---	---	---	---	---	---	550	0.04	0.045	TRAP	30	10
52C8	0.0080	75	27	100	0.02	0.1	100	---	---	---	---	---	---	---	750	0.034	0.045	TRAP	30	10
52C9	0.0690	75	32	100	0.02	0.1	100	---	---	---	---	---	---	---	3150	0.036	0.045	TRAP	30	10
52C10	0.0140	75	8	100	0.02	0.1	100	---	---	---	---	---	---	---	800	0.032	0.045	TRAP	30	10
52C11	0.0425	75	27	100	0.02	0.1	100	---	---	---	---	---	---	---	2800	0.031	0.045	TRAP	30	10
52C12	0.0230	75	85	100	0.02	0.1	100	---	---	---	---	---	---	---	900	0.03	0.045	TRAP	30	10
52C14B	0.0210	75	60	100	0.02	0.1	100	---	---	---	---	---	---	---	1250	0.029	0.045	TRAP	30	10
52B1	0.0030	75	27	100	0.02	0.1	100	---	---	---	---	---	---	---	600	0.039	0.045	TRAP	30	10
52B2	0.0320	75	17	100	0.02	0.1	100	---	---	---	---	---	---	---	2350	0.037	0.045	TRAP	30	10
52B3	0.0620	75	32	100	0.02	0.1	100	---	---	---	---	---	---	---	3450	0.03	0.045	TRAP	30	10

Table A-1

Subbasin input parameters for Pima Road Three Basins
Future full build-out conditions (ultimate)

Subbasin ID	Drainage Area sq. mi.	Rainfall Losses Curve No.	Rainfall Losses RTIMP %	Overland Flow Element Length feet	Overland Flow Element Slope ft/ft	Overland Flow Element n	Overland Flow Element % Contributing	Collector Channel Element Length feet	Collector Channel Element Slope ft/ft	Collector Channel Element n	Collector Channel Element Contrib. Area sm	Collector Channel Element Shape	Collector Channel Element Bottom Width	Collector Channel Element Side Slopes	Main Channel Element Length feet	Main Channel Element Slope ft/ft	Main Channel Element n	Main Channel Element Shape	Main Channel Element Bottom Width	Main Channel Element Side Slopes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
52B4	0.0260	75	62	100	0.02	0.1	100	---	---	---	---	---	---	---	1700	0.024	0.045	TRAP	30	10
52B5	0.0210	75	57	100	0.02	0.1	100	---	---	---	---	---	---	---	1400	0.03	0.045	TRAP	30	10
52B6	0.0960	75	14	100	0.02	0.1	100	---	---	---	---	---	---	---	3200	0.033	0.045	TRAP	30	10
52B7	0.0800	75	78	100	0.02	0.1	100	---	---	---	---	---	---	---	2750	0.028	0.045	TRAP	30	10
52A2	0.0650	75	89	100	0.02	0.1	100	---	---	---	---	---	---	---	2900	0.023	0.045	TRAP	30	10
52A1	0.1300	75	32	100	0.02	0.1	100	---	---	---	---	---	---	---	3400	0.033	0.045	TRAP	30	10
*** END DC RANCH WATERSHED ***																				
*** BEGIN GRAYHAWK WATERSHED ***																				
37A	0.6765	74	24.8	61	0.0213	0.1	100	---	---	---	---	---	---	---	4800	0.0237	0.045	TRAP	50	130
SUB5N	0.029	77	18	100	0.013	0.15	100	1000	0.005	0.018	0.015	TRAP	50	20	500	0.015	0.025	TRAP	10	4
SUB6B	0.032	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	1300	0.015	0.025	TRAP	10	4
SUB1N	0.019	77	18	100	0.013	0.15	100	---	---	---	---	---	---	---	1470	0.0204	0.018	TRAP	50	20
SUB2NA	0.015	81	0	150	0.013	0.15	100	---	---	---	---	---	---	---	1050	0.0215	0.025	TRAP	20	6
SUB2NB	0.03	77	53	150	0.013	0.15	100	---	---	---	---	---	---	---	1200	0.015	0.025	TRAP	20	50
SUB6N	0.049	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	1300	0.015	0.025	TRAP	10	4
SUB3N	0.027	81	0	100	0.02	0.15	100	---	---	---	---	---	---	---	2800	0.0207	0.025	TRAP	10	4
SUB4N	0.032	77	18	100	0.015	0.15	100	---	---	---	---	---	---	---	1200	0.007	0.018	TRAP	50	20
SUB6A	0.013	83	68	100	0.015	0.12	100	---	---	---	---	---	---	---	800	0.01	0.025	TRAP	2	3
SUB3C	0.0104	77	68	100	0.025	0.02	100	---	---	---	---	---	---	---	600	0.015	0.035	TRAP	50	20
GC1018	0.044	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	1800	0.0233	0.025	TRAP	10	4
GC1-9	0.026	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	2110	0.022	0.025	TRAP	10	4
SUB3S	0.0102	77	53	100	0.01	0.15	100	---	---	---	---	---	---	---	930	0.016	0.025	TRAP	50	20
SUB4S	0.0273	77	53	100	0.01	0.15	100	---	---	---	---	---	---	---	1780	0.018	0.015	TRAP	50	20
GC2-8	0.014	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	980	0.016	0.025	TRAP	10	4
SUB3D3	0.014	81	0	50	0.015	0.1	100	---	---	---	---	---	---	---	2450	0.016	0.025	TRAP	5	4
GC7	0.0134	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	1380	0.02	0.025	TRAP	10	4
SUB3D1	0.0088	77	34	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
SUB3B1	0.0137	77	47	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
SUB3F	0.0344	77	68	100	0.025	0.15	100	---	---	---	---	---	---	---	1000	0.015	0.025	TRAP	100	20
SUB3B2	0.0246	77	40	SCS dimensionless hydrograph with a lag time of 0.10 hrs.																
SUB3E1	0.0246	77	40	SCS dimensionless hydrograph with a lag time of 0.10 hrs.																
SUB3D2	0.0220	77	35	SCS dimensionless hydrograph with a lag time of 0.08 hrs.																
SUB3E2	0.0120	77	35	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
PC3*	0.0434	77	10	100	0.015	0.15	100	---	---	---	---	---	---	---	2200	0.01	0.03	TRAP	30	4
SUB3E3	0.0200	77	32	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
PC4*	0.0217	77	0	100	0.015	0.15	100	---	---	---	---	---	---	---	1100	0.01	0.03	TRAP	30	4
SUB13N	0.0370	77	24	100	0.015	0.15	100	---	---	---	---	---	---	---	2400	0.007	0.018	TRAP	50	20
SUB14N	0.0490	81	0	300	0.025	0.15	100	---	---	---	---	---	---	---	2300	0.01	0.025	TRAP	10	4
SUB20N	0.0240	77	24	200	0.01	0.15	100	---	---	---	---	---	---	---	1400	0.02	0.018	TRAP	50	20
SUB19N	0.0380	77	31	150	0.01	0.15	100	---	---	---	---	---	---	---	1800	0.015	0.018	TRAP	50	20
UB18NC	0.0210	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	1550	0.02	0.018	TRAP	50	20
UB18NA	0.0220	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	1450	0.02	0.018	TRAP	50	20
UB18NB	0.0096	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	800	0.02	0.018	TRAP	50	20
PC1	0.0620	77	10	500	0.015	0.15	100	---	---	---	---	---	---	---	2700	0.01	0.03	TRAP	30	4
UB16NA	0.0139	77	42	100	0.015	0.15	100	---	---	---	---	---	---	---	1500	0.015	0.022	TRAP	50	20
UB16NB	0.0156	77	42	100	0.015	0.15	100	---	---	---	---	---	---	---	1500	0.015	0.022	TRAP	50	20

Table A-1

Subbasin input parameters for Pima Road Three Basins
Future full build-out conditions (ultimate)

Subbasin ID	Drainage Area sq. mi.	Rainfall Losses Curve No.	Rainfall Losses RTIMP %	Overland Flow Element Length feet	Overland Flow Element Slope ft/ft	Overland Flow Element n	Overland Flow Element % Contributing	Collector Channel Element Length feet	Collector Channel Element Slope ft/ft	Collector Channel Element n	Collector Channel Element Contrib. Area sm	Collector Channel Element Shape	Collector Channel Element Bottom Width	Collector Channel Element Side Slopes	Main Channel Element Length feet	Main Channel Element Slope ft/ft	Main Channel Element n	Main Channel Element Shape	Main Channel Element Bottom Width	Main Channel Element Side Slopes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
SUB7N	0.0310	77	18	100	0.015	0.15	100	---	---	---	---	---	---	---	1900	0.01	0.018	TRAP	50	20
SUB8NA	0.0046	81	0	100	0.03	0.15	100	---	---	---	---	---	---	---	450	0.03	0.025	TRAP	20	6
SUB8NB	0.0142	81	0	100	0.03	0.15	100	---	---	---	---	---	---	---	1150	0.025	0.025	TRAP	20	6
SUB8NC	0.0182	81	0	100	0.03	0.15	100	---	---	---	---	---	---	---	900	0.03	0.025	TRAP	20	6
SUB9N	0.0550	77	28	100	0.008	0.15	100	---	---	---	---	---	---	---	1700	0.01	0.018	TRAP	50	20
SUB10B	0.0280	77	42	100	0.015	0.15	100	350	0.008	0.018	0	TRAP	50	20	600	0.008	0.025	TRAP	10	4
UB11NA	0.0076	81	0	100	0.025	0.15	100	---	---	---	---	---	---	---	500	0.03	0.025	TRAP	30	6
UB11NB	0.0078	81	0	100	0.04	0.15	100	---	---	---	---	---	---	---	700	0.025	0.025	TRAP	30	6
UB11NC	0.0069	81	0	100	0.03	0.15	100	---	---	---	---	---	---	---	650	0.028	0.025	TRAP	20	5
SUB10A	0.0300	77	42	100	0.015	0.15	100	350	0.008	0.018	0	TRAP	50	20	800	0.008	0.025	TRAP	10	4
UB12NA	0.0153	81	0	150	0.025	0.15	100	---	---	---	---	---	---	---	650	0.017	0.025	TRAP	30	6
UB12NB	0.0157	81	0	150	0.025	0.15	100	---	---	---	---	---	---	---	650	0.017	0.025	TRAP	30	6
UB16NC	0.0337	77	42	100	0.015	0.15	100	---	---	---	---	---	---	---	1600	0.015	0.022	TRAP	50	20
PC2	0.0540	77	10	100	0.015	0.15	100	---	---	---	---	---	---	---	2700	0.01	0.03	TRAP	50	4
UB17NA	0.0098	81	0	150	0.025	0.05	100	---	---	---	---	---	---	---	960	0.0292	0.025	TRAP	30	50
UB17NB	0.0111	81	0	150	0.025	0.05	100	---	---	---	---	---	---	---	1200	0.0217	0.025	TRAP	30	50
SUB17A	0.0079	77	34	75	0.03	0.05	100	---	---	---	---	---	---	---	1500	0.02	0.025	TRAP	8	4
UB17NC	0.0056	77	12	75	0.03	0.05	100	---	---	---	---	---	---	---	910	0.0187	0.025	TRAP	8	4
SUB15N	0.0391	77	68	100	0.01	0.15	100	400	0.008	0.018	0	TRAP	50	20	1700	0.015	0.025	TRAP	10	4
SUB1-2	0.0558	77	68	200	0.01	0.15	100	---	---	---	---	---	---	---	1370	0.027	0.015	TRAP	50	20
SUB5S	0.0263	77	31	100	0.01	0.15	100	---	---	---	---	---	---	---	1280	0.007	0.015	TRAP	50	20
GC1216	0.0365	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	2200	0.024	0.025	TRAP	10	4
GC1415	0.0450	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	1300	0.022	0.025	TRAP	10	4
SUB6S	0.0210	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	2150	0.013	0.025	TRAP	50	20
SUB7S	0.0270	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	2080	0.023	0.025	TRAP	50	20
SUB8S	0.0256	77	42	100	0.01	0.15	100	---	---	---	---	---	---	---	1600	0.015	0.025	TRAP	50	20
GC36	0.0406	81	0	200	0.025	0.15	100	---	---	---	---	---	---	---	2350	0.015	0.035	TRAP	10	4
SUB9S	0.0210	77	53	100	0.01	0.15	100	---	---	---	---	---	---	---	1100	0.013	0.025	TRAP	50	20
SUB7A	0.0092	77	42	100	0.025	0.15	100	---	---	---	---	---	---	---	950	0.015	0.025	TRAP	50	20
SUB10S	0.0248	77	53	100	0.01	0.15	100	---	---	---	---	---	---	---	1150	0.02	0.025	TRAP	50	20
SUB11S	0.0234	77	68	100	0.015	0.018	100	---	---	---	---	---	---	---	1050	0.015	0.025	TRAP	100	20
GC45	0.0127	81	0	200	0.015	0.025	100	---	---	---	---	---	---	---	550	0.015	0.035	TRAP	10	4
PC5*	0.0370	77	0	100	0.015	0.15	100	---	---	---	---	---	---	---	1900	0.01	0.03	TRAP	30	4
								*** END GRAYHAWK WATERSHED ***												
SCN5D	0.0499	74	0	100	0.025	0.13	100	---	---	---	---	---	---	---	3100	0.017	0.04	TRAP	0	15
S53A	0.1794	74	11	300	0.022	0.13	100	1475	0.026	0.045	0.0111	TRAP	3	5	1750	0.021	0.040	TRAP	25	5
S53A1	0.3376	74	12	300	0.022	0.13	70	1250	0.023	0.045	0.0087	TRAP	4	5	5050	0.017	0.040	TRAP	35	5
		74	30	150	0.027	0.13	30													
SCN6B	0.0520	74	80	150	0.010	0.15	70	720	0.020	0.030	0.0084	TRAP	5	10	440	0.009	0.035	TRAP	6	3
		74	0	100	0.025	0.13	30	700	0.010	0.040	0.0050	TRAP	0	10						
SCN6D	0.0369	74	3	100	0.025	0.13	100	---	---	---	---	---	---	---	1000	0.017	0.040	TRAP	0	15
SCN6C	0.1388	74	80	150	0.010	0.15	50	1500	0.01	0.03	0.0123	TRAP	5	10	700	0.017	0.040	TRAP	0	15
		74	0	100	0.025	0.13	50													
SCN5C	0.1904	74	0	150	0.02	0.13	100	---	---	---	---	---	---	---	3700	0.0176	0.04	TRAP	0	15
SCN6E	0.0427	74	5	50	0.01	0.13	100	---	---	---	---	---	---	---	3200	0.02	0.025	TRAP	0	50
SCNA1	0.1168	77	0	300	0.015	0.13	100	---	---	---	---	---	---	---	1900	0.015	0.04	TRAP	0	20

Table A-1

Subbasin Input parameters for Pima Road Three Basins
Future full build-out conditions (ultimate)

Subbasin ID	Drainage Area sq. mi.	Rainfall Losses Curve No.	Rainfall Losses RTIMP %	Overland Flow Element Length feet	Overland Flow Element Slope ft/ft	Overland Flow Element n	Overland Flow Element % Contributing	Collector Channel Element Length feet	Collector Channel Element Slope ft/ft	Collector Channel Element n	Collector Channel Element Contrib. Area sm	Collector Channel Element Shape	Collector Channel Element Bottom Width	Collector Channel Element Side Slopes	Main Channel Element Length feet	Main Channel Element Slope ft/ft	Main Channel Element n	Main Channel Element Shape	Main Channel Element Bottom Width	Main Channel Element Side Slopes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
*** BEGIN GRAYHAWK WATERSHED ***																				
1G	0.0590	74	53	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
1I	0.0620	74	52	SCS dimensionless hydrograph with a lag time of 0.07 hrs.																
1J	0.0175	74	64	SCS dimensionless hydrograph with a lag time of 0.06 hrs.																
1L	0.0484	74	64	SCS dimensionless hydrograph with a lag time of 0.217 hrs.																
*** END GRAYHAWK WATERSHED ***																				
SCNA2	0.2755	77	0	250	0.0167	0.13	100	---	---	---	---	---	---	---	3900	0.0167	0.04	TRAP	0	15
SCNA3	0.1230	77	0	300	0.0179	0.13	100	---	---	---	---	---	---	---	5300	0.0179	0.04	TRAP	0	20
SCNA4	0.1582	77	0	200	0.015	0.13	100	---	---	---	---	---	---	---	4500	0.0181	0.04	TRAP	0	15
SCNA5	0.0678	77	5	50	0.01	0.13	100	---	---	---	---	---	---	---	5000	0.002	0.025	TRAP	0	50

note *: Subbasins added by GVSCE in order to bring flow previously released to natural channels together, routing the hydrographs down to the Pima Freeway East-Basin

APPENDIX B

HAPPY VALLEY BASIN, STAGE, STORAGE, DISCHARGE RELATIONS AND SUPPORTING TECHNICAL CALCULATIONS AND OUTPUT

Table B-1

Stage-storage-discharge rating table for Happy Valley Detention Basin for the 6-hour storm

Stage feet	Total Available Storage acre-feet	Discharge cfs
2065	0.0	0
2066	0.2	7
2067	0.7	18
2068	1.8	37
2069	3.4	59
2070	5.4	64
2075	36.3	87
2080	89.1	106
2085	151.2	122
2090	225.3	136
2091	241.0	139

Table B-2

Stage-storage rating table for the Happy Valley Detention Basin

Stage feet	Storage acre-feet	Sediment Dead Storage acre-feet	Total Available Storage acre-feet
2065	---	---	0
2066	0.2	0	0.2
2067	0.6	0	0.7
2068	1.1	0	1.8
2069	1.7	0	3.4
2070	3.0	1	5.4
2075	34.9	4	36.3
2080	55.7	3	89.1
2085	65.1	3	151.2
2090	74.1	0	225.3
2091	15.7	0	241.0

Table B-3

Controlling stage-discharge rating table for the 6-hour storm
for a 42" conduit with a square edge headwall

Discharge cfs	Inlet Control Stage feet	Backwater Analysis Stage feet	Controlling Headwater Elevation feet
0	2065.00	2065	2065.00
10	2065.82	2066.47	2066.47
20	2066.65	2067.13	2067.13
30	2067.47	2067.67	2067.67
40	2067.95	2068.14	2068.14
50	2068.42	2068.58	2068.58
60	2068.90	2069.04	2069.04
70	2069.53	2071.26	2071.26
80	2070.16	2073.33	2073.33
90	2070.79	2075.68	2075.68
100	2071.69	2078.3	2078.30
110	2072.60	2081.19	2081.19
120	2073.50	2084.37	2084.37
130	2074.67	2087.82	2087.82
140	2075.83	2091.54	2091.54
150	2077.00	---	---

Table B-4

Stage-storage-discharge rating table for Happy Valley Detention Basin for the 24-hour storm

Stage feet	Total Available Storage acre-feet	Discharge Conduit cfs	Discharge Weir cfs	Discharge Total cfs
2065.0	0.0	0	0	0
2066.0	0.2	7	0	7
2067.0	0.7	18	0	18
2068.0	1.8	37	0	37
2069.0	3.4	59	0	59
2070.0	5.4	64	0	64
2075.0	36.3	87	0	87
2080.0	~~88.1~~ 89.1	106	0	106
2085.0	~~150.2~~ 151.1	122	0	122
2089.5	216.9	134.5	0	134
2089.6	218.4	134.7	16	151
2089.7	219.9	135.0	45	180
2089.8	221.3	135.3	84	219
2089.9	222.8	135.6	130	266
2090.0	~~224.3~~ 225.3	135.9	183	319
2090.1	~~225.9~~ ---	136.1	242	378
2090.2	~~227.4~~ ---	136.4	307	443
2090.3	~~229.0~~ ---	136.7	378	514
2090.4	~~230.6~~ ---	136.9	453	590
2090.5	232.2	137.2	534	672
2090.6	233.7	137.5	620	758
2090.7	235.3	137.7	711	849
2090.8	236.9	138.0	807	945
2090.9	~~238.4~~ ---	138.3	907	1046
2091.0	~~240.0~~ 241.0	138.5	1012	1151

CURRENT DATE: 02-16-1999
CURRENT TIME: 09:20:08

FILE DATE: 02-16-1999
FILE NAME: HV-42

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	2065.00	2061.00	800.01	1 RCP	3.50	3.50	.015	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: HV-42 DATE: 02-16-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
2065.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2066.60	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2067.68	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2068.37	45.0	45.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2069.03	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2070.65	75.0	75.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2074.63	90.0	90.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2078.64	105.0	105.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2083.16	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2088.16	135.0	135.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2093.70	150.0	150.0	0.0	0.0	0.0	0.0	0.0	0.00	1
2095.00	153.3	153.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: HV-42 DATE: 02-16-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
2065.00	0.000	0.00	0.00	0.00
2066.60	0.000	15.00	0.00	0.00
2067.68	0.000	30.00	0.00	0.00
2068.37	0.000	45.00	0.00	0.00
2069.03	0.000	60.00	0.00	0.00
2070.65	0.000	75.00	0.00	0.00
2074.63	0.000	90.00	0.00	0.00
2078.64	0.000	105.00	0.00	0.00
2083.16	0.000	120.00	0.00	0.00
2088.16	0.000	135.00	0.00	0.00
2093.70	0.000	150.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 02-16-1999 FILE DATE: 02-16-1999
CURRENT TIME: 09:20:08 FILE NAME: HV-42

PERFORMANCE CURVE FOR CULVERT 1 - 1(3.50 (ft) BY 3.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	2065.00	0.00	-4.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
15.00	2066.60	1.60	-1.37	1-S2n	1.17	1.17	1.07	0.00	6.04	0.00
30.00	2067.68	2.47	2.68	2-M2c	1.72	1.69	1.69	0.00	6.53	0.00
45.00	2068.37	3.18	3.37	2-M2c	2.22	2.09	2.09	0.00	7.50	0.00
60.00	2069.03	3.90	4.03	2-M2c	2.78	2.42	2.42	0.00	8.44	0.00
75.00	2070.65	4.75	5.65	2-M2c	3.50	2.70	2.70	0.00	9.43	0.00
90.00	2074.63	5.79	9.63	2-M2c	3.50	2.92	2.92	0.00	10.52	0.00
105.00	2078.64	7.04	13.64	2-M2c	3.50	3.11	3.11	0.00	11.63	0.00
120.00	2083.16	8.50	18.16	2-M2c	3.50	3.30	3.30	0.00	12.85	0.00
135.00	2088.16	10.16	23.15	2-M2c	3.50	3.50	3.50	0.00	14.04	0.00
150.00	2093.70	12.00	28.70	6-FFc	3.50	3.50	3.50	0.00	15.59	0.00

El. inlet face invert 2065.00 ft El. outlet invert 2061.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	2065.00 ft
OUTLET STATION	800.00 ft
OUTLET ELEVATION	2061.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0050
CULVERT LENGTH ALONG SLOPE	800.01 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	3.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

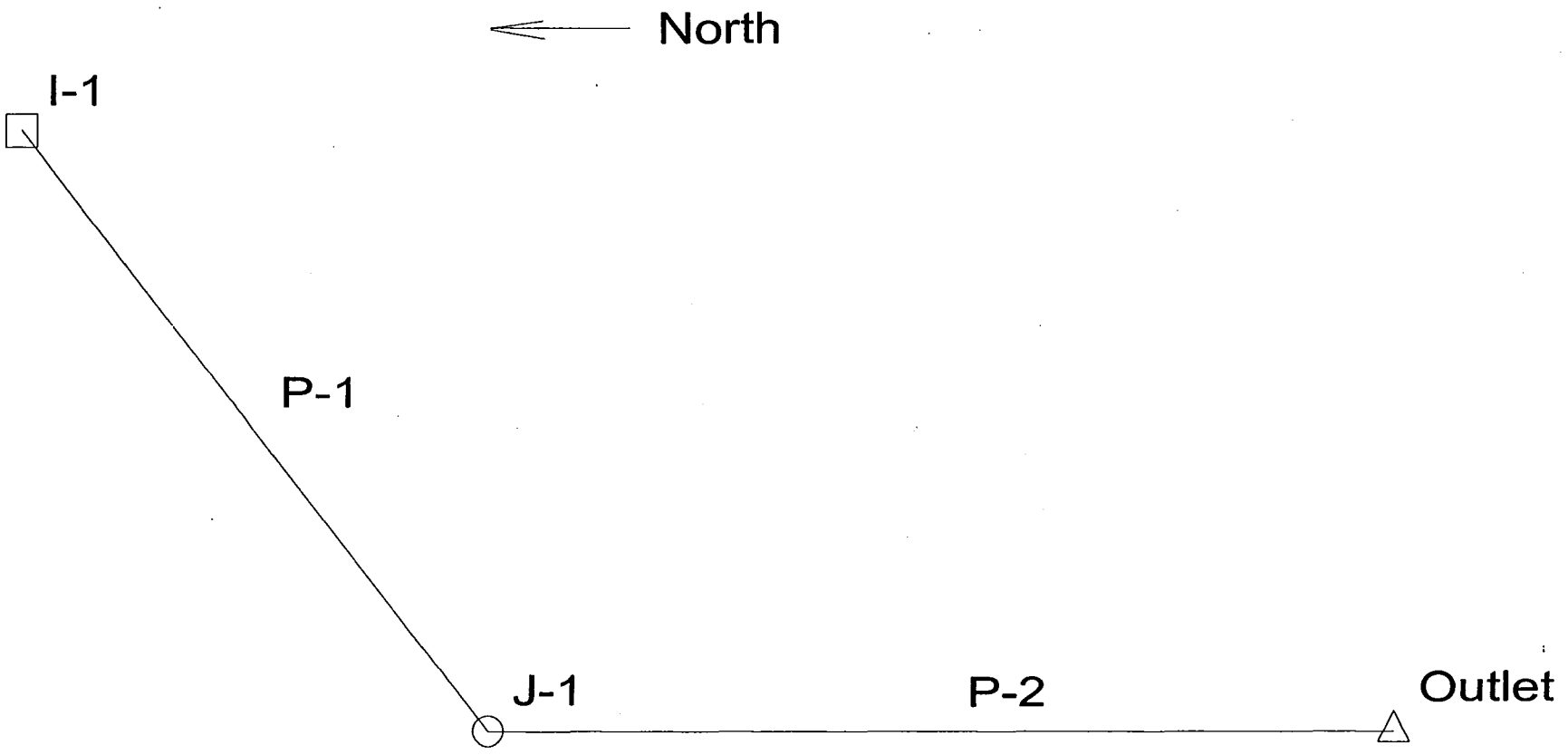
CURRENT DATE: 02-16-1999 FILE DATE: 02-16-1999
CURRENT TIME: 09:20:08 FILE NAME: HV-42

TAILWATER

CONSTANT WATER SURFACE ELEVATION
2061.00

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	20.00 ft
CREST LENGTH	100.00 ft
OVERTOPPING CREST ELEVATION	2095.00 ft



Project Title: Pima Road Three Basins
p:\28900051\stormcad\happydb\42-142-1.stm
02/16/99 10:19:33 AM

Stantech Consulting
© Haestad Methods, Inc. 37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Project Engineer: Mike Gerlach
StormCAD v1.5 [161]

Node Report

Node	Total Upstream Added (cfs)	Discharge (cfs)	Ground Elevation (ft)	Rim Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-1	0.00	133.00	2,095.00	2,095.00	2,086.26	2,084.77
J-1	0.00	133.00	2,074.00	2,074.00	2,072.42	2,070.93
Outlet	0.00	N/A	2,071.80	2,071.80	2,067.00	2,067.00

Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Capacity (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream Cover (ft)	Downstream Cover (ft)	Upstream HGL (ft)
P-1	I-1	J-1	133.00	531.00	0.002015	42 inch	0.015	39.14	2,065.00	2,063.93	2,095.00	2,074.00	26.50	6.57	2,084.77
P-2	J-1	Outlet	133.00	169.00	0.002544	42 inch	0.015	43.98	2,063.93	2,063.50	2,074.00	2,071.80	6.57	4.80	2,070.93

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 10.00 cfs  at node I-1
Discharge: 10.00 cfs  at node J-1
Discharge: 10.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 10.00 cfs  at node I-1
Discharge: 10.00 cfs  at node J-1
Discharge: 10.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	10.00	2,065.96	2,064.11
P-2	400.00	42 inch	10.00	2,063.96	2,061.95

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	10.00	2,090.00	2,066.47	2,065.96
J-1	10.00	2,078.00	2,064.11	2,063.96
Outlet	10.00	2,071.00	2,061.95	2,061.95

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 20.00 cfs  at node I-1
Discharge: 20.00 cfs  at node J-1
Discharge: 20.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 20.00 cfs  at node I-1
Discharge: 20.00 cfs  at node J-1
Discharge: 20.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	20.00	2,066.37	2,064.60
P-2	400.00	42 inch	20.00	2,064.37	2,062.37

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	20.00	2,090.00	2,067.13	2,066.37
J-1	20.00	2,078.00	2,064.60	2,064.37
Outlet	20.00	2,071.00	2,062.37	2,062.37

Elapsed: 0 minute(s) 1 second(s)

```
------------------ Beginning Calculation Cycle ------------------
Discharge: 30.00 cfs  at node I-1
Discharge: 30.00 cfs  at node J-1
Discharge: 30.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 30.00 cfs  at node I-1
Discharge: 30.00 cfs  at node J-1
Discharge: 30.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	30.00	2,066.72	2,065.01
P-2	400.00	42 inch	30.00	2,064.72	2,062.72

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	30.00	2,090.00	2,067.67	2,066.72
J-1	30.00	2,078.00	2,065.01	2,064.72
Outlet	30.00	2,071.00	2,062.72	2,062.72

Elapsed: 0 minute(s) 0 second(s)

```
----------------- Beginning Calculation Cycle ------------------
Discharge: 40.00 cfs  at node I-1
Discharge: 40.00 cfs  at node J-1
Discharge: 40.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 40.00 cfs  at node I-1
Discharge: 40.00 cfs  at node J-1
Discharge: 40.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
-------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ---------------- Network Quick View  -----------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	40.00	2,067.05	2,065.38
P-2	400.00	42 inch	40.00	2,065.05	2,063.05

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	40.00	2,090.00	2,068.14	2,067.05
J-1	40.00	2,078.00	2,065.38	2,065.05
Outlet	40.00	2,071.00	2,063.05	2,063.05

Elapsed: 0 minute(s) 1 second(s)

```
----------------- Beginning Calculation Cycle ------------------
Discharge: 50.00 cfs  at node I-1
Discharge: 50.00 cfs  at node J-1
Discharge: 50.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 50.00 cfs  at node I-1
Discharge: 50.00 cfs  at node J-1
Discharge: 50.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	50.00	2,067.39	2,065.75
P-2	400.00	42 inch	50.00	2,065.39	2,063.39

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	50.00	2,090.00	2,068.58	2,067.39
J-1	50.00	2,078.00	2,065.75	2,065.39
Outlet	50.00	2,071.00	2,063.39	2,063.39

Elapsed: 0 minute(s) 1 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 60.00 cfs  at node I-1
Discharge: 60.00 cfs  at node J-1
Discharge: 60.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 60.00 cfs  at node I-1
Discharge: 60.00 cfs  at node J-1
Discharge: 60.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: J-1 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	60.00	2,067.83	2,066.16
P-2	400.00	42 inch	60.00	2,065.79	2,063.79

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	60.00	2,090.00	2,069.04	2,067.83
J-1	60.00	2,078.00	2,066.16	2,065.79
Outlet	60.00	2,071.00	2,063.79	2,063.79

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 70.00 cfs  at node I-1
Discharge: 70.00 cfs  at node J-1
Discharge: 70.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 70.00 cfs  at node I-1
Discharge: 70.00 cfs  at node J-1
Discharge: 70.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	70.00	2,070.03	2,067.45
P-2	400.00	42 inch	70.00	2,067.08	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	70.00	2,090.00	2,071.26	2,070.03
J-1	70.00	2,078.00	2,067.45	2,067.08
Outlet	70.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 1 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 80.00 cfs  at node I-1
Discharge: 80.00 cfs  at node J-1
Discharge: 80.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 80.00 cfs  at node I-1
Discharge: 80.00 cfs  at node J-1
Discharge: 80.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	80.00	2,071.72	2,068.35
P-2	400.00	42 inch	80.00	2,067.87	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	80.00	2,090.00	2,073.33	2,071.72
J-1	80.00	2,078.00	2,068.35	2,067.87
Outlet	80.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 90.00 cfs  at node I-1
Discharge: 90.00 cfs  at node J-1
Discharge: 90.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 90.00 cfs  at node I-1
Discharge: 90.00 cfs  at node J-1
Discharge: 90.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	90.00	2,073.64	2,069.37
P-2	400.00	42 inch	90.00	2,068.76	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	90.00	2,090.00	2,075.68	2,073.64
J-1	90.00	2,078.00	2,069.37	2,068.76
Outlet	90.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 100.00 cfs  at node I-1
Discharge: 100.00 cfs  at node J-1
Discharge: 100.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 100.00 cfs  at node I-1
Discharge: 100.00 cfs  at node J-1
Discharge: 100.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	100.00	2,075.78	2,070.52
P-2	400.00	42 inch	100.00	2,069.76	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	100.00	2,090.00	2,078.30	2,075.78
J-1	100.00	2,078.00	2,070.52	2,069.76
Outlet	100.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 110.00 cfs  at node I-1
Discharge: 110.00 cfs  at node J-1
Discharge: 110.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 110.00 cfs  at node I-1
Discharge: 110.00 cfs  at node J-1
Discharge: 110.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	110.00	2,078.15	2,071.78
P-2	400.00	42 inch	110.00	2,070.87	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	110.00	2,090.00	2,081.19	2,078.15
J-1	110.00	2,078.00	2,071.78	2,070.87
Outlet	110.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 1 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 120.00 cfs  at node I-1
Discharge: 120.00 cfs  at node J-1
Discharge: 120.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 120.00 cfs  at node I-1
Discharge: 120.00 cfs  at node J-1
Discharge: 120.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	120.00	2,080.74	2,073.16
P-2	400.00	42 inch	120.00	2,072.08	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	120.00	2,090.00	2,084.37	2,080.74
J-1	120.00	2,078.00	2,073.16	2,072.08
Outlet	120.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 1 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 130.00 cfs  at node I-1
Discharge: 130.00 cfs  at node J-1
Discharge: 130.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 130.00 cfs  at node I-1
Discharge: 130.00 cfs  at node J-1
Discharge: 130.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	130.00	2,083.56	2,074.67
P-2	400.00	42 inch	130.00	2,073.39	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	130.00	2,090.00	2,087.82	2,083.56
J-1	130.00	2,078.00	2,074.67	2,073.39
Outlet	130.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 140.00 cfs  at node I-1
Discharge: 140.00 cfs  at node J-1
Discharge: 140.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 140.00 cfs  at node I-1
Discharge: 140.00 cfs  at node J-1
Discharge: 140.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	140.00	2,086.61	2,076.29
P-2	400.00	42 inch	140.00	2,074.81	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	140.00	2,095.00	2,091.54	2,086.61
J-1	140.00	2,078.00	2,076.29	2,074.81
Outlet	140.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 150.00 cfs  at node I-1
Discharge: 150.00 cfs  at node J-1
Discharge: 150.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 150.00 cfs  at node I-1
Discharge: 150.00 cfs  at node J-1
Discharge: 150.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: Outlet Incoming Pipe(s) capacity exceeded.  Tailwater set to crown (not normal
depth) for these pipe(s).
Information: J-1 Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3


 ----------------- Network Quick View  ------------------------
```

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	400.00	42 inch	150.00	2,089.88	2,078.04
P-2	400.00	42 inch	150.00	2,076.34	2,064.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
I-1	150.00	2,095.00	2,091.77	2,089.88
J-1	150.00	2,085.00	2,078.04	2,076.34
Outlet	150.00	2,071.00	2,064.50	2,064.50

Elapsed: 0 minute(s) 0 second(s)

```
*********************************************
     UNEVEN WEIR FLOW PROGRAM
     FORTRAN VERSION 1.0
*********************************************
PROJECT:  Pima Road 3 Basins:  Happy Valley DB overflow
ENGINEER:  mcg
DATE:   7/21/1997
TIME:  15:35.22
```

```
---------------------------------------------
     INPUT PARAMETERS
---------------------------------------------
STARTING WSEL:       2089.50
MAXIMUM WSEL:        2091.05
STEP SIZE:              0.05
BREADTH OF WEIR:       20.00
```

```
*********************************************
INPUT ELEVATION/STATION TABLE.
PROJECT:  Pima Road 3 Basins:  Happy Valley DB overflow
DATE:   7/21/1997
TIME:  15:35.22
*********************************************
```

POINT	ELEVATION	STATION
1	2091.00	1000.00
2	2089.50	1000.10
3	2089.50	1200.10
4	2091.00	1200.20

****
WEIR COEFFICIENT TABLE
PROJECT: Pima Road 3 Basins: Happy Valley DB overflow
DATE: 7/21/1997
TIME: 15:35.22
****

REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.50
2	0.05	2.51
3	0.10	2.52
4	0.15	2.53
5	0.20	2.53
6	0.25	2.54
7	0.30	2.55
8	0.35	2.56
9	0.40	2.57
10	0.45	2.58
11	0.50	2.58
12	0.55	2.59
13	0.60	2.60
14	0.65	2.61
15	0.70	2.62
16	0.75	2.63
17	0.80	2.63
18	0.85	2.64
19	0.90	2.65
20	0.95	2.66
21	1.00	2.67
22	1.05	2.68
23	1.10	2.68
24	1.15	2.69
25	1.20	2.70
26	1.25	2.71
27	1.30	2.72
28	1.35	2.73
29	1.40	2.73
30	1.45	2.74
31	1.50	2.75
32	1.55	2.76

****
UNEVEN WEIR FLOW PROGRAM
FORTRAN VERSION 1.0
PROJECT: Pima Road 3 Basins: Happy Valley DB overflow
DATE: 7/21/1997
TIME: 15:35.22
****

ELEVATION	DISCHARGE (CFS)
2089.50	0
2089.55	6
2089.60	16
2089.65	29
2089.70	45
2089.75	64
2089.80	84
2089.85	106
2089.90	130
2089.95	156
2090.00	183
2090.05	212
2090.10	242
2090.15	274
2090.20	307
2090.25	342
2090.30	378
2090.35	415
2090.40	453
2090.45	493
2090.50	534
2090.55	577
2090.60	620
2090.65	665
2090.70	711
2090.75	758
2090.80	807
2090.85	856
2090.90	907
2090.95	959
2091.00	1012
2091.05	1067

APPENDIX C

DEER VALLEY BASIN STAGE, STORAGE, DISCHARGE RELATIONS AND SUPPORTING TECHNICAL CALCULATIONS AND OUTPUT

Table C-1

Stage-storage-discharge rating curve for
Deer Valley Detention Basin for the 6-hour storm

Stage feet	Total Available Storage acre-feet	Discharge No Clogging cfs	Discharge 50% Clogging cfs
1855.75	0.0	0	0
1856.0	0.2	3	3
1857.0	0.7	15	15
1858.0	1.7	28	28
1859.0	3.5	51	51
1860.0	6.1	81	81
1861.0	----	113	112
1862.0	----	143	141
1863.0	----	165	163
1864.0	----	183	181
1865.0	38.6	193	192
1866.0	----	204	202
1867.0	----	212	211
1868.0	----	216	215
1869.0	----	220	219
1870.0	86.9	224	223
1871.0	----	228	227
1872.0	----	232	231
1873.0	----	236	235
1874.0	----	240	240
1875.0	143.2	243	242
1876.0	----	246	245
1877.0	----	248	248
1878.0	----	251	250
1879.0	----	253	253
1880.0	209.9	256	256
1881.0	224.1	259	258

Table C-2

Stage-Storage rating table for the
Deer Valley Detention Basin

Stage feet	Storage acre-feet	Sediment Dead Storage acre-feet	Total Available Storage acre-feet
1855	0.0	---	0
1856	0.2	0	0.2
1857	0.5	0	0.7
1858	1.0	0	1.7
1859	1.7	0	3.5
1860	3.7	1	6.1
1865	37.5	5	38.6
1870	52.2	4	86.9
1875	59.3	3	143.2
1880	66.7	0	209.9
1881	14.2	0	224.1

Table C-3

Deer Valley Detention Basin trashrack headloss for 50% clogging

Discharge cfs	Trashrack Area[a] Gross[b] sq. feet	Trashrack Area[a] Net[c] sq. feet	Headloss Coefficient	Velocity Through Bars[d] fps	Headloss feet
0	---	---	---	---	0
30	---	---	---	---	0
60	---	---	---	---	0
90	---	---	---	---	0
120	149.8	69.95	1.02	1.72	0.05
150	149.8	69.95	1.02	2.14	0.07
180	149.8	69.95	1.02	2.57	0.11
210	149.8	69.95	1.02	3.00	0.14
240	149.8	69.95	1.02	3.43	0.19
270	149.8	69.95	1.02	3.86	0.24

Notes
a: Only fully submereged conditions are considered.
b: Assumes the trashrack is mounted on a ADOT standard headwall as shown on figure.
c: APWA trashrack, bar area is 9.85 sq. feet, see figure.
d: Velocity through the net area.

Table C-4

Controlling stage-discharge rating table for the 6-hour storm
for a 54" conduit with a square edge headwall

Discharge cfs	Inlet Control Stage feet	Backwater Analysis Stage feet	Controlling Headwater Elevation	
			No Clogging feet	50% Clogging feet
0	1855.75	1855.00	1855.75	1855.75
30	1857.86	1858.18	1858.18	1858.18
60	1859.02	1859.33	1859.33	1859.33
90	1859.99	1860.30	1860.30	1860.30
120	1861.00	1861.23	1861.23	1861.28
150	1862.24	1862.17	1862.24	1862.31
180	1863.77	1863.18	1863.77	1863.88
210	1865.61	1866.57	1866.57	1866.71
240	1867.75	1873.93	1873.93	1874.12
270	1870.00	1885.21	1885.21	1885.45

Table C-5

Stage-storage-discharge rating curve for Deer Valley Detention Basin for the 24-hour storm

Stage feet	Total Available Storage acre-feet	Discharge 50% Clogging cfs	Weir cfs	Total cfs
1855.75	0.0	0	0	0
1856.0	0.2	3	0	3
1857.0	0.7	15	0	15
1858.0	1.7	28	0	28
1859.0	3.5	51	0	51
1860.0	6.1	81	0	81
1861.0	----	112	0	112
1862.0	----	141	0	141
1863.0	----	163	0	163
1864.0	----	181	0	181
1865.0	38.6	192	0	192
1866.0	----	202	0	202
1867.0	----	211	0	211
1868.0	----	215	0	215
1869.0	----	219	0	219
1870.0	86.9	223	0	223
1871.0	----	227	0	227
1872.0	----	231	0	231
1873.0	----	235	0	235
1874.0	----	240	0	240
1875.0	143.2	242	0	242
1876.0	----	245	0	245
1877.0	----	248	0	248
1878.0	----	250	0	250
1879.0	----	253	0	253
1879.5	----	254.3	0	254
1879.6	----	254.5	16	271
1879.8	----	255.0	84	339
1880.0	209.9	255.6	183	439
1880.2	----	256.1	307	563
1880.4	----	256.6	453	710
1880.5	----	256.9	534	791
1880.6	----	257.2	620	877
1880.7	----	257.4	711	968
1880.8	----	257.7	807	1065
1880.9	----	258.0	907	1165
1881.0	224.1	258.2	1012	1270

CURRENT DATE: 02-11-1999
CURRENT TIME: 13:32:02

FILE DATE: 02-11-1999
FILE NAME: DV-54

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

CULV NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1855.75	1847.72	342.17	1 RCP	4.50	4.50	.015	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: DV-54 DATE: 02-11-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1855.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1857.85	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1859.02	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1859.98	90.0	90.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1861.00	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1862.23	150.0	150.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1863.76	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1865.60	210.0	210.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1867.75	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1870.17	270.0	270.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1872.85	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1881.00	370.9	370.9	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: DV-54 DATE: 02-11-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1855.75	0.000	0.00	0.00	0.00
1857.85	0.000	30.00	0.00	0.00
1859.02	0.000	60.00	0.00	0.00
1859.98	0.000	90.00	0.00	0.00
1861.00	0.000	120.00	0.00	0.00
1862.23	0.000	150.00	0.00	0.00
1863.76	0.000	180.00	0.00	0.00
1865.60	0.000	210.00	0.00	0.00
1867.75	0.000	240.00	0.00	0.00
1870.17	0.000	270.00	0.00	0.00
1872.85	0.000	300.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 02-11-1999 FILE DATE: 02-11-1999
CURRENT TIME: 13:32:02 FILE NAME: DV-54

PERFORMANCE CURVE FOR CULVERT 1 - 1(4.50 (ft) BY 4.50 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1855.75	0.00	-8.03	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30.00	1857.85	2.10	-4.81	1-S2n	1.01	1.55	0.95	0.00	12.13	0.00
60.00	1859.02	3.27	-3.90	1-S2n	1.46	2.25	1.35	0.00	14.95	0.00
90.00	1859.98	4.23	-2.70	1-S2n	1.82	2.78	1.83	0.00	14.87	0.00
120.00	1861.00	5.25	-1.16	1-S2n	2.14	3.22	2.15	0.00	15.95	0.00
150.00	1862.23	6.48	0.72	1-S2n	2.44	3.59	2.39	0.00	17.47	0.00
180.00	1863.76	8.01	2.93	1-S2n	2.74	3.86	2.78	0.00	17.49	0.00
210.00	1865.60	9.85	5.51	5-S2n	3.05	4.12	3.09	0.00	18.06	0.00
240.00	1867.75	12.00	8.46	5-S2n	3.41	4.38	3.44	0.00	18.43	0.00
270.00	1870.17	14.42	11.72	6-FFc	3.87	4.50	4.50	0.00	16.98	0.00
300.00	1872.85	17.10	15.30	6-FFc	4.50	4.50	4.50	0.00	18.86	0.00

El. inlet face invert 1855.75 ft El. outlet invert 1847.72 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1855.75 ft
OUTLET STATION	342.08 ft
OUTLET ELEVATION	1847.72 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0235
CULVERT LENGTH ALONG SLOPE	342.17 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.50 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 02-11-1999 FILE DATE: 02-11-1999
CURRENT TIME: 13:32:02 FILE NAME: DV-54

TAILWATER

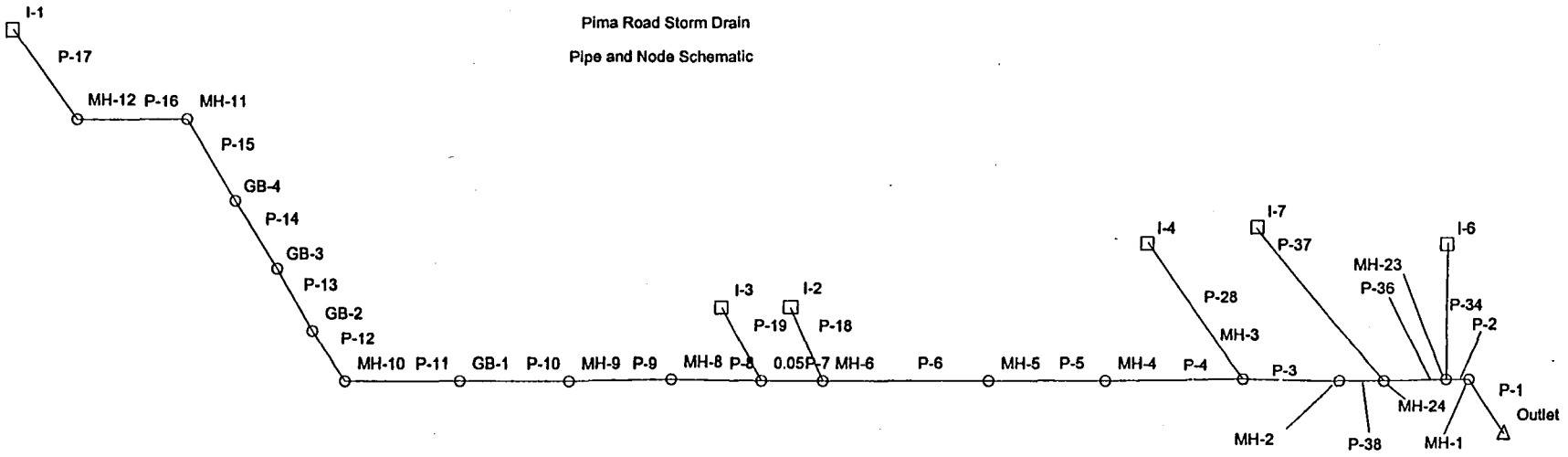
CONSTANT WATER SURFACE ELEVATION
1847.72

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	130.00 ft
CREST LENGTH	100.00 ft
OVERTOPPING CREST ELEVATION	1881.00 ft

Pima Road Storm Drain

Pipe and Node Schematic



Stantec Consulting, Inc.
Project No. 28900082

Node Report

Node	Total Upstream Added (cfs)	Discharge (cfs)	Ground Elevation (ft)	Rim Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-1	0.00	251.00	1,890.00	1,890.00	1,876.87	1,871.06
MH-12	0.00	251.00	1,880.00	1,880.00	1,863.60	1,862.13
MH-11	0.00	251.00	1,880.00	1,880.00	1,858.24	1,856.89
GB-4	0.00	251.00	1,880.00	1,880.00	1,853.72	1,853.72
GB-3	0.00	251.00	1,858.00	1,858.00	1,852.43	1,852.43
GB-2	0.00	251.00	1,858.00	1,858.00	1,851.88	1,851.88
MH-10	0.00	251.00	1,858.11	1,858.11	1,851.23	1,849.76
GB-1	0.00	251.00	1,849.00	1,849.00	1,842.68	1,842.68
MH-9	0.00	251.00	1,841.40	1,841.40	1,834.79	1,834.60
MH-8	0.00	251.00	1,825.23	1,825.23	1,820.28	1,819.44
I-3	0.00	2.00	1,815.00	1,815.00	1,805.77	1,805.77
I-2	0.00	2.00	1,815.00	1,815.00	1,805.55	1,805.55
0.05	0.00	253.00	1,814.21	1,814.21	1,805.77	1,805.69
MH-6	0.00	255.00	1,813.85	1,813.85	1,805.55	1,803.02
MH-5	0.00	255.00	1,804.45	1,804.45	1,792.97	1,792.85
I-4	0.00	2.00	1,777.20	1,777.20	1,771.78	1,771.58
MH-4	0.00	255.00	1,793.47	1,793.47	1,786.07	1,785.95
MH-3	0.00	257.00	1,777.92	1,777.92	1,769.20	1,769.12
MH-2	0.00	257.00	1,763.34	1,763.34	1,751.11	1,751.03
I-7	0.00	2.00	1,761.72	1,761.72	1,757.36	1,757.14
MH-24	0.00	259.00	1,761.70	1,761.70	1,748.18	1,748.09
I-6	0.00	2.00	1,753.45	1,753.45	1,749.12	1,748.89
MH-23	0.00	261.00	1,752.35	1,752.35	1,739.90	1,739.82
MH-1	0.00	261.00	1,748.90	1,748.90	1,735.44	1,735.11
Outlet	0.00	N/A	1,745.00	1,745.00	1,735.00	1,735.00

Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Capacity (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream Cover (ft)	Downstream Cover (ft)	Upstream HGL (ft)
P-17	I-1	MH-12	251.00	344.00	0.017151	54 inch	0.015	223.19	1,855.75	1,849.85	1,890.00	1,880.00	29.75	25.65	1,871.06
P-16	MH-12	MH-11	251.00	179.00	0.017151	54 inch	0.015	223.18	1,849.85	1,846.78	1,880.00	1,880.00	25.65	28.72	1,862.13
P-15	MH-11	GB-4	251.00	146.00	0.017123	54 inch	0.015	223.00	1,846.78	1,844.28	1,880.00	1,880.00	28.72	31.22	1,856.89
P-14	GB-4	GB-3	251.00	59.74	0.003850	54 inch	0.015	105.74	1,844.28	1,844.05	1,880.00	1,858.00	31.22	9.45	1,853.72
P-13	GB-3	GB-2	251.00	25.26	0.160333	54 inch	0.015	682.39	1,844.05	1,840.00	1,858.00	1,858.00	9.45	13.50	1,852.43
P-12	GB-2	MH-10	251.00	30.00	0.004667	54 inch	0.015	116.42	1,840.00	1,839.86	1,858.00	1,858.11	13.50	13.75	1,851.88
P-11	MH-10	GB-1	251.00	320.00	0.004562	54 inch	0.015	115.11	1,839.86	1,838.40	1,858.11	1,849.00	13.75	6.10	1,849.76
P-10	GB-1	MH-9	251.00	340.00	0.024706	54 inch	0.015	267.87	1,838.40	1,830.00	1,849.00	1,841.40	6.10	6.90	1,842.68
P-9	MH-9	MH-8	251.00	660.00	0.022712	54 inch	0.015	256.83	1,830.00	1,815.01	1,841.40	1,825.23	6.90	5.72	1,834.60
P-8	MH-8	0.05	251.00	540.76	0.029643	60 inch	0.015	388.60	1,815.01	1,798.98	1,825.23	1,814.21	5.22	10.23	1,819.44
P-19	I-3	0.05	2.00	98.00	0.010000	60 inch	0.015	225.70	1,799.96	1,798.98	1,815.00	1,814.21	10.04	10.23	1,805.77
P-18	I-2	MH-6	2.00	108.00	0.010000	60 inch	0.015	225.70	1,799.65	1,798.57	1,815.00	1,813.85	10.35	10.28	1,805.55
P-7	0.05	MH-6	253.00	18.50	0.022162	66 inch	0.015	433.24	1,798.98	1,798.57	1,814.21	1,813.85	9.73	9.78	1,805.69
P-6	MH-6	MH-5	255.00	460.76	0.022072	66 inch	0.015	432.36	1,798.57	1,788.40	1,813.85	1,804.45	9.78	10.55	1,803.02
P-5	MH-5	MH-4	255.00	450.00	0.015333	66 inch	0.015	360.36	1,788.40	1,781.50	1,804.45	1,793.47	10.55	6.47	1,792.85
P-28	I-4	MH-3	2.00	55.00	0.112727	60 inch	0.013	874.39	1,771.20	1,765.00	1,777.20	1,777.92	1.00	7.92	1,771.58
P-4	MH-4	MH-3	255.00	660.00	0.025000	66 inch	0.013	530.93	1,781.50	1,765.00	1,793.47	1,777.92	6.47	7.42	1,785.95
P-3	MH-3	MH-2	257.00	660.00	0.027409	90 inch	0.015	1,101.70	1,765.00	1,746.91	1,777.92	1,763.34	5.42	8.93	1,769.12
P-38	MH-2	MH-24	257.00	107.50	0.027442	90 inch	0.013	1,271.96	1,746.91	1,743.96	1,763.34	1,761.70	8.93	10.24	1,751.03
P-37	I-7	MH-24	2.00	82.00	0.155610	42 inch	0.013	396.86	1,756.72	1,743.96	1,761.72	1,761.70	1.50	14.24	1,757.14
P-36	MH-24	MH-23	259.00	302.50	0.027405	90 inch	0.013	1,271.10	1,743.96	1,735.67	1,761.70	1,752.35	10.24	9.18	1,748.09
P-34	I-6	MH-23	2.00	61.00	0.209508	36 inch	0.013	305.28	1,748.45	1,735.67	1,753.45	1,752.35	2.00	13.68	1,748.89
P-2	MH-23	MH-1	261.00	351.00	0.027407	90 inch	0.013	1,271.16	1,735.67	1,726.05	1,752.35	1,748.90	9.18	15.35	1,739.82
P-1	MH-1	Outlet	261.00	74.65	0.027461	90 inch	0.015	1,102.76	1,726.05	1,724.00	1,748.90	1,745.00	15.35	13.50	1,735.11

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 30.00 cfs  at node I-1
Discharge: 30.00 cfs  at node MH-12
Discharge: 30.00 cfs  at node MH-11
Discharge: 30.00 cfs  at node GB-4
Discharge: 30.00 cfs  at node GB-3
Discharge: 30.00 cfs  at node GB-2
Discharge: 30.00 cfs  at node MH-10
Discharge: 30.00 cfs  at node GB-1
Discharge: 30.00 cfs  at node MH-9
Discharge: 30.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 32.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 34.00 cfs  at node MH-6
Discharge: 34.00 cfs  at node MH-5
Discharge: 34.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 36.00 cfs  at node MH-3
Discharge: 36.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 38.00 cfs  at node MH-24
Discharge: 40.00 cfs  at node MH-23
Discharge: 40.00 cfs  at node MH-1
Discharge: 40.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 30.00 cfs  at node I-1
Discharge: 30.00 cfs  at node MH-12
Discharge: 30.00 cfs  at node MH-11
Discharge: 30.00 cfs  at node GB-4
Discharge: 30.00 cfs  at node GB-3
Discharge: 30.00 cfs  at node GB-2
Discharge: 30.00 cfs  at node MH-10
Discharge: 30.00 cfs  at node GB-1
Discharge: 30.00 cfs  at node MH-9
Discharge: 30.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 32.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 34.00 cfs  at node MH-6
Discharge: 34.00 cfs  at node MH-5
Discharge: 34.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 36.00 cfs  at node MH-3
Discharge: 36.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 38.00 cfs  at node MH-24
Discharge: 40.00 cfs  at node MH-23
Discharge: 40.00 cfs  at node MH-1
Discharge: 40.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ---------------------
```

** Analysis Options **
Friction method: Manning's Formula
Hydraulic Grade Convergence Test: 0.001000
Maximum Network Traversals: 5
Number of Flow Profile Steps: 5
Discharge Convergence Test: 0.001000
Maximum Design Passes: 3

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	40.00	1,735.00	1,735.00
P-3	660.00	90 inch	36.00	1,766.49	1,748.42
P-5	450.00	66 inch	34.00	1,789.98	1,783.11
P-16	179.00	54 inch	30.00	1,851.42	1,848.55
P-17	344.00	54 inch	30.00	1,857.32	1,851.64
P-6	460.76	66 inch	34.00	1,800.15	1,790.01
P-9	660.00	54 inch	30.00	1,831.57	1,816.69
P-8	540.76	60 inch	30.00	1,816.53	1,800.54
P-7	18.50	66 inch	32.00	1,800.51	1,800.75
P-19	98.00	60 inch	2.00	1,800.52	1,800.54
P-18	108.00	60 inch	2.00	1,800.75	1,800.75
P-12	30.00	54 inch	30.00	1,841.64	1,841.65
P-11	320.00	54 inch	30.00	1,841.43	1,839.97
P-10	340.00	54 inch	30.00	1,839.97	1,831.60
P-15	146.00	54 inch	30.00	1,848.35	1,845.92
P-14	59.74	54 inch	30.00	1,845.92	1,845.62
P-13	25.26	54 inch	30.00	1,845.62	1,841.64
P-4	660.00	66 inch	34.00	1,783.08	1,765.94
P-28	55.00	60 inch	2.00	1,771.58	1,766.51
P-2	351.00	90 inch	40.00	1,737.24	1,735.01

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,737.27
P-38	107.50	90 inch	36.00	1,748.40	1,745.52
P-36	302.50	90 inch	38.00	1,745.49	1,737.27
P-37	82.00	42 inch	2.00	1,757.14	1,745.52

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	40.00	1,745.00	1,735.00	1,735.00
MH-1	40.00	1,748.90	1,735.01	1,735.00
MH-2	36.00	1,763.34	1,748.42	1,748.40
MH-3	36.00	1,777.92	1,766.51	1,766.49
MH-4	34.00	1,793.47	1,783.11	1,783.08
MH-5	34.00	1,804.45	1,790.01	1,789.98
MH-6	34.00	1,813.85	1,800.75	1,800.15
0.05	32.00	1,814.21	1,800.54	1,800.51
MH-8	30.00	1,825.23	1,816.69	1,816.53
MH-9	30.00	1,841.40	1,831.60	1,831.57
MH-10	30.00	1,858.11	1,841.65	1,841.43

MH-11	30.00	1,880.00	1,848.55	1,848.35
MH-12	30.00	1,880.00	1,851.64	1,851.42
I-1	30.00	1,890.00	1,858.18	1,857.32
I-2	2.00	1,815.00	1,800.75	1,800.75
I-3	2.00	1,815.00	1,800.58	1,800.52
GB-2	30.00	1,858.00	1,841.64	1,841.64
GB-1	30.00	1,849.00	1,839.97	1,839.97
GB-4	30.00	1,880.00	1,845.92	1,845.92
GB-3	30.00	1,858.00	1,845.62	1,845.62

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	40.00	1,752.35	1,737.27	1,737.24
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	38.00	1,761.70	1,745.52	1,745.49

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 60.00 cfs  at node I-1
Discharge: 60.00 cfs  at node MH-12
Discharge: 60.00 cfs  at node MH-11
Discharge: 60.00 cfs  at node GB-4
Discharge: 60.00 cfs  at node GB-3
Discharge: 60.00 cfs  at node GB-2
Discharge: 60.00 cfs  at node MH-10
Discharge: 60.00 cfs  at node GB-1
Discharge: 60.00 cfs  at node MH-9
Discharge: 60.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 62.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 64.00 cfs  at node MH-6
Discharge: 64.00 cfs  at node MH-5
Discharge: 64.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 66.00 cfs  at node MH-3
Discharge: 66.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 68.00 cfs  at node MH-24
Discharge: 70.00 cfs  at node MH-23
Discharge: 70.00 cfs  at node MH-1
Discharge: 70.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 60.00 cfs  at node I-1
Discharge: 60.00 cfs  at node MH-12
Discharge: 60.00 cfs  at node MH-11
Discharge: 60.00 cfs  at node GB-4
Discharge: 60.00 cfs  at node GB-3
Discharge: 60.00 cfs  at node GB-2
Discharge: 60.00 cfs  at node MH-10
Discharge: 60.00 cfs  at node GB-1
Discharge: 60.00 cfs  at node MH-9
Discharge: 60.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 62.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 64.00 cfs  at node MH-6
Discharge: 64.00 cfs  at node MH-5
Discharge: 64.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 66.00 cfs  at node MH-3
Discharge: 66.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 68.00 cfs  at node MH-24
Discharge: 70.00 cfs  at node MH-23
Discharge: 70.00 cfs  at node MH-1
Discharge: 70.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
-------------------- Calculations Complete ---------------------
```

** Analysis Options **
Friction method: Manning's Formula
Hydraulic Grade Convergence Test: 0.001000
Maximum Network Traversals: 5
Number of Flow Profile Steps: 5
Discharge Convergence Test: 0.001000
Maximum Design Passes: 3

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	70.00	1,735.01	1,735.00
P-3	660.00	90 inch	66.00	1,767.03	1,748.98
P-5	450.00	66 inch	64.00	1,790.59	1,783.73
P-16	179.00	54 inch	60.00	1,852.10	1,849.34
P-17	344.00	54 inch	60.00	1,858.00	1,852.44
P-6	460.76	66 inch	64.00	1,800.76	1,790.63
P-9	660.00	54 inch	60.00	1,832.25	1,817.43
P-8	540.76	60 inch	60.00	1,817.19	1,801.42
P-7	18.50	66 inch	62.00	1,801.39	1,801.63
P-19	98.00	60 inch	2.00	1,801.42	1,801.42
P-18	108.00	60 inch	2.00	1,801.63	1,801.63
P-12	30.00	54 inch	60.00	1,842.51	1,842.48
P-11	320.00	54 inch	60.00	1,842.17	1,840.65
P-10	340.00	54 inch	60.00	1,840.65	1,832.29
P-15	146.00	54 inch	60.00	1,849.03	1,846.69
P-14	59.74	54 inch	60.00	1,846.69	1,846.30
P-13	25.26	54 inch	60.00	1,846.30	1,842.51
P-4	660.00	66 inch	64.00	1,783.69	1,766.29
P-28	55.00	60 inch	2.00	1,771.58	1,767.07
P-2	351.00	90 inch	70.00	1,737.76	1,735.03

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,737.80
P-38	107.50	90 inch	66.00	1,748.94	1,746.06
P-36	302.50	90 inch	68.00	1,746.02	1,737.80
P-37	82.00	42 inch	2.00	1,757.14	1,746.06

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	70.00	1,745.00	1,735.00	1,735.00
MH-1	70.00	1,748.90	1,735.03	1,735.01
MH-2	66.00	1,763.34	1,748.98	1,748.94
MH-3	66.00	1,777.92	1,767.07	1,767.03
MH-4	64.00	1,793.47	1,783.73	1,783.69
MH-5	64.00	1,804.45	1,790.63	1,790.59
MH-6	64.00	1,813.85	1,801.63	1,800.76
0.05	62.00	1,814.21	1,801.42	1,801.39
MH-8	60.00	1,825.23	1,817.43	1,817.19
MH-9	60.00	1,841.40	1,832.29	1,832.25
MH-10	60.00	1,858.11	1,842.48	1,842.17

MH-11	60.00	1,880.00	1,849.34	1,849.03
MH-12	60.00	1,880.00	1,852.44	1,852.10
I-1	60.00	1,890.00	1,859.33	1,858.00
I-2	2.00	1,815.00	1,801.63	1,801.63
I-3	2.00	1,815.00	1,801.42	1,801.42
GB-2	60.00	1,858.00	1,842.51	1,842.51
GB-1	60.00	1,849.00	1,840.65	1,840.65
GB-4	60.00	1,880.00	1,846.69	1,846.69
GB-3	60.00	1,858.00	1,846.30	1,846.30

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	70.00	1,752.35	1,737.80	1,737.76
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	68.00	1,761.70	1,746.06	1,746.02

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 90.00 cfs  at node I-1
Discharge: 90.00 cfs  at node MH-12
Discharge: 90.00 cfs  at node MH-11
Discharge: 90.00 cfs  at node GB-4
Discharge: 90.00 cfs  at node GB-3
Discharge: 90.00 cfs  at node GB-2
Discharge: 90.00 cfs  at node MH-10
Discharge: 90.00 cfs  at node GB-1
Discharge: 90.00 cfs  at node MH-9
Discharge: 90.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 92.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 94.00 cfs  at node MH-6
Discharge: 94.00 cfs  at node MH-5
Discharge: 94.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 96.00 cfs  at node MH-3
Discharge: 96.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 98.00 cfs  at node MH-24
Discharge: 100.00 cfs  at node MH-23
Discharge: 100.00 cfs  at node MH-1
Discharge: 100.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 90.00 cfs  at node I-1
Discharge: 90.00 cfs  at node MH-12
Discharge: 90.00 cfs  at node MH-11
Discharge: 90.00 cfs  at node GB-4
Discharge: 90.00 cfs  at node GB-3
Discharge: 90.00 cfs  at node GB-2
Discharge: 90.00 cfs  at node MH-10
Discharge: 90.00 cfs  at node GB-1
Discharge: 90.00 cfs  at node MH-9
Discharge: 90.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 92.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 94.00 cfs  at node MH-6
Discharge: 94.00 cfs  at node MH-5
Discharge: 94.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 96.00 cfs  at node MH-3
Discharge: 96.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 98.00 cfs  at node MH-24
Discharge: 100.00 cfs  at node MH-23
Discharge: 100.00 cfs  at node MH-1
Discharge: 100.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ---------------------
```

** Analysis Options **
Friction method: Manning's Formula
Hydraulic Grade Convergence Test: 0.001000
Maximum Network Traversals: 5
Number of Flow Profile Steps: 5
Discharge Convergence Test: 0.001000
Maximum Design Passes: 3

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	100.00	1,735.02	1,735.00
P-3	660.00	90 inch	96.00	1,767.46	1,749.42
P-5	450.00	66 inch	94.00	1,791.08	1,784.23
P-16	179.00	54 inch	90.00	1,852.63	1,849.98
P-17	344.00	54 inch	90.00	1,858.53	1,853.08
P-6	460.76	66 inch	94.00	1,801.25	1,791.13
P-9	660.00	54 inch	90.00	1,832.78	1,818.02
P-8	540.76	60 inch	90.00	1,817.70	1,802.21
P-7	18.50	66 inch	92.00	1,802.18	1,802.35
P-19	98.00	60 inch	2.00	1,802.21	1,802.21
P-18	108.00	60 inch	2.00	1,802.35	1,802.35
P-12	30.00	54 inch	90.00	1,843.30	1,843.23
P-11	320.00	54 inch	90.00	1,842.85	1,841.18
P-10	340.00	54 inch	90.00	1,841.18	1,832.84
P-15	146.00	54 inch	90.00	1,849.56	1,847.34
P-14	59.74	54 inch	90.00	1,847.34	1,846.83
P-13	25.26	54 inch	90.00	1,846.83	1,843.30
P-4	660.00	66 inch	94.00	1,784.18	1,766.57
P-28	55.00	60 inch	2.00	1,771.58	1,767.51
P-2	351.00	90 inch	100.00	1,738.19	1,735.06

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,738.23
P-38	107.50	90 inch	96.00	1,749.37	1,746.50
P-36	302.50	90 inch	98.00	1,746.45	1,738.23
P-37	82.00	42 inch	2.00	1,757.14	1,746.50

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	100.00	1,745.00	1,735.00	1,735.00
MH-1	100.00	1,748.90	1,735.06	1,735.02
MH-2	96.00	1,763.34	1,749.42	1,749.37
MH-3	96.00	1,777.92	1,767.51	1,767.46
MH-4	94.00	1,793.47	1,784.23	1,784.18
MH-5	94.00	1,804.45	1,791.13	1,791.08
MH-6	94.00	1,813.85	1,802.35	1,801.25
0.05	92.00	1,814.21	1,802.21	1,802.18
MH-8	90.00	1,825.23	1,818.02	1,817.70
MH-9	90.00	1,841.40	1,832.84	1,832.78
MH-10	90.00	1,858.11	1,843.23	1,842.85

MH-11	90.00	1,880.00	1,849.98	1,849.56
MH-12	90.00	1,880.00	1,853.08	1,852.63
I-1	90.00	1,890.00	1,860.30	1,858.53
I-2	2.00	1,815.00	1,802.35	1,802.35
I-3	2.00	1,815.00	1,802.21	1,802.21
GB-2	90.00	1,858.00	1,843.30	1,843.30
GB-1	90.00	1,849.00	1,841.18	1,841.18
GB-4	90.00	1,880.00	1,847.34	1,847.34
GB-3	90.00	1,858.00	1,846.83	1,846.83

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	100.00	1,752.35	1,738.23	1,738.19
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	98.00	1,761.70	1,746.50	1,746.45

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle ------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 120.00 cfs  at node I-1
Discharge: 120.00 cfs  at node MH-12
Discharge: 120.00 cfs  at node MH-11
Discharge: 120.00 cfs  at node GB-4
Discharge: 120.00 cfs  at node GB-3
Discharge: 120.00 cfs  at node GB-2
Discharge: 120.00 cfs  at node MH-10
Discharge: 120.00 cfs  at node GB-1
Discharge: 120.00 cfs  at node MH-9
Discharge: 120.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 122.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 124.00 cfs  at node MH-6
Discharge: 124.00 cfs  at node MH-5
Discharge: 124.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 126.00 cfs  at node MH-3
Discharge: 126.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 128.00 cfs  at node MH-24
Discharge: 130.00 cfs  at node MH-23
Discharge: 130.00 cfs  at node MH-1
Discharge: 130.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 120.00 cfs  at node I-1
Discharge: 120.00 cfs  at node MH-12
Discharge: 120.00 cfs  at node MH-11
Discharge: 120.00 cfs  at node GB-4
Discharge: 120.00 cfs  at node GB-3
Discharge: 120.00 cfs  at node GB-2
Discharge: 120.00 cfs  at node MH-10
Discharge: 120.00 cfs  at node GB-1
Discharge: 120.00 cfs  at node MH-9
Discharge: 120.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 122.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 124.00 cfs  at node MH-6
Discharge: 124.00 cfs  at node MH-5
Discharge: 124.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 126.00 cfs  at node MH-3
Discharge: 126.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 128.00 cfs  at node MH-24
Discharge: 130.00 cfs  at node MH-23
Discharge: 130.00 cfs  at node MH-1
Discharge: 130.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ----------------------
```

** Analysis Options **
Friction method: Manning's Formula
Hydraulic Grade Convergence Test: 0.001000
Maximum Network Traversals: 5
Number of Flow Profile Steps: 5
Discharge Convergence Test: 0.001000
Maximum Design Passes: 3

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	130.00	1,735.03	1,735.00
P-3	660.00	90 inch	126.00	1,767.84	1,749.80
P-5	450.00	66 inch	124.00	1,791.49	1,784.66
P-16	179.00	54 inch	120.00	1,853.08	1,850.53
P-17	344.00	54 inch	120.00	1,858.98	1,853.65
P-6	460.76	66 inch	124.00	1,801.66	1,791.56
P-9	660.00	54 inch	120.00	1,833.23	1,818.53
P-8	540.76	60 inch	120.00	1,818.14	1,802.91
P-7	18.50	66 inch	122.00	1,802.87	1,803.00
P-19	98.00	60 inch	2.00	1,802.91	1,802.91
P-18	108.00	60 inch	2.00	1,803.00	1,803.00
P-12	30.00	54 inch	120.00	1,844.19	1,844.07
P-11	320.00	54 inch	120.00	1,843.65	1,841.63
P-10	340.00	54 inch	120.00	1,841.63	1,833.30
P-15	146.00	54 inch	120.00	1,850.01	1,847.94
P-14	59.74	54 inch	120.00	1,847.94	1,847.28
P-13	25.26	54 inch	120.00	1,847.28	1,844.19
P-4	660.00	66 inch	124.00	1,784.59	1,766.81
P-28	55.00	60 inch	2.00	1,771.58	1,767.89
P-2	351.00	90 inch	130.00	1,738.55	1,735.11

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,738.61
P-38	107.50	90 inch	126.00	1,749.75	1,746.87
P-36	302.50	90 inch	128.00	1,746.82	1,738.61
P-37	82.00	42 inch	2.00	1,757.14	1,746.87

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	130.00	1,745.00	1,735.00	1,735.00
MH-1	130.00	1,748.90	1,735.11	1,735.03
MH-2	126.00	1,763.34	1,749.80	1,749.75
MH-3	126.00	1,777.92	1,767.89	1,767.84
MH-4	124.00	1,793.47	1,784.66	1,784.59
MH-5	124.00	1,804.45	1,791.56	1,791.49
MH-6	124.00	1,813.85	1,803.00	1,801.66
0.05	122.00	1,814.21	1,802.91	1,802.87
MH-8	120.00	1,825.23	1,818.53	1,818.14
MH-9	120.00	1,841.40	1,833.30	1,833.23
MH-10	120.00	1,858.11	1,844.07	1,843.65

MH-11	120.00	1,880.00	1,850.53	1,850.01
MH-12	120.00	1,880.00	1,853.65	1,853.08
I-1	120.00	1,890.00	1,861.23	1,858.98
I-2	2.00	1,815.00	1,803.00	1,803.00
I-3	2.00	1,815.00	1,802.91	1,802.91
GB-2	120.00	1,858.00	1,844.19	1,844.19
GB-1	120.00	1,849.00	1,841.63	1,841.63
GB-4	120.00	1,880.00	1,847.94	1,847.94
GB-3	120.00	1,858.00	1,847.28	1,847.28

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	130.00	1,752.35	1,738.61	1,738.55
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	128.00	1,761.70	1,746.87	1,746.82

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 150.00 cfs  at node I-1
Discharge: 150.00 cfs  at node MH-12
Discharge: 150.00 cfs  at node MH-11
Discharge: 150.00 cfs  at node GB-4
Discharge: 150.00 cfs  at node GB-3
Discharge: 150.00 cfs  at node GB-2
Discharge: 150.00 cfs  at node MH-10
Discharge: 150.00 cfs  at node GB-1
Discharge: 150.00 cfs  at node MH-9
Discharge: 150.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 152.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 154.00 cfs  at node MH-6
Discharge: 154.00 cfs  at node MH-5
Discharge: 154.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 156.00 cfs  at node MH-3
Discharge: 156.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 158.00 cfs  at node MH-24
Discharge: 160.00 cfs  at node MH-23
Discharge: 160.00 cfs  at node MH-1
Discharge: 160.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 150.00 cfs  at node I-1
Discharge: 150.00 cfs  at node MH-12
Discharge: 150.00 cfs  at node MH-11
Discharge: 150.00 cfs  at node GB-4
Discharge: 150.00 cfs  at node GB-3
Discharge: 150.00 cfs  at node GB-2
Discharge: 150.00 cfs  at node MH-10
Discharge: 150.00 cfs  at node GB-1
Discharge: 150.00 cfs  at node MH-9
Discharge: 150.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 152.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 154.00 cfs  at node MH-6
Discharge: 154.00 cfs  at node MH-5
Discharge: 154.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 156.00 cfs  at node MH-3
Discharge: 156.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 158.00 cfs  at node MH-24
Discharge: 160.00 cfs  at node MH-23
Discharge: 160.00 cfs  at node MH-1
Discharge: 160.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: P-12 Surcharged condition
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
-------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3
```

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	160.00	1,735.04	1,735.00
P-3	660.00	90 inch	156.00	1,768.17	1,750.14
P-5	450.00	66 inch	154.00	1,791.86	1,785.04
P-16	179.00	54 inch	150.00	1,853.44	1,851.03
P-17	344.00	54 inch	150.00	1,859.34	1,854.16
P-6	460.76	66 inch	154.00	1,802.03	1,791.94
P-9	660.00	54 inch	150.00	1,833.59	1,818.99
P-8	540.76	60 inch	150.00	1,818.52	1,803.57
P-7	18.50	66 inch	152.00	1,803.53	1,803.61
P-19	98.00	60 inch	2.00	1,803.57	1,803.57
P-18	108.00	60 inch	2.00	1,803.61	1,803.61
P-12	30.00	54 inch	150.00	1,845.62	1,845.38
P-11	320.00	54 inch	150.00	1,844.86	1,841.99
P-10	340.00	54 inch	150.00	1,841.99	1,833.69
P-15	146.00	54 inch	150.00	1,850.37	1,848.48
P-14	59.74	54 inch	150.00	1,848.48	1,847.64
P-13	25.26	54 inch	150.00	1,847.64	1,845.62
P-4	660.00	66 inch	154.00	1,784.96	1,767.03
P-28	55.00	60 inch	2.00	1,771.58	1,768.23
P-2	351.00	90 inch	160.00	1,738.88	1,735.17

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,738.94
P-38	107.50	90 inch	156.00	1,750.08	1,747.21
P-36	302.50	90 inch	158.00	1,747.15	1,738.94
P-37	82.00	42 inch	2.00	1,757.14	1,747.21

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	160.00	1,745.00	1,735.00	1,735.00
MH-1	160.00	1,748.90	1,735.17	1,735.04
MH-2	156.00	1,763.34	1,750.14	1,750.08
MH-3	156.00	1,777.92	1,768.23	1,768.17
MH-4	154.00	1,793.47	1,785.04	1,784.96
MH-5	154.00	1,804.45	1,791.94	1,791.86
MH-6	154.00	1,813.85	1,803.61	1,802.03
0.05	152.00	1,814.21	1,803.57	1,803.53
MH-8	150.00	1,825.23	1,818.99	1,818.52
MH-9	150.00	1,841.40	1,833.69	1,833.59

MH-10	150.00	1,858.11	1,845.38	1,844.86
MH-11	150.00	1,880.00	1,851.03	1,850.37
MH-12	150.00	1,880.00	1,854.16	1,853.44
I-1	150.00	1,890.00	1,862.17	1,859.34
I-2	2.00	1,815.00	1,803.61	1,803.61
I-3	2.00	1,815.00	1,803.57	1,803.57
GB-2	150.00	1,858.00	1,845.62	1,845.62
GB-1	150.00	1,849.00	1,841.99	1,841.99
GB-4	150.00	1,880.00	1,848.48	1,848.48
GB-3	150.00	1,858.00	1,847.64	1,847.64
		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	160.00	1,752.35	1,738.94	1,738.88
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	158.00	1,761.70	1,747.21	1,747.15

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle ------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 180.00 cfs  at node I-1
Discharge: 180.00 cfs  at node MH-12
Discharge: 180.00 cfs  at node MH-11
Discharge: 180.00 cfs  at node GB-4
Discharge: 180.00 cfs  at node GB-3
Discharge: 180.00 cfs  at node GB-2
Discharge: 180.00 cfs  at node MH-10
Discharge: 180.00 cfs  at node GB-1
Discharge: 180.00 cfs  at node MH-9
Discharge: 180.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 182.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 184.00 cfs  at node MH-6
Discharge: 184.00 cfs  at node MH-5
Discharge: 184.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 186.00 cfs  at node MH-3
Discharge: 186.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 188.00 cfs  at node MH-24
Discharge: 190.00 cfs  at node MH-23
Discharge: 190.00 cfs  at node MH-1
Discharge: 190.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 180.00 cfs  at node I-1
Discharge: 180.00 cfs  at node MH-12
Discharge: 180.00 cfs  at node MH-11
Discharge: 180.00 cfs  at node GB-4
Discharge: 180.00 cfs  at node GB-3
Discharge: 180.00 cfs  at node GB-2
Discharge: 180.00 cfs  at node MH-10
Discharge: 180.00 cfs  at node GB-1
Discharge: 180.00 cfs  at node MH-9
Discharge: 180.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 182.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 184.00 cfs  at node MH-6
Discharge: 184.00 cfs  at node MH-5
Discharge: 184.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 186.00 cfs  at node MH-3
Discharge: 186.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 188.00 cfs  at node MH-24
Discharge: 190.00 cfs  at node MH-23
Discharge: 190.00 cfs  at node MH-1
Discharge: 190.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: 0.05 Known flow propagated from upstream junctions.
```

```
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: P-12 Surcharged condition
Information: GB-2 Known flow propagated from upstream junctions.
Information: GB-3 Known flow propagated from upstream junctions.
Information: GB-4 Known flow propagated from upstream junctions.
Information: MH-11 Known flow propagated from upstream junctions.
Information: MH-12 Known flow propagated from upstream junctions.
--------------------- Calculations Complete ---------------------
```

** Analysis Options **
Friction method: Manning's Formula
Hydraulic Grade Convergence Test: 0.001000
Maximum Network Traversals: 5
Number of Flow Profile Steps: 5
Discharge Convergence Test: 0.001000
Maximum Design Passes: 3

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	190.00	1,735.06	1,735.00
P-3	660.00	90 inch	186.00	1,768.48	1,750.45
P-5	450.00	66 inch	184.00	1,792.20	1,785.38
P-16	179.00	54 inch	180.00	1,853.74	1,851.49
P-17	344.00	54 inch	180.00	1,859.64	1,854.63
P-6	460.76	66 inch	184.00	1,802.37	1,792.28
P-9	660.00	54 inch	180.00	1,833.89	1,819.41
P-8	540.76	60 inch	180.00	1,818.85	1,804.27
P-7	18.50	66 inch	182.00	1,804.23	1,804.19
P-19	98.00	60 inch	2.00	1,804.27	1,804.27
P-18	108.00	60 inch	2.00	1,804.19	1,804.19
P-12	30.00	54 inch	180.00	1,847.27	1,846.93
P-11	320.00	54 inch	180.00	1,846.18	1,842.29
P-10	340.00	54 inch	180.00	1,842.29	1,834.00
P-15	146.00	54 inch	180.00	1,850.67	1,848.93
P-14	59.74	54 inch	180.00	1,848.93	1,847.94
P-13	25.26	54 inch	180.00	1,847.94	1,847.27
P-4	660.00	66 inch	184.00	1,785.30	1,767.23
P-28	55.00	60 inch	2.00	1,771.58	1,768.54
P-2	351.00	90 inch	190.00	1,739.18	1,735.23

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,739.25
P-38	107.50	90 inch	186.00	1,750.39	1,747.52
P-36	302.50	90 inch	188.00	1,747.46	1,739.25
P-37	82.00	42 inch	2.00	1,757.14	1,747.52

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	190.00	1,745.00	1,735.00	1,735.00
MH-1	190.00	1,748.90	1,735.23	1,735.06
MH-2	186.00	1,763.34	1,750.45	1,750.39
MH-3	186.00	1,777.92	1,768.54	1,768.48
MH-4	184.00	1,793.47	1,785.38	1,785.30
MH-5	184.00	1,804.45	1,792.28	1,792.20
MH-6	184.00	1,813.85	1,804.19	1,802.37
0.05	182.00	1,814.21	1,804.27	1,804.23
MH-8	180.00	1,825.23	1,819.41	1,818.85
MH-9	180.00	1,841.40	1,834.00	1,833.89

MH-10	180.00	1,858.11	1,846.93	1,846.18
MH-11	180.00	1,880.00	1,851.49	1,850.67
MH-12	180.00	1,880.00	1,854.63	1,853.74
I-1	180.00	1,890.00	1,863.18	1,859.64
I-2	2.00	1,815.00	1,804.19	1,804.19
I-3	2.00	1,815.00	1,804.27	1,804.27
GB-2	180.00	1,858.00	1,847.27	1,847.27
GB-1	180.00	1,849.00	1,842.29	1,842.29
GB-4	180.00	1,880.00	1,848.93	1,848.93
GB-3	180.00	1,858.00	1,847.94	1,847.94

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	190.00	1,752.35	1,739.25	1,739.18
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	188.00	1,761.70	1,747.52	1,747.46

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 210.00 cfs  at node I-1
Discharge: 210.00 cfs  at node MH-12
Discharge: 210.00 cfs  at node MH-11
Discharge: 210.00 cfs  at node GB-4
Discharge: 210.00 cfs  at node GB-3
Discharge: 210.00 cfs  at node GB-2
Discharge: 210.00 cfs  at node MH-10
Discharge: 210.00 cfs  at node GB-1
Discharge: 210.00 cfs  at node MH-9
Discharge: 210.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 212.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 214.00 cfs  at node MH-6
Discharge: 214.00 cfs  at node MH-5
Discharge: 214.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 216.00 cfs  at node MH-3
Discharge: 216.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 218.00 cfs  at node MH-24
Discharge: 220.00 cfs  at node MH-23
Discharge: 220.00 cfs  at node MH-1
Discharge: 220.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 210.00 cfs  at node I-1
Discharge: 210.00 cfs  at node MH-12
Discharge: 210.00 cfs  at node MH-11
Discharge: 210.00 cfs  at node GB-4
Discharge: 210.00 cfs  at node GB-3
Discharge: 210.00 cfs  at node GB-2
Discharge: 210.00 cfs  at node MH-10
Discharge: 210.00 cfs  at node GB-1
Discharge: 210.00 cfs  at node MH-9
Discharge: 210.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 212.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 214.00 cfs  at node MH-6
Discharge: 214.00 cfs  at node MH-5
Discharge: 214.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 216.00 cfs  at node MH-3
Discharge: 216.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 218.00 cfs  at node MH-24
Discharge: 220.00 cfs  at node MH-23
Discharge: 220.00 cfs  at node MH-1
Discharge: 220.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: P-7 Surcharged condition
```

```
Information: P-18 Surcharged condition
Information: 0.05 Known flow propagated from upstream junctions.
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: P-12 Surcharged condition
Information: GB-2 Known flow propagated from upstream junctions.
Information: P-13 Surcharged condition
Information: GB-3 Known flow propagated from upstream junctions.
Information: P-14 Surcharged condition
Information: GB-4 Known flow propagated from upstream junctions.
Information: P-15 Surcharged condition
Information: MH-11 Known flow propagated from upstream junctions.
Information: P-16 Surcharged condition
Information: MH-12 Known flow propagated from upstream junctions.
Information: P-17 Surcharged condition
--------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3
```

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	220.00	1,735.08	1,735.00
P-3	660.00	90 inch	216.00	1,768.76	1,750.74
P-5	450.00	66 inch	214.00	1,792.50	1,785.69
P-16	179.00	54 inch	210.00	1,856.25	1,853.53
P-17	344.00	54 inch	210.00	1,862.50	1,857.28
P-6	460.76	66 inch	214.00	1,802.67	1,792.59
P-9	660.00	54 inch	210.00	1,834.10	1,819.80
P-8	540.76	60 inch	210.00	1,819.14	1,804.92
P-7	18.50	66 inch	212.00	1,804.86	1,804.76
P-19	98.00	60 inch	2.00	1,804.92	1,804.92
P-18	108.00	60 inch	2.00	1,804.76	1,804.76
P-12	30.00	54 inch	210.00	1,849.07	1,848.62
P-11	320.00	54 inch	210.00	1,847.59	1,842.50
P-10	340.00	54 inch	210.00	1,842.50	1,834.25
P-15	146.00	54 inch	210.00	1,852.58	1,850.37
P-14	59.74	54 inch	210.00	1,850.37	1,849.46
P-13	25.26	54 inch	210.00	1,849.46	1,849.07
P-4	660.00	66 inch	214.00	1,785.60	1,767.43
P-28	55.00	60 inch	2.00	1,771.58	1,768.83
P-2	351.00	90 inch	220.00	1,739.47	1,735.31

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,739.54
P-38	107.50	90 inch	216.00	1,750.67	1,747.81
P-36	302.50	90 inch	218.00	1,747.74	1,739.54
P-37	82.00	42 inch	2.00	1,757.14	1,747.81

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	220.00	1,745.00	1,735.00	1,735.00
MH-1	220.00	1,748.90	1,735.31	1,735.08
MH-2	216.00	1,763.34	1,750.74	1,750.67

MH-3	216.00	1,777.92	1,768.83	1,768.76
MH-4	214.00	1,793.47	1,785.69	1,785.60
MH-5	214.00	1,804.45	1,792.59	1,792.50
MH-6	214.00	1,813.85	1,804.76	1,802.67
0.05	212.00	1,814.21	1,804.92	1,804.86
MH-8	210.00	1,825.23	1,819.80	1,819.14
MH-9	210.00	1,841.40	1,834.25	1,834.10
MH-10	210.00	1,858.11	1,848.62	1,847.59
MH-11	210.00	1,880.00	1,853.53	1,852.58
MH-12	210.00	1,880.00	1,857.28	1,856.25
I-1	210.00	1,890.00	1,866.57	1,862.50
I-2	2.00	1,815.00	1,804.76	1,804.76
I-3	2.00	1,815.00	1,804.92	1,804.92
GB-2	210.00	1,858.00	1,849.07	1,849.07
GB-1	210.00	1,849.00	1,842.50	1,842.50
GB-4	210.00	1,880.00	1,850.37	1,850.37
GB-3	210.00	1,858.00	1,849.46	1,849.46

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	220.00	1,752.35	1,739.54	1,739.47
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	218.00	1,761.70	1,747.81	1,747.74

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 240.00 cfs  at node I-1
Discharge: 240.00 cfs  at node MH-12
Discharge: 240.00 cfs  at node MH-11
Discharge: 240.00 cfs  at node GB-4
Discharge: 240.00 cfs  at node GB-3
Discharge: 240.00 cfs  at node GB-2
Discharge: 240.00 cfs  at node MH-10
Discharge: 240.00 cfs  at node GB-1
Discharge: 240.00 cfs  at node MH-9
Discharge: 240.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 242.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 244.00 cfs  at node MH-6
Discharge: 244.00 cfs  at node MH-5
Discharge: 244.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 246.00 cfs  at node MH-3
Discharge: 246.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 248.00 cfs  at node MH-24
Discharge: 250.00 cfs  at node MH-23
Discharge: 250.00 cfs  at node MH-1
Discharge: 250.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 240.00 cfs  at node I-1
Discharge: 240.00 cfs  at node MH-12
Discharge: 240.00 cfs  at node MH-11
Discharge: 240.00 cfs  at node GB-4
Discharge: 240.00 cfs  at node GB-3
Discharge: 240.00 cfs  at node GB-2
Discharge: 240.00 cfs  at node MH-10
Discharge: 240.00 cfs  at node GB-1
Discharge: 240.00 cfs  at node MH-9
Discharge: 240.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 242.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 244.00 cfs  at node MH-6
Discharge: 244.00 cfs  at node MH-5
Discharge: 244.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 246.00 cfs  at node MH-3
Discharge: 246.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 248.00 cfs  at node MH-24
Discharge: 250.00 cfs  at node MH-23
Discharge: 250.00 cfs  at node MH-1
Discharge: 250.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: P-7 Surcharged condition
```

```
Information: P-18 Surcharged condition
Information: 0.05 Known flow propagated from upstream junctions.
Information: P-19 Surcharged condition
Information: MH-8 Known flow propagated from upstream junctions.
Information: MH-9 Known flow propagated from upstream junctions.
Information: GB-1 Known flow propagated from upstream junctions.
Information: MH-10 Known flow propagated from upstream junctions.
Information: P-12 Surcharged condition
Information: GB-2 Known flow propagated from upstream junctions.
Information: P-13 Surcharged condition
Information: GB-3 Known flow propagated from upstream junctions.
Information: P-14 Surcharged condition
Information: GB-4 Known flow propagated from upstream junctions.
Information: P-15 Surcharged condition
Information: MH-11 Known flow propagated from upstream junctions.
Information: P-16 Surcharged condition
Information: MH-12 Known flow propagated from upstream junctions.
Information: P-17 Surcharged condition
--------------------- Calculations Complete ----------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3
```

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	250.00	1,735.11	1,735.00
P-3	660.00	90 inch	246.00	1,769.02	1,751.01
P-5	450.00	66 inch	244.00	1,792.76	1,785.97
P-16	179.00	54 inch	240.00	1,860.45	1,856.90
P-17	344.00	54 inch	240.00	1,868.62	1,861.80
P-6	460.76	66 inch	244.00	1,802.93	1,792.87
P-9	660.00	54 inch	240.00	1,834.24	1,820.15
P-8	540.76	60 inch	240.00	1,819.37	1,805.54
P-7	18.50	66 inch	242.00	1,805.46	1,805.33
P-19	98.00	60 inch	2.00	1,805.54	1,805.54
P-18	108.00	60 inch	2.00	1,805.33	1,805.33
P-12	30.00	54 inch	240.00	1,851.08	1,850.49
P-11	320.00	54 inch	240.00	1,849.15	1,842.64
P-10	340.00	54 inch	240.00	1,842.64	1,834.43
P-15	146.00	54 inch	240.00	1,855.67	1,852.77
P-14	59.74	54 inch	240.00	1,852.77	1,851.59
P-13	25.26	54 inch	240.00	1,851.59	1,851.08
P-4	660.00	66 inch	244.00	1,785.86	1,767.62
P-28	55.00	60 inch	2.00	1,771.58	1,769.10
P-2	351.00	90 inch	250.00	1,739.73	1,735.40

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,739.81
P-38	107.50	90 inch	246.00	1,750.93	1,748.08
P-36	302.50	90 inch	248.00	1,748.00	1,739.81
P-37	82.00	42 inch	2.00	1,757.14	1,748.08

Label	Discharge	Elevations Ground	Elevations Upstream HGL	Elevations Downstream HGL
Outlet	250.00	1,745.00	1,735.00	1,735.00
MH-1	250.00	1,748.90	1,735.40	1,735.11

MH-2	246.00	1,763.34	1,751.01	1,750.93
MH-3	246.00	1,777.92	1,769.10	1,769.02
MH-4	244.00	1,793.47	1,785.97	1,785.86
MH-5	244.00	1,804.45	1,792.87	1,792.76
MH-6	244.00	1,813.85	1,805.33	1,802.93
0.05	242.00	1,814.21	1,805.54	1,805.46
MH-8	240.00	1,825.23	1,820.15	1,819.37
MH-9	240.00	1,841.40	1,834.43	1,834.24
MH-10	240.00	1,858.11	1,850.49	1,849.15
MH-11	240.00	1,880.00	1,856.90	1,855.67
MH-12	240.00	1,880.00	1,861.80	1,860.45
I-1	240.00	1,890.00	1,873.93	1,868.62
I-2	2.00	1,815.00	1,805.33	1,805.33
I-3	2.00	1,815.00	1,805.54	1,805.54
GB-2	240.00	1,858.00	1,851.08	1,851.08
GB-1	240.00	1,849.00	1,842.64	1,842.64
GB-4	240.00	1,880.00	1,852.77	1,852.77
GB-3	240.00	1,858.00	1,851.59	1,851.59

		Elevations		
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	250.00	1,752.35	1,739.81	1,739.73
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	248.00	1,761.70	1,748.08	1,748.00

Elapsed: 0 minute(s) 2 second(s)

```
------------------ Beginning Calculation Cycle -------------------
Discharge: 2.00 cfs  at node I-6
Discharge: 270.00 cfs  at node I-1
Discharge: 270.00 cfs  at node MH-12
Discharge: 270.00 cfs  at node MH-11
Discharge: 270.00 cfs  at node GB-4
Discharge: 270.00 cfs  at node GB-3
Discharge: 270.00 cfs  at node GB-2
Discharge: 270.00 cfs  at node MH-10
Discharge: 270.00 cfs  at node GB-1
Discharge: 270.00 cfs  at node MH-9
Discharge: 270.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 272.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 274.00 cfs  at node MH-6
Discharge: 274.00 cfs  at node MH-5
Discharge: 274.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 276.00 cfs  at node MH-3
Discharge: 276.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 278.00 cfs  at node MH-24
Discharge: 280.00 cfs  at node MH-23
Discharge: 280.00 cfs  at node MH-1
Discharge: 280.00 cfs  at node Outlet
Beginning iteration 1
Discharge: 2.00 cfs  at node I-6
Discharge: 270.00 cfs  at node I-1
Discharge: 270.00 cfs  at node MH-12
Discharge: 270.00 cfs  at node MH-11
Discharge: 270.00 cfs  at node GB-4
Discharge: 270.00 cfs  at node GB-3
Discharge: 270.00 cfs  at node GB-2
Discharge: 270.00 cfs  at node MH-10
Discharge: 270.00 cfs  at node GB-1
Discharge: 270.00 cfs  at node MH-9
Discharge: 270.00 cfs  at node MH-8
Discharge: 2.00 cfs  at node I-3
Discharge: 272.00 cfs  at node 0.05
Discharge: 2.00 cfs  at node I-2
Discharge: 274.00 cfs  at node MH-6
Discharge: 274.00 cfs  at node MH-5
Discharge: 274.00 cfs  at node MH-4
Discharge: 2.00 cfs  at node I-4
Discharge: 276.00 cfs  at node MH-3
Discharge: 276.00 cfs  at node MH-2
Discharge: 2.00 cfs  at node I-7
Discharge: 278.00 cfs  at node MH-24
Discharge: 280.00 cfs  at node MH-23
Discharge: 280.00 cfs  at node MH-1
Discharge: 280.00 cfs  at node Outlet
Discharge Convergence Achieved in 1 iterations: relative error:  0.0
Warning: No Duration data exists in IDF Table
Information: Outlet Known flow propagated from upstream junctions.
Information: P-1 Surcharged condition
Information: MH-1 Known flow propagated from upstream junctions.
Information: MH-23 Known flow propagated from upstream junctions.
Information: MH-24 Known flow propagated from upstream junctions.
Information: MH-2 Known flow propagated from upstream junctions.
Information: MH-3 Known flow propagated from upstream junctions.
Information: MH-4 Known flow propagated from upstream junctions.
Information: MH-5 Known flow propagated from upstream junctions.
Information: MH-6 Known flow propagated from upstream junctions.
Information: P-7 Surcharged condition
```

```
Information: P-18 Surcharged condition
Information: 0.05 Known flow propagated from upstream junctions.
Information: P-19 Surcharged condition
Information: MH-8 Known flow propagated from upstream junctions.
Information: P-9 Surcharged condition
Information: MH-9 Known flow propagated from upstream junctions.
Information: P-10 Surcharged condition
Information: GB-1 Known flow propagated from upstream junctions.
Information: P-11 Surcharged condition
Information: MH-10 Known flow propagated from upstream junctions.
Information: P-12 Surcharged condition
Information: GB-2 Known flow propagated from upstream junctions.
Information: P-13 Surcharged condition
Information: GB-3 Known flow propagated from upstream junctions.
Information: P-14 Surcharged condition
Information: GB-4 Known flow propagated from upstream junctions.
Information: P-15 Surcharged condition
Information: MH-11 Known flow propagated from upstream junctions.
Information: P-16 Surcharged condition
Information: MH-12 Known flow propagated from upstream junctions.
Information: P-17 Surcharged condition
--------------------- Calculations Complete ---------------------

** Analysis Options **
Friction method:  Manning's Formula
Hydraulic Grade Convergence Test:  0.001000
Maximum Network Traversals:  5
Number of Flow Profile Steps:  5
Discharge Convergence Test:  0.001000
Maximum Design Passes:  3
```

---------- Network Quick View ----------

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-1	74.65	90 inch	280.00	1,735.13	1,735.00
P-3	660.00	90 inch	276.00	1,769.27	1,751.27
P-5	450.00	66 inch	274.00	1,792.99	1,786.22
P-16	179.00	54 inch	270.00	1,868.16	1,863.66
P-17	344.00	54 inch	270.00	1,878.49	1,869.86
P-6	460.76	66 inch	274.00	1,803.16	1,793.12
P-9	660.00	54 inch	270.00	1,837.05	1,820.48
P-8	540.76	60 inch	270.00	1,819.55	1,806.18
P-7	18.50	66 inch	272.00	1,806.08	1,805.92
P-19	98.00	60 inch	2.00	1,806.18	1,806.18
P-18	108.00	60 inch	2.00	1,805.92	1,805.92
P-12	30.00	54 inch	270.00	1,856.30	1,855.54
P-11	320.00	54 inch	270.00	1,853.84	1,845.81
P-10	340.00	54 inch	270.00	1,845.81	1,837.27
P-15	146.00	54 inch	270.00	1,862.09	1,858.43
P-14	59.74	54 inch	270.00	1,858.43	1,856.93
P-13	25.26	54 inch	270.00	1,856.93	1,856.30
P-4	660.00	66 inch	274.00	1,786.09	1,767.80
P-28	55.00	60 inch	2.00	1,771.58	1,769.36
P-2	351.00	90 inch	280.00	1,739.98	1,735.51

Label	Length	Size	Discharge	Hydraulic Grade Upstream	Hydraulic Grade Downstream
P-34	61.00	36 inch	2.00	1,748.89	1,740.06
P-38	107.50	90 inch	276.00	1,751.18	1,748.34
P-36	302.50	90 inch	278.00	1,748.25	1,740.06
P-37	82.00	42 inch	2.00	1,757.14	1,748.34

| ---------- Elevations ---------- |

Label	Discharge	Ground	Upstream HGL	Downstream HGL
Outlet	280.00	1,745.00	1,735.00	1,735.00
MH-1	280.00	1,748.90	1,735.51	1,735.13
MH-2	276.00	1,763.34	1,751.27	1,751.18
MH-3	276.00	1,777.92	1,769.36	1,769.27
MH-4	274.00	1,793.47	1,786.22	1,786.09
MH-5	274.00	1,804.45	1,793.12	1,792.99
MH-6	274.00	1,813.85	1,805.92	1,803.16
0.05	272.00	1,814.21	1,806.18	1,806.08
MH-8	270.00	1,825.23	1,820.48	1,819.55
MH-9	270.00	1,841.40	1,837.27	1,837.05
MH-10	270.00	1,858.11	1,855.54	1,853.84
MH-11	270.00	1,880.00	1,863.66	1,862.09
MH-12	270.00	1,880.00	1,869.86	1,868.16
I-1	270.00	1,890.00	1,885.21	1,878.49
I-2	2.00	1,815.00	1,805.92	1,805.92
I-3	2.00	1,815.00	1,806.18	1,806.18
GB-2	270.00	1,858.00	1,856.30	1,856.30
GB-1	270.00	1,849.00	1,845.81	1,845.81
GB-4	270.00	1,880.00	1,858.43	1,858.43
GB-3	270.00	1,858.00	1,856.93	1,856.93

		Elevations	
Label	Discharge	Ground	Upstream HGL	Downstream HGL
I-4	2.00	1,777.20	1,771.78	1,771.58
I-6	2.00	1,753.45	1,749.12	1,748.89
MH-23	280.00	1,752.35	1,740.06	1,739.98
I-7	2.00	1,761.72	1,757.36	1,757.14
MH-24	278.00	1,761.70	1,748.34	1,748.25

Elapsed: 0 minute(s) 2 second(s)

```
*********************************************
     UNEVEN WEIR FLOW PROGRAM
     FORTRAN VERSION 1.0
*********************************************
PROJECT:  Pima Road 3 Basins - Deer Valley DB overflow
ENGINEER:  mcg
DATE:   7/28/1997
TIME:  11:51.46
```

```
---------------------------------------------
INPUT PARAMETERS
---------------------------------------------
STARTING WSEL:      1879.50
MAXIMUM WSEL:       1881.10
STEP SIZE:             0.05
BREADTH OF WEIR:      20.00
```

```
*********************************************
INPUT ELEVATION/STATION TABLE.
PROJECT:  Pima Road 3 Basins - Deer Valley DB overflow
DATE:   7/28/1997
TIME:  11:51.46
*********************************************
```

POINT	ELEVATION	STATION
1	1881.00	1000.00
2	1879.50	1000.10
3	1879.50	1200.10
4	1881.00	1200.20

****
WEIR COEFFICIENT TABLE
PROJECT: Pima Road 3 Basins - Deer Valley DB overflow
DATE: 7/28/1997
TIME: 11:51.46
****
REFERENCE: COE CHART - UPPER CURVE

POINT	HEAD	COEFFICIENT
1	0.00	2.50
2	0.05	2.51
3	0.10	2.52
4	0.15	2.53
5	0.20	2.53
6	0.25	2.54
7	0.30	2.55
8	0.35	2.56
9	0.40	2.57
10	0.45	2.58
11	0.50	2.58
12	0.55	2.59
13	0.60	2.60
14	0.65	2.61
15	0.70	2.62
16	0.75	2.63
17	0.80	2.63
18	0.85	2.64
19	0.90	2.65
20	0.95	2.66
21	1.00	2.67
22	1.05	2.68
23	1.10	2.68
24	1.15	2.69
25	1.20	2.70
26	1.25	2.71
27	1.30	2.72
28	1.35	2.73
29	1.40	2.73
30	1.45	2.74
31	1.50	2.75
32	1.55	2.76

```
*********************************************
UNEVEN WEIR FLOW PROGRAM
FORTRAN VERSION 1.0
PROJECT:  Pima Road 3 Basins - Deer Valley DB overflow
DATE:   7/28/1997
TIME:  11:51.46
*********************************************
```

ELEVATION	DISCHARGE (CFS)
1879.50	0
1879.55	6
1879.60	16
1879.65	29
1879.70	45
1879.75	64
1879.80	84
1879.85	106
1879.90	130
1879.95	156
1880.00	183
1880.05	212
1880.10	242
1880.15	274
1880.20	307
1880.25	342
1880.30	378
1880.35	415
1880.40	453
1880.45	493
1880.50	534
1880.55	577
1880.60	620
1880.65	665
1880.70	711
1880.75	758
1880.80	807
1880.85	856
1880.90	907
1880.95	959
1881.00	1012
1881.05	1067

APPENDIX D

PIMA FREEWAY EAST BASIN STAGE, STORAGE, DISCHARGE RELATIONS AND SUPPORTING TECHNICAL CALCULATIONS AND OUTPUT

Table D-1

Stage-storage-discharge rating table for the Pima Freeway East-Basin

Stage feet	Total Available Storage acre-feet	Discharge, in cfs	
		No Clogging	50% Clogging
1589.92	0.00	0	0
1590	0.01	5	5
1591	0.35	67	66
1592	1.11	130	127
1593	2.52	193	188
1594	3.38	291	281
1595	6.66	403	388
1596	12.19	540	515
1597	17.97	684	650
1598	24.00	833	791
1599	30.28	968	924
1600	36.81	1094	1047
1601	43.59	1208	1161
1602	50.74	1311	1263
1603	58.38	1406	1355
1604	66.49	1497	1442
1605	74.88	1577	1522
1606	83.50	1658	1598
1607	92.36	1732	1671
1608	101.45	1802	1740
1609	110.78	1873	1805
1610	120.36	1938	1871
1611	130.25	2001	1932
1612	140.48	2064	1991
1612.50	145.06	2096	2020

Notes
1589.92: Minimum basin elevation at the outlet conduit
1612.50: Top of berm

Table D-2

Stage-storage rating table for the Pima Freeway East-Basin

Stage feet	Storage acre-feet	Sediment Dead Storage acre-feet	Total Available Storage acre-feet
1589.92	0.00	0	0.00
1590	0.01	0	0.01
1591	0.35	0	0.35
1592	2.11	1	1.11
1593	5.52	3	2.52
1594	10.38	7	3.38
1595	15.66	9	6.66
1596	21.19	9	12.19
1597	26.97	9	17.97
1598	33.00	9	24.00
1599	39.28	9	30.28
1600	45.81	9	36.81
1601	52.59	9	43.59
1602	59.74	9	50.74
1603	67.38	9	58.38
1604	75.49	9	66.49
1605	83.88	9	74.88
1606	92.50	9	83.50
1607	101.36	9	92.36
1608	110.45	9	101.45
1609	119.78	9	110.78
1610	129.36	9	120.36
1611	139.25	9	130.25
1612	149.48	9	140.48
1612.50	154.06	9	145.06

Table D-3

Inlet controll stage-discharge rating table for the Pima Freeway East-Basin

Discharge cfs	Headwater depth feet	Stage feet
0	0	1589.92
210	3.36	1593.28
420	5.23	1595.15
630	6.72	1596.64
840	8.13	1598.05
1050	9.69	1599.61
1260	11.54	1601.46
1470	13.75	1603.67
1680	16.35	1606.27
1890	19.32	1609.24
2100	22.65	1612.57

Table D-4

Pima Freeway East-Basin trashrack headloss for 50% clogging

Discharge cfs	Trashrack Area[a] Gross[b] sq. feet	Trashrack Area[a] Net[c] sq. feet	Headloss Coefficient	Velocity Through Bars[d] fps	Headloss[e] feet	Stage feet
0	---	---	---	---	0.00	1589.92
5	---	---	---	---	0.00	1590.00
67	---	---	---	---	0.02	1591.02
130	---	---	---	---	0.05	1592.05
193	---	---	---	---	0.07	1593.07
291	---	---	---	---	0.10	1594.10
403	---	---	---	---	0.14	1595.14
540	---	---	---	---	0.19	1596.19
684	---	---	---	---	0.24	1597.24
833	---	---	---	---	0.30	1598.30
968	---	---	---	---	0.34	1599.34
1094	---	---	---	---	0.39	1600.39
1208	516	234.5	1.04	5.15	0.43	1601.43
1311	516	234.5	1.04	5.59	0.50	1602.50
1406	516	234.5	1.04	6.00	0.58	1603.58
1497	516	234.5	1.04	6.38	0.66	1604.66
1577	516	234.5	1.04	6.73	0.73	1605.73
1658	516	234.5	1.04	7.07	0.81	1606.81
1732	516	234.5	1.04	7.38	0.88	1607.88
1802	516	234.5	1.04	7.69	0.95	1608.95
1873	516	234.5	1.04	7.99	1.03	1610.03
1938	516	234.5	1.04	8.26	1.10	1611.10
2001	516	234.5	1.04	8.53	1.17	1612.17
2064	516	234.5	1.04	8.80	1.25	1613.25
2096	516	234.5	1.04	8.94	1.29	1613.79

Notes
a: Only fully submereged conditions are considered.
b: Assumes the trashrack is mounted on a "u-shaped" headwall as shown on figure.
c: Assumes 50% of gross area is clogging after the bar area is subtracted.
d: Velocity through the net area.
e: Headloss below fully submerged trashrack is linearly interpolated.

CURRENT DATE: 02-17-1999
CURRENT TIME: 09:59:43

FILE DATE: 02-17-1999
FILE NAME: PIMAFWY

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

CULV NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1589.92	1588.92	100.00	2 RCP	8.00	8.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: PIMAFWY DATE: 02-17-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1589.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1594.30	210.0	210.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1595.20	420.0	420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1596.64	630.0	630.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1598.05	840.0	840.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1599.61	1050.0	1050.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1601.46	1260.0	1260.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1603.67	1470.0	1470.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1606.27	1680.0	1680.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1609.24	1890.0	1890.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1612.57	2100.0	2100.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1620.00	2509.0	2509.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: PIMAFWY DATE: 02-17-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1589.92	0.000	0.00	0.00	0.00
1594.30	0.000	210.00	0.00	0.00
1595.20	0.000	420.00	0.00	0.00
1596.64	0.000	630.00	0.00	0.00
1598.05	0.000	840.00	0.00	0.00
1599.61	0.000	1050.00	0.00	0.00
1601.46	0.000	1260.00	0.00	0.00
1603.67	0.000	1470.00	0.00	0.00
1606.27	0.000	1680.00	0.00	0.00
1609.24	0.000	1890.00	0.00	0.00
1612.57	0.000	2100.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 02-17-1999 FILE DATE: 02-17-1999
CURRENT TIME: 09:59:43 FILE NAME: PIMAFWY

PERFORMANCE CURVE FOR CULVERT 1 - 2(8.00 (ft) BY 8.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1589.92	0.00	-1.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
210.00	1594.30	3.36	4.38	1-S2n	1.93	2.52	2.02	0.00	10.45	0.00
420.00	1595.20	5.23	5.28	1-S2n	2.79	3.61	2.97	0.00	12.36	0.00
630.00	1596.64	6.72	6.31	1-S2n	3.50	4.47	3.74	0.00	13.64	0.00
840.00	1598.05	8.13	7.51	1-S2n	4.14	5.20	4.44	0.00	14.68	0.00
1050.00	1599.61	9.69	8.89	5-S2n	4.76	5.82	5.08	0.00	15.61	0.00
1260.00	1601.46	11.54	10.48	5-S2n	5.40	6.37	5.69	0.00	16.48	0.00
1470.00	1603.67	13.75	12.22	5-S2n	6.12	6.77	6.30	0.00	17.33	0.00
1680.00	1606.27	16.35	14.21	5-S2n	7.15	7.16	7.06	0.00	17.94	0.00
1890.00	1609.24	19.32	16.27	2-M2c	8.00	7.54	7.54	0.00	19.38	0.00
2100.00	1612.57	22.65	18.92	2-M2c	8.00	7.93	7.93	0.00	20.98	0.00

El. inlet face invert 1589.92 ft El. outlet invert 1588.92 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1589.92 ft
OUTLET STATION	100.00 ft
OUTLET ELEVATION	1588.92 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0100
CULVERT LENGTH ALONG SLOPE	100.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	8.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 02-17-1999 FILE DATE: 02-17-1999
CURRENT TIME: 09:59:43 FILE NAME: PIMAFWY

TAILWATER

CONSTANT WATER SURFACE ELEVATION
1588.92

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	31.00 ft
CREST LENGTH	1.00 ft
OVERTOPPING CREST ELEVATION	1620.00 ft

APPENDIX E

PIMA FREEWAY WEST – BASIN STAGE, STORAGE, DISCHARGE RELATIONS

Table E-1

Stage-storage-discharge rating table for the Pima Freeway West-Basin

Stage feet	Total Available Storage acre-feet	Discharge, in cfs	
		No Clogging	50% Clogging
1595	---	0	0
1595.5	0.00	---	---
1596	0.00	12	12
1597	0.13	25	24
1598	0.59	37	36
1599	1.79	70	67
1600	3.88	99	95
1601	6.83	119	113
1602	10.86	133	127
1603	15.27	151	143
1604	20.06	161	153
1605	25.22	171	164
1606	30.79	183	175
1607	37.00	193	184
1608	43.83	203	194
1609	50.66	212	203

Table E-2

Stage-storage rating table for the Pima Freeway West-Basin

Stage feet	Storage acre-feet	Sediment Dead Storage[a] acre-feet	Total Available Storage acre-feet
1595.0	---	---	---
1595.5	0.00	0	0.00
1596.0	0.01	0.01	0.00
1597.0	0.33	0.2	0.13
1598.0	1.29	0.7	0.59
1599.0 [c]	2.99	1.2	1.79
1600.0	5.48	1.6	3.88
1601.0	8.83	2	6.83
1602.0	12.86	2	10.86
1603.0	17.27	2	15.27
1604.0	22.06	2	20.06
1605.0	27.22	2	25.22
1606.0	32.79	2	30.79
1607.0	39.00	2	37.00
1608.0	45.83	2	43.83
1609.0	52.66	2	50.66

Notes
a: Assumed distribution of 2-acft sediment deposition

Table E-3

Inlet controll stage-discharge rating table for the Pima Freeway West-Basin

Stage feet	Discharge cfs
1595.00	0
1597.02	25
1598.12	50
1599.08	75
1600.16	100
1601.54	125
1603.27	150
1605.33	175
1607.71	200
1610.38	225
1613.35	250

Table E-4

Pima Freeway West-Basin trashrack headloss for 50% clogging

Discharge cfs	Inlet Control Stage feet	Trashrack Area [a] Gross [b] sq. feet	Trashrack Area [a] Net [c] sq. feet	Headloss Coefficient	Velocity Through 50% Clogged Trashrack [d] fps	Headloss [e] feet	Final HEC-1 Stage feet
0	1595.00	---	---	---	---	0.00	1595.00
25	1597.02	---	---	---	---	0.04	1597.06
50	1598.12	---	---	---	---	0.09	1598.21
75	1599.08	59.36	26.71	1.05	2.81	0.13	1599.21
100	1600.16	59.36	26.71	1.05	3.74	0.23	1600.39
125	1601.54	59.36	26.71	1.05	4.68	0.36	1601.90
150	1603.27	59.36	26.71	1.05	5.62	0.51	1603.78
175	1605.33	59.36	26.71	1.05	6.55	0.70	1606.03
200	1607.71	59.36	26.71	1.05	7.49	0.91	1608.62
225	1610.38	59.36	26.71	1.05	8.42	1.15	1611.53
250	1613.35	59.36	26.71	1.05	9.36	1.42	1614.77

Notes
a: Only fully submereged conditions are considered.
b: Assumes the trashrack is mounted per the headwall detail on the construction plans.
c: Assumes 50% of gross area is clogging after the bar area is subtracted.
d: Velocity through the net area reported in column 4.
e: Headloss below fully submerged trashrack is linearly interpolated.

CURRENT DATE: 02-10-1999 FILE DATE: 02-10-1999
CURRENT TIME: 15:28:59 FILE NAME: WB_48RCP

****
********** FHWA CULVERT ANALYSIS **********
********** HY-8, VERSION 6.0 **********

CULV NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1595.00	1591.00	200.04	1 RCP	4.00	4.00	.015	CONVENTIONAL
2								
3								
4								
5								
6								

****

SUMMARY OF CULVERT FLOWS (cfs) FILE: WB_48RCP DATE: 02-10-1999

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1595.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1597.02	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1598.12	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1599.08	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1600.17	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1601.54	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1603.27	150.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1605.33	175.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1607.71	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1610.38	225.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
1613.35	250.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

****

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: WB_48RCP DATE: 02-10-1999

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1595.00	0.000	0.00	0.00	0.00
1597.02	0.000	25.00	0.00	0.00
1598.12	0.000	50.00	0.00	0.00
1599.08	0.000	75.00	0.00	0.00
1600.17	0.000	100.00	0.00	0.00
1601.54	0.000	125.00	0.00	0.00
1603.27	0.000	150.00	0.00	0.00
1605.33	0.000	175.00	0.00	0.00
1607.71	0.000	200.00	0.00	0.00
1610.38	0.000	225.00	0.00	0.00
1613.35	0.000	250.00	0.00	0.00

****

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

****

CURRENT DATE: 02-10-1999 FILE DATE: 02-10-1999
CURRENT TIME: 15:28:59 FILE NAME: WB_48RCP

PERFORMANCE CURVE FOR CULVERT 1 - 1(4.00 (ft) BY 4.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1595.00	0.00	-3.50	0-NF	0.00	0.00	0.00	0.50	0.00	0.00
25.00	1597.02	2.02	-1.09	1-S2n	1.00	1.47	1.01	0.50	9.99	0.00
50.00	1598.12	3.12	-0.25	1-S2n	1.45	2.11	1.47	0.50	11.94	0.00
75.00	1599.08	4.08	0.86	1-S2n	1.82	2.61	1.84	0.50	13.26	0.00
100.00	1600.16	5.16	2.27	1-S2n	2.16	3.02	2.20	0.50	14.16	0.00
125.00	1601.54	6.54	3.98	1-S2n	2.49	3.33	2.53	0.50	14.92	0.00
150.00	1603.27	8.27	6.00	5-S2n	2.84	3.59	2.89	0.50	15.44	0.00
175.00	1605.33	10.33	8.38	5-S2n	3.27	3.85	3.30	0.50	15.80	0.00
200.00	1607.71	12.71	11.03	6-FFc	4.00	4.00	4.00	0.50	15.92	0.00
225.00	1610.38	15.38	13.96	6-FFc	4.00	4.00	4.00	0.50	17.90	0.00
250.00	1613.35	18.35	17.24	6-FFc	4.00	4.00	4.00	0.50	19.89	0.00

El. inlet face invert 1595.00 ft El. outlet invert 1591.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	100.00 ft
INLET ELEVATION	1595.00 ft
OUTLET STATION	300.00 ft
OUTLET ELEVATION	1591.00 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0200
CULVERT LENGTH ALONG SLOPE	200.04 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.015
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 02-10-1999 FILE DATE: 02-10-1999
CURRENT TIME: 15:28:59 FILE NAME: WB_48RCP

****
********** TAILWATER **********
****
****

CONSTANT WATER SURFACE ELEVATION
1591.50

****
********** ROADWAY OVERTOPPING DATA **********
****

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	100.00 ft
OVERTOPPING CREST ELEVATION	9999.00 ft

****

APPENDIX F

EAST SIDE ULTIMATE BUILD-OUT AND NO CLOGGING CONDITION
100-YEAR, 6-HOUR OUTPUT FILE PRINTOUT
(E-1)

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              MAY   1991           *
 *            VERSION 4.0.1E         *
 *     Lahey F77L-EM/32 version 5.01 *
 *       Dodson & Associates, Inc.   *
 *  RUN DATE  03/01/99  TIME  09:07:52  *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

    1           ID    PIMA ROAD THREE BASINS                                  File:  FU100-6.IH1
    2           ID    by  Stantec for the City of Scottsdale             Original: 08-07-97     mcg
    3           ID        Project:  28900082                              Revised: 01-20-99     mcg
    4           ID
    5           ID
    6           ID    100-YEAR, 6-HOUR
    7           ID        ULTIMATE CONDITION:
    8           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
    9           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   10           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   11           ID           DETERMINED BY OTHERS.
   12           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   13           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   14           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   15           ID
   16           ID
                *DIAGRAM
   17           IT       5                     720
   18           IO       5
   19           JD            .01
   20           JD             .1
   21           JD             .5
   22           JD              1
   23           JD              5
   24           JD             25
                *

   25           KK    S30N
   26           KM     RUNOFF FROM SUBBASIN 30N
   27           BA  0.6518
   28           PH                      .84    1.53    2.46    2.75    2.94    3.31
   29           LS              82      13              82      13
   30           UK     300   0.350    0.13      20
   31           UK     300   0.050    0.13      80
   32           RK    1550   0.069   0.045  0.0096    TRAP       0      12
   33           RK   10520   0.038   0.040            TRAP      15      15
                *

   34           KK    R30N
   35           KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
   36           RS       1    FLOW      -1
   37           RC   0.022   0.022   0.022    2470    0.01
   38           RX    1000    1012    1020    1028    1036    1044    1052    1064
   39           RY     107     104     102     100     100     102     104     107
                *

   40           KK   S31.1
   41           KM     RUNOFF FROM SUBBASIN 31.1
   42           BA  0.2663
   43           LS            76.6      13            76.6      13
   44           UK     300   0.567    0.13      10
   45           UK     300   0.050    0.13      90
   46           RK    1950   0.056   0.045  0.0147    TRAP       0      10
   47           RK    7600   0.035   0.040            TRAP      22       8
                *
1                                          HEC-1 INPUT                                                    PAGE  2
```

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

  48          KK   C31.1
  49          KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
  50          HC       2
              *
              *  R31.1
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
              *      1    FLOW      -1
              *  0.022   0.022   0.022    1500    0.01
              *   1000    1012    1020    1028    1048    1056    1064    1076
              *    107     104     102     100     100     102     104     107
              *

  51          KK   S34.2
  52          KM     RUNOFF FROM SUBBASIN 34.2
  53          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  54          BA  0.4441
  55          LS            77.3      12             77.3      12
  56          UK      50    0.10    0.13      10
  57          UK     300   0.040    0.13      90
  58          RK    2200  0.0452   0.045  0.0538    TRAP       0      10
  59          RK    8150  0.0386   0.045            TRAP       0      10
              *

  60          KK   C34.2
  61          KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
  62          HC       2
              *

  63          KK    S35N
  64          KM     RUNOFF FROM SUBBASIN 35N
  65          BA  0.5482
  66          LS              82      13              82      13
  67          UK     300   0.491    0.13      15
  68          UK     300   0.113    0.13      85
  69          RK    2700   0.079   0.045  0.0242    TRAP       3       6
  70          RK    5050   0.028   0.040            TRAP      15      15
              *

  71          KK   D35NR
  72          KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
  73          KM        RIGHT BRANCH IS ROUTED TO C36.2
  74          KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
  75          DT   D35NL
  76          DI       0      10      66     168     343     581     805     977    1168    1320
  77          DQ       0       4      28      73     154     261     360     435     518     575
              *

  78          KK   R35NR
  79          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
  80          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  81          RS       1    FLOW      -1
  82          RC    0.06    0.04    0.06    3500  0.0343
  83          RX    1000    1006    1026    1027    1057    1058    1078    1084
1                                          HEC-1 INPUT                                                    PAGE  3

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

  84          RY     105     103     101     100     100     101     103     105
              *

  85          KK   S36.2
  86          KM     RUNOFF FROM SUBBASIN 36.2
  87          BA  0.2087
  88          LS            76.6      13             76.6      13
  89          UK     300   0.580    0.13       5
  90          UK     300   0.100    0.13      95
  91          RK    1800   0.036   0.045  0.0145    TRAP      10      10
  92          RK    3520   0.028   0.040            TRAP      20       6
              *

  93          KK   C36.2
  94          KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
  95          HC       2  0.5411
              *

  96          KK  D36.2R
  97          KM     DIVERSION AT DESERT HIGHLANDS DRIVE
  98          KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
  99          KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
 100          DT  D36.2L
 101          DI       0      36     166     288     360     430     538     681     859    1074
 102          DQ       0       0       0       0       0      18      60     123     208     315
              *

 103          KK  R36.2R
 104          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
 105          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 106          RS       4    FLOW      -1
 107          RC    0.06    0.04    0.06    7800  0.0321
 108          RX    1000    1043    1053    1068    1093    1098    1133    1218
 109          RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
```

```
                 *
 110             KK   S34.1
 111             KM     RUNOFF FROM SUBBASIN 34.1
 112             KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
 113             BA  1.1635
 114             LS            77.3      12            77.3      12
 115             UK     300   0.590    0.13      25
 116             UK     300   0.040    0.13      75
 117             RK    2570   0.085   0.045  0.0214    TRAP       0      10
 118             RK    8800  0.0325   0.040            TRAP      20      10
                 *

 119             KK   C34.1
 120             KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
 121             HC       2  1.5423
                 *
1                                                HEC-1 INPUT                                                PAGE  4

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


 122             KK  HVDB-I
 123             KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
 124             HC       2  2.9029
                 *

 125             KK  HVDB-O
 126             KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
 127             KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
 128             KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
 129             RS       1    STOR      -1
 130             SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
 131             SV   241.0
 132             SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
 133             SE    2091
 134             SQ       0      10      20      30      40      50      60      70      80      90
 135             SQ     100     110     120     130     140
 136             SE  2065.0 2066.47 2067.13 2067.67 2068.14 2068.58 2069.04 2071.26 2073.33 2075.68
 137             SE  2078.3 2081.19 2084.37 2087.82 2091.54
                 *

 138             KK   R34.1
 139             KM     NORMAL DEPTH CHANNEL ROUTE FROM C34.1 TO C36.1 THROUGH PIMA CHANNEL
 140             RS       1    FLOW      -1
 141             RC   0.022   0.022   0.022    2200    0.01
 142             RX    1000    1012    1020    1028    1036    1044    1052    1064
 143             RY     107     104     102     100     100     102     104     107
                 *

 144             KK   S36.1
 145             KM     RUNOFF FROM SUBBASIN 36.1
 146             BA  0.1394
 147             LS            73.4      11
 148             UK     300  0.0420   0.130     100
 149             RK    2330  0.0320   0.045  0.0134    TRAP      10      30
 150             RK    3200  0.0270   0.040            TRAP      20      30
                 *

 151             KK   C36.1
 152             KM     COMBINE ROUTED HYDROGRAPH FROM C34.1 WITH RUNOFF FROM SUBBASIN 36.1
 153             HC       2
                 *

 154             KK   R36.1
 155             KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.1 TO C36R1 THROUGH PIMA CHANNEL
 156             RS       1    FLOW      -1
 157             RC   0.022   0.022   0.022    1520    0.01
 158             RX    1000    1012    1020    1028    1036    1044    1052    1064
 159             RY     107     104     102     100     100     102     104     107
                 *
1                                                HEC-1 INPUT                                                PAGE  5

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


 160             KK   B35NL
 161             KM     BRING BACK DIVERTED HYDROGRAPH FROM C35N
 162             DR   D35NL
                 *

 163             KK   R35NL
 164             KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36R1
 165             KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 166             RS       5    FLOW      -1
 167             RC    0.06    0.04    0.06   14480  0.0318
 168             RX    1000    1040    1080    1086    1091    1097    1137    1174
 169             RY     105     104     103     100     100     103     104     105
                 *

 170             KK  B36.2L
 171             KM     BRING BACK DIVERTED HYDROGRAPH FROM C36.2
 172             DR  D36.2L
                 *
```

```
 173          KK  R36.2L
 174          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C36R1
 175          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 176          RS       3    FLOW      -1
 177          RC    0.06    0.04    0.06   10160  0.0342
 178          RX    1000    1030    1060    1066    1076    1082    1112    1142
 179          RY     103   102.5     102     100     100     102   102.5     103
              *

 180          KK  S36R1A
 181          KM     RUNOFF FROM SUBBASIN 36R1A
 182          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
 183          BA  0.6310
 184          LS            74.3      10
 185          UK     300   0.020   0.130     100
 186          RK    1420   0.032   0.045  0.0061    TRAP       0      13
 187          RK   10800   0.033   0.040            TRAP      10       9
              *

 188          KK  C36R1A
 189          KM     COMBINE ROUTED HYDROGRAPH FROM C36.1, D35NL & D36.2L W/RUNOFF FROM S36R1A
 190          KM        AREA IS AREA FROM C36.1 + S36R1 + 40% OF AREA FROM S35N + 30% OF AREA
 191          KM        FROM C36.2
 192          HC       4  4.0530
              *

 193          KK  S36R1B
 194          KM     RUNOFF FROM SUBBASIN 36R1B
 195          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
 196          BA  0.5863
 197          LS            74.3      10
 198          UK     300   0.020   0.130     100
 199          RK    1420   0.032   0.045  0.0061    TRAP       0      13
 200          RK    8500   0.033   0.040            TRAP      10       9
              *
1                                          HEC-1 INPUT                                                    PAGE  6

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

 201          KK  C36R1B
 202          KM     COMBINE HYDROGRAPH FROM C36R1A W/RUNOFF FROM S36R1B AT C36R1B
 203          HC       2  4.6393
              *
              * R36R1B
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C36R1B TO C36R2A THROUGH PIMA CHANNEL
              *      1    FLOW      -1
              *  0.022   0.022   0.022    1900    0.01
              *   1000    1012    1020    1028    1036    1044    1052    1064
              *    107     104     102     100     100     102     104     107
              *

 204          KK  S36R2A
 205          KM     RUNOFF FROM SUBBASIN 36R2A
 206          BA  0.1325
 207          LS              72      20
 208          UK     100   0.045   0.130     100
 209          RK    1900   0.032   0.017   0.015    TRAP      15       7
 210          RK     800   0.030   0.035            TRAP      10       5
              *

 211          KK  C36R2A
 212          KM     COMBINE ROUTED HYDROGRAPH FROM C36R1B W/RUNOFF FROM SUBBASIN 36R2A
 213          HC       2
              *

 214          KK  R36R2A
 215          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36R2A TO C36R2B THROUGH PIMA CHANNEL
 216          KM     ****  TOO SHORT TO ROUTE  ****
 217          KM       1    FLOW      -1
 218          KM   0.022   0.022   0.022    2130    0.01
 219          KM    1000    1012    1020    1028    1036    1044    1052    1064
 220          KM     107     104     102     100     100     102     104     107
 221          KM
 222          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR SERIES OF INDIVIDUAL
 223          KM     ROUTING REACHES THAT ARE TOO SHORT TO ROUTE.
 224          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 5030'
 225          RT                       1
              *

 226          KK  S36R2B
 227          KM     RUNOFF FROM SUBBASIN 36R2A
 228          BA  0.2417
 229          LS              72      12
 230          UK     280   0.045   0.100     100
 231          RK    1900   0.032   0.017   0.015    TRAP      15       7
 232          RK    7360   0.030   0.040            TRAP      30      10
              *
1                                          HEC-1 INPUT                                                    PAGE  7

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

 233          KK  C36R2B
```

```
234          KM     COMBINE ROUTED HYDROGRAPH FROM C36R2A W/RUNOFF FROM SUBBASIN 36R2B
235          HC       2
             *

236          KK   S51.1
237          KM     RUNOFF FROM SUBBASIN 51.1
238          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 51.1 AND 49.1 ARE AREA WEIGHTED
239          BA   1.130
240          LS            73.9      12
241          UK     300   0.037   0.130     100
242          RK    1800   0.038   0.045  0.0161    TRAP       0      12
243          RK   14400   0.032   0.040            TRAP      40      15
             *

244          KK  DVDB-I
245          KM     COMBINE HYDROGRAPH FROM C36R2 W/RUNOFF FROM SUBBASIN 51.1
246          HC       2
             *

247          KK  DVDB-O
248          KM     DETENTION BASIN AT DEER VALLEY ROAD
249          KM     PRINCIPAL SPILLWAY:  54" CONDUIT THAT TIES INTO THE PIMA ROAD STORM DRAIN
250          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK
251          KM        13 ACRE-FEET OF STORAGE FOR SEDIMENTAION
252          KM
253          RS       1    STOR      -1
254          SV       0     0.2     0.7     1.7     3.5     6.1    38.6    86.9   143.2   209.9
255          SV   224.1
256          SE    1855    1856    1857    1858    1859    1860    1865    1870    1875    1880
257          SE    1881
258          SQ       0       3      15      28      51      81     143     183     204     216
259          SQ     224     232     240     242     246     248     251     253     256     259
260          SE    1855    1856    1857    1858    1859    1860    1862    1864    1866    1868
261          SE    1870    1872    1874    1875    1876    1877    1878    1879    1880    1881
             *
             *  R51.1
             *    DEER VALLEY BASIN OUTLET CONDUIT TO THOMPSON PEAK PARKWAY
             *    IS TOO SHORT TO ROUTE.
             *       L = 2820 feet
             *

262          KK  D51.1T
263          KM     DIVERT 100% OF FLOW TO RETRIEVE AT THOMPSON PEAK PARKWAY
264          DT  B51.1T
265          DI       0   10000
266          DQ       0   10000
             *
             *
             *     *****************  BEGIN DC RANCH WATERSHED  ******************
             *
             *       THE DC RANCH HEC-1 MODEL WAS DEVELOPED BY WOOD/PATEL ASSOCIATES
             *           WOOD/PATEL FILE NAME:  DC0721C.DAT
             *           MODEL DATE:            4 JANUARY 96
             *
```



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

267          KK    52D4
268          KM   RUNOFF FROM SUBBASIN 52D4
269          BA    .070
270          LS              75    14.5
271          UK     120    .010     .15     100
272          RK    3100    .035    .045            TRAP      30      10
             *

273          KK   52D4R
274          KM   ROUTE 52D4C THROUGH 52D5 TO CP 52D5C
275          RK    1350    .033    .045            TRAP      10      10
             *

276          KK   52D4B
277          KM   RUNOFF FROM SUBBASIN 52D4B
278          BA    .022
279          LS              75      63
280          UK     120    .010     .15     100
281          RK    2200    .033    .045            TRAP      30      10
             *

282          KK  52D5C1
283          KM   COMBINE 52D4R AND 52D4B
284          HC       2
             *

285          KK   52D5A
286          KM   RUNOFF FROM 52D5A
287          BA   .0232
288          LS              75      63
289          UK     120    .010     .15     100
290          RK    1300    .032    .045            TRAP      30      10
             *

291          KK  52D5AR
292          KM   ROUTE 52D5A THROUGH BEARDSLEY CHANNEL TO CP 52D5C2
```

```
 293          RK     400   .0143    .035            TRAP      50       4
              *

 294          KK  52D5C2
 295          KM   COMBINE 25D5C1 AND 52D5AR
 296          HC       2
              *

 297          KK   52D5R
 298          KM   ROUTE 52D5C IN BEARDSLEY CHANNEL TO CP 52C3BC2
 299          RK     240   .0143    .035            TRAP      50       4
              *
1                                        HEC-1 INPUT                                                PAGE  9

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

 300          KK    52C3
 301          KM   RUNOFF FROM SUBBASIN 52C3
 302          BA    .006
 303          LS              75       65
 304          UK     100     .02      .10     100
 305          RK     800    .033     .045            TRAP      30      10
              *

 306          KK   52C3R
 307          KM   ROUTE 52C3 THROUGH SUBBASIN 52C4 TO CP 52C4C1
 308          RK    1350    .034     .045            TRAP      10      10
              *

 309          KK   52C3B
 310          KM   RUNOFF FROM SUBBASIN 52C3B
 311          BA    .016
 312          LS              75       60
 313          UK     100     .02      .10     100
 314          RK    1400    .034     .045            TRAP      30      10
              *

 315          KK  2C3BC1
 316          KM   COMBINE 52C3B AND 52C3R
 317          HC       2
              *

 318          KK  2C3BC2
 319          KM   COMBINE 52C3BC1 AND 52C5R
 320          HC       2
              *

 321          KK  52C3BR
 322          KM   ROUTE 52C3BC2 IN BEARDSLEY CHANNEL TO CP 52C4C2
 323          RK     430   .0143    .035            TRAP      50       4
              *
              *

 324          KK     51C     SUB
 325          KM        RUNOFF FROM SUB 51C
 326          BA   .0972
 327          LS              74       15
 328          UK     100   .0213      .10     100
 329          RK    3900   .0375     .045            TRAP      30      10
              *

 330          KK   51C1D
 331          KM   DIVERT 67 PERCENT OF 51C TO WEST (33 PERCENT TO SOUTH)
 332          DT  51C1DV
 333          DI       0   10000
 334          DQ       0    6700
              *
1                                        HEC-1 INPUT                                                PAGE 10

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

 335          KK   51C1R
 336          KM   ROUTE 51C1D THROUGH SUBBASIN 52C1
 337          RK    1350   .0364    .045            TRAP      10      10
              *

 338          KK    52C1
 339          KM   RUNOFF FROM SUBBASIN 52C1
 340          BA    .029
 341          LS              75     20.5
 342          UK     100     .02      .10     100
 343          RK    1350    .021     .045            TRAP      30      10
              *

 344          KK   52C1C
 345          KM   COMBINE 51C1R AND 52C1
 346          HC       2   .0611
              *

 347          KK   52C1R
 348          KM   ROUTE 52C1C THROUGH BASIN 52C2A TO CP 52C2BC
 349          RK    1500    .033     .045            TRAP      10      10
              *
```

```
 350          KK   52C2A
 351          KM   RUNOFF FROM SUBBASIN 52C2A
 352          BA    .019
 353          LS              75       2
 354          UK     100     .02     .10     100
 355          RK    1500    .033    .045            TRAP      30      10
              *

 356          KK  52C2AC
 357          KM   COMBINE 52C2A AND 52C1R
 358          HC       2
              *

 359          KK   52C2B
 360          KM   RUNOFF FROM SUBBASIN 52C2B
 361          BA   .0275
 362          LS              75      11
 363          UK     100     .02     .10     100
 364          RK    2000    .030    .045            TRAP      30      10
              *

 365          KK  52C2BC
 366          KM   COMBINE 52C2B AND 52C2AC
 367          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE 11

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

 368          KK  52C2BR
 369          KM   ROUTE 52C2BC THROUGH 52C2C TO CP 52C2CC
 370          RK    1500    .040    .045            TRAP      10      10
              *

 371          KK   52C2C
 372          KM   RUNOFF FROM SUBBASIN 52C2C
 373          BA    .014
 374          LS              75      62
 375          UK     100     .02     .10     100
 376          RK    1500     .04    .045            TRAP      30      10
              *

 377          KK  52C2CC
 378          KM   COMBINE 52C2C AND 52C2BR
 379          HC       2
              *

 380          KK   52C2R
 381          KM   ROUTE 52C2CC THROUGH SUBBASIN 52C4 TO CP 52C4C1
 382          RK    1550    .030    .045            TRAP      10      10
              *

 383          KK    52C4
 384          KM   RUNOFF FROM SUBBASIN 52C4
 385          BA    .017
 386          LS              75      60
 387          UK     100     .02     .10     100
 388          RK    1550    .030    .045            TRAP      30      10
              *

 389          KK  52C4C1
 390          KM   COMBINE 52C4 AND 52C2R
 391          HC       2
              *

 392          KK  52C4C2
 393          KM   COMBINE 52C4C1 AND 52C3BR
 394          HC       2
              *

 395          KK   52C4R
 396          KM   ROUTE 52C4C2 WEST IN BEARDSLEY CHANNEL TO CP 52C15C2
 397          RK     850   .0143    .035            TRAP      50       4
              *

 398          KK   52C13
 399          KM   RUNOFF FROM SUBBASIN 52C13
 400          BA    .023
 401          LS              75      31
 402          UK     100     .02     .10     100
 403          RK     950    .040    .045            TRAP      30      10
              *
1                                        HEC-1 INPUT                                          PAGE 12

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

 404          KK  2C13DV
 405          KM   DIVERT FIRST 40 CFS INTO STORM DRAIN; REMAINDER FLOWS OVER ROAD
 406          DT   STORM
 407          DI       0      40    1000
 408          DQ       0      40      40
              *
```

```
                * KK52C13R
                * KM ROUTE 52C13 THROUGH SUBBASIN 52C15 TO CP 52C15C1
                * RK  1800    .035    .045            TRAP      10      10
                *

409             KK   52C15
410             KM   RUNOFF FROM SUBBASIN 52C15
411             BA    .046
412             LS              75    64.4
413             UK     100     .02     .10     100
414             RK    2050    .036    .045            TRAP      30      10
                *

415             KK  2C15C1
416             KM   COMBINE 52C15 AND 52C13DV
417             HC       2    .046
                *

418             KK  2C15C2
419             KM   COMBINE 52C15C1 AND 52C4R
420             HC       2
                *

421             KK  52C15R
422             KM   ROUTE 52C15C2 IN BEARDSLEY CHANNEL TO CP 52C14C3
423             RK     750   .0143    .035            TRAP      50       4
                *

424             KK  52C14A
425             KM   RUNOFF FROM SUBBASIN 52C14A
426             BA    .041
427             LS              75    67.7
428             UK     100     .02     .10     100
429             RK    2050    .031    .045            TRAP      30      10
                *

430             KK  2C14AC
431             KM   COMBINE 52C14A AND 52C15R
432             HC       2
                *

433             KK  2C14AR
434             KM   ROUTE 52C14AC IN BEARDSLEY CHANNEL TO CP 52C14BC2
435             RK     380   .0143    .035            TRAP      50       4
                *
                *
1                                          HEC-1 INPUT                                                PAGE 13

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

436             KK  51C1DV
437             KM   RETRIEVE DIVERTED FLOW
438             DR  51C1DV
                *

439             KK   51C2D
440             KM   DIVERT 27 PERCENT OF 51C1DV TO WEST (73 PERCENT TO SOUTH)
441             DT  51C2DV
442             DI       0   10000
443             DQ       0    2700
                *

444             KK   51C2R
445             KM   ROUTE 51C2D THROUGH SUBBASIN 52C5 TO CP 52C5C
446             RK     700    .030    .045            TRAP      10      10
                *

447             KK    52C5
448             KM   RUNOFF FROM SUBBASIN 52C5
449             BA    .016
450             LS              75      27
451             UK     100     .02     .10     100
452             RK    1200     .03    .045            TRAP      30      10
                *

453             KK   52C5C
454             KM   COMBINE 51C2R AND 52C5
455             HC       2   .0635
                *

456             KK   52C5R
457             KM   ROUTE 52C5C THROUGH SUBBASIN 52C6 TO CP 52C6C
458             RK    3100    .035    .045            TRAP      10      10
                *

459             KK    52C6
460             KM   RUNOFF FROM SUBBASIN 52C6
461             BA    .036
462             LS              75    31.4
463             UK     100     .02     .10     100
464             RK    3100    .035    .045            TRAP      30      10
                *

465             KK   52C6C
```

```
466          KM   COMBINE 52C5R AND 52C6
467          HC       2
             *

468          KK   52C6R
469          KM   ROUTE 52C6C THROUGH SUBBASIN 52C10 TO CP 52C10C2
470          RK     450    .032    .045            TRAP      10      10
             *
```



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

471          KK  51C2DV
472          KM   RETRIEVE 52C2DV
473          DR  51C2DV
             *

474          KK   51C3R
475          KM   ROUTE 52C2DV THROUGH SUBBASIN 52C7 TO CP 52C7C
476          RK     700    .040    .045            TRAP      10      10
             *

477          KK     51B     SUB
478          KM        RUNOFF FROM SUB 51B
479          BA   .5711
480          LS       0    71.9    13.1
481          UK     100   .0213     .10     100
482          RK    8900   .0300    .045            TRAP      50      25
             *

483          KK   51B1D
484          KM   DIVERT 92 PERCENT OF SUBBASIN 51B TO WEST (8 PERCENT TO SOUTH)
485          DT  51B1DV
486          DI       0   10000
487          DQ       0    9200
             *

488          KK   51B1R
489          KM    ROUTE 51B1D THROUGH SUBBASIN 52C7 TO CP 52C7C
490          RK     450     .04    .045            TRAP      10      10
             *

491          KK    52C7
492          KM   RUNOFF FROM SUBBASIN 52C7
493          BA    .006
494          LS              75      27
495          UK     100     .02     .10     100
496          RK     550     .04    .045            TRAP      30      10
             *

497          KK   52C7C
498          KM   COMBINE 51B1R, 51C3R, AND 52C7
499          HC       3   .0693
             *

500          KK   52C7R
501          KM   ROUTE 52C7C THROUGH SUBBASIN 52C9 TO CP 52C9C1
502          RK    1550    .036    .045            TRAP      10      10
             *

503          KK  51B1DV
504          KM   RETRIEVE DIVERTED FLOW 51B1DV
505          DR  51B1DV
             *
```



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

506          KK   51B2D
507          KM   DIVERT 84 PERCENT OF 51B1DV TO WEST (16 PERCENT TO SOUTH)
508          DT  51B2DV
509          DI       0   10000
510          DQ       0    8400
             *

511          KK   51B2R
512          KM   ROUTE 51B2D THROUGH SUBBASIN 52C8 TO CP 52C8C
513          RK     750    .034    .045            TRAP      10      10
             *

514          KK    52C8
515          KM   RUNOFF FROM SUBBASIN 52C8
516          BA    .008
517          LS              75      27
518          UK     100     .02     .10     100
519          RK     750    .034    .045            TRAP      30      10
             *

520          KK   52C8C
521          KM   COMBINE 51B2R AND 52C8
522          HC       2   .4493
             *
```

```
523          KK   52C8R
524          KM   ROUTE 52C8C THROUGH SUBBASIN 52C9 TO CP 52C9C1
525          RK    1100    .036    .045            TRAP      10      10
             *

526          KK  52C9C1
527          KM   COMBINE 52C7R AND 52C8R
528          HC       2
             *

529          KK  52C9R1
530          KM   ROUTE 52C9C1 THROUGH SUBBASIN 52C9 TO CP 52C9C2
531          RK    1050    .036    .045            TRAP      10      10
             *

532          KK    52C9
533          KM   RUNOFF FROM SUBBASIN 52C9
534          BA    .069
535          LS              75   31.85
536          UK     100     .02     .10     100
537          RK    3150    .036    .045            TRAP      30      10
             *

538          KK  52C9C2
539          KM   COMBINE 52C9R1 AND 52C9
540          HC       2
             *
```



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

541          KK  52C9R2
542          KM   ROUTE 52C9C2 THROUGH SUBBASIN 52C10 TO CP 52C10C1
543          RK     500    .032    .045            TRAP      10      10
             *

544          KK  2C10C1
545          KM   COMBINE 52C9R2 AND 52C6R
546          HC       2
             *

547          KK  2C10R1
548          KM   ROUTE 52C10C1 THROUGH SUBBASIN 52C10 TO CP 52C10C2
549          RK     300    .032    .045            TRAP      10      10
             *

550          KK   52C10
551          KM   RUNOFF FROM SUBBASIN 52C10
552          BA    .014
553          LS              75    7.85
554          UK     100     .02     .10     100
555          RK     800    .032    .045            TRAP      30      10
             *

556          KK  2C10C2
557          KM   COMBINE 52C10R1 AND 52C10
558          HC       2
             *

559          KK   52C11
560          KM   RUNOFF FROM SUBBASIN 52C11
561          BA   .0425
562          LS              75      27
563          UK     100     .02     .10     100
564          RK    2800    .031    .045            TRAP      30      10
             *

565          KK  2C11R1
566          KM   PIPE ROUTE 52C11 TO CP 52C11C
567          RK     650     .02    .045            CIRC       3
             *

568          KK  52C13D
569          KM   RETRIEVE DIVERTED FLOW
570          DR   STORM
             *

571          KK  52C11C
572          KM   COMBINE 52C13D AND 52C11R1
573          HC       2   .0655
             *
```



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

574          KK  2C11CR
575          KM   PIPE ROUTE 52C11C TO CP 52C11C2
576          RK     750     .02    .045            CIRC       3
             *

577          KK  2C11C2
578          KM   COMBINE 52C11CR AND 52C10C2
579          HC       2
```

```
                *
580             KK  2C11R2
581             KM   ROUTE 52C11C2 THROUGH SUBBASIN 52C12 TO CP 52C12C
582             RK     700     .03    .045            TRAP      10      10
                *

583             KK   52C12
584             KM   RUNOFF FROM SUBBASIN 52C12
585             BA    .023
586             LS              75      85
587             UK     100     .02     .10     100
588             RK     900     .03    .045            TRAP      30      10
                *

589             KK  52C12C
590             KM   COMBINE 52C11R2 AND 52C12
591             HC       2
                *

592             KK  52C12R
593             KM   ROUTE 52C12C THROUGH SUBBASIN 52C14 TO CP 52C14C1
594             RK    1150    .029    .045            TRAP      10      10
                *

595             KK  52C14B
596             KM   RUNOFF FROM SUBBASIN 52C14B
597             BA    .021
598             LS              75      60
599             UK     100     .02     .10     100
600             RK    1250    .029    .045            TRAP      30      10
                *

601             KK  C14BC1
602             KM   COMBINE 52C14B AND 52C12R
603             HC       2
                *

604             KK  C14BC2
605             KM   COMBINE 52C14BC1 AND 52C14AR
606             HC       2
                *
1                                          HEC-1 INPUT                                          PAGE 18

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

607             KK  52C14R
608             KM   ROUTE 52C14C3 WEST IN BEARDSLEY CHANNEL TO CP 52B5C2
609             RK     600   .0143    .035            TRAP      50       4
                *

610             KK  51B2DV
611             KM   RETRIEVE DIVERTED FLOW
612             DR  51B2DV
                *

613             KK   51B3D
614             KM   DIVERT 84 PERCENT OF 51B2DV TO WEST (16 PERCENT TO SOUTH)
615             DT  51B3DV
616             DI       0   10000
617             DQ       0    8400
                *

618             KK   51B3R
619             KM   ROUTE 51B3D THROUGH SUBBASIN 52B1 TO CP 52B1C
620             RK     600    .039    .045            TRAP      10      10
                *

621             KK    52B1
622             KM   RUNOFF FROM SUBBASIN 52B1
623             BA    .003
624             LS              75      27
625             UK     100     .02     .10     100
626             RK     600    .039    .045            TRAP      30      10
                *

627             KK   52B1C
628             KM   COMBINE 51B3R AND 52B1
629             HC       2   .0736
                *

630             KK   52B1R
631             KM   ROUTE 52B1C THROUGH SUBBASIN 52B2 TO CP 52B2C1
632             RK     930    .037    .045            TRAP      10      10
                *

633             KK  51B3DV
634             KM   RETRIEVE DIVERTED FLOW 51B3DV
635             DR  51B3DV
                *

636             KK   51B4D
637             KM   DIVERT 82 PERCENT OF 51B3DV TO WEST (18 PERCENT TO SOUTH)
638             DT  51B4DV
```

```
 639          DI       0   10000
 640          DQ       0    8200
              *
1                                          HEC-1 INPUT                                                PAGE 19

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

 641          KK  51B4R1
 642          KM   ROUTE 51B4D THROUGH SUBBASIN 52B2 TO CP 52B2C1
 643          RK    1350    .037    .045            TRAP      10      10
              *

 644          KK  52B2C1
 645          KM   COMBINE 51B4R1 AND 52B1R
 646          HC       2   .1403
              *

 647          KK  52B2R1
 648          KM   ROUTE 52B2R1 THROUGH SUBBASIN 52B2 TO CP 52B2C2
 649          RK    1000    .037    .045            TRAP      10      10
              *

 650          KK    52B2
 651          KM   RUNOFF FROM SUBBASIN 52B2
 652          BA    .032
 653          LS              75      17
 654          UK     100     .02     .10     100
 655          RK    2350    .037    .045            TRAP      30      10
              *

 656          KK  52B2C2
 657          KM   COMBINE 52B2 AND 52B2R1
 658          HC       2
              *

 659          KK  52B2R2
 660          KM   ROUTE 52B2C2 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 661          RK     850    .026    .045            TRAP      10      10
              *

 662          KK  52B3R1
 663          KM   ROUTE 52B3C1 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 664          RK     500    .024    .045            TRAP      10      10
              *

 665          KK    52B3
 666          KM   RUNOFF FROM SUBBASIN 52B3
 667          BA    .062
 668          LS              75    31.8
 669          UK     100     .02     .10     100
 670          RK    3450    .030    .045            TRAP      30      10
              *

 671          KK  52B3C2
 672          KM   COMBINE 52B3 AND 52B3R1
 673          HC       2
              *
1                                          HEC-1 INPUT                                                PAGE 20

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

 674          KK  52B3R2
 675          KM   ROUTE 52B3C2 THROUGH 52B4 TO CP 52B4C
 676          RK    1700    .024    .045            TRAP      10      10
              *

 677          KK    52B4
 678          KM   RUNOFF FROM SUBBASIN 52B4
 679          BA    .026
 680          LS              75      62
 681          UK     100     .02     .10     100
 682          RK    1700    .024    .045            TRAP      30      10
              *

 683          KK   52B4C
 684          KM   COMBINE 52B4 AND 52B3R2
 685          HC       2
              *

 686          KK   52B4R
 687          KM   ROUTE 52B4C THROUGH SUBBASIN 52B5 TO CP 52B5C1
 688          RK     550    .027    .045            TRAP      10      10
              *

 689          KK    52B5
 690          KM   RUNOFF FROM SUBBASIN 52B5
 691          BA    .021
 692          LS              75    56.9
 693          UK     100     .02     .10     100
 694          RK    1400     .03    .045            TRAP      30      10
              *

 695          KK  52B5C1
```

```
 696          KM   COMBINE 52B5 AND 52B4R
 697          HC       2
              *

 698          KK  52B5C2
 699          KM   COMBINE 52B5C1 AND 52C14R
 700          HC       2
              *

 701          KK   52B5R
 702          KM   ROUTE 52B5C2 IN BEARDSLEY CHANNEL TO CP 52B7C2
 703          RK    1100   .0143    .035            TRAP      50       4
              *

 704          KK  51B4DV
 705          KM   RETRIEVE DIVERTED FLOW 51B4DV
 706          DR  51B4DV
              *
```



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

 707          KK   51B5D
 708          KM   DIVERT 68 PERCENT OF 51B4DV TO WEST (32 PERCENT TO SOUTH)
 709          DT  51B5DV
 710          DI       0   10000
 711          DQ       0    6800
              *

 712          KK   51B5R
 713          KM   ROUTE 51B5D THROUGH SUBBASIN 52B6 TO CP 51B7C
 714          RK    1250    .035    .045            TRAP      10      10
              *

 715          KK  51B5DV
 716          KM   RETRIEVE DIVERTED FLOW
 717          DR  51B5DV
              *

 718          KK   51B6D
 719          KM   DIVERT 53 PERCENT OF 51B5DV TO WEST (47 PERCENT TO SOUTH)
 720          DT  51B6DV
 721          DI       0   10000
 722          DQ       0    5300
              *

 723          KK   51B6R
 724          KM   ROUTE 51B6D THROUGH SUBBASIN 52B6 TO CP 51B7C
 725          RK     925    .033    .045            TRAP      10      10
              *

 726          KK  51B6DV
 727          KM   RETRIEVE DIVERTED FLOW 51B6DV
 728          DR  51B6DV
              *

 729          KK   51B7D
 730          KM   DIVERT 58 PERCENT OF 51B6DV TO WEST (42 PERCENT TO SOUTH)
 731          DT  51B7DV
 732          DI       0   10000
 733          DQ       0    5800
              *

 734          KK  51B7R1
 735          KM   ROUTE 51B7D THROUGH SUBBASIN 52B6 TO CP 51B7C
 736          RK     530    .033    .045            TRAP      10      10
              *

 737          KK   51B7C
 738          KM   COMBINE 51B7R1, 51B5R, AND 51B6R
 739          HC       3   .2404
              *
```



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

 740          KK  51B7R2
 741          KM   ROUTE 51B7C THROUGH SUBBASIN 52B6 TO CP 52B6C
 742          RK    2300    .033    .045            TRAP      10      10
              *

 743          KK    52B6
 744          KM   RUNOFF FROM SUBBASIN 52B6
 745          BA    .096
 746          LS              75   13.55
 747          UK     100     .02     .10     100
 748          RK    3200    .033    .045            TRAP      30      10
              *

 749          KK   52B6C
 750          KM   COMBINE 51B7R2 AND 52B6
 751          HC       2
              *
```

```
752          KK   52B6R
753          KM   ROUTE 52B6C THROUGH SUBBASIN 52B7 TO CP 52B7C1
754          RK    2750    .028    .045            TRAP      10      10
             *

755          KK    52B7
756          KM   RUNOFF FROM SUBBASIN 52B7
757          BA    .080
758          LS              75   78.45
759          UK     100     .02     .10     100
760          RK    2750    .028    .045            TRAP      30      10
             *

761          KK  52B7C1
762          KM   COMBINE 52B7 AND 52B6R
763          HC       2
             *

764          KK  52B7C2
765          KM   COMBINE 52B7C1 AND 52B5R
766          HC       2
             *

767          KK    52A2
768          KM   RUNOFF FROM SUBBASIN 52A2
769          BA    .065
770          LS              75    88.8
771          UK     100     .02     .10     100
772          RK    2900    .023    .045            TRAP      30      10
             *
1                                        HEC-1 INPUT                                                    PAGE 23

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

773          KK  52A2C2
774          KM   COMBINE 52B7C2 AND 52A2
775          HC       2    1.62
             *

776          KK  51B7DV
777          KM   RETRIEVE DIVERTED FLOW 51B7DV
778          DR  51B7DV
             *

779          KK   51B8R
780          KM   ROUTE 51B7DV THROUGH SUBBASIN 52A1 TO CP 52A1C
781          RK    3400    .033    .045            TRAP      10      10
             *

782          KK    52A1
783          KM   RUNOFF FROM SUBBASIN 52A1
784          BA    .130
785          LS              75   32.25
786          UK     100     .02     .10     100
787          RK    3400    .033    .045            TRAP      30      10
             *

788          KK   52A1C
789          KM   COMBINE 52A1 AND 51B8R
790          HC       2
             *
             *
             *     *******************  END DC RANCH WATERSHED  ********************
             *
             *
             *     *****************  BEGIN GVSCE MODIFICATIONS  *****************
             *

791          KK   D51.1
792          KM   RETRIEVE DIVERTED FLOW
793          DR  B51.1T
             *

794          KK    C52A
795          KM     COMBINE ROUTED HYDROGRAPH FROM C51.1 WITH HYDROGRAPH FROM C52A1C AT
796          KM     THOMPSON PEAK PARKWAY
797          HC       2  6.2735
             *
             *   R52A
             *    DEER VALLEY BASIN OUTLET CONDUIT TO JUNCTION AT SIERRA PINTA CHANNEL
             *    IS TOO SHORT TO ROUTE.
             *       L = 3130 feet
             *
1                                        HEC-1 INPUT                                                    PAGE 24

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

798          KK     C52
799          KM     COMBINE ROUTED HYDROGRAPH FROM C52A WITH HYDROGRAPH FROM C52A2C AT
800          KM     BEARDSLEY ROAD
801          HC       2  7.9160
             *
```

```
802          KK     R52
803          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR TRAVEL TIME IN THE
804          KM     CONDUIT.
805          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 4050'
806          RT                      1
             *
             *

807          KK    D52T
808          KM     DIVERT 100% OF FLOW TO RETRIEVE JUST U/S OF OUTER LOOP DETENTION BASIN
809          DT    B52T
810          DI       0   10000
811          DQ       0   10000
             *

812          KK   CLEAR
813          KM     CLEAR HYDROGRAPHS FROM STACK
814          HC       2
             *
             *
             *     ******************  BEGIN GRAYHAWK WATERSHED  *******************
             *
             *       THE GRAYHAWK HEC-1 MODEL (VILLAGES II AND III) WAS DEVELOPED BY DEI
             *           DEI FILE NAME:  GH23FAB.H1I
             *           MODEL DATE:     21 MAY 96
             *

815          KK     37A     SUB
816          KM        RUNOFF FROM SUB-BASIN 37A
817          BA   .6765
818          LS              74    24.8
819          UK      61   .0213     .10     100
820          RK    4800   .0237    .045            TRAP      50     130
             *

821          KK    37AE     DIV
822          KM        SPLIT FLOWS AT SOUTH BOUNDARY OF SUB 37A FOR ROUTING TO DETENTION
823          KM        BASIN 53R & 38R-1.  THIS DIVERT OPERATION REFLECTS THE BREAK IN THE
824          KM        DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS.  THIS SPLIT IS
825          KM        BASED ON NEW CORE NORTH PLAN DEVELOPED BY G.W. LARSON & ASSC., INC.
826          KM        DATED 6/16/92.  DIVERT RATIO IS BASED ON APPROXIMATE D.A. FROM SUB 37A
827          KM        THAT IS INTERCEPTED BY EACH CHANNEL SEGMENT ALONG DEER VALLEY ROAD.
828          KM
829          KM        (THIS SPLIT HAS BEEN UPDATED FROM THE OLP.6 MODEL TO REFLECT A 30% SPLIT
830          KM        TO THE SOUTH AND A 70% SPLIT TO THE WEST FOR THIS STUDY AND IS BASED ON
831          KM        UPSTREAM CONTRIBUTING WATERSHED AREA TO THIS CONCENTRATION POINT)
832          DT    37AW
833          DI       0     100     500    1000    1500
```



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

834          DQ       0      70     350     700    1050
             *

835          KK   37AE1      CP
836          KM        ROUTE NON-DIVERTED FLOW FROM DIV 37AE THROUGH SUB 5N.  THIS IS A
837          KM        PRELIMINARY CHANNEL CONFIGURATION FOR THE GOLF COURSE CHANNEL.
838          RS       1    FLOW
839          RC    .055    .045    .055     800    .025
840          RX       0      16      26      30      40      44      54      70
841          RY       6       2       2       0       0       2       2       6
             *

842          KK   SUB5N
843          KM        RUNOFF FROM SUBBASIN 5 IN NORTH 18 MODEL.
844          BA   0.029
845          LS              77      18
846          UK     100    .013     .15     100
847          RK    1000   0.005    .018    .015    TRAP      50      20
848          RK     500    .015    .025            TRAP      10       4
             *

849          KK    CP5N
850          KM        ADD HYDROGRAPHS AT CP5N
851          HC       2   0.232
             *

852          KK   RET5N
853          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 5.  18" PIPE OUTFLOW WILL
854          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
855          RS       1    STOR       0       0
856          SV       0     .04     .33     .93     1.8    2.35    3.16     4.2     6.1
857          SQ       0       8      10      12      15      17     102     191     668
858          SE    1797    1798    1800    1802    1804    1805    1806    1807    1808
             *

859          KK   R6N.1
860          KM        ROUTE FLOW FROM CP5 TO CP6 IN NORTH 18 MODEL
861          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
862          KM        CHANNEL.
863          RS       1    FLOW
864          RC    .055    .045    .055    2200    .025
865          RX       0      16      26      30      40      44      54      70
```

```
866          RY       6       2       2       0       0       2       2       6
             *

867          KK   SUB6B
868          KM        RUNOFF FROM WEST PORTION OF EXISTING SUB6N ADJACENT TO CHANNEL
869          BA    .032
870          LS              81       0
871          UK     200    .025     .15     100
872          RK    1300    .015    .025             TRAP      10       4
             *
1                                          HEC-1 INPUT                                          PAGE 26

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

873          KK    SR6B
874          KM        ROUTE FLOW THROUGH RETENTION BASIN IN DRIVING RANGE CHANNEL
875          RS       1    STOR       0       0
876          SV       0     .17     .57    1.12    1.78
877          SQ       0       8      10     120     380
878          SE    1772    1773    1774    1775    1776
             *

879          KK   CP6.1
880          KM        ADD HYDROGRAPHS AT CP6.1
881          HC       2
             *

882          KK   SUB1N
883          KM        RUNOFF FROM SUBBASIN 1N
884          BA    .019
885          LS              77      18
886          UK     100    .013     .15     100
887          RK    1470   .0204    .018             TRAP      50      20
             *

888          KK    R2NA
889          KM        ROUTE FLOW FROM CP1 TO CP2NA
890          RS       1    FLOW
891          RC     .03     .03     .03     400    .025
892          RX       0       8      13      17      22      26      31      39
893          RY       4       2       2       0       0       2       2       4
             *

894          KK  SUB2NA
895          KM        RUNOFF FROM SUBBASIN 2NA
896          BA    .015
897          LS              81       0
898          UK     150    .013     .15     100
899          RK    1050   .0215    .025             TRAP      20       6
             *

900          KK   CP2NA
901          KM        ADD HYDROGRAPHS AT CP2NA
902          HC       2
             *

903          KK   SR2NA
904          KM        ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NA
905          RS       1    STOR       0       0
906          SV       0    .076    .291    .708     1.2
907          SQ       0       0       0       0     160
908          SE    1772    1773    1774    1775    1776
             *
1                                          HEC-1 INPUT                                          PAGE 27

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

909          KK    R2NB
910          KM        ROUTE FLOW FROM CP2NA TO CP2NB
911          RS       1    FLOW
912          RC     .03     .03     .03    1050    .015
913          RX       0       8      13      17      22      26      31      39
914          RY       4       2       2       0       0       2       2       4
             *

915          KK  SUB2NB
916          KM        RUNOFF FROM SUBBASIN 2NB
917          BA     .03
918          LS              77      53
919          UK     150    .013     .15     100
920          RK    1200    .015    .025             TRAP      20      50
             *

921          KK   CP2NB
922          KM        ADD HYDROGRAPHS AT CP2NB
923          HC       2
             *

924          KK   SR2NB
925          KM        STORAGE ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NB
926          RS       1    STOR       0       0
927          SV       0     .19     .69    1.66    3.23     4.5
928          SQ       0       2       8      12      17     170
```

```
929          SE    1796    1798    1800    1802    1804    1805
             *

930          KK   RCP4N
931          KM        ROUTE FLOW FROM CP2NB TO CP4N
932          RS       1    FLOW
933          RC     .03     .03     .03     740    .018
934          RX       0       8      13      17      22      26      31      39
935          RY       4       2       2       0       0       2       2       4
             *

936          KK   SUB6N
937          KM        RUNOFF FROM SUBBASIN 6 IN NORTH 18 MODEL.  TO LAKE NORTH OF CLUBHOUSE.
938          BA    .049
939          LS              81       0
940          UK     200    .025     .15     100
941          RK    1300    .015    .025            TRAP      10       4
             *

942          KK   RET6N
943          KM        RETENTION ROUTING THROUGH LAKE AT HOLE 18, NORTH COURSE.
944          RS       1    STOR
945          SV       0    3.01    6.64   10.75   13.09   15.90
946          SQ       0       0       0      10      26     100
947          SE    1782    1784    1786    1788    1789    1790
             *
1                                          HEC-1 INPUT                                          PAGE 28

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

948          KK  RCP4N1
949          KM        ROUTE FLOW FROM CP6N TO CP4N
950          RS       1    FLOW
951          RC     .03     .03     .03     550    .018
952          RX       0       8      13      17      22      26      31      39
953          RY       4       2       2       0       0       2       2       4
             *

954          KK  CP4N.1
955          KM        ADD HYDROGRAPHS AT CP4N.1
956          HC       2
             *

957          KK   SUB3N
958          KM        RUNOFF FROM SUBBASIN 3N, NORTH 18 MODEL
959          BA    .027
960          LS              81       0
961          UK     100     .02     .15     100
962          RK    2800  0.0207    .025            TRAP      10       4
             *

963          KK   RET3N
964          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 3.  18" PIPE OUTFLOW WILL
965          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
966          RS       1    STOR       0       0
967          SV       0    1.73    8.97   13.32   15.74
968          SQ       0       4       7       9      11
969          SE    1793    1795    1800    1803    1804
             *

970          KK     R4N
971          KM        ROUTE FLOW FROM CP3N TO CP4N IN NORTH MODEL
972          RS       1    FLOW
973          RC    .035    .035    .035     950    .018
974          RX       0       8      13      17      22      26      31      39
975          RY       4       2       2       0       0       2       2       4
             *

976          KK  CP4N.2
977          KM        ADD HYDROGRAPHS AT CPN.2
978          HC       2
             *

979          KK   SUB4N
980          KM        RUNOFF FROM SUBBASIN 4N.
981          BA    .032
982          LS              77      18
983          UK     100    .015     .15     100
984          RK    1200   0.007    .018            TRAP      50      20
             *
1                                          HEC-1 INPUT                                          PAGE 29

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

985          KK    CP4N
986          KM        ADD HYDROGRAPHS AT CP4N
987          HC       2
             *

988          KK     R6N
989          KM        ROUTE FLOW FROM CP4N TO CP6N ALONG THOMPSON PEAK PKWY AT CLUBHOUSE
990          RS       1    FLOW
991          RC    .045    .035    .045     750    .025
```

```
 992          RX       0       8      13      17      22      26      31      39
 993          RY       4       2       2       0       0       2       2       4
              *

 994          KK   SUB6A
 995          KM        RUNOFF FROM SUBBASIN 6A (CLUBHOUSE AREA NORTH OF THOMPSON PEAK PKWY).
 996          BA    .013
 997          LS              83      68
 998          UK     100    .015     .12     100
 999          RK     800     .01    .025            TRAP       2       3
              *

1000          KK   CP6.2
1001          KM        ADD HYDROGRAPHS AT CP6.2
1002          HC       2
              *

1003          KK    CP6N
1004          KM        ADD HYDROGRAPHS AT CP6N
1005          HC       2
              *
              *       ABOVE DISCHARGE FROM NORTH 18 THROUGH BRIDGE AT TPP STATION 103+45
              *

1006          KK   RCP6N
1007          KM        ROUTE FLOW FROM CP6N TO CP3C
1008          RS       1    FLOW
1009          RC    .045    .035    .045     300    .015
1010          RX       0       8      13      17      37      45      51      59
1011          RY       4       2       2       0       0       2       2       4
              *

1012          KK   SUB3C
1013          KM        RUNOFF FROM SUBBASIN 3C, SOUTH COURSE AT MAINTENANCE FACILITY.
1014          BA   .0104
1015          LS              77      68
1016          UK     100    .025     .02     100
1017          RK     600    .015    .035            TRAP      50      20
              *
1                                        HEC-1 INPUT                                          PAGE 30

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

1018          KK    CP3C
1019          KM        COMBINE NORTH COURSE HYDROGRAPH WITH FIRST SOUTH COURSE HYDROGRAPH
1020          HC       2
              *

1021          KK     R3C
1022          KM        ROUTE FLOW FROM SUB3C TO CP3 THROUGH GC1018
1023          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
1024          KM        CHANNEL.
1025          RS       1    FLOW
1026          RC    .055    .045    .055    2050    .025
1027          RX       0      20      30      40      60      70      80     100
1028          RY    1650    1746    1744    1742    1742    1744    1746    1750
              *

1029          KK  GC1018
1030          KM        RUNOFF FROM HOLES NO. 10, 18 AND DRIVING RANGE THAT CONTRIBUTE TO WASH
1031          BA    .044
1032          LS              81       0
1033          UK     200    .025     .15     100
1034          RK    1800   .0233    .025            TRAP      10       4
              *

1035          KK   GC1-9
1036          KM        RUNOFF FROM GOLF COURSE HOLES 1 & 9 CONTRIBUTING TO WASH
1037          BA    .026
1038          LS              81       0
1039          UK     200    .025     .15     100
1040          RK    2110    .022    .025            TRAP      10       4
              *

1041          KK   SUB3S
1042          KM        RUNOFF FROM SUB BASIN 3 SOUTH COURSE
1043          BA   .0102
1044          LS              77      53
1045          UK     100    .010     .15     100
1046          RK     930    .016    .025            TRAP      50      20
              *

1047          KK    CP3S
1048          KM        COMBINE HYDROGRAPHS AT CP3 SOUTH COURSE
1049          HC       4
              *

1050          KK    RT3S
1051          KM        ROUTE FLOW FROM CP3S TO CPGC28
1052          RS       1    FLOW       0       0
1053          RC    .055    .045    .055     900    .023
1054          RX       0      20      30      40      60      70      80     100
1055          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *
```

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

1056          KK   SUB4S
1057          KM        RUNOFF FROM SUB BASIN 4 SOUTH COURSE
1058          BA   .0273
1059          LS              77      53
1060          UK     100    .010     .15     100
1061          RK    1780    .018    .015            TRAP      50      20
              *

1062          KK    RT4S
1063          KM        ROUTE FLOW FROM CP4S TO CPGC28
1064          RS       1    FLOW       0       0
1065          RC    .035    .035    .035     650    .015
1066          RX       0      20      30      40      45      55      65      75
1067          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1068          KK   GC2-8
1069          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES NO. 2 AND 8
1070          BA    .014
1071          LS              81       0
1072          UK     200    .025     .15     100
1073          RK     980    .016    .025            TRAP      10       4
              *

1074          KK  1PGC28
1075          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1076          HC       3
              *

1077          KK  SUB3D3
1078          KM        RUNOFF FROM GRAYHAWK ROAD SOUTH OF THOMPOSON PEAK
1079          BA    .014
1080          LS              81       0
1081          UK      50    .015      .1     100
1082          RK    2450    .016    .025            TRAP       5       4
              *

1083          KK  CPGC28
1084          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1085          HC       2
              *

1086          KK  SRGC28
1087          KM        STORAGE THRU DETENTION BASIN ON HOLES 2 AND 8.
1088          RS       1    STOR       0       0
1089          SV       0    .018    .085     .22      .5     1.0     1.7    2.68     3.9
1090          SE    1706    1707    1708    1709    1710    1711    1712    1713    1714
1091          SQ       0      10      18      20      30     108     324     651    1070
              *
```



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

1092          KK    RT7S
1093          KM        ROUTE FLOW FROM SRGC28 TO CP7S
1094          RS       1    STOR       0       0
1095          RC    .055    .045    .055    1700   .0187
1096          RX       0      20      30      40      60      70      80     100
1097          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1098          KK     GC7
1099          KM        RUNOFF FROM SOUTH GOLF COURSE HOLE NO. 7
1100          BA   .0134
1101          LS              81       0
1102          UK     200    .025     .15     100
1103          RK    1380    .020    .025            TRAP      10       4
              *

1104          KK    CP7S
1105          KM        ADD HYDROGRAPHS AT CP7S ON SOUTH COURSE
1106          HC       2  0.6083
              *

1107          KK    D7ST
1108          KM        D7ST IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1109          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1110          KM
1111          KM        DIVERT 100% OF FLOW
1112          DT    B7ST
1113          DI       0   10000
1114          DQ       0   10000
              *

1115          KK   CLEAR
1116          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1117          HC       2
              *
              *
```

```
                 * THIS PORTION OF MODEL TAKEN FROM,"DRAINAGE REPORT FOR VILLAGE 3 - PHASE 1",
                 * APPROVED BY THE CITY OF SCOTTSDALE 7-19-95.  MODIFIED TO ACCOUNT FOR ASBUILT
                 * CONDITION
                 *
                 *
                 *
                 *

1118             KK  SUB3D1
1119             KM        RUNOFF FROM SUBBASIN 3D1, PARCEL 3D.
1120             BA   .0088
1121             LS              77      34
1122             UD     .06
                 *
1                                          HEC-1 INPUT                                          PAGE 33

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


1123             KK   RD1B1
1124             KM        FOUTE FLOW FROM 3D1 TO 3B1
1125             RS       1    FLOW      -1
1126             RC    0.03    0.03    0.03    1250    .015
1127             RX       0     0.5       1       7      12      19    19.5      20
1128             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1129             KK  SUB3B1
1130             KM        RUNOFF FROM SUBBASIN 3B1, PARCEL 3B.
1131             BA   .0137
1132             LS              77      47
1133             UD     .06
                 *

1134             KK   CP3B1
1135             KM        ADD HYDROGRAGHS AT CP3B1
1136             HC       2
                 *

1137             KK   RB13F
1138             KM        ROUTE FLOW FROM 3B1 TO SUB3F
1139             RS       1    FLOW      -1
1140             RC    0.03    0.03    0.03    2150    .015
1141             RX       0     0.5       1       7      17      24    24.5      25
1142             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1143             KK   SUB3F
1144             KM        RUNOFF FROM SUBBASIN 3F, PARCEL 3F, SOUTH COURSE MODEL.
1145             BA   .0344
1146             LS              77      68
1147             UK     100    .025     .15     100
1148             RK    1000    .015    .025            TRAP     100      20
                 *

1149             KK    CP3F
1150             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3F ALONG THE POWER CORRIDOR
1151             HC       2
                 *

1152             KK  SUB3B2
1153             KM        RUNOFF FROM SUBBASIN 3B2, PARCEL 3B.
1154             BA   .0246
1155             LS              77      40
1156             UD     .10
                 *

1157             KK   RB2E1
1158             KM        1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1159             RS       1    FLOW      -1
1160             RC    0.03    0.03    0.03     800    0.02
1161             RX       0     0.5       1       7      17      24    24.5      25
1162             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *
1                                          HEC-1 INPUT                                          PAGE 34

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


1163             KK   RB2E2
1164             KM       SECOND 1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1165             RS       1    FLOW      -1
1166             RC    0.03    0.03    0.03     600    .015
1167             RX       0     0.5       1       7      17      24    24.5      25
1168             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1169             KK  SUB3E1
1170             KM        RUNOFF FROM SUBBASIN 3E1, PARCEL 3E.
1171             BA   .0246
1172             LS              77      40
1173             UD     .10
                 *

1174             KK  1CPE31
```

```
1175          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E1 ALONG THE POWER CORRIDOR
1176          HC       2
              *

1177          KK  SUB3D2
1178          KM        RUNOFF FROM SUBBASIN 3D2, PARCEL 3D.
1179          BA    .022
1180          LS              77      35
1181          UD     .08
              *

1182          KK   RD2E2
1183          KM        ROUTE EXCESS FROM 3D2 TO CP3E2
1184          RS       1    FLOW      -1
1185          RC    0.03    0.03    0.03    1200   .0216
1186          RX       0     0.5       1       7      17      24    24.5      25
1187          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1188          KK  SUB3E2
1189          KM        RUNOFF FROM SUBBASIN 3E2, PARCEL 3E.
1190          BA    .012
1191          LS              77      35
1192          UD     .06
              *

1193          KK   CP3E2
1194          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E2 ALONG THE POWER CORRIDOR
1195          HC       2
              *

1196          KK     PC3
1197          KM        PC3 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1198          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1199          KM
1200          KM        RUNOFF FROM SUBBASIN PC3.
1201          BA  0.0434
1202          LS              77      10
```



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

1203          UK     300    .015     .15     100
1204          RK    2200     .01     .03            TRAP      30       4
              *

1205          KK    CPC3
1206          KM        CPC3 IS A CONCENTRATION POINT ADDED BY GVSCE TO ESTIMATE THE INFLOW TO
1207          KM        THE POWER LINE CHANNEL AT THE HAYDEN ROAD CROSSING.
1208          KM
1209          KM        COMBINE ROUTED HYDROGRAPH FROM SRPC2 W/HYDROGRAPHS FROM CP3E1, CP3E2 AND
1210          KM        CP3F AND RUNOFF FROM PC3.
1211          HC       4  0.1835
              *

1212          KK   DPC3T
1213          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1214          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1215          KM
1216          KM        DIVERT 100% OF FLOW
1217          DT   BPC3T
1218          DI       0   10000
1219          DQ       0   10000
              *

1220          KK  SUB3E3
1221          KM        RUNOFF FROM SUBBASIN 3E3, PARCEL 3E.
1222          BA    .020
1223          LS              77      32
1224          UD     .06
              *

1225          KK     PC4
1226          KM        PC4 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1227          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1228          KM
1229          KM        RUNOFF FROM SUBBASIN PC4.
1230          BA  0.0217
1231          LS              77       0
1232          UK     300    .015     .15     100
1233          RK    1100     .01     .03            TRAP      30       4
              *

1234          KK     D7S
1235          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1236          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1237          KM
1238          KM        RETRIEVE DIVERTED FLOW
1239          DR    B7ST
              *

1240          KK    CPC4
1241          KM        THE HEC1 OPREATION TEMPAD IS CHANGED BY GVSCE TO ESTIMATE THE INFLOW TO
1242          KM        THE POWER LINE CHANNEL WHERE THE FLOW FROM CP7S ENTERS THE CHANNEL.
1243          KM
```

```
1244          KM        COMBINE HYDROGRAPH FROM CP3E3 W/RUNOFF FROM PC4.
1245          HC       3   0.650
              *
1                                          HEC-1 INPUT                                                PAGE 36

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

1246          KK   DPC4T
1247          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1248          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1249          KM
1250          KM        DIVERT 100% OF FLOW
1251          DT   BPC4T
1252          DI       0   10000
1253          DQ       0   10000
              *

1254          KK   CLEAR
1255          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1256          HC       3
              *
              *
              *       THIS ENDS THE PORTION OF THE MODEL TAKEN FROM DRAINAGE REPORT
              *       FOR VILLAGE 3 - PHASE I HEC-1 MODEL BY GILBERTSON ASSOC. INC.
              *       DATED 7-19-95
              *
              *
              *
              * RETURN TO NORTH 18\VILLAGE 2\TPP3 MODEL.
              * THE REMAINDER OF THE SUBBASINS IN THIS  MODEL  WILL CONTRIBUTE TO THE
              * PROPOSED CHANNNEL IN THE POWER EASEMENT AS IDENTIFIED IN THE
              * "COMMUNITY DRAINAGE STUDY - CORE NORTH AND WILL DISCHARGE TO REGIONAL
              * RETENTION BASIN 38R1.
              *
              *

1257          KK    37AW     RET
1258          KM        RETRIEVE DIVERTED FLOW FROM SOUTH BOUNDARY OF SUB 37A TO REFLECT
1259          KM        BREAK IN DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS
1260          DR    37AW
              *

1261          KK    R14R
1262          KM        ROUTE FLOW FROM DIVERT AT DEER VALLEY ROAD (UPSTREAM OF SUBBAIN 5) TO
1263          KM        RET14.1
1264          RS       1    FLOW
1265          RC    .055    .045    .055    2900     .01
1266          RX       0      16      26      30      50      54      64      80
1267          RY       6       2       2       0       0       2       2       6
              * RET 141 HAS BEEN REVISED FOLLOWING REFINEMENT OF GRADING PLANS 11-16-94
              *

1268          KK  RET141
1269          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.1.  18" PIPE OUTFLOW WILL
1270          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1271          RS       1    STOR       0       0
1272          SV       0     .46    2.79    4.56    5.71    6.92    8.24
1273          SQ       0      11      15      22     147     463     968
1274          SE    1778    1785    1790    1792    1793    1794    1795
              *
1                                          HEC-1 INPUT                                                PAGE 37

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

1275          KK   R14.1
1276          KM        ROUTE FLOW FROM RET14.1 TO CP14
1277          KM        RET14.1
1278          RS       1    FLOW
1279          RC    .055    .045    .055    1900     .01
1280          RX       0      16      26      30      50      54      64      80
1281          RY       6       2       2       0       0       2       2       6
              *

1282          KK  SUB13N
1283          KM        RUNOFF FROM SUBBASIN 13 NORTH 18 MODEL.
1284          BA    .037
1285          LS              77      24
1286          UK     100    .015     .15     100
1287          RK    2400    .007    .018            TRAP      50      20
              *

1288          KK   R14.1
1289          KM        ROUTE FLOW FROM CP13 TO RET14 NORTH 18 MODEL.
1290          RS       1    FLOW
1291          RC    .055    .045    .055     950    .025
1292          RX       0       8      13      17      22      26      31      39
1293          RY       4       2       2       0       0       2       2       4
              *

1294          KK  SUB14N
1295          KM        RUNOFF FROM SUBBASIN 14 NORTH 18 MODEL.
1296          BA    .049
1297          LS              81       0
```

```
1298          UK     300    .025     .15     100
1299          RK    2300     .01    .025            TRAP      10       4
              *

1300          KK    CP14
1301          KM        ADD HYDROGRAPHS AT CP14
1302          HC       3  0.5595
              *

1303          KK   RET14
1304          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.  18" PIPE OUTFLOW WILL
1305          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1306          RS       1    STOR       0       0
1307          SV       0     .08     .31    1.01    2.16    3.20    4.19    5.69     7.8
1308          SQ       0      14      16      18      20      22     155     464     750
1309          SE    1744    1746    1748    1750    1752    1753    1754    1755    1756
              *

1310          KK   R18.1
1311          KM        ROUTE FLOW FROM RET14 TO CP18
1312          RS       1    FLOW
1313          RC    .055    .045    .055     500    .016
1314          RX       0      16      26      34      54      68      78      96
1315          RY       6       2       2       0       0       2       2       6
              *
```



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

1316          KK  SUB20N
1317          KM        RUNOFF FROM SUBBASIN 20.
1318          BA    .024
1319          LS              77      24
1320          UK     200     .01     .15     100
1321          RK    1400     .02    .018            TRAP      50      20
              *

1322          KK     R19
1323          KM        ROUTE FLOW FROM CP20 TO CP19
1324          RS       1    FLOW
1325          RC    .035    .035    .035     700     .02
1326          RX       0       8      13      17      22      26      31      39
1327          RY       4       2       2       0       0       2       2       4
              *

1328          KK  SUB19N
1329          KM        RUNOFF FROM SUBBASIN 19.
1330          BA    .038
1331          LS              77      31
1332          UK     150     .01     .15     100
1333          RK    1800    .015    .018            TRAP      50      20
              *

1334          KK   CP19N
1335          KM        ADD HYDROGRAPHS  AT CP19N
1336          HC       2
              *

1337          KK   R18NC
1338          KM        ROUTE FLOW FROM  CP19N TO CP18NC
1339          RS       1    FLOW
1340          RC    .035    .035    .035     700    .013
1341          RX       0       8      13      17      27      31      36      44
1342          RY       4       2       2       0       0       2       2       4
              *

1343          KK  UB18NC
1344          KM        RUNOFF FROM SUBBASIN 18NC.
1345          BA    .021
1346          LS              77      42
1347          UK     100     .01     .15     100
1348          RK    1550     .02    .018            TRAP      50      20
              *

1349          KK  CP18NC
1350          KM        ADD HYDROGRAPHS  AT CP18NC (INCLUDES R18.1, R18, AND SUB18)
1351          HC       3
              *
```



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

1352          KK    RPC1
1353          KM        ROUTE FLOW FROM CP18N TO CPC1.
1354          RS       1    FLOW
1355          RC    .035    .035    .035     510    .013
1356          RX       0      16      26      34      64      78      88     106
1357          RY       6       2       2       0       0       2       2       6
              *

1358          KK  UB18NA
1359          KM        RUNOFF FROM SUBBASIN 18NA.
1360          BA    .022
```

```
1361          LS              77      42
1362          UK     100     .01     .15     100
1363          RK    1450     .02    .018            TRAP      50      20
              *

1364          KK   1RPC1
1365          KM        ROUTE FLOW FROM CP18NA TO CPC1.
1366          RS       1    FLOW
1367          RC    .035    .035    .035    2550     .01
1368          RX       0      16      26      34      64      78      88     106
1369          RY       8       4       2       0       0       2       4       8
              *

1370          KK  UB18NB
1371          KM        RUNOFF FROM SUBBASIN 18NB.
1372          BA   .0096
1373          LS              77      42
1374          UK     100     .01     .15     100
1375          RK     800     .02    .018            TRAP      50      20
              *

1376          KK   2RPC1
1377          KM        ROUTE FLOW FROM CP18NB TO CPC1.
1378          RS       1    FLOW
1379          RC    .035    .035    .035    2000     .01
1380          RX       0      16      26      34      64      78      88     106
1381          RY       8       4       2       0       0       2       4       8
              *

1382          KK     PC1
1383          KM        RUNOFF FROM SUBBASIN PC1.
1384          BA    .062
1385          LS              77      10
1386          UK     500    .015     .15     100
1387          RK    2700     .01     .03            TRAP      30       4
              *

1388          KK   1CPC1
1389          KM        ADD HYDROGRAPHS  AT CPC1.
1390          HC       3
              *
```



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

1391          KK   SRPC1
1392          KM        STOAGE ROUTE THROUGH DET BASIN IN POWER CORRIDOR.
1393          RS       1    STOR       0       0
1394          SV       0     .29     .73
1395          SQ       0       0     350
1396          SE    1747    1748    1749
              *

1397          KK    CPC1
1398          KM        ADD HYDROGRAPHS  AT CPC1.
1399          HC       2
              *

1400          KK  R16NA1
1401          KM        ROUTE FLOW FROM CPC1 TO C16NA1.
1402          RS       1    FLOW
1403          RC    .035    .035    .035     700    .013
1404          RX       0      16      26      34      74      88      98     116
1405          RY       8       4       2       0       0       2       4       8
              *

1406          KK  UB16NA
1407          KM        RUNOFF FROM SUBBASIN 16NA.
1408          BA   .0139
1409          LS              77      42
1410          UK     100    .015     .15     100
1411          RK    1500    .015    .022            TRAP      50      20
              *

1412          KK  R16NA1
1413          KM        ROUTE FLOW FROM CP16NA TO CP16NA1.
1414          RS       1    FLOW
1415          RC    .035    .035    .035     550    .013
1416          RX       0      16      26      34      44      58      68      86
1417          RY       6       2       2       0       0       2       2       6
              *

1418          KK  C16NA1
1419          KM        ADD HYDROGRAPHS  AT CP16NA1.
1420          HC       2
              *

1421          KK  R16NB1
1422          KM        ROUTE FLOW FROM CP16NA1 TO CP16NB1.
1423          RS       1    FLOW
1424          RC    .035    .035    .035     650    .013
1425          RX       0      16      26      34      74      88      98     116
1426          RY       8       4       2       0       0       2       4       8
              *
```

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

1427          KK  UB16NB
1428          KM        RUNOFF FROM SUBBASIN 16NB.
1429          BA   .0156
1430          LS              77      42
1431          UK     100    .015     .15     100
1432          RK    1500    .015    .022            TRAP      50      20
              *

1433          KK  R16NB1
1434          KM        ROUTE FLOW FROM CP16NB TO CP16NB1.
1435          RS       1    FLOW
1436          RC    .035    .035    .035     550    .013
1437          RX       0      16      26      34      44      58      68      86
1438          RY       6       2       2       0       0       2       2       6
              *

1439          KK  C16NB1
1440          KM        ADD HYDROGRAPHS  AT CP16NB1.
1441          HC       2
              *

1442          KK  R16NC1
1443          KM        ROUTE FLOW FROM CP16NB1 TO CP16NC1.
1444          RS       1    FLOW
1445          RC    .035    .035    .035     650    .013
1446          RX       0      16      26      34      54      68      78      96
1447          RY       6       2       2       0       0       2       2       6
              *

1448          KK   SUB7N
1449          KM        RUNOFF FROM SUBBASIN 7N.
1450          BA    .031
1451          LS              77      18
1452          UK     100    .015     .15     100
1453          RK    1900     .01    .018            TRAP      50      20
              *

1454          KK    R8NC
1455          KM        ROUTE FLOW FROM CP7N TO CP8NC.
1456          RS       1    FLOW
1457          RC    .055    .045    .055     700    .025
1458          RX       0       8      13      17      22      26      31      39
1459          RY       4       2       2       0       0       2       2       4
              *

1460          KK  SUB8NA
1461          KM        RUNOFF FROM SUBBASIN 8NA.
1462          BA   .0046
1463          LS              81       0
1464          UK     100     .03     .15     100
1465          RK     450     .03    .025            TRAP      20       6
              *
```



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

1466          KK   SR8NA
1467          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NA.
1468          RS       1    STOR       0       0
1469          SV       0     .51    .816
1470          SQ       0       1      43
1471          SE    1791    1795    1796
              *

1472          KK    R8NB
1473          KM        ROUTE FLOW FROM CP8NA TO CP8NB.
1474          RS       1    FLOW
1475          RC    .025    .025    .025     300     .03
1476          RX       0      12      24      36      56      68      80      92
1477          RY       6       4       2       0       0       2       4       6
              *

1478          KK  SUB8NB
1479          KM        RUNOFF FROM SUBBASIN 8NB.
1480          BA   .0142
1481          LS              81       0
1482          UK     100     .03     .15     100
1483          RK    1150    .025    .025            TRAP      20       6
              *

1484          KK   CP8NB
1485          KM        ADD HYDROGRAPHS AT CP8NB.
1486          HC       2
              *

1487          KK   SR8NB
1488          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NB.
1489          RS       1    STOR       0       0
1490          SV       0   .0124   1.754    2.45
```

```
1491          SQ      0       2       2      72
1492          SE   1784    1785    1790    1791
              *

1493          KK    R8NC
1494          KM        ROUTE FLOW FROM CP8NB TO CP8NC.
1495          RS       1    FLOW
1496          RC    .025    .025    .025     500     .03
1497          RX       0      12      24      36      56      68      80      92
1498          RY       6       4       2       0       0       2       4       6
              *

1499          KK  SUB8NC
1500          KM        RUNOFF FROM SUBBASIN 8NC.
1501          BA   .0182
1502          LS              81       0
1503          UK     100     .03     .15     100
1504          RK     900     .03    .025            TRAP      20       6
              *
1                                        HEC-1 INPUT                                                    PAGE 43

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

1505          KK   CP8NC
1506          KM        ADD HYDROGRAPHS AT CP8NC.
1507          HC       3
              *

1508          KK   SR8NC
1509          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NC.
1510          RS       1    STOR       0       0
1511          SV       0    .404   2.444    3.13   3.979
1512          SQ       0      10      14     151    1004
1513          SE    1771    1775    1780    1781    1782
              *

1514          KK     R9N
1515          KM        ROUTE FLOW FROM CP8N TO CP9N.
1516          RS       1    FLOW
1517          RC    .025    .025    .025    1150    .025
1518          RX       0       8      13      17      22      26      31      39
1519          RY       4       2       2       0       0       2       2       4
              *

1520          KK   SUB9N
1521          KM        RUNOFF FROM SUBBASIN 9N.
1522          BA    .055
1523          LS              77      28
1524          UK     100    .008     .15     100
1525          RK    1700     .01    .018            TRAP      50      20
              *

1526          KK    CP9N
1527          KM        ADD HYDROGRAPHS AT CP9N
1528          HC       2
              *

1529          KK    R10B
1530          KM        ROUTE FLOW FROM CP9N TO CP10B.
1531          RS       1    FLOW
1532          RC     .03     .03     .03     400     .02
1533          RX       0       8      16      24      29      37      45      53
1534          RY       6       4       2       0       0       2       4       6
              *

1535          KK  SUB10B
1536          KM        RUNOFF FROM SUBBASIN 10B.
1537          BA    .028
1538          LS              77      42
1539          UK     100    .015     .15     100
1540          RK     350    .008    .018            TRAP      50      20
1541          RK     600    .008    .025            TRAP      10       4
              *
1                                        HEC-1 INPUT                                                    PAGE 44

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

1542          KK   CP10B
1543          KM        ADD HYDROGRAPHS AT CP10B
1544          HC       2
              *

1545          KK   R11NA
1546          KM        ROUTE FLOW FROM CP10B TO CP11NA.
1547          RS       1    FLOW
1548          RC     .03     .03     .03     200     .04
1549          RX       0       8      16      24      29      37      45      53
1550          RY       6       4       2       0       0       2       4       6
              *

1551          KK  UB11NA
1552          KM        RUNOFF FROM SUBBASIN 11NA.
1553          BA   .0076
```

```
1554          LS              81       0
1555          UK     100    .025     .15     100
1556          RK     500     .03    .025            TRAP      30       6
              *

1557          KK  CP11NA
1558          KM        ADD HYDROGRAPHS AT CP11NA
1559          HC       2
              *

1560          KK  SR11NA
1561          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NA.
1562          RS       1    STOR       0       0
1563          SV       0   .0462   1.425   2.480   3.109   3.856
1564          SQ       0      10      27      27      27     237
1565          SE    1734    1735    1740    1742    1743    1744
              *

1566          KK   R11NB
1567          KM        ROUTE FLOW FROM CP11NA TO CP11NB.
1568          RS       1    FLOW
1569          RC    .025    .025    .025     250     .03
1570          RX       0      12      24      36      56      68      80      92
1571          RY       6       4       2       0       0       2       4       6
              *

1572          KK  UB11NB
1573          KM        RUNOFF FROM SUBBASIN 11NB.
1574          BA   .0078
1575          LS              81       0
1576          UK     100     .04     .15     100
1577          RK     700    .025    .025            TRAP      30       6
              *
```



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

1578          KK  CP11NB
1579          KM        ADD HYDROGRAPHS AT CP11NB
1580          HC       2
              *

1581          KK  SR11NB
1582          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NB.
1583          RS       1    STOR       0       0
1584          SV       0    1.56   2.586
1585          SQ       0      27     111
1586          SE    1732    1737    1738
              *

1587          KK   R11NC
1588          KM        ROUTE FLOW FROM CP11NB TO CP11NC.
1589          RS       1    FLOW
1590          RC    .025    .025    .025     300     .03
1591          RX       0      12      24      36      56      68      80      92
1592          RY       6       4       2       0       0       2       4       6
              *

1593          KK  UB11NC
1594          KM        RUNOFF FROM SUBBASIN 11NC.
1595          BA   .0069
1596          LS              81       0
1597          UK     100     .03     .15     100
1598          RK     650    .028    .025            TRAP      20       5
              *

1599          KK  C11NC1
1600          KM        ADD HYDROGRAPHS AT CP11NC.1
1601          HC       2
              *

1602          KK  SUB10A
1603          KM        RUNOFF FROM SUBBASIN 10A.
1604          BA    .030
1605          LS              77      42
1606          UK     100    .015     .15     100
1607          RK     350    .008    .018            TRAP      50      20
1608          RK     800    .008    .025            TRAP      10       4
              *

1609          KK   R12NB
1610          KM        ROUTE FLOW FROM CP10A TO CP12NB.
1611          RS       1    FLOW
1612          RC    .025    .025    .025     400     .03
1613          RX       0      12      24      36      46      58      70      82
1614          RY       6       4       2       0       0       2       4       6
              *
```



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

1615          KK  UB12NA
1616          KM        RUNOFF FROM SUBBASIN 12NA.
```

```
1617          BA   .0153
1618          LS              81       0
1619          UK     150    .025     .15     100
1620          RK     650    .017    .025            TRAP      30       6
              *

1621          KK  SR12NA
1622          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB1NA.
1623          RS       1    STOR       0       0
1624          SV       0    2.16   3.426   5.071
1625          SQ       0       1       2     142
1626          SE    1741    1745    1746    1747
              *

1627          KK   R12NA
1628          KM        ROUTE FLOW FROM CP12NA TO CP12NB.
1629          RS       1    FLOW
1630          RC    .025    .025    .025     550    .025
1631          RX       0      12      24      36      46      58      70      82
1632          RY       6       4       2       0       0       2       4       6
              *

1633          KK  UB12NB
1634          KM        RUNOFF FROM SUBBASIN 12NB.
1635          BA   .0157
1636          LS              81       0
1637          UK     150    .025     .15     100
1638          RK     650    .017    .025            TRAP      30       6
              *

1639          KK  CP12NB
1640          KM        ADD 3 HYDROGRAPHS AT CP12NB
1641          HC       3
              *

1642          KK  SR12NB
1643          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB12NB.
1644          RS       1    STOR       0       0
1645          SV       0    .922    4.24    7.53
1646          SQ       0       2       2     142
1647          SE    1741    1745    1746    1747
              *

1648          KK  R11NC2
1649          KM        ROUTE FLOW FROM CP12NA TO CP11NC.
1650          RS       1    FLOW
1651          RC    .025    .025    .025     550     .01
1652          RX       0      12      24      36      46      58      70      82
1653          RY       6       4       2       0       0       2       4       6
              *
```



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

1654          KK  CP11NC
1655          KM        ADD HYDROGRAPHS  AT CP11NC
1656          HC       2
              *

1657          KK  SR11NC
1658          KM        ROUTE FLOW THROUGH RETENTION BASIN RT11NC.  18" PIPE OUTFLOW WILL
1659          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1660          RS       1    STOR       0       0
1661          SV       0   1.665   2.303   3.062
1662          SQ       0      27     111     344
1663          SE    1730    1735    1736    1737
              *

1664          KK   R16NC
1665          KM        ROUTE FLOW FROM CP11NC TO CP16NC.
1666          RS       1    FLOW
1667          RC    .035    .035   0.035     950    .025
1668          RX       0       8      13      17      22      26      31      39
1669          RY       4       2       2       0       0       2       2       4
              *

1670          KK  UB16NC
1671          KM        RUNOFF FROM SUBBASIN 16NC.
1672          BA   .0337
1673          LS              77      42
1674          UK     100    .015     .15     100
1675          RK    1600    .015    .022            TRAP      50      20
              *

1676          KK  CP16NC
1677          KM        ADD HYDROGRAPHS  AT CP16NC
1678          HC       2
              *

1679          KK  R16NC1
1680          KM        ROUTE FLOW FROM CP16NC TO CP16NC1.
1681          RS       1    FLOW
1682          RC     .03     .03     .03     550    .013
1683          RX       0      16      26      34      44      58      68      86
```

```
1684          RY       6       2       2       0       0       2       2       6
              *

1685          KK  C16NC1
1686          KM        ADD HYDROGRAPHS  AT CP16NC1.
1687          HC       2
              *

1688          KK   R15N1
1689          KM        ROUTE FLOW FROM CP16NC1 TO CP15N1.
1690          RS       1    FLOW
1691          RC    .035    .035    .035     600    .013
1692          RX       0      16      26      34      54      68      78      96
1693          RY       6       2       2       0       0       2       2       6
              *
1                                          HEC-1 INPUT                                                    PAGE 48

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

1694          KK     PC2
1695          KM        RUNOFF FROM SUBBASIN PC2.
1696          BA    .054
1697          LS              77      10
1698          UK     100    .015     .15     100
1699          RK    2700     .01     .03            TRAP      50       4
              *

1700          KK  CP15N1
1701          KM        ADD HYDROGRAPHS  AT CP15N1
1702          HC       2
              *

1703          KK   SRPC2
1704          KM        STORAGE ROUTE THRU DETENTION BASINS IN POWER CORRIDOR THIS IS THE TOTAL
1705          KM        FLOW REACHING THE UPSTREAM SIDE OF THE THOMPSON PEAK PARKWAY BRIDGE
1706          RS       1    STOR       0       0
1707          SV       0    1.02    2.70    4.48     5.8     6.9
1708          SQ       0       0     150     350     550     850
1709          SE    1730    1731    1732    1733    1734    1735
              *

1710          KK  UB17NA
1711          KM        RUNOFF FROM SUBBASIN SUB17NA.
1712          BA  .00979
1713          LS              81       0
1714          UK     150    .025     .05     100
1715          RK     960   .0292    .025            TRAP      30      50
              *

1716          KK  SR17NA
1717          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NA.
1718          RS       1    STOR       0       0
1719          SV       0   .0078    .241    .523    1.00   1.735
1720          SQ       0       1       1       1    17.4     251
1721          SE  1755.2    1756    1758    1759    1760    1761
              *

1722          KK   R17NB
1723          KM        ROUTE FLOW FROM SR17NA TO CP17NB.
1724          RS       1    FLOW
1725          RC    0.03    0.03    0.03     280  0.0286
1726          RX       0      10      20      35      70      85      90     100
1727          RY    1757  1756.8  1756.6    1756    1756    1757    1758    1759
              *

1728          KK  UB17NB
1729          KM        RUNOFF FROM SUBBASIN SUB17NB.
1730          BA   .0111
1731          LS              81       0
1732          UK     150    .025     .05     100
1733          RK    1200   .0217    .025            TRAP      30      50
              *
1                                          HEC-1 INPUT                                                    PAGE 49

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

1734          KK  CP17NB
1735          KM        ADD HYDROGRAPHS AT SUB17NB.
1736          HC       2
              *

1737          KK  SR17NB
1738          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NB.
1739          RS       1    STOR       0       0
1740          SV       0   .0113   .1469    .635   .9795   1.509   2.254   3.243
1741          SQ       0       1       1       1       1       1    38.2     189
1742          SE  1751.5    1752    1753    1755    1756    1757    1758    1759
              *

1743          KK    R17A
1744          KM        ROUTE FLOW FROM SR17NB TO CP17A.
1745          RS       1    FLOW
1746          RC    0.03    0.03    0.03     280   0.033
```

```
1747          RX       0      15      18      20      24      27      30      35
1748          RY    1755    1754    1753    1752    1752    1753    1754    1755
              *

1749          KK  SUB17A
1750          KM        RUNOFF FROM SUBBASIN SUB17A.
1751          BA  .00792
1752          LS              77      34
1753          UK      75     .03     .05     100
1754          RK    1500     .02    .025            TRAP       8       4
              *

1755          KK  CP17A1
1756          KM        ADD HYDROGRAPHS AT CP17A1.
1757          HC       2
              *

1758          KK  UB17NC
1759          KM        RUNOFF FROM SUBBASIN SUB17NC.
1760          BA  .00559
1761          LS              77      12
1762          UK      75     .03     .05     100
1763          RK     910   .0187    .025            TRAP       8       4
              *

1764          KK   CP17A
1765          KM        ADD ALL HYDROGRAPHS AT CP17A.
1766          HC       2
              *

1767          KK    R15N
1768          KM        ROUTE FLOW FROM CP17A TO CP15N.
1769          RS       1    FLOW
1770          RC    .035    .035    .035    1950    .025
1771          RX       0       8      13      17      22      26      31      39
1772          RY       4       2       2       0       0       2       2       4
              *
```



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

1773          KK  SUB15N
1774          KM        RUNOFF FROM SUBBASIN 15N.
1775          BA   .0391
1776          LS              77      68
1777          UK     100     .01     .15     100
1778          RK     400    .008    .018            TRAP      50      20
1779          RK    1700    .015    .025            TRAP      10       4
              *

1780          KK   CP15N
1781          KM        ADD HYDROGRAPHS  AT CP15N
1782          HC       2
              *

1783          KK   R15N2
1784          KM        ROUTE FLOW FROM CP15N TO CP15N1.
1785          RS       1    FLOW
1786          RC     .02     .02     .02     700    .013
1787          RX       0       8      13      17      22      26      31      39
1788          RY       6       2       2       0       0       2       2       6
              *

1789          KK  CP15N2
1790          KM        ADD HYDROGRAPHS  AT CP15N1
1791          KM        THIS IS THE INTERIM OUTFLOW DISCHARGE TO NATURAL WASH.
1792          HC       2  1.1611
              *

1793          KK   R15N2
1794          KM        ROUTE 15N2 IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CP15N2 TO THE
1795          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1796          KM
1797          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1798          RS       1    FLOW      -1
1799          RC    .035    .035    .035    2200    .013
1800          RX       0      16      26      34      64      78      88     106
1801          RY       6       2       2       0       0       2       2       6
              *

1802          KK    DPC3
1803          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1804          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1805          KM
1806          KM        RETRIEVE DIVERTED FLOW
1807          DR   BPC3T
              *

1808          KK   CPC3A
1809          KM        COMBINE CPC3A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE AT THE
1810          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1811          KM
1812          KM        COMBINE ROUTED HYDROGRAPH FROM CP15N2 WITH HYDROGRAPH FROM CPC3
1813          HC       2  1.3446
```

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

1814          KK   RPC3A
1815          KM        ROUTE PC3A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC3A VIA
1816          KM        THE POWER LINE CHANNEL.
1817          KM
1818          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1819          RS       1    FLOW      -1
1820          RC    .035    .035    .035    1100    .013
1821          RX       0      16      26      34      64      78      88     106
1822          RY       6       2       2       0       0       2       2       6
              *

1823          KK    DPC4
1824          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1825          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1826          KM
1827          KM        RETRIEVE DIVERTED FLOW
1828          DR   BPC4T
              *

1829          KK   CPC4A
1830          KM        COMBINE CPC4A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE IN THE
1831          KM        POWER LINE CHANNEL
1832          KM
1833          KM        COMBINE ROUTED HYDROGRAPH FROM CPC3A WITH HYDROGRAPH FROM CPC4
1834          HC       2  1.9946
              *

1835          KK   RPC4A
1836          KM        ROUTE PC4A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC4A TO THE
1837          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI RD.
1838          KM
1839          KM        ROUTE FLOW FROM CPC4A TO CPC5.
1840          RS       1    FLOW      -1
1841          RC    .035    .035    .035    1900    .013
1842          RX       0      16      26      34      64      78      88     106
1843          RY       6       2       2       0       0       2       2       6
              *

1844          KK  DPC4AT
1845          KM        DIVERT PC4A IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
1846          KM        LOOP DETENTION BASIN VIAL THE POWER LINE CHANNEL.
1847          KM
1848          KM        DIVERT 100% OF FLOW
1849          DT  BPC4AT
1850          DI       0   10000
1851          DQ       0   10000
              *

1852          KK  SUB1-2
1853          KM        RUNOFF FROM SUB 1 AND 2, SOUTH COURSE MODEL
1854          BA   .0558
1855          LS              77      68
1856          UK     200    .010     .15     100
1857          RK    1370    .027    .015            TRAP      50      20
              *
```



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

1858          KK  GCRB18
1859          KM        RUNOFF FROM GOLF COURSE CONTRIBUTING TO RETENTION BASIN AT HOLE NO. 18
1860          KM        AND HOLE NO. 10, SOUTH COURSE
1861          BA    .012
1862          LS              81       0
1863          UK     200    .025     .15     100
1864          RK     300    .016    .025            TRAP      10       4
              *

1865          KK  CPRET1
1866          KM        COMBINE HYDROGRAPHS AT RETENTION BASINS ON HOLE 18 & 10
1867          HC       2
              *

1868          KK   SR18S
1869          KM        STORAGE ROUTE THRU RETENTION BASIN AT HOLE 18, SOUTH COURSE
1870          RS       1    STOR       0       0
1871          SV       0  1.7635  5.7722  12.174  21.337  28.849  30.151      32
1872          SE    1725    1730    1735    1740    1745    1748    1749    1750
1873          SQ       0       0       0       0       0      42     386     900
              *

1874          KK   SUB5S
1875          KM        RUNOFF FROM SUB 5S
1876          BA   .0263
1877          LS              77      31
1878          UK     100    .010     .15     100
1879          RK    1280    .007    .015            TRAP      50      20
              *
```

```
1880          KK  GC1216
1881          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 12, 16, AND 17
1882          BA   .0365
1883          LS              81       0
1884          UK    200    .025     .15     100
1885          RK   2200    .024    .025            TRAP      10       4
              *

1886          KK  GC1415
1887          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 13, 14, 15 AND RETENTION
1888          BA    .045
1889          LS              81       0
1890          UK    200    .025     .15     100
1891          RK   1300    .022    .025            TRAP      10       4
              *

1892          KK   SUB6S
1893          KM        RUNOFF FROM SUB BASIN 6, SOUTH COURSE
1894          BA    .021
1895          LS              77      42
1896          UK    100    .010     .15     100
1897          RK   2150    .013    .025            TRAP      50      20
              *
1                                          HEC-1 INPUT                                                    PAGE 53

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

1898          KK   SUB7S
1899          KM        RUNOFF FROM SUB BASIN 7, SOUTH COURSE
1900          BA    .027
1901          LS              77      42
1902          UK    100    .010     .15     100
1903          RK   2080    .023    .025            TRAP      50      20
              *

1904          KK  CPRET2
1905          KM        COMBINE HYDROGRAPHS AT RETENTION BASIN 2, SOUTH COURSE
1906          HC       5
              *

1907          KK  SRRET2
1908          KM        STORAGE THRU RETENTION BASIN NO. 2, SOUTH COURSE
1909          RS       1    STOR       0       0
1910          SV       0    .617   3.474   9.858  20.063  35.353  52.685  57.749      62
1911          SE    1670    1675    1680    1685    1690    1695    1699    1700    1701
1912          SQ       0       0       0       0       0       0      32     386     594
              *
              *      NO FLOW RELEASED FROM RETENTION BASIN
              *

1913          KK   CLEAR
1914          KM        THIS OPERATION IS ADDED BY GVSCE
1915          KM
1916          KM        CLEAR HYDROGRAPHS FROM THE STACK
1917          HC       2
              *

1918          KK   SUB8S
1919          KM        RUNOFF FROM SUB BASIN 8, SOUTH COURSE
1920          BA   .0256
1921          LS              77      42
1922          UK    100    .010     .15     100
1923          RK   1600    .015    .025            TRAP      50      20
              *

1924          KK   RGC36
1925          KM        ROUTE SUB8S TO CPGC36
1926          RS       1    FLOW
1927          RC    .055    .045    .055     850     .02
1928          RX       0      16      26      30      40      44      54      70
1929          RY       6       2       2       0       0       2       2       6
              *

1930          KK    GC36
1931          KM        RUNOFF FROM SOUTH COURSE HOLES 3, 6, AND NORTH HALF OF HOLE 4.
1932          BA   .0406
1933          LS              81       0
1934          UK    200    .025     .15     100
1935          RK   2350    .015    .035            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 54

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

1936          KK  C1GC36
1937          KM        COMBINE SUBS 8 AND GC36
1938          HC       2
              *

1939          KK   SUB9S
1940          KM        RUNOFF FROM SUB BASIN 9, SOUTH COURSE
1941          BA    .021
```

```
1942          LS              77      53
1943          UK     100    .010     .15     100
1944          RK    1100    .013    .025            TRAP      50      20
              *

1945          KK     R9S
1946          KM        ROUTE SUB9S TO CPGC36
1947          RS       1    FLOW
1948          RC    .035    .035    .035     500     .02
1949          RX       0       8      12      16      18      22      26      30
1950          RY       6       4       3       2       2       3       4       6
              *

1951          KK  CPGC36
1952          KM        COMBINE SUBS 8 AND 9 SOUTH AND GC36
1953          HC       2
              *

1954          KK  SRGC36
1955          KM        STORAGE THRU DETENTION BASIN ON GC36
1956          RS       1    STOR       0       0
1957          SV       0    0.85     1.0
1958          SE    1664    1668    1669
1959          SQ       0      20     205
              *

1960          KK   SUB7A
1961          KM        RUNOFF FROM SUB7A, SOUTH COURSE EAST SIDE ADJACENT TO PIMA ROAD
1962          BA   .0092
1963          LS              77      42
1964          UK     100    .025     .15     100
1965          RK     950    .015    .025            TRAP      50      20
              *

1966          KK    SR7A
1967          KM        STORAGE THRU DETENTION BASIN ON SUB7A
1968          RS       1    STOR       0       0
1969          SV       0     .68      .8
1970          SE    1700    1703    1704
1971          SQ       0      10     150
              *
```



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

1972          KK    R10S
1973          KM        ROUTE FLOW FROM CP7A TO CP10S
1974          RS       1    FLOW
1975          RC    .035    .035    .035    1400    .015
1976          RX       0       8      12      16      18      22      26      30
1977          RY       6       4       3       2       2       3       4       6
              *

1978          KK  SUB10S
1979          KM        RUNOFF FROM SUB BASIN 10, SOUTH COURSE
1980          BA   .0248
1981          LS              77      53
1982          UK     100    .010     .15     100
1983          RK    1150    .020    .025            TRAP      50      20
              *

1984          KK   CP10S
1985          KM        COMBINE HYDROGRAPHS AT CP10 SOUTH COURSE
1986          HC       2
              *

1987          KK  SUB11S
1988          KM        RUNOFF FROM SUB11, SOUTH COURSE
1989          BA   .0234
1990          LS              77      68
1991          UK     100    .015    .018     100
1992          RK    1050    .015    .025            TRAP     100      20
              *

1993          KK    R11S
1994          KM        ROUTE 11S IS ADDED BY GVSCE TO ROUTE THE RUNOFF FROM SUB11S TO THE
1995          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI DR ALONG HUALAPAI DR.
1996          KM
1997          KM        ROUTE FLOW FROM SUB11S TO CPC5.
1998          RS       1    FLOW      -1
1999          RC    .035    .035    .035     900    .015
2000          RX       0       8      12      16      18      22      26      30
2001          RY       6       4       3       2       2       3       4       6
              *

2002          KK   C10SA
2003          KM        COMBINE 10SA IS ADDED BY GVSCE
2004          KM
2005          KM        COMBINE ROUTED HYDROGRAPH FROM 11S WITH HYDROGRAPH FROM CP10S
2006          HC       2
              *

2007          KK   R10SA
2008          KM        ROUTE 10SA IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
```

```
2009          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2010          KM
2011          KM        ROUTE FLOW FROM C10SAS TO CPC5.
2012          RS       1    FLOW      -1
2013          RC    .035    .035    .035     900    .015
1                                   HEC-1 INPUT                                                    PAGE 56

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

2014          RX       0       8      12      16      18      22      26      30
2015          RY       6       4       3       2       2       3       4       6
              *

2016          KK    GC45
2017          KM        RUNOFF FROM SOUTH COURSE HOLES 4 AND 5
2018          BA   .0127
2019          LS              81       0
2020          UK     200    .015    .025     100
2021          RK     550    .015    .035            TRAP      10       4
              *

2022          KK   CGC45
2023          KM        COMBINE CGC45 IS ADDED BY GVSCE
2024          KM
2025          KM        COMBINE ROUTED HYDROGRAPH FROM 10SA WITH RUNOFF FROM GC45
2026          HC       2
              *

2027          KK     PC5
2028          KM        PC5 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
2029          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
2030          KM
2031          KM        RUNOFF FROM SUBBASIN PC5.
2032          BA  0.0375
2033          LS              77       0
2034          UK     300    .015     .15     100
2035          RK    1900     .01     .03            TRAP      30       4
              *

2036          KK   DPC4A
2037          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
2038          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2039          KM
2040          KM        RETRIEVE DIVERTED FLOW
2041          DR  BPC4AT
              *

2042          KK    CPC5
2043          KM        COMBINE PC5 IS ADDED BY GVSCE TO ESTIMATE THE TOTAL FLOW IN THE POWER
2044          KM        LINE CHANNEL AT THE HUALAPAI CROSSING
2045          KM
2046          KM        COMBINE ROUTED HYDROGRAPH FROM C10SA AND CPC4A WITH HYDROGRAPHS FROM
2047          KM        CGC45, SRGC36 AND PC5
2048          HC       5  2.1022
              *
              *     *******************  END GRAYHAWK WATERSHED  ********************
              *

2049          KK     RC5
2050          KM       ROUTE CPC5 THROUGH SUBBASIN CN5C TO OUTER LOOP BASIN
2051          RS       1    FLOW      -1
2052          RC    .035    .035    .035    2000    .013
2053          RX       0      16      26      34      64      78      88     106
2054          RY       6       2       2       0       0       2       2       6
              *
1                                   HEC-1 INPUT                                                    PAGE 57

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

2055          KK   SCN5D
2056          KM     RUNOFF FROM SUBBASIN CN5D
2057          BA  0.0499
2058          LS              74       0
2059          UK     100   0.025    0.13     100
2060          RK    3100   0.017    0.04            TRAP       0      15
              *

2061          KK    CN5D
2062          KM        COMBINE ROUTED HYDROGRAPH FROM CPC5 W/RUNOFF FROM SCN5D
2063          HC       2
              *

2064          KK     D52
2065          KM     BRING BACK DIVERTED HYDROGRAPH FROM R52
2066          DR    B52T
              *

2067          KK    S53A
2068          KM     RUNOFF FROM SUBBASIN 53A
2069          BA  0.1794
2070          LS              74      11
2071          UK     300   0.022    0.13     100
2072          RK    1475   0.026   0.045  0.0111    TRAP       3       5
2073          RK    1750   0.021    0.04            TRAP      25       5
```

```
                 *
2074             KK     C53
2075             KM     COMBINE ROUTED HYDROGRAPH FROM FROM C52 WITH RUNOFF FROM SUBBASIN 53A
2076             HC       2  8.0954
                 *
                 *    R53
                 *   ****  TOO SHORT TO ROUTE  ****
                 *

2077             KK   S53A1
2078             KM     RUNOFF FROM SUBBASIN 53A1
2079             BA  0.3376
2080             LS              74      12              74      30
2081             UK     300   0.022    0.13      70
2082             UK     150   0.027    0.13      30
2083             RK    1250   0.023   0.045  0.0087    TRAP       4       5
2084             RK    5050   0.017    0.04            TRAP      35       5
                 *

2085             KK    C53A
2086             KM     COMBINE ROUTED HYDROGRAPH FROM C53 WITH RUNOFF FROM SUBBASSIN 53A1
2087             HC       2  8.4330
                 *
1                                          HEC-1 INPUT                                          PAGE 58

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


2088             KK   SCN6B
2089             KM     RUNOFF FROM SUBBASIN CN6B (WATER CAMPUS)
2090             KM      TOTAL AREA = 0.0542 sm, 0.0022 sm OF THAT IS NON-CONTRIBUTING
2091             BA  0.0520
2092             LS              74      80              74       0
2093             UK     150    0.01    0.15      70
2094             UK     100   0.025    0.13      30
2095             RK     720    0.02    0.03  0.0084    TRAP       5      10
2096             RK     700    0.01   0.045  0.0050    TRAP       0      10
2097             RK     440   0.009   0.035            TRAP       6       3
                 *

2098             KK   SCN6D
2099             KM     RUNOFF FROM SUBBASIN CN6D
2100             KM      TOTAL AREA = 0.0398 sm, 0.0029 sm OF THAT IS NON-CONTRIBUTING
2101             BA  0.0369
2102             LS              74       3
2103             UK     100   0.025    0.13     100
2104             RK    1000   0.017    0.04            TRAP       0      15
                 *

2105             KK    CP6D
2106             KM     COMBINE HYDROGRAPHS FROM C53A W/RUNOFF FROM SCN6D
2107             HC       3
                 *

2108             KK   SCN6C
2109             KM     RUNOFF FROM SUBBASIN CN6C (CAP TREATMENT PLANT AND WATER CAMPUS)
2110             KM      TOTAL AREA = 0.1526 sm, 0.0138 sm OF THAT IS NON-CONTRIBUTING
2111             BA  0.1388
2112             LS              74      80              74       0
2113             UK     150    0.01    0.15      50
2114             UK     100   0.025    0.13      50
2115             RK    1500    0.01    0.03  0.0123    TRAP       5      10
2116             RK     700   0.017    0.04            TRAP       0      15
                 *

2117             KK    CP6C
2118             KM        COMBINE HYDROGRAPH FROM CP6D W/RUNOFF FROM SCN6C
2119             HC       2
                 *

2120             KK    CP5D
2121             KM        COMBINE HYDROGRAPHS FROM CP6C AND CP5D
2122             HC       2
                 *

2123             KK   SCN5C
2124             KM     RUNOFF FROM SUBBASIN CN5C
2125             BA  0.1904
2126             LS              74       0
2127             UK     150   0.020    0.13     100
2128             RK    3700  0.0176    0.04            TRAP       0      15
                 *
1                                          HEC-1 INPUT                                          PAGE 59

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


2129             KK   SCN6E
2130             KM     RUNOFF FROM SUBBASIN CN6E
2131             BA  0.0427
2132             LS              74       5
2133             UK      50    0.01    0.13     100
2134             RK    3200   0.002   0.025            TRAP       0      50
                 *
```

```
2135          KK  EAST-I
2136          KM     COMBINE HYDROGRAPH FROM CP5D WITH W/RUNOFF FROM SCN5C AND SCN6E
2137          HC       3
              *

2138          KK  EAST-O
2139          KM     PIMA FREEWAY BASIN EAST LOCATED NORTH AND EAST OF HAYDEN ROAD T.I.
2140          KM     (2) 96" OUTLET CONDUIT
2141          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK.
2142          KM        9 ACRE-FEET OF STORAGE FOR SEDIMENTAION
2143          KM
2144          RS       1    STOR      -1       0
2145          SV       0    0.35    1.11    3.38   12.19   24.00   36.81   43.59   50.74   58.38
2146          SV   66.49   74.88   83.50   92.36  101.45  110.78  120.36  130.25  140.48  145.06
2147          SQ       0      67     130     291     540     833    1094    1208    1311    1406
2148          SQ    1497    1577    1658    1732    1802    1873    1938    2001    2064    2096
2149          SE  1589.9    1591    1592    1594    1596    1598    1600    1601    1602    1603
2150          SE    1604    1605    1606    1607    1608    1609    1610    1611    1612  1612.5
              *
2151          ZZ
```

1

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   25         S30N
                V
                V
   34         R30N
                .
                .
   40           .       S31.1
                .           .
                .           .
   48       C31.1............
                .
                .
   51           .       S34.2
                .           .
                .           .
   60       C34.2............
                .
                .
   63           .        S35N
                .           .
                .           .
   75           .           .-------->   D35NL
   71           .       D35NR
                .           V
                .           V
   78           .       R35NR
                .           .
                .           .
   85           .           .       S36.2
                .           .           .
                .           .           .
   93           .       C36.2............
                .           .
                .           .
  100           .           .-------->  D36.2L
   96           .      D36.2R
                .           V
                .           V
  103           .      R36.2R
                .           .
                .           .
  110           .           .       S34.1
                .           .           .
                .           .           .
  119           .       C34.1............
                .           .
                .           .
  122       HVDB-I............
                V
                V
  125       HVDB-O
                V
                V
  138        R34.1
                .
                .
  144           .       S36.1
                .           .
                .           .
  151       C36.1............
                V
                V
  154       R36.1
                .
                .
  162           .           .<--------   D35NL
  160           .       B35NL
```

```
                .          V
                .          V
163             .       R35NL
                .          .
                .          .
172             .          .          .<-------  D36.2L
170             .          .     B36.2L
                .          .          V
                .          .          V
173             .          .     R36.2L
                .          .          .
                .          .          .
180             .          .          .      S36R1A
                .          .          .           .
                .          .          .           .
188        C36R1A.................................
                .
                .
193             .      S36R1B
                .          .
                .          .
201        C36R1B............
                .
                .
204             .      S36R2A
                .          .
                .          .
211        C36R2A............
                V
                V
214        R36R2A
                .
                .
226             .      S36R2B
                .          .
                .          .
233        C36R2B............
                .
                .
236             .       S51.1
                .          .
                .          .
244        DVDB-I............
                V
                V
247        DVDB-O
                .
                .
264             .-------> B51.1T
262        D51.1T
                .
                .
267             .        52D4
                .          V
                .          V
273             .       52D4R
                .          .
                .          .
276             .          .      52D4B
                .          .          .
                .          .          .
282             .      52D5C1............
                .          .
                .          .
285             .          .      52D5A
                .          .          V
                .          .          V
291             .          .     52D5AR
                .          .          .
                .          .          .
294             .      52D5C2............
                .          V
                .          V
297             .       52D5R
                .          .
                .          .
300             .          .       52C3
                .          .          V
                .          .          V
306             .          .      52C3R
                .          .          .
                .          .          .
309             .          .          .      52C3B
                .          .          .           .
                .          .          .           .
315             .          .     2C3BC1............
                .          .          .
                .          .          .
318             .      2C3BC2............
                .          V
                .          V
321             .      52C3BR
                .          .
                .          .
324             .          .        51C
```

```
                .          .          .
                .          .          .
332             .          .          .-------> 51C1DV
330             .          .     51C1D
                .          .         V
                .          .         V
335             .          .     51C1R
                .          .         .
                .          .         .
338             .          .         .       52C1
                .          .         .          .
                .          .         .          .
344             .          .     52C1C............
                .          .         V
                .          .         V
347             .          .     52C1R
                .          .         .
                .          .         .
350             .          .         .      52C2A
                .          .         .          .
                .          .         .          .
356             .          .    52C2AC............
                .          .         .
                .          .         .
359             .          .         .      52C2B
                .          .         .          .
                .          .         .          .
365             .          .    52C2BC............
                .          .         V
                .          .         V
368             .          .    52C2BR
                .          .         .
                .          .         .
371             .          .         .      52C2C
                .          .         .          .
                .          .         .          .
377             .          .    52C2CC............
                .          .         V
                .          .         V
380             .          .     52C2R
                .          .         .
                .          .         .
383             .          .         .       52C4
                .          .         .          .
                .          .         .          .
389             .          .    52C4C1............
                .          .         .
                .          .         .
392             .     52C4C2............
                .          V
                .          V
395             .      52C4R
                .          .
                .          .
398             .          .     52C13
                .          .         .
                .          .         .
406             .          .         .-------> STORM
404             .          .    2C13DV
                .          .         .
                .          .         .
409             .          .         .      52C15
                .          .         .          .
                .          .         .          .
415             .          .    2C15C1............
                .          .         .
                .          .         .
418             .     2C15C2............
                .          V
                .          V
421             .     52C15R
                .          .
                .          .
424             .          .    52C14A
                .          .         .
                .          .         .
430             .     2C14AC............
                .          V
                .          V
433             .     2C14AR
                .          .
                .          .
438             .          .         .<------- 51C1DV
436             .          .    51C1DV
                .          .         .
                .          .         .
441             .          .         .-------> 51C2DV
439             .          .     51C2D
                .          .         V
                .          .         V
444             .          .     51C2R
                .          .         .
                .          .         .
447             .          .         .       52C5
                .          .         .          .
```

```
453          .          .          .          .
             .          .      52C5C...........
             .          .          V
             .          .          V
456          .          .      52C5R
             .          .          .
             .          .          .
459          .          .          .       52C6
             .          .          .          .
             .          .          .          .
465          .          .      52C6C...........
             .          .          V
             .          .          V
468          .          .      52C6R
             .          .          .
             .          .          .
473          .          .          .          .<-------  51C2DV
471          .          .          .     51C2DV
             .          .          .          V
             .          .          .          V
474          .          .          .      51C3R
             .          .          .          .
             .          .          .          .
477          .          .          .          .         51B
             .          .          .          .           .
             .          .          .          .           .
485          .          .          .          .           .-------> 51B1DV
483          .          .          .          .      51B1D
             .          .          .          .          V
             .          .          .          .          V
488          .          .          .          .      51B1R
             .          .          .          .          .
             .          .          .          .          .
491          .          .          .          .          .       52C7
             .          .          .          .          .          .
             .          .          .          .          .          .
497          .          .          .      52C7C.......................
             .          .          .          V
             .          .          .          V
500          .          .          .      52C7R
             .          .          .          .
             .          .          .          .
505          .          .          .          .          .<-------  51B1DV
503          .          .          .          .     51B1DV
             .          .          .          .          .
             .          .          .          .          .
508          .          .          .          .          .-------> 51B2DV
506          .          .          .          .      51B2D
             .          .          .          .          V
             .          .          .          .          V
511          .          .          .          .      51B2R
             .          .          .          .          .
             .          .          .          .          .
514          .          .          .          .          .       52C8
             .          .          .          .          .          .
             .          .          .          .          .          .
520          .          .          .          .      52C8C............
             .          .          .          .          V
             .          .          .          .          V
523          .          .          .          .      52C8R
             .          .          .          .          .
             .          .          .          .          .
526          .          .          .     52C9C1............
             .          .          .          V
             .          .          .          V
529          .          .          .     52C9R1
             .          .          .          .
             .          .          .          .
532          .          .          .          .       52C9
             .          .          .          .          .
             .          .          .          .          .
538          .          .          .     52C9C2............
             .          .          .          V
             .          .          .          V
541          .          .          .     52C9R2
             .          .          .          .
             .          .          .          .
544          .          .     2C10C1............
             .          .          V
             .          .          V
547          .          .     2C10R1
             .          .          .
             .          .          .
550          .          .          .      52C10
             .          .          .          .
             .          .          .          .
556          .          .     2C10C2............
             .          .          .
             .          .          .
559          .          .          .      52C11
             .          .          .          V
             .          .          .          V
565          .          .          .     2C11R1
             .          .          .          .
             .          .          .          .
```

```
570          .          .          .          .          .<-------   STORM
568          .          .          .          .     52C13D
             .          .          .          .          .
             .          .          .          .          .
571          .          .          .     52C11C...........
             .          .          .          V
             .          .          .          V
574          .          .          .     2C11CR
             .          .          .          .
             .          .          .          .
577          .          .     2C11C2...........
             .          .          V
             .          .          V
580          .          .     2C11R2
             .          .          .
             .          .          .
583          .          .          .      52C12
             .          .          .          .
             .          .          .          .
589          .          .     52C12C...........
             .          .          V
             .          .          V
592          .          .     52C12R
             .          .          .
             .          .          .
595          .          .          .     52C14B
             .          .          .          .
             .          .          .          .
601          .          .     C14BC1...........
             .          .          .
             .          .          .
604          .     C14BC2...........
             .          V
             .          V
607          .     52C14R
             .          .
             .          .
612          .          .          .<-------  51B2DV
610          .          .     51B2DV
             .          .          .
             .          .          .
615          .          .          .------->  51B3DV
613          .          .      51B3D
             .          .          V
             .          .          V
618          .          .      51B3R
             .          .          .
             .          .          .
621          .          .          .       52B1
             .          .          .          .
             .          .          .          .
627          .          .      52B1C...........
             .          .          V
             .          .          V
630          .          .      52B1R
             .          .          .
             .          .          .
635          .          .          .          .<-------  51B3DV
633          .          .          .     51B3DV
             .          .          .          .
             .          .          .          .
638          .          .          .          .------->  51B4DV
636          .          .          .      51B4D
             .          .          .          V
             .          .          .          V
641          .          .          .     51B4R1
             .          .          .          .
             .          .          .          .
644          .          .     52B2C1...........
             .          .          V
             .          .          V
647          .          .     52B2R1
             .          .          .
             .          .          .
650          .          .          .       52B2
             .          .          .          .
             .          .          .          .
656          .          .     52B2C2...........
             .          .          V
             .          .          V
659          .          .     52B2R2
             .          .          V
             .          .          V
662          .          .     52B3R1
             .          .          .
             .          .          .
665          .          .          .       52B3
             .          .          .          .
             .          .          .          .
671          .          .     52B3C2...........
             .          .          V
             .          .          V
674          .          .     52B3R2
             .          .          .
             .          .          .
```

```
677          .          .          .        52B4
             .          .          .          .
             .          .          .          .
683          .          .      52B4C............
             .          .          V
             .          .          V
686          .          .      52B4R
             .          .          .
             .          .          .
689          .          .          .        52B5
             .          .          .          .
             .          .          .          .
695          .          .     52B5C1............
             .          .          .
             .          .          .
698          .     52B5C2............
             .          V
             .          V
701          .      52B5R
             .          .
             .          .
706          .          .          .<-------  51B4DV
704          .          .     51B4DV
             .          .          .
             .          .          .
709          .          .          .------->  51B5DV
707          .          .      51B5D
             .          .          V
             .          .          V
712          .          .      51B5R
             .          .          .
             .          .          .
717          .          .          .          .<-------  51B5DV
715          .          .          .     51B5DV
             .          .          .          .
             .          .          .          .
720          .          .          .          .------->  51B6DV
718          .          .          .      51B6D
             .          .          .          V
             .          .          .          V
723          .          .          .      51B6R
             .          .          .          .
             .          .          .          .
728          .          .          .          .          .<-------  51B6DV
726          .          .          .          .     51B6DV
             .          .          .          .          .
             .          .          .          .          .
731          .          .          .          .          .------->  51B7DV
729          .          .          .          .      51B7D
             .          .          .          .          V
             .          .          .          .          V
734          .          .          .          .     51B7R1
             .          .          .          .          .
             .          .          .          .          .
737          .          .      51B7C........................
             .          .          V
             .          .          V
740          .          .     51B7R2
             .          .          .
             .          .          .
743          .          .          .        52B6
             .          .          .          .
             .          .          .          .
749          .          .      52B6C............
             .          .          V
             .          .          V
752          .          .      52B6R
             .          .          .
             .          .          .
755          .          .          .        52B7
             .          .          .          .
             .          .          .          .
761          .          .     52B7C1............
             .          .          .
             .          .          .
764          .     52B7C2............
             .          .
             .          .
767          .          .       52A2
             .          .          .
             .          .          .
773          .     52A2C2............
             .          .
             .          .
778          .          .          .<-------  51B7DV
776          .          .     51B7DV
             .          .          V
             .          .          V
779          .          .      51B8R
             .          .          .
             .          .          .
782          .          .          .        52A1
             .          .          .          .
             .          .          .          .
788          .          .      52A1C............
```

```
                .          .          .
                .          .          .
793             .          .          .          .<-------  B51.1T
791             .          .          .      D51.1
                .          .          .          .
                .          .          .          .
794             .          .      C52A............
                .          .          .
                .          .          .
798             .       C52............
                .          V
                .          V
802             .       R52
                .          .
                .          .
809             .          .------->   B52T
807             .      D52T
                .          .
                .          .
812         CLEAR...........
                .
                .
815             .       37A
                .          .
                .          .
832             .          .------->   37AW
821             .      37AE
                .          V
                .          V
835             .     37AE1
                .          .
                .          .
842             .          .     SUB5N
                .          .         .
                .          .         .
849             .      CP5N............
                .          V
                .          V
852             .     RET5N
                .          V
                .          V
859             .     R6N.1
                .          .
                .          .
867             .          .     SUB6B
                .          .         V
                .          .         V
873             .          .      SR6B
                .          .         .
                .          .         .
879             .     CP6.1............
                .          .
                .          .
882             .          .     SUB1N
                .          .         V
                .          .         V
888             .          .      R2NA
                .          .         .
                .          .         .
894             .          .         .     SUB2NA
                .          .         .         .
                .          .         .         .
900             .          .     CP2NA............
                .          .         V
                .          .         V
903             .          .     SR2NA
                .          .         V
                .          .         V
909             .          .      R2NB
                .          .         .
                .          .         .
915             .          .         .     SUB2NB
                .          .         .         .
                .          .         .         .
921             .          .     CP2NB............
                .          .         V
                .          .         V
924             .          .     SR2NB
                .          .         V
                .          .         V
930             .          .     RCP4N
                .          .         .
                .          .         .
936             .          .         .     SUB6N
                .          .         .         V
                .          .         .         V
942             .          .         .     RET6N
                .          .         .         V
                .          .         .         V
948             .          .         .    RCP4N1
                .          .         .         .
                .          .         .         .
954             .          .    CP4N.1............
                .          .         .
                .          .         .
```

```
957          .          .          .      SUB3N
             .          .          .          V
             .          .          .          V
963          .          .          .      RET3N
             .          .          .          V
             .          .          .          V
970          .          .          .        R4N
             .          .          .          .
             .          .          .          .
976          .          .     CP4N.2...........
             .          .          .
             .          .          .
979          .          .          .      SUB4N
             .          .          .          .
             .          .          .          .
985          .          .       CP4N...........
             .          .          V
             .          .          V
988          .          .        R6N
             .          .          .
             .          .          .
994          .          .          .      SUB6A
             .          .          .          .
             .          .          .          .
1000         .          .      CP6.2...........
             .          .          .
             .          .          .
1003         .       CP6N...........
             .          V
             .          V
1006         .      RCP6N
             .          .
             .          .
1012         .          .      SUB3C
             .          .          .
             .          .          .
1018         .       CP3C...........
             .          V
             .          V
1021         .        R3C
             .          .
             .          .
1029         .          .     GC1018
             .          .          .
             .          .          .
1035         .          .          .      GC1-9
             .          .          .          .
             .          .          .          .
1041         .          .          .          .      SUB3S
             .          .          .          .          .
             .          .          .          .          .
1047         .       CP3S..................................
             .          V
             .          V
1050         .       RT3S
             .          .
             .          .
1056         .          .      SUB4S
             .          .          V
             .          .          V
1062         .          .       RT4S
             .          .          .
             .          .          .
1068         .          .          .      GC2-8
             .          .          .          .
             .          .          .          .
1074         .     1PGC28........................
             .          .
             .          .
1077         .          .     SUB3D3
             .          .          .
             .          .          .
1083         .     CPGC28...........
             .          V
             .          V
1086         .     SRGC28
             .          V
             .          V
1092         .       RT7S
             .          .
             .          .
1098         .          .        GC7
             .          .          .
             .          .          .
1104         .       CP7S...........
             .          .
             .          .
1112         .          .-------->    B7ST
1107         .       D7ST
             .          .
             .          .
1115      CLEAR...........
             .
             .
1118         .     SUB3D1
```

```
                .          V
                .          V
1123            .       RD1B1
                .          .
                .          .
1129            .          .      SUB3B1
                .          .          .
                .          .          .
1134            .       CP3B1............
                .          V
                .          V
1137            .       RB13F
                .          .
                .          .
1143            .          .       SUB3F
                .          .          .
                .          .          .
1149            .        CP3F............
                .          .
                .          .
1152            .          .      SUB3B2
                .          .          V
                .          .          V
1157            .          .       RB2E1
                .          .          V
                .          .          V
1163            .          .       RB2E2
                .          .          .
                .          .          .
1169            .          .          .      SUB3E1
                .          .          .          .
                .          .          .          .
1174            .          .      1CPE31...........
                .          .          .
                .          .          .
1177            .          .          .      SUB3D2
                .          .          .          V
                .          .          .          V
1182            .          .          .       RD2E2
                .          .          .          .
                .          .          .          .
1188            .          .          .          .      SUB3E2
                .          .          .          .          .
                .          .          .          .          .
1193            .          .          .       CP3E2...........
                .          .          .          .
                .          .          .          .
1196            .          .          .          .        PC3
                .          .          .          .          .
                .          .          .          .          .
1205            .        CPC3...................................
                .          .
                .          .
1217            .          .-------->   BPC3T
1212            .       DPC3T
                .          .
                .          .
1220            .          .      SUB3E3
                .          .          .
                .          .          .
1225            .          .          .        PC4
                .          .          .          .
                .          .          .          .
1239            .          .          .          .          .<-------    B7ST
1234            .          .          .          .        D7S
                .          .          .          .          .
                .          .          .          .          .
1240            .          .        CPC4......................
                .          .          .
                .          .          .
1251            .          .          .-------->   BPC4T
1246            .          .       DPC4T
                .          .          .
                .          .          .
1254       CLEAR......................
                .
                .
1260            .          .<-------    37AW
1257            .        37AW
                .          V
                .          V
1261            .        R14R
                .          V
                .          V
1268            .      RET141
                .          V
                .          V
1275            .       R14.1
                .          .
                .          .
1282            .          .      SUB13N
                .          .          V
                .          .          V
1288            .          .       R14.1
                .          .          .
```

```
1294          .          .          .
              .          .      SUB14N
              .          .          .
              .          .          .
1300          .     CP14.....................
              .        V
              .        V
1303          .    RET14
              .        V
              .        V
1310          .    R18.1
              .        .
              .        .
1316          .        .     SUB20N
              .        .         V
              .        .         V
1322          .        .       R19
              .        .         .
              .        .         .
1328          .        .         .     SUB19N
              .        .         .          .
              .        .         .          .
1334          .        .      CP19N...........
              .        .         V
              .        .         V
1337          .        .      R18NC
              .        .         .
              .        .         .
1343          .        .         .     UB18NC
              .        .         .          .
              .        .         .          .
1349          .   CP18NC.....................
              .        V
              .        V
1352          .     RPC1
              .        .
              .        .
1358          .        .     UB18NA
              .        .         V
              .        .         V
1364          .        .      1RPC1
              .        .         .
              .        .         .
1370          .        .         .     UB18NB
              .        .         .          V
              .        .         .          V
1376          .        .         .      2RPC1
              .        .         .          .
              .        .         .          .
1382          .        .         .          .        PC1
              .        .         .          .          .
              .        .         .          .          .
1388          .        .      1CPC1.....................
              .        .         V
              .        .         V
1391          .        .      SRPC1
              .        .         .
              .        .         .
1397          .     CPC1...........
              .        V
              .        V
1400          .   R16NA1
              .        .
              .        .
1406          .        .     UB16NA
              .        .         V
              .        .         V
1412          .        .    R16NA1
              .        .         .
              .        .         .
1418          .   C16NA1...........
              .        V
              .        V
1421          .   R16NB1
              .        .
              .        .
1427          .        .     UB16NB
              .        .         V
              .        .         V
1433          .        .    R16NB1
              .        .         .
              .        .         .
1439          .   C16NB1...........
              .        V
              .        V
1442          .   R16NC1
              .        .
              .        .
1448          .        .      SUB7N
              .        .         V
              .        .         V
1454          .        .       R8NC
              .        .         .
              .        .         .
1460          .        .         .     SUB8NA
```

```
                 .         .         .         V
                 .         .         .         V
1466             .         .         .      SR8NA
                 .         .         .         V
                 .         .         .         V
1472             .         .         .      R8NB
                 .         .         .         .
                 .         .         .         .
1478             .         .         .         .     SUB8NB
                 .         .         .         .          .
                 .         .         .         .          .
1484             .         .         .      CP8NB............
                 .         .         .         V
                 .         .         .         V
1487             .         .         .      SR8NB
                 .         .         .         V
                 .         .         .         V
1493             .         .         .      R8NC
                 .         .         .         .
                 .         .         .         .
1499             .         .         .         .     SUB8NC
                 .         .         .         .          .
                 .         .         .         .          .
1505             .         .     CP8NC........................
                 .         .         V
                 .         .         V
1508             .         .     SR8NC
                 .         .         V
                 .         .         V
1514             .         .      R9N
                 .         .         .
                 .         .         .
1520             .         .         .      SUB9N
                 .         .         .         .
                 .         .         .         .
1526             .         .      CP9N............
                 .         .         V
                 .         .         V
1529             .         .      R10B
                 .         .         .
                 .         .         .
1535             .         .         .      SUB10B
                 .         .         .         .
                 .         .         .         .
1542             .         .     CP10B............
                 .         .         V
                 .         .         V
1545             .         .     R11NA
                 .         .         .
                 .         .         .
1551             .         .         .      UB11NA
                 .         .         .         .
                 .         .         .         .
1557             .         .    CP11NA............
                 .         .         V
                 .         .         V
1560             .         .    SR11NA
                 .         .         V
                 .         .         V
1566             .         .     R11NB
                 .         .         .
                 .         .         .
1572             .         .         .      UB11NB
                 .         .         .         .
                 .         .         .         .
1578             .         .    CP11NB............
                 .         .         V
                 .         .         V
1581             .         .    SR11NB
                 .         .         V
                 .         .         V
1587             .         .     R11NC
                 .         .         .
                 .         .         .
1593             .         .         .      UB11NC
                 .         .         .         .
                 .         .         .         .
1599             .         .    C11NC1............
                 .         .         .
                 .         .         .
1602             .         .         .      SUB10A
                 .         .         .         V
                 .         .         .         V
1609             .         .         .      R12NB
                 .         .         .         .
                 .         .         .         .
1615             .         .         .         .     UB12NA
                 .         .         .         .          V
                 .         .         .         .          V
1621             .         .         .         .     SR12NA
                 .         .         .         .          V
                 .         .         .         .          V
1627             .         .         .         .      R12NA
                 .         .         .         .          .
                 .         .         .         .          .
```

```
1633   .        .        .        .        .    UB12NB
       .        .        .        .        .        .
       .        .        .        .        .        .
1639   .        .        .   CP12NB.......................
       .        .        .        V
       .        .        .        V
1642   .        .        .   SR12NB
       .        .        .        V
       .        .        .        V
1648   .        .        .   R11NC2
       .        .        .        .
       .        .        .        .
1654   .        .   CP11NC............
       .        .        V
       .        .        V
1657   .        .   SR11NC
       .        .        V
       .        .        V
1664   .        .    R16NC
       .        .        .
       .        .        .
1670   .        .        .   UB16NC
       .        .        .        .
       .        .        .        .
1676   .        .   CP16NC............
       .        .        V
       .        .        V
1679   .        .   R16NC1
       .        .        .
       .        .        .
1685   .   C16NC1............
       .        V
       .        V
1688   .    R15N1
       .        .
       .        .
1694   .        .      PC2
       .        .        .
       .        .        .
1700   .   CP15N1............
       .        V
       .        V
1703   .    SRPC2
       .        .
       .        .
1710   .        .   UB17NA
       .        .        V
       .        .        V
1716   .        .   SR17NA
       .        .        V
       .        .        V
1722   .        .    R17NB
       .        .        .
       .        .        .
1728   .        .        .   UB17NB
       .        .        .        .
       .        .        .        .
1734   .        .   CP17NB............
       .        .        V
       .        .        V
1737   .        .   SR17NB
       .        .        V
       .        .        V
1743   .        .     R17A
       .        .        .
       .        .        .
1749   .        .        .   SUB17A
       .        .        .        .
       .        .        .        .
1755   .        .   CP17A1............
       .        .        .
       .        .        .
1758   .        .        .   UB17NC
       .        .        .        .
       .        .        .        .
1764   .        .    CP17A............
       .        .        V
       .        .        V
1767   .        .     R15N
       .        .        .
       .        .        .
1773   .        .        .   SUB15N
       .        .        .        .
       .        .        .        .
1780   .        .    CP15N............
       .        .        V
       .        .        V
1783   .        .    R15N2
       .        .        .
       .        .        .
1789   .   CP15N2............
       .        V
       .        V
1793   .    R15N2
       .        .
```

```
                .          .
1807            .          .          .<-------   BPC3T
1802            .          .       DPC3
                .          .          .
                .          .          .
1808            .      CPC3A............
                .          V
                .          V
1814            .      RPC3A
                .          .
                .          .
1828            .          .          .<-------   BPC4T
1823            .          .       DPC4
                .          .          .
                .          .          .
1829            .      CPC4A............
                .          V
                .          V
1835            .      RPC4A
                .          .
                .          .
1849            .          .-------> BPC4AT
1844            .     DPC4AT
                .          .
                .          .
1852            .          .     SUB1-2
                .          .          .
                .          .          .
1858            .          .          .     GCRB18
                .          .          .          .
                .          .          .          .
1865            .          .     CPRET1............
                .          .          V
                .          .          V
1868            .          .      SR18S
                .          .          .
                .          .          .
1874            .          .          .      SUB5S
                .          .          .          .
                .          .          .          .
1880            .          .          .          .     GC1216
                .          .          .          .          .
                .          .          .          .          .
1886            .          .          .          .          .     GC1415
                .          .          .          .          .          .
                .          .          .          .          .          .
1892            .          .          .          .          .          .       SUB6S
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
1898            .          .          .          .          .          .          .      SUB7S
                .          .          .          .          .          .          .          .
                .          .          .          .          .          .          .          .
1904            .          .          .     CPRET2.............................................
                .          .          .          V
                .          .          .          V
1907            .          .          .     SRRET2
                .          .          .          .
                .          .          .          .
1913            .          .      CLEAR............
                .          .          .
                .          .          .
1918            .          .          .      SUB8S
                .          .          .          V
                .          .          .          V
1924            .          .          .      RGC36
                .          .          .          .
                .          .          .          .
1930            .          .          .          .       GC36
                .          .          .          .          .
                .          .          .          .          .
1936            .          .          .     C1GC36............
                .          .          .          .
                .          .          .          .
1939            .          .          .          .      SUB9S
                .          .          .          .          V
                .          .          .          .          V
1945            .          .          .          .       R9S
                .          .          .          .          .
                .          .          .          .          .
1951            .          .          .     CPGC36............
                .          .          .          V
                .          .          .          V
1954            .          .          .     SRGC36
                .          .          .          .
                .          .          .          .
1960            .          .          .          .      SUB7A
                .          .          .          .          V
                .          .          .          .          V
1966            .          .          .          .      SR7A
                .          .          .          .          V
                .          .          .          .          V
1972            .          .          .          .      R10S
                .          .          .          .          .
                .          .          .          .          .
1978            .          .          .          .          .     SUB10S
```

```
                .         .         .         .         .         .
                .         .         .         .         .         .
1984            .         .         .         .      CP10S.........
                .         .         .         .         .
                .         .         .         .         .
1987            .         .         .         .         .     SUB11S
                .         .         .         .         .         V
                .         .         .         .         .         V
1993            .         .         .         .         .       R11S
                .         .         .         .         .         .
                .         .         .         .         .         .
2002            .         .         .         .      C10SA.........
                .         .         .         .         V
                .         .         .         .         V
2007            .         .         .         .      R10SA
                .         .         .         .         .
                .         .         .         .         .
2016            .         .         .         .         .       GC45
                .         .         .         .         .         .
                .         .         .         .         .         .
2022            .         .         .         .      CGC45.........
                .         .         .         .         .
                .         .         .         .         .
2027            .         .         .         .         .        PC5
                .         .         .         .         .         .
                .         .         .         .         .         .
2041            .         .         .         .         .         .<-------  BPC4AT
2036            .         .         .         .         .      DPC4A
                .         .         .         .         .         .
                .         .         .         .         .         .
2042            .         .      CPC5.........................................
                .         .         V
                .         .         V
2049            .         .       RC5
                .         .         .
                .         .         .
2055            .         .         .      SCN5D
                .         .         .         .
                .         .         .         .
2061            .         .      CN5D.........
                .         .         .
                .         .         .
2066            .         .         .<-------    B52T
2064            .         .         .       D52
                .         .         .         .
                .         .         .         .
2067            .         .         .         .      S53A
                .         .         .         .         .
                .         .         .         .         .
2074            .         .         .       C53.........
                .         .         .         .
                .         .         .         .
2077            .         .         .         .      S53A1
                .         .         .         .         .
                .         .         .         .         .
2085            .         .         .      C53A.........
                .         .         .         .
                .         .         .         .
2088            .         .         .         .      SCN6B
                .         .         .         .         .
                .         .         .         .         .
2098            .         .         .         .         .      SCN6D
                .         .         .         .         .         .
                .         .         .         .         .         .
2105            .         .         .      CP6D.......................
                .         .         .         .
                .         .         .         .
2108            .         .         .         .      SCN6C
                .         .         .         .         .
                .         .         .         .         .
2117            .         .         .      CP6C.........
                .         .         .         .
                .         .         .         .
2120            .         .      CP5D.........
                .         .         .
                .         .         .
2123            .         .         .      SCN5C
                .         .         .         .
                .         .         .         .
2129            .         .         .         .      SCN6E
                .         .         .         .         .
                .         .         .         .         .
2135            .         .     EAST-I......................
                .         .         V
                .         .         V
2138            .         .     EAST-O
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*************************************                    *************************************
*                                   *                    *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *   U.S. ARMY CORPS OF ENGINEERS    *
*              MAY   1991           *                    *   HYDROLOGIC ENGINEERING CENTER   *
*           VERSION 4.0.1E          *                    *         609 SECOND STREET         *
*     Lahey F77L-EM/32 version 5.01 *                    *      DAVIS, CALIFORNIA 95616      *
*       Dodson & Associates, Inc.   *                    *          (916) 551-1748           *
```

```
                    PIMA ROAD THREE BASINS                          File:  FU100-6.IH1
                    by  Stantec for the City of Scottsdale        Original: 08-07-97     mcg
                        Project:  28900082                         Revised: 01-20-99     mcg

                    100-YEAR, 6-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


 18 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        720  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3   0  ENDING DATE
                     NDTIME       1155  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE   59.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

 19 JD          INDEX STORM NO. 1
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA       0.01  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


 20 JD          INDEX STORM NO. 2
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA       0.10  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


 21 JD          INDEX STORM NO. 3
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA       0.50  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


 22 JD          INDEX STORM NO. 4
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA       1.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


 23 JD          INDEX STORM NO. 5
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA       5.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


 24 JD          INDEX STORM NO. 6
                       STRM       0.00  PRECIPITATION DEPTH
                       TRDA      25.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S30N	1227.	3.33	128.	32.	13.	0.65		
+	ROUTED TO	R30N	1126.	3.42	128.	32.	13.	0.65		
+	HYDROGRAPH AT	S31.1	395.	3.33	43.	11.	4.	0.27		
+	2 COMBINED AT	C31.1	1508.	3.33	171.	43.	17.	0.92		
+	HYDROGRAPH AT	S34.2	691.	3.33	73.	18.	7.	0.44		
+	2 COMBINED AT	C34.2	2177.	3.33	243.	61.	25.	1.36		
+	HYDROGRAPH AT	S35N	1298.	3.25	108.	27.	11.	0.55		
+	DIVERSION TO	D35NL	567.	3.25	47.	12.	5.	0.55		
+	HYDROGRAPH AT	D35NR	731.	3.25	60.	15.	6.	0.55		
+	ROUTED TO	R35NR	586.	3.33	60.	15.	6.	0.55		
+	HYDROGRAPH AT	S36.2	400.	3.25	34.	9.	3.	0.21		
+	2 COMBINED AT	C36.2	906.	3.25	94.	24.	10.	0.54		
+	DIVERSION TO	D36.2L	231.	3.25	9.	2.	1.	0.54		
+	HYDROGRAPH AT	D36.2R	675.	3.25	85.	21.	9.	0.54		
+	ROUTED TO	R36.2R	482.	3.67	85.	21.	9.	0.54		
+	HYDROGRAPH AT	S34.1	1831.	3.33	190.	48.	19.	1.16		
+	2 COMBINED AT	C34.1	1896.	3.33	273.	69.	28.	1.54		
+	2 COMBINED AT	HVDB-I	4015.	3.33	512.	130.	52.	2.90		
+	ROUTED TO	HVDB-O	133.	6.58	131.	113.	52.	2.90		
+	ROUTED TO	R34.1	133.	6.67	131.	113.	52.	2.90		

+	HYDROGRAPH AT	S36.1	159.	3.42	19.	5.	2.	0.14
+	2 COMBINED AT	C36.1	244.	3.42	146.	118.	54.	3.04
+	ROUTED TO	R36.1	242.	3.50	146.	118.	54.	3.04
+	HYDROGRAPH AT	B35NL	567.	3.25	47.	12.	5.	0.55
+	ROUTED TO	R35NL	351.	3.58	47.	12.	5.	0.55
+	HYDROGRAPH AT	B36.2L	231.	3.25	9.	2.	1.	0.54
+	ROUTED TO	R36.2L	103.	3.58	9.	2.	1.	0.54
+	HYDROGRAPH AT	S36R1A	652.	3.50	89.	23.	9.	0.63
+	4 COMBINED AT	C36R1A	1230.	3.50	287.	154.	68.	4.05
+	HYDROGRAPH AT	S36R1B	649.	3.42	83.	21.	8.	0.59
+	2 COMBINED AT	C36R1B	1804.	3.50	367.	174.	76.	4.64
+	HYDROGRAPH AT	S36R2A	280.	3.17	21.	5.	2.	0.13
+	2 COMBINED AT	C36R2A	1862.	3.50	384.	178.	78.	4.77
+	ROUTED TO	R36R2A	1862.	3.58	384.	178.	78.	4.77
+	HYDROGRAPH AT	S36R2B	264.	3.42	33.	8.	3.	0.24
+	2 COMBINED AT	C36R2B	2018.	3.58	416.	186.	82.	5.01
+	HYDROGRAPH AT	S51.1	1058.	3.50	162.	41.	16.	1.13
+	2 COMBINED AT	DVDB-I	2966.	3.58	570.	225.	97.	6.14
+	ROUTED TO	DVDB-O	251.	6.75	249.	219.	97.	6.14
+	DIVERSION TO	B51.1T	251.	6.75	249.	219.	97.	6.14
+	HYDROGRAPH AT	D51.1T	0.	0.08	0.	0.	0.	6.14
+	HYDROGRAPH AT	52D4	116.	3.25	11.	3.	1.	0.07
+	ROUTED TO	52D4R	106.	3.25	11.	3.	1.	0.07
+	HYDROGRAPH AT	52D4B	70.	3.17	6.	1.	1.	0.02
+	2 COMBINED AT	52D5C1	161.	3.25	17.	4.	2.	0.09
+	HYDROGRAPH AT	52D5A	79.	3.17	6.	2.	1.	0.02
+	ROUTED TO	52D5AR	75.	3.17	6.	2.	1.	0.02
+	2 COMBINED AT	52D5C2	217.	3.25	23.	6.	2.	0.12
+	ROUTED TO	52D5R	216.	3.25	23.	6.	2.	0.12
+	HYDROGRAPH AT	52C3	24.	3.08	2.	0.	0.	0.01
+	ROUTED TO	52C3R	23.	3.17	2.	0.	0.	0.01
	HYDROGRAPH AT							

+	52C3B	53.	3.08	4.	1.	0.	0.02
2 COMBINED AT +	2C3BC1	74.	3.17	6.	1.	1.	0.02
2 COMBINED AT +	2C3BC2	270.	3.17	29.	7.	3.	0.14
ROUTED TO +	52C3BR	261.	3.25	29.	7.	3.	0.14
HYDROGRAPH AT +	51C	166.	3.17	15.	4.	1.	0.10
DIVERSION TO +	51C1DV	111.	3.17	10.	3.	1.	0.10
HYDROGRAPH AT +	51C1D	55.	3.17	5.	1.	0.	0.10
ROUTED TO +	51C1R	53.	3.25	5.	1.	0.	0.10
HYDROGRAPH AT +	52C1	69.	3.17	5.	1.	0.	0.03
2 COMBINED AT +	52C1C	106.	3.17	10.	2.	1.	0.06
ROUTED TO +	52C1R	101.	3.25	10.	2.	1.	0.06
HYDROGRAPH AT +	52C2A	35.	3.17	2.	1.	0.	0.02
2 COMBINED AT +	52C2AC	125.	3.25	12.	3.	1.	0.08
HYDROGRAPH AT +	52C2B	56.	3.17	4.	1.	0.	0.03
2 COMBINED AT +	52C2BC	170.	3.17	16.	4.	2.	0.11
ROUTED TO +	52C2BR	168.	3.25	16.	4.	2.	0.11
HYDROGRAPH AT +	52C2C	46.	3.08	4.	1.	0.	0.01
2 COMBINED AT +	52C2CC	194.	3.25	20.	5.	2.	0.12
ROUTED TO +	52C2R	180.	3.25	20.	5.	2.	0.12
HYDROGRAPH AT +	52C4	56.	3.17	4.	1.	0.	0.02
2 COMBINED AT +	52C4C1	211.	3.25	24.	6.	2.	0.14
2 COMBINED AT +	52C4C2	472.	3.25	53.	13.	5.	0.28
ROUTED TO +	52C4R	462.	3.25	53.	14.	5.	0.28
HYDROGRAPH AT +	52C13	69.	3.08	5.	1.	0.	0.02
DIVERSION TO +	STORM	40.	3.08	4.	1.	0.	0.02
HYDROGRAPH AT +	2C13DV	29.	3.08	1.	0.	0.	0.02
HYDROGRAPH AT +	52C15	157.	3.08	13.	3.	1.	0.05
2 COMBINED AT +	2C15C1	186.	3.08	13.	3.	1.	0.05
2 COMBINED AT +	2C15C2	546.	3.17	66.	17.	7.	0.32
ROUTED TO +	52C15R	544.	3.25	66.	17.	7.	0.32
HYDROGRAPH AT +	52C14A	142.	3.17	11.	3.	1.	0.04
2 COMBINED AT +	2C14AC	655.	3.17	78.	20.	8.	0.36

+	ROUTED TO 2C14AR	637.	3.17	78.	20.	8.	0.36
+	HYDROGRAPH AT 51C1DV	111.	3.17	10.	3.	1.	0.10
+	DIVERSION TO 51C2DV	30.	3.17	3.	1.	0.	0.10
+	HYDROGRAPH AT 51C2D	81.	3.17	7.	2.	1.	0.10
+	ROUTED TO 51C2R	78.	3.25	7.	2.	1.	0.10
+	HYDROGRAPH AT 52C5	40.	3.17	3.	1.	0.	0.02
+	2 COMBINED AT 52C5C	109.	3.17	10.	3.	1.	0.06
+	ROUTED TO 52C5R	104.	3.25	10.	3.	1.	0.06
+	HYDROGRAPH AT 52C6	82.	3.17	7.	2.	1.	0.04
+	2 COMBINED AT 52C6C	173.	3.25	17.	4.	2.	0.10
+	ROUTED TO 52C6R	165.	3.25	17.	4.	2.	0.10
+	HYDROGRAPH AT 51C2DV	30.	3.17	3.	1.	0.	0.10
+	ROUTED TO 51C3R	29.	3.25	3.	1.	0.	0.10
+	HYDROGRAPH AT 51B	596.	3.42	79.	20.	8.	0.57
+	DIVERSION TO 51B1DV	549.	3.42	72.	18.	7.	0.57
+	HYDROGRAPH AT 51B1D	48.	3.42	6.	2.	1.	0.57
+	ROUTED TO 51B1R	48.	3.42	6.	2.	1.	0.57
+	HYDROGRAPH AT 52C7	18.	3.08	1.	0.	0.	0.01
+	3 COMBINED AT 52C7C	76.	3.25	10.	3.	1.	0.07
+	ROUTED TO 52C7R	75.	3.33	10.	3.	1.	0.07
+	HYDROGRAPH AT 51B1DV	549.	3.42	72.	18.	7.	0.57
+	DIVERSION TO 51B2DV	461.	3.42	61.	15.	6.	0.57
+	HYDROGRAPH AT 51B2D	88.	3.42	12.	3.	1.	0.57
+	ROUTED TO 51B2R	88.	3.42	12.	3.	1.	0.57
+	HYDROGRAPH AT 52C8	21.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT 52C8C	93.	3.42	13.	3.	1.	0.45
+	ROUTED TO 52C8R	92.	3.42	13.	3.	1.	0.45
+	2 COMBINED AT 52C9C1	163.	3.42	23.	6.	2.	0.52
+	ROUTED TO 52C9R1	162.	3.42	23.	6.	2.	0.52
+	HYDROGRAPH AT 52C9	174.	3.17	14.	3.	1.	0.07
+	2 COMBINED AT 52C9C2	255.	3.25	37.	9.	4.	0.59
+	ROUTED TO 52C9R2	254.	3.25	37.	9.	4.	0.59

+	2 COMBINED AT	2C10C1	418.	3.25	54.	14.	5.	0.69
+	ROUTED TO	2C10R1	412.	3.25	54.	14.	5.	0.69
+	HYDROGRAPH AT	52C10	28.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	2C10C2	428.	3.25	56.	14.	6.	0.70
+	HYDROGRAPH AT	52C11	96.	3.17	8.	2.	1.	0.04
+	ROUTED TO	2C11R1	88.	3.17	8.	2.	1.	0.04
+	HYDROGRAPH AT	52C13D	40.	3.08	4.	1.	0.	0.02
+	2 COMBINED AT	52C11C	128.	3.17	12.	3.	1.	0.07
+	ROUTED TO	2C11CR	120.	3.17	12.	3.	1.	0.07
+	2 COMBINED AT	2C11C2	541.	3.25	68.	17.	7.	0.77
+	ROUTED TO	2C11R2	530.	3.25	68.	17.	7.	0.77
+	HYDROGRAPH AT	52C12	119.	3.08	7.	2.	1.	0.02
+	2 COMBINED AT	52C12C	567.	3.25	75.	19.	8.	0.79
+	ROUTED TO	52C12R	549.	3.25	75.	19.	8.	0.79
+	HYDROGRAPH AT	52C14B	76.	3.08	6.	1.	1.	0.02
+	2 COMBINED AT	C14BC1	584.	3.25	81.	20.	8.	0.81
+	2 COMBINED AT	C14BC2	1200.	3.25	158.	40.	16.	1.17
+	ROUTED TO	52C14R	1194.	3.25	158.	40.	16.	1.17
+	HYDROGRAPH AT	51B2DV	461.	3.42	61.	15.	6.	0.57
+	DIVERSION TO	51B3DV	387.	3.42	51.	13.	5.	0.57
+	HYDROGRAPH AT	51B3D	74.	3.42	10.	2.	1.	0.57
+	ROUTED TO	51B3R	74.	3.42	10.	2.	1.	0.57
+	HYDROGRAPH AT	52B1	8.	3.08	1.	0.	0.	0.00
+	2 COMBINED AT	52B1C	76.	3.42	10.	3.	1.	0.07
+	ROUTED TO	52B1R	75.	3.42	10.	3.	1.	0.07
+	HYDROGRAPH AT	51B3DV	387.	3.42	51.	13.	5.	0.57
+	DIVERSION TO	51B4DV	317.	3.42	42.	11.	4.	0.57
+	HYDROGRAPH AT	51B4D	70.	3.42	9.	2.	1.	0.57
+	ROUTED TO	51B4R1	70.	3.42	9.	2.	1.	0.57
+	2 COMBINED AT	52B2C1	145.	3.42	20.	5.	2.	0.14
+	ROUTED TO	52B2R1	142.	3.42	20.	5.	2.	0.14
	HYDROGRAPH AT							

+	52B2	69.	3.17	5.	1.	1.	0.03
2 COMBINED AT +	52B2C2	166.	3.42	25.	6.	3.	0.17
ROUTED TO +	52B2R2	164.	3.42	25.	6.	3.	0.17
ROUTED TO +	52B3R1	163.	3.42	25.	6.	3.	0.17
HYDROGRAPH AT +	52B3	141.	3.17	12.	3.	1.	0.06
2 COMBINED AT +	52B3C2	249.	3.25	37.	9.	4.	0.23
ROUTED TO +	52B3R2	241.	3.33	37.	9.	4.	0.23
HYDROGRAPH AT +	52B4	87.	3.17	7.	2.	1.	0.03
2 COMBINED AT +	52B4C	284.	3.25	44.	11.	4.	0.26
ROUTED TO +	52B4R	277.	3.25	44.	11.	4.	0.26
HYDROGRAPH AT +	52B5	69.	3.08	5.	1.	1.	0.02
2 COMBINED AT +	52B5C1	313.	3.25	49.	12.	5.	0.28
2 COMBINED AT +	52B5C2	1496.	3.25	207.	52.	21.	1.45
ROUTED TO +	52B5R	1474.	3.25	207.	53.	21.	1.45
HYDROGRAPH AT +	51B4DV	317.	3.42	42.	11.	4.	0.57
DIVERSION TO +	51B5DV	216.	3.42	28.	7.	3.	0.57
HYDROGRAPH AT +	51B5D	102.	3.42	13.	3.	1.	0.57
ROUTED TO +	51B5R	102.	3.42	13.	3.	1.	0.57
HYDROGRAPH AT +	51B5DV	216.	3.42	28.	7.	3.	0.57
DIVERSION TO +	51B6DV	114.	3.42	15.	4.	2.	0.57
HYDROGRAPH AT +	51B6D	101.	3.42	13.	3.	1.	0.57
ROUTED TO +	51B6R	101.	3.42	13.	3.	1.	0.57
HYDROGRAPH AT +	51B6DV	114.	3.42	15.	4.	2.	0.57
DIVERSION TO +	51B7DV	66.	3.42	9.	2.	1.	0.57
HYDROGRAPH AT +	51B7D	48.	3.42	6.	2.	1.	0.57
ROUTED TO +	51B7R1	48.	3.42	6.	2.	1.	0.57
3 COMBINED AT +	51B7C	252.	3.42	33.	8.	3.	0.24
ROUTED TO +	51B7R2	244.	3.42	33.	8.	3.	0.24
HYDROGRAPH AT +	52B6	190.	3.17	15.	4.	2.	0.10
2 COMBINED AT +	52B6C	313.	3.42	48.	12.	5.	0.34
ROUTED TO +	52B6R	311.	3.42	48.	12.	5.	0.34
HYDROGRAPH AT +	52B7	303.	3.17	24.	6.	2.	0.08

+	2 COMBINED AT	52B7C1	411.	3.25	72.	18.	7.	0.42
+	2 COMBINED AT	52B7C2	1871.	3.25	278.	71.	28.	1.87
+	HYDROGRAPH AT	52A2	263.	3.17	21.	5.	2.	0.06
+	2 COMBINED AT	52A2C2	2033.	3.25	299.	76.	30.	1.62
+	HYDROGRAPH AT	51B7DV	66.	3.42	9.	2.	1.	0.57
+	ROUTED TO	51B8R	66.	3.50	9.	2.	1.	0.57
+	HYDROGRAPH AT	52A1	340.	3.17	26.	6.	3.	0.13
+	2 COMBINED AT	52A1C	344.	3.17	34.	9.	3.	0.13
+	HYDROGRAPH AT	D51.1	251.	6.75	249.	219.	97.	6.14
+	2 COMBINED AT	C52A	389.	3.17	267.	226.	100.	6.27
+	2 COMBINED AT	C52	2227.	3.25	538.	294.	129.	7.92
+	ROUTED TO	R52	2227.	3.33	538.	294.	129.	7.92
+	DIVERSION TO	B52T	2227.	3.33	538.	294.	129.	7.92
+	HYDROGRAPH AT	D52T	0.	0.08	0.	0.	0.	7.92
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	14.06
+	HYDROGRAPH AT	37A	1164.	3.25	119.	30.	12.	0.68
+	DIVERSION TO	37AW	815.	3.25	83.	21.	8.	0.68
+	HYDROGRAPH AT	37AE	349.	3.25	36.	9.	4.	0.68
+	ROUTED TO	37AE1	342.	3.25	36.	9.	4.	0.68
+	HYDROGRAPH AT	SUB5N	70.	3.17	5.	1.	1.	0.03
+	2 COMBINED AT	CP5N	394.	3.25	41.	10.	4.	0.23
+	ROUTED TO	RET5N	357.	3.33	40.	10.	4.	0.23
+	ROUTED TO	R6N.1	294.	3.42	40.	10.	4.	0.23
+	HYDROGRAPH AT	SUB6B	74.	3.17	5.	1.	1.	0.03
+	ROUTED TO	SR6B	43.	3.25	5.	1.	1.	0.03
+	2 COMBINED AT	CP6.1	326.	3.42	45.	12.	5.	0.26
+	HYDROGRAPH AT	SUB1N	47.	3.17	3.	1.	0.	0.02
+	ROUTED TO	R2NA	46.	3.17	3.	1.	0.	0.02
+	HYDROGRAPH AT	SUB2NA	34.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CP2NA	80.	3.17	6.	1.	1.	0.03
+	ROUTED TO	SR2NA	70.	3.25	4.	1.	0.	0.03
+	ROUTED TO	R2NB	59.	3.33	4.	1.	0.	0.03

+	HYDROGRAPH AT	SUB2NB	96.	3.17	8.	2.	1.	0.03
+	2 COMBINED AT	CP2NB	99.	3.33	12.	3.	1.	0.06
+	ROUTED TO	SR2NB	25.	3.75	11.	3.	1.	0.06
+	ROUTED TO	RCP4N	24.	3.75	11.	3.	1.	0.06
+	HYDROGRAPH AT	SUB6N	114.	3.17	8.	2.	1.	0.05
+	ROUTED TO	RET6N	0.	0.08	0.	0.	0.	0.05
+	ROUTED TO	RCP4N1	0.	0.08	0.	0.	0.	0.05
+	2 COMBINED AT	CP4N.1	24.	3.75	11.	3.	1.	0.11
+	HYDROGRAPH AT	SUB3N	67.	3.17	4.	1.	0.	0.03
+	ROUTED TO	RET3N	4.	4.17	3.	1.	0.	0.03
+	ROUTED TO	R4N	4.	4.25	3.	1.	0.	0.03
+	2 COMBINED AT	CP4N.2	27.	3.75	14.	4.	2.	0.14
+	HYDROGRAPH AT	SUB4N	80.	3.17	6.	1.	1.	0.03
+	2 COMBINED AT	CP4N	89.	3.17	19.	6.	2.	0.17
+	ROUTED TO	R6N	82.	3.17	19.	6.	2.	0.17
+	HYDROGRAPH AT	SUB6A	64.	3.08	4.	1.	0.	0.01
+	2 COMBINED AT	CP6.2	121.	3.17	23.	7.	3.	0.18
+	2 COMBINED AT	CP6N	376.	3.42	68.	18.	7.	0.45
+	ROUTED TO	RCP6N	373.	3.42	68.	18.	7.	0.45
+	HYDROGRAPH AT	SUB3C	55.	3.08	3.	1.	0.	0.01
+	2 COMBINED AT	CP3C	380.	3.42	70.	19.	8.	0.46
+	ROUTED TO	R3C	361.	3.50	70.	19.	8.	0.46
+	HYDROGRAPH AT	GC1018	101.	3.17	7.	2.	1.	0.04
+	HYDROGRAPH AT	GC1-9	58.	3.17	4.	1.	0.	0.03
+	HYDROGRAPH AT	SUB3S	33.	3.17	3.	1.	0.	0.01
+	4 COMBINED AT	CP3S	411.	3.50	84.	22.	9.	0.54
+	ROUTED TO	RT3S	409.	3.50	84.	22.	9.	0.54
+	HYDROGRAPH AT	SUB4S	87.	3.17	7.	2.	1.	0.03
+	ROUTED TO	RT4S	87.	3.17	7.	2.	1.	0.03
+	HYDROGRAPH AT	GC2-8	32.	3.17	2.	1.	0.	0.01
+	3 COMBINED AT	1PGC28	437.	3.50	93.	25.	10.	0.58
	HYDROGRAPH AT							

+		SUB3D3	35.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CPGC28	444.	3.50	95.	25.	10.	0.59
+	ROUTED TO	SRGC28	443.	3.25	95.	25.	10.	0.59
+	ROUTED TO	RT7S	431.	3.58	95.	25.	10.	0.59
+	HYDROGRAPH AT	GC7	31.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CP7S	437.	3.58	97.	26.	10.	0.61
+	DIVERSION TO	B7ST	437.	3.58	97.	26.	10.	0.61
+	HYDROGRAPH AT	D7ST	0.	0.08	0.	0.	0.	0.61
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	14.67
+	HYDROGRAPH AT	SUB3D1	27.	3.08	2.	0.	0.	0.01
+	ROUTED TO	RD1B1	22.	3.17	2.	0.	0.	0.01
+	HYDROGRAPH AT	SUB3B1	47.	3.08	3.	1.	0.	0.01
+	2 COMBINED AT	CP3B1	61.	3.08	5.	1.	1.	0.02
+	ROUTED TO	RB13F	48.	3.25	5.	1.	1.	0.02
+	HYDROGRAPH AT	SUB3F	141.	3.08	10.	2.	1.	0.03
+	2 COMBINED AT	CP3F	169.	3.08	15.	4.	2.	0.06
+	HYDROGRAPH AT	SUB3B2	67.	3.17	6.	1.	1.	0.02
+	ROUTED TO	RB2E1	64.	3.17	6.	1.	1.	0.02
+	ROUTED TO	RB2E2	61.	3.25	6.	1.	1.	0.02
+	HYDROGRAPH AT	SUB3E1	67.	3.17	6.	1.	1.	0.02
+	2 COMBINED AT	1CPE31	125.	3.17	11.	3.	1.	0.05
+	HYDROGRAPH AT	SUB3D2	58.	3.17	5.	1.	0.	0.02
+	ROUTED TO	RD2E2	56.	3.17	5.	1.	0.	0.02
+	HYDROGRAPH AT	SUB3E2	37.	3.08	3.	1.	0.	0.01
+	2 COMBINED AT	CP3E2	86.	3.17	7.	2.	1.	0.03
+	HYDROGRAPH AT	PC3	59.	3.33	7.	2.	1.	0.04
+	4 COMBINED AT	CPC3	400.	3.17	40.	10.	4.	0.18
+	DIVERSION TO	BPC3T	400.	3.17	40.	10.	4.	0.18
+	HYDROGRAPH AT	DPC3T	0.	0.08	0.	0.	0.	0.18
+	HYDROGRAPH AT	SUB3E3	60.	3.08	4.	1.	0.	0.02
+	HYDROGRAPH AT	PC4	25.	3.33	3.	1.	0.	0.02
+	HYDROGRAPH AT	D7S	437.	3.58	97.	26.	10.	0.61

+	3 COMBINED AT	CPC4	476.	3.33	104.	28.	11.	0.65
+	DIVERSION TO	BPC4T	476.	3.33	104.	28.	11.	0.65
+	HYDROGRAPH AT	DPC4T	0.	0.08	0.	0.	0.	0.65
+	3 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	15.50
+	HYDROGRAPH AT	37AW	815.	3.25	83.	21.	8.	0.68
+	ROUTED TO	R14R	659.	3.33	83.	21.	8.	0.68
+	ROUTED TO	RET141	631.	3.42	78.	21.	8.	0.68
+	ROUTED TO	R14.1	558.	3.50	78.	21.	8.	0.68
+	HYDROGRAPH AT	SUB13N	81.	3.17	7.	2.	1.	0.04
+	ROUTED TO	R14.1	78.	3.25	7.	2.	1.	0.04
+	HYDROGRAPH AT	SUB14N	88.	3.25	8.	2.	1.	0.05
+	3 COMBINED AT	CP14	625.	3.50	92.	25.	10.	0.56
+	ROUTED TO	RET14	574.	3.58	88.	25.	10.	0.56
+	ROUTED TO	R18.1	570.	3.58	88.	25.	10.	0.56
+	HYDROGRAPH AT	SUB20N	47.	3.17	4.	1.	0.	0.02
+	ROUTED TO	R19	48.	3.25	4.	1.	0.	0.02
+	HYDROGRAPH AT	SUB19N	94.	3.17	8.	2.	1.	0.04
+	2 COMBINED AT	CP19N	133.	3.17	12.	3.	1.	0.06
+	ROUTED TO	R18NC	132.	3.25	12.	3.	1.	0.06
+	HYDROGRAPH AT	UB18NC	62.	3.17	5.	1.	0.	0.02
+	3 COMBINED AT	CP18NC	619.	3.58	103.	29.	12.	0.64
+	ROUTED TO	RPC1	628.	3.58	103.	29.	12.	0.64
+	HYDROGRAPH AT	UB18NA	65.	3.17	5.	1.	1.	0.02
+	ROUTED TO	1RPC1	31.	3.33	5.	1.	1.	0.02
+	HYDROGRAPH AT	UB18NB	27.	3.17	2.	1.	0.	0.01
+	ROUTED TO	2RPC1	16.	3.25	2.	1.	0.	0.01
+	HYDROGRAPH AT	PC1	66.	3.42	10.	2.	1.	0.06
+	3 COMBINED AT	1CPC1	107.	3.42	17.	4.	2.	0.09
+	ROUTED TO	SRPC1	108.	3.42	16.	4.	2.	0.09
+	2 COMBINED AT	CPC1	712.	3.58	120.	33.	13.	0.74
+	ROUTED TO	R16NA1	720.	3.58	119.	33.	13.	0.74
+	HYDROGRAPH AT	UB16NA	42.	3.17	3.	1.	0.	0.01

+	ROUTED TO	R16NA1	37.	3.17	3.	1.	0.	0.01
+	2 COMBINED AT	C16NA1	728.	3.58	122.	34.	14.	0.75
+	ROUTED TO	R16NB1	717.	3.58	122.	34.	14.	0.75
+	HYDROGRAPH AT	UB16NB	48.	3.17	4.	1.	0.	0.02
+	ROUTED TO	R16NB1	43.	3.17	4.	1.	0.	0.02
+	2 COMBINED AT	C16NB1	725.	3.58	126.	35.	14.	0.77
+	ROUTED TO	R16NC1	727.	3.67	126.	35.	14.	0.77
+	HYDROGRAPH AT	SUB7N	74.	3.17	5.	1.	1.	0.03
+	ROUTED TO	R8NC	64.	3.25	5.	1.	1.	0.03
+	HYDROGRAPH AT	SUB8NA	13.	3.08	1.	0.	0.	0.00
+	ROUTED TO	SR8NA	1.	4.17	0.	0.	0.	0.00
+	ROUTED TO	R8NB	1.	4.17	0.	0.	0.	0.00
+	HYDROGRAPH AT	SUB8NB	34.	3.08	2.	1.	0.	0.01
+	2 COMBINED AT	CP8NB	34.	3.08	3.	1.	0.	0.02
+	ROUTED TO	SR8NB	2.	3.08	2.	1.	0.	0.02
+	ROUTED TO	R8NC	2.	3.08	2.	1.	0.	0.02
+	HYDROGRAPH AT	SUB8NC	51.	3.08	3.	1.	0.	0.02
+	3 COMBINED AT	CP8NC	103.	3.17	10.	3.	1.	0.07
+	ROUTED TO	SR8NC	18.	3.75	10.	3.	1.	0.07
+	ROUTED TO	R9N	17.	3.75	10.	3.	1.	0.07
+	HYDROGRAPH AT	SUB9N	143.	3.17	11.	3.	1.	0.05
+	2 COMBINED AT	CP9N	153.	3.17	21.	6.	2.	0.12
+	ROUTED TO	R10B	148.	3.17	21.	6.	2.	0.12
+	HYDROGRAPH AT	SUB10B	87.	3.08	6.	2.	1.	0.03
+	2 COMBINED AT	CP10B	226.	3.17	27.	7.	3.	0.15
+	ROUTED TO	R11NA	229.	3.17	27.	7.	3.	0.15
+	HYDROGRAPH AT	UB11NA	21.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	CP11NA	245.	3.17	28.	8.	3.	0.16
+	ROUTED TO	SR11NA	145.	3.33	28.	8.	3.	0.16
+	ROUTED TO	R11NB	140.	3.33	28.	8.	3.	0.16
+	HYDROGRAPH AT	UB11NB	22.	3.08	1.	0.	0.	0.01
	2 COMBINED AT							

+	HYDROGRAPH AT	SUB17A	30.	3.08	2.	0.	0.	0.01
+	2 COMBINED AT	CP17A1	31.	3.08	3.	1.	1.	0.03
+	HYDROGRAPH AT	UB17NC	19.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	CP17A	50.	3.08	3.	2.	1.	0.03
+	ROUTED TO	R15N	34.	3.17	3.	2.	1.	0.03
+	HYDROGRAPH AT	SUB15N	142.	3.17	11.	3.	1.	0.04
+	2 COMBINED AT	CP15N	175.	3.17	14.	4.	2.	0.07
+	ROUTED TO	R15N2	179.	3.17	14.	4.	2.	0.07
+	2 COMBINED AT	CP15N2	804.	3.75	182.	53.	22.	1.16
+	ROUTED TO	R15N2	768.	3.83	182.	53.	22.	1.16
+	HYDROGRAPH AT	DPC3	400.	3.17	40.	10.	4.	0.18
+	2 COMBINED AT	CPC3A	818.	3.75	217.	62.	25.	1.34
+	ROUTED TO	RPC3A	820.	3.83	217.	62.	25.	1.34
+	HYDROGRAPH AT	DPC4	476.	3.33	104.	28.	11.	0.65
+	2 COMBINED AT	CPC4A	1140.	3.75	319.	90.	36.	1.99
+	ROUTED TO	RPC4A	1131.	3.83	319.	90.	36.	1.99
+	DIVERSION TO	BPC4AT	1131.	3.83	319.	90.	36.	1.99
+	HYDROGRAPH AT	DPC4AT	0.	0.08	0.	0.	0.	1.99
+	HYDROGRAPH AT	SUB1-2	181.	3.17	16.	4.	2.	0.06
+	HYDROGRAPH AT	GCRB18	27.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CPRET1	208.	3.17	18.	4.	2.	0.07
+	ROUTED TO	SR18S	0.	0.08	0.	0.	0.	0.07
+	HYDROGRAPH AT	SUB5S	72.	3.17	5.	1.	1.	0.03
+	HYDROGRAPH AT	GC1216	83.	3.17	6.	2.	1.	0.04
+	HYDROGRAPH AT	GC1415	104.	3.17	7.	2.	1.	0.05
+	HYDROGRAPH AT	SUB6S	53.	3.17	5.	1.	0.	0.02
+	HYDROGRAPH AT	SUB7S	79.	3.17	6.	2.	1.	0.03
+	5 COMBINED AT	CPRET2	391.	3.17	30.	7.	3.	0.16
+	ROUTED TO	SRRET2	0.	0.08	0.	0.	0.	0.16
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	0.22
+	HYDROGRAPH AT	SUB8S	76.	3.17	6.	1.	1.	0.03
+	ROUTED TO	RGC36	64.	3.25	6.	1.	1.	0.03

+		CP11NB	146.	3.33	29.	8.	3.	0.17
+	ROUTED TO	SR11NB	84.	3.50	28.	8.	3.	0.17
+	ROUTED TO	R11NC	87.	3.50	28.	8.	3.	0.17
+	HYDROGRAPH AT	UB11NC	19.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	C11NC1	90.	3.50	30.	8.	3.	0.17
+	HYDROGRAPH AT	SUB10A	88.	3.08	7.	2.	1.	0.03
+	ROUTED TO	R12NB	95.	3.17	7.	2.	1.	0.03
+	HYDROGRAPH AT	UB12NA	36.	3.17	3.	1.	0.	0.02
+	ROUTED TO	SR12NA	1.	6.17	0.	0.	0.	0.02
+	ROUTED TO	R12NA	1.	6.17	0.	0.	0.	0.02
+	HYDROGRAPH AT	UB12NB	37.	3.17	3.	1.	0.	0.02
+	3 COMBINED AT	CP12NB	132.	3.17	10.	3.	1.	0.06
+	ROUTED TO	SR12NB	2.	3.17	2.	2.	1.	0.06
+	ROUTED TO	R11NC2	2.	3.50	2.	2.	1.	0.06
+	2 COMBINED AT	CP11NC	92.	3.50	32.	10.	4.	0.23
+	ROUTED TO	SR11NC	71.	3.75	30.	10.	4.	0.23
+	ROUTED TO	R16NC	71.	3.75	30.	10.	4.	0.23
+	HYDROGRAPH AT	UB16NC	102.	3.17	8.	2.	1.	0.03
+	2 COMBINED AT	CP16NC	107.	3.17	36.	12.	5.	0.27
+	ROUTED TO	R16NC1	106.	3.17	36.	12.	5.	0.27
+	2 COMBINED AT	C16NC1	788.	3.67	162.	47.	19.	1.03
+	ROUTED TO	R15N1	793.	3.67	162.	47.	19.	1.03
+	HYDROGRAPH AT	PC2	93.	3.25	8.	2.	1.	0.05
+	2 COMBINED AT	CP15N1	815.	3.67	170.	49.	20.	1.09
+	ROUTED TO	SRPC2	786.	3.75	169.	48.	20.	1.09
+	HYDROGRAPH AT	UB17NA	28.	3.08	2.	0.	0.	0.01
+	ROUTED TO	SR17NA	2.	3.75	1.	0.	0.	0.01
+	ROUTED TO	R17NB	2.	3.75	1.	0.	0.	0.01
+	HYDROGRAPH AT	UB17NB	27.	3.17	2.	0.	0.	0.01
+	2 COMBINED AT	CP17NB	28.	3.17	3.	1.	0.	0.02
+	ROUTED TO	SR17NB	1.	3.00	1.	1.	0.	0.02
+	ROUTED TO	R17A	1.	3.08	1.	1.	0.	0.02

+	HYDROGRAPH AT GC36	77.	3.17	7.	2.	1.	0.04
+	2 COMBINED AT C1GC36	141.	3.17	13.	3.	1.	0.07
+	HYDROGRAPH AT SUB9S	68.	3.17	5.	1.	1.	0.02
+	ROUTED TO R9S	69.	3.17	5.	1.	1.	0.02
+	2 COMBINED AT CPGC36	210.	3.17	18.	4.	2.	0.09
+	ROUTED TO SRGC36	202.	3.25	18.	4.	2.	0.09
+	HYDROGRAPH AT SUB7A	27.	3.17	2.	1.	0.	0.01
+	ROUTED TO SR7A	7.	3.42	2.	1.	0.	0.01
+	ROUTED TO R10S	7.	3.58	2.	1.	0.	0.01
+	HYDROGRAPH AT SUB10S	78.	3.17	6.	2.	1.	0.02
+	2 COMBINED AT CP10S	81.	3.17	8.	2.	1.	0.03
+	HYDROGRAPH AT SUB11S	118.	3.08	7.	2.	1.	0.02
+	ROUTED TO R11S	88.	3.17	7.	2.	1.	0.02
+	2 COMBINED AT C10SA	169.	3.17	15.	4.	2.	0.06
+	ROUTED TO R10SA	173.	3.17	15.	4.	2.	0.06
+	HYDROGRAPH AT GC45	45.	3.08	2.	1.	0.	0.01
+	2 COMBINED AT CGC45	196.	3.17	17.	4.	2.	0.07
+	HYDROGRAPH AT PC5	43.	3.33	5.	1.	1.	0.04
+	HYDROGRAPH AT DPC4A	1131.	3.83	319.	90.	36.	1.99
+	5 COMBINED AT CPC5	1242.	3.33	356.	100.	40.	2.10
+	ROUTED TO RC5	1234.	3.42	356.	100.	40.	2.10
+	HYDROGRAPH AT SCN5D	64.	3.25	6.	1.	1.	0.05
+	2 COMBINED AT CN5D	1271.	3.42	362.	101.	41.	2.15
+	HYDROGRAPH AT D52	2227.	3.33	538.	294.	129.	7.92
+	HYDROGRAPH AT S53A	247.	3.25	26.	6.	3.	0.18
+	2 COMBINED AT C53	2436.	3.33	562.	300.	131.	8.10
+	HYDROGRAPH AT S53A1	456.	3.33	53.	13.	5.	0.34
+	2 COMBINED AT C53A	2850.	3.33	611.	312.	136.	8.43
+	HYDROGRAPH AT SCN6B	158.	3.17	13.	3.	1.	0.05
+	HYDROGRAPH AT SCN6D	68.	3.17	5.	1.	0.	0.04
+	3 COMBINED AT CP6D	2953.	3.33	627.	316.	138.	8.52
	HYDROGRAPH AT						

```
+                    SCN6C      347.   3.17       29.       7.       3.     0.14
        2 COMBINED AT
+                     CP6C     3147.   3.25      653.     323.     141.     8.66
        2 COMBINED AT
+                     CP5D     4179.   3.33      995.     417.     179.    10.81
        HYDROGRAPH AT
+                    SCN5C      240.   3.25       23.       6.       2.     0.19
        HYDROGRAPH AT
+                    SCN6E       35.   3.58        6.       1.       1.     0.04
        3 COMBINED AT
+                   EAST-I     4381.   3.33     1020.     423.     181.    11.05
        ROUTED TO
+                   EAST-O     1976.   4.00     1017.     423.     181.    11.05
1
```

APPENDIX G

EAST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
100-YEAR, 6-HOUR OUTPUT FILE PRINTOUT
(E-2)

```
1*************************************                                    ************************************
*                                   *                                    *                                  *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                    *   U.S. ARMY CORPS OF ENGINEERS   *
*              MAY  1991            *                                    *   HYDROLOGIC ENGINEERING CENTER  *
*           VERSION 4.0.1E          *                                    *         609 SECOND STREET        *
*     Lahey F77L-EM/32 version 5.01 *                                    *      DAVIS, CALIFORNIA 95616     *
*       Dodson & Associates, Inc.   *                                    *          (916) 551-1748          *
* RUN DATE  02/25/99  TIME  08:06:08 *                                    *                                  *
*************************************                                    ************************************

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

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

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


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

  1           ID    PIMA ROAD THREE BASINS                                  File:  FU100-6.IH1
  2           ID    by  Stantec for the City of Scottsdale            Original: 08-07-97     mcg
  3           ID        Project:  28900082                             Revised: 01-20-99     mcg
  4           ID
  5           ID
  6           ID    100-YEAR, 6-HOUR
  7           ID        ULTIMATE CONDITION:
  8           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
  9           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
 10           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
 11           ID           DETERMINED BY OTHERS.
 12           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
 13           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
 14           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
 15           ID
 16           ID
              *DIAGRAM
 17           IT       5                    720
 18           IO       5
 19           JD             .01
 20           JD              .1
 21           JD              .5
 22           JD               1
 23           JD               5
 24           JD              25
              *

 25           KK    S30N
 26           KM     RUNOFF FROM SUBBASIN 30N
 27           BA  0.6518
 28           PH                      .84    1.53    2.46    2.75    2.94    3.31
 29           LS                 82     13              82      13
 30           UK     300   0.350    0.13      20
 31           UK     300   0.050    0.13      80
 32           RK    1550   0.069   0.045  0.0096    TRAP       0      12
 33           RK   10520   0.038   0.040            TRAP      15      15
              *

 34           KK    R30N
 35           KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
 36           RS       1    FLOW      -1
 37           RC   0.022   0.022   0.022    2470    0.01
 38           RX    1000    1012    1020    1028    1036    1044    1052    1064
 39           RY     107     104     102     100     100     102     104     107
              *

 40           KK   S31.1
 41           KM     RUNOFF FROM SUBBASIN 31.1
 42           BA  0.2663
 43           LS            76.6     13            76.6      13
 44           UK     300   0.567    0.13      10
 45           UK     300   0.050    0.13      90
 46           RK    1950   0.056   0.045  0.0147    TRAP       0      10
 47           RK    7600   0.035   0.040            TRAP      22       8
              *
```

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

  48          KK   C31.1
  49          KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
  50          HC       2
              *
              *  R31.1
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
              *      1    FLOW      -1
              *  0.022   0.022   0.022    1500    0.01
              *   1000    1012    1020    1028    1048    1056    1064    1076
              *    107     104     102     100     100     102     104     107
              *

  51          KK   S34.2
  52          KM     RUNOFF FROM SUBBASIN 34.2
  53          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  54          BA  0.4441
  55          LS            77.3      12            77.3      12
  56          UK      50    0.10    0.13      10
  57          UK     300   0.040    0.13      90
  58          RK    2200  0.0452   0.045  0.0538    TRAP       0      10
  59          RK    8150  0.0386   0.045            TRAP       0      10
              *

  60          KK   C34.2
  61          KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
  62          HC       2
              *

  63          KK    S35N
  64          KM     RUNOFF FROM SUBBASIN 35N
  65          BA  0.5482
  66          LS              82      13              82      13
  67          UK     300   0.491    0.13      15
  68          UK     300   0.113    0.13      85
  69          RK    2700   0.079   0.045  0.0242    TRAP       3       6
  70          RK    5050   0.028   0.040            TRAP      15      15
              *

  71          KK   D35NR
  72          KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
  73          KM        RIGHT BRANCH IS ROUTED TO C36.2
  74          KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
  75          DT   D35NL
  76          DI       0      10      66     168     343     581     805     977    1168    1320
  77          DQ       0       4      28      73     154     261     360     435     518     575
              *

  78          KK   R35NR
  79          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
  80          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  81          RS       1    FLOW      -1
  82          RC    0.06    0.04    0.06    3500  0.0343
  83          RX    1000    1006    1026    1027    1057    1058    1078    1084
1                                           HEC-1 INPUT                                          PAGE  3

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

  84          RY     105     103     101     100     100     101     103     105
              *

  85          KK   S36.2
  86          KM     RUNOFF FROM SUBBASIN 36.2
  87          BA  0.2087
  88          LS            76.6      13            76.6      13
  89          UK     300   0.580    0.13       5
  90          UK     300   0.100    0.13      95
  91          RK    1800   0.036   0.045  0.0145    TRAP      10      10
  92          RK    3520   0.028   0.040            TRAP      20       6
              *

  93          KK   C36.2
  94          KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
  95          HC       2  0.5411
              *

  96          KK  D36.2R
  97          KM     DIVERSION AT DESERT HIGHLANDS DRIVE
  98          KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
  99          KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
 100          DT  D36.2L
 101          DI       0      36     166     288     360     430     538     681     859    1074
 102          DQ       0       0       0       0       0      18      60     123     208     315
              *

 103          KK  R36.2R
 104          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
 105          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 106          RS       4    FLOW      -1
 107          RC    0.06    0.04    0.06    7800  0.0321
 108          RX    1000    1043    1053    1068    1093    1098    1133    1218
 109          RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
```

```
                *
 110            KK   S34.1
 111            KM     RUNOFF FROM SUBBASIN 34.1
 112            KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
 113            BA  1.1635
 114            LS            77.3      12            77.3      12
 115            UK     300   0.590    0.13      25
 116            UK     300   0.040    0.13      75
 117            RK    2570   0.085   0.045  0.0214   TRAP       0      10
 118            RK    8800  0.0325   0.040           TRAP      20      10
                *

 119            KK   C34.1
 120            KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
 121            HC       2  1.5423
                *
1                                          HEC-1 INPUT                                          PAGE  4

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

 122            KK  HVDB-I
 123            KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
 124            HC       2  2.9029
                *

 125            KK  HVDB-O
 126            KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
 127            KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
 128            KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
 129            RS       1    STOR      -1
 130            SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
 131            SV   241.0
 132            SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
 133            SE    2091
 134            SQ       0      10      20      30      40      50      60      70      80      90
 135            SQ     100     110     120     130     140
 136            SE  2065.0 2066.47 2067.13 2067.67 2068.14 2068.58 2069.04 2071.26 2073.33 2075.68
 137            SE  2078.3 2081.19 2084.37 2087.82 2091.54
                *

 138            KK   R34.1
 139            KM     NORMAL DEPTH CHANNEL ROUTE FROM C34.1 TO C36.1 THROUGH PIMA CHANNEL
 140            RS       1    FLOW      -1
 141            RC   0.022   0.022   0.022    2200    0.01
 142            RX    1000    1012    1020    1028    1036    1044    1052    1064
 143            RY     107     104     102     100     100     102     104     107
                *

 144            KK   S36.1
 145            KM     RUNOFF FROM SUBBASIN 36.1
 146            BA  0.1394
 147            LS            73.4      11
 148            UK     300  0.0420   0.130     100
 149            RK    2330  0.0320   0.045  0.0134   TRAP      10      30
 150            RK    3200  0.0270   0.040           TRAP      20      30
                *

 151            KK   C36.1
 152            KM     COMBINE ROUTED HYDROGRAPH FROM C34.1 WITH RUNOFF FROM SUBBASIN 36.1
 153            HC       2
                *

 154            KK   R36.1
 155            KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.1 TO C36R1 THROUGH PIMA CHANNEL
 156            RS       1    FLOW      -1
 157            RC   0.022   0.022   0.022    1520    0.01
 158            RX    1000    1012    1020    1028    1036    1044    1052    1064
 159            RY     107     104     102     100     100     102     104     107
                *
1                                          HEC-1 INPUT                                          PAGE  5

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

 160            KK   B35NL
 161            KM     BRING BACK DIVERTED HYDROGRAPH FROM C35N
 162            DR   D35NL
                *

 163            KK   R35NL
 164            KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36R1
 165            KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 166            RS       5    FLOW      -1
 167            RC    0.06    0.04    0.06   14480  0.0318
 168            RX    1000    1040    1080    1086    1091    1097    1137    1174
 169            RY     105     104     103     100     100     103     104     105
                *

 170            KK  B36.2L
 171            KM     BRING BACK DIVERTED HYDROGRAPH FROM C36.2
 172            DR  D36.2L
                *
```

```
 173          KK  R36.2L
 174          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C36R1
 175          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 176          RS       3    FLOW      -1
 177          RC    0.06    0.04    0.06   10160  0.0342
 178          RX    1000    1030    1060    1066    1076    1082    1112    1142
 179          RY     103   102.5     102     100     100     102   102.5     103
              *

 180          KK  S36R1A
 181          KM     RUNOFF FROM SUBBASIN 36R1A
 182          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
 183          BA  0.6310
 184          LS            74.3      10
 185          UK     300   0.020   0.130     100
 186          RK    1420   0.032   0.045  0.0061    TRAP       0      13
 187          RK   10800   0.033   0.040            TRAP      10       9
              *

 188          KK  C36R1A
 189          KM     COMBINE ROUTED HYDROGRAPH FROM C36.1, D35NL & D36.2L W/RUNOFF FROM S36R1A
 190          KM        AREA IS AREA FROM C36.1 + S36R1 + 40% OF AREA FROM S35N + 30% OF AREA
 191          KM        FROM C36.2
 192          HC       4  4.0530
              *

 193          KK  S36R1B
 194          KM     RUNOFF FROM SUBBASIN 36R1B
 195          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
 196          BA  0.5863
 197          LS            74.3      10
 198          UK     300   0.020   0.130     100
 199          RK    1420   0.032   0.045  0.0061    TRAP       0      13
 200          RK    8500   0.033   0.040            TRAP      10       9
              *
1                                          HEC-1 INPUT                                                    PAGE  6

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

 201          KK  C36R1B
 202          KM     COMBINE HYDROGRAPH FROM C36R1A W/RUNOFF FROM S36R1B AT C36R1B
 203          HC       2  4.6393
              *
              * R36R1B
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C36R1B TO C36R2A THROUGH PIMA CHANNEL
              *      1    FLOW      -1
              *  0.022   0.022   0.022    1900    0.01
              *   1000    1012    1020    1028    1036    1044    1052    1064
              *    107     104     102     100     100     102     104     107
              *

 204          KK  S36R2A
 205          KM     RUNOFF FROM SUBBASIN 36R2A
 206          BA  0.1325
 207          LS              72      20
 208          UK     100   0.045   0.130     100
 209          RK    1900   0.032   0.017   0.015    TRAP      15       7
 210          RK     800   0.030   0.035            TRAP      10       5
              *

 211          KK  C36R2A
 212          KM     COMBINE ROUTED HYDROGRAPH FROM C36R1B W/RUNOFF FROM SUBBASIN 36R2A
 213          HC       2
              *

 214          KK  R36R2A
 215          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36R2A TO C36R2B THROUGH PIMA CHANNEL
 216          KM     ****  TOO SHORT TO ROUTE  ****
 217          KM       1    FLOW      -1
 218          KM   0.022   0.022   0.022    2130    0.01
 219          KM    1000    1012    1020    1028    1036    1044    1052    1064
 220          KM     107     104     102     100     100     102     104     107
 221          KM
 222          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR SERIES OF INDIVIDUAL
 223          KM     ROUTING REACHES THAT ARE TOO SHORT TO ROUTE.
 224          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 5030'
 225          RT                      1
              *

 226          KK  S36R2B
 227          KM     RUNOFF FROM SUBBASIN 36R2A
 228          BA  0.2417
 229          LS              72      12
 230          UK     280   0.045   0.100     100
 231          RK    1900   0.032   0.017   0.015    TRAP      15       7
 232          RK    7360   0.030   0.040            TRAP      30      10
              *
1                                          HEC-1 INPUT                                                    PAGE  7

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

 233          KK  C36R2B
```

```
234          KM     COMBINE ROUTED HYDROGRAPH FROM C36R2A W/RUNOFF FROM SUBBASIN 36R2B
235          HC       2
             *

236          KK   S51.1
237          KM     RUNOFF FROM SUBBASIN 51.1
238          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 51.1 AND 49.1 ARE AREA WEIGHTED
239          BA   1.130
240          LS            73.9      12
241          UK     300   0.037   0.130     100
242          RK    1800   0.038   0.045  0.0161    TRAP       0      12
243          RK   14400   0.032   0.040            TRAP      40      15
             *

244          KK  DVDB-I
245          KM     COMBINE HYDROGRAPH FROM C36R2 W/RUNOFF FROM SUBBASIN 51.1
246          HC       2
             *

247          KK  DVDB-O
248          KM     DETENTION BASIN AT DEER VALLEY ROAD
249          KM     PRINCIPAL SPILLWAY:  54" CONDUIT THAT TIES INTO THE PIMA ROAD STORM DRAIN
250          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK
251          KM        13 ACRE-FEET OF STORAGE FOR SEDIMENTAION
252          KM
253          RS       1    STOR      -1
254          SV       0     0.2     0.7     1.7     3.5     6.1    38.6    86.9   143.2   209.9
255          SV   224.1
256          SE    1855    1856    1857    1858    1859    1860    1865    1870    1875    1880
257          SE    1881
258          SQ       0       3      15      28      51      81     141     181     202     215
259          SQ     223     231     240     242     245     248     250     253     256     258
260          SE    1855    1856    1857    1858    1859    1860    1862    1864    1866    1868
261          SE    1870    1872    1874    1875    1876    1877    1878    1879    1880    1881
             *
             *  R51.1
             *    DEER VALLEY BASIN OUTLET CONDUIT TO THOMPSON PEAK PARKWAY
             *    IS TOO SHORT TO ROUTE.
             *       L = 2820 feet
             *

262          KK  D51.1T
263          KM     DIVERT 100% OF FLOW TO RETRIEVE AT THOMPSON PEAK PARKWAY
264          DT  B51.1T
265          DI       0   10000
266          DQ       0   10000
             *
             *
             *     ******************  BEGIN DC RANCH WATERSHED  *******************
             *
             *       THE DC RANCH HEC-1 MODEL WAS DEVELOPED BY WOOD/PATEL ASSOCIATES
             *           WOOD/PATEL FILE NAME:  DC0721C.DAT
             *           MODEL DATE:            4 JANUARY 96
             *
1                                          HEC-1 INPUT                                          PAGE  8

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

267          KK    52D4
268          KM   RUNOFF FROM SUBBASIN 52D4
269          BA    .070
270          LS             75    14.5
271          UK     120    .010     .15     100
272          RK    3100    .035    .045            TRAP      30      10
             *

273          KK   52D4R
274          KM   ROUTE 52D4C THROUGH 52D5 TO CP 52D5C
275          RK    1350    .033    .045            TRAP      10      10
             *

276          KK   52D4B
277          KM   RUNOFF FROM SUBBASIN 52D4B
278          BA    .022
279          LS             75      63
280          UK     120    .010     .15     100
281          RK    2200    .033    .045            TRAP      30      10
             *

282          KK  52D5C1
283          KM   COMBINE 52D4R AND 52D4B
284          HC       2
             *

285          KK   52D5A
286          KM   RUNOFF FROM 52D5A
287          BA   .0232
288          LS             75      63
289          UK     120    .010     .15     100
290          RK    1300    .032    .045            TRAP      30      10
             *

291          KK  52D5AR
292          KM   ROUTE 52D5A THROUGH BEARDSLEY CHANNEL TO CP 52D5C2
```

```
293          RK     400   .0143    .035            TRAP      50       4
             *

294          KK  52D5C2
295          KM   COMBINE 25D5C1 AND 52D5AR
296          HC       2
             *

297          KK   52D5R
298          KM   ROUTE 52D5C IN BEARDSLEY CHANNEL TO CP 52C3BC2
299          RK     240   .0143    .035            TRAP      50       4
             *
1                                          HEC-1 INPUT                                                    PAGE  9

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

300          KK    52C3
301          KM   RUNOFF FROM SUBBASIN 52C3
302          BA    .006
303          LS              75       65
304          UK     100      .02      .10     100
305          RK     800     .033     .045            TRAP      30      10
             *

306          KK   52C3R
307          KM   ROUTE 52C3 THROUGH SUBBASIN 52C4 TO CP 52C4C1
308          RK    1350     .034     .045            TRAP      10      10
             *

309          KK   52C3B
310          KM   RUNOFF FROM SUBBASIN 52C3B
311          BA    .016
312          LS              75       60
313          UK     100      .02      .10     100
314          RK    1400     .034     .045            TRAP      30      10
             *

315          KK  2C3BC1
316          KM   COMBINE 52C3B AND 52C3R
317          HC       2
             *

318          KK  2C3BC2
319          KM   COMBINE 52C3BC1 AND 52C5R
320          HC       2
             *

321          KK  52C3BR
322          KM   ROUTE 52C3BC2 IN BEARDSLEY CHANNEL TO CP 52C4C2
323          RK     430   .0143    .035            TRAP      50       4
             *
             *

324          KK     51C     SUB
325          KM        RUNOFF FROM SUB 51C
326          BA   .0972
327          LS              74       15
328          UK     100   .0213      .10     100
329          RK    3900   .0375     .045            TRAP      30      10
             *

330          KK   51C1D
331          KM   DIVERT 67 PERCENT OF 51C TO WEST (33 PERCENT TO SOUTH)
332          DT  51C1DV
333          DI       0   10000
334          DQ       0    6700
             *
1                                          HEC-1 INPUT                                                    PAGE 10

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

335          KK   51C1R
336          KM   ROUTE 51C1D THROUGH SUBBASIN 52C1
337          RK    1350   .0364    .045            TRAP      10      10
             *

338          KK    52C1
339          KM   RUNOFF FROM SUBBASIN 52C1
340          BA    .029
341          LS              75     20.5
342          UK     100      .02      .10     100
343          RK    1350    .021     .045            TRAP      30      10
             *

344          KK   52C1C
345          KM   COMBINE 51C1R AND 52C1
346          HC       2   .0611
             *

347          KK   52C1R
348          KM   ROUTE 52C1C THROUGH BASIN 52C2A TO CP 52C2BC
349          RK    1500    .033     .045            TRAP      10      10
             *
```

```
 350          KK   52C2A
 351          KM   RUNOFF FROM SUBBASIN 52C2A
 352          BA    .019
 353          LS              75       2
 354          UK     100     .02     .10     100
 355          RK    1500    .033    .045            TRAP      30      10
              *

 356          KK  52C2AC
 357          KM   COMBINE 52C2A AND 52C1R
 358          HC       2
              *

 359          KK   52C2B
 360          KM   RUNOFF FROM SUBBASIN 52C2B
 361          BA   .0275
 362          LS              75      11
 363          UK     100     .02     .10     100
 364          RK    2000    .030    .045            TRAP      30      10
              *

 365          KK  52C2BC
 366          KM   COMBINE 52C2B AND 52C2AC
 367          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 11

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

 368          KK  52C2BR
 369          KM   ROUTE 52C2BC THROUGH 52C2C TO CP 52C2CC
 370          RK    1500    .040    .045            TRAP      10      10
              *

 371          KK   52C2C
 372          KM   RUNOFF FROM SUBBASIN 52C2C
 373          BA    .014
 374          LS              75      62
 375          UK     100     .02     .10     100
 376          RK    1500     .04    .045            TRAP      30      10
              *

 377          KK  52C2CC
 378          KM   COMBINE 52C2C AND 52C2BR
 379          HC       2
              *

 380          KK   52C2R
 381          KM   ROUTE 52C2CC THROUGH SUBBASIN 52C4 TO CP 52C4C1
 382          RK    1550    .030    .045            TRAP      10      10
              *

 383          KK    52C4
 384          KM   RUNOFF FROM SUBBASIN 52C4
 385          BA    .017
 386          LS              75      60
 387          UK     100     .02     .10     100
 388          RK    1550    .030    .045            TRAP      30      10
              *

 389          KK  52C4C1
 390          KM   COMBINE 52C4 AND 52C2R
 391          HC       2
              *

 392          KK  52C4C2
 393          KM   COMBINE 52C4C1 AND 52C3BR
 394          HC       2
              *

 395          KK   52C4R
 396          KM   ROUTE 52C4C2 WEST IN BEARDSLEY CHANNEL TO CP 52C15C2
 397          RK     850   .0143    .035            TRAP      50       4
              *

 398          KK   52C13
 399          KM   RUNOFF FROM SUBBASIN 52C13
 400          BA    .023
 401          LS              75      31
 402          UK     100     .02     .10     100
 403          RK     950    .040    .045            TRAP      30      10
              *
1                                        HEC-1 INPUT                                                    PAGE 12

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

 404          KK  2C13DV
 405          KM   DIVERT FIRST 40 CFS INTO STORM DRAIN; REMAINDER FLOWS OVER ROAD
 406          DT   STORM
 407          DI       0      40    1000
 408          DQ       0      40      40
              *
```

```
                 * KK52C13R
                 * KM ROUTE 52C13 THROUGH SUBBASIN 52C15 TO CP 52C15C1
                 * RK  1800    .035    .045            TRAP      10      10
                 *

409              KK   52C15
410              KM   RUNOFF FROM SUBBASIN 52C15
411              BA    .046
412              LS              75    64.4
413              UK     100     .02     .10     100
414              RK    2050    .036    .045            TRAP      30      10
                 *

415              KK  2C15C1
416              KM   COMBINE 52C15 AND 52C13DV
417              HC       2    .046
                 *

418              KK  2C15C2
419              KM   COMBINE 52C15C1 AND 52C4R
420              HC       2
                 *

421              KK  52C15R
422              KM   ROUTE 52C15C2 IN BEARDSLEY CHANNEL TO CP 52C14C3
423              RK     750   .0143    .035            TRAP      50       4
                 *

424              KK  52C14A
425              KM   RUNOFF FROM SUBBASIN 52C14A
426              BA    .041
427              LS              75    67.7
428              UK     100     .02     .10     100
429              RK    2050    .031    .045            TRAP      30      10
                 *

430              KK  2C14AC
431              KM   COMBINE 52C14A AND 52C15R
432              HC       2
                 *

433              KK  2C14AR
434              KM   ROUTE 52C14AC IN BEARDSLEY CHANNEL TO CP 52C14BC2
435              RK     380   .0143    .035            TRAP      50       4
                 *
                 *
1                                          HEC-1 INPUT                                          PAGE 13

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

436              KK  51C1DV
437              KM   RETRIEVE DIVERTED FLOW
438              DR  51C1DV
                 *

439              KK   51C2D
440              KM   DIVERT 27 PERCENT OF 51C1DV TO WEST (73 PERCENT TO SOUTH)
441              DT  51C2DV
442              DI       0   10000
443              DQ       0    2700
                 *

444              KK   51C2R
445              KM   ROUTE 51C2D THROUGH SUBBASIN 52C5 TO CP 52C5C
446              RK     700    .030    .045            TRAP      10      10
                 *

447              KK    52C5
448              KM   RUNOFF FROM SUBBASIN 52C5
449              BA    .016
450              LS              75      27
451              UK     100     .02     .10     100
452              RK    1200     .03    .045            TRAP      30      10
                 *

453              KK   52C5C
454              KM   COMBINE 51C2R AND 52C5
455              HC       2   .0635
                 *

456              KK   52C5R
457              KM   ROUTE 52C5C THROUGH SUBBASIN 52C6 TO CP 52C6C
458              RK    3100    .035    .045            TRAP      10      10
                 *

459              KK    52C6
460              KM   RUNOFF FROM SUBBASIN 52C6
461              BA    .036
462              LS              75    31.4
463              UK     100     .02     .10     100
464              RK    3100    .035    .045            TRAP      30      10
                 *

465              KK   52C6C
```

```
466          KM   COMBINE 52C5R AND 52C6
467          HC       2
             *

468          KK   52C6R
469          KM   ROUTE 52C6C THROUGH SUBBASIN 52C10 TO CP 52C10C2
470          RK     450    .032    .045            TRAP      10      10
             *
```



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

471          KK  51C2DV
472          KM   RETRIEVE 52C2DV
473          DR  51C2DV
             *

474          KK   51C3R
475          KM   ROUTE 52C2DV THROUGH SUBBASIN 52C7 TO CP 52C7C
476          RK     700    .040    .045            TRAP      10      10
             *

477          KK     51B     SUB
478          KM        RUNOFF FROM SUB 51B
479          BA   .5711
480          LS       0    71.9    13.1
481          UK     100   .0213     .10     100
482          RK    8900   .0300    .045            TRAP      50      25
             *

483          KK   51B1D
484          KM   DIVERT 92 PERCENT OF SUBBASIN 51B TO WEST (8 PERCENT TO SOUTH)
485          DT  51B1DV
486          DI       0   10000
487          DQ       0    9200
             *

488          KK   51B1R
489          KM    ROUTE 51B1D THROUGH SUBBASIN 52C7 TO CP 52C7C
490          RK     450     .04    .045            TRAP      10      10
             *

491          KK    52C7
492          KM   RUNOFF FROM SUBBASIN 52C7
493          BA    .006
494          LS              75      27
495          UK     100     .02     .10     100
496          RK     550     .04    .045            TRAP      30      10
             *

497          KK   52C7C
498          KM   COMBINE 51B1R, 51C3R, AND 52C7
499          HC       3   .0693
             *

500          KK   52C7R
501          KM   ROUTE 52C7C THROUGH SUBBASIN 52C9 TO CP 52C9C1
502          RK    1550    .036    .045            TRAP      10      10
             *

503          KK  51B1DV
504          KM   RETRIEVE DIVERTED FLOW 51B1DV
505          DR  51B1DV
             *
```



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

506          KK   51B2D
507          KM   DIVERT 84 PERCENT OF 51B1DV TO WEST (16 PERCENT TO SOUTH)
508          DT  51B2DV
509          DI       0   10000
510          DQ       0    8400
             *

511          KK   51B2R
512          KM   ROUTE 51B2D THROUGH SUBBASIN 52C8 TO CP 52C8C
513          RK     750    .034    .045            TRAP      10      10
             *

514          KK    52C8
515          KM   RUNOFF FROM SUBBASIN 52C8
516          BA    .008
517          LS              75      27
518          UK     100     .02     .10     100
519          RK     750    .034    .045            TRAP      30      10
             *

520          KK   52C8C
521          KM   COMBINE 51B2R AND 52C8
522          HC       2   .4493
             *
```

```
523          KK   52C8R
524          KM   ROUTE 52C8C THROUGH SUBBASIN 52C9 TO CP 52C9C1
525          RK    1100    .036    .045            TRAP      10      10
             *

526          KK  52C9C1
527          KM   COMBINE 52C7R AND 52C8R
528          HC       2
             *

529          KK  52C9R1
530          KM   ROUTE 52C9C1 THROUGH SUBBASIN 52C9 TO CP 52C9C2
531          RK    1050    .036    .045            TRAP      10      10
             *

532          KK    52C9
533          KM   RUNOFF FROM SUBBASIN 52C9
534          BA    .069
535          LS              75   31.85
536          UK     100     .02     .10     100
537          RK    3150    .036    .045            TRAP      30      10
             *

538          KK  52C9C2
539          KM   COMBINE 52C9R1 AND 52C9
540          HC       2
             *
```



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

541          KK  52C9R2
542          KM   ROUTE 52C9C2 THROUGH SUBBASIN 52C10 TO CP 52C10C1
543          RK     500    .032    .045            TRAP      10      10
             *

544          KK  2C10C1
545          KM   COMBINE 52C9R2 AND 52C6R
546          HC       2
             *

547          KK  2C10R1
548          KM   ROUTE 52C10C1 THROUGH SUBBASIN 52C10 TO CP 52C10C2
549          RK     300    .032    .045            TRAP      10      10
             *

550          KK   52C10
551          KM   RUNOFF FROM SUBBASIN 52C10
552          BA    .014
553          LS              75    7.85
554          UK     100     .02     .10     100
555          RK     800    .032    .045            TRAP      30      10
             *

556          KK  2C10C2
557          KM   COMBINE 52C10R1 AND 52C10
558          HC       2
             *

559          KK   52C11
560          KM   RUNOFF FROM SUBBASIN 52C11
561          BA   .0425
562          LS              75      27
563          UK     100     .02     .10     100
564          RK    2800    .031    .045            TRAP      30      10
             *

565          KK  2C11R1
566          KM   PIPE ROUTE 52C11 TO CP 52C11C
567          RK     650     .02    .045            CIRC       3
             *

568          KK  52C13D
569          KM   RETRIEVE DIVERTED FLOW
570          DR   STORM
             *

571          KK  52C11C
572          KM   COMBINE 52C13D AND 52C11R1
573          HC       2   .0655
             *
```



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

574          KK  2C11CR
575          KM   PIPE ROUTE 52C11C TO CP 52C11C2
576          RK     750     .02    .045            CIRC       3
             *

577          KK  2C11C2
578          KM   COMBINE 52C11CR AND 52C10C2
579          HC       2
```

```
                 *
580              KK  2C11R2
581              KM   ROUTE 52C11C2 THROUGH SUBBASIN 52C12 TO CP 52C12C
582              RK     700     .03    .045            TRAP      10      10
                 *

583              KK   52C12
584              KM   RUNOFF FROM SUBBASIN 52C12
585              BA    .023
586              LS              75      85
587              UK     100     .02     .10     100
588              RK     900     .03    .045            TRAP      30      10
                 *

589              KK  52C12C
590              KM   COMBINE 52C11R2 AND 52C12
591              HC       2
                 *

592              KK  52C12R
593              KM   ROUTE 52C12C THROUGH SUBBASIN 52C14 TO CP 52C14C1
594              RK    1150    .029    .045            TRAP      10      10
                 *

595              KK  52C14B
596              KM   RUNOFF FROM SUBBASIN 52C14B
597              BA    .021
598              LS              75      60
599              UK     100     .02     .10     100
600              RK    1250    .029    .045            TRAP      30      10
                 *

601              KK  C14BC1
602              KM   COMBINE 52C14B AND 52C12R
603              HC       2
                 *

604              KK  C14BC2
605              KM   COMBINE 52C14BC1 AND 52C14AR
606              HC       2
                 *
1                                          HEC-1 INPUT                                          PAGE 18

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

607              KK  52C14R
608              KM   ROUTE 52C14C3 WEST IN BEARDSLEY CHANNEL TO CP 52B5C2
609              RK     600   .0143    .035            TRAP      50       4
                 *

610              KK  51B2DV
611              KM   RETRIEVE DIVERTED FLOW
612              DR  51B2DV
                 *

613              KK   51B3D
614              KM   DIVERT 84 PERCENT OF 51B2DV TO WEST (16 PERCENT TO SOUTH)
615              DT  51B3DV
616              DI       0   10000
617              DQ       0    8400
                 *

618              KK   51B3R
619              KM   ROUTE 51B3D THROUGH SUBBASIN 52B1 TO CP 52B1C
620              RK     600    .039    .045            TRAP      10      10
                 *

621              KK    52B1
622              KM   RUNOFF FROM SUBBASIN 52B1
623              BA    .003
624              LS              75      27
625              UK     100     .02     .10     100
626              RK     600    .039    .045            TRAP      30      10
                 *

627              KK   52B1C
628              KM   COMBINE 51B3R AND 52B1
629              HC       2   .0736
                 *

630              KK   52B1R
631              KM   ROUTE 52B1C THROUGH SUBBASIN 52B2 TO CP 52B2C1
632              RK     930    .037    .045            TRAP      10      10
                 *

633              KK  51B3DV
634              KM   RETRIEVE DIVERTED FLOW 51B3DV
635              DR  51B3DV
                 *

636              KK   51B4D
637              KM   DIVERT 82 PERCENT OF 51B3DV TO WEST (18 PERCENT TO SOUTH)
638              DT  51B4DV
```

```
 639          DI       0   10000
 640          DQ       0    8200
              *
1                                          HEC-1 INPUT                                                PAGE 19

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

 641          KK  51B4R1
 642          KM   ROUTE 51B4D THROUGH SUBBASIN 52B2 TO CP 52B2C1
 643          RK    1350    .037    .045            TRAP      10      10
              *

 644          KK  52B2C1
 645          KM   COMBINE 51B4R1 AND 52B1R
 646          HC       2   .1403
              *

 647          KK  52B2R1
 648          KM   ROUTE 52B2R1 THROUGH SUBBASIN 52B2 TO CP 52B2C2
 649          RK    1000    .037    .045            TRAP      10      10
              *

 650          KK    52B2
 651          KM   RUNOFF FROM SUBBASIN 52B2
 652          BA    .032
 653          LS              75      17
 654          UK     100     .02     .10     100
 655          RK    2350    .037    .045            TRAP      30      10
              *

 656          KK  52B2C2
 657          KM   COMBINE 52B2 AND 52B2R1
 658          HC       2
              *

 659          KK  52B2R2
 660          KM   ROUTE 52B2C2 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 661          RK     850    .026    .045            TRAP      10      10
              *

 662          KK  52B3R1
 663          KM   ROUTE 52B3C1 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 664          RK     500    .024    .045            TRAP      10      10
              *

 665          KK    52B3
 666          KM   RUNOFF FROM SUBBASIN 52B3
 667          BA    .062
 668          LS              75    31.8
 669          UK     100     .02     .10     100
 670          RK    3450    .030    .045            TRAP      30      10
              *

 671          KK  52B3C2
 672          KM   COMBINE 52B3 AND 52B3R1
 673          HC       2
              *
1                                          HEC-1 INPUT                                                PAGE 20

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

 674          KK  52B3R2
 675          KM   ROUTE 52B3C2 THROUGH 52B4 TO CP 52B4C
 676          RK    1700    .024    .045            TRAP      10      10
              *

 677          KK    52B4
 678          KM   RUNOFF FROM SUBBASIN 52B4
 679          BA    .026
 680          LS              75      62
 681          UK     100     .02     .10     100
 682          RK    1700    .024    .045            TRAP      30      10
              *

 683          KK   52B4C
 684          KM   COMBINE 52B4 AND 52B3R2
 685          HC       2
              *

 686          KK   52B4R
 687          KM   ROUTE 52B4C THROUGH SUBBASIN 52B5 TO CP 52B5C1
 688          RK     550    .027    .045            TRAP      10      10
              *

 689          KK    52B5
 690          KM   RUNOFF FROM SUBBASIN 52B5
 691          BA    .021
 692          LS              75    56.9
 693          UK     100     .02     .10     100
 694          RK    1400     .03    .045            TRAP      30      10
              *

 695          KK  52B5C1
```

```
 696          KM   COMBINE 52B5 AND 52B4R
 697          HC       2
              *

 698          KK  52B5C2
 699          KM   COMBINE 52B5C1 AND 52C14R
 700          HC       2
              *

 701          KK   52B5R
 702          KM   ROUTE 52B5C2 IN BEARDSLEY CHANNEL TO CP 52B7C2
 703          RK    1100   .0143    .035            TRAP      50       4
              *

 704          KK  51B4DV
 705          KM   RETRIEVE DIVERTED FLOW 51B4DV
 706          DR  51B4DV
              *
```



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

 707          KK   51B5D
 708          KM   DIVERT 68 PERCENT OF 51B4DV TO WEST (32 PERCENT TO SOUTH)
 709          DT  51B5DV
 710          DI       0   10000
 711          DQ       0    6800
              *

 712          KK   51B5R
 713          KM   ROUTE 51B5D THROUGH SUBBASIN 52B6 TO CP 51B7C
 714          RK    1250    .035    .045            TRAP      10      10
              *

 715          KK  51B5DV
 716          KM   RETRIEVE DIVERTED FLOW
 717          DR  51B5DV
              *

 718          KK   51B6D
 719          KM   DIVERT 53 PERCENT OF 51B5DV TO WEST (47 PERCENT TO SOUTH)
 720          DT  51B6DV
 721          DI       0   10000
 722          DQ       0    5300
              *

 723          KK   51B6R
 724          KM   ROUTE 51B6D THROUGH SUBBASIN 52B6 TO CP 51B7C
 725          RK     925    .033    .045            TRAP      10      10
              *

 726          KK  51B6DV
 727          KM   RETRIEVE DIVERTED FLOW 51B6DV
 728          DR  51B6DV
              *

 729          KK   51B7D
 730          KM   DIVERT 58 PERCENT OF 51B6DV TO WEST (42 PERCENT TO SOUTH)
 731          DT  51B7DV
 732          DI       0   10000
 733          DQ       0    5800
              *

 734          KK  51B7R1
 735          KM   ROUTE 51B7D THROUGH SUBBASIN 52B6 TO CP 51B7C
 736          RK     530    .033    .045            TRAP      10      10
              *

 737          KK   51B7C
 738          KM   COMBINE 51B7R1, 51B5R, AND 51B6R
 739          HC       3   .2404
              *
```



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

 740          KK  51B7R2
 741          KM   ROUTE 51B7C THROUGH SUBBASIN 52B6 TO CP 52B6C
 742          RK    2300    .033    .045            TRAP      10      10
              *

 743          KK    52B6
 744          KM   RUNOFF FROM SUBBASIN 52B6
 745          BA    .096
 746          LS              75   13.55
 747          UK     100     .02     .10     100
 748          RK    3200    .033    .045            TRAP      30      10
              *

 749          KK   52B6C
 750          KM   COMBINE 51B7R2 AND 52B6
 751          HC       2
              *
```

```
752          KK   52B6R
753          KM   ROUTE 52B6C THROUGH SUBBASIN 52B7 TO CP 52B7C1
754          RK    2750    .028    .045            TRAP      10      10
             *

755          KK    52B7
756          KM   RUNOFF FROM SUBBASIN 52B7
757          BA    .080
758          LS              75   78.45
759          UK     100     .02     .10     100
760          RK    2750    .028    .045            TRAP      30      10
             *

761          KK  52B7C1
762          KM   COMBINE 52B7 AND 52B6R
763          HC       2
             *

764          KK  52B7C2
765          KM   COMBINE 52B7C1 AND 52B5R
766          HC       2
             *

767          KK    52A2
768          KM   RUNOFF FROM SUBBASIN 52A2
769          BA    .065
770          LS              75    88.8
771          UK     100     .02     .10     100
772          RK    2900    .023    .045            TRAP      30      10
             *
```



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

773          KK  52A2C2
774          KM   COMBINE 52B7C2 AND 52A2
775          HC       2    1.62
             *

776          KK  51B7DV
777          KM   RETRIEVE DIVERTED FLOW 51B7DV
778          DR  51B7DV
             *

779          KK   51B8R
780          KM   ROUTE 51B7DV THROUGH SUBBASIN 52A1 TO CP 52A1C
781          RK    3400    .033    .045            TRAP      10      10
             *

782          KK    52A1
783          KM   RUNOFF FROM SUBBASIN 52A1
784          BA    .130
785          LS              75   32.25
786          UK     100     .02     .10     100
787          RK    3400    .033    .045            TRAP      30      10
             *

788          KK   52A1C
789          KM   COMBINE 52A1 AND 51B8R
790          HC       2
             *
             *
             *     *******************  END DC RANCH WATERSHED  *******************
             *
             *
             *     *****************  BEGIN GVSCE MODIFICATIONS  *****************
             *

791          KK   D51.1
792          KM   RETRIEVE DIVERTED FLOW
793          DR  B51.1T
             *

794          KK    C52A
795          KM     COMBINE ROUTED HYDROGRAPH FROM C51.1 WITH HYDROGRAPH FROM C52A1C AT
796          KM     THOMPSON PEAK PARKWAY
797          HC       2  6.2735
             *
             *   R52A
             *    DEER VALLEY BASIN OUTLET CONDUIT TO JUNCTION AT SIERRA PINTA CHANNEL
             *    IS TOO SHORT TO ROUTE.
             *       L = 3130 feet
             *
```



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

798          KK     C52
799          KM     COMBINE ROUTED HYDROGRAPH FROM C52A WITH HYDROGRAPH FROM C52A2C AT
800          KM     BEARDSLEY ROAD
801          HC       2  7.9160
             *
```

```
802          KK     R52
803          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR TRAVEL TIME IN THE
804          KM     CONDUIT.
805          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 4050'
806          RT                      1
             *
             *

807          KK    D52T
808          KM     DIVERT 100% OF FLOW TO RETRIEVE JUST U/S OF OUTER LOOP DETENTION BASIN
809          DT    B52T
810          DI       0   10000
811          DQ       0   10000
             *

812          KK   CLEAR
813          KM     CLEAR HYDROGRAPHS FROM STACK
814          HC       2
             *
             *
             *     ******************  BEGIN GRAYHAWK WATERSHED  *******************
             *
             *       THE GRAYHAWK HEC-1 MODEL (VILLAGES II AND III) WAS DEVELOPED BY DEI
             *           DEI FILE NAME:  GH23FAB.H1I
             *           MODEL DATE:     21 MAY 96
             *

815          KK     37A     SUB
816          KM        RUNOFF FROM SUB-BASIN 37A
817          BA   .6765
818          LS              74    24.8
819          UK      61   .0213     .10     100
820          RK    4800   .0237    .045            TRAP      50     130
             *

821          KK    37AE     DIV
822          KM        SPLIT FLOWS AT SOUTH BOUNDARY OF SUB 37A FOR ROUTING TO DETENTION
823          KM        BASIN 53R & 38R-1.  THIS DIVERT OPERATION REFLECTS THE BREAK IN THE
824          KM        DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS.  THIS SPLIT IS
825          KM        BASED ON NEW CORE NORTH PLAN DEVELOPED BY G.W. LARSON & ASSC., INC.
826          KM        DATED 6/16/92.  DIVERT RATIO IS BASED ON APPROXIMATE D.A. FROM SUB 37A
827          KM        THAT IS INTERCEPTED BY EACH CHANNEL SEGMENT ALONG DEER VALLEY ROAD.
828          KM
829          KM        (THIS SPLIT HAS BEEN UPDATED FROM THE OLP.6 MODEL TO REFLECT A 30% SPLIT
830          KM        TO THE SOUTH AND A 70% SPLIT TO THE WEST FOR THIS STUDY AND IS BASED ON
831          KM        UPSTREAM CONTRIBUTING WATERSHED AREA TO THIS CONCENTRATION POINT)
832          DT    37AW
833          DI       0     100     500    1000    1500
```



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

834          DQ       0      70     350     700    1050
             *

835          KK   37AE1      CP
836          KM        ROUTE NON-DIVERTED FLOW FROM DIV 37AE THROUGH SUB 5N.  THIS IS A
837          KM        PRELIMINARY CHANNEL CONFIGURATION FOR THE GOLF COURSE CHANNEL.
838          RS       1    FLOW
839          RC    .055    .045    .055     800    .025
840          RX       0      16      26      30      40      44      54      70
841          RY       6       2       2       0       0       2       2       6
             *

842          KK   SUB5N
843          KM        RUNOFF FROM SUBBASIN 5 IN NORTH 18 MODEL.
844          BA   0.029
845          LS              77      18
846          UK     100    .013     .15     100
847          RK    1000   0.005    .018    .015    TRAP      50      20
848          RK     500    .015    .025            TRAP      10       4
             *

849          KK    CP5N
850          KM        ADD HYDROGRAPHS AT CP5N
851          HC       2   0.232
             *

852          KK   RET5N
853          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 5.  18" PIPE OUTFLOW WILL
854          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
855          RS       1    STOR       0       0
856          SV       0     .04     .33     .93     1.8    2.35    3.16     4.2     6.1
857          SQ       0       8      10      12      15      17     102     191     668
858          SE    1797    1798    1800    1802    1804    1805    1806    1807    1808
             *

859          KK   R6N.1
860          KM        ROUTE FLOW FROM CP5 TO CP6 IN NORTH 18 MODEL
861          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
862          KM        CHANNEL.
863          RS       1    FLOW
864          RC    .055    .045    .055    2200    .025
865          RX       0      16      26      30      40      44      54      70
```

```
866          RY      6       2       2       0       0       2       2       6
             *

867          KK   SUB6B
868          KM        RUNOFF FROM WEST PORTION OF EXISTING SUB6N ADJACENT TO CHANNEL
869          BA    .032
870          LS              81       0
871          UK     200    .025     .15     100
872          RK    1300    .015    .025             TRAP      10       4
             *
1                                          HEC-1 INPUT                                          PAGE 26

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

873          KK    SR6B
874          KM        ROUTE FLOW THROUGH RETENTION BASIN IN DRIVING RANGE CHANNEL
875          RS       1    STOR       0       0
876          SV       0     .17     .57    1.12    1.78
877          SQ       0       8      10     120     380
878          SE    1772    1773    1774    1775    1776
             *

879          KK   CP6.1
880          KM        ADD HYDROGRAPHS AT CP6.1
881          HC       2
             *

882          KK   SUB1N
883          KM        RUNOFF FROM SUBBASIN 1N
884          BA    .019
885          LS              77      18
886          UK     100    .013     .15     100
887          RK    1470   .0204    .018             TRAP      50      20
             *

888          KK    R2NA
889          KM        ROUTE FLOW FROM CP1 TO CP2NA
890          RS       1    FLOW
891          RC     .03     .03     .03     400    .025
892          RX       0       8      13      17      22      26      31      39
893          RY       4       2       2       0       0       2       2       4
             *

894          KK  SUB2NA
895          KM        RUNOFF FROM SUBBASIN 2NA
896          BA    .015
897          LS              81       0
898          UK     150    .013     .15     100
899          RK    1050   .0215    .025             TRAP      20       6
             *

900          KK   CP2NA
901          KM        ADD HYDROGRAPHS AT CP2NA
902          HC       2
             *

903          KK   SR2NA
904          KM        ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NA
905          RS       1    STOR       0       0
906          SV       0    .076    .291    .708     1.2
907          SQ       0       0       0       0     160
908          SE    1772    1773    1774    1775    1776
             *
1                                          HEC-1 INPUT                                          PAGE 27

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

909          KK    R2NB
910          KM        ROUTE FLOW FROM CP2NA TO CP2NB
911          RS       1    FLOW
912          RC     .03     .03     .03    1050    .015
913          RX       0       8      13      17      22      26      31      39
914          RY       4       2       2       0       0       2       2       4
             *

915          KK  SUB2NB
916          KM        RUNOFF FROM SUBBASIN 2NB
917          BA     .03
918          LS              77      53
919          UK     150    .013     .15     100
920          RK    1200    .015    .025             TRAP      20      50
             *

921          KK   CP2NB
922          KM        ADD HYDROGRAPHS AT CP2NB
923          HC       2
             *

924          KK   SR2NB
925          KM        STORAGE ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NB
926          RS       1    STOR       0       0
927          SV       0     .19     .69    1.66    3.23     4.5
928          SQ       0       2       8      12      17     170
```

```
929          SE    1796    1798    1800    1802    1804    1805
             *

930          KK   RCP4N
931          KM        ROUTE FLOW FROM CP2NB TO CP4N
932          RS       1    FLOW
933          RC     .03     .03     .03     740    .018
934          RX       0       8      13      17      22      26      31      39
935          RY       4       2       2       0       0       2       2       4
             *

936          KK   SUB6N
937          KM        RUNOFF FROM SUBBASIN 6 IN NORTH 18 MODEL.  TO LAKE NORTH OF CLUBHOUSE.
938          BA    .049
939          LS              81       0
940          UK     200    .025     .15     100
941          RK    1300    .015    .025            TRAP      10       4
             *

942          KK   RET6N
943          KM        RETENTION ROUTING THROUGH LAKE AT HOLE 18, NORTH COURSE.
944          RS       1    STOR
945          SV       0    3.01    6.64   10.75   13.09   15.90
946          SQ       0       0       0      10      26     100
947          SE    1782    1784    1786    1788    1789    1790
             *
1                                          HEC-1 INPUT                                          PAGE 28

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

948          KK  RCP4N1
949          KM        ROUTE FLOW FROM CP6N TO CP4N
950          RS       1    FLOW
951          RC     .03     .03     .03     550    .018
952          RX       0       8      13      17      22      26      31      39
953          RY       4       2       2       0       0       2       2       4
             *

954          KK  CP4N.1
955          KM        ADD HYDROGRAPHS AT CP4N.1
956          HC       2
             *

957          KK   SUB3N
958          KM        RUNOFF FROM SUBBASIN 3N, NORTH 18 MODEL
959          BA    .027
960          LS              81       0
961          UK     100     .02     .15     100
962          RK    2800  0.0207    .025            TRAP      10       4
             *

963          KK   RET3N
964          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 3.  18" PIPE OUTFLOW WILL
965          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
966          RS       1    STOR       0       0
967          SV       0    1.73    8.97   13.32   15.74
968          SQ       0       4       7       9      11
969          SE    1793    1795    1800    1803    1804
             *

970          KK     R4N
971          KM        ROUTE FLOW FROM CP3N TO CP4N IN NORTH MODEL
972          RS       1    FLOW
973          RC    .035    .035    .035     950    .018
974          RX       0       8      13      17      22      26      31      39
975          RY       4       2       2       0       0       2       2       4
             *

976          KK  CP4N.2
977          KM        ADD HYDROGRAPHS AT CPN.2
978          HC       2
             *

979          KK   SUB4N
980          KM        RUNOFF FROM SUBBASIN 4N.
981          BA    .032
982          LS              77      18
983          UK     100    .015     .15     100
984          RK    1200   0.007    .018            TRAP      50      20
             *
1                                          HEC-1 INPUT                                          PAGE 29

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

985          KK    CP4N
986          KM        ADD HYDROGRAPHS AT CP4N
987          HC       2
             *

988          KK     R6N
989          KM        ROUTE FLOW FROM CP4N TO CP6N ALONG THOMPSON PEAK PKWY AT CLUBHOUSE
990          RS       1    FLOW
991          RC    .045    .035    .045     750    .025
```

```
992          RX       0       8      13      17      22      26      31      39
993          RY       4       2       2       0       0       2       2       4
             *

994          KK   SUB6A
995          KM        RUNOFF FROM SUBBASIN 6A (CLUBHOUSE AREA NORTH OF THOMPSON PEAK PKWY).
996          BA   .013
997          LS              83      68
998          UK     100    .015     .12     100
999          RK     800     .01    .025            TRAP       2       3
             *

1000         KK   CP6.2
1001         KM        ADD HYDROGRAPHS AT CP6.2
1002         HC       2
             *

1003         KK    CP6N
1004         KM        ADD HYDROGRAPHS AT CP6N
1005         HC       2
             *
             *      ABOVE DISCHARGE FROM NORTH 18 THROUGH BRIDGE AT TPP STATION 103+45
             *

1006         KK   RCP6N
1007         KM        ROUTE FLOW FROM CP6N TO CP3C
1008         RS       1    FLOW
1009         RC    .045    .035    .045     300    .015
1010         RX       0       8      13      17      37      45      51      59
1011         RY       4       2       2       0       0       2       2       4
             *

1012         KK   SUB3C
1013         KM        RUNOFF FROM SUBBASIN 3C, SOUTH COURSE AT MAINTENANCE FACILITY.
1014         BA   .0104
1015         LS              77      68
1016         UK     100    .025     .02     100
1017         RK     600    .015    .035            TRAP      50      20
             *
```



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

1018         KK    CP3C
1019         KM        COMBINE NORTH COURSE HYDROGRAPH WITH FIRST SOUTH COURSE HYDROGRAPH
1020         HC       2
             *

1021         KK     R3C
1022         KM        ROUTE FLOW FROM SUB3C TO CP3 THROUGH GC1018
1023         KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
1024         KM        CHANNEL.
1025         RS       1    FLOW
1026         RC    .055    .045    .055    2050    .025
1027         RX       0      20      30      40      60      70      80     100
1028         RY    1650    1746    1744    1742    1742    1744    1746    1750
             *

1029         KK  GC1018
1030         KM        RUNOFF FROM HOLES NO. 10, 18 AND DRIVING RANGE THAT CONTRIBUTE TO WASH
1031         BA    .044
1032         LS              81       0
1033         UK     200    .025     .15     100
1034         RK    1800   .0233    .025            TRAP      10       4
             *

1035         KK   GC1-9
1036         KM        RUNOFF FROM GOLF COURSE HOLES 1 & 9 CONTRIBUTING TO WASH
1037         BA    .026
1038         LS              81       0
1039         UK     200    .025     .15     100
1040         RK    2110    .022    .025            TRAP      10       4
             *

1041         KK   SUB3S
1042         KM        RUNOFF FROM SUB BASIN 3 SOUTH COURSE
1043         BA   .0102
1044         LS              77      53
1045         UK     100    .010     .15     100
1046         RK     930    .016    .025            TRAP      50      20
             *

1047         KK    CP3S
1048         KM        COMBINE HYDROGRAPHS AT CP3 SOUTH COURSE
1049         HC       4
             *

1050         KK    RT3S
1051         KM        ROUTE FLOW FROM CP3S TO CPGC28
1052         RS       1    FLOW       0       0
1053         RC    .055    .045    .055     900    .023
1054         RX       0      20      30      40      60      70      80     100
1055         RY    1750    1746    1744    1742    1742    1744    1746    1750
             *
```

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

1056          KK   SUB4S
1057          KM        RUNOFF FROM SUB BASIN 4 SOUTH COURSE
1058          BA   .0273
1059          LS              77      53
1060          UK    100    .010     .15     100
1061          RK   1780    .018    .015            TRAP      50      20
              *

1062          KK    RT4S
1063          KM        ROUTE FLOW FROM CP4S TO CPGC28
1064          RS      1    FLOW       0       0
1065          RC   .035    .035    .035     650    .015
1066          RX      0      20      30      40      45      55      65      75
1067          RY   1750    1746    1744    1742    1742    1744    1746    1750
              *

1068          KK   GC2-8
1069          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES NO. 2 AND 8
1070          BA    .014
1071          LS              81       0
1072          UK    200    .025     .15     100
1073          RK    980    .016    .025            TRAP      10       4
              *

1074          KK  1PGC28
1075          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1076          HC      3
              *

1077          KK  SUB3D3
1078          KM        RUNOFF FROM GRAYHAWK ROAD SOUTH OF THOMPOSON PEAK
1079          BA    .014
1080          LS              81       0
1081          UK     50    .015      .1     100
1082          RK   2450    .016    .025            TRAP       5       4
              *

1083          KK  CPGC28
1084          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1085          HC      2
              *

1086          KK  SRGC28
1087          KM        STORAGE THRU DETENTION BASIN ON HOLES 2 AND 8.
1088          RS      1    STOR       0       0
1089          SV      0    .018    .085     .22      .5     1.0     1.7    2.68     3.9
1090          SE   1706    1707    1708    1709    1710    1711    1712    1713    1714
1091          SQ      0      10      18      20      30     108     324     651    1070
              *
```



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

1092          KK    RT7S
1093          KM        ROUTE FLOW FROM SRGC28 TO CP7S
1094          RS      1    STOR       0       0
1095          RC   .055    .045    .055    1700   .0187
1096          RX      0      20      30      40      60      70      80     100
1097          RY   1750    1746    1744    1742    1742    1744    1746    1750
              *

1098          KK     GC7
1099          KM        RUNOFF FROM SOUTH GOLF COURSE HOLE NO. 7
1100          BA   .0134
1101          LS              81       0
1102          UK    200    .025     .15     100
1103          RK   1380    .020    .025            TRAP      10       4
              *

1104          KK    CP7S
1105          KM        ADD HYDROGRAPHS AT CP7S ON SOUTH COURSE
1106          HC      2  0.6083
              *

1107          KK    D7ST
1108          KM        D7ST IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1109          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1110          KM
1111          KM        DIVERT 100% OF FLOW
1112          DT    B7ST
1113          DI      0   10000
1114          DQ      0   10000
              *

1115          KK   CLEAR
1116          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1117          HC      2
              *
              *
```

```
                 * THIS PORTION OF MODEL TAKEN FROM,"DRAINAGE REPORT FOR VILLAGE 3 - PHASE 1",
                 * APPROVED BY THE CITY OF SCOTTSDALE 7-19-95.  MODIFIED TO ACCOUNT FOR ASBUILT
                 * CONDITION
                 *
                 *
                 *
                 *

1118             KK  SUB3D1
1119             KM        RUNOFF FROM SUBBASIN 3D1, PARCEL 3D.
1120             BA   .0088
1121             LS              77      34
1122             UD     .06
                 *
1                                          HEC-1 INPUT                                          PAGE 33

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

1123             KK   RD1B1
1124             KM        FOUTE FLOW FROM 3D1 TO 3B1
1125             RS       1    FLOW      -1
1126             RC    0.03    0.03    0.03    1250    .015
1127             RX       0     0.5       1       7      12      19    19.5      20
1128             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1129             KK  SUB3B1
1130             KM        RUNOFF FROM SUBBASIN 3B1, PARCEL 3B.
1131             BA   .0137
1132             LS              77      47
1133             UD     .06
                 *

1134             KK   CP3B1
1135             KM        ADD HYDROGRAGHS AT CP3B1
1136             HC       2
                 *

1137             KK   RB13F
1138             KM        ROUTE FLOW FROM 3B1 TO SUB3F
1139             RS       1    FLOW      -1
1140             RC    0.03    0.03    0.03    2150    .015
1141             RX       0     0.5       1       7      17      24    24.5      25
1142             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1143             KK   SUB3F
1144             KM        RUNOFF FROM SUBBASIN 3F, PARCEL 3F, SOUTH COURSE MODEL.
1145             BA   .0344
1146             LS              77      68
1147             UK     100    .025     .15     100
1148             RK    1000    .015    .025            TRAP     100      20
                 *

1149             KK    CP3F
1150             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3F ALONG THE POWER CORRIDOR
1151             HC       2
                 *

1152             KK  SUB3B2
1153             KM        RUNOFF FROM SUBBASIN 3B2, PARCEL 3B.
1154             BA   .0246
1155             LS              77      40
1156             UD     .10
                 *

1157             KK   RB2E1
1158             KM        1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1159             RS       1    FLOW      -1
1160             RC    0.03    0.03    0.03     800    0.02
1161             RX       0     0.5       1       7      17      24    24.5      25
1162             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *
1                                          HEC-1 INPUT                                          PAGE 34

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

1163             KK   RB2E2
1164             KM       SECOND 1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1165             RS       1    FLOW      -1
1166             RC    0.03    0.03    0.03     600    .015
1167             RX       0     0.5       1       7      17      24    24.5      25
1168             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1169             KK  SUB3E1
1170             KM        RUNOFF FROM SUBBASIN 3E1, PARCEL 3E.
1171             BA   .0246
1172             LS              77      40
1173             UD     .10
                 *

1174             KK  1CPE31
```

```
1175          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E1 ALONG THE POWER CORRIDOR
1176          HC       2
              *

1177          KK  SUB3D2
1178          KM        RUNOFF FROM SUBBASIN 3D2, PARCEL 3D.
1179          BA    .022
1180          LS              77      35
1181          UD     .08
              *

1182          KK   RD2E2
1183          KM        ROUTE EXCESS FROM 3D2 TO CP3E2
1184          RS       1    FLOW      -1
1185          RC    0.03    0.03    0.03    1200   .0216
1186          RX       0     0.5       1       7      17      24    24.5      25
1187          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1188          KK  SUB3E2
1189          KM        RUNOFF FROM SUBBASIN 3E2, PARCEL 3E.
1190          BA    .012
1191          LS              77      35
1192          UD     .06
              *

1193          KK   CP3E2
1194          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E2 ALONG THE POWER CORRIDOR
1195          HC       2
              *

1196          KK     PC3
1197          KM        PC3 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1198          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1199          KM
1200          KM        RUNOFF FROM SUBBASIN PC3.
1201          BA  0.0434
1202          LS              77      10
```



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

1203          UK     300    .015     .15     100
1204          RK    2200     .01     .03            TRAP      30       4
              *

1205          KK    CPC3
1206          KM        CPC3 IS A CONCENTRATION POINT ADDED BY GVSCE TO ESTIMATE THE INFLOW TO
1207          KM        THE POWER LINE CHANNEL AT THE HAYDEN ROAD CROSSING.
1208          KM
1209          KM        COMBINE ROUTED HYDROGRAPH FROM SRPC2 W/HYDROGRAPHS FROM CP3E1, CP3E2 AND
1210          KM        CP3F AND RUNOFF FROM PC3.
1211          HC       4  0.1835
              *

1212          KK   DPC3T
1213          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1214          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1215          KM
1216          KM        DIVERT 100% OF FLOW
1217          DT   BPC3T
1218          DI       0   10000
1219          DQ       0   10000
              *

1220          KK  SUB3E3
1221          KM        RUNOFF FROM SUBBASIN 3E3, PARCEL 3E.
1222          BA    .020
1223          LS              77      32
1224          UD     .06
              *

1225          KK     PC4
1226          KM        PC4 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1227          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1228          KM
1229          KM        RUNOFF FROM SUBBASIN PC4.
1230          BA  0.0217
1231          LS              77       0
1232          UK     300    .015     .15     100
1233          RK    1100     .01     .03            TRAP      30       4
              *

1234          KK     D7S
1235          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1236          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1237          KM
1238          KM        RETRIEVE DIVERTED FLOW
1239          DR    B7ST
              *

1240          KK    CPC4
1241          KM        THE HEC1 OPREATION TEMPAD IS CHANGED BY GVSCE TO ESTIMATE THE INFLOW TO
1242          KM        THE POWER LINE CHANNEL WHERE THE FLOW FROM CP7S ENTERS THE CHANNEL.
1243          KM
```

```
1244          KM        COMBINE HYDROGRAPH FROM CP3E3 W/RUNOFF FROM PC4.
1245          HC       3   0.650
              *
1                                          HEC-1 INPUT                                                    PAGE 36

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


1246          KK   DPC4T
1247          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1248          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1249          KM
1250          KM        DIVERT 100% OF FLOW
1251          DT   BPC4T
1252          DI       0   10000
1253          DQ       0   10000
              *

1254          KK   CLEAR
1255          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1256          HC       3
              *
              *
              *       THIS ENDS THE PORTION OF THE MODEL TAKEN FROM DRAINAGE REPORT
              *       FOR VILLAGE 3 - PHASE I HEC-1 MODEL BY GILBERTSON ASSOC. INC.
              *       DATED 7-19-95
              *
              *
              *
              * RETURN TO NORTH 18\VILLAGE 2\TPP3 MODEL.
              * THE REMAINDER OF THE SUBBASINS IN THIS  MODEL  WILL CONTRIBUTE TO THE
              * PROPOSED CHANNNEL IN THE POWER EASEMENT AS IDENTIFIED IN THE
              * "COMMUNITY DRAINAGE STUDY - CORE NORTH AND WILL DISCHARGE TO REGIONAL
              * RETENTION BASIN 38R1.
              *
              *

1257          KK    37AW     RET
1258          KM        RETRIEVE DIVERTED FLOW FROM SOUTH BOUNDARY OF SUB 37A TO REFLECT
1259          KM        BREAK IN DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS
1260          DR    37AW
              *

1261          KK    R14R
1262          KM        ROUTE FLOW FROM DIVERT AT DEER VALLEY ROAD (UPSTREAM OF SUBBAIN 5) TO
1263          KM        RET14.1
1264          RS       1    FLOW
1265          RC    .055    .045    .055    2900     .01
1266          RX       0      16      26      30      50      54      64      80
1267          RY       6       2       2       0       0       2       2       6
              * RET 141 HAS BEEN REVISED FOLLOWING REFINEMENT OF GRADING PLANS 11-16-94
              *

1268          KK  RET141
1269          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.1.  18" PIPE OUTFLOW WILL
1270          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1271          RS       1    STOR       0       0
1272          SV       0     .46    2.79    4.56    5.71    6.92    8.24
1273          SQ       0      11      15      22     147     463     968
1274          SE    1778    1785    1790    1792    1793    1794    1795
              *
1                                          HEC-1 INPUT                                                    PAGE 37

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


1275          KK   R14.1
1276          KM        ROUTE FLOW FROM RET14.1 TO CP14
1277          KM        RET14.1
1278          RS       1    FLOW
1279          RC    .055    .045    .055    1900     .01
1280          RX       0      16      26      30      50      54      64      80
1281          RY       6       2       2       0       0       2       2       6
              *

1282          KK  SUB13N
1283          KM        RUNOFF FROM SUBBASIN 13 NORTH 18 MODEL.
1284          BA    .037
1285          LS              77      24
1286          UK     100    .015     .15     100
1287          RK    2400    .007    .018            TRAP      50      20
              *

1288          KK   R14.1
1289          KM        ROUTE FLOW FROM CP13 TO RET14 NORTH 18 MODEL.
1290          RS       1    FLOW
1291          RC    .055    .045    .055     950    .025
1292          RX       0       8      13      17      22      26      31      39
1293          RY       4       2       2       0       0       2       2       4
              *

1294          KK  SUB14N
1295          KM        RUNOFF FROM SUBBASIN 14 NORTH 18 MODEL.
1296          BA    .049
1297          LS              81       0
```

```
1298          UK    300    .025     .15     100
1299          RK   2300     .01    .025            TRAP      10       4
              *

1300          KK   CP14
1301          KM        ADD HYDROGRAPHS AT CP14
1302          HC       3  0.5595
              *

1303          KK   RET14
1304          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.  18" PIPE OUTFLOW WILL
1305          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1306          RS       1    STOR       0       0
1307          SV       0     .08     .31    1.01    2.16    3.20    4.19    5.69     7.8
1308          SQ       0      14      16      18      20      22     155     464     750
1309          SE    1744    1746    1748    1750    1752    1753    1754    1755    1756
              *

1310          KK   R18.1
1311          KM        ROUTE FLOW FROM RET14 TO CP18
1312          RS       1    FLOW
1313          RC    .055    .045    .055     500    .016
1314          RX       0      16      26      34      54      68      78      96
1315          RY       6       2       2       0       0       2       2       6
              *
1                                          HEC-1 INPUT                                          PAGE 38

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


1316          KK  SUB20N
1317          KM        RUNOFF FROM SUBBASIN 20.
1318          BA    .024
1319          LS              77      24
1320          UK    200     .01     .15     100
1321          RK   1400     .02    .018            TRAP      50      20
              *

1322          KK     R19
1323          KM        ROUTE FLOW FROM CP20 TO CP19
1324          RS       1    FLOW
1325          RC    .035    .035    .035     700     .02
1326          RX       0       8      13      17      22      26      31      39
1327          RY       4       2       2       0       0       2       2       4
              *

1328          KK  SUB19N
1329          KM        RUNOFF FROM SUBBASIN 19.
1330          BA    .038
1331          LS              77      31
1332          UK    150     .01     .15     100
1333          RK   1800    .015    .018            TRAP      50      20
              *

1334          KK   CP19N
1335          KM        ADD HYDROGRAPHS  AT CP19N
1336          HC       2
              *

1337          KK   R18NC
1338          KM        ROUTE FLOW FROM  CP19N TO CP18NC
1339          RS       1    FLOW
1340          RC    .035    .035    .035     700    .013
1341          RX       0       8      13      17      27      31      36      44
1342          RY       4       2       2       0       0       2       2       4
              *

1343          KK  UB18NC
1344          KM        RUNOFF FROM SUBBASIN 18NC.
1345          BA    .021
1346          LS              77      42
1347          UK    100     .01     .15     100
1348          RK   1550     .02    .018            TRAP      50      20
              *

1349          KK  CP18NC
1350          KM        ADD HYDROGRAPHS  AT CP18NC (INCLUDES R18.1, R18, AND SUB18)
1351          HC       3
              *
1                                          HEC-1 INPUT                                          PAGE 39

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


1352          KK    RPC1
1353          KM        ROUTE FLOW FROM CP18N TO CPC1.
1354          RS       1    FLOW
1355          RC    .035    .035    .035     510    .013
1356          RX       0      16      26      34      64      78      88     106
1357          RY       6       2       2       0       0       2       2       6
              *

1358          KK  UB18NA
1359          KM        RUNOFF FROM SUBBASIN 18NA.
1360          BA    .022
```

```
1361          LS              77      42
1362          UK     100     .01     .15     100
1363          RK    1450     .02    .018            TRAP      50      20
              *

1364          KK   1RPC1
1365          KM        ROUTE FLOW FROM CP18NA TO CPC1.
1366          RS       1    FLOW
1367          RC    .035    .035    .035    2550     .01
1368          RX       0      16      26      34      64      78      88     106
1369          RY       8       4       2       0       0       2       4       8
              *

1370          KK  UB18NB
1371          KM        RUNOFF FROM SUBBASIN 18NB.
1372          BA   .0096
1373          LS              77      42
1374          UK     100     .01     .15     100
1375          RK     800     .02    .018            TRAP      50      20
              *

1376          KK   2RPC1
1377          KM        ROUTE FLOW FROM CP18NB TO CPC1.
1378          RS       1    FLOW
1379          RC    .035    .035    .035    2000     .01
1380          RX       0      16      26      34      64      78      88     106
1381          RY       8       4       2       0       0       2       4       8
              *

1382          KK     PC1
1383          KM        RUNOFF FROM SUBBASIN PC1.
1384          BA    .062
1385          LS              77      10
1386          UK     500    .015     .15     100
1387          RK    2700     .01     .03            TRAP      30       4
              *

1388          KK   1CPC1
1389          KM        ADD HYDROGRAPHS  AT CPC1.
1390          HC       3
              *
```



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

1391          KK   SRPC1
1392          KM        STOAGE ROUTE THROUGH DET BASIN IN POWER CORRIDOR.
1393          RS       1    STOR       0       0
1394          SV       0     .29     .73
1395          SQ       0       0     350
1396          SE    1747    1748    1749
              *

1397          KK    CPC1
1398          KM        ADD HYDROGRAPHS  AT CPC1.
1399          HC       2
              *

1400          KK  R16NA1
1401          KM        ROUTE FLOW FROM CPC1 TO C16NA1.
1402          RS       1    FLOW
1403          RC    .035    .035    .035     700    .013
1404          RX       0      16      26      34      74      88      98     116
1405          RY       8       4       2       0       0       2       4       8
              *

1406          KK  UB16NA
1407          KM        RUNOFF FROM SUBBASIN 16NA.
1408          BA   .0139
1409          LS              77      42
1410          UK     100    .015     .15     100
1411          RK    1500    .015    .022            TRAP      50      20
              *

1412          KK  R16NA1
1413          KM        ROUTE FLOW FROM CP16NA TO CP16NA1.
1414          RS       1    FLOW
1415          RC    .035    .035    .035     550    .013
1416          RX       0      16      26      34      44      58      68      86
1417          RY       6       2       2       0       0       2       2       6
              *

1418          KK  C16NA1
1419          KM        ADD HYDROGRAPHS  AT CP16NA1.
1420          HC       2
              *

1421          KK  R16NB1
1422          KM        ROUTE FLOW FROM CP16NA1 TO CP16NB1.
1423          RS       1    FLOW
1424          RC    .035    .035    .035     650    .013
1425          RX       0      16      26      34      74      88      98     116
1426          RY       8       4       2       0       0       2       4       8
              *
```

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

1427          KK  UB16NB
1428          KM        RUNOFF FROM SUBBASIN 16NB.
1429          BA   .0156
1430          LS              77      42
1431          UK     100    .015     .15     100
1432          RK    1500    .015    .022            TRAP      50      20
              *

1433          KK  R16NB1
1434          KM        ROUTE FLOW FROM CP16NB TO CP16NB1.
1435          RS       1    FLOW
1436          RC    .035    .035    .035     550    .013
1437          RX       0      16      26      34      44      58      68      86
1438          RY       6       2       2       0       0       2       2       6
              *

1439          KK  C16NB1
1440          KM        ADD HYDROGRAPHS  AT CP16NB1.
1441          HC       2
              *

1442          KK  R16NC1
1443          KM        ROUTE FLOW FROM CP16NB1 TO CP16NC1.
1444          RS       1    FLOW
1445          RC    .035    .035    .035     650    .013
1446          RX       0      16      26      34      54      68      78      96
1447          RY       6       2       2       0       0       2       2       6
              *

1448          KK   SUB7N
1449          KM        RUNOFF FROM SUBBASIN 7N.
1450          BA    .031
1451          LS              77      18
1452          UK     100    .015     .15     100
1453          RK    1900     .01    .018            TRAP      50      20
              *

1454          KK    R8NC
1455          KM        ROUTE FLOW FROM CP7N TO CP8NC.
1456          RS       1    FLOW
1457          RC    .055    .045    .055     700    .025
1458          RX       0       8      13      17      22      26      31      39
1459          RY       4       2       2       0       0       2       2       4
              *

1460          KK  SUB8NA
1461          KM        RUNOFF FROM SUBBASIN 8NA.
1462          BA   .0046
1463          LS              81       0
1464          UK     100     .03     .15     100
1465          RK     450     .03    .025            TRAP      20       6
              *
```



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

1466          KK   SR8NA
1467          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NA.
1468          RS       1    STOR       0       0
1469          SV       0     .51    .816
1470          SQ       0       1      43
1471          SE    1791    1795    1796
              *

1472          KK    R8NB
1473          KM        ROUTE FLOW FROM CP8NA TO CP8NB.
1474          RS       1    FLOW
1475          RC    .025    .025    .025     300     .03
1476          RX       0      12      24      36      56      68      80      92
1477          RY       6       4       2       0       0       2       4       6
              *

1478          KK  SUB8NB
1479          KM        RUNOFF FROM SUBBASIN 8NB.
1480          BA   .0142
1481          LS              81       0
1482          UK     100     .03     .15     100
1483          RK    1150    .025    .025            TRAP      20       6
              *

1484          KK   CP8NB
1485          KM        ADD HYDROGRAPHS AT CP8NB.
1486          HC       2
              *

1487          KK   SR8NB
1488          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NB.
1489          RS       1    STOR       0       0
1490          SV       0   .0124   1.754    2.45
```

```
1491          SQ       0       2       2      72
1492          SE    1784    1785    1790    1791
              *

1493          KK    R8NC
1494          KM        ROUTE FLOW FROM CP8NB TO CP8NC.
1495          RS       1    FLOW
1496          RC    .025    .025    .025     500     .03
1497          RX       0      12      24      36      56      68      80      92
1498          RY       6       4       2       0       0       2       4       6
              *

1499          KK  SUB8NC
1500          KM        RUNOFF FROM SUBBASIN 8NC.
1501          BA   .0182
1502          LS              81       0
1503          UK     100     .03     .15     100
1504          RK     900     .03    .025            TRAP      20       6
              *
1                                        HEC-1 INPUT                                                PAGE 43

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

1505          KK   CP8NC
1506          KM        ADD HYDROGRAPHS AT CP8NC.
1507          HC       3
              *

1508          KK   SR8NC
1509          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NC.
1510          RS       1    STOR       0       0
1511          SV       0    .404   2.444    3.13   3.979
1512          SQ       0      10      14     151    1004
1513          SE    1771    1775    1780    1781    1782
              *

1514          KK     R9N
1515          KM        ROUTE FLOW FROM CP8N TO CP9N.
1516          RS       1    FLOW
1517          RC    .025    .025    .025    1150    .025
1518          RX       0       8      13      17      22      26      31      39
1519          RY       4       2       2       0       0       2       2       4
              *

1520          KK   SUB9N
1521          KM        RUNOFF FROM SUBBASIN 9N.
1522          BA    .055
1523          LS              77      28
1524          UK     100    .008     .15     100
1525          RK    1700     .01    .018            TRAP      50      20
              *

1526          KK    CP9N
1527          KM        ADD HYDROGRAPHS AT CP9N
1528          HC       2
              *

1529          KK    R10B
1530          KM        ROUTE FLOW FROM CP9N TO CP10B.
1531          RS       1    FLOW
1532          RC     .03     .03     .03     400     .02
1533          RX       0       8      16      24      29      37      45      53
1534          RY       6       4       2       0       0       2       4       6
              *

1535          KK  SUB10B
1536          KM        RUNOFF FROM SUBBASIN 10B.
1537          BA    .028
1538          LS              77      42
1539          UK     100    .015     .15     100
1540          RK     350    .008    .018            TRAP      50      20
1541          RK     600    .008    .025            TRAP      10       4
              *
1                                        HEC-1 INPUT                                                PAGE 44

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

1542          KK   CP10B
1543          KM        ADD HYDROGRAPHS AT CP10B
1544          HC       2
              *

1545          KK   R11NA
1546          KM        ROUTE FLOW FROM CP10B TO CP11NA.
1547          RS       1    FLOW
1548          RC     .03     .03     .03     200     .04
1549          RX       0       8      16      24      29      37      45      53
1550          RY       6       4       2       0       0       2       4       6
              *

1551          KK  UB11NA
1552          KM        RUNOFF FROM SUBBASIN 11NA.
1553          BA   .0076
```

```
1554          LS              81       0
1555          UK     100    .025     .15     100
1556          RK     500     .03    .025            TRAP      30       6
              *

1557          KK  CP11NA
1558          KM        ADD HYDROGRAPHS AT CP11NA
1559          HC       2
              *

1560          KK  SR11NA
1561          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NA.
1562          RS       1    STOR       0       0
1563          SV       0   .0462   1.425   2.480   3.109   3.856
1564          SQ       0      10      27      27      27     237
1565          SE    1734    1735    1740    1742    1743    1744
              *

1566          KK   R11NB
1567          KM        ROUTE FLOW FROM CP11NA TO CP11NB.
1568          RS       1    FLOW
1569          RC    .025    .025    .025     250     .03
1570          RX       0      12      24      36      56      68      80      92
1571          RY       6       4       2       0       0       2       4       6
              *

1572          KK  UB11NB
1573          KM        RUNOFF FROM SUBBASIN 11NB.
1574          BA   .0078
1575          LS              81       0
1576          UK     100     .04     .15     100
1577          RK     700    .025    .025            TRAP      30       6
              *
```



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

1578          KK  CP11NB
1579          KM        ADD HYDROGRAPHS AT CP11NB
1580          HC       2
              *

1581          KK  SR11NB
1582          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NB.
1583          RS       1    STOR       0       0
1584          SV       0    1.56   2.586
1585          SQ       0      27     111
1586          SE    1732    1737    1738
              *

1587          KK   R11NC
1588          KM        ROUTE FLOW FROM CP11NB TO CP11NC.
1589          RS       1    FLOW
1590          RC    .025    .025    .025     300     .03
1591          RX       0      12      24      36      56      68      80      92
1592          RY       6       4       2       0       0       2       4       6
              *

1593          KK  UB11NC
1594          KM        RUNOFF FROM SUBBASIN 11NC.
1595          BA   .0069
1596          LS              81       0
1597          UK     100     .03     .15     100
1598          RK     650    .028    .025            TRAP      20       5
              *

1599          KK  C11NC1
1600          KM        ADD HYDROGRAPHS AT CP11NC.1
1601          HC       2
              *

1602          KK  SUB10A
1603          KM        RUNOFF FROM SUBBASIN 10A.
1604          BA    .030
1605          LS              77      42
1606          UK     100    .015     .15     100
1607          RK     350    .008    .018            TRAP      50      20
1608          RK     800    .008    .025            TRAP      10       4
              *

1609          KK   R12NB
1610          KM        ROUTE FLOW FROM CP10A TO CP12NB.
1611          RS       1    FLOW
1612          RC    .025    .025    .025     400     .03
1613          RX       0      12      24      36      46      58      70      82
1614          RY       6       4       2       0       0       2       4       6
              *
```



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

1615          KK  UB12NA
1616          KM        RUNOFF FROM SUBBASIN 12NA.
```

```
1617          BA   .0153
1618          LS              81       0
1619          UK     150    .025     .15     100
1620          RK     650    .017    .025            TRAP      30       6
              *

1621          KK  SR12NA
1622          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB1NA.
1623          RS       1    STOR       0       0
1624          SV       0    2.16   3.426   5.071
1625          SQ       0       1       2     142
1626          SE    1741    1745    1746    1747
              *

1627          KK   R12NA
1628          KM        ROUTE FLOW FROM CP12NA TO CP12NB.
1629          RS       1    FLOW
1630          RC    .025    .025    .025     550    .025
1631          RX       0      12      24      36      46      58      70      82
1632          RY       6       4       2       0       0       2       4       6
              *

1633          KK  UB12NB
1634          KM        RUNOFF FROM SUBBASIN 12NB.
1635          BA   .0157
1636          LS              81       0
1637          UK     150    .025     .15     100
1638          RK     650    .017    .025            TRAP      30       6
              *

1639          KK  CP12NB
1640          KM        ADD 3 HYDROGRAPHS AT CP12NB
1641          HC       3
              *

1642          KK  SR12NB
1643          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB12NB.
1644          RS       1    STOR       0       0
1645          SV       0    .922    4.24    7.53
1646          SQ       0       2       2     142
1647          SE    1741    1745    1746    1747
              *

1648          KK  R11NC2
1649          KM        ROUTE FLOW FROM CP12NA TO CP11NC.
1650          RS       1    FLOW
1651          RC    .025    .025    .025     550     .01
1652          RX       0      12      24      36      46      58      70      82
1653          RY       6       4       2       0       0       2       4       6
              *
```



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

1654          KK  CP11NC
1655          KM        ADD HYDROGRAPHS  AT CP11NC
1656          HC       2
              *

1657          KK  SR11NC
1658          KM        ROUTE FLOW THROUGH RETENTION BASIN RT11NC.  18" PIPE OUTFLOW WILL
1659          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1660          RS       1    STOR       0       0
1661          SV       0   1.665   2.303   3.062
1662          SQ       0      27     111     344
1663          SE    1730    1735    1736    1737
              *

1664          KK   R16NC
1665          KM        ROUTE FLOW FROM CP11NC TO CP16NC.
1666          RS       1    FLOW
1667          RC    .035    .035   0.035     950    .025
1668          RX       0       8      13      17      22      26      31      39
1669          RY       4       2       2       0       0       2       2       4
              *

1670          KK  UB16NC
1671          KM        RUNOFF FROM SUBBASIN 16NC.
1672          BA   .0337
1673          LS              77      42
1674          UK     100    .015     .15     100
1675          RK    1600    .015    .022            TRAP      50      20
              *

1676          KK  CP16NC
1677          KM        ADD HYDROGRAPHS  AT CP16NC
1678          HC       2
              *

1679          KK  R16NC1
1680          KM        ROUTE FLOW FROM CP16NC TO CP16NC1.
1681          RS       1    FLOW
1682          RC     .03     .03     .03     550    .013
1683          RX       0      16      26      34      44      58      68      86
```

```
1684          RY      6       2       2       0       0       2       2       6
              *

1685          KK  C16NC1
1686          KM        ADD HYDROGRAPHS  AT CP16NC1.
1687          HC       2
              *

1688          KK   R15N1
1689          KM        ROUTE FLOW FROM CP16NC1 TO CP15N1.
1690          RS       1    FLOW
1691          RC    .035    .035    .035     600    .013
1692          RX       0      16      26      34      54      68      78      96
1693          RY       6       2       2       0       0       2       2       6
              *
```



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

1694          KK     PC2
1695          KM        RUNOFF FROM SUBBASIN PC2.
1696          BA    .054
1697          LS              77      10
1698          UK     100    .015     .15     100
1699          RK    2700     .01     .03            TRAP      50       4
              *

1700          KK  CP15N1
1701          KM        ADD HYDROGRAPHS  AT CP15N1
1702          HC       2
              *

1703          KK   SRPC2
1704          KM        STORAGE ROUTE THRU DETENTION BASINS IN POWER CORRIDOR THIS IS THE TOTAL
1705          KM        FLOW REACHING THE UPSTREAM SIDE OF THE THOMPSON PEAK PARKWAY BRIDGE
1706          RS       1    STOR       0       0
1707          SV       0    1.02    2.70    4.48     5.8     6.9
1708          SQ       0       0     150     350     550     850
1709          SE    1730    1731    1732    1733    1734    1735
              *

1710          KK  UB17NA
1711          KM        RUNOFF FROM SUBBASIN SUB17NA.
1712          BA  .00979
1713          LS              81       0
1714          UK     150    .025     .05     100
1715          RK     960   .0292    .025            TRAP      30      50
              *

1716          KK  SR17NA
1717          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NA.
1718          RS       1    STOR       0       0
1719          SV       0   .0078    .241    .523    1.00   1.735
1720          SQ       0       1       1       1    17.4     251
1721          SE  1755.2    1756    1758    1759    1760    1761
              *

1722          KK   R17NB
1723          KM        ROUTE FLOW FROM SR17NA TO CP17NB.
1724          RS       1    FLOW
1725          RC    0.03    0.03    0.03     280  0.0286
1726          RX       0      10      20      35      70      85      90     100
1727          RY    1757  1756.8  1756.6    1756    1756    1757    1758    1759
              *

1728          KK  UB17NB
1729          KM        RUNOFF FROM SUBBASIN SUB17NB.
1730          BA   .0111
1731          LS              81       0
1732          UK     150    .025     .05     100
1733          RK    1200   .0217    .025            TRAP      30      50
              *
```



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

1734          KK  CP17NB
1735          KM        ADD HYDROGRAPHS AT SUB17NB.
1736          HC       2
              *

1737          KK  SR17NB
1738          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NB.
1739          RS       1    STOR       0       0
1740          SV       0   .0113   .1469    .635   .9795   1.509   2.254   3.243
1741          SQ       0       1       1       1       1       1    38.2     189
1742          SE  1751.5    1752    1753    1755    1756    1757    1758    1759
              *

1743          KK    R17A
1744          KM        ROUTE FLOW FROM SR17NB TO CP17A.
1745          RS       1    FLOW
1746          RC    0.03    0.03    0.03     280   0.033
```

```
1747          RX       0      15      18      20      24      27      30      35
1748          RY    1755    1754    1753    1752    1752    1753    1754    1755
              *

1749          KK  SUB17A
1750          KM        RUNOFF FROM SUBBASIN SUB17A.
1751          BA  .00792
1752          LS              77      34
1753          UK      75     .03     .05     100
1754          RK    1500     .02    .025            TRAP       8       4
              *

1755          KK  CP17A1
1756          KM        ADD HYDROGRAPHS AT CP17A1.
1757          HC       2
              *

1758          KK  UB17NC
1759          KM        RUNOFF FROM SUBBASIN SUB17NC.
1760          BA  .00559
1761          LS              77      12
1762          UK      75     .03     .05     100
1763          RK     910   .0187    .025            TRAP       8       4
              *

1764          KK   CP17A
1765          KM        ADD ALL HYDROGRAPHS AT CP17A.
1766          HC       2
              *

1767          KK    R15N
1768          KM        ROUTE FLOW FROM CP17A TO CP15N.
1769          RS       1    FLOW
1770          RC    .035    .035    .035    1950    .025
1771          RX       0       8      13      17      22      26      31      39
1772          RY       4       2       2       0       0       2       2       4
              *
1                                          HEC-1 INPUT                                                    PAGE 50

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

1773          KK  SUB15N
1774          KM        RUNOFF FROM SUBBASIN 15N.
1775          BA   .0391
1776          LS              77      68
1777          UK     100     .01     .15     100
1778          RK     400    .008    .018            TRAP      50      20
1779          RK    1700    .015    .025            TRAP      10       4
              *

1780          KK   CP15N
1781          KM        ADD HYDROGRAPHS  AT CP15N
1782          HC       2
              *

1783          KK   R15N2
1784          KM        ROUTE FLOW FROM CP15N TO CP15N1.
1785          RS       1    FLOW
1786          RC     .02     .02     .02     700    .013
1787          RX       0       8      13      17      22      26      31      39
1788          RY       6       2       2       0       0       2       2       6
              *

1789          KK  CP15N2
1790          KM        ADD HYDROGRAPHS  AT CP15N1
1791          KM        THIS IS THE INTERIM OUTFLOW DISCHARGE TO NATURAL WASH.
1792          HC       2  1.1611
              *

1793          KK   R15N2
1794          KM        ROUTE 15N2 IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CP15N2 TO THE
1795          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1796          KM
1797          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1798          RS       1    FLOW      -1
1799          RC    .035    .035    .035    2200    .013
1800          RX       0      16      26      34      64      78      88     106
1801          RY       6       2       2       0       0       2       2       6
              *

1802          KK    DPC3
1803          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1804          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1805          KM
1806          KM        RETRIEVE DIVERTED FLOW
1807          DR   BPC3T
              *

1808          KK   CPC3A
1809          KM        COMBINE CPC3A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE AT THE
1810          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1811          KM
1812          KM        COMBINE ROUTED HYDROGRAPH FROM CP15N2 WITH HYDROGRAPH FROM CPC3
1813          HC       2  1.3446
```

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

1814            KK   RPC3A
1815            KM        ROUTE PC3A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC3A VIA
1816            KM        THE POWER LINE CHANNEL.
1817            KM
1818            KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1819            RS       1    FLOW      -1
1820            RC    .035    .035    .035    1100    .013
1821            RX       0      16      26      34      64      78      88     106
1822            RY       6       2      .2       0       0       2       2       6
                *

1823            KK    DPC4
1824            KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1825            KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1826            KM
1827            KM        RETRIEVE DIVERTED FLOW
1828            DR   BPC4T
                *

1829            KK   CPC4A
1830            KM        COMBINE CPC4A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE IN THE
1831            KM        POWER LINE CHANNEL
1832            KM
1833            KM        COMBINE ROUTED HYDROGRAPH FROM CPC3A WITH HYDROGRAPH FROM CPC4
1834            HC       2  1.9946
                *

1835            KK   RPC4A
1836            KM        ROUTE PC4A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC4A TO THE
1837            KM        POWER LINE CHANNEL CROSSING AT HUALAPAI RD.
1838            KM
1839            KM        ROUTE FLOW FROM CPC4A TO CPC5.
1840            RS       1    FLOW      -1
1841            RC    .035    .035    .035    1900    .013
1842            RX       0      16      26      34      64      78      88     106
1843            RY       6       2       2       0       0       2       2       6
                *

1844            KK  DPC4AT
1845            KM        DIVERT PC4A IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
1846            KM        LOOP DETENTION BASIN VIAL THE POWER LINE CHANNEL.
1847            KM
1848            KM        DIVERT 100% OF FLOW
1849            DT  BPC4AT
1850            DI       0   10000
1851            DQ       0   10000
                *

1852            KK  SUB1-2
1853            KM        RUNOFF FROM SUB 1 AND 2, SOUTH COURSE MODEL
1854            BA   .0558
1855            LS              77      68
1856            UK    200    .010     .15     100
1857            RK   1370    .027    .015            TRAP      50      20
                *
```



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

1858            KK  GCRB18
1859            KM        RUNOFF FROM GOLF COURSE CONTRIBUTING TO RETENTION BASIN AT HOLE NO. 18
1860            KM        AND HOLE NO. 10, SOUTH COURSE
1861            BA    .012
1862            LS              81       0
1863            UK    200    .025     .15     100
1864            RK    300    .016    .025            TRAP      10       4
                *

1865            KK  CPRET1
1866            KM        COMBINE HYDROGRAPHS AT RETENTION BASINS ON HOLE 18 & 10
1867            HC       2
                *

1868            KK   SR18S
1869            KM        STORAGE ROUTE THRU RETENTION BASIN AT HOLE 18, SOUTH COURSE
1870            RS       1    STOR       0       0
1871            SV       0  1.7635  5.7722  12.174  21.337  28.849  30.151      32
1872            SE    1725    1730    1735    1740    1745    1748    1749    1750
1873            SQ       0       0       0       0       0      42     386     900
                *

1874            KK   SUB5S
1875            KM        RUNOFF FROM SUB 5S
1876            BA   .0263
1877            LS              77      31
1878            UK    100    .010     .15     100
1879            RK   1280    .007    .015            TRAP      50      20
                *
```

```
1880          KK  GC1216
1881          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 12, 16, AND 17
1882          BA   .0365
1883          LS              81       0
1884          UK     200    .025     .15     100
1885          RK    2200    .024    .025            TRAP      10       4
              *

1886          KK  GC1415
1887          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 13, 14, 15 AND RETENTION
1888          BA    .045
1889          LS              81       0
1890          UK     200    .025     .15     100
1891          RK    1300    .022    .025            TRAP      10       4
              *

1892          KK   SUB6S
1893          KM        RUNOFF FROM SUB BASIN 6, SOUTH COURSE
1894          BA    .021
1895          LS              77      42
1896          UK     100    .010     .15     100
1897          RK    2150    .013    .025            TRAP      50      20
              *
1                                          HEC-1 INPUT                                                    PAGE 53

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


1898          KK   SUB7S
1899          KM        RUNOFF FROM SUB BASIN 7, SOUTH COURSE
1900          BA    .027
1901          LS              77      42
1902          UK     100    .010     .15     100
1903          RK    2080    .023    .025            TRAP      50      20
              *

1904          KK  CPRET2
1905          KM        COMBINE HYDROGRAPHS AT RETENTION BASIN 2, SOUTH COURSE
1906          HC       5
              *

1907          KK  SRRET2
1908          KM        STORAGE THRU RETENTION BASIN NO. 2, SOUTH COURSE
1909          RS       1    STOR       0       0
1910          SV       0    .617   3.474   9.858  20.063  35.353  52.685  57.749      62
1911          SE    1670    1675    1680    1685    1690    1695    1699    1700    1701
1912          SQ       0       0       0       0       0       0      32     386     594
              *
              *       NO FLOW RELEASED FROM RETENTION BASIN
              *

1913          KK   CLEAR
1914          KM        THIS OPERATION IS ADDED BY GVSCE
1915          KM
1916          KM        CLEAR HYDROGRAPHS FROM THE STACK
1917          HC       2
              *

1918          KK   SUB8S
1919          KM        RUNOFF FROM SUB BASIN 8, SOUTH COURSE
1920          BA   .0256
1921          LS              77      42
1922          UK     100    .010     .15     100
1923          RK    1600    .015    .025            TRAP      50      20
              *

1924          KK   RGC36
1925          KM        ROUTE SUB8S TO CPGC36
1926          RS       1    FLOW
1927          RC    .055    .045    .055     850     .02
1928          RX       0      16      26      30      40      44      54      70
1929          RY       6       2       2       0       0       2       2       6
              *

1930          KK    GC36
1931          KM        RUNOFF FROM SOUTH COURSE HOLES 3, 6, AND NORTH HALF OF HOLE 4.
1932          BA   .0406
1933          LS              81       0
1934          UK     200    .025     .15     100
1935          RK    2350    .015    .035            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 54

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


1936          KK  C1GC36
1937          KM        COMBINE SUBS 8 AND GC36
1938          HC       2
              *

1939          KK   SUB9S
1940          KM        RUNOFF FROM SUB BASIN 9, SOUTH COURSE
1941          BA    .021
```

```
1942          LS              77      53
1943          UK     100    .010     .15     100
1944          RK    1100    .013    .025            TRAP      50      20
              *

1945          KK     R9S
1946          KM        ROUTE SUB9S TO CPGC36
1947          RS       1    FLOW
1948          RC    .035    .035    .035     500     .02
1949          RX       0       8      12      16      18      22      26      30
1950          RY       6       4       3       2       2       3       4       6
              *

1951          KK  CPGC36
1952          KM        COMBINE SUBS 8 AND 9 SOUTH AND GC36
1953          HC       2
              *

1954          KK  SRGC36
1955          KM        STORAGE THRU DETENTION BASIN ON GC36
1956          RS       1    STOR       0       0
1957          SV       0    0.85     1.0
1958          SE    1664    1668    1669
1959          SQ       0      20     205
              *

1960          KK   SUB7A
1961          KM        RUNOFF FROM SUB7A, SOUTH COURSE EAST SIDE ADJACENT TO PIMA ROAD
1962          BA   .0092
1963          LS              77      42
1964          UK     100    .025     .15     100
1965          RK     950    .015    .025            TRAP      50      20
              *

1966          KK    SR7A
1967          KM        STORAGE THRU DETENTION BASIN ON SUB7A
1968          RS       1    STOR       0       0
1969          SV       0     .68      .8
1970          SE    1700    1703    1704
1971          SQ       0      10     150
              *
```



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

1972          KK    R10S
1973          KM        ROUTE FLOW FROM CP7A TO CP10S
1974          RS       1    FLOW
1975          RC    .035    .035    .035    1400    .015
1976          RX       0       8      12      16      18      22      26      30
1977          RY       6       4       3       2       2       3       4       6
              *

1978          KK  SUB10S
1979          KM        RUNOFF FROM SUB BASIN 10, SOUTH COURSE
1980          BA   .0248
1981          LS              77      53
1982          UK     100    .010     .15     100
1983          RK    1150    .020    .025            TRAP      50      20
              *

1984          KK   CP10S
1985          KM        COMBINE HYDROGRAPHS AT CP10 SOUTH COURSE
1986          HC       2
              *

1987          KK  SUB11S
1988          KM        RUNOFF FROM SUB11, SOUTH COURSE
1989          BA   .0234
1990          LS              77      68
1991          UK     100    .015    .018     100
1992          RK    1050    .015    .025            TRAP     100      20
              *

1993          KK    R11S
1994          KM        ROUTE 11S IS ADDED BY GVSCE TO ROUTE THE RUNOFF FROM SUB11S TO THE
1995          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI DR ALONG HUALAPAI DR.
1996          KM
1997          KM        ROUTE FLOW FROM SUB11S TO CPC5.
1998          RS       1    FLOW      -1
1999          RC    .035    .035    .035     900    .015
2000          RX       0       8      12      16      18      22      26      30
2001          RY       6       4       3       2       2       3       4       6
              *

2002          KK   C10SA
2003          KM        COMBINE 10SA IS ADDED BY GVSCE
2004          KM
2005          KM        COMBINE ROUTED HYDROGRAPH FROM 11S WITH HYDROGRAPH FROM CP10S
2006          HC       2
              *

2007          KK   R10SA
2008          KM        ROUTE 10SA IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
```

```
2009          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2010          KM
2011          KM        ROUTE FLOW FROM C10SAS TO CPC5.
2012          RS       1    FLOW      -1
2013          RC    .035    .035    .035     900    .015
1                                     HEC-1 INPUT                                                    PAGE 56

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

2014          RX       0       8      12      16      18      22      26      30
2015          RY       6       4       3       2       2       3       4       6
              *

2016          KK    GC45
2017          KM        RUNOFF FROM SOUTH COURSE HOLES 4 AND 5
2018          BA   .0127
2019          LS              81       0
2020          UK     200    .015    .025     100
2021          RK     550    .015    .035            TRAP      10       4
              *

2022          KK   CGC45
2023          KM        COMBINE CGC45 IS ADDED BY GVSCE
2024          KM
2025          KM        COMBINE ROUTED HYDROGRAPH FROM 10SA WITH RUNOFF FROM GC45
2026          HC       2
              *

2027          KK     PC5
2028          KM        PC5 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
2029          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
2030          KM
2031          KM        RUNOFF FROM SUBBASIN PC5.
2032          BA  0.0375
2033          LS              77       0
2034          UK     300    .015     .15     100
2035          RK    1900     .01     .03            TRAP      30       4
              *

2036          KK   DPC4A
2037          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
2038          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2039          KM
2040          KM        RETRIEVE DIVERTED FLOW
2041          DR  BPC4AT
              *

2042          KK    CPC5
2043          KM        COMBINE PC5 IS ADDED BY GVSCE TO ESTIMATE THE TOTAL FLOW IN THE POWER
2044          KM        LINE CHANNEL AT THE HUALAPAI CROSSING
2045          KM
2046          KM        COMBINE ROUTED HYDROGRAPH FROM C10SA AND CPC4A WITH HYDROGRAPHS FROM
2047          KM        CGC45, SRGC36 AND PC5
2048          HC       5  2.1022
              *
              *     ******************  END GRAYHAWK WATERSHED  ******************
              *

2049          KK     RC5
2050          KM       ROUTE CPC5 THROUGH SUBBASIN CN5C TO OUTER LOOP BASIN
2051          RS       1    FLOW      -1
2052          RC    .035    .035    .035    2000    .013
2053          RX       0      16      26      34      64      78      88     106
2054          RY       6       2       2       0       0       2       2       6
              *
1                                     HEC-1 INPUT                                                    PAGE 57

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

2055          KK   SCN5D
2056          KM     RUNOFF FROM SUBBASIN CN5D
2057          BA  0.0499
2058          LS              74       0
2059          UK     100   0.025    0.13     100
2060          RK    3100   0.017    0.04            TRAP       0      15
              *

2061          KK    CN5D
2062          KM        COMBINE ROUTED HYDROGRAPH FROM CPC5 W/RUNOFF FROM SCN5D
2063          HC       2
              *

2064          KK     D52
2065          KM     BRING BACK DIVERTED HYDROGRAPH FROM R52
2066          DR    B52T
              *

2067          KK    S53A
2068          KM     RUNOFF FROM SUBBASIN 53A
2069          BA  0.1794
2070          LS              74      11
2071          UK     300   0.022    0.13     100
2072          RK    1475   0.026   0.045  0.0111    TRAP       3       5
2073          RK    1750   0.021    0.04            TRAP      25       5
```

```
                 *
2074             KK     C53
2075             KM     COMBINE ROUTED HYDROGRAPH FROM FROM C52 WITH RUNOFF FROM SUBBASIN 53A
2076             HC       2  8.0954
                 *
                 *    R53
                 *   ****  TOO SHORT TO ROUTE  ****
                 *

2077             KK   S53A1
2078             KM     RUNOFF FROM SUBBASIN 53A1
2079             BA  0.3376
2080             LS              74      12              74      30
2081             UK     300   0.022    0.13      70
2082             UK     150   0.027    0.13      30
2083             RK    1250   0.023   0.045  0.0087    TRAP       4       5
2084             RK    5050   0.017    0.04            TRAP      35       5
                 *

2085             KK    C53A
2086             KM     COMBINE ROUTED HYDROGRAPH FROM C53 WITH RUNOFF FROM SUBBASSIN 53A1
2087             HC       2  8.4330
                 *
1                                          HEC-1 INPUT                                          PAGE 58

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

2088             KK   SCN6B
2089             KM     RUNOFF FROM SUBBASIN CN6B (WATER CAMPUS)
2090             KM.      TOTAL AREA = 0.0542 sm, 0.0022 sm OF THAT IS NON-CONTRIBUTING
2091             BA  0.0520
2092             LS              74      80              74       0
2093             UK     150    0.01    0.15      70
2094             UK     100   0.025    0.13      30
2095             RK     720    0.02    0.03  0.0084    TRAP       5      10
2096             RK     700    0.01   0.045  0.0050    TRAP       0      10
2097             RK     440   0.009   0.035            TRAP       6       3
                 *

2098             KK   SCN6D
2099             KM     RUNOFF FROM SUBBASIN CN6D
2100             KM      TOTAL AREA = 0.0398 sm, 0.0029 sm OF THAT IS NON-CONTRIBUTING
2101             BA  0.0369
2102             LS              74       3
2103             UK     100   0.025    0.13     100
2104             RK    1000   0.017    0.04            TRAP       0      15
                 *

2105             KK    CP6D
2106             KM     COMBINE HYDROGRAPHS FROM C53A W/RUNOFF FROM SCN6D
2107             HC       3
                 *

2108             KK   SCN6C
2109             KM     RUNOFF FROM SUBBASIN CN6C (CAP TREATMENT PLANT AND WATER CAMPUS)
2110             KM      TOTAL AREA = 0.1526 sm, 0.0138 sm OF THAT IS NON-CONTRIBUTING
2111             BA  0.1388
2112             LS              74      80              74       0
2113             UK     150    0.01    0.15      50
2114             UK     100   0.025    0.13      50
2115             RK    1500    0.01    0.03  0.0123    TRAP       5      10
2116             RK     700   0.017    0.04            TRAP       0      15
                 *

2117             KK    CP6C
2118             KM        COMBINE HYDROGRAPH FROM CP6D W/RUNOFF FROM SCN6C
2119             HC       2
                 *

2120             KK    CP5D
2121             KM        COMBINE HYDROGRAPHS FROM CP6C AND CP5D
2122             HC       2
                 *

2123             KK   SCN5C
2124             KM     RUNOFF FROM SUBBASIN CN5C
2125             BA  0.1904
2126             LS              74       0
2127             UK     150   0.020    0.13     100
2128             RK    3700  0.0176    0.04            TRAP       0      15
                 *
1                                          HEC-1 INPUT                                          PAGE 59

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

2129             KK   SCN6E
2130             KM     RUNOFF FROM SUBBASIN CN6E
2131             BA  0.0427
2132             LS              74       5
2133             UK      50    0.01    0.13     100
2134             RK    3200   0.002   0.025            TRAP       0      50
                 *
```

```
2135          KK  EAST-I
2136          KM     COMBINE HYDROGRAPH FROM CP5D WITH W/RUNOFF FROM SCN5C AND SCN6E
2137          HC       3
              *

2138          KK  EAST-O
2139          KM     PIMA FREEWAY BASIN EAST LOCATED NORTH AND EAST OF HAYDEN ROAD T.I.
2140          KM     (2) 96" OUTLET CONDUIT
2141          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
2142          KM        9 ACRE-FEET OF STORAGE FOR SEDIMENTAION
2143          KM
2144          RS       1    STOR      -1       0
2145          SV       0    0.35    1.11    3.38   12.19   24.00   36.81   43.59   50.74   58.38
2146          SV   66.49   74.88   83.50   92.36  101.45  110.78  120.36  130.25  140.48  145.06
2147          SQ       0      66     127     281     515     791    1047    1161    1263    1355
2148          SQ    1442    1522    1598    1671    1740    1805    1871    1932    1991    2020
2149          SE  1589.9    1591    1592    1594    1596    1598    1600    1601    1602    1603
2150          SE    1604    1605    1606    1607    1608    1609    1610    1611    1612  1612.5
              *
2151          ZZ
```

1

```
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    25        S30N
                 V
                 V
    34        R30N
                 .
                 .
    40           .       S31.1
                 .           .
                 .           .
    48      C31.1............
                 .
                 .
    51           .       S34.2
                 .           .
                 .           .
    60      C34.2............
                 .
                 .
    63           .        S35N
                 .           .
                 .           .
    75           .           .-------->   D35NL
    71           .       D35NR
                 .          V
                 .          V
    78           .       R35NR
                 .           .
                 .           .
    85           .           .       S36.2
                 .           .           .
                 .           .           .
    93           .       C36.2............
                 .           .
                 .           .
   100           .           .-------->  D36.2L
    96           .      D36.2R
                 .          V
                 .          V
   103           .      R36.2R
                 .           .
                 .           .
   110           .           .       S34.1
                 .           .           .
                 .           .           .
   119           .       C34.1............
                 .           .
                 .           .
   122      HVDB-I............
                 V
                 V
   125      HVDB-O
                 V
                 V
   138      R34.1
                 .
                 .
   144           .       S36.1
                 .           .
                 .           .
   151      C36.1............
                 V
                 V
   154      R36.1
                 .
                 .
   162           .           .<--------   D35NL
   160           .      B35NL
```

```
                .          V
                .          V
163             .       R35NL
                .          .
                .          .
172             .          .          .<-------  D36.2L
170             .          .     B36.2L
                .          .          V
                .          .          V
173             .          .     R36.2L
                .          .          .
                .          .          .
180             .          .          .     S36R1A
                .          .          .          .
                .          .          .          .
188        C36R1A.................................
                .
                .
193             .      S36R1B
                .          .
                .          .
201        C36R1B...........
                .
                .
204             .      S36R2A
                .          .
                .          .
211        C36R2A...........
               V
               V
214        R36R2A
                .
                .
226             .      S36R2B
                .          .
                .          .
233        C36R2B...........
                .
                .
236             .       S51.1
                .          .
                .          .
244        DVDB-I...........
               V
               V
247        DVDB-O
                .
                .
264             .-------> B51.1T
262        D51.1T
                .
                .
267             .        52D4
                .           V
                .           V
273             .       52D4R
                .           .
                .           .
276             .           .       52D4B
                .           .           .
                .           .           .
282             .      52D5C1...........
                .           .
                .           .
285             .           .       52D5A
                .           .           V
                .           .           V
291             .           .      52D5AR
                .           .           .
                .           .           .
294             .      52D5C2...........
                .           V
                .           V
297             .       52D5R
                .           .
                .           .
300             .           .        52C3
                .           .           V
                .           .           V
306             .           .       52C3R
                .           .           .
                .           .           .
309             .           .           .       52C3B
                .           .           .          .
                .           .           .          .
315             .           .     2C3BC1...........
                .           .           .
                .           .           .
318             .      2C3BC2...........
                .           V
                .           V
321             .      52C3BR
                .           .
                .           .
324             .           .        51C
```

```
                .          .          .
                .          .          .
332             .          .          .-------> 51C1DV
330             .          .     51C1D
                .          .         V
                .          .         V
335             .          .     51C1R
                .          .         .
                .          .         .
338             .          .         .       52C1
                .          .         .          .
                .          .         .          .
344             .          .     52C1C...........
                .          .         V
                .          .         V
347             .          .     52C1R
                .          .         .
                .          .         .
350             .          .         .      52C2A
                .          .         .          .
                .          .         .          .
356             .          .    52C2AC...........
                .          .         .
                .          .         .
359             .          .         .      52C2B
                .          .         .          .
                .          .         .          .
365             .          .    52C2BC...........
                .          .         V
                .          .         V
368             .          .    52C2BR
                .          .         .
                .          .         .
371             .          .         .      52C2C
                .          .         .          .
                .          .         .          .
377             .          .    52C2CC...........
                .          .         V
                .          .         V
380             .          .     52C2R
                .          .         .
                .          .         .
383             .          .         .       52C4
                .          .         .          .
                .          .         .          .
389             .          .    52C4C1...........
                .          .         .
                .          .         .
392             .     52C4C2...........
                .          V
                .          V
395             .      52C4R
                .          .
                .          .
398             .          .     52C13
                .          .         .
                .          .         .
406             .          .         .-------> STORM
404             .          .    2C13DV
                .          .         .
                .          .         .
409             .          .         .      52C15
                .          .         .          .
                .          .         .          .
415             .          .    2C15C1...........
                .          .         .
                .          .         .
418             .     2C15C2...........
                .          V
                .          V
421             .     52C15R
                .          .
                .          .
424             .          .    52C14A
                .          .         .
                .          .         .
430             .     2C14AC...........
                .          V
                .          V
433             .     2C14AR
                .          .
                .          .
438             .          .         .<------- 51C1DV
436             .          .    51C1DV
                .          .         .
                .          .         .
441             .          .         .-------> 51C2DV
439             .          .     51C2D
                .          .         V
                .          .         V
444             .          .     51C2R
                .          .         .
                .          .         .
447             .          .         .       52C5
                .          .         .          .
```

```
453          .          .          .          .
             .          .      52C5C...........
             .          .          V
             .          .          V
456          .          .      52C5R
             .          .          .
             .          .          .
459          .          .          .       52C6
             .          .          .          .
             .          .          .          .
465          .          .      52C6C...........
             .          .          V
             .          .          V
468          .          .      52C6R
             .          .          .
             .          .          .
473          .          .          .     .<-------  51C2DV
471          .          .          .  51C2DV
             .          .          .       V
             .          .          .       V
474          .          .          .   51C3R
             .          .          .       .
             .          .          .       .
477          .          .          .       .        51B
             .          .          .       .          .
             .          .          .       .          .
485          .          .          .       .          .-------> 51B1DV
483          .          .          .       .      51B1D
             .          .          .       .          V
             .          .          .       .          V
488          .          .          .       .      51B1R
             .          .          .       .          .
             .          .          .       .          .
491          .          .          .       .          .       52C7
             .          .          .       .          .         ..
             .          .          .       .          .          .
497          .          .          .   52C7C.......................
             .          .          .       V
             .          .          .       V
500          .          .          .   52C7R
             .          .          .       .
             .          .          .       .
505          .          .          .       .          .<-------  51B1DV
503          .          .          .       .     51B1DV
             .          .          .       .          .
             .          .          .       .          .
508          .          .          .       .          .-------> 51B2DV
506          .          .          .       .      51B2D
             .          .          .       .          V
             .          .          .       .          V
511          .          .          .       .      51B2R
             .          .          .       .          .
             .          .          .       .          .
514          .          .          .       .          .       52C8
             .          .          .       .          .         .
             .          .          .       .          .         .
520          .          .          .       .      52C8C...........
             .          .          .       .          V
             .          .          .       .          V
523          .          .          .       .      52C8R
             .          .          .       .          .
             .          .          .       .          .
526          .          .          .   52C9C1..........
             .          .          .       V
             .          .          .       V
529          .          .          .   52C9R1
             .          .          .       .
             .          .          .       .
532          .          .          .       .       52C9
             .          .          .       .          .
             .          .          .       .          .
538          .          .          .   52C9C2..........
             .          .          .       V
             .          .          .       V
541          .          .          .   52C9R2
             .          .          .       .
             .          .          .       .
544          .          .      2C10C1...........
             .          .          V
             .          .          V
547          .          .      2C10R1
             .          .          .
             .          .          .
550          .          .          .   52C10
             .          .          .       .
             .          .          .       .
556          .          .      2C10C2...........
             .          .          .
             .          .          .
559          .          .          .   52C11
             .          .          .       V
             .          .          .       V
565          .          .          .   2C11R1
             .          .          .       .
             .          .          .       .
```

```
570          .          .          .          .          .<-------   STORM
568          .          .          .          .     52C13D
             .          .          .          .          .
             .          .          .          .          .
571          .          .          .     52C11C............
             .          .          .          V
             .          .          .          V
574          .          .          .     2C11CR
             .          .          .          .
             .          .          .          .
577          .          .     2C11C2............
             .          .          V
             .          .          V
580          .          .     2C11R2
             .          .          .
             .          .          .
583          .          .          .      52C12
             .          .          .          .
             .          .          .          .
589          .          .     52C12C............
             .          .          V
             .          .          V
592          .          .     52C12R
             .          .          .
             .          .          .
595          .          .          .     52C14B
             .          .          .          .
             .          .          .          .
601          .          .     C14BC1............
             .          .          .
             .          .          .
604          .     C14BC2............
             .          V
             .          V
607          .     52C14R
             .          .
             .          .
612          .          .          .<-------  51B2DV
610          .          .     51B2DV
             .          .          .
             .          .          .
615          .          .          .------->  51B3DV
613          .          .      51B3D
             .          .          V
             .          .          V
618          .          .      51B3R
             .          .          .
             .          .          .
621          .          .          .       52B1
             .          .          .          .
             .          .          .          .
627          .          .      52B1C............
             .          .          V
             .          .          V
630          .          .      52B1R
             .          .          .
             .          .          .
635          .          .          .          .<-------  51B3DV
633          .          .          .     51B3DV
             .          .          .          .
             .          .          .          .
638          .          .          .          .------->  51B4DV
636          .          .          .      51B4D
             .          .          .          V
             .          .          .          V
641          .          .          .     51B4R1
             .          .          .          .
             .          .          .          .
644          .          .     52B2C1............
             .          .          V
             .          .          V
647          .          .     52B2R1
             .          .          .
             .          .          .
650          .          .          .       52B2
             .          .          .          .
             .          .          .          .
656          .          .     52B2C2............
             .          .          V
             .          .          V
659          .          .     52B2R2
             .          .          V
             .          .          V
662          .          .     52B3R1
             .          .          .
             .          .          .
665          .          .          .       52B3
             .          .          .          .
             .          .          .          .
671          .          .     52B3C2............
             .          .          V
             .          .          V
674          .          .     52B3R2
             .          .          .
             .          .          .
```

```
677          .          .          .       52B4
             .          .          .          .
             .          .          .          .
683          .          .      52B4C...........
             .          .          V
             .          .          V
686          .          .      52B4R
             .          .          .
             .          .          .
689          .          .          .       52B5
             .          .          .          .
             .          .          .          .
695          .          .     52B5C1...........
             .          .          .
             .          .          .
698          .     52B5C2...........
             .         V
             .         V
701          .      52B5R
             .          .
             .          .
706          .          .          .<-------  51B4DV
704          .          .     51B4DV
             .          .          .
             .          .          .
709          .          .          .------->  51B5DV
707          .          .      51B5D
             .          .          V
             .          .          V
712          .          .      51B5R
             .          .          .
             .          .          .
717          .          .          .          .<-------  51B5DV
715          .          .          .     51B5DV
             .          .          .          .
             .          .          .          .
720          .          .          .          .------->  51B6DV
718          .          .          .      51B6D
             .          .          .          V
             .          .          .          V
723          .          .          .      51B6R
             .          .          .          .
             .          .          .          .
728          .          .          .          .          .<-------  51B6DV
726          .          .          .          .     51B6DV
             .          .          .          .          .
             .          .          .          .          .
731          .          .          .          .          .------->  51B7DV
729          .          .          .          .      51B7D
             .          .          .          .          V
             .          .          .          .          V
734          .          .          .          .     51B7R1
             .          .          .          .          .
             .          .          .          .          .
737          .          .      51B7C.......................
             .          .          V
             .          .          V
740          .          .     51B7R2
             .          .          .
             .          .          .
743          .          .          .       52B6
             .          .          .          .
             .          .          .          .
749          .          .      52B6C...........
             .          .          V
             .          .          V
752          .          .      52B6R
             .          .          .
             .          .          .
755          .          .          .       52B7
             .          .          .          .
             .          .          .          .
761          .          .     52B7C1...........
             .          .          .
             .          .          .
764          .     52B7C2...........
             .          .
             .          .
767          .          .       52A2
             .          .          .
             .          .          .
773          .     52A2C2...........
             .          .
             .          .
778          .          .          .<-------  51B7DV
776          .          .     51B7DV
             .          .          V
             .          .          V
779          .          .      51B8R
             .          .          .
             .          .          .
782          .          .          .       52A1
             .          .          .          .
             .          .          .          .
788          .          .      52A1C...........
```

```
                .          .          .
                .          .          .
793             .          .          .          .<-------  B51.1T
791             .          .          .      D51.1
                .          .          .          .
                .          .          .          .
794             .          .      C52A............
                .          .          .
                .          .          .
798             .       C52............
                .        V
                .        V
802             .       R52
                .        .
                .        .
809             .        .------->    B52T
807             .      D52T
                .        .
                .        .
812         CLEAR............
                .
                .
815             .       37A
                .        .
                .        .
832             .        .------->    37AW
821             .      37AE
                .        V
                .        V
835             .     37AE1
                .        .
                .        .
842             .        .      SUB5N
                .        .          .
                .        .          .
849             .     CP5N............
                .        V
                .        V
852             .     RET5N
                .        V
                .        V
859             .     R6N.1
                .        .
                .        .
867             .        .      SUB6B
                .        .          V
                .        .          V
873             .        .       SR6B
                .        .          .
                .        .          .
879             .     CP6.1............
                .        .
                .        .
882             .        .      SUB1N
                .        .          V
                .        .          V
888             .        .       R2NA
                .        .          .
                .        .          .
894             .        .          .      SUB2NA
                .        .          .          .
                .        .          .          .
900             .        .      CP2NA............
                .        .          V
                .        .          V
903             .        .      SR2NA
                .        .          V
                .        .          V
909             .        .       R2NB
                .        .          .
                .        .          .
915             .        .          .      SUB2NB
                .        .          .          .
                .        .          .          .
921             .        .      CP2NB............
                .        .          V
                .        .          V
924             .        .      SR2NB
                .        .          V
                .        .          V
930             .        .      RCP4N
                .        .          .
                .        .          .
936             .        .          .      SUB6N
                .        .          .          V
                .        .          .          V
942             .        .          .      RET6N
                .        .          .          V
                .        .          .          V
948             .        .          .      RCP4N1
                .        .          .          .
                .        .          .          .
954             .        .     CP4N.1............
                .        .          .
                .        .          .
```

```
 957          .          .          .      SUB3N
              .          .          .          V
              .          .          .          V
 963          .          .          .      RET3N
              .          .          .          V
              .          .          .          V
 970          .          .          .        R4N
              .          .          .          .
              .          .          .          .
 976          .          .     CP4N.2............
              .          .          .
              .          .          .
 979          .          .          .      SUB4N
              .          .          .          .
              .          .          .          .
 985          .          .       CP4N............
              .          .          V
              .          .          V
 988          .          .        R6N
              .          .          .
              .          .          .
 994          .          .          .      SUB6A
              .          .          .          .
              .          .          .          .
1000          .          .      CP6.2............
              .          .          .
              .          .          .
1003          .       CP6N............
              .          V
              .          V
1006          .      RCP6N
              .          .
              .          .
1012          .          .      SUB3C
              .          .          .
              .          .          .
1018          .       CP3C............
              .          V
              .          V
1021          .        R3C
              .          .
              .          .
1029          .          .     GC1018
              .          .          .
              .          .          .
1035          .          .          .      GC1-9
              .          .          .          .
              .          .          .          .
1041          .          .          .          .      SUB3S
              .          .          .          .          .
              .          .          .          .          .
1047          .       CP3S...................................
              .          V
              .          V
1050          .       RT3S
              .          .
              .          .
1056          .          .      SUB4S
              .          .          V
              .          .          V
1062          .          .       RT4S
              .          .          .
              .          .          .
1068          .          .          .      GC2-8
              .          .          .          .
              .          .          .          .
1074          .     1PGC28........................
              .          .
              .          .
1077          .          .     SUB3D3
              .          .          .
              .          .          .
1083          .     CPGC28............
              .          V
              .          V
1086          .     SRGC28
              .          V
              .          V
1092          .       RT7S
              .          .
              .          .
1098          .          .        GC7
              .          .          .
              .          .          .
1104          .       CP7S............
              .          .
              .          .
1112          .          .-------->    B7ST
1107          .       D7ST
              .          .
              .          .
1115     CLEAR............
              .
              .
1118          .     SUB3D1
```

```
                .          V
                .          V
1123            .       RD1B1
                .          .
                .          .
1129            .          .      SUB3B1
                .          .          .
                .          .          .
1134            .       CP3B1............
                .          V
                .          V
1137            .       RB13F
                .          .
                .          .
1143            .          .       SUB3F
                .          .          .
                .          .          .
1149            .        CP3F............
                .          .
                .          .
1152            .          .      SUB3B2
                .          .          V
                .          .          V
1157            .          .       RB2E1
                .          .          V
                .          .          V
1163            .          .       RB2E2
                .          .          .
                .          .          .
1169            .          .          .      SUB3E1
                .          .          .          .
                .          .          .          .
1174            .          .      1CPE31...........
                .          .          .
                .          .          .
1177            .          .          .      SUB3D2
                .          .          .          V
                .          .          .          V
1182            .          .          .       RD2E2
                .          .          .          .
                .          .          .          .
1188            .          .          .          .      SUB3E2
                .          .          .          .          .
                .          .          .          .          .
1193            .          .          .       CP3E2...........
                .          .          .          .
                .          .          .          .
1196            .          .          .          .        PC3
                .          .          .          .          .
                .          .          .          .          .
1205            .        CPC3...................................
                .          .
                .          .
1217            .          .-------->   BPC3T
1212            .       DPC3T
                .          .
                .          .
1220            .          .      SUB3E3
                .          .          .
                .          .          .
1225            .          .          .        PC4
                .          .          .          .
                .          .          .          .
1239            .          .          .          .          .<-------    B7ST
1234            .          .          .          .        D7S
                .          .          .          .          .
                .          .          .          .          .
1240            .          .        CPC4........................
                .          .          .
                .          .          .
1251            .          .          .-------->   BPC4T
1246            .          .       DPC4T
                .          .          .
                .          .          .
1254       CLEAR........................
                .
                .
1260            .          .<-------    37AW
1257            .        37AW
                .          V
                .          V
1261            .        R14R
                .          V
                .          V
1268            .      RET141
                .          V
                .          V
1275            .       R14.1
                .          .
                .          .
1282            .          .      SUB13N
                .          .          V
                .          .          V
1288            .          .       R14.1
                .          .          .
```

```
1294          .          .          .
              .          .          .     SUB14N
              .          .          .          .
              .          .          .          .
1300          .       CP14.......................
              .          V
              .          V
1303          .      RET14
              .          V
              .          V
1310          .      R18.1
              .          .
              .          .
1316          .          .     SUB20N
              .          .          V
              .          .          V
1322          .          .        R19
              .          .          .
              .          .          .
1328          .          .          .     SUB19N
              .          .          .          .
              .          .          .          .
1334          .          .      CP19N............
              .          .          V
              .          .          V
1337          .          .      R18NC
              .          .          .
              .          .          .
1343          .          .          .     UB18NC
              .          .          .          .
              .          .          .          .
1349          .     CP18NC.......................
              .          V
              .          V
1352          .       RPC1
              .          .
              .          .
1358          .          .     UB18NA
              .          .          V
              .          .          V
1364          .          .      1RPC1
              .          .          .
              .          .          .
1370          .          .          .     UB18NB
              .          .          .          V
              .          .          .          V
1376          .          .          .      2RPC1
              .          .          .          .
              .          .          .          .
1382          .          .          .          .        PC1
              .          .          .          .          .
              .          .          .          .          .
1388          .          .      1CPC1........................
              .          .          V
              .          .          V
1391          .          .      SRPC1
              .          .          .
              .          .          .
1397          .       CPC1............
              .          V
              .          V
1400          .     R16NA1
              .          .
              .          .
1406          .          .     UB16NA
              .          .          V
              .          .          V
1412          .          .     R16NA1
              .          .          .
              .          .          .
1418          .     C16NA1............
              .          V
              .          V
1421          .     R16NB1
              .          .
              .          .
1427          .          .     UB16NB
              .          .          V
              .          .          V
1433          .          .     R16NB1
              .          .          .
              .          .          .
1439          .     C16NB1............
              .          V
              .          V
1442          .     R16NC1
              .          .
              .          .
1448          .          .      SUB7N
              .          .          V
              .          .          V
1454          .          .       R8NC
              .          .          .
              .          .          .
1460          .          .          .     SUB8NA
```

```
                 .         .         .         V
                 .         .         .         V
1466             .         .         .      SR8NA
                 .         .         .         V
                 .         .         .         V
1472             .         .         .       R8NB
                 .         .         .         .
                 .         .         .         .
1478             .         .         .         .      SUB8NB
                 .         .         .         .          .
                 .         .         .         .          .
1484             .         .         .      CP8NB...........
                 .         .         .         V
                 .         .         .         V
1487             .         .         .      SR8NB
                 .         .         .         V
                 .         .         .         V
1493             .         .         .       R8NC
                 .         .         .         .
                 .         .         .         .
1499             .         .         .         .      SUB8NC
                 .         .         .         .          .
                 .         .         .         .          .
1505             .         .     CP8NC......................
                 .         .         V
                 .         .         V
1508             .         .     SR8NC
                 .         .         V
                 .         .         V
1514             .         .      R9N
                 .         .         .
                 .         .         .
1520             .         .         .      SUB9N
                 .         .         .         .
                 .         .         .         .
1526             .         .      CP9N...........
                 .         .         V
                 .         .         V
1529             .         .      R10B
                 .         .         .
                 .         .         .
1535             .         .         .     SUB10B
                 .         .         .         .
                 .         .         .         .
1542             .         .     CP10B...........
                 .         .         V
                 .         .         V
1545             .         .     R11NA
                 .         .         .
                 .         .         .
1551             .         .         .     UB11NA
                 .         .         .         .
                 .         .         .         .
1557             .         .    CP11NA...........
                 .         .         V
                 .         .         V
1560             .         .    SR11NA
                 .         .         V
                 .         .         V
1566             .         .     R11NB
                 .         .         .
                 .         .         .
1572             .         .         .     UB11NB
                 .         .         .         .
                 .         .         .         .
1578             .         .    CP11NB...........
                 .         .         V
                 .         .         V
1581             .         .    SR11NB
                 .         .         V
                 .         .         V
1587             .         .     R11NC
                 .         .         .
                 .         .         .
1593             .         .         .     UB11NC
                 .         .         .         .
                 .         .         .         .
1599             .         .    C11NC1...........
                 .         .         .
                 .         .         .
1602             .         .         .     SUB10A
                 .         .         .         V
                 .         .         .         V
1609             .         .         .      R12NB
                 .         .         .         .
                 .         .         .         .
1615             .         .         .         .      UB12NA
                 .         .         .         .          V
                 .         .         .         .          V
1621             .         .         .         .      SR12NA
                 .         .         .         .          V
                 .         .         .         .          V
1627             .         .         .         .       R12NA
                 .         .         .         .          .
                 .         .         .         .          .
```

```
1633          .          .          .          .          .      UB12NB
              .          .          .          .          .          .
              .          .          .          .          .          .
1639          .          .          .      CP12NB.......................
              .          .          .          V
              .          .          .          V
1642          .          .          .      SR12NB
              .          .          .          V
              .          .          .          V
1648          .          .          .      R11NC2
              .          .          .          .
              .          .          .          .
1654          .          .     CP11NC............
              .          .          V
              .          .          V
1657          .          .     SR11NC
              .          .          V
              .          .          V
1664          .          .      R16NC
              .          .          .
              .          .          .
1670          .          .          .      UB16NC
              .          .          .          .
              .          .          .          .
1676          .          .     CP16NC............
              .          .          V
              .          .          V
1679          .          .     R16NC1
              .          .          .
              .          .          .
1685          .     C16NC1............
              .          V
              .          V
1688          .      R15N1
              .          .
              .          .
1694          .          .        PC2
              .          .          .
              .          .          .
1700          .     CP15N1............
              .          V
              .          V
1703          .      SRPC2
              .          .
              .          .
1710          .          .     UB17NA
              .          .          V
              .          .          V
1716          .          .     SR17NA
              .          .          V
              .          .          V
1722          .          .      R17NB
              .          .          .
              .          .          .
1728          .          .          .      UB17NB
              .          .          .          .
              .          .          .          .
1734          .          .     CP17NB............
              .          .          V
              .          .          V
1737          .          .     SR17NB
              .          .          V
              .          .          V
1743          .          .       R17A
              .          .          .
              .          .          .
1749          .          .          .      SUB17A
              .          .          .          .
              .          .          .          .
1755          .          .     CP17A1............
              .          .          .
              .          .          .
1758          .          .          .      UB17NC
              .          .          .          .
              .          .          .          .
1764          .          .      CP17A............
              .          .          V
              .          .          V
1767          .          .       R15N
              .          .          .
              .          .          .
1773          .          .          .      SUB15N
              .          .          .          .
              .          .          .          .
1780          .          .      CP15N............
              .          .          V
              .          .          V
1783          .          .      R15N2
              .          .          .
              .          .          .
1789          .     CP15N2............
              .          V
              .          V
1793          .      R15N2
              .          .
```

```
1807          .          .          .<-------   BPC3T
1802          .          .       DPC3
              .          .          .
              .          .          .
1808          .      CPC3A...........
              .          V
              .          V
1814          .      RPC3A
              .          .
              .          .
1828          .          .          .<-------   BPC4T
1823          .          .       DPC4
              .          .          .
              .          .          .
1829          .      CPC4A...........
              .          V
              .          V
1835          .      RPC4A
              .          .
              .          .
1849          .          .-------> BPC4AT
1844          .     DPC4AT
              .          .
              .          .
1852          .          .     SUB1-2
              .          .          .
              .          .          .
1858          .          .          .     GCRB18
              .          .          .          .
              .          .          .          .
1865          .          .     CPRET1...........
              .          .         V
              .          .         V
1868          .          .      SR18S
              .          .          .
              .          .          .
1874          .          .          .      SUB5S
              .          .          .          .
              .          .          .          .
1880          .          .          .          .     GC1216
              .          .          .          .          .
              .          .          .          .          .
1886          .          .          .          .          .     GC1415
              .          .          .          .          .          .
              .          .          .          .          .          .
1892          .          .          .          .          .          .      SUB6S
              .          .          .          .          .          .          .
              .          .          .          .          .          .          .
1898          .          .          .          .          .          .          .      SUB7S
              .          .          .          .          .          .          .          .
              .          .          .          .          .          .          .          .
1904          .          .          .     CPRET2.......................................
              .          .          .         V
              .          .          .         V
1907          .          .          .     SRRET2
              .          .          .          .
              .          .          .          .
1913          .          .      CLEAR...........
              .          .          .
              .          .          .
1918          .          .          .      SUB8S
              .          .          .          V
              .          .          .          V
1924          .          .          .      RGC36
              .          .          .          .
              .          .          .          .
1930          .          .          .          .       GC36
              .          .          .          .          .
              .          .          .          .          .
1936          .          .          .     C1GC36...........
              .          .          .          .
              .          .          .          .
1939          .          .          .          .      SUB9S
              .          .          .          .          V
              .          .          .          .          V
1945          .          .          .          .       R9S
              .          .          .          .          .
              .          .          .          .          .
1951          .          .          .     CPGC36...........
              .          .          .         V
              .          .          .         V
1954          .          .          .     SRGC36
              .          .          .          .
              .          .          .          .
1960          .          .          .          .      SUB7A
              .          .          .          .          V
              .          .          .          .          V
1966          .          .          .          .      SR7A
              .          .          .          .          V
              .          .          .          .          V
1972          .          .          .          .      R10S
              .          .          .          .          .
              .          .          .          .          .
1978          .          .          .          .          .     SUB10S
```

```
                .         .         .         .         .         .
                .         .         .         .         .         .
1984            .         .         .         .      CP10S.........
                .         .         .         .         .
                .         .         .         .         .
1987            .         .         .         .         .     SUB11S
                .         .         .         .         .         V
                .         .         .         .         .         V
1993            .         .         .         .         .       R11S
                .         .         .         .         .         .
                .         .         .         .         .         .
2002            .         .         .         .      C10SA.........
                .         .         .         .         V
                .         .         .         .         V
2007            .         .         .         .      R10SA
                .         .         .         .         .
                .         .         .         .         .
2016            .         .         .         .         .       GC45
                .         .         .         .         .         .
                .         .         .         .         .         .
2022            .         .         .         .      CGC45.........
                .         .         .         .         .
                .         .         .         .         .
2027            .         .         .         .         .        PC5
                .         .         .         .         .         .
                .         .         .         .         .         .
2041            .         .         .         .         .         .<-------  BPC4AT
2036            .         .         .         .         .      DPC4A
                .         .         .         .         .         .
                .         .         .         .         .         .
2042            .         .      CPC5.........................................
                .         .         V
                .         .         V
2049            .         .       RC5
                .         .         .
                .         .         .
2055            .         .         .      SCN5D
                .         .         .         .
                .         .         .         .
2061            .         .      CN5D.........
                .         .         .
                .         .         .
2066            .         .         .         .<-------    B52T
2064            .         .         .       D52
                .         .         .         .
                .         .         .         .
2067            .         .         .         .       S53A
                .         .         .         .         .
                .         .         .         .         .
2074            .         .         .       C53.........
                .         .         .         .
                .         .         .         .
2077            .         .         .         .      S53A1
                .         .         .         .         .
                .         .         .         .         .
2085            .         .         .      C53A.........
                .         .         .         .
                .         .         .         .
2088            .         .         .         .      SCN6B
                .         .         .         .         .
                .         .         .         .         .
2098            .         .         .         .         .      SCN6D
                .         .         .         .         .         .
                .         .         .         .         .         .
2105            .         .         .      CP6D.........................
                .         .         .         .
                .         .         .         .
2108            .         .         .         .      SCN6C
                .         .         .         .         .
                .         .         .         .         .
2117            .         .         .      CP6C.........
                .         .         .         .
                .         .         .         .
2120            .         .       CP5D.........
                .         .         .
                .         .         .
2123            .         .         .      SCN5C
                .         .         .         .
                .         .         .         .
2129            .         .         .         .      SCN6E
                .         .         .         .         .
                .         .         .         .         .
2135            .         .     EAST-I........................
                .         .         V
                .         .         V
2138            .         .     EAST-O
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*************************************                    *************************************
*                                   *                    *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                *   U.S. ARMY CORPS OF ENGINEERS    *
*              MAY   1991           *                    *   HYDROLOGIC ENGINEERING CENTER   *
*           VERSION 4.0.1E          *                    *         609 SECOND STREET         *
*     Lahey F77L-EM/32 version 5.01 *                    *       DAVIS, CALIFORNIA 95616     *
*       Dodson & Associates, Inc.   *                    *           (916) 551-1748          *
```

```
                    PIMA ROAD THREE BASINS                          File:  FU100-6.IH1
                    by  Stantec for the City of Scottsdale        Original: 08-07-97     mcg
                        Project:  28900082                         Revised: 01-20-99     mcg

                    100-YEAR, 6-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


 18 IO         OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT         HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1   0  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ        720  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      3   0  ENDING DATE
                    NDTIME       1155  ENDING TIME
                     ICENT         19  CENTURY MARK

               COMPUTATION INTERVAL    0.08 HOURS
                    TOTAL TIME BASE   59.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

 19 JD         INDEX STORM NO. 1
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA       0.01  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


 20 JD         INDEX STORM NO. 2
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA       0.10  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


 21 JD         INDEX STORM NO. 3
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA       0.50  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


 22 JD         INDEX STORM NO. 4
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA       1.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


 23 JD         INDEX STORM NO. 5
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA       5.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


 24 JD         INDEX STORM NO. 6
                     STRM       0.00  PRECIPITATION DEPTH
                     TRDA      25.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

```
*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

WARNING --- ROUTED OUTFLOW (   2025.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2035.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2034.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2024.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2024.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2034.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2033.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2023.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2020.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2030.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2030.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2026.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   2025.) IS GREATER THAN MAXIMUM OUTFLOW (   2020.) IN STORAGE-OUTFLOW TABLE
1
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S30N	1227.	3.33	128.	32.	13.	0.65		
+	ROUTED TO	R30N	1126.	3.42	128.	32.	13.	0.65		
+	HYDROGRAPH AT	S31.1	395.	3.33	43.	11.	4.	0.27		
+	2 COMBINED AT	C31.1	1508.	3.33	171.	43.	17.	0.92		
+	HYDROGRAPH AT	S34.2	691.	3.33	73.	18.	7.	0.44		
+	2 COMBINED AT	C34.2	2177.	3.33	243.	61.	25.	1.36		
+	HYDROGRAPH AT	S35N	1298.	3.25	108.	27.	11.	0.55		
+	DIVERSION TO	D35NL	567.	3.25	47.	12.	5.	0.55		
+	HYDROGRAPH AT	D35NR	731.	3.25	60.	15.	6.	0.55		
+	ROUTED TO	R35NR	586.	3.33	60.	15.	6.	0.55		
+	HYDROGRAPH AT	S36.2	400.	3.25	34.	9.	3.	0.21		

+	2 COMBINED AT	C36.2	906.	3.25	94.	24.	10.	0.54
+	DIVERSION TO	D36.2L	231.	3.25	9.	2.	1.	0.54
+	HYDROGRAPH AT	D36.2R	675.	3.25	85.	21.	9.	0.54
+	ROUTED TO	R36.2R	482.	3.67	85.	21.	9.	0.54
+	HYDROGRAPH AT	S34.1	1831.	3.33	190.	48,	19.	1.16
+	2 COMBINED AT	C34.1	1896.	3.33	273.	69.	28.	1.54
+	2 COMBINED AT	HVDB-I	4015.	3.33	512.	130.	52.	2.90
+	ROUTED TO	HVDB-O	133.	6.58	131.	113.	52.	2.90
+	ROUTED TO	R34.1	133.	6.67	131.	113.	52.	2.90
+	HYDROGRAPH AT	S36.1	159.	3.42	19.	5.	2.	0.14
+	2 COMBINED AT	C36.1	244.	3.42	146.	118.	54.	3.04
+	ROUTED TO	R36.1	242.	3.50	146.	118.	54.	3.04
+	HYDROGRAPH AT	B35NL	567.	3.25	47.	12.	5.	0.55
+	ROUTED TO	R35NL	351.	3.58	47.	12.	5.	0.55
+	HYDROGRAPH AT	B36.2L	231.	3.25	9.	2.	1.	0.54
+	ROUTED TO	R36.2L	103.	3.58	9.	2.	1.	0.54
+	HYDROGRAPH AT	S36R1A	652.	3.50	89.	23.	9.	0.63
+	4 COMBINED AT	C36R1A	1230.	3.50	287.	154.	68.	4.05
+	HYDROGRAPH AT	S36R1B	649.	3.42	83.	21.	8.	0.59
+	2 COMBINED AT	C36R1B	1804.	3.50	367.	174.	76.	4.64
+	HYDROGRAPH AT	S36R2A	280.	3.17	21.	5.	2.	0.13
+	2 COMBINED AT	C36R2A	1862.	3.50	384.	178.	78.	4.77
+	ROUTED TO	R36R2A	1862.	3.58	384.	178.	78.	4.77
+	HYDROGRAPH AT	S36R2B	264.	3.42	33.	8.	3.	0.24
+	2 COMBINED AT	C36R2B	2018.	3.58	416.	186.	82.	5.01
+	HYDROGRAPH AT	S51.1	1058.	3.50	162.	41.	16.	1.13
+	2 COMBINED AT	DVDB-I	2966.	3.58	570.	225.	97.	6.14
+	ROUTED TO	DVDB-O	250.	6.75	248.	218.	97.	6.14
+	DIVERSION TO	B51.1T	250.	6.75	248.	218.	97.	6.14
+	HYDROGRAPH AT	D51.1T	0.	0.08	0.	0.	0.	6.14
+	HYDROGRAPH AT	52D4	116.	3.25	11.	3.	1.	0.07
+	ROUTED TO	52D4R	106.	3.25	11.	3.	1.	0.07

+	HYDROGRAPH AT 52D4B	70.	3.17	6.	1.	1.	0.02
+	2 COMBINED AT 52D5C1	161.	3.25	17.	4.	2.	0.09
+	HYDROGRAPH AT 52D5A	79.	3.17	6.	2.	1.	0.02
+	ROUTED TO 52D5AR	75.	3.17	6.	2.	1.	0.02
+	2 COMBINED AT 52D5C2	217.	3.25	23.	6.	2.	0.12
+	ROUTED TO 52D5R	216.	3.25	23.	6.	2.	0.12
+	HYDROGRAPH AT 52C3	24.	3.08	2.	0.	0.	0.01
+	ROUTED TO 52C3R	23.	3.17	2.	0.	0.	0.01
+	HYDROGRAPH AT 52C3B	53.	3.08	4.	1.	0.	0.02
+	2 COMBINED AT 2C3BC1	74.	3.17	6.	1.	1.	0.02
+	2 COMBINED AT 2C3BC2	270.	3.17	29.	7.	3.	0.14
+	ROUTED TO 52C3BR	261.	3.25	29.	7.	3.	0.14
+	HYDROGRAPH AT 51C	166.	3.17	15.	4.	1.	0.10
+	DIVERSION TO 51C1DV	111.	3.17	10.	3.	1.	0.10
+	HYDROGRAPH AT 51C1D	55.	3.17	5.	1.	0.	0.10
+	ROUTED TO 51C1R	53.	3.25	5.	1.	0.	0.10
+	HYDROGRAPH AT 52C1	69.	3.17	5.	1.	0.	0.03
+	2 COMBINED AT 52C1C	106.	3.17	10.	2.	1.	0.06
+	ROUTED TO 52C1R	101.	3.25	10.	2.	1.	0.06
+	HYDROGRAPH AT 52C2A	35.	3.17	2.	1.	0.	0.02
+	2 COMBINED AT 52C2AC	125.	3.25	12.	3.	1.	0.08
+	HYDROGRAPH AT 52C2B	56.	3.17	4.	1.	0.	0.03
+	2 COMBINED AT 52C2BC	170.	3.17	16.	4.	2.	0.11
+	ROUTED TO 52C2BR	168.	3.25	16.	4.	2.	0.11
+	HYDROGRAPH AT 52C2C	46.	3.08	4.	1.	0.	0.01
+	2 COMBINED AT 52C2CC	194.	3.25	20.	5.	2.	0.12
+	ROUTED TO 52C2R	180.	3.25	20.	5.	2.	0.12
+	HYDROGRAPH AT 52C4	56.	3.17	4.	1.	0.	0.02
+	2 COMBINED AT 52C4C1	211.	3.25	24.	6.	2.	0.14
+	2 COMBINED AT 52C4C2	472.	3.25	53.	13.	5.	0.28
+	ROUTED TO 52C4R	462.	3.25	53.	14.	5.	0.28
	HYDROGRAPH AT						

+	52C13	69.	3.08	5.	1.	0.	0.02
DIVERSION TO +	STORM	40.	3.08	4.	1.	0.	0.02
HYDROGRAPH AT +	2C13DV	29.	3.08	1.	0.	0.	0.02
HYDROGRAPH AT +	52C15	157.	3.08	13.	3.	1.	0.05
2 COMBINED AT +	2C15C1	186.	3.08	13.	3.	1.	0.05
2 COMBINED AT +	2C15C2	546.	3.17	66.	17.	7.	0.32
ROUTED TO +	52C15R	544.	3.25	66.	17.	7.	0.32
HYDROGRAPH AT +	52C14A	142.	3.17	11.	3.	1.	0.04
2 COMBINED AT +	2C14AC	655.	3.17	78.	20.	8.	0.36
ROUTED TO +	2C14AR	637.	3.17	78.	20.	8.	0.36
HYDROGRAPH AT +	51C1DV	111.	3.17	10.	3.	1.	0.10
DIVERSION TO +	51C2DV	30.	3.17	3.	1.	0.	0.10
HYDROGRAPH AT +	51C2D	81.	3.17	7.	2.	1.	0.10
ROUTED TO +	51C2R	78.	3.25	7.	2.	1.	0.10
HYDROGRAPH AT +	52C5	40.	3.17	3.	1.	0.	0.02
2 COMBINED AT +	52C5C	109.	3.17	10.	3.	1.	0.06
ROUTED TO +	52C5R	104.	3.25	10.	3.	1.	0.06
HYDROGRAPH AT +	52C6	82.	3.17	7.	2.	1.	0.04
2 COMBINED AT +	52C6C	173.	3.25	17.	4.	2.	0.10
ROUTED TO +	52C6R	165.	3.25	17.	4.	2.	0.10
HYDROGRAPH AT +	51C2DV	30.	3.17	3.	1.	0.	0.10
ROUTED TO +	51C3R	29.	3.25	3.	1.	0.	0.10
HYDROGRAPH AT +	51B	596.	3.42	79.	20.	8.	0.57
DIVERSION TO +	51B1DV	549.	3.42	72.	18.	7.	0.57
HYDROGRAPH AT +	51B1D	48.	3.42	6.	2.	1.	0.57
ROUTED TO +	51B1R	48.	3.42	6.	2.	1.	0.57
HYDROGRAPH AT +	52C7	18.	3.08	1.	0.	0.	0.01
3 COMBINED AT +	52C7C	76.	3.25	10.	3.	1.	0.07
ROUTED TO +	52C7R	75.	3.33	10.	3.	1.	0.07
HYDROGRAPH AT +	51B1DV	549.	3.42	72.	18.	7.	0.57
DIVERSION TO +	51B2DV	461.	3.42	61.	15.	6.	0.57
HYDROGRAPH AT +	51B2D	88.	3.42	12.	3.	1.	0.57

+	ROUTED TO 51B2R	88.	3.42	12.	3.	1.	0.57
+	HYDROGRAPH AT 52C8	21.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT 52C8C	93.	3.42	13.	3.	1.	0.45
+	ROUTED TO 52C8R	92.	3.42	13.	3.	1.	0.45
+	2 COMBINED AT 52C9C1	163.	3.42	23.	6.	2.	0.52
+	ROUTED TO 52C9R1	162.	3.42	23.	6.	2.	0.52
+	HYDROGRAPH AT 52C9	174.	3.17	14.	3.	1.	0.07
+	2 COMBINED AT 52C9C2	255.	3.25	37.	9.	4.	0.59
+	ROUTED TO 52C9R2	254.	3.25	37.	9.	4.	0.59
+	2 COMBINED AT 2C10C1	418.	3.25	54.	14.	5.	0.69
+	ROUTED TO 2C10R1	412.	3.25	54.	14.	5.	0.69
+	HYDROGRAPH AT 52C10	28.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT 2C10C2	428.	3.25	56.	14.	6.	0.70
+	HYDROGRAPH AT 52C11	96.	3.17	8.	2.	1.	0.04
+	ROUTED TO 2C11R1	88.	3.17	8.	2.	1.	0.04
+	HYDROGRAPH AT 52C13D	40.	3.08	4.	1.	0.	0.02
+	2 COMBINED AT 52C11C	128.	3.17	12.	3.	1.	0.07
+	ROUTED TO 2C11CR	120.	3.17	12.	3.	1.	0.07
+	2 COMBINED AT 2C11C2	541.	3.25	68.	17.	7.	0.77
+	ROUTED TO 2C11R2	530.	3.25	68.	17.	7.	0.77
+	HYDROGRAPH AT 52C12	119.	3.08	7.	2.	1.	0.02
+	2 COMBINED AT 52C12C	567.	3.25	75.	19.	8.	0.79
+	ROUTED TO 52C12R	549.	3.25	75.	19.	8.	0.79
+	HYDROGRAPH AT 52C14B	76.	3.08	6.	1.	1.	0.02
+	2 COMBINED AT C14BC1	584.	3.25	81.	20.	8.	0.81
+	2 COMBINED AT C14BC2	1200.	3.25	158.	40.	16.	1.17
+	ROUTED TO 52C14R	1194.	3.25	158.	40.	16.	1.17
+	HYDROGRAPH AT 51B2DV	461.	3.42	61.	15.	6.	0.57
+	DIVERSION TO 51B3DV	387.	3.42	51.	13.	5.	0.57
+	HYDROGRAPH AT 51B3D	74.	3.42	10.	2.	1.	0.57
+	ROUTED TO 51B3R	74.	3.42	10.	2.	1.	0.57
+	HYDROGRAPH AT 52B1	8.	3.08	1.	0.	0.	0.00

	2 COMBINED AT						
+		52B1C	76.	3.42	10.	3.	1.	0.07
	ROUTED TO						
+		52B1R	75.	3.42	10.	3.	1.	0.07
	HYDROGRAPH AT						
+		51B3DV	387.	3.42	51.	13.	5.	0.57
	DIVERSION TO						
+		51B4DV	317.	3.42	42.	11.	4.	0.57
	HYDROGRAPH AT						
+		51B4D	70.	3.42	9.	2.	1.	0.57
	ROUTED TO						
+		51B4R1	70.	3.42	9.	2.	1.	0.57
	2 COMBINED AT						
+		52B2C1	145.	3.42	20.	5.	2.	0.14
	ROUTED TO						
+		52B2R1	142.	3.42	20.	5.	2.	0.14
	HYDROGRAPH AT						
+		52B2	69.	3.17	5.	1.	1.	0.03
	2 COMBINED AT						
+		52B2C2	166.	3.42	25.	6.	3.	0.17
	ROUTED TO						
+		52B2R2	164.	3.42	25.	6.	3.	0.17
	ROUTED TO						
+		52B3R1	163.	3.42	25.	6.	3.	0.17
	HYDROGRAPH AT						
+		52B3	141.	3.17	12.	3.	1.	0.06
	2 COMBINED AT						
+		52B3C2	249.	3.25	37.	9.	4.	0.23
	ROUTED TO						
+		52B3R2	241.	3.33	37.	9.	4.	0.23
	HYDROGRAPH AT						
+		52B4	87.	3.17	7.	2.	1.	0.03
	2 COMBINED AT						
+		52B4C	284.	3.25	44.	11.	4.	0.26
	ROUTED TO						
+		52B4R	277.	3.25	44.	11.	4.	0.26
	HYDROGRAPH AT						
+		52B5	69.	3.08	5.	1.	1.	0.02
	2 COMBINED AT						
+		52B5C1	313.	3.25	49.	12.	5.	0.28
	2 COMBINED AT						
+		52B5C2	1496.	3.25	207.	52.	21.	1.45
	ROUTED TO						
+		52B5R	1474.	3.25	207.	53.	21.	1.45
	HYDROGRAPH AT						
+		51B4DV	317.	3.42	42.	11.	4.	0.57
	DIVERSION TO						
+		51B5DV	216.	3.42	28.	7.	3.	0.57
	HYDROGRAPH AT						
+		51B5D	102.	3.42	13.	3.	1.	0.57
	ROUTED TO						
+		51B5R	102.	3.42	13.	3.	1.	0.57
	HYDROGRAPH AT						
+		51B5DV	216.	3.42	28.	7.	3.	0.57
	DIVERSION TO						
+		51B6DV	114.	3.42	15.	4.	2.	0.57
	HYDROGRAPH AT						
+		51B6D	101.	3.42	13.	3.	1.	0.57
	ROUTED TO						
+		51B6R	101.	3.42	13.	3.	1.	0.57
	HYDROGRAPH AT						
+		51B6DV	114.	3.42	15.	4.	2.	0.57
	DIVERSION TO						

+	51B7DV	66.	3.42	9.	2.	1.	0.57
+ HYDROGRAPH AT	51B7D	48.	3.42	6.	2.	1.	0.57
+ ROUTED TO	51B7R1	48.	3.42	6.	2.	1.	0.57
+ 3 COMBINED AT	51B7C	252.	3.42	33.	8.	3.	0.24
+ ROUTED TO	51B7R2	244.	3.42	33.	8.	3.	0.24
+ HYDROGRAPH AT	52B6	190.	3.17	15.	4.	2.	0.10
+ 2 COMBINED AT	52B6C	313.	3.42	48.	12.	5.	0.34
+ ROUTED TO	52B6R	311.	3.42	48.	12.	5.	0.34
+ HYDROGRAPH AT	52B7	303.	3.17	24.	6.	2.	0.08
+ 2 COMBINED AT	52B7C1	411.	3.25	72.	18.	7.	0.42
+ 2 COMBINED AT	52B7C2	1871.	3.25	278.	71.	28.	1.87
+ HYDROGRAPH AT	52A2	263.	3.17	21.	5.	2.	0.06
+ 2 COMBINED AT	52A2C2	2033.	3.25	299.	76.	30.	1.62
+ HYDROGRAPH AT	51B7DV	66.	3.42	9.	2.	1.	0.57
+ ROUTED TO	51B8R	66.	3.50	9.	2.	1.	0.57
+ HYDROGRAPH AT	52A1	340.	3.17	26.	6.	3.	0.13
+ 2 COMBINED AT	52A1C	344.	3.17	34.	9.	3.	0.13
+ HYDROGRAPH AT	D51.1	250.	6.75	248.	218.	97.	6.14
+ 2 COMBINED AT	C52A	389.	3.17	266.	225.	100.	6.27
+ 2 COMBINED AT	C52	2226.	3.25	537.	293.	129.	7.92
+ ROUTED TO	R52	2226.	3.33	537.	293.	129.	7.92
+ DIVERSION TO	B52T	2226.	3.33	537.	293.	129.	7.92
+ HYDROGRAPH AT	D52T	0.	0.08	0.	0.	0.	7.92
+ 2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	14.06
+ HYDROGRAPH AT	37A	1164.	3.25	119.	30.	12.	0.68
+ DIVERSION TO	37AW	815.	3.25	83.	21.	8.	0.68
+ HYDROGRAPH AT	37AE	349.	3.25	36.	9.	4.	0.68
+ ROUTED TO	37AE1	342.	3.25	36.	9.	4.	0.68
+ HYDROGRAPH AT	SUB5N	70.	3.17	5.	1.	1.	0.03
+ 2 COMBINED AT	CP5N	394.	3.25	41.	10.	4.	0.23
+ ROUTED TO	RET5N	357.	3.33	40.	10.	4.	0.23
+ ROUTED TO	R6N.1	294.	3.42	40.	10.	4.	0.23

+	HYDROGRAPH AT	SUB6B	74.	3.17	5.	1.	1.	0.03
+	ROUTED TO	SR6B	43.	3.25	5.	1.	1.	0.03
+	2 COMBINED AT	CP6.1	326.	3.42	45.	12.	5.	0.26
+	HYDROGRAPH AT	SUB1N	47.	3.17	3.	1.	0.	0.02
+	ROUTED TO	R2NA	46.	3.17	3.	1.	0.	0.02
+	HYDROGRAPH AT	SUB2NA	34.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CP2NA	80.	3.17	6.	1.	1.	0.03
+	ROUTED TO	SR2NA	70.	3.25	4.	1.	0.	0.03
+	ROUTED TO	R2NB	59.	3.33	4.	1.	0.	0.03
+	HYDROGRAPH AT	SUB2NB	96.	3.17	8.	2.	1.	0.03
+	2 COMBINED AT	CP2NB	99.	3.33	12.	3.	1.	0.06
+	ROUTED TO	SR2NB	25.	3.75	11.	3.	1.	0.06
+	ROUTED TO	RCP4N	24.	3.75	11.	3.	1.	0.06
+	HYDROGRAPH AT	SUB6N	114.	3.17	8.	2.	1.	0.05
+	ROUTED TO	RET6N	0.	0.08	0.	0.	0.	0.05
+	ROUTED TO	RCP4N1	0.	0.08	0.	0.	0.	0.05
+	2 COMBINED AT	CP4N.1	24.	3.75	11.	3.	1.	0.11
+	HYDROGRAPH AT	SUB3N	67.	3.17	4.	1.	0.	0.03
+	ROUTED TO	RET3N	4.	4.17	3.	1.	0.	0.03
+	ROUTED TO	R4N	4.	4.25	3.	1.	0.	0.03
+	2 COMBINED AT	CP4N.2	27.	3.75	14.	4.	2.	0.14
+	HYDROGRAPH AT	SUB4N	80.	3.17	6.	1.	1.	0.03
+	2 COMBINED AT	CP4N	89.	3.17	19.	6.	2.	0.17
+	ROUTED TO	R6N	82.	3.17	19.	6.	2.	0.17
+	HYDROGRAPH AT	SUB6A	64.	3.08	4.	1.	0.	0.01
+	2 COMBINED AT	CP6.2	121.	3.17	23.	7.	3.	0.18
+	2 COMBINED AT	CP6N	376.	3.42	68.	18.	7.	0.45
+	ROUTED TO	RCP6N	373.	3.42	68.	18.	7.	0.45
+	HYDROGRAPH AT	SUB3C	55.	3.08	3.	1.	0.	0.01
+	2 COMBINED AT	CP3C	380.	3.42	70.	19.	8.	0.46
+	ROUTED TO	R3C	361.	3.50	70.	19.	8.	0.46
+	HYDROGRAPH AT	GC1018	101.	3.17	7.	2.	1.	0.04

+	HYDROGRAPH AT	GC1-9	58.	3.17	4.	1.	0.	0.03
+	HYDROGRAPH AT	SUB3S	33.	3.17	3.	1.	0.	0.01
+	4 COMBINED AT	CP3S	411.	3.50	84.	22.	9.	0.54
+	ROUTED TO	RT3S	409.	3.50	84.	22.	9.	0.54
+	HYDROGRAPH AT	SUB4S	87.	3.17	7.	2.	1.	0.03
+	ROUTED TO	RT4S	87.	3.17	7.	2.	1.	0.03
+	HYDROGRAPH AT	GC2-8	32.	3.17	2.	1.	0.	0.01
+	3 COMBINED AT	1PGC28	437.	3.50	93.	25.	10.	0.58
+	HYDROGRAPH AT	SUB3D3	35.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CPGC28	444.	3.50	95.	25.	10.	0.59
+	ROUTED TO	SRGC28	443.	3.25	95.	25.	10.	0.59
+	ROUTED TO	RT7S	431.	3.58	95.	25.	10.	0.59
+	HYDROGRAPH AT	GC7	31.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CP7S	437.	3.58	97.	26.	10.	0.61
+	DIVERSION TO	B7ST	437.	3.58	97.	26.	10.	0.61
+	HYDROGRAPH AT	D7ST	0.	0.08	0.	0.	0.	0.61
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	14.67
+	HYDROGRAPH AT	SUB3D1	27.	3.08	2.	0.	0.	0.01
+	ROUTED TO	RD1B1	22.	3.17	2.	0.	0.	0.01
+	HYDROGRAPH AT	SUB3B1	47.	3.08	3.	1.	0.	0.01
+	2 COMBINED AT	CP3B1	61.	3.08	5.	1.	1.	0.02
+	ROUTED TO	RB13F	48.	3.25	5.	1.	1.	0.02
+	HYDROGRAPH AT	SUB3F	141.	3.08	10.	2.	1.	0.03
+	2 COMBINED AT	CP3F	169.	3.08	15.	4.	2.	0.06
+	HYDROGRAPH AT	SUB3B2	67.	3.17	6.	1.	1.	0.02
+	ROUTED TO	RB2E1	64.	3.17	6.	1.	1.	0.02
+	ROUTED TO	RB2E2	61.	3.25	6.	1.	1.	0.02
+	HYDROGRAPH AT	SUB3E1	67.	3.17	6.	1.	1.	0.02
+	2 COMBINED AT	1CPE31	125.	3.17	11.	3.	1.	0.05
+	HYDROGRAPH AT	SUB3D2	58.	3.17	5.	1.	0.	0.02
+	ROUTED TO	RD2E2	56.	3.17	5.	1.	0.	0.02
	HYDROGRAPH AT							

+	SUB3E2	37.	3.08	3.	1.	0.	0.01
2 COMBINED AT +	CP3E2	86.	3.17	7.	2.	1.	0.03
HYDROGRAPH AT +	PC3	59.	3.33	7.	2.	1.	0.04
4 COMBINED AT +	CPC3	400.	3.17	40.	10.	4.	0.18
DIVERSION TO +	BPC3T	400.	3.17	40.	10.	4.	0.18
HYDROGRAPH AT +	DPC3T	0.	0.08	0.	0.	0.	0.18
HYDROGRAPH AT +	SUB3E3	60.	3.08	4.	1.	0.	0.02
HYDROGRAPH AT +	PC4	25.	3.33	3.	1.	0.	0.02
HYDROGRAPH AT +	D7S	437.	3.58	97.	26.	10.	0.61
3 COMBINED AT +	CPC4	476.	3.33	104.	28.	11.	0.65
DIVERSION TO +	BPC4T	476.	3.33	104.	28.	11.	0.65
HYDROGRAPH AT +	DPC4T	0.	0.08	0.	0.	0.	0.65
3 COMBINED AT +	CLEAR	0.	0.08	0.	0.	0.	15.50
HYDROGRAPH AT +	37AW	815.	3.25	83.	21.	8.	0.68
ROUTED TO +	R14R	659.	3.33	83.	21.	8.	0.68
ROUTED TO +	RET141	631.	3.42	78.	21.	8.	0.68
ROUTED TO +	R14.1	558.	3.50	78.	21.	8.	0.68
HYDROGRAPH AT +	SUB13N	81.	3.17	7.	2.	1.	0.04
ROUTED TO +	R14.1	78.	3.25	7.	2.	1.	0.04
HYDROGRAPH AT +	SUB14N	88.	3.25	8.	2.	1.	0.05
3 COMBINED AT +	CP14	625.	3.50	92.	25.	10.	0.56
ROUTED TO +	RET14	574.	3.58	88.	25.	10.	0.56
ROUTED TO +	R18.1	570.	3.58	88.	25.	10.	0.56
HYDROGRAPH AT +	SUB20N	47.	3.17	4.	1.	0.	0.02
ROUTED TO +	R19	48.	3.25	4.	1.	0.	0.02
HYDROGRAPH AT +	SUB19N	94.	3.17	8.	2.	1.	0.04
2 COMBINED AT +	CP19N	133.	3.17	12.	3.	1.	0.06
ROUTED TO +	R18NC	132.	3.25	12.	3.	1.	0.06
HYDROGRAPH AT +	UB18NC	62.	3.17	5.	1.	0.	0.02
3 COMBINED AT +	CP18NC	619.	3.58	103.	29.	12.	0.64
ROUTED TO +	RPC1	628.	3.58	103.	29.	12.	0.64
HYDROGRAPH AT +	UB18NA	65.	3.17	5.	1.	1.	0.02

	ROUTED TO						
+	1RPC1	31.	3.33	5.	1.	1.	0.02
	HYDROGRAPH AT						
+	UB18NB	27.	3.17	2.	1.	0.	0.01
	ROUTED TO						
+	2RPC1	16.	3.25	2.	1.	0.	0.01
	HYDROGRAPH AT						
+	PC1	66.	3.42	10.	2.	1.	0.06
	3 COMBINED AT						
+	1CPC1	107.	3.42	17.	4.	2.	0.09
	ROUTED TO						
+	SRPC1	108.	3.42	16.	4.	2.	0.09
	2 COMBINED AT						
+	CPC1	712.	3.58	120.	33.	13.	0.74
	ROUTED TO						
+	R16NA1	720.	3.58	119.	33.	13.	0.74
	HYDROGRAPH AT						
+	UB16NA	42.	3.17	3.	1.	0.	0.01
	ROUTED TO						
+	R16NA1	37.	3.17	3.	1.	0.	0.01
	2 COMBINED AT						
+	C16NA1	728.	3.58	122.	34.	14.	0.75
	ROUTED TO						
+	R16NB1	717.	3.58	122.	34.	14.	0.75
	HYDROGRAPH AT						
+	UB16NB	48.	3.17	4.	1.	0.	0.02
	ROUTED TO						
+	R16NB1	43.	3.17	4.	1.	0.	0.02
	2 COMBINED AT						
+	C16NB1	725.	3.58	126.	35.	14.	0.77
	ROUTED TO						
+	R16NC1	727.	3.67	126.	35.	14.	0.77
	HYDROGRAPH AT						
+	SUB7N	74.	3.17	5.	1.	1.	0.03
	ROUTED TO						
+	R8NC	64.	3.25	5.	1.	1.	0.03
	HYDROGRAPH AT						
+	SUB8NA	13.	3.08	1.	0.	0.	0.00
	ROUTED TO						
+	SR8NA	1.	4.17	0.	0.	0.	0.00
	ROUTED TO						
+	R8NB	1.	4.17	0.	0.	0.	0.00
	HYDROGRAPH AT						
+	SUB8NB	34.	3.08	2.	1.	0.	0.01
	2 COMBINED AT						
+	CP8NB	34.	3.08	3.	1.	0.	0.02
	ROUTED TO						
+	SR8NB	2.	3.08	2.	1.	0.	0.02
	ROUTED TO						
+	R8NC	2.	3.08	2.	1.	0.	0.02
	HYDROGRAPH AT						
+	SUB8NC	51.	3.08	3.	1.	0.	0.02
	3 COMBINED AT						
+	CP8NC	103.	3.17	10.	3.	1.	0.07
	ROUTED TO						
+	SR8NC	18.	3.75	10.	3.	1.	0.07
	ROUTED TO						
+	R9N	17.	3.75	10.	3.	1.	0.07
	HYDROGRAPH AT						
+	SUB9N	143.	3.17	11.	3.	1.	0.05
	2 COMBINED AT						
+	CP9N	153.	3.17	21.	6.	2.	0.12
	ROUTED TO						
+	R10B	148.	3.17	21.	6.	2.	0.12

+	HYDROGRAPH AT	SUB10B	87.	3.08	6.	2.	1.	0.03
+	2 COMBINED AT	CP10B	226.	3.17	27.	7.	3.	0.15
+	ROUTED TO	R11NA	229.	3.17	27.	7.	3.	0.15
+	HYDROGRAPH AT	UB11NA	21.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	CP11NA	245.	3.17	28.	8.	3.	0.16
+	ROUTED TO	SR11NA	145.	3.33	28.	8.	3.	0.16
+	ROUTED TO	R11NB	140.	3.33	28.	8.	3.	0.16
+	HYDROGRAPH AT	UB11NB	22.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	CP11NB	146.	3.33	29.	8.	3.	0.17
+	ROUTED TO	SR11NB	84.	3.50	28.	8.	3.	0.17
+	ROUTED TO	R11NC	87.	3.50	28.	8.	3.	0.17
+	HYDROGRAPH AT	UB11NC	19.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	C11NC1	90.	3.50	30.	8.	3.	0.17
+	HYDROGRAPH AT	SUB10A	88.	3.08	7.	2.	1.	0.03
+	ROUTED TO	R12NB	95.	3.17	7.	2.	1.	0.03
+	HYDROGRAPH AT	UB12NA	36.	3.17	3.	1.	0.	0.02
+	ROUTED TO	SR12NA	1.	6.17	0.	0.	0.	0.02
+	ROUTED TO	R12NA	1.	6.17	0.	0.	0.	0.02
+	HYDROGRAPH AT	UB12NB	37.	3.17	3.	1.	0.	0.02
+	3 COMBINED AT	CP12NB	132.	3.17	10.	3.	1.	0.06
+	ROUTED TO	SR12NB	2.	3.17	2.	2.	1.	0.06
+	ROUTED TO	R11NC2	2.	3.50	2.	2.	1.	0.06
+	2 COMBINED AT	CP11NC	92.	3.50	32.	10.	4.	0.23
+	ROUTED TO	SR11NC	71.	3.75	30.	10.	4.	0.23
+	ROUTED TO	R16NC	71.	3.75	30.	10.	4.	0.23
+	HYDROGRAPH AT	UB16NC	102.	3.17	8.	2.	1.	0.03
+	2 COMBINED AT	CP16NC	107.	3.17	36.	12.	5.	0.27
+	ROUTED TO	R16NC1	106.	3.17	36.	12.	5.	0.27
+	2 COMBINED AT	C16NC1	788.	3.67	162.	47.	19.	1.03
+	ROUTED TO	R15N1	793.	3.67	162.	47.	19.	1.03
+	HYDROGRAPH AT	PC2	93.	3.25	8.	2.	1.	0.05
	2 COMBINED AT							

+		CP15N1	815.	3.67	170.	49.	20.	1.09
+	ROUTED TO	SRPC2	786.	3.75	169.	48.	20.	1.09
+	HYDROGRAPH AT	UB17NA	28.	3.08	2.	0.	0.	0.01
+	ROUTED TO	SR17NA	2.	3.75	1.	0.	0.	0.01
+	ROUTED TO	R17NB	2.	3.75	1.	0.	0.	0.01
+	HYDROGRAPH AT	UB17NB	27.	3.17	2.	0.	0.	0.01
+	2 COMBINED AT	CP17NB	28.	3.17	3.	1.	0.	0.02
+	ROUTED TO	SR17NB	1.	3.00	1.	1.	0.	0.02
+	ROUTED TO	R17A	1.	3.08	1.	1.	0.	0.02
+	HYDROGRAPH AT	SUB17A	30.	3.08	2.	0.	0.	0.01
+	2 COMBINED AT	CP17A1	31.	3.08	3.	1.	1.	0.03
+	HYDROGRAPH AT	UB17NC	19.	3.08	1.	0.	0.	0.01
+	2 COMBINED AT	CP17A	50.	3.08	3.	2.	1.	0.03
+	ROUTED TO	R15N	34.	3.17	3.	2.	1.	0.03
+	HYDROGRAPH AT	SUB15N	142.	3.17	11.	3.	1.	0.04
+	2 COMBINED AT	CP15N	175.	3.17	14.	4.	2.	0.07
+	ROUTED TO	R15N2	179.	3.17	14.	4.	2.	0.07
+	2 COMBINED AT	CP15N2	804.	3.75	182.	53.	22.	1.16
+	ROUTED TO	R15N2	768.	3.83	182.	53.	22.	1.16
+	HYDROGRAPH AT	DPC3	400.	3.17	40.	10.	4.	0.18
+	2 COMBINED AT	CPC3A	818.	3.75	217.	62.	25.	1.34
+	ROUTED TO	RPC3A	820.	3.83	217.	62.	25.	1.34
+	HYDROGRAPH AT	DPC4	476.	3.33	104.	28.	11.	0.65
+	2 COMBINED AT	CPC4A	1140.	3.75	319.	90.	36.	1.99
+	ROUTED TO	RPC4A	1131.	3.83	319.	90.	36.	1.99
+	DIVERSION TO	BPC4AT	1131.	3.83	319.	90.	36.	1.99
+	HYDROGRAPH AT	DPC4AT	0.	0.08	0.	0.	0.	1.99
+	HYDROGRAPH AT	SUB1-2	181.	3.17	16.	4.	2.	0.06
+	HYDROGRAPH AT	GCRB18	27.	3.17	2.	1.	0.	0.01
+	2 COMBINED AT	CPRET1	208.	3.17	18.	4.	2.	0.07
+	ROUTED TO	SR18S	0.	0.08	0.	0.	0.	0.07
+	HYDROGRAPH AT	SUB5S	72.	3.17	5.	1.	1.	0.03

+	HYDROGRAPH AT GC1216	83.	3.17	6.	2.	1.	0.04
+	HYDROGRAPH AT GC1415	104.	3.17	7.	2.	1.	0.05
+	HYDROGRAPH AT SUB6S	53.	3.17	5.	1.	0.	0.02
+	HYDROGRAPH AT SUB7S	79.	3.17	6.	2.	1.	0.03
+	5 COMBINED AT CPRET2	391.	3.17	30.	7.	3.	0.16
+	ROUTED TO SRRET2	0.	0.08	0.	0.	0.	0.16
+	2 COMBINED AT CLEAR	0.	0.08	0.	0.	0.	0.22
+	HYDROGRAPH AT SUB8S	76.	3.17	6.	1.	1.	0.03
+	ROUTED TO RGC36	64.	3.25	6.	1.	1.	0.03
+	HYDROGRAPH AT GC36	77.	3.17	7.	2.	1.	0.04
+	2 COMBINED AT C1GC36	141.	3.17	13.	3.	1.	0.07
+	HYDROGRAPH AT SUB9S	68.	3.17	5.	1.	1.	0.02
+	ROUTED TO R9S	69.	3.17	5.	1.	1.	0.02
+	2 COMBINED AT CPGC36	210.	3.17	18.	4.	2.	0.09
+	ROUTED TO SRGC36	202.	3.25	18.	4.	2.	0.09
+	HYDROGRAPH AT SUB7A	27.	3.17	2.	1.	0.	0.01
+	ROUTED TO SR7A	7.	3.42	2.	1.	0.	0.01
+	ROUTED TO R10S	7.	3.58	2.	1.	0.	0.01
+	HYDROGRAPH AT SUB10S	78.	3.17	6.	2.	1.	0.02
+	2 COMBINED AT CP10S	81.	3.17	8.	2.	1.	0.03
+	HYDROGRAPH AT SUB11S	118.	3.08	7.	2.	1.	0.02
+	ROUTED TO R11S	88.	3.17	7.	2.	1.	0.02
+	2 COMBINED AT C10SA	169.	3.17	15.	4.	2.	0.06
+	ROUTED TO R10SA	173.	3.17	15.	4.	2.	0.06
+	HYDROGRAPH AT GC45	45.	3.08	2.	1.	0.	0.01
+	2 COMBINED AT CGC45	196.	3.17	17.	4.	2.	0.07
+	HYDROGRAPH AT PC5	43.	3.33	5.	1.	1.	0.04
+	HYDROGRAPH AT DPC4A	1131.	3.83	319.	90.	36.	1.99
+	5 COMBINED AT CPC5	1242.	3.33	356.	100.	40.	2.10
+	ROUTED TO RC5	1234.	3.42	356.	100.	40.	2.10
+	HYDROGRAPH AT SCN5D	64.	3.25	6.	1.	1.	0.05
+	2 COMBINED AT CN5D	1271.	3.42	362.	101.	41.	2.15

+	HYDROGRAPH AT	D52	2226.	3.33	537.	293.	129.	7.92
+	HYDROGRAPH AT	S53A	247.	3.25	26.	6.	3.	0.18
+	2 COMBINED AT	C53	2435.	3.33	561.	299.	131.	8.10
+	HYDROGRAPH AT	S53A1	456.	3.33	53.	13.	5.	0.34
+	2 COMBINED AT	C53A	2850.	3.33	611.	312.	136.	8.43
+	HYDROGRAPH AT	SCN6B	158.	3.17	13.	3.	1.	0.05
+	HYDROGRAPH AT	SCN6D	68.	3.17	5.	1.	0.	0.04
+	3 COMBINED AT	CP6D	2952.	3.33	626.	316.	138.	8.52
+	HYDROGRAPH AT	SCN6C	347.	3.17	29.	7.	3.	0.14
+	2 COMBINED AT	CP6C	3147.	3.25	652.	322.	141.	8.66
+	2 COMBINED AT	CP5D	4179.	3.33	994.	416.	179.	10.81
+	HYDROGRAPH AT	SCN5C	240.	3.25	23.	6.	2.	0.19
+	HYDROGRAPH AT	SCN6E	35.	3.58	6.	1.	1.	0.04
+	3 COMBINED AT	EAST-I	4380.	3.33	1020.	423.	181.	11.05
+	ROUTED TO	EAST-O	1929.	4.08	1015.	423.	181.	11.05

1

APPENDIX H

EAST SIDE ULTIMATE BUILD-OUT AND NO CLOGGING CONDITION
50-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(E-3)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
*  RUN DATE  03/01/99  TIME  09:54:32 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                          PAGE  1

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

    1           ID    PIMA ROAD THREE BASINS                                 File:  FU50-24.IH1
    2           ID    by  Stantec for the City of Scottsdale            Original: 08-07-97     mcg
    3           ID        Project:  28900082                             Revised: 01-20-99     mcg
    4           ID
    5           ID
    6           ID    50-YEAR, 24-HOUR
    7           ID        ULTIMATE CONDITION:
    8           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
    9           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   10           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   11           ID           DETERMINED BY OTHERS.
   12           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   13           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   14           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   15           ID
   16           ID
                *DIAGRAM
   17           IT       5                    1000
   18           IO       5
                *

   19           KK    S30N
   20           KM     RUNOFF FROM SUBBASIN 30N
   21           BA  0.6518
   22           PH              11     0.68     1.32     2.23     2.49     2.66     2.98     3.37     3.76
   23           LS              82       13               82       13
   24           UK     300   0.350     0.13       20
   25           UK     300   0.050     0.13       80
   26           RK    1550   0.069    0.045   0.0096     TRAP        0       12
   27           RK   10520   0.038    0.040             TRAP       15       15
                *

   28           KK    R30N
   29           KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
   30           RS       1    FLOW       -1
   31           RC   0.022   0.022    0.022     2470    0.01
   32           RX    1000    1012     1020     1028    1036     1044     1052     1064
   33           RY     107     104      102      100     100      102      104      107
                *

   34           KK   S31.1
   35           KM     RUNOFF FROM SUBBASIN 31.1
   36           BA  0.2663
   37           LS            76.6       13             76.6       13
   38           UK     300   0.567     0.13       10
   39           UK     300   0.050     0.13       90
   40           RK    1950   0.056    0.045   0.0147     TRAP        0       10
   41           RK    7600   0.035    0.040             TRAP       22        8
                *
1                                          HEC-1 INPUT                                          PAGE  2

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

   42           KK   C31.1
   43           KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
   44           HC       2
```

```
                 *
                 *  R31.1
                 *   ****  TOO SHORT TO ROUTE  ****
                 *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
                 *      1    FLOW      -1
                 *  0.022   0.022   0.022    1500    0.01
                 *   1000    1012    1020    1028    1048    1056    1064    1076
                 *    107     104     102     100     100     102     104     107
                 *

   45            KK   S34.2
   46            KM     RUNOFF FROM SUBBASIN 34.2
   47            KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
   48            BA  0.4441
   49            LS            77.3      12            77.3      12
   50            UK      50    0.10    0.13      10
   51            UK     300   0.040    0.13      90
   52            RK    2200  0.0452   0.045  0.0538    TRAP       0      10
   53            RK    8150  0.0386   0.045            TRAP       0      10
                 *

   54            KK   C34.2
   55            KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
   56            HC       2
                 *

   57            KK    S35N
   58            KM     RUNOFF FROM SUBBASIN 35N
   59            BA  0.5482
   60            LS              82      13              82      13
   61            UK     300   0.491    0.13      15
   62            UK     300   0.113    0.13      85
   63            RK    2700   0.079   0.045  0.0242    TRAP       3       6
   64            RK    5050   0.028   0.040            TRAP      15      15
                 *

   65            KK   D35NR
   66            KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
   67            KM        RIGHT BRANCH IS ROUTED TO C36.2
   68            KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
   69            DT   D35NL
   70            DI       0      10      66     168     343     581     805     977    1168    1320
   71            DQ       0       4      28      73     154     261     360     435     518     575
                 *

   72            KK   R35NR
   73            KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
   74            KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
   75            RS       1    FLOW      -1
   76            RC    0.06    0.04    0.06    3500  0.0343
   77            RX    1000    1006    1026    1027    1057    1058    1078    1084
1                                              HEC-1 INPUT                                                    PAGE  3

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

   78            RY     105     103     101     100     100     101     103     105
                 *

   79            KK   S36.2
   80            KM     RUNOFF FROM SUBBASIN 36.2
   81            BA  0.2087
   82            LS            76.6      13            76.6      13
   83            UK     300   0.580    0.13       5
   84            UK     300   0.100    0.13      95
   85            RK    1800   0.036   0.045  0.0145    TRAP      10      10
   86            RK    3520   0.028   0.040            TRAP      20       6
                 *

   87            KK   C36.2
   88            KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
   89            HC       2  0.5411
                 *

   90            KK  D36.2R
   91            KM     DIVERSION AT DESERT HIGHLANDS DRIVE
   92            KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
   93            KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
   94            DT  D36.2L
   95            DI       0      36     166     288     360     430     538     681     859    1074
   96            DQ       0       0       0       0       0      18      60     123     208     315
                 *

   97            KK  R36.2R
   98            KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
   99            KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  100            RS       4    FLOW      -1
  101            RC    0.06    0.04    0.06    7800  0.0321
  102            RX    1000    1043    1053    1068    1093    1098    1133    1218
  103            RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
                 *

  104            KK   S34.1
  105            KM     RUNOFF FROM SUBBASIN 34.1
  106            KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  107            BA  1.1635
```

```
 108          LS            77.3      12            77.3      12
 109          UK     300   0.590    0.13      25
 110          UK     300   0.040    0.13      75
 111          RK    2570   0.085   0.045  0.0214    TRAP       0      10
 112          RK    8800  0.0325   0.040            TRAP      20      10
              *

 113          KK   C34.1
 114          KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
 115          HC       2  1.5423
              *
1                                          HEC-1 INPUT                                                    PAGE  4

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

 116          KK  HVDB-I
 117          KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
 118          HC       2  2.9029
              *

 119          KK  HVDB-O
 120          KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
 121          KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
 122          KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
 123          RS       1    STOR      -1
 124          SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
 125          SV   241.0
 126          SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
 127          SE    2091
 128          SQ       0      10      20      30      40      50      60      70      80      90
 129          SQ     100     110     120     130     140
 130          SE  2065.0 2066.47 2067.13 2067.67 2068.14 2068.58 2069.04 2071.26 2073.33 2075.68
 131          SE  2078.3 2081.19 2084.37 2087.82 2091.54
              *

 132          KK   R34.1
 133          KM     NORMAL DEPTH CHANNEL ROUTE FROM C34.1 TO C36.1 THROUGH PIMA CHANNEL
 134          RS       1    FLOW      -1
 135          RC   0.022   0.022   0.022    2200    0.01
 136          RX    1000    1012    1020    1028    1036    1044    1052    1064
 137          RY     107     104     102     100     100     102     104     107
              *

 138          KK   S36.1
 139          KM     RUNOFF FROM SUBBASIN 36.1
 140          BA  0.1394
 141          LS            73.4      11
 142          UK     300  0.0420   0.130     100
 143          RK    2330  0.0320   0.045  0.0134    TRAP      10      30
 144          RK    3200  0.0270   0.040            TRAP      20      30
              *

 145          KK   C36.1
 146          KM     COMBINE ROUTED HYDROGRAPH FROM C34.1 WITH RUNOFF FROM SUBBASIN 36.1
 147          HC       2
              *

 148          KK   R36.1
 149          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.1 TO C36R1 THROUGH PIMA CHANNEL
 150          RS       1    FLOW      -1
 151          RC   0.022   0.022   0.022    1520    0.01
 152          RX    1000    1012    1020    1028    1036    1044    1052    1064
 153          RY     107     104     102     100     100     102     104     107
              *
1                                          HEC-1 INPUT                                                    PAGE  5

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

 154          KK   B35NL
 155          KM     BRING BACK DIVERTED HYDROGRAPH FROM C35N
 156          DR   D35NL
              *

 157          KK   R35NL
 158          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36R1
 159          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 160          RS       5    FLOW      -1
 161          RC    0.06    0.04    0.06   14480  0.0318
 162          RX    1000    1040    1080    1086    1091    1097    1137    1174
 163          RY     105     104     103     100     100     103     104     105
              *

 164          KK  B36.2L
 165          KM     BRING BACK DIVERTED HYDROGRAPH FROM C36.2
 166          DR  D36.2L
              *

 167          KK  R36.2L
 168          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C36R1
 169          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
 170          RS       3    FLOW      -1
 171          RC    0.06    0.04    0.06   10160  0.0342
 172          RX    1000    1030    1060    1066    1076    1082    1112    1142
```

```
173          RY     103   102.5     102     100     100     102   102.5     103
             *

174          KK  S36R1A
175          KM     RUNOFF FROM SUBBASIN 36R1A
176          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
177          BA  0.6310
178          LS            74.3      10
179          UK     300   0.020   0.130     100
180          RK    1420   0.032   0.045  0.0061    TRAP       0      13
181          RK   10800   0.033   0.040            TRAP      10       9
             *

182          KK  C36R1A
183          KM     COMBINE ROUTED HYDROGRAPH FROM C36.1, D35NL & D36.2L W/RUNOFF FROM S36R1A
184          KM        AREA IS AREA FROM C36.1 + S36R1 + 40% OF AREA FROM S35N + 30% OF AREA
185          KM        FROM C36.2
186          HC       4  4.0530
             *

187          KK  S36R1B
188          KM     RUNOFF FROM SUBBASIN 36R1B
189          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
190          BA  0.5863
191          LS            74.3      10
192          UK     300   0.020   0.130     100
193          RK    1420   0.032   0.045  0.0061    TRAP       0      13
194          RK    8500   0.033   0.040            TRAP      10       9
             *
1                                          HEC-1 INPUT                                          PAGE  6

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

195          KK  C36R1B
196          KM     COMBINE HYDROGRAPH FROM C36R1A W/RUNOFF FROM S36R1B AT C36R1B
197          HC       2  4.6393
             *
             * R36R1B
             *   ****  TOO SHORT TO ROUTE  ****
             *    NORMAL DEPTH CHANNEL ROUTE FROM C36R1B TO C36R2A THROUGH PIMA CHANNEL
             *      1    FLOW      -1
             *  0.022   0.022   0.022    1900    0.01
             *   1000    1012    1020    1028    1036    1044    1052    1064
             *    107     104     102     100     100     102     104     107
             *

198          KK  S36R2A
199          KM     RUNOFF FROM SUBBASIN 36R2A
200          BA  0.1325
201          LS              72      20
202          UK     100   0.045   0.130     100
203          RK    1900   0.032   0.017   0.015    TRAP      15       7
204          RK     800   0.030   0.035            TRAP      10       5
             *

205          KK  C36R2A
206          KM     COMBINE ROUTED HYDROGRAPH FROM C36R1B W/RUNOFF FROM SUBBASIN 36R2A
207          HC       2
             *

208          KK  R36R2A
209          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36R2A TO C36R2B THROUGH PIMA CHANNEL
210          KM     ****  TOO SHORT TO ROUTE  ****
211          KM       1    FLOW      -1
212          KM   0.022   0.022   0.022    2130    0.01
213          KM    1000    1012    1020    1028    1036    1044    1052    1064
214          KM     107     104     102     100     100     102     104     107
215          KM
216          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR SERIES OF INDIVIDUAL
217          KM     ROUTING REACHES THAT ARE TOO SHORT TO ROUTE.
218          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 5030'
219          RT                        1
             *

220          KK  S36R2B
221          KM     RUNOFF FROM SUBBASIN 36R2A
222          BA  0.2417
223          LS              72      12
224          UK     280   0.045   0.100     100
225          RK    1900   0.032   0.017   0.015    TRAP      15       7
226          RK    7360   0.030   0.040            TRAP      30      10
             *
1                                          HEC-1 INPUT                                          PAGE  7

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

227          KK  C36R2B
228          KM     COMBINE ROUTED HYDROGRAPH FROM C36R2A W/RUNOFF FROM SUBBASIN 36R2B
229          HC       2
             *

230          KK   S51.1
231          KM     RUNOFF FROM SUBBASIN 51.1
```

```
232          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 51.1 AND 49.1 ARE AREA WEIGHTED
233          BA   1.130
234          LS            73.9      12
235          UK     300   0.037   0.130     100
236          RK    1800   0.038   0.045  0.0161    TRAP       0      12
237          RK   14400   0.032   0.040            TRAP      40      15
             *

238          KK  DVDB-I
239          KM     COMBINE HYDROGRAPH FROM C36R2 W/RUNOFF FROM SUBBASIN 51.1
240          HC       2
             *

241          KK  DVDB-O
242          KM     DETENTION BASIN AT DEER VALLEY ROAD
243          KM     PRINCIPAL SPILLWAY:  54" CONDUIT THAT TIES INTO THE PIMA ROAD STORM DRAIN
244          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK
245          KM        13 ACRE-FEET OF STORAGE FOR SEDIMENTAION
246          KM
247          RS       1    STOR      -1
248          SV       0     0.2     0.7     1.7     3.5     6.1    38.6    86.9   143.2   209.9
249          SV   224.1
250          SE    1855    1856    1857    1858    1859    1860    1865    1870    1875    1880
251          SE    1881
252          SQ       0       3      15      28      51      81     143     183     204     216
253          SQ     224     232     240     242     246     248     251     253     256     259
254          SE    1855    1856    1857    1858    1859    1860    1862    1864    1866    1868
255          SE    1870    1872    1874    1875    1876    1877    1878    1879    1880    1881
             *
             *  R51.1
             *     DEER VALLEY BASIN OUTLET CONDUIT TO THOMPSON PEAK PARKWAY
             *     COMBINE WITH RUNOFF FROM DC RANCH
             *       L = 2820 feet
             *

256          KK  D51.1T
257          KM     DIVERT 100% OF FLOW TO RETRIEVE AT THOMPSON PEAK PARKWAY
258          DT  B51.1T
259          DI       0   10000
260          DQ       0   10000
             *
             *
             *     ******************  BEGIN DC RANCH WATERSHED  *******************
             *
             *       THE DC RANCH HEC-1 MODEL WAS DEVELOPED BY WOOD/PATEL ASSOCIATES
             *           WOOD/PATEL FILE NAME:  DC0721C.DAT
             *           MODEL DATE:            4 JANUARY 96
             *
1                                          HEC-1 INPUT                                          PAGE  8

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

261          KK    52D4
262          KM   RUNOFF FROM SUBBASIN 52D4
263          BA    .070
264          LS              75    14.5
265          UK     120    .010     .15     100
266          RK    3100    .035    .045            TRAP      30      10
             *

267          KK   52D4R
268          KM   ROUTE 52D4C THROUGH 52D5 TO CP 52D5C
269          RK    1350    .033    .045            TRAP      10      10
             *

270          KK   52D4B
271          KM   RUNOFF FROM SUBBASIN 52D4B
272          BA    .022
273          LS              75      63
274          UK     120    .010     .15     100
275          RK    2200    .033    .045            TRAP      30      10
             *

276          KK  52D5C1
277          KM   COMBINE 52D4R AND 52D4B
278          HC       2
             *

279          KK   52D5A
280          KM   RUNOFF FROM 52D5A
281          BA   .0232
282          LS              75      63
283          UK     120    .010     .15     100
284          RK    1300    .032    .045            TRAP      30      10
             *

285          KK  52D5AR
286          KM   ROUTE 52D5A THROUGH BEARDSLEY CHANNEL TO CP 52D5C2
287          RK     400   .0143    .035            TRAP      50       4
             *

288          KK  52D5C2
289          KM   COMBINE 25D5C1 AND 52D5AR
290          HC       2
```

```
                *
291             KK   52D5R
292             KM   ROUTE 52D5C IN BEARDSLEY CHANNEL TO CP 52C3BC2
293             RK     240   .0143    .035            TRAP      50       4
                *
1                                          HEC-1 INPUT                                                    PAGE  9

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

294             KK    52C3
295             KM   RUNOFF FROM SUBBASIN 52C3
296             BA    .006
297             LS              75      65
298             UK     100     .02     .10     100
299             RK     800    .033    .045            TRAP      30      10
                *

300             KK   52C3R
301             KM   ROUTE 52C3 THROUGH SUBBASIN 52C4 TO CP 52C4C1
302             RK    1350    .034    .045            TRAP      10      10
                *

303             KK   52C3B
304             KM   RUNOFF FROM SUBBASIN 52C3B
305             BA    .016
306             LS              75      60
307             UK     100     .02     .10     100
308             RK    1400    .034    .045            TRAP      30      10
                *

309             KK  2C3BC1
310             KM   COMBINE 52C3B AND 52C3R
311             HC       2
                *

312             KK  2C3BC2
313             KM   COMBINE 52C3BC1 AND 52C5R
314             HC       2
                *

315             KK  52C3BR
316             KM   ROUTE 52C3BC2 IN BEARDSLEY CHANNEL TO CP 52C4C2
317             RK     430   .0143    .035            TRAP      50       4
                *
                *

318             KK     51C     SUB
319             KM        RUNOFF FROM SUB 51C
320             BA   .0972
321             LS              74      15
322             UK     100   .0213     .10     100
323             RK    3900   .0375    .045            TRAP      30      10
                *

324             KK   51C1D
325             KM   DIVERT 67 PERCENT OF 51C TO WEST (33 PERCENT TO SOUTH)
326             DT  51C1DV
327             DI       0   10000
328             DQ       0    6700
                *
1                                          HEC-1 INPUT                                                    PAGE 10

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

329             KK   51C1R
330             KM   ROUTE 51C1D THROUGH SUBBASIN 52C1
331             RK    1350   .0364    .045            TRAP      10      10
                *

332             KK    52C1
333             KM   RUNOFF FROM SUBBASIN 52C1
334             BA    .029
335             LS              75    20.5
336             UK     100     .02     .10     100
337             RK    1350    .021    .045            TRAP      30      10
                *

338             KK   52C1C
339             KM   COMBINE 51C1R AND 52C1
340             HC       2   .0611
                *

341             KK   52C1R
342             KM   ROUTE 52C1C THROUGH BASIN 52C2A TO CP 52C2BC
343             RK    1500    .033    .045            TRAP      10      10
                *

344             KK   52C2A
345             KM   RUNOFF FROM SUBBASIN 52C2A
346             BA    .019
347             LS              75       2
348             UK     100     .02     .10     100
```

```
 349          RK    1500    .033    .045            TRAP      30      10
              *

 350          KK  52C2AC
 351          KM   COMBINE 52C2A AND 52C1R
 352          HC       2
              *

 353          KK   52C2B
 354          KM   RUNOFF FROM SUBBASIN 52C2B
 355          BA   .0275
 356          LS              75      11
 357          UK     100     .02     .10     100
 358          RK    2000    .030    .045            TRAP      30      10
              *

 359          KK  52C2BC
 360          KM   COMBINE 52C2B AND 52C2AC
 361          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE 11

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

 362          KK  52C2BR
 363          KM   ROUTE 52C2BC THROUGH 52C2C TO CP 52C2CC
 364          RK    1500    .040    .045            TRAP      10      10
              *

 365          KK   52C2C
 366          KM   RUNOFF FROM SUBBASIN 52C2C
 367          BA    .014
 368          LS              75      62
 369          UK     100     .02     .10     100
 370          RK    1500     .04    .045            TRAP      30      10
              *

 371          KK  52C2CC
 372          KM   COMBINE 52C2C AND 52C2BR
 373          HC       2
              *

 374          KK   52C2R
 375          KM   ROUTE 52C2CC THROUGH SUBBASIN 52C4 TO CP 52C4C1
 376          RK    1550    .030    .045            TRAP      10      10
              *

 377          KK    52C4
 378          KM   RUNOFF FROM SUBBASIN 52C4
 379          BA    .017
 380          LS              75      60
 381          UK     100     .02     .10     100
 382          RK    1550    .030    .045            TRAP      30      10
              *

 383          KK  52C4C1
 384          KM   COMBINE 52C4 AND 52C2R
 385          HC       2
              *

 386          KK  52C4C2
 387          KM   COMBINE 52C4C1 AND 52C3BR
 388          HC       2
              *

 389          KK   52C4R
 390          KM   ROUTE 52C4C2 WEST IN BEARDSLEY CHANNEL TO CP 52C15C2
 391          RK     850   .0143    .035            TRAP      50       4
              *

 392          KK   52C13
 393          KM   RUNOFF FROM SUBBASIN 52C13
 394          BA    .023
 395          LS              75      31
 396          UK     100     .02     .10     100
 397          RK     950    .040    .045            TRAP      30      10
              *
1                                        HEC-1 INPUT                                          PAGE 12

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

 398          KK  2C13DV
 399          KM   DIVERT FIRST 40 CFS INTO STORM DRAIN; REMAINDER FLOWS OVER ROAD
 400          DT   STORM
 401          DI       0      40    1000
 402          DQ       0      40      40
              *
              * KK52C13R
              * KM ROUTE 52C13 THROUGH SUBBASIN 52C15 TO CP 52C15C1
              * RK  1800    .035    .045            TRAP      10      10
              *

 403          KK   52C15
```

```
404          KM   RUNOFF FROM SUBBASIN 52C15
405          BA    .046
406          LS              75    64.4
407          UK     100     .02     .10     100
408          RK    2050    .036    .045            TRAP      30      10
             *

409          KK  2C15C1
410          KM   COMBINE 52C15 AND 52C13DV
411          HC       2    .046
             *

412          KK  2C15C2
413          KM   COMBINE 52C15C1 AND 52C4R
414          HC       2
             *

415          KK  52C15R
416          KM   ROUTE 52C15C2 IN BEARDSLEY CHANNEL TO CP 52C14C3
417          RK     750   .0143    .035            TRAP      50       4
             *

418          KK  52C14A
419          KM   RUNOFF FROM SUBBASIN 52C14A
420          BA    .041
421          LS              75    67.7
422          UK     100     .02     .10     100
423          RK    2050    .031    .045            TRAP      30      10
             *

424          KK  2C14AC
425          KM   COMBINE 52C14A AND 52C15R
426          HC       2
             *

427          KK  2C14AR
428          KM   ROUTE 52C14AC IN BEARDSLEY CHANNEL TO CP 52C14BC2
429          RK     380   .0143    .035            TRAP      50       4
             *
             *
```



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

430          KK  51C1DV
431          KM   RETRIEVE DIVERTED FLOW
432          DR  51C1DV
             *

433          KK   51C2D
434          KM   DIVERT 27 PERCENT OF 51C1DV TO WEST (73 PERCENT TO SOUTH)
435          DT  51C2DV
436          DI       0   10000
437          DQ       0    2700
             *

438          KK   51C2R
439          KM   ROUTE 51C2D THROUGH SUBBASIN 52C5 TO CP 52C5C
440          RK     700    .030    .045            TRAP      10      10
             *

441          KK    52C5
442          KM   RUNOFF FROM SUBBASIN 52C5
443          BA    .016
444          LS              75      27
445          UK     100     .02     .10     100
446          RK    1200     .03    .045            TRAP      30      10
             *

447          KK   52C5C
448          KM   COMBINE 51C2R AND 52C5
449          HC       2   .0635
             *

450          KK   52C5R
451          KM   ROUTE 52C5C THROUGH SUBBASIN 52C6 TO CP 52C6C
452          RK    3100    .035    .045            TRAP      10      10
             *

453          KK    52C6
454          KM   RUNOFF FROM SUBBASIN 52C6
455          BA    .036
456          LS              75    31.4
457          UK     100     .02     .10     100
458          RK    3100    .035    .045            TRAP      30      10
             *

459          KK   52C6C
460          KM   COMBINE 52C5R AND 52C6
461          HC       2
             *

462          KK   52C6R
463          KM   ROUTE 52C6C THROUGH SUBBASIN 52C10 TO CP 52C10C2
```

```
464          RK     450    .032    .045            TRAP      10      10
             *
1                                          HEC-1 INPUT                                                    PAGE 14

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

465          KK  51C2DV
466          KM   RETRIEVE 52C2DV
467          DR  51C2DV
             *

468          KK   51C3R
469          KM   ROUTE 52C2DV THROUGH SUBBASIN 52C7 TO CP 52C7C
470          RK     700    .040    .045            TRAP      10      10
             *

471          KK     51B     SUB
472          KM        RUNOFF FROM SUB 51B
473          BA   .5711
474          LS       0    71.9    13.1
475          UK     100   .0213     .10     100
476          RK    8900   .0300    .045            TRAP      50      25
             *

477          KK   51B1D
478          KM   DIVERT 92 PERCENT OF SUBBASIN 51B TO WEST (8 PERCENT TO SOUTH)
479          DT  51B1DV
480          DI       0   10000
481          DQ       0    9200
             *

482          KK   51B1R
483          KM    ROUTE 51B1D THROUGH SUBBASIN 52C7 TO CP 52C7C
484          RK     450     .04    .045            TRAP      10      10
             *

485          KK    52C7
486          KM   RUNOFF FROM SUBBASIN 52C7
487          BA    .006
488          LS              75      27
489          UK     100     .02     .10     100
490          RK     550     .04    .045            TRAP      30      10
             *

491          KK   52C7C
492          KM   COMBINE 51B1R, 51C3R, AND 52C7
493          HC       3   .0693
             *

494          KK   52C7R
495          KM   ROUTE 52C7C THROUGH SUBBASIN 52C9 TO CP 52C9C1
496          RK    1550    .036    .045            TRAP      10      10
             *

497          KK  51B1DV
498          KM   RETRIEVE DIVERTED FLOW 51B1DV
499          DR  51B1DV
             *
1                                          HEC-1 INPUT                                                    PAGE 15

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

500          KK   51B2D
501          KM   DIVERT 84 PERCENT OF 51B1DV TO WEST (16 PERCENT TO SOUTH)
502          DT  51B2DV
503          DI       0   10000
504          DQ       0    8400
             *

505          KK   51B2R
506          KM   ROUTE 51B2D THROUGH SUBBASIN 52C8 TO CP 52C8C
507          RK     750    .034    .045            TRAP      10      10
             *

508          KK    52C8
509          KM   RUNOFF FROM SUBBASIN 52C8
510          BA    .008
511          LS              75      27
512          UK     100     .02     .10     100
513          RK     750    .034    .045            TRAP      30      10
             *

514          KK   52C8C
515          KM   COMBINE 51B2R AND 52C8
516          HC       2   .4493
             *

517          KK   52C8R
518          KM   ROUTE 52C8C THROUGH SUBBASIN 52C9 TO CP 52C9C1
519          RK    1100    .036    .045            TRAP      10      10
             *

520          KK  52C9C1
```

```
 521          KM   COMBINE 52C7R AND 52C8R
 522          HC       2
              *

 523          KK  52C9R1
 524          KM   ROUTE 52C9C1 THROUGH SUBBASIN 52C9 TO CP 52C9C2
 525          RK    1050    .036    .045            TRAP      10      10
              *

 526          KK    52C9
 527          KM   RUNOFF FROM SUBBASIN 52C9
 528          BA    .069
 529          LS              75   31.85
 530          UK     100     .02     .10     100
 531          RK    3150    .036    .045            TRAP      30      10
              *

 532          KK  52C9C2
 533          KM   COMBINE 52C9R1 AND 52C9
 534          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 16

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

 535          KK  52C9R2
 536          KM   ROUTE 52C9C2 THROUGH SUBBASIN 52C10 TO CP 52C10C1
 537          RK     500    .032    .045            TRAP      10      10
              *

 538          KK  2C10C1
 539          KM   COMBINE 52C9R2 AND 52C6R
 540          HC       2
              *

 541          KK  2C10R1
 542          KM   ROUTE 52C10C1 THROUGH SUBBASIN 52C10 TO CP 52C10C2
 543          RK     300    .032    .045            TRAP      10      10
              *

 544          KK   52C10
 545          KM   RUNOFF FROM SUBBASIN 52C10
 546          BA    .014
 547          LS              75    7.85
 548          UK     100     .02     .10     100
 549          RK     800    .032    .045            TRAP      30      10
              *

 550          KK  2C10C2
 551          KM   COMBINE 52C10R1 AND 52C10
 552          HC       2
              *

 553          KK   52C11
 554          KM   RUNOFF FROM SUBBASIN 52C11
 555          BA   .0425
 556          LS              75      27
 557          UK     100     .02     .10     100
 558          RK    2800    .031    .045            TRAP      30      10
              *

 559          KK  2C11R1
 560          KM   PIPE ROUTE 52C11 TO CP 52C11C
 561          RK     650     .02    .045            CIRC       3
              *

 562          KK  52C13D
 563          KM   RETRIEVE DIVERTED FLOW
 564          DR   STORM
              *

 565          KK  52C11C
 566          KM   COMBINE 52C13D AND 52C11R1
 567          HC       2   .0655
              *
1                                        HEC-1 INPUT                                                    PAGE 17

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

 568          KK  2C11CR
 569          KM   PIPE ROUTE 52C11C TO CP 52C11C2
 570          RK     750     .02    .045            CIRC       3
              *

 571          KK  2C11C2
 572          KM   COMBINE 52C11CR AND 52C10C2
 573          HC       2
              *

 574          KK  2C11R2
 575          KM   ROUTE 52C11C2 THROUGH SUBBASIN 52C12 TO CP 52C12C
 576          RK     700     .03    .045            TRAP      10      10
              *
```

```
577          KK   52C12
578          KM   RUNOFF FROM SUBBASIN 52C12
579          BA    .023
580          LS              75      85
581          UK     100     .02     .10     100
582          RK     900     .03    .045            TRAP      30      10
             *

583          KK  52C12C
584          KM   COMBINE 52C11R2 AND 52C12
585          HC       2
             *

586          KK  52C12R
587          KM   ROUTE 52C12C THROUGH SUBBASIN 52C14 TO CP 52C14C1
588          RK    1150    .029    .045            TRAP      10      10
             *

589          KK  52C14B
590          KM   RUNOFF FROM SUBBASIN 52C14B
591          BA    .021
592          LS              75      60
593          UK     100     .02     .10     100
594          RK    1250    .029    .045            TRAP      30      10
             *

595          KK  C14BC1
596          KM   COMBINE 52C14B AND 52C12R
597          HC       2
             *

598          KK  C14BC2
599          KM   COMBINE 52C14BC1 AND 52C14AR
600          HC       2
             *
```

1 HEC-1 INPUT PAGE 18

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

601          KK  52C14R
602          KM   ROUTE 52C14C3 WEST IN BEARDSLEY CHANNEL TO CP 52B5C2
603          RK     600   .0143    .035            TRAP      50       4
             *

604          KK  51B2DV
605          KM   RETRIEVE DIVERTED FLOW
606          DR  51B2DV
             *

607          KK   51B3D
608          KM   DIVERT 84 PERCENT OF 51B2DV TO WEST (16 PERCENT TO SOUTH)
609          DT  51B3DV
610          DI       0   10000
611          DQ       0    8400
             *

612          KK   51B3R
613          KM   ROUTE 51B3D THROUGH SUBBASIN 52B1 TO CP 52B1C
614          RK     600    .039    .045            TRAP      10      10
             *

615          KK    52B1
616          KM   RUNOFF FROM SUBBASIN 52B1
617          BA    .003
618          LS              75      27
619          UK     100     .02     .10     100
620          RK     600    .039    .045            TRAP      30      10
             *

621          KK   52B1C
622          KM   COMBINE 51B3R AND 52B1
623          HC       2   .0736
             *

624          KK   52B1R
625          KM   ROUTE 52B1C THROUGH SUBBASIN 52B2 TO CP 52B2C1
626          RK     930    .037    .045            TRAP      10      10
             *

627          KK  51B3DV
628          KM   RETRIEVE DIVERTED FLOW 51B3DV
629          DR  51B3DV
             *

630          KK   51B4D
631          KM   DIVERT 82 PERCENT OF 51B3DV TO WEST (18 PERCENT TO SOUTH)
632          DT  51B4DV
633          DI       0   10000
634          DQ       0    8200
             *
```

1 HEC-1 INPUT PAGE 19

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

```
635          KK  51B4R1
636          KM   ROUTE 51B4D THROUGH SUBBASIN 52B2 TO CP 52B2C1
637          RK    1350    .037    .045            TRAP      10      10
             *

638          KK  52B2C1
639          KM   COMBINE 51B4R1 AND 52B1R
640          HC       2   .1403
             *

641          KK  52B2R1
642          KM   ROUTE 52B2R1 THROUGH SUBBASIN 52B2 TO CP 52B2C2
643          RK    1000    .037    .045            TRAP      10      10
             *

644          KK    52B2
645          KM   RUNOFF FROM SUBBASIN 52B2
646          BA    .032
647          LS              75      17
648          UK     100     .02     .10     100
649          RK    2350    .037    .045            TRAP      30      10
             *

650          KK  52B2C2
651          KM   COMBINE 52B2 AND 52B2R1
652          HC       2
             *

653          KK  52B2R2
654          KM   ROUTE 52B2C2 THROUGH SUBBASIN 52B3 TO CP 52B3C2
655          RK     850    .026    .045            TRAP      10      10
             *

656          KK  52B3R1
657          KM   ROUTE 52B3C1 THROUGH SUBBASIN 52B3 TO CP 52B3C2
658          RK     500    .024    .045            TRAP      10      10
             *

659          KK    52B3
660          KM   RUNOFF FROM SUBBASIN 52B3
661          BA    .062
662          LS              75    31.8
663          UK     100     .02     .10     100
664          RK    3450    .030    .045            TRAP      30      10
             *

665          KK  52B3C2
666          KM   COMBINE 52B3 AND 52B3R1
667          HC       2
             *
```



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

668          KK  52B3R2
669          KM   ROUTE 52B3C2 THROUGH 52B4 TO CP 52B4C
670          RK    1700    .024    .045            TRAP      10      10
             *

671          KK    52B4
672          KM   RUNOFF FROM SUBBASIN 52B4
673          BA    .026
674          LS              75      62
675          UK     100     .02     .10     100
676          RK    1700    .024    .045            TRAP      30      10
             *

677          KK   52B4C
678          KM   COMBINE 52B4 AND 52B3R2
679          HC       2
             *

680          KK   52B4R
681          KM   ROUTE 52B4C THROUGH SUBBASIN 52B5 TO CP 52B5C1
682          RK     550    .027    .045            TRAP      10      10
             *

683          KK    52B5
684          KM   RUNOFF FROM SUBBASIN 52B5
685          BA    .021
686          LS              75    56.9
687          UK     100     .02     .10     100
688          RK    1400     .03    .045            TRAP      30      10
             *

689          KK  52B5C1
690          KM   COMBINE 52B5 AND 52B4R
691          HC       2
             *

692          KK  52B5C2
693          KM   COMBINE 52B5C1 AND 52C14R
```

```
 694          HC       2
              *

 695          KK   52B5R
 696          KM   ROUTE 52B5C2 IN BEARDSLEY CHANNEL TO CP 52B7C2
 697          RK    1100   .0143    .035            TRAP      50       4
              *

 698          KK  51B4DV
 699          KM   RETRIEVE DIVERTED FLOW 51B4DV
 700          DR  51B4DV
              *
```



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

 701          KK   51B5D
 702          KM   DIVERT 68 PERCENT OF 51B4DV TO WEST (32 PERCENT TO SOUTH)
 703          DT  51B5DV
 704          DI       0   10000
 705          DQ       0    6800
              *

 706          KK   51B5R
 707          KM   ROUTE 51B5D THROUGH SUBBASIN 52B6 TO CP 51B7C
 708          RK    1250    .035    .045            TRAP      10      10
              *

 709          KK  51B5DV
 710          KM   RETRIEVE DIVERTED FLOW
 711          DR  51B5DV
              *

 712          KK   51B6D
 713          KM   DIVERT 53 PERCENT OF 51B5DV TO WEST (47 PERCENT TO SOUTH)
 714          DT  51B6DV
 715          DI       0   10000
 716          DQ       0    5300
              *

 717          KK   51B6R
 718          KM   ROUTE 51B6D THROUGH SUBBASIN 52B6 TO CP 51B7C
 719          RK     925    .033    .045            TRAP      10      10
              *

 720          KK  51B6DV
 721          KM   RETRIEVE DIVERTED FLOW 51B6DV
 722          DR  51B6DV
              *

 723          KK   51B7D
 724          KM   DIVERT 58 PERCENT OF 51B6DV TO WEST (42 PERCENT TO SOUTH)
 725          DT  51B7DV
 726          DI       0   10000
 727          DQ       0    5800
              *

 728          KK  51B7R1
 729          KM   ROUTE 51B7D THROUGH SUBBASIN 52B6 TO CP 51B7C
 730          RK     530    .033    .045            TRAP      10      10
              *

 731          KK   51B7C
 732          KM   COMBINE 51B7R1, 51B5R, AND 51B6R
 733          HC       3   .2404
              *
```



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

 734          KK  51B7R2
 735          KM   ROUTE 51B7C THROUGH SUBBASIN 52B6 TO CP 52B6C
 736          RK    2300    .033    .045            TRAP      10      10
              *

 737          KK    52B6
 738          KM   RUNOFF FROM SUBBASIN 52B6
 739          BA    .096
 740          LS              75   13.55
 741          UK     100     .02     .10     100
 742          RK    3200    .033    .045            TRAP      30      10
              *

 743          KK   52B6C
 744          KM   COMBINE 51B7R2 AND 52B6
 745          HC       2
              *

 746          KK   52B6R
 747          KM   ROUTE 52B6C THROUGH SUBBASIN 52B7 TO CP 52B7C1
 748          RK    2750    .028    .045            TRAP      10      10
              *
```

```
 749          KK    52B7
 750          KM   RUNOFF FROM SUBBASIN 52B7
 751          BA    .080
 752          LS              75   78.45
 753          UK     100      .02     .10     100
 754          RK    2750    .028    .045            TRAP      30      10
              *

 755          KK  52B7C1
 756          KM   COMBINE 52B7 AND 52B6R
 757          HC       2
              *

 758          KK  52B7C2
 759          KM   COMBINE 52B7C1 AND 52B5R
 760          HC       2
              *

 761          KK    52A2
 762          KM   RUNOFF FROM SUBBASIN 52A2
 763          BA    .065
 764          LS              75    88.8
 765          UK     100      .02     .10     100
 766          RK    2900    .023    .045            TRAP      30      10
              *
1                                          HEC-1 INPUT                                                PAGE 23

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

 767          KK  52A2C2
 768          KM   COMBINE 52B7C2 AND 52A2
 769          HC       2    1.62
              *

 770          KK  51B7DV
 771          KM   RETRIEVE DIVERTED FLOW 51B7DV
 772          DR  51B7DV
              *

 773          KK   51B8R
 774          KM   ROUTE 51B7DV THROUGH SUBBASIN 52A1 TO CP 52A1C
 775          RK    3400    .033    .045            TRAP      10      10
              *

 776          KK    52A1
 777          KM   RUNOFF FROM SUBBASIN 52A1
 778          BA    .130
 779          LS              75   32.25
 780          UK     100      .02     .10     100
 781          RK    3400    .033    .045            TRAP      30      10
              *

 782          KK   52A1C
 783          KM   COMBINE 52A1 AND 51B8R
 784          HC       2
              *
              *
              *     *******************  END DC RANCH WATERSHED  *******************
              *
              *
              *     *****************  BEGIN GVSCE MODIFICATIONS  *****************
              *

 785          KK   D51.1
 786          KM   RETRIEVE DIVERTED FLOW
 787          DR  B51.1T
              *

 788          KK    C52A
 789          KM     COMBINE ROUTED HYDROGRAPH FROM C51.1 WITH HYDROGRAPH FROM C52A1C AT
 790          KM     THOMPSON PEAK PARKWAY
 791          HC       2  6.2735
              *
              *   R52A
              *    DEER VALLEY BASIN OUTLET CONDUIT TO JUNCTION AT SIERRA PINTA CHANNEL
              *    IS TOO SHORT TO ROUTE.
              *       L = 3130 feet
              *
1                                          HEC-1 INPUT                                                PAGE 24

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

 792          KK     C52
 793          KM     COMBINE ROUTED HYDROGRAPH FROM C52A WITH HYDROGRAPH FROM C52A2C AT
 794          KM     BEARDSLEY ROAD
 795          HC       2  7.9160
              *

 796          KK     R52
 797          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR TRAVEL TIME IN THE
 798          KM     CONDUIT.
 799          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 4050'
 800          RT                      1
```

```
                 *
                 *
 801             KK    D52T
 802             KM     DIVERT 100% OF FLOW TO RETRIEVE JUST U/S OF OUTER LOOP DETENTION BASIN
 803             DT    B52T
 804             DI       0   10000
 805             DQ       0   10000
                 *

 806             KK   CLEAR
 807             KM     CLEAR HYDROGRAPHS FROM STACK
 808             HC       2
                 *
                 *
                 *     ******************  BEGIN GRAYHAWK WATERSHED  *******************
                 *
                 *       THE GREYHAWK HEC-1 MODEL (VILLAGES II AND III) WAS DEVELOPED BY DEI
                 *           DEI FILE NAME:  GH23FAB.H1I
                 *           MODEL DATE:     21 MAY 96
                 *

 809             KK     37A     SUB
 810             KM        RUNOFF FROM SUB-BASIN 37A
 811             BA   .6765
 812             LS            74    24.8
 813             UK      61   .0213     .10     100
 814             RK    4800   .0237    .045            TRAP      50     130
                 *

 815             KK    37AE     DIV
 816             KM        SPLIT FLOWS AT SOUTH BOUNDARY OF SUB 37A FOR ROUTING TO DETENTION
 817             KM        BASIN 53R & 38R-1.  THIS DIVERT OPERATION REFLECTS THE BREAK IN THE
 818             KM        DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS.  THIS SPLIT IS
 819             KM        BASED ON NEW CORE NORTH PLAN DEVELOPED BY G.W. LARSON & ASSC., INC.
 820             KM        DATED 6/16/92.  DIVERT RATIO IS BASED ON APPROXIMATE D.A. FROM SUB 37A
 821             KM        THAT IS INTERCEPTED BY EACH CHANNEL SEGMENT ALONG DEER VALLEY ROAD.
 822             KM
 823             KM        (THIS SPLIT HAS BEEN UPDATED FROM THE OLP.6 MODEL TO REFLECT A 30% SPLIT
 824             KM        TO THE SOUTH AND A 70% SPLIT TO THE WEST FOR THIS STUDY AND IS BASED ON
 825             KM        UPSTREAM CONTRIBUTING WATERSHED AREA TO THIS CONCENTRATION POINT)
 826             DT    37AW
 827             DI       0     100     500    1000    1500
1                                             HEC-1 INPUT                                          PAGE 25

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

 828             DQ       0      70     350     700    1050
                 *

 829             KK   37AE1      CP
 830             KM        ROUTE NON-DIVERTED FLOW FROM DIV 37AE THROUGH SUB 5N.  THIS IS A
 831             KM        PRELIMINARY CHANNEL CONFIGURATION FOR THE GOLF COURSE CHANNEL.
 832             RS       1    FLOW
 833             RC    .055    .045    .055     800    .025
 834             RX       0      16      26      30      40      44      54      70
 835             RY       6       2       2       0       0       2       2       6
                 *

 836             KK   SUB5N
 837             KM        RUNOFF FROM SUBBASIN 5 IN NORTH 18 MODEL.
 838             BA   0.029
 839             LS             77      18
 840             UK     100    .013     .15     100
 841             RK    1000   0.005    .018    .015    TRAP      50      20
 842             RK     500    .015    .025            TRAP      10       4
                 *

 843             KK    CP5N
 844             KM        ADD HYDROGRAPHS AT CP5N
 845             HC       2   0.232
                 *

 846             KK   RET5N
 847             KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 5.  18" PIPE OUTFLOW WILL
 848             KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
 849             RS       1    STOR       0       0
 850             SV       0     .04     .33     .93     1.8    2.35    3.16     4.2     6.1
 851             SQ       0       8      10      12      15      17     102     191     668
 852             SE    1797    1798    1800    1802    1804    1805    1806    1807    1808
                 *

 853             KK   R6N.1
 854             KM        ROUTE FLOW FROM CP5 TO CP6 IN NORTH 18 MODEL
 855             KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
 856             KM        CHANNEL.
 857             RS       1    FLOW
 858             RC    .055    .045    .055    2200    .025
 859             RX       0      16      26      30      40      44      54      70
 860             RY       6       2       2       0       0       2       2       6
                 *

 861             KK   SUB6B
 862             KM        RUNOFF FROM WEST PORTION OF EXISTING SUB6N ADJACENT TO CHANNEL
 863             BA    .032
```

```
 864          LS              81       0
 865          UK     200    .025     .15     100
 866          RK    1300    .015    .025            TRAP      10       4
              *
1                                        HEC-1 INPUT                                                    PAGE 26

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

 867          KK    SR6B
 868          KM        ROUTE FLOW THROUGH RETENTION BASIN IN DRIVING RANGE CHANNEL
 869          RS       1    STOR       0       0
 870          SV       0     .17     .57    1.12    1.78
 871          SQ       0       8      10     120     380
 872          SE    1772    1773    1774    1775    1776
              *

 873          KK   CP6.1
 874          KM        ADD HYDROGRAPHS AT CP6.1
 875          HC       2
              *

 876          KK   SUB1N
 877          KM        RUNOFF FROM SUBBASIN 1N
 878          BA    .019
 879          LS              77      18
 880          UK     100    .013     .15     100
 881          RK    1470   .0204    .018            TRAP      50      20
              *

 882          KK    R2NA
 883          KM        ROUTE FLOW FROM CP1 TO CP2NA
 884          RS       1    FLOW
 885          RC     .03     .03     .03     400    .025
 886          RX       0       8      13      17      22      26      31      39
 887          RY       4       2       2       0       0       2       2       4
              *

 888          KK  SUB2NA
 889          KM        RUNOFF FROM SUBBASIN 2NA
 890          BA    .015
 891          LS              81       0
 892          UK     150    .013     .15     100
 893          RK    1050   .0215    .025            TRAP      20       6
              *

 894          KK   CP2NA
 895          KM        ADD HYDROGRAPHS AT CP2NA
 896          HC       2
              *

 897          KK   SR2NA
 898          KM        ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NA
 899          RS       1    STOR       0       0
 900          SV       0    .076    .291    .708     1.2
 901          SQ       0       0       0       0     160
 902          SE    1772    1773    1774    1775    1776
              *
1                                        HEC-1 INPUT                                                    PAGE 27

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

 903          KK    R2NB
 904          KM        ROUTE FLOW FROM CP2NA TO CP2NB
 905          RS       1    FLOW
 906          RC     .03     .03     .03    1050    .015
 907          RX       0       8      13      17      22      26      31      39
 908          RY       4       2       2       0       0       2       2       4
              *

 909          KK  SUB2NB
 910          KM        RUNOFF FROM SUBBASIN 2NB
 911          BA     .03
 912          LS              77      53
 913          UK     150    .013     .15     100
 914          RK    1200    .015    .025            TRAP      20      50
              *

 915          KK   CP2NB
 916          KM        ADD HYDROGRAPHS AT CP2NB
 917          HC       2
              *

 918          KK   SR2NB
 919          KM        STORAGE ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NB
 920          RS       1    STOR       0       0
 921          SV       0     .19     .69    1.66    3.23     4.5
 922          SQ       0       2       8      12      17     170
 923          SE    1796    1798    1800    1802    1804    1805
              *

 924          KK   RCP4N
 925          KM        ROUTE FLOW FROM CP2NB TO CP4N
 926          RS       1    FLOW
```

```
927          RC     .03     .03     .03     740    .018
928          RX       0       8      13      17      22      26      31      39
929          RY       4       2       2       0       0       2       2       4
             *

930          KK   SUB6N
931          KM        RUNOFF FROM SUBBASIN 6 IN NORTH 18 MODEL.  TO LAKE NORTH OF CLUBHOUSE.
932          BA    .049
933          LS              81       0
934          UK     200    .025     .15     100
935          RK    1300    .015    .025            TRAP      10       4
             *

936          KK   RET6N
937          KM        RETENTION ROUTING THROUGH LAKE AT HOLE 18, NORTH COURSE.
938          RS       1    STOR
939          SV       0    3.01    6.64   10.75   13.09   15.90
940          SQ       0       0       0      10      26     100
941          SE    1782    1784    1786    1788    1789    1790
             *
1                                          HEC-1 INPUT                                                PAGE 28

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

942          KK  RCP4N1
943          KM        ROUTE FLOW FROM CP6N TO CP4N
944          RS       1    FLOW
945          RC     .03     .03     .03     550    .018
946          RX       0       8      13      17      22      26      31      39
947          RY       4       2       2       0       0       2       2       4
             *

948          KK  CP4N.1
949          KM        ADD HYDROGRAPHS AT CP4N.1
950          HC       2
             *

951          KK   SUB3N
952          KM        RUNOFF FROM SUBBASIN 3N, NORTH 18 MODEL
953          BA    .027
954          LS              81       0
955          UK     100     .02     .15     100
956          RK    2800  0.0207    .025            TRAP      10       4
             *

957          KK   RET3N
958          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 3.  18" PIPE OUTFLOW WILL
959          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
960          RS       1    STOR       0       0
961          SV       0    1.73    8.97   13.32   15.74
962          SQ       0       4       7       9      11
963          SE    1793    1795    1800    1803    1804
             *

964          KK     R4N
965          KM        ROUTE FLOW FROM CP3N TO CP4N IN NORTH MODEL
966          RS       1    FLOW
967          RC    .035    .035    .035     950    .018
968          RX       0       8      13      17      22      26      31      39
969          RY       4       2       2       0       0       2       2       4
             *

970          KK  CP4N.2
971          KM        ADD HYDROGRAPHS AT CPN.2
972          HC       2
             *

973          KK   SUB4N
974          KM        RUNOFF FROM SUBBASIN 4N.
975          BA    .032
976          LS              77      18
977          UK     100    .015     .15     100
978          RK    1200   0.007    .018            TRAP      50      20
             *
1                                          HEC-1 INPUT                                                PAGE 29

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

979          KK    CP4N
980          KM        ADD HYDROGRAPHS AT CP4N
981          HC       2
             *

982          KK     R6N
983          KM        ROUTE FLOW FROM CP4N TO CP6N ALONG THOMPSON PEAK PKWY AT CLUBHOUSE
984          RS       1    FLOW
985          RC    .045    .035    .045     750    .025
986          RX       0       8      13      17      22      26      31      39
987          RY       4       2       2       0       0       2       2       4
             *

988          KK   SUB6A
989          KM        RUNOFF FROM SUBBASIN 6A (CLUBHOUSE AREA NORTH OF THOMPSON PEAK PKWY).
```

```
 990          BA    .013
 991          LS              83      68
 992          UK     100    .015     .12     100
 993          RK     800     .01    .025            TRAP       2       3
              *

 994          KK   CP6.2
 995          KM        ADD HYDROGRAPHS AT CP6.2
 996          HC       2
              *

 997          KK    CP6N
 998          KM        ADD HYDROGRAPHS AT CP6N
 999          HC       2
              *
              *       ABOVE DISCHARGE FROM NORTH 18 THROUGH BRIDGE AT TPP STATION 103+45
              *

1000          KK   RCP6N
1001          KM        ROUTE FLOW FROM CP6N TO CP3C
1002          RS       1    FLOW
1003          RC    .045    .035    .045     300    .015
1004          RX       0       8      13      17      37      45      51      59
1005          RY       4       2       2       0       0       2       2       4
              *

1006          KK   SUB3C
1007          KM        RUNOFF FROM SUBBASIN 3C, SOUTH COURSE AT MAINTENANCE FACILITY.
1008          BA   .0104
1009          LS              77      68
1010          UK     100    .025     .02     100
1011          RK     600    .015    .035            TRAP      50      20
              *
1                                        HEC-1 INPUT                                          PAGE 30

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

1012          KK    CP3C
1013          KM        COMBINE NORTH COURSE HYDROGRAPH WITH FIRST SOUTH COURSE HYDROGRAPH
1014          HC       2
              *

1015          KK     R3C
1016          KM        ROUTE FLOW FROM SUB3C TO CP3 THROUGH GC1018
1017          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
1018          KM        CHANNEL.
1019          RS       1    FLOW
1020          RC    .055    .045    .055    2050    .025
1021          RX       0      20      30      40      60      70      80     100
1022          RY    1650    1746    1744    1742    1742    1744    1746    1750
              *

1023          KK  GC1018
1024          KM        RUNOFF FROM HOLES NO. 10, 18 AND DRIVING RANGE THAT CONTRIBUTE TO WASH
1025          BA    .044
1026          LS              81       0
1027          UK     200    .025     .15     100
1028          RK    1800   .0233    .025            TRAP      10       4
              *

1029          KK   GC1-9
1030          KM        RUNOFF FROM GOLF COURSE HOLES 1 & 9 CONTRIBUTING TO WASH
1031          BA    .026
1032          LS              81       0
1033          UK     200    .025     .15     100
1034          RK    2110    .022    .025            TRAP      10       4
              *

1035          KK   SUB3S
1036          KM        RUNOFF FROM SUB BASIN 3 SOUTH COURSE
1037          BA   .0102
1038          LS              77      53
1039          UK     100    .010     .15     100
1040          RK     930    .016    .025            TRAP      50      20
              *

1041          KK    CP3S
1042          KM        COMBINE HYDROGRAPHS AT CP3 SOUTH COURSE
1043          HC       4
              *

1044          KK    RT3S
1045          KM        ROUTE FLOW FROM CP3S TO CPGC28
1046          RS       1    FLOW       0       0
1047          RC    .055    .045    .055     900    .023
1048          RX       0      20      30      40      60      70      80     100
1049          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *
1                                        HEC-1 INPUT                                          PAGE 31

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

1050          KK   SUB4S
```

```
1051          KM        RUNOFF FROM SUB BASIN 4 SOUTH COURSE
1052          BA   .0273
1053          LS              77       53
1054          UK     100    .010     .15     100
1055          RK    1780    .018    .015            TRAP      50      20
              *

1056          KK    RT4S
1057          KM        ROUTE FLOW FROM CP4S TO CPGC28
1058          RS       1    FLOW       0       0
1059          RC    .035    .035    .035     650    .015
1060          RX       0      20      30      40      45      55      65      75
1061          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1062          KK   GC2-8
1063          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES NO. 2 AND 8
1064          BA    .014
1065          LS              81       0
1066          UK     200    .025     .15     100
1067          RK     980    .016    .025            TRAP      10       4
              *

1068          KK  1PGC28
1069          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1070          HC       3
              *

1071          KK  SUB3D3
1072          KM        RUNOFF FROM GRAYHAWK ROAD SOUTH OF THOMPOSON PEAK
1073          BA    .014
1074          LS              81       0
1075          UK      50    .015      .1     100
1076          RK    2450    .016    .025            TRAP       5       4
              *

1077          KK  CPGC28
1078          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1079          HC       2
              *

1080          KK  SRGC28
1081          KM        STORAGE THRU DETENTION BASIN ON HOLES 2 AND 8.
1082          RS       1    STOR       0       0
1083          SV       0    .018    .085     .22      .5     1.0     1.7    2.68     3.9
1084          SE    1706    1707    1708    1709    1710    1711    1712    1713    1714
1085          SQ       0      10      18      20      30     108     324     651    1070
              *
```



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

1086          KK    RT7S
1087          KM        ROUTE FLOW FROM SRGC28 TO CP7S
1088          RS       1    STOR       0       0
1089          RC    .055    .045    .055    1700   .0187
1090          RX       0      20      30      40      60      70      80     100
1091          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1092          KK     GC7
1093          KM        RUNOFF FROM SOUTH GOLF COURSE HOLE NO. 7
1094          BA   .0134
1095          LS              81       0
1096          UK     200    .025     .15     100
1097          RK    1380    .020    .025            TRAP      10       4
              *

1098          KK    CP7S
1099          KM        ADD HYDROGRAPHS AT CP7S ON SOUTH COURSE
1100          HC       2  0.6083
              *

1101          KK    D7ST
1102          KM        D7ST IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1103          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1104          KM
1105          KM        DIVERT 100% OF FLOW
1106          DT    B7ST
1107          DI       0   10000
1108          DQ       0   10000
              *

1109          KK   CLEAR
1110          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1111          HC       2
              *
              *
              * THIS PORTION OF MODEL TAKEN FROM,"DRAINAGE REPORT FOR VILLAGE 3 - PHASE 1",
              * APPROVED BY THE CITY OF SCOTTSDALE 7-19-95.  MODIFIED TO ACCOUNT FOR ASBUILT
              * CONDITION
              *
              *
              *
```

```
                 *
1112             KK  SUB3D1
1113             KM        RUNOFF FROM SUBBASIN 3D1, PARCEL 3D.
1114             BA   .0088
1115             LS              77      34
1116             UD     .06
                 *
```



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

1117             KK   RD1B1
1118             KM        FOUTE FLOW FROM 3D1 TO 3B1
1119             RS       1    FLOW      -1
1120             RC    0.03    0.03    0.03    1250    .015
1121             RX       0     0.5       1       7      12      19    19.5      20
1122             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1123             KK  SUB3B1
1124             KM        RUNOFF FROM SUBBASIN 3B1, PARCEL 3B.
1125             BA   .0137
1126             LS              77      47
1127             UD     .06
                 *

1128             KK   CP3B1
1129             KM        ADD HYDROGRAGHS AT CP3B1
1130             HC       2
                 *

1131             KK   RB13F
1132             KM        ROUTE FLOW FROM 3B1 TO SUB3F
1133             RS       1    FLOW      -1
1134             RC    0.03    0.03    0.03    2150    .015
1135             RX       0     0.5       1       7      17      24    24.5      25
1136             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1137             KK   SUB3F
1138             KM        RUNOFF FROM SUBBASIN 3F, PARCEL 3F, SOUTH COURSE MODEL.
1139             BA   .0344
1140             LS              77      68
1141             UK     100    .025     .15     100
1142             RK    1000    .015    .025            TRAP     100      20
                 *

1143             KK    CP3F
1144             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3F ALONG THE POWER CORRIDOR
1145             HC       2
                 *

1146             KK  SUB3B2
1147             KM        RUNOFF FROM SUBBASIN 3B2, PARCEL 3B.
1148             BA   .0246
1149             LS              77      40
1150             UD     .10
                 *

1151             KK   RB2E1
1152             KM        1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1153             RS       1    FLOW      -1
1154             RC    0.03    0.03    0.03     800    0.02
1155             RX       0     0.5       1       7      17      24    24.5      25
1156             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *
```



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

1157             KK   RB2E2
1158             KM       SECOND 1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1159             RS       1    FLOW      -1
1160             RC    0.03    0.03    0.03     600    .015
1161             RX       0     0.5       1       7      17      24    24.5      25
1162             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1163             KK  SUB3E1
1164             KM        RUNOFF FROM SUBBASIN 3E1, PARCEL 3E.
1165             BA   .0246
1166             LS              77      40
1167             UD     .10
                 *

1168             KK  1CPE31
1169             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E1 ALONG THE POWER CORRIDOR
1170             HC       2
                 *

1171             KK  SUB3D2
1172             KM        RUNOFF FROM SUBBASIN 3D2, PARCEL 3D.
```

```
1173          BA    .022
1174          LS              77      35
1175          UD     .08
              *

1176          KK   RD2E2
1177          KM        ROUTE EXCESS FROM 3D2 TO CP3E2
1178          RS       1    FLOW      -1
1179          RC    0.03    0.03    0.03    1200   .0216
1180          RX       0     0.5       1       7      17      24    24.5      25
1181          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1182          KK  SUB3E2
1183          KM        RUNOFF FROM SUBBASIN 3E2, PARCEL 3E.
1184          BA    .012
1185          LS              77      35
1186          UD     .06
              *

1187          KK   CP3E2
1188          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E2 ALONG THE POWER CORRIDOR
1189          HC       2
              *

1190          KK     PC3
1191          KM        PC3 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1192          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1193          KM
1194          KM        RUNOFF FROM SUBBASIN PC3.
1195          BA  0.0434
1196          LS              77      10
```



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

1197          UK     300    .015     .15     100
1198          RK    2200     .01     .03            TRAP      30       4
              *

1199          KK    CPC3
1200          KM        CPC3 IS A CONCENTRATION POINT ADDED BY GVSCE TO ESTIMATE THE INFLOW TO
1201          KM        THE POWER LINE CHANNEL AT THE HAYDEN ROAD CROSSING.
1202          KM
1203          KM        COMBINE ROUTED HYDROGRAPH FROM SRPC2 W/HYDROGRAPHS FROM CP3E1, CP3E2 AND
1204          KM        CP3F AND RUNOFF FROM PC3.
1205          HC       4  0.1835
              *

1206          KK   DPC3T
1207          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1208          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1209          KM
1210          KM        DIVERT 100% OF FLOW
1211          DT   BPC3T
1212          DI       0   10000
1213          DQ       0   10000
              *

1214          KK  SUB3E3
1215          KM        RUNOFF FROM SUBBASIN 3E3, PARCEL 3E.
1216          BA    .020
1217          LS              77      32
1218          UD     .06
              *

1219          KK     PC4
1220          KM        PC4 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1221          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1222          KM
1223          KM        RUNOFF FROM SUBBASIN PC4.
1224          BA  0.0217
1225          LS              77       0
1226          UK     300    .015     .15     100
1227          RK    1100     .01     .03            TRAP      30       4
              *

1228          KK     D7S
1229          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1230          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1231          KM
1232          KM        RETRIEVE DIVERTED FLOW
1233          DR    B7ST
              *

1234          KK    CPC4
1235          KM        THE HEC1 OPREATION TEMPAD IS CHANGED BY GVSCE TO ESTIMATE THE INFLOW TO
1236          KM        THE POWER LINE CHANNEL WHERE THE FLOW FROM CP7S ENTERS THE CHANNEL.
1237          KM
1238          KM        COMBINE HYDROGRAPH FROM CP3E3 W/RUNOFF FROM PC4.
1239          HC       3   0.650
              *
```



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

```
1240        KK   DPC4T
1241        KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1242        KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1243        KM
1244        KM        DIVERT 100% OF FLOW
1245        DT   BPC4T
1246        DI       0   10000
1247        DQ       0   10000
            *

1248        KK   CLEAR
1249        KM        CLEAR HYDROGRAPHS FROM THE STACK.
1250        HC       3
            *
            *
            *       THIS ENDS THE PORTION OF THE MODEL TAKEN FROM DRAINAGE REPORT
            *       FOR VILLAGE 3 - PHASE I HEC-1 MODEL BY GILBERTSON ASSOC. INC.
            *       DATED 7-19-95
            *
            *
            *
            * RETURN TO NORTH 18\VILLAGE 2\TPP3 MODEL.
            * THE REMAINDER OF THE SUBBASINS IN THIS  MODEL  WILL CONTRIBUTE TO THE
            * PROPOSED CHANNNEL IN THE POWER EASEMENT AS IDENTIFIED IN THE
            * "COMMUNITY DRAINAGE STUDY - CORE NORTH AND WILL DISCHARGE TO REGIONAL
            * RETENTION BASIN 38R1.
            *
            *

1251        KK    37AW     RET
1252        KM        RETRIEVE DIVERTED FLOW FROM SOUTH BOUNDARY OF SUB 37A TO REFLECT
1253        KM        BREAK IN DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS
1254        DR    37AW
            *

1255        KK    R14R
1256        KM        ROUTE FLOW FROM DIVERT AT DEER VALLEY ROAD (UPSTREAM OF SUBBAIN 5) TO
1257        KM        RET14.1
1258        RS       1    FLOW
1259        RC    .055    .045    .055    2900     .01
1260        RX       0      16      26      30      50      54      64      80
1261        RY       6       2       2       0       0       2       2       6
            * RET 141 HAS BEEN REVISED FOLLOWING REFINEMENT OF GRADING PLANS 11-16-94
            *

1262        KK  RET141
1263        KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.1.  18" PIPE OUTFLOW WILL
1264        KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1265        RS       1    STOR       0       0
1266        SV       0     .46    2.79    4.56    5.71    6.92    8.24
1267        SQ       0      11      15      22     147     463     968
1268        SE    1778    1785    1790    1792    1793    1794    1795
            *
```



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

1269        KK   R14.1
1270        KM        ROUTE FLOW FROM RET14.1 TO CP14
1271        KM        RET14.1
1272        RS       1    FLOW
1273        RC    .055    .045    .055    1900     .01
1274        RX       0      16      26      30      50      54      64      80
1275        RY       6       2       2       0       0       2       2       6
            *

1276        KK  SUB13N
1277        KM        RUNOFF FROM SUBBASIN 13 NORTH 18 MODEL.
1278        BA    .037
1279        LS              77      24
1280        UK     100    .015     .15     100
1281        RK    2400    .007    .018            TRAP      50      20
            *

1282        KK   R14.1
1283        KM        ROUTE FLOW FROM CP13 TO RET14 NORTH 18 MODEL.
1284        RS       1    FLOW
1285        RC    .055    .045    .055     950    .025
1286        RX       0       8      13      17      22      26      31      39
1287        RY       4       2       2       0       0       2       2       4
            *

1288        KK  SUB14N
1289        KM        RUNOFF FROM SUBBASIN 14 NORTH 18 MODEL.
1290        BA    .049
1291        LS              81       0
1292        UK     300    .025     .15     100
1293        RK    2300     .01    .025            TRAP      10       4
            *

1294        KK    CP14
1295        KM        ADD HYDROGRAPHS AT CP14
```

```
1296          HC       3  0.5595
              *

1297          KK   RET14
1298          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.  18" PIPE OUTFLOW WILL
1299          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1300          RS       1    STOR       0       0
1301          SV       0     .08     .31    1.01    2.16    3.20    4.19    5.69     7.8
1302          SQ       0      14      16      18      20      22     155     464     750
1303          SE    1744    1746    1748    1750    1752    1753    1754    1755    1756
              *

1304          KK   R18.1
1305          KM        ROUTE FLOW FROM RET14 TO CP18
1306          RS       1    FLOW
1307          RC    .055    .045    .055     500    .016
1308          RX       0      16      26      34      54      68      78      96
1309          RY       6       2       2       0       0       2       2       6
              *
1                                          HEC-1 INPUT                                          PAGE 38

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

1310          KK  SUB20N
1311          KM        RUNOFF FROM SUBBASIN 20.
1312          BA    .024
1313          LS              77      24
1314          UK     200     .01     .15     100
1315          RK    1400     .02    .018            TRAP      50      20
              *

1316          KK     R19
1317          KM        ROUTE FLOW FROM CP20 TO CP19
1318          RS       1    FLOW
1319          RC    .035    .035    .035     700     .02
1320          RX       0       8      13      17      22      26      31      39
1321          RY       4       2       2       0       0       2       2       4
              *

1322          KK  SUB19N
1323          KM        RUNOFF FROM SUBBASIN 19.
1324          BA    .038
1325          LS              77      31
1326          UK     150     .01     .15     100
1327          RK    1800    .015    .018            TRAP      50      20
              *

1328          KK   CP19N
1329          KM        ADD HYDROGRAPHS  AT CP19N
1330          HC       2
              *

1331          KK   R18NC
1332          KM        ROUTE FLOW FROM  CP19N TO CP18NC
1333          RS       1    FLOW
1334          RC    .035    .035    .035     700    .013
1335          RX       0       8      13      17      27      31      36      44
1336          RY       4       2       2       0       0       2       2       4
              *

1337          KK  UB18NC
1338          KM        RUNOFF FROM SUBBASIN 18NC.
1339          BA    .021
1340          LS              77      42
1341          UK     100     .01     .15     100
1342          RK    1550     .02    .018            TRAP      50      20
              *

1343          KK  CP18NC
1344          KM        ADD HYDROGRAPHS  AT CP18NC (INCLUDES R18.1, R18, AND SUB18)
1345          HC       3
              *
1                                          HEC-1 INPUT                                          PAGE 39

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

1346          KK    RPC1
1347          KM        ROUTE FLOW FROM CP18N TO CPC1.
1348          RS       1    FLOW
1349          RC    .035    .035    .035     510    .013
1350          RX       0      16      26      34      64      78      88     106
1351          RY       6       2       2       0       0       2       2       6
              *

1352          KK  UB18NA
1353          KM        RUNOFF FROM SUBBASIN 18NA.
1354          BA    .022
1355          LS              77      42
1356          UK     100     .01     .15     100
1357          RK    1450     .02    .018            TRAP      50      20
              *

1358          KK   1RPC1
```

```
1359          KM        ROUTE FLOW FROM CP18NA TO CPC1.
1360          RS       1    FLOW
1361          RC    .035    .035    .035    2550     .01
1362          RX       0      16      26      34      64      78      88     106
1363          RY       8       4       2       0       0       2       4       8
              *

1364          KK  UB18NB
1365          KM        RUNOFF FROM SUBBASIN 18NB.
1366          BA   .0096
1367          LS              77      42
1368          UK     100     .01     .15     100
1369          RK     800     .02    .018            TRAP      50      20
              *

1370          KK   2RPC1
1371          KM        ROUTE FLOW FROM CP18NB TO CPC1.
1372          RS       1    FLOW
1373          RC    .035    .035    .035    2000     .01
1374          RX       0      16      26      34      64      78      88     106
1375          RY       8       4       2       0       0       2       4       8
              *

1376          KK     PC1
1377          KM        RUNOFF FROM SUBBASIN PC1.
1378          BA    .062
1379          LS              77      10
1380          UK     500    .015     .15     100
1381          RK    2700     .01     .03            TRAP      30       4
              *

1382          KK   1CPC1
1383          KM        ADD HYDROGRAPHS  AT CPC1.
1384          HC       3
              *
```



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

1385          KK   SRPC1
1386          KM        STOAGE ROUTE THROUGH DET BASIN IN POWER CORRIDOR.
1387          RS       1    STOR       0       0
1388          SV       0     .29     .73
1389          SQ       0       0     350
1390          SE    1747    1748    1749
              *

1391          KK    CPC1
1392          KM        ADD HYDROGRAPHS  AT CPC1.
1393          HC       2
              *

1394          KK  R16NA1
1395          KM        ROUTE FLOW FROM CPC1 TO C16NA1.
1396          RS       1    FLOW
1397          RC    .035    .035    .035     700    .013
1398          RX       0      16      26      34      74      88      98     116
1399          RY       8       4       2       0       0       2       4       8
              *

1400          KK  UB16NA
1401          KM        RUNOFF FROM SUBBASIN 16NA.
1402          BA   .0139
1403          LS              77      42
1404          UK     100    .015     .15     100
1405          RK    1500    .015    .022            TRAP      50      20
              *

1406          KK  R16NA1
1407          KM        ROUTE FLOW FROM CP16NA TO CP16NA1.
1408          RS       1    FLOW
1409          RC    .035    .035    .035     550    .013
1410          RX       0      16      26      34      44      58      68      86
1411          RY       6       2       2       0       0       2       2       6
              *

1412          KK  C16NA1
1413          KM        ADD HYDROGRAPHS  AT CP16NA1.
1414          HC       2
              *

1415          KK  R16NB1
1416          KM        ROUTE FLOW FROM CP16NA1 TO CP16NB1.
1417          RS       1    FLOW
1418          RC    .035    .035    .035     650    .013
1419          RX       0      16      26      34      74      88      98     116
1420          RY       8       4       2       0       0       2       4       8
              *
```



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

1421          KK  UB16NB
```

```
1422        KM        RUNOFF FROM SUBBASIN 16NB.
1423        BA   .0156
1424        LS              77       42
1425        UK     100    .015     .15     100
1426        RK    1500    .015    .022            TRAP      50       20
            *

1427        KK  R16NB1
1428        KM        ROUTE FLOW FROM CP16NB TO CP16NB1.
1429        RS       1    FLOW
1430        RC    .035    .035    .035     550    .013
1431        RX       0      16      26      34      44       58       68       86
1432        RY       6       2       2       0       0        2        2        6
            *

1433        KK  C16NB1
1434        KM        ADD HYDROGRAPHS  AT CP16NB1.
1435        HC       2
            *

1436        KK  R16NC1
1437        KM        ROUTE FLOW FROM CP16NB1 TO CP16NC1.
1438        RS       1    FLOW
1439        RC    .035    .035    .035     650    .013
1440        RX       0      16      26      34      54       68       78       96
1441        RY       6       2       2       0       0        2        2        6
            *

1442        KK   SUB7N
1443        KM        RUNOFF FROM SUBBASIN 7N.
1444        BA   .031
1445        LS              77       18
1446        UK     100    .015     .15     100
1447        RK    1900     .01    .018            TRAP      50       20
            *

1448        KK    R8NC
1449        KM        ROUTE FLOW FROM CP7N TO CP8NC.
1450        RS       1    FLOW
1451        RC    .055    .045    .055     700    .025
1452        RX       0       8      13      17      22       26       31       39
1453        RY       4       2       2       0       0        2        2        4
            *

1454        KK  SUB8NA
1455        KM        RUNOFF FROM SUBBASIN 8NA.
1456        BA   .0046
1457        LS              81        0
1458        UK     100     .03     .15     100
1459        RK     450     .03    .025            TRAP      20        6
            *
```



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

1460        KK   SR8NA
1461        KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NA.
1462        RS       1    STOR       0       0
1463        SV       0     .51    .816
1464        SQ       0       1      43
1465        SE    1791    1795    1796
            *

1466        KK    R8NB
1467        KM        ROUTE FLOW FROM CP8NA TO CP8NB.
1468        RS       1    FLOW
1469        RC    .025    .025    .025     300     .03
1470        RX       0      12      24      36      56       68       80       92
1471        RY       6       4       2       0       0        2        4        6
            *

1472        KK  SUB8NB
1473        KM        RUNOFF FROM SUBBASIN 8NB.
1474        BA   .0142
1475        LS              81        0
1476        UK     100     .03     .15     100
1477        RK    1150    .025    .025            TRAP      20        6
            *

1478        KK   CP8NB
1479        KM        ADD HYDROGRAPHS AT CP8NB.
1480        HC       2
            *

1481        KK   SR8NB
1482        KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NB.
1483        RS       1    STOR       0       0
1484        SV       0   .0124   1.754    2.45
1485        SQ       0       2       2      72
1486        SE    1784    1785    1790    1791
            *

1487        KK    R8NC
1488        KM        ROUTE FLOW FROM CP8NB TO CP8NC.
```

```
1489          RS       1    FLOW
1490          RC    .025    .025    .025     500     .03
1491          RX       0      12      24      36      56      68      80      92
1492          RY       6       4       2       0       0       2       4       6
              *

1493          KK  SUB8NC
1494          KM        RUNOFF FROM SUBBASIN 8NC.
1495          BA   .0182
1496          LS              81       0
1497          UK     100     .03     .15     100
1498          RK     900     .03    .025            TRAP      20       6
              *
1                                          HEC-1 INPUT                                                    PAGE 43

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

1499          KK   CP8NC
1500          KM        ADD HYDROGRAPHS AT CP8NC.
1501          HC       3
              *

1502          KK   SR8NC
1503          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NC.
1504          RS       1    STOR       0       0
1505          SV       0    .404   2.444    3.13   3.979
1506          SQ       0      10      14     151    1004
1507          SE    1771    1775    1780    1781    1782
              *

1508          KK     R9N
1509          KM        ROUTE FLOW FROM CP8N TO CP9N.
1510          RS       1    FLOW
1511          RC    .025    .025    .025    1150    .025
1512          RX       0       8      13      17      22      26      31      39
1513          RY       4       2       2       0       0       2       2       4
              *

1514          KK   SUB9N
1515          KM        RUNOFF FROM SUBBASIN 9N.
1516          BA    .055
1517          LS              77      28
1518          UK     100    .008     .15     100
1519          RK    1700     .01    .018            TRAP      50      20
              *

1520          KK    CP9N
1521          KM        ADD HYDROGRAPHS AT CP9N
1522          HC       2
              *

1523          KK    R10B
1524          KM        ROUTE FLOW FROM CP9N TO CP10B.
1525          RS       1    FLOW
1526          RC     .03     .03     .03     400     .02
1527          RX       0       8      16      24      29      37      45      53
1528          RY       6       4       2       0       0       2       4       6
              *

1529          KK  SUB10B
1530          KM        RUNOFF FROM SUBBASIN 10B.
1531          BA    .028
1532          LS              77      42
1533          UK     100    .015     .15     100
1534          RK     350    .008    .018            TRAP      50      20
1535          RK     600    .008    .025            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 44

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

1536          KK   CP10B
1537          KM        ADD HYDROGRAPHS AT CP10B
1538          HC       2
              *

1539          KK   R11NA
1540          KM        ROUTE FLOW FROM CP10B TO CP11NA.
1541          RS       1    FLOW
1542          RC     .03     .03     .03     200     .04
1543          RX       0       8      16      24      29      37      45      53
1544          RY       6       4       2       0       0       2       4       6
              *

1545          KK  UB11NA
1546          KM        RUNOFF FROM SUBBASIN 11NA.
1547          BA   .0076
1548          LS              81       0
1549          UK     100    .025     .15     100
1550          RK     500     .03    .025            TRAP      30       6
              *

1551          KK  CP11NA
```

```
1552          KM        ADD HYDROGRAPHS AT CP11NA
1553          HC       2
              *

1554          KK  SR11NA
1555          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NA.
1556          RS       1    STOR       0       0
1557          SV       0   .0462   1.425   2.480   3.109   3.856
1558          SQ       0      10      27      27      27     237
1559          SE    1734    1735    1740    1742    1743    1744
              *

1560          KK   R11NB
1561          KM        ROUTE FLOW FROM CP11NA TO CP11NB.
1562          RS       1    FLOW
1563          RC    .025    .025    .025     250     .03
1564          RX       0      12      24      36      56      68      80      92
1565          RY       6       4       2       0       0       2       4       6
              *

1566          KK  UB11NB
1567          KM        RUNOFF FROM SUBBASIN 11NB.
1568          BA   .0078
1569          LS              81       0
1570          UK     100     .04     .15     100
1571          RK     700    .025    .025            TRAP      30       6
              *
```



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

1572          KK  CP11NB
1573          KM        ADD HYDROGRAPHS AT CP11NB
1574          HC       2
              *

1575          KK  SR11NB
1576          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NB.
1577          RS       1    STOR       0       0
1578          SV       0    1.56   2.586
1579          SQ       0      27     111
1580          SE    1732    1737    1738
              *

1581          KK   R11NC
1582          KM        ROUTE FLOW FROM CP11NB TO CP11NC.
1583          RS       1    FLOW
1584          RC    .025    .025    .025     300     .03
1585          RX       0      12      24      36      56      68      80      92
1586          RY       6       4       2       0       0       2       4       6
              *

1587          KK  UB11NC
1588          KM        RUNOFF FROM SUBBASIN 11NC.
1589          BA   .0069
1590          LS              81       0
1591          UK     100     .03     .15     100
1592          RK     650    .028    .025            TRAP      20       5
              *

1593          KK  C11NC1
1594          KM        ADD HYDROGRAPHS AT CP11NC.1
1595          HC       2
              *

1596          KK  SUB10A
1597          KM        RUNOFF FROM SUBBASIN 10A.
1598          BA    .030
1599          LS              77      42
1600          UK     100    .015     .15     100
1601          RK     350    .008    .018            TRAP      50      20
1602          RK     800    .008    .025            TRAP      10       4
              *

1603          KK   R12NB
1604          KM        ROUTE FLOW FROM CP10A TO CP12NB.
1605          RS       1    FLOW
1606          RC    .025    .025    .025     400     .03
1607          RX       0      12      24      36      46      58      70      82
1608          RY       6       4       2       0       0       2       4       6
              *
```



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

1609          KK  UB12NA
1610          KM        RUNOFF FROM SUBBASIN 12NA.
1611          BA   .0153
1612          LS              81       0
1613          UK     150    .025     .15     100
1614          RK     650    .017    .025            TRAP      30       6
              *
```

```
1615          KK  SR12NA
1616          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB1NA.
1617          RS       1    STOR       0       0
1618          SV       0    2.16   3.426   5.071
1619          SQ       0       1       2     142
1620          SE    1741    1745    1746    1747
              *

1621          KK   R12NA
1622          KM        ROUTE FLOW FROM CP12NA TO CP12NB.
1623          RS       1    FLOW
1624          RC    .025    .025    .025     550    .025
1625          RX       0      12      24      36      46      58      70      82
1626          RY       6       4       2       0       0       2       4       6
              *

1627          KK  UB12NB
1628          KM        RUNOFF FROM SUBBASIN 12NB.
1629          BA   .0157
1630          LS              81       0
1631          UK     150    .025     .15     100
1632          RK     650    .017    .025            TRAP      30       6
              *

1633          KK  CP12NB
1634          KM        ADD 3 HYDROGRAPHS AT CP12NB
1635          HC       3
              *

1636          KK  SR12NB
1637          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB12NB.
1638          RS       1    STOR       0       0
1639          SV       0    .922    4.24    7.53
1640          SQ       0       2       2     142
1641          SE    1741    1745    1746    1747
              *

1642          KK  R11NC2
1643          KM        ROUTE FLOW FROM CP12NA TO CP11NC.
1644          RS       1    FLOW
1645          RC    .025    .025    .025     550     .01
1646          RX       0      12      24      36      46      58      70      82
1647          RY       6       4       2       0       0       2       4       6
              *
```



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

1648          KK  CP11NC
1649          KM        ADD HYDROGRAPHS  AT CP11NC
1650          HC       2
              *

1651          KK  SR11NC
1652          KM        ROUTE FLOW THROUGH RETENTION BASIN RT11NC.  18" PIPE OUTFLOW WILL
1653          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1654          RS       1    STOR       0       0
1655          SV       0   1.665   2.303   3.062
1656          SQ       0      27     111     344
1657          SE    1730    1735    1736    1737
              *

1658          KK   R16NC
1659          KM        ROUTE FLOW FROM CP11NC TO CP16NC.
1660          RS       1    FLOW
1661          RC    .035    .035   0.035     950    .025
1662          RX       0       8      13      17      22      26      31      39
1663          RY       4       2       2       0       0       2       2       4
              *

1664          KK  UB16NC
1665          KM        RUNOFF FROM SUBBASIN 16NC.
1666          BA   .0337
1667          LS              77      42
1668          UK     100    .015     .15     100
1669          RK    1600    .015    .022            TRAP      50      20
              *

1670          KK  CP16NC
1671          KM        ADD HYDROGRAPHS  AT CP16NC
1672          HC       2
              *

1673          KK  R16NC1
1674          KM        ROUTE FLOW FROM CP16NC TO CP16NC1.
1675          RS       1    FLOW
1676          RC     .03     .03     .03     550    .013
1677          RX       0      16      26      34      44      58      68      86
1678          RY       6       2       2       0       0       2       2       6
              *

1679          KK  C16NC1
1680          KM        ADD HYDROGRAPHS  AT CP16NC1.
1681          HC       2
```

```
                 *
1682             KK   R15N1
1683             KM        ROUTE FLOW FROM CP16NC1 TO CP15N1.
1684             RS       1    FLOW
1685             RC    .035    .035    .035     600    .013
1686             RX       0      16      26      34      54      68      78      96
1687             RY       6       2       2       0       0       2       2       6
                 *
1                                          HEC-1 INPUT                                                    PAGE 48

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

1688             KK     PC2
1689             KM        RUNOFF FROM SUBBASIN PC2.
1690             BA    .054
1691             LS              77      10
1692             UK     100    .015     .15     100
1693             RK    2700     .01     .03            TRAP      50       4
                 *

1694             KK  CP15N1
1695             KM        ADD HYDROGRAPHS  AT CP15N1
1696             HC       2
                 *

1697             KK   SRPC2
1698             KM        STORAGE ROUTE THRU DETENTION BASINS IN POWER CORRIDOR THIS IS THE TOTAL
1699             KM        FLOW REACHING THE UPSTREAM SIDE OF THE THOMPSON PEAK PARKWAY BRIDGE
1700             RS       1    STOR       0       0
1701             SV       0    1.02    2.70    4.48     5.8     6.9
1702             SQ       0       0     150     350     550     850
1703             SE    1730    1731    1732    1733    1734    1735
                 *

1704             KK  UB17NA
1705             KM        RUNOFF FROM SUBBASIN SUB17NA.
1706             BA  .00979
1707             LS              81       0
1708             UK     150    .025     .05     100
1709             RK     960   .0292    .025            TRAP      30      50
                 *

1710             KK  SR17NA
1711             KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NA.
1712             RS       1    STOR       0       0
1713             SV       0   .0078    .241    .523    1.00   1.735
1714             SQ       0       1       1       1    17.4     251
1715             SE  1755.2    1756    1758    1759    1760    1761
                 *

1716             KK   R17NB
1717             KM        ROUTE FLOW FROM SR17NA TO CP17NB.
1718             RS       1    FLOW
1719             RC    0.03    0.03    0.03     280  0.0286
1720             RX       0      10      20      35      70      85      90     100
1721             RY    1757  1756.8  1756.6    1756    1756    1757    1758    1759
                 *

1722             KK  UB17NB
1723             KM        RUNOFF FROM SUBBASIN SUB17NB.
1724             BA   .0111
1725             LS              81       0
1726             UK     150    .025     .05     100
1727             RK    1200   .0217    .025            TRAP      30      50
                 *
1                                          HEC-1 INPUT                                                    PAGE 49

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

1728             KK  CP17NB
1729             KM        ADD HYDROGRAPHS AT SUB17NB.
1730             HC       2
                 *

1731             KK  SR17NB
1732             KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NB.
1733             RS       1    STOR       0       0
1734             SV       0   .0113   .1469    .635   .9795   1.509   2.254   3.243
1735             SQ       0       1       1       1       1       1    38.2     189
1736             SE  1751.5    1752    1753    1755    1756    1757    1758    1759
                 *

1737             KK    R17A
1738             KM        ROUTE FLOW FROM SR17NB TO CP17A.
1739             RS       1    FLOW
1740             RC    0.03    0.03    0.03     280   0.033
1741             RX       0      15      18      20      24      27      30      35
1742             RY    1755    1754    1753    1752    1752    1753    1754    1755
                 *

1743             KK  SUB17A
1744             KM        RUNOFF FROM SUBBASIN SUB17A.
```

```
1745        BA  .00792
1746        LS              77      34
1747        UK      75     .03     .05     100
1748        RK    1500     .02    .025            TRAP       8       4
            *

1749        KK  CP17A1
1750        KM        ADD HYDROGRAPHS AT CP17A1.
1751        HC       2
            *

1752        KK  UB17NC
1753        KM        RUNOFF FROM SUBBASIN SUB17NC.
1754        BA  .00559
1755        LS              77      12
1756        UK      75     .03     .05     100
1757        RK     910   .0187    .025            TRAP       8       4
            *

1758        KK   CP17A
1759        KM        ADD ALL HYDROGRAPHS AT CP17A.
1760        HC       2
            *

1761        KK    R15N
1762        KM        ROUTE FLOW FROM CP17A TO CP15N.
1763        RS       1    FLOW
1764        RC    .035    .035    .035    1950    .025
1765        RX       0       8      13      17      22      26      31      39
1766        RY       4       2       2       0       0       2       2       4
            *
```



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

1767        KK  SUB15N
1768        KM        RUNOFF FROM SUBBASIN 15N.
1769        BA   .0391
1770        LS              77      68
1771        UK     100     .01     .15     100
1772        RK     400    .008    .018            TRAP      50      20
1773        RK    1700    .015    .025            TRAP      10       4
            *

1774        KK   CP15N
1775        KM        ADD HYDROGRAPHS  AT CP15N
1776        HC       2
            *

1777        KK   R15N2
1778        KM        ROUTE FLOW FROM CP15N TO CP15N1.
1779        RS       1    FLOW
1780        RC     .02     .02     .02     700    .013
1781        RX       0       8      13      17      22      26      31      39
1782        RY       6       2       2       0       0       2       2       6
            *

1783        KK  CP15N2
1784        KM        ADD HYDROGRAPHS  AT CP15N1
1785        KM        THIS IS THE INTERIM OUTFLOW DISCHARGE TO NATURAL WASH.
1786        HC       2  1.1611
            *

1787        KK   R15N2
1788        KM        ROUTE 15N2 IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CP15N2 TO THE
1789        KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1790        KM
1791        KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1792        RS       1    FLOW      -1
1793        RC    .035    .035    .035    2200    .013
1794        RX       0      16      26      34      64      78      88     106
1795        RY       6       2       2       0       0       2       2       6
            *

1796        KK    DPC3
1797        KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1798        KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1799        KM
1800        KM        RETRIEVE DIVERTED FLOW
1801        DR   BPC3T
            *

1802        KK   CPC3A
1803        KM        COMBINE CPC3A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE AT THE
1804        KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1805        KM
1806        KM        COMBINE ROUTED HYDROGRAPH FROM CP15N2 WITH HYDROGRAPH FROM CPC3
1807        HC       2  1.3446
            *
```



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

```
1808          KK   RPC3A
1809          KM        ROUTE PC3A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC3A VIA
1810          KM        THE POWER LINE CHANNEL.
1811          KM
1812          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1813          RS       1    FLOW      -1
1814          RC    .035    .035    .035    1100    .013
1815          RX       0      16      26      34      64      78      88     106
1816          RY       6       2       2       0       0       2       2       6
              *

1817          KK    DPC4
1818          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1819          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1820          KM
1821          KM        RETRIEVE DIVERTED FLOW
1822          DR   BPC4T
              *

1823          KK   CPC4A
1824          KM        COMBINE CPC4A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE IN THE
1825          KM        POWER LINE CHANNEL
1826          KM
1827          KM        COMBINE ROUTED HYDROGRAPH FROM CPC3A WITH HYDROGRAPH FROM CPC4
1828          HC       2  1.9946
              *

1829          KK   RPC4A
1830          KM        ROUTE PC4A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC4A TO THE
1831          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI RD.
1832          KM
1833          KM        ROUTE FLOW FROM CPC4A TO CPC5.
1834          RS       1    FLOW      -1
1835          RC    .035    .035    .035    1900    .013
1836          RX       0      16      26      34      64      78      88     106
1837          RY       6       2       2       0       0       2       2       6
              *

1838          KK  DPC4AT
1839          KM        DIVERT PC4A IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
1840          KM        LOOP DETENTION BASIN VIAL THE POWER LINE CHANNEL.
1841          KM
1842          KM        DIVERT 100% OF FLOW
1843          DT  BPC4AT
1844          DI       0   10000
1845          DQ       0   10000
              *

1846          KK  SUB1-2
1847          KM        RUNOFF FROM SUB 1 AND 2, SOUTH COURSE MODEL
1848          BA   .0558
1849          LS              77      68
1850          UK     200    .010     .15     100
1851          RK    1370    .027    .015            TRAP      50      20
              *
```



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

1852          KK  GCRB18
1853          KM        RUNOFF FROM GOLF COURSE CONTRIBUTING TO RETENTION BASIN AT HOLE NO. 18
1854          KM        AND HOLE NO. 10, SOUTH COURSE
1855          BA    .012
1856          LS              81       0
1857          UK     200    .025     .15     100
1858          RK     300    .016    .025            TRAP      10       4
              *

1859          KK  CPRET1
1860          KM        COMBINE HYDROGRAPHS AT RETENTION BASINS ON HOLE 18 & 10
1861          HC       2
              *

1862          KK   SR18S
1863          KM        STORAGE ROUTE THRU RETENTION BASIN AT HOLE 18, SOUTH COURSE
1864          RS       1    STOR       0       0
1865          SV       0  1.7635  5.7722  12.174  21.337  28.849  30.151      32
1866          SE    1725    1730    1735    1740    1745    1748    1749    1750
1867          SQ       0       0       0       0       0      42     386     900
              *

1868          KK   SUB5S
1869          KM        RUNOFF FROM SUB 5S
1870          BA   .0263
1871          LS              77      31
1872          UK     100    .010     .15     100
1873          RK    1280    .007    .015            TRAP      50      20
              *

1874          KK  GC1216
1875          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 12, 16, AND 17
1876          BA   .0365
1877          LS              81       0
1878          UK     200    .025     .15     100
```

```
1879          RK    2200    .024    .025            TRAP      10       4
              *

1880          KK  GC1415
1881          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 13, 14, 15 AND RETENTION
1882          BA    .045
1883          LS              81       0
1884          UK     200    .025     .15     100
1885          RK    1300    .022    .025            TRAP      10       4
              *

1886          KK   SUB6S
1887          KM        RUNOFF FROM SUB BASIN 6, SOUTH COURSE
1888          BA    .021
1889          LS              77      42
1890          UK     100    .010     .15     100
1891          RK    2150    .013    .025            TRAP      50      20
              *
1                                          HEC-1 INPUT                                                    PAGE 53

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

1892          KK   SUB7S
1893          KM        RUNOFF FROM SUB BASIN 7, SOUTH COURSE
1894          BA    .027
1895          LS              77      42
1896          UK     100    .010     .15     100
1897          RK    2080    .023    .025            TRAP      50      20
              *

1898          KK  CPRET2
1899          KM        COMBINE HYDROGRAPHS AT RETENTION BASIN 2, SOUTH COURSE
1900          HC       5
              *

1901          KK  SRRET2
1902          KM        STORAGE THRU RETENTION BASIN NO. 2, SOUTH COURSE
1903          RS       1    STOR       0       0
1904          SV       0    .617   3.474   9.858  20.063  35.353  52.685  57.749      62
1905          SE    1670    1675    1680    1685    1690    1695    1699    1700    1701
1906          SQ       0       0       0       0       0       0      32     386     594
              *
              *       NO FLOW RELEASED FROM RETENTION BASIN
              *

1907          KK   CLEAR
1908          KM        THIS OPERATION IS ADDED BY GVSCE
1909          KM
1910          KM        CLEAR HYDROGRAPHS FROM THE STACK
1911          HC       2
              *

1912          KK   SUB8S
1913          KM        RUNOFF FROM SUB BASIN 8, SOUTH COURSE
1914          BA   .0256
1915          LS              77      42
1916          UK     100    .010     .15     100
1917          RK    1600    .015    .025            TRAP      50      20
              *

1918          KK   RGC36
1919          KM        ROUTE SUB8S TO CPGC36
1920          RS       1    FLOW
1921          RC    .055    .045    .055     850     .02
1922          RX       0      16      26      30      40      44      54      70
1923          RY       6       2       2       0       0       2       2       6
              *

1924          KK    GC36
1925          KM        RUNOFF FROM SOUTH COURSE HOLES 3, 6, AND NORTH HALF OF HOLE 4.
1926          BA   .0406
1927          LS              81       0
1928          UK     200    .025     .15     100
1929          RK    2350    .015    .035            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 54

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

1930          KK  C1GC36
1931          KM        COMBINE SUBS 8 AND GC36
1932          HC       2
              *

1933          KK   SUB9S
1934          KM        RUNOFF FROM SUB BASIN 9, SOUTH COURSE
1935          BA    .021
1936          LS              77      53
1937          UK     100    .010     .15     100
1938          RK    1100    .013    .025            TRAP      50      20
              *

1939          KK     R9S
```

```
1940          KM        ROUTE SUB9S TO CPGC36
1941          RS       1    FLOW
1942          RC    .035    .035    .035     500     .02
1943          RX       0       8      12      16      18      22      26      30
1944          RY       6       4       3       2       2       3       4       6
              *

1945          KK  CPGC36
1946          KM        COMBINE SUBS 8 AND 9 SOUTH AND GC36
1947          HC       2
              *

1948          KK  SRGC36
1949          KM        STORAGE THRU DETENTION BASIN ON GC36
1950          RS       1    STOR       0       0
1951          SV       0    0.85     1.0
1952          SE    1664    1668    1669
1953          SQ       0      20     205
              *

1954          KK   SUB7A
1955          KM        RUNOFF FROM SUB7A, SOUTH COURSE EAST SIDE ADJACENT TO PIMA ROAD
1956          BA   .0092
1957          LS              77      42
1958          UK     100    .025     .15     100
1959          RK     950    .015    .025            TRAP      50      20
              *

1960          KK    SR7A
1961          KM        STORAGE THRU DETENTION BASIN ON SUB7A
1962          RS       1    STOR       0       0
1963          SV       0     .68      .8
1964          SE    1700    1703    1704
1965          SQ       0      10     150
              *
```



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

1966          KK    R10S
1967          KM        ROUTE FLOW FROM CP7A TO CP10S
1968          RS       1    FLOW
1969          RC    .035    .035    .035    1400    .015
1970          RX       0       8      12      16      18      22      26      30
1971          RY       6       4       3       2       2       3       4       6
              *

1972          KK  SUB10S
1973          KM        RUNOFF FROM SUB BASIN 10, SOUTH COURSE
1974          BA   .0248
1975          LS              77      53
1976          UK     100    .010     .15     100
1977          RK    1150    .020    .025            TRAP      50      20
              *

1978          KK   CP10S
1979          KM        COMBINE HYDROGRAPHS AT CP10 SOUTH COURSE
1980          HC       2
              *

1981          KK  SUB11S
1982          KM        RUNOFF FROM SUB11, SOUTH COURSE
1983          BA   .0234
1984          LS              77      68
1985          UK     100    .015    .018     100
1986          RK    1050    .015    .025            TRAP     100      20
              *

1987          KK    R11S
1988          KM        ROUTE 11S IS ADDED BY GVSCE TO ROUTE THE RUNOFF FROM SUB11S TO THE
1989          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI DR ALONG HUALAPAI DR.
1990          KM
1991          KM        ROUTE FLOW FROM SUB11S TO CPC5.
1992          RS       1    FLOW      -1
1993          RC    .035    .035    .035     900    .015
1994          RX       0       8      12      16      18      22      26      30
1995          RY       6       4       3       2       2       3       4       6
              *

1996          KK   C10SA
1997          KM        COMBINE 10SA IS ADDED BY GVSCE
1998          KM
1999          KM        COMBINE ROUTED HYDROGRAPH FROM 11S WITH HYDROGRAPH FROM CP10S
2000          HC       2
              *

2001          KK   R10SA
2002          KM        ROUTE 10SA IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
2003          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2004          KM
2005          KM        ROUTE FLOW FROM C10SAS TO CPC5.
2006          RS       1    FLOW      -1
2007          RC    .035    .035    .035     900    .015
```

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

2008          RX       0       8      12      16      18      22      26      30
2009          RY       6       4       3       2       2       3       4       6
              *

2010          KK    GC45
2011          KM        RUNOFF FROM SOUTH COURSE HOLES 4 AND 5
2012          BA   .0127
2013          LS              81       0
2014          UK     200    .015    .025     100
2015          RK     550    .015    .035            TRAP      10       4
              *

2016          KK   CGC45
2017          KM        COMBINE CGC45 IS ADDED BY GVSCE
2018          KM
2019          KM        COMBINE ROUTED HYDROGRAPH FROM 10SA WITH RUNOFF FROM GC45
2020          HC       2
              *

2021          KK     PC5
2022          KM        PC5 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
2023          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
2024          KM
2025          KM        RUNOFF FROM SUBBASIN PC5.
2026          BA  0.0375
2027          LS              77       0
2028          UK     300    .015     .15     100
2029          RK    1900     .01     .03            TRAP      30       4
              *

2030          KK   DPC4A
2031          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
2032          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2033          KM
2034          KM        RETRIEVE DIVERTED FLOW
2035          DR  BPC4AT
              *

2036          KK    CPC5
2037          KM        COMBINE PC5 IS ADDED BY GVSCE TO ESTIMATE THE TOTAL FLOW IN THE POWER
2038          KM        LINE CHANNEL AT THE HUALAPAI CROSSING
2039          KM
2040          KM        COMBINE ROUTED HYDROGRAPH FROM C10SA AND CPC4A WITH HYDROGRAPHS FROM
2041          KM        CGC45, SRGC36 AND PC5
2042          HC       5  2.1022
              *
              *     *******************  END GREYHAWK WATERSHED  ********************
              *

2043          KK     RC5
2044          KM       ROUTE CPC5 THROUGH SUBBASIN CN5C TO OUTER LOOP BASIN
2045          RS       1    FLOW      -1
2046          RC    .035    .035    .035    2000    .013
2047          RX       0      16      26      34      64      78      88     106
2048          RY       6       2       2       0       0       2       2       6
              *
```



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

2049          KK   SCN5D
2050          KM     RUNOFF FROM SUBBASIN CN5D
2051          BA  0.0499
2052          LS              74       0
2053          UK     100   0.025    0.13     100
2054          RK    3100   0.017    0.04            TRAP       0      15
              *

2055          KK    CN5D
2056          KM        COMBINE ROUTED HYDROGRAPH FROM CPC5 W/RUNOFF FROM SCN5D
2057          HC       2
              *

2058          KK     D52
2059          KM     BRING BACK DIVERTED HYDROGRAPH FROM R52
2060          DR    B52T
              *

2061          KK    S53A
2062          KM     RUNOFF FROM SUBBASIN 53A
2063          BA  0.1794
2064          LS              74      11
2065          UK     300   0.022    0.13     100
2066          RK    1475   0.026   0.045  0.0111    TRAP       3       5
2067          RK    1750   0.021    0.04            TRAP      25       5
              *

2068          KK    C53
2069          KM     COMBINE ROUTED HYDROGRAPH FROM FROM C52 WITH RUNOFF FROM SUBBASIN 53A
2070          HC       2  8.0954
              *
```

```
                 *    R53
                 *   ****  TOO SHORT TO ROUTE  ****
                 *

2071             KK   S53A1
2072             KM     RUNOFF FROM SUBBASIN 53A1
2073             BA  0.3376
2074             LS              74      12              74      30
2075             UK     300   0.022    0.13      70
2076             UK     150   0.027    0.13      30
2077             RK    1250   0.023   0.045  0.0087    TRAP       4       5
2078             RK    5050   0.017    0.04            TRAP      35       5
                 *

2079             KK    C53A
2080             KM     COMBINE ROUTED HYDROGRAPH FROM C53 WITH RUNOFF FROM SUBBASSIN 53A1
2081             HC       2  8.4330
                 *
1                                          HEC-1 INPUT                                          PAGE 58

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

2082             KK   SCN6B
2083             KM     RUNOFF FROM SUBBASIN CN6B (WATER CAMPUS)
2084             KM      TOTAL AREA = 0.0542 sm, 0.0022 sm OF THAT IS NON-CONTRIBUTING
2085             BA  0.0520
2086             LS              74      80              74       0
2087             UK     150    0.01    0.15      70
2088             UK     100   0.025    0.13      30
2089             RK     720    0.02    0.03  0.0084    TRAP       5      10
2090             RK     700    0.01   0.045  0.0050    TRAP       0      10
2091             RK     440   0.009   0.035            TRAP       6       3
                 *

2092             KK   SCN6D
2093             KM     RUNOFF FROM SUBBASIN CN6D
2094             KM      TOTAL AREA = 0.0398 sm, 0.0029 sm OF THAT IS NON-CONTRIBUTING
2095             BA  0.0369
2096             LS              74       3
2097             UK     100   0.025    0.13     100
2098             RK    1000   0.017    0.04            TRAP       0      15
                 *

2099             KK    CP6D
2100             KM     COMBINE HYDROGRAPHS FROM C53A W/RUNOFF FROM SCN6D
2101             HC       3
                 *

2102             KK   SCN6C
2103             KM     RUNOFF FROM SUBBASIN CN6C (CAP TREATMENT PLANT AND WATER CAMPUS)
2104             KM      TOTAL AREA = 0.1526 sm, 0.0138 sm OF THAT IS NON-CONTRIBUTING
2105             BA  0.1388
2106             LS              74      80              74       0
2107             UK     150    0.01    0.15      50
2108             UK     100   0.025    0.13      50
2109             RK    1500    0.01    0.03  0.0123    TRAP       5      10
2110             RK     700   0.017    0.04            TRAP       0      15
                 *

2111             KK    CP6C
2112             KM        COMBINE HYDROGRAPH FROM CP6D W/RUNOFF FROM SCN6C
2113             HC       2
                 *

2114             KK    CP5D
2115             KM        COMBINE HYDROGRAPHS FROM CP6C AND CP5D
2116             HC       2
                 *

2117             KK   SCN5C
2118             KM     RUNOFF FROM SUBBASIN CN5C
2119             BA  0.1904
2120             LS              74       0
2121             UK     150   0.020    0.13     100
2122             RK    3700  0.0176    0.04            TRAP       0      15
                 *
1                                          HEC-1 INPUT                                          PAGE 59

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

2123             KK   SCN6E
2124             KM     RUNOFF FROM SUBBASIN CN6E
2125             BA  0.0427
2126             LS              74       5
2127             UK      50    0.01    0.13     100
2128             RK    3200   0.002   0.025            TRAP       0      50
                 *

2129             KK  EAST-I
2130             KM     COMBINE HYDROGRAPH FROM CP5D WITH W/RUNOFF FROM SCN5C AND SCN6E
2131             HC       3
                 *
```

```
2132          KK  EAST-O
2133          KM     PIMA FREEWAY BASIN EAST LOCATED NORTH AND EAST OF HAYDEN ROAD T.I.
2134          KM     (2) 96" OUTLET CONDUIT
2135          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK.
2136          KM        9 ACRE-FEET OF STORAGE FOR SEDIMENTAION
2137          KM
2138          RS       1    STOR      -1       0
2139          SV       0    0.35    1.11    3.38   12.19   24.00   36.81   43.59   50.74   58.38
2140          SV   66.49   74.88   83.50   92.36  101.45  110.78  120.36  130.25  140.48  145.06
2141          SQ       0      67     130     291     540     833    1094    1208    1311    1406
2142          SQ    1497    1577    1658    1732    1802    1873    1938    2001    2064    2096
2143          SE  1589.9    1591    1592    1594    1596    1598    1600    1601    1602    1603
2144          SE    1604    1605    1606    1607    1608    1609    1610    1611    1612  1612.5
              *
2145          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   19        S30N
                V
                V
   28        R30N
                .
                .
   34           .       S31.1
                .           .
                .           .
   42      C31.1............
                .
                .
   45           .       S34.2
                .           .
                .           .
   54      C34.2............
                .
                .
   57           .        S35N
                .           .
                .           .
   69           .           .-------->   D35NL
   65           .       D35NR
                .           V
                .           V
   72           .       R35NR
                .           .
                .           .
   79           .           .       S36.2
                .           .           .
                .           .           .
   87           .       C36.2............
                .           .
                .           .
   94           .           .-------->  D36.2L
   90           .      D36.2R
                .           V
                .           V
   97           .      R36.2R
                .           .
                .           .
  104           .           .       S34.1
                .           .           .
                .           .           .
  113           .       C34.1............
                .           .
                .           .
  116      HVDB-I............
                V
                V
  119      HVDB-O
                V
                V
  132      R34.1
                .
                .
  138           .       S36.1
                .           .
                .           .
  145      C36.1............
                V
                V
  148      R36.1
                .
                .
  156           .           .<--------   D35NL
  154           .       B35NL
                .           V
                .           V
  157           .       R35NL
                .           .
                .           .
  166           .           .           .<--------  D36.2L
```

```
164          .           .      B36.2L
             .           .          V
             .           .          V
167          .           .      R36.2L
             .           .           .
             .           .           .
174          .           .           .      S36R1A
             .           .           .           .
             .           .           .           .
182     C36R1A.................................
             .
             .
187          .      S36R1B
             .           .
             .           .
195     C36R1B............
             .
             .
198          .      S36R2A
             .           .
             .           .
205     C36R2A............
            V
            V
208     R36R2A
             .
             .
220          .      S36R2B
             .           .
             .           .
227     C36R2B............
             .
             .
230          .       S51.1
             .           .
             .           .
238     DVDB-I............
            V
            V
241     DVDB-O
             .
             .
258          .-------> B51.1T
256     D51.1T
             .
             .
261          .        52D4
             .           V
             .           V
267          .       52D4R
             .           .
             .           .
270          .           .       52D4B
             .           .           .
             .           .           .
276          .      52D5C1............
             .           .
             .           .
279          .           .       52D5A
             .           .           V
             .           .           V
285          .           .      52D5AR
             .           .           .
             .           .           .
288          .      52D5C2............
             .           V
             .           V
291          .       52D5R
             .           .
             .           .
294          .           .        52C3
             .           .           V
             .           .           V
300          .           .       52C3R
             .           .           .
             .           .           .
303          .           .           .       52C3B
             .           .           .           .
             .           .           .           .
309          .           .      2C3BC1............
             .           .           .
             .           .           .
312          .      2C3BC2............
             .           V
             .           V
315          .      52C3BR
             .           .
             .           .
318          .           .         51C
             .           .           .
             .           .           .
326          .           .           .-------> 51C1DV
324          .           .       51C1D
             .           .           V
             .           .           V
```

```
329          .           .       51C1R
             .           .           .
             .           .           .
332          .           .           .        52C1
             .           .           .           .
             .           .           .           .
338          .           .       52C1C............
             .           .           V
             .           .           V
341          .           .       52C1R
             .           .           .
             .           .           .
344          .           .           .       52C2A
             .           .           .           .
             .           .           .           .
350          .           .      52C2AC............
             .           .           .
             .           .           .
353          .           .           .       52C2B
             .           .           .           .
             .           .           .           .
359          .           .      52C2BC............
             .           .           V
             .           .           V
362          .           .      52C2BR
             .           .           .
             .           .           .
365          .           .           .       52C2C
             .           .           .           .
             .           .           .           .
371          .           .      52C2CC............
             .           .           V
             .           .           V
374          .           .       52C2R
             .           .           .
             .           .           .
377          .           .           .        52C4
             .           .           .           .
             .           .           .           .
383          .           .      52C4C1............
             .           .           .
             .           .           .
386          .      52C4C2............
             .           V
             .           V
389          .       52C4R
             .           .
             .           .
392          .           .       52C13
             .           .           .
             .           .           .
400          .           .           .-------> STORM
398          .           .      2C13DV
             .           .           .
             .           .           .
403          .           .           .       52C15
             .           .           .           .
             .           .           .           .
409          .           .      2C15C1............
             .           .           .
             .           .           .
412          .      2C15C2............
             .           V
             .           V
415          .      52C15R
             .           .
             .           .
418          .           .      52C14A
             .           .           .
             .           .           .
424          .      2C14AC............
             .           V
             .           V
427          .      2C14AR
             .           .
             .           .
432          .           .           .<-------  51C1DV
430          .           .      51C1DV
             .           .           .
             .           .           .
435          .           .           .-------> 51C2DV
433          .           .       51C2D
             .           .           V
             .           .           V
438          .           .       51C2R
             .           .           .
             .           .           .
441          .           .           .        52C5
             .           .           .           .
             .           .           .           .
447          .           .       52C5C............
             .           .           V
             .           .           V
450          .           .       52C5R
             .           .           .
```

```
453                 52C6
                      .
                      .
459           52C6C............
                  V
                  V
462           52C6R
                  .
                  .
467                   .<-------  51C2DV
465             51C2DV
                      V
                      V
468              51C3R
                      .
                      .
471                   .         51B
                      .           .
                      .           .
479                   .           .-------> 51B1DV
477                   .      51B1D
                      .          V
                      .          V
482                   .      51B1R
                      .           .
                      .           .
485                   .           .        52C7
                      .           .          .
                      .           .          .
491              52C7C.......................
                      V
                      V
494              52C7R
                      .
                      .
499                   .           .<-------  51B1DV
497                   .     51B1DV
                      .           .
                      .           .
502                   .           .-------> 51B2DV
500                   .      51B2D
                      .          V
                      .          V
505                   .      51B2R
                      .           .
                      .           .
508                   .           .        52C8
                      .           .          .
                      .           .          .
514                   .      52C8C............
                      .          V
                      .          V
517                   .      52C8R
                      .           .
                      .           .
520             52C9C1............
                      V
                      V
523             52C9R1
                      .
                      .
526                   .        52C9
                      .           .
                      .           .
532             52C9C2............
                      V
                      V
535             52C9R2
                      .
                      .
538           2C10C1............
                  V
                  V
541           2C10R1
                  .
                  .
544              52C10
                      .
                      .
550           2C10C2............
                  .
                  .
553              52C11
                      V
                      V
559             2C11R1
                      .
                      .
564                   .           .<-------   STORM
562                   .     52C13D
                      .           .
                      .           .
565             52C11C............
                      V
```

```
                .         .         .         V
568             .         .         .     2C11CR
                .         .         .         .
                .         .         .         .
571             .         .     2C11C2.........
                .         .         V
                .         .         V
574             .         .     2C11R2
                .         .         .
                .         .         .
577             .         .         .      52C12
                .         .         .         .
                .         .         .         .
583             .         .     52C12C.........
                .         .         V
                .         .         V
586             .         .     52C12R
                .         .         .
                .         .         .
589             .         .         .     52C14B
                .         .         .         .
                .         .         .         .
595             .         .     C14BC1.........
                .         .         .
                .         .         .
598             .     C14BC2.........
                .         V
                .         V
601             .     52C14R
                .         .
                .         .
606             .         .         .<-------  51B2DV
604             .         .     51B2DV
                .         .         .
                .         .         .
609             .         .         .------->  51B3DV
607             .         .      51B3D
                .         .         V
                .         .         V
612             .         .      51B3R
                .         .         .
                .         .         .
615             .         .         .       52B1
                .         .         .         .
                .         .         .         .
621             .         .      52B1C.........
                .         .         V
                .         .         V
624             .         .      52B1R
                .         .         .
                .         .         .
629             .         .         .           .<-------  51B3DV
627             .         .         .     51B3DV
                .         .         .         .
                .         .         .         .
632             .         .         .           .------->  51B4DV
630             .         .         .      51B4D
                .         .         .         V
                .         .         .         V
635             .         .         .     51B4R1
                .         .         .         .
                .         .         .         .
638             .         .     52B2C1.........
                .         .         V
                .         .         V
641             .         .     52B2R1
                .         .         .
                .         .         .
644             .         .         .       52B2
                .         .         .         .
                .         .         .         .
650             .         .     52B2C2.........
                .         .         V
                .         .         V
653             .         .     52B2R2
                .         .         V
                .         .         V
656             .         .     52B3R1
                .         .         .
                .         .         .
659             .         .         .       52B3
                .         .         .         .
                .         .         .         .
665             .         .     52B3C2.........
                .         .         V
                .         .         V
668             .         .     52B3R2
                .         .         .
                .         .         .
671             .         .         .       52B4
                .         .         .         .
                .         .         .         .
677             .         .      52B4C.........
                .         .         V
                .         .         V
```

```
680          .          .       52B4R
             .          .           .
             .          .           .
683          .          .           .        52B5
             .          .           .           .
             .          .           .           .
689          .          .     52B5C1............
             .          .           .
             .          .           .
692          .     52B5C2............
             .         V
             .         V
695          .      52B5R
             .          .
             .          .
700          .          .           .<-------  51B4DV
698          .          .     51B4DV
             .          .           .
             .          .           .
703          .          .           .------->  51B5DV
701          .          .       51B5D
             .          .           V
             .          .           V
706          .          .       51B5R
             .          .           .
             .          .           .
711          .          .           .           .<-------  51B5DV
709          .          .           .      51B5DV
             .          .           .           .
             .          .           .           .
714          .          .           .           .------->  51B6DV
712          .          .           .       51B6D
             .          .           .           V
             .          .           .           V
717          .          .           .       51B6R
             .          .           .           .
             .          .           .           .
722          .          .           .           .           .<-------  51B6DV
720          .          .           .           .      51B6DV
             .          .           .           .           .
             .          .           .           .           .
725          .          .           .           .           .------->  51B7DV
723          .          .           .           .       51B7D
             .          .           .           .           V
             .          .           .           .           V
728          .          .           .           .      51B7R1
             .          .           .           .           .
             .          .           .           .           .
731          .          .       51B7C.......................
             .          .           V
             .          .           V
734          .          .     51B7R2
             .          .           .
             .          .           .
737          .          .           .        52B6
             .          .           .           .
             .          .           .           .
743          .          .       52B6C............
             .          .           V
             .          .           V
746          .          .       52B6R
             .          .           .
             .          .           .
749          .          .           .        52B7
             .          .           .           .
             .          .           .           .
755          .          .     52B7C1............
             .          .           .
             .          .           .
758          .     52B7C2............
             .          .
             .          .
761          .          .        52A2
             .          .           .
             .          .           .
767          .     52A2C2............
             .          .
             .          .
772          .          .           .<-------  51B7DV
770          .          .     51B7DV
             .          .           V
             .          .           V
773          .          .       51B8R
             .          .           .
             .          .           .
776          .          .           .        52A1
             .          .           .           .
             .          .           .           .
782          .          .       52A1C............
             .          .           .
             .          .           .
787          .          .           .           .<-------  B51.1T
785          .          .           .       D51.1
             .          .           .           .
             .          .           .           .
```

```
788          .          .        C52A............
             .          .           .
             .          .           .
792          .        C52............
             .          V
             .          V
796          .        R52
             .          .
             .          .
803          .          .-------->   B52T
801          .       D52T
             .          .
             .          .
806      CLEAR............
             .
             .
809          .        37A
             .          .
             .          .
826          .          .-------->   37AW
815          .       37AE
             .          V
             .          V
829          .      37AE1
             .          .
             .          .
836          .          .      SUB5N
             .          .         .
             .          .         .
843          .       CP5N............
             .          V
             .          V
846          .      RET5N
             .          V
             .          V
853          .      R6N.1
             .          .
             .          .
861          .          .      SUB6B
             .          .         V
             .          .         V
867          .          .       SR6B
             .          .         .
             .          .         .
873          .      CP6.1............
             .          .
             .          .
876          .          .      SUB1N
             .          .         V
             .          .         V
882          .          .       R2NA
             .          .         .
             .          .         .
888          .          .         .     SUB2NA
             .          .         .        .
             .          .         .        .
894          .          .      CP2NA............
             .          .         V
             .          .         V
897          .          .      SR2NA
             .          .         V
             .          .         V
903          .          .       R2NB
             .          .         .
             .          .         .
909          .          .         .     SUB2NB
             .          .         .        .
             .          .         .        .
915          .          .      CP2NB............
             .          .         V
             .          .         V
918          .          .      SR2NB
             .          .         V
             .          .         V
924          .          .      RCP4N
             .          .         .
             .          .         .
930          .          .         .      SUB6N
             .          .         .         V
             .          .         .         V
936          .          .         .      RET6N
             .          .         .         V
             .          .         .         V
942          .          .         .     RCP4N1
             .          .         .        .
             .          .         .        .
948          .          .     CP4N.1............
             .          .         .
             .          .         .
951          .          .         .      SUB3N
             .          .         .         V
             .          .         .         V
957          .          .         .      RET3N
             .          .         .         V
             .          .         .         V
```

```
 964          .          .          .        R4N
              .          .          .          .
              .          .          .          .
 970          .          .     CP4N.2...........
              .          .          .
              .          .          .
 973          .          .          .      SUB4N
              .          .          .          .
              .          .          .          .
 979          .          .       CP4N...........
              .          .          V
              .          .          V
 982          .          .        R6N
              .          .          .
              .          .          .
 988          .          .          .      SUB6A
              .          .          .          .
              .          .          .          .
 994          .          .     CP6.2...........
              .          .          .
              .          .          .
 997          .       CP6N...........
              .          V
              .          V
1000          .      RCP6N
              .          .
              .          .
1006          .          .      SUB3C
              .          .          .
              .          .          .
1012          .       CP3C...........
              .          V
              .          V
1015          .        R3C
              .          .
              .          .
1023          .          .     GC1018
              .          .          .
              .          .          .
1029          .          .          .      GC1-9
              .          .          .          .
              .          .          .          .
1035          .          .          .          .      SUB3S
              .          .          .          .          .
              .          .          .          .          .
1041          .       CP3S...................................
              .          V
              .          V
1044          .       RT3S
              .          .
              .          .
1050          .          .      SUB4S
              .          .          V
              .          .          V
1056          .          .       RT4S
              .          .          .
              .          .          .
1062          .          .          .      GC2-8
              .          .          .          .
              .          .          .          .
1068          .     1PGC28........................
              .          .
              .          .
1071          .          .     SUB3D3
              .          .          .
              .          .          .
1077          .     CPGC28...........
              .          V
              .          V
1080          .     SRGC28
              .          V
              .          V
1086          .       RT7S
              .          .
              .          .
1092          .          .        GC7
              .          .          .
              .          .          .
1098          .       CP7S...........
              .          .
              .          .
1106          .          .------->    B7ST
1101          .       D7ST
              .          .
              .          .
1109     CLEAR...........
              .
              .
1112          .     SUB3D1
              .          V
              .          V
1117          .      RD1B1
              .          .
              .          .
1123          .          .     SUB3B1
```

```
                .          .          .
                .          .          .
1128            .       CP3B1..........
                .          V
                .          V
1131            .       RB13F
                .          .
                .          .
1137            .          .      SUB3F
                .          .          .
                .          .          .
1143            .       CP3F...........
                .          .
                .          .
1146            .          .     SUB3B2
                .          .          V
                .          .          V
1151            .          .      RB2E1
                .          .          V
                .          .          V
1157            .          .      RB2E2
                .          .          .
                .          .          .
1163            .          .          .     SUB3E1
                .          .          .          .
                .          .          .          .
1168            .          .     1CPE31..........
                .          .          .
                .          .          .
1171            .          .          .     SUB3D2
                .          .          .          V
                .          .          .          V
1176            .          .          .      RD2E2
                .          .          .          .
                .          .          .          .
1182            .          .          .          .     SUB3E2
                .          .          .          .          .
                .          .          .          .          .
1187            .          .          .      CP3E2...........
                .          .          .          .
                .          .          .          .
1190            .          .          .          .        PC3
                .          .          .          .          .
                .          .          .          .          .
1199            .       CPC3...................................
                .          .
                .          .
1211            .          .-------> BPC3T
1206            .       DPC3T
                .          .
                .          .
1214            .          .     SUB3E3
                .          .          .
                .          .          .
1219            .          .          .        PC4
                .          .          .          .
                .          .          .          .
1233            .          .          .          .          .<-------    B7ST
1228            .          .          .          .        D7S
                .          .          .          .          .
                .          .          .          .          .
1234            .          .       CPC4........................
                .          .          .
                .          .          .
1245            .          .          .-------> BPC4T
1240            .          .      DPC4T
                .          .          .
                .          .          .
1248         CLEAR........................
                .
                .
1254            .          .<-------    37AW
1251            .       37AW
                .          V
                .          V
1255            .       R14R
                .          V
                .          V
1262            .      RET141
                .          V
                .          V
1269            .      R14.1
                .          .
                .          .
1276            .          .     SUB13N
                .          .          V
                .          .          V
1282            .          .      R14.1
                .          .          .
                .          .          .
1288            .          .          .     SUB14N
                .          .          .          .
                .          .          .          .
1294            .       CP14........................
                .          V
```

```
                 .        V
1297             .     RET14
                 .        V
                 .        V
1304             .     R18.1
                 .        .
                 .        .
1310             .        .     SUB20N
                 .        .         V
                 .        .         V
1316             .        .       R19
                 .        .         .
                 .        .         .
1322             .        .         .     SUB19N
                 .        .         .         .
                 .        .         .         .
1328             .        .      CP19N............
                 .        .         V
                 .        .         V
1331             .        .      R18NC
                 .        .         .
                 .        .         .
1337             .        .         .     UB18NC
                 .        .         .         .
                 .        .         .         .
1343             .   CP18NC........................
                 .        V
                 .        V
1346             .      RPC1
                 .        .
                 .        .
1352             .        .     UB18NA
                 .        .         V
                 .        .         V
1358             .        .      1RPC1
                 .        .         .
                 .        .         .
1364             .        .         .     UB18NB
                 .        .         .         V
                 .        .         .         V
1370             .        .         .      2RPC1
                 .        .         .         .
                 .        .         .         .
1376             .        .         .         .        PC1
                 .        .         .         .          .
                 .        .         .         .          .
1382             .        .      1CPC1........................
                 .        .         V
                 .        .         V
1385             .        .      SRPC1
                 .        .         .
                 .        .         .
1391             .      CPC1............
                 .        V
                 .        V
1394             .   R16NA1
                 .        .
                 .        .
1400             .        .     UB16NA
                 .        .         V
                 .        .         V
1406             .        .     R16NA1
                 .        .         .
                 .        .         .
1412             .   C16NA1............
                 .        V
                 .        V
1415             .   R16NB1
                 .        .
                 .        .
1421             .        .     UB16NB
                 .        .         V
                 .        .         V
1427             .        .     R16NB1
                 .        .         .
                 .        .         .
1433             .   C16NB1............
                 .        V
                 .        V
1436             .   R16NC1
                 .        .
                 .        .
1442             .        .      SUB7N
                 .        .         V
                 .        .         V
1448             .        .       R8NC
                 .        .         .
                 .        .         .
1454             .        .         .     SUB8NA
                 .        .         .         V
                 .        .         .         V
1460             .        .         .      SR8NA
                 .        .         .         V
                 .        .         .         V
1466             .        .         .       R8NB
```

```
                .         .         .         .
                .         .         .         .
1472            .         .         .         .     SUB8NB
                .         .         .         .         .
                .         .         .         .         .
1478            .         .         .      CP8NB............
                .         .         .         V
                .         .         .         V
1481            .         .         .      SR8NB
                .         .         .         V
                .         .         .         V
1487            .         .         .       R8NC
                .         .         .         .
                .         .         .         .
1493            .         .         .         .     SUB8NC
                .         .         .         .         .
                .         .         .         .         .
1499            .         .     CP8NC......................
                .         .         V
                .         .         V
1502            .         .     SR8NC
                .         .         V
                .         .         V
1508            .         .      R9N
                .         .         .
                .         .         .
1514            .         .         .      SUB9N
                .         .         .         .
                .         .         .         .
1520            .         .      CP9N............
                .         .         V
                .         .         V
1523            .         .      R10B
                .         .         .
                .         .         .
1529            .         .         .     SUB10B
                .         .         .         .
                .         .         .         .
1536            .         .     CP10B............
                .         .         V
                .         .         V
1539            .         .     R11NA
                .         .         .
                .         .         .
1545            .         .         .     UB11NA
                .         .         .         .
                .         .         .         .
1551            .         .    CP11NA............
                .         .         V
                .         .         V
1554            .         .    SR11NA
                .         .         V
                .         .         V
1560            .         .     R11NB
                .         .         .
                .         .         .
1566            .         .         .     UB11NB
                .         .         .         .
                .         .         .         .
1572            .         .    CP11NB............
                .         .         V
                .         .         V
1575            .         .    SR11NB
                .         .         V
                .         .         V
1581            .         .     R11NC
                .         .         .
                .         .         .
1587            .         .         .     UB11NC
                .         .         .         .
                .         .         .         .
1593            .         .    C11NC1............
                .         .         .
                .         .         .
1596            .         .         .     SUB10A
                .         .         .         V
                .         .         .         V
1603            .         .         .      R12NB
                .         .         .         .
                .         .         .         .
1609            .         .         .         .     UB12NA
                .         .         .         .         V
                .         .         .         .         V
1615            .         .         .         .     SR12NA
                .         .         .         .         V
                .         .         .         .         V
1621            .         .         .         .      R12NA
                .         .         .         .         .
                .         .         .         .         .
1627            .         .         .         .         .     UB12NB
                .         .         .         .         .         .
                .         .         .         .         .         .
1633            .         .         .     CP12NB......................
                .         .         .         V
                .         .         .         V
```

```
1636          .          .          .      SR12NB
              .          .          .          V
              .          .          .          V
1642          .          .          .      R11NC2
              .          .          .          .
              .          .          .          .
1648          .          .     CP11NC............
              .          .          V
              .          .          V
1651          .          .     SR11NC
              .          .          V
              .          .          V
1658          .          .      R16NC
              .          .          .
              .          .          .
1664          .          .          .      UB16NC
              .          .          .          .
              .          .          .          .
1670          .          .     CP16NC............
              .          .          V
              .          .          V
1673          .          .     R16NC1
              .          .          .
              .          .          .
1679          .     C16NC1............
              .          V
              .          V
1682          .      R15N1
              .          .
              .          .
1688          .          .        PC2
              .          .          .
              .          .          .
1694          .     CP15N1............
              .          V
              .          V
1697          .      SRPC2
              .          .
              .          .
1704          .          .     UB17NA
              .          .          V
              .          .          V
1710          .          .     SR17NA
              .          .          V
              .          .          V
1716          .          .      R17NB
              .          .          .
              .          .          .
1722          .          .          .      UB17NB
              .          .          .          .
              .          .          .          .
1728          .          .     CP17NB............
              .          .          V
              .          .          V
1731          .          .     SR17NB
              .          .          V
              .          .          V
1737          .          .       R17A
              .          .          .
              .          .          .
1743          .          .          .      SUB17A
              .          .          .          .
              .          .          .          .
1749          .          .     CP17A1............
              .          .          .
              .          .          .
1752          .          .          .      UB17NC
              .          .          .          .
              .          .          .          .
1758          .          .      CP17A............
              .          .          V
              .          .          V
1761          .          .       R15N
              .          .          .
              .          .          .
1767          .          .          .      SUB15N
              .          .          .          .
              .          .          .          .
1774          .          .      CP15N............
              .          .          V
              .          .          V
1777          .          .      R15N2
              .          .          .
              .          .          .
1783          .     CP15N2............
              .          V
              .          V
1787          .      R15N2
              .          .
              .          .
1801          .          .          .<-------   BPC3T
1796          .          .       DPC3
              .          .          .
              .          .          .
1802          .      CPC3A............
```

```
                .          V
                .          V
1808            .      RPC3A
                .          .
                .          .
1822            .          .          .<-------   BPC4T
1817            .          .       DPC4
                .          .          .
                .          .          .
1823            .      CPC4A............
                .          V
                .          V
1829            .      RPC4A
                .          .
                .          .
1843            .          .-------> BPC4AT
1838            .     DPC4AT
                .          .
                .          .
1846            .          .     SUB1-2
                .          .          .
                .          .          .
1852            .          .          .     GCRB18
                .          .          .          .
                .          .          .          .
1859            .          .     CPRET1............
                .          .          V
                .          .          V
1862            .          .      SR18S
                .          .          .
                .          .          .
1868            .          .          .      SUB5S
                .          .          .          .
                .          .          .          .
1874            .          .          .          .     GC1216
                .          .          .          .          .
                .          .          .          .          .
1880            .          .          .          .          .     GC1415
                .          .          .          .          .          .
                .          .          .          .          .          .
1886            .          .          .          .          .          .      SUB6S
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
1892            .          .          .          .          .          .          .      SUB7S
                .          .          .          .          .          .          .          .
                .          .          .          .          .          .          .          .
1898            .          .          .     CPRET2.............................................
                .          .          .          V
                .          .          .          V
1901            .          .          .     SRRET2
                .          .          .          .
                .          .          .          .
1907            .          .      CLEAR............
                .          .          .
                .          .          .
1912            .          .          .      SUB8S
                .          .          .          V
                .          .          .          V
1918            .          .          .      RGC36
                .          .          .          .
                .          .          .          .
1924            .          .          .          .       GC36
                .          .          .          .          .
                .          .          .          .          .
1930            .          .          .     C1GC36............
                .          .          .          .
                .          .          .          .
1933            .          .          .          .      SUB9S
                .          .          .          .          V
                .          .          .          .          V
1939            .          .          .          .       R9S
                .          .          .          .          .
                .          .          .          .          .
1945            .          .          .     CPGC36............
                .          .          .          V
                .          .          .          V
1948            .          .          .     SRGC36
                .          .          .          .
                .          .          .          .
1954            .          .          .          .      SUB7A
                .          .          .          .          V
                .          .          .          .          V
1960            .          .          .          .      SR7A
                .          .          .          .          V
                .          .          .          .          V
1966            .          .          .          .      R10S
                .          .          .          .          .
                .          .          .          .          .
1972            .          .          .          .          .     SUB10S
                .          .          .          .          .          .
                .          .          .          .          .          .
1978            .          .          .          .      CP10S............
                .          .          .          .          .
                .          .          .          .          .
1981            .          .          .          .          .     SUB11S
```

```
                 .         .         .         .         .         V
                 .         .         .         .         .         V
1987             .         .         .         .         .       R11S
                 .         .         .         .         .         .
                 .         .         .         .         .         .
1996             .         .         .         .      C10SA............
                 .         .         .         .         V
                 .         .         .         .         V
2001             .         .         .         .      R10SA
                 .         .         .         .         .
                 .         .         .         .         .
2010             .         .         .         .         .       GC45
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2016             .         .         .         .      CGC45............
                 .         .         .         .         .
                 .         .         .         .         .
2021             .         .         .         .         .        PC5
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2035             .         .         .         .         .         .<-------  BPC4AT
2030             .         .         .         .         .      DPC4A
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2036             .         .      CPC5.............................................
                 .         .         V
                 .         .         V
2043             .         .       RC5
                 .         .         .
                 .         .         .
2049             .         .         .      SCN5D
                 .         .         .         .
                 .         .         .         .
2055             .         .      CN5D............
                 .         .         .
                 .         .         .
2060             .         .         .         .<-------    B52T
2058             .         .         .       D52
                 .         .         .         .
                 .         .         .         .
2061             .         .         .         .       S53A
                 .         .         .         .         .
                 .         .         .         .         .
2068             .         .         .       C53............
                 .         .         .         .
                 .         .         .         .
2071             .         .         .         .      S53A1
                 .         .         .         .         .
                 .         .         .         .         .
2079             .         .         .      C53A............
                 .         .         .         .
                 .         .         .         .
2082             .         .         .         .      SCN6B
                 .         .         .         .         .
                 .         .         .         .         .
2092             .         .         .         .         .      SCN6D
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2099             .         .         .      CP6D........................
                 .         .         .         .
                 .         .         .         .
2102             .         .         .         .      SCN6C
                 .         .         .         .         .
                 .         .         .         .         .
2111             .         .         .      CP6C............
                 .         .         .         .
                 .         .         .         .
2114             .         .      CP5D............
                 .         .         .
                 .         .         .
2117             .         .         .      SCN5C
                 .         .         .         .
                 .         .         .         .
2123             .         .         .         .      SCN6E
                 .         .         .         .         .
                 .         .         .         .         .
2129             .         .     EAST-I........................
                 .         .         V
                 .         .         V
2132             .         .     EAST-O
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
*  RUN DATE  03/01/99  TIME  09:54:32*
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

```
                    PIMA ROAD THREE BASINS                              File:  FU50-24.IH1
                    by  Stantec for the City of Scottsdale            Original: 08-07-97     mcg
                        Project:  28900082                             Revised: 01-20-99     mcg

                    50-YEAR, 24-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


 18 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      4   0  ENDING DATE
                     NDTIME       1115  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE   83.25 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S30N	1059.	12.33	130.	38.	13.	0.65		
+	ROUTED TO	R30N	1001.	12.33	130.	38.	13.	0.65		
+									103.56	12.33
+	HYDROGRAPH AT	S31.1	356.	12.33	44.	13.	4.	0.27		
+	2 COMBINED AT	C31.1	1356.	12.33	174.	51.	17.	0.92		
+	HYDROGRAPH AT	S34.2	609.	12.33	75.	22.	7.	0.44		
+	2 COMBINED AT	C34.2	1966.	12.33	249.	73.	25.	1.36		
+	HYDROGRAPH AT	S35N	1116.	12.25	110.	32.	11.	0.55		
+	DIVERSION TO	D35NL	495.	12.25	48.	14.	5.	0.55		
+	HYDROGRAPH AT	D35NR	621.	12.25	62.	18.	6.	0.55		
+	ROUTED TO	R35NR	516.	12.33	61.	18.	6.	0.55		
+									101.69	12.33
+	HYDROGRAPH AT	S36.2	345.	12.25	35.	10.	3.	0.21		
+	2 COMBINED AT	C36.2	811.	12.25	96.	28.	10.	0.76		
+	DIVERSION TO	D36.2L	185.	12.25	8.	2.	1.	0.76		
+	HYDROGRAPH AT	D36.2R	626.	12.25	88.	27.	9.	0.76		
+	ROUTED TO	R36.2R	466.	12.67	88.	27.	9.	0.76		
+									101.21	12.67
+	HYDROGRAPH AT	S34.1	1623.	12.33	196.	58.	19.	1.16		
+	2 COMBINED AT	C34.1	1726.	12.33	284.	85.	28.	1.92		
+	2 COMBINED AT	HVDB-I	3692.	12.33	533.	158.	53.	3.28		
+	ROUTED TO	HVDB-O	133.	16.08	132.	121.	53.	3.28		
+									2088.79	16.17
+	ROUTED TO	R34.1	133.	16.17	132.	121.	53.	3.28		
+									101.43	16.25
+	HYDROGRAPH AT	S36.1	147.	12.42	20.	6.	2.	0.14		
+	2 COMBINED AT	C36.1	241.	12.42	147.	126.	55.	3.42		
+	ROUTED TO	R36.1	238.	12.50	147.	126.	55.	3.42		
+									101.91	12.50
+	HYDROGRAPH AT	B35NL	495.	12.25	48.	14.	5.	0.00		
+	ROUTED TO	R35NL	330.	12.58	48.	14.	5.	0.00		

```
+                                                                                    103.01      12.58
        HYDROGRAPH AT
+                    B36.2L     185.  12.25        8.        2.        1.     0.00
        ROUTED TO
+                    R36.2L      78.  12.58        8.        2.        1.     0.00
+                                                                                    101.00      12.58
        HYDROGRAPH AT
+                    S36R1A     604.  12.50       92.       27.        9.     0.63
        4 COMBINED AT
+                    C36R1A    1194.  12.50      293.      168.       69.     4.05
        HYDROGRAPH AT
+                    S36R1B     611.  12.42       86.       26.        9.     0.59
        2 COMBINED AT
+                    C36R1B    1741.  12.50      379.      193.       78.     4.64
        HYDROGRAPH AT
+                    S36R2A     240.  12.17       20.        6.        2.     0.13
        2 COMBINED AT
+                    C36R2A    1799.  12.50      397.      199.       80.     4.77
        ROUTED TO
+                    R36R2A    1799.  12.58      397.      199.       80.     4.77
        HYDROGRAPH AT
+                    S36R2B     243.  12.33       33.       10.        3.     0.24
        2 COMBINED AT
+                    C36R2B    1952.  12.58      430.      208.       83.     5.01
        HYDROGRAPH AT
+                     S51.1     998.  12.50      166.       50.       17.     1.13
        2 COMBINED AT
+                    DVDB-I    2918.  12.58      596.      257.      100.     6.14
        ROUTED TO
+                    DVDB-O     251.  16.42      250.      237.      100.     6.14
+                                                                                   1878.03      16.50
        DIVERSION TO
+                    B51.1T     251.   0.08      250.      237.      100.     6.14
        HYDROGRAPH AT
+                    D51.1T       0.   0.08        0.        0.        0.     6.14
        HYDROGRAPH AT
+                      52D4     104.  12.25       11.        3.        1.     0.07
        ROUTED TO
+                     52D4R      95.  12.25       11.        3.        1.     0.07
        HYDROGRAPH AT
+                     52D4B      53.  12.17        5.        2.        1.     0.02
        2 COMBINED AT
+                    52D5C1     142.  12.25       16.        5.        2.     0.09
        HYDROGRAPH AT
+                     52D5A      63.  12.17        6.        2.        1.     0.02
        ROUTED TO
+                    52D5AR      60.  12.17        6.        2.        1.     0.02
        2 COMBINED AT
+                    52D5C2     190.  12.25       22.        7.        2.     0.12
        ROUTED TO
+                     52D5R     188.  12.25       22.        7.        2.     0.12
        HYDROGRAPH AT
+                      52C3      18.  12.08        1.        0.        0.     0.01
        ROUTED TO
+                     52C3R      18.  12.17        1.        0.        0.     0.01
        HYDROGRAPH AT
+                     52C3B      42.  12.17        4.        1.        0.     0.02
        2 COMBINED AT
+                    2C3BC1      60.  12.17        5.        2.        1.     0.02
        2 COMBINED AT
+                    2C3BC2     227.  12.17       27.        8.        3.     0.14
        ROUTED TO
+                    52C3BR     227.  12.25       27.        8.        3.     0.14
        HYDROGRAPH AT
```

+	51C	148.	12.17	15.	5.	2.	0.10
DIVERSION TO +	51C1DV	99.	12.17	10.	3.	1.	0.10
HYDROGRAPH AT +	51C1D	49.	12.17	5.	1.	0.	0.10
ROUTED TO +	51C1R	47.	12.25	5.	1.	0.	0.10
HYDROGRAPH AT +	52C1	59.	12.17	5.	1.	0.	0.03
2 COMBINED AT +	52C1C	95.	12.17	10.	3.	1.	0.13
ROUTED TO +	52C1R	90.	12.25	10.	3.	1.	0.13
HYDROGRAPH AT +	52C2A	31.	12.17	3.	1.	0.	0.02
2 COMBINED AT +	52C2AC	112.	12.25	12.	4.	1.	0.15
HYDROGRAPH AT +	52C2B	47.	12.17	4.	1.	0.	0.03
2 COMBINED AT +	52C2BC	152.	12.17	17.	5.	2.	0.17
ROUTED TO +	52C2BR	150.	12.25	17.	5.	2.	0.17
HYDROGRAPH AT +	52C2C	38.	12.17	3.	1.	0.	0.01
2 COMBINED AT +	52C2CC	173.	12.25	20.	6.	2.	0.19
ROUTED TO +	52C2R	163.	12.25	20.	6.	2.	0.19
HYDROGRAPH AT +	52C4	46.	12.17	4.	1.	0.	0.02
2 COMBINED AT +	52C4C1	191.	12.25	24.	7.	2.	0.20
2 COMBINED AT +	52C4C2	418.	12.25	51.	16.	5.	0.34
ROUTED TO +	52C4R	408.	12.25	51.	16.	5.	0.34
HYDROGRAPH AT +	52C13	55.	12.08	4.	1.	0.	0.02
DIVERSION TO +	STORM	40.	12.08	4.	1.	0.	0.02
HYDROGRAPH AT +	2C13DV	15.	12.08	0.	0.	0.	0.02
HYDROGRAPH AT +	52C15	126.	12.17	11.	4.	1.	0.05
2 COMBINED AT +	2C15C1	137.	12.08	12.	4.	1.	0.07
2 COMBINED AT +	2C15C2	482.	12.25	63.	19.	7.	0.41
ROUTED TO +	52C15R	479.	12.25	63.	19.	7.	0.41
HYDROGRAPH AT +	52C14A	116.	12.17	10.	3.	1.	0.04
2 COMBINED AT +	2C14AC	551.	12.17	73.	23.	8.	0.45
ROUTED TO +	2C14AR	548.	12.25	73.	23.	8.	0.45
HYDROGRAPH AT +	51C1DV	99.	12.17	10.	3.	1.	0.00
DIVERSION TO +	51C2DV	27.	12.17	3.	1.	0.	0.00
HYDROGRAPH AT +	51C2D	72.	12.17	7.	2.	1.	0.00

	ROUTED TO						
+	51C2R	69.	12.25	7.	2.	1.	0.00
	HYDROGRAPH AT						
+	52C5	34.	12.17	3.	1.	0.	0.02
	2 COMBINED AT						
+	52C5C	97.	12.17	10.	3.	1.	0.02
	ROUTED TO						
+	52C5R	89.	12.33	10.	3.	1.	0.02
	HYDROGRAPH AT						
+	52C6	68.	12.17	7.	2.	1.	0.04
	2 COMBINED AT						
+	52C6C	149.	12.25	17.	5.	2.	0.05
	ROUTED TO						
+	52C6R	143.	12.25	17.	5.	2.	0.05
	HYDROGRAPH AT						
+	51C2DV	27.	12.17	3.	1.	0.	0.00
	ROUTED TO						
+	51C3R	25.	12.25	3.	1.	0.	0.00
	HYDROGRAPH AT						
+	51B	556.	12.33	80.	24.	8.	0.57
	DIVERSION TO						
+	51B1DV	512.	12.33	73.	22.	7.	0.57
	HYDROGRAPH AT						
+	51B1D	44.	12.33	6.	2.	1.	0.57
	ROUTED TO						
+	51B1R	44.	12.33	6.	2.	1.	0.57
	HYDROGRAPH AT						
+	52C7	14.	12.08	1.	0.	0.	0.01
	3 COMBINED AT						
+	52C7C	70.	12.25	10.	3.	1.	0.58
	ROUTED TO						
+	52C7R	69.	12.33	10.	3.	1.	0.58
	HYDROGRAPH AT						
+	51B1DV	512.	12.33	73.	22.	7.	0.00
	DIVERSION TO						
+	51B2DV	430.	12.33	62.	19.	6.	0.00
	HYDROGRAPH AT						
+	51B2D	82.	12.33	12.	4.	1.	0.00
	ROUTED TO						
+	51B2R	79.	12.42	12.	4.	1.	0.00
	HYDROGRAPH AT						
+	52C8	17.	12.08	1.	0.	0.	0.01
	2 COMBINED AT						
+	52C8C	86.	12.33	13.	4.	1.	0.01
	ROUTED TO						
+	52C8R	85.	12.42	13.	4.	1.	0.01
	2 COMBINED AT						
+	52C9C1	151.	12.33	23.	7.	2.	0.59
	ROUTED TO						
+	52C9R1	150.	12.42	23.	7.	2.	0.59
	HYDROGRAPH AT						
+	52C9	143.	12.17	13.	4.	1.	0.07
	2 COMBINED AT						
+	52C9C2	232.	12.25	36.	11.	4.	0.65
	ROUTED TO						
+	52C9R2	230.	12.25	36.	11.	4.	0.65
	2 COMBINED AT						
+	2C10C1	373.	12.25	53.	16.	5.	0.71
	ROUTED TO						
+	2C10R1	368.	12.25	53.	16.	5.	0.71
	HYDROGRAPH AT						
+	52C10	24.	12.17	2.	1.	0.	0.01
	2 COMBINED AT						
+	2C10C2	382.	12.25	55.	17.	6.	0.72

+	HYDROGRAPH AT 52C11	81.	12.17	8.	2.	1.	0.04
+	ROUTED TO 2C11R1	75.	12.17	8.	2.	1.	0.04
+	HYDROGRAPH AT 52C13D	40.	12.08	4.	1.	0.	0.00
+	2 COMBINED AT 52C11C	115.	12.17	12.	4.	1.	0.04
+	ROUTED TO 2C11CR	108.	12.17	12.	4.	1.	0.04
+	2 COMBINED AT 2C11C2	482.	12.25	67.	20.	7.	0.76
+	ROUTED TO 2C11R2	473.	12.25	67.	20.	7.	0.76
+	HYDROGRAPH AT 52C12	89.	12.08	7.	2.	1.	0.02
+	2 COMBINED AT 52C12C	506.	12.25	73.	23.	8.	0.79
+	ROUTED TO 52C12R	491.	12.25	74.	23.	8.	0.79
+	HYDROGRAPH AT 52C14B	58.	12.08	5.	2.	1.	0.02
+	2 COMBINED AT C14BC1	522.	12.25	78.	24.	8.	0.81
+	2 COMBINED AT C14BC2	1071.	12.25	152.	47.	16.	1.26
+	ROUTED TO 52C14R	1062.	12.25	152.	47.	16.	1.26
+	HYDROGRAPH AT 51B2DV	430.	12.33	62.	19.	6.	0.00
+	DIVERSION TO 51B3DV	361.	12.33	52.	16.	5.	0.00
+	HYDROGRAPH AT 51B3D	69.	12.33	10.	3.	1.	0.00
+	ROUTED TO 51B3R	67.	12.33	10.	3.	1.	0.00
+	HYDROGRAPH AT 52B1	6.	12.08	1.	0.	0.	0.00
+	2 COMBINED AT 52B1C	69.	12.33	10.	3.	1.	0.00
+	ROUTED TO 52B1R	69.	12.42	10.	3.	1.	0.00
+	HYDROGRAPH AT 51B3DV	361.	12.33	52.	16.	5.	0.00
+	DIVERSION TO 51B4DV	296.	12.33	42.	13.	4.	0.00
+	HYDROGRAPH AT 51B4D	65.	12.33	9.	3.	1.	0.00
+	ROUTED TO 51B4R1	64.	12.42	9.	3.	1.	0.00
+	2 COMBINED AT 52B2C1	132.	12.42	20.	6.	2.	0.00
+	ROUTED TO 52B2R1	131.	12.42	20.	6.	2.	0.00
+	HYDROGRAPH AT 52B2	58.	12.17	5.	2.	1.	0.03
+	2 COMBINED AT 52B2C2	153.	12.42	25.	8.	3.	0.04
+	ROUTED TO 52B2R2	152.	12.42	25.	8.	3.	0.04
+	ROUTED TO 52B3R1	151.	12.42	25.	8.	3.	0.04
	HYDROGRAPH AT						

+	52B3	117.	12.17	12.	4.	1.	0.06
2 COMBINED AT							
+	52B3C2	225.	12.25	37.	11.	4.	0.10
ROUTED TO							
+	52B3R2	221.	12.33	36.	11.	4.	0.10
HYDROGRAPH AT							
+	52B4	71.	12.17	6.	2.	1.	0.03
2 COMBINED AT							
+	52B4C	253.	12.25	43.	13.	4.	0.12
ROUTED TO							
+	52B4R	250.	12.33	43.	13.	4.	0.12
HYDROGRAPH AT							
+	52B5	54.	12.17	5.	2.	1.	0.02
2 COMBINED AT							
+	52B5C1	278.	12.25	47.	15.	5.	0.14
2 COMBINED AT							
+	52B5C2	1340.	12.25	199.	62.	21.	1.40
ROUTED TO							
+	52B5R	1314.	12.25	199.	62.	21.	1.40
HYDROGRAPH AT							
+	51B4DV	296.	12.33	42.	13.	4.	0.00
DIVERSION TO							
+	51B5DV	201.	12.33	29.	9.	3.	0.00
HYDROGRAPH AT							
+	51B5D	95.	12.33	14.	4.	1.	0.00
ROUTED TO							
+	51B5R	93.	12.42	14.	4.	1.	0.00
HYDROGRAPH AT							
+	51B5DV	201.	12.33	29.	9.	3.	0.00
DIVERSION TO							
+	51B6DV	107.	12.33	15.	5.	2.	0.00
HYDROGRAPH AT							
+	51B6D	95.	12.33	14.	4.	1.	0.00
ROUTED TO							
+	51B6R	92.	12.42	14.	4.	1.	0.00
HYDROGRAPH AT							
+	51B6DV	107.	12.33	15.	5.	2.	0.00
DIVERSION TO							
+	51B7DV	62.	12.33	9.	3.	1.	0.00
HYDROGRAPH AT							
+	51B7D	45.	12.33	6.	2.	1.	0.00
ROUTED TO							
+	51B7R1	44.	12.33	6.	2.	1.	0.00
3 COMBINED AT							
+	51B7C	228.	12.42	34.	10.	3.	0.00
ROUTED TO							
+	51B7R2	226.	12.42	33.	10.	3.	0.00
HYDROGRAPH AT							
+	52B6	166.	12.17	15.	5.	2.	0.10
2 COMBINED AT							
+	52B6C	292.	12.42	49.	15.	5.	0.10
ROUTED TO							
+	52B6R	291.	12.42	49.	15.	5.	0.10
HYDROGRAPH AT							
+	52B7	244.	12.17	22.	7.	2.	0.08
2 COMBINED AT							
+	52B7C1	373.	12.25	69.	21.	7.	0.18
2 COMBINED AT							
+	52B7C2	1687.	12.25	269.	83.	28.	1.58
HYDROGRAPH AT							
+	52A2	206.	12.17	19.	6.	2.	0.06
2 COMBINED AT							
+	52A2C2	1825.	12.25	287.	89.	30.	1.64

	HYDROGRAPH AT								
+		51B7DV	62.	12.33	9.	3.	1.	0.00	
	ROUTED TO								
+		51B8R	60.	12.50	9.	3.	1.	0.00	
	HYDROGRAPH AT								
+		52A1	282.	12.17	25.	8.	3.	0.13	
	2 COMBINED AT								
+		52A1C	289.	12.17	33.	10.	3.	0.13	
	HYDROGRAPH AT								
+		D51.1	251.	16.42	250.	237.	100.	0.00	
	2 COMBINED AT								
+		C52A	378.	12.17	270.	244.	103.	0.13	
	2 COMBINED AT								
+		C52	2164.	12.25	549.	324.	133.	1.77	
	ROUTED TO								
+		R52	2164.	12.33	549.	324.	133.	1.77	
	DIVERSION TO								
+		B52T	2164.	0.08	549.	324.	133.	1.77	
	HYDROGRAPH AT								
+		D52T	0.	0.08	0.	0.	0.	1.77	
	2 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	7.92	
	HYDROGRAPH AT								
+		37A	1020.	12.25	116.	36.	12.	0.68	
	DIVERSION TO								
+		37AW	714.	12.25	82.	25.	8.	0.68	
	HYDROGRAPH AT								
+		37AE	306.	12.25	35.	11.	4.	0.68	
	ROUTED TO								
+		37AE1	302.	12.25	35.	11.	4.	0.68	
+									2.41 12.25
	HYDROGRAPH AT								
+		SUB5N	59.	12.17	5.	2.	1.	0.03	
	2 COMBINED AT								
+		CP5N	347.	12.25	40.	12.	4.	0.71	
	ROUTED TO								
+		RET5N	310.	12.33	38.	12.	4.	0.71	
+									1807.25 12.33
	ROUTED TO								
+		R6N.1	258.	12.42	38.	12.	4.	0.71	
+									2.26 12.42
	HYDROGRAPH AT								
+		SUB6B	63.	12.17	6.	2.	1.	0.03	
	ROUTED TO								
+		SR6B	45.	12.25	6.	2.	1.	0.03	
+									1774.32 12.25
	2 COMBINED AT								
+		CP6.1	288.	12.42	44.	14.	5.	0.74	
	HYDROGRAPH AT								
+		SUB1N	39.	12.17	3.	1.	0.	0.02	
	ROUTED TO								
+		R2NA	39.	12.17	3.	1.	0.	0.02	
+									0.91 12.17
	HYDROGRAPH AT								
+		SUB2NA	29.	12.17	3.	1.	0.	0.01	
	2 COMBINED AT								
+		CP2NA	68.	12.17	6.	2.	1.	0.03	
	ROUTED TO								
+		SR2NA	62.	12.25	5.	1.	0.	0.03	
+									1775.39 12.25
	ROUTED TO								
+		R2NB	52.	12.33	5.	1.	0.	0.03	
+									1.24 12.33
	HYDROGRAPH AT								
+		SUB2NB	77.	12.17	7.	2.	1.	0.03	
	2 COMBINED AT								

```
+                    CP2NB      94.  12.25      12.      4.      1.    0.06
        ROUTED TO
+                    SR2NB      17.  12.83      11.      4.      1.    0.06
+                                                                          1803.92    12.83
        ROUTED TO
+                    RCP4N      17.  12.92      11.      4.      1.    0.06
+                                                                             0.63    12.92
        HYDROGRAPH AT
+                    SUB6N      96.  12.17       9.      2.      1.    0.05
        ROUTED TO
+                    RET6N       0.   0.08       0.      0.      0.    0.05
+                                                                          1785.04    82.42
        ROUTED TO
+                   RCP4N1       0.   0.08       0.      0.      0.    0.05
        2 COMBINED AT
+                   CP4N.1      17.  12.92      11.      4.      1.    0.11
        HYDROGRAPH AT
+                    SUB3N      57.  12.17       5.      1.      0.    0.03
        ROUTED TO
+                    RET3N       4.  13.08       3.      1.      0.    0.03
+                                                                          1794.81    13.08
        ROUTED TO
+                      R4N       4.  13.17       3.      1.      0.    0.03
+                                                                             0.27    13.17
        2 COMBINED AT
+                   CP4N.2      20.  12.92      14.      5.      2.    0.14
        HYDROGRAPH AT
+                    SUB4N      66.  12.17       6.      2.      1.    0.03
        2 COMBINED AT
+                     CP4N      74.  12.17      20.      6.      2.    0.17
        ROUTED TO
+                      R6N      71.  12.17      20.      6.      2.    0.17
+                                                                             1.38    12.17
        HYDROGRAPH AT
+                    SUB6A      48.  12.08       4.      1.      0.    0.01
        2 COMBINED AT
+                    CP6.2     104.  12.17      23.      8.      3.    0.18
        2 COMBINED AT
+                     CP6N     337.  12.42      67.     21.      7.    0.92
        ROUTED TO
+                    RCP6N     335.  12.42      67.     21.      7.    0.92
+                                                                             1.89    12.42
        HYDROGRAPH AT
+                    SUB3C      42.  12.08       3.      1.      0.    0.01
        2 COMBINED AT
+                     CP3C     341.  12.42      69.     22.      7.    0.93
        ROUTED TO
+                      R3C     324.  12.50      69.     22.      7.    0.93
+                                                                          1670.91    12.50
        HYDROGRAPH AT
+                   GC1018      87.  12.17       8.      2.      1.    0.04
        HYDROGRAPH AT
+                    GC1-9      50.  12.17       5.      1.      0.    0.03
        HYDROGRAPH AT
+                    SUB3S      27.  12.17       2.      1.      0.    0.01
        4 COMBINED AT
+                     CP3S     372.  12.50      84.     26.      9.    1.01
        ROUTED TO
+                     RT3S     372.  12.50      84.     26.      9.    1.01
+                                                                          1743.92    12.50
        HYDROGRAPH AT
+                    SUB4S      71.  12.17       6.      2.      1.    0.03
        ROUTED TO
+                     RT4S      69.  12.17       6.      2.      1.    0.03
+                                                                          1743.30    12.17
        HYDROGRAPH AT
+                    GC2-8      28.  12.17       2.      1.      0.    0.01
```

	3 COMBINED AT								
+		1PGC28	400.	12.50	92.	29.	10.	1.05	
	HYDROGRAPH AT								
+		SUB3D3	30.	12.17	2.	1.	0.	0.01	
	2 COMBINED AT								
+		CPGC28	407.	12.50	95.	30.	10.	1.07	
	ROUTED TO								
+		SRGC28	401.	12.50	94.	30.	10.	1.07	
+									1712.24 12.50
	ROUTED TO								
+		RT7S	396.	12.58	94.	30.	10.	1.07	
+									1744.10 12.58
	HYDROGRAPH AT								
+		GC7	26.	12.17	2.	1.	0.	0.01	
	2 COMBINED AT								
+		CP7S	402.	12.58	96.	31.	10.	1.08	
	DIVERSION TO								
+		B7ST	402.	0.08	96.	31.	10.	1.08	
	HYDROGRAPH AT								
+		D7ST	0.	0.08	0.	0.	0.	1.08	
	2 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	9.00	
	HYDROGRAPH AT								
+		SUB3D1	22.	12.08	2.	1.	0.	0.01	
	ROUTED TO								
+		RD1B1	18.	12.17	2.	1.	0.	0.01	
+									1.67 12.17
	HYDROGRAPH AT								
+		SUB3B1	38.	12.08	3.	1.	0.	0.01	
	2 COMBINED AT								
+		CP3B1	51.	12.08	5.	1.	0.	0.02	
	ROUTED TO								
+		RB13F	41.	12.25	5.	1.	0.	0.02	
+									1.74 12.25
	HYDROGRAPH AT								
+		SUB3F	107.	12.08	9.	3.	1.	0.03	
	2 COMBINED AT								
+		CP3F	133.	12.08	14.	4.	1.	0.06	
	HYDROGRAPH AT								
+		SUB3B2	56.	12.17	5.	2.	1.	0.02	
	ROUTED TO								
+		RB2E1	54.	12.17	5.	2.	1.	0.02	
+									1.80 12.17
	ROUTED TO								
+		RB2E2	51.	12.25	5.	2.	1.	0.02	
+									1.84 12.25
	HYDROGRAPH AT								
+		SUB3E1	56.	12.17	5.	2.	1.	0.02	
	2 COMBINED AT								
+		1CPE31	104.	12.17	10.	3.	1.	0.05	
	HYDROGRAPH AT								
+		SUB3D2	48.	12.17	4.	1.	0.	0.02	
	ROUTED TO								
+		RD2E2	47.	12.17	4.	1.	0.	0.02	
+									1.73 12.17
	HYDROGRAPH AT								
+		SUB3E2	30.	12.08	2.	1.	0.	0.01	
	2 COMBINED AT								
+		CP3E2	71.	12.17	7.	2.	1.	0.03	
	HYDROGRAPH AT								
+		PC3	53.	12.33	7.	2.	1.	0.04	
	4 COMBINED AT								
+		CPC3	343.	12.17	38.	12.	4.	0.18	
	DIVERSION TO								
+		BPC3T	343.	0.08	38.	12.	4.	0.18	

	HYDROGRAPH AT								
+		DPC3T	0.	0.08	0.	0.	0.	0.18	
	HYDROGRAPH AT								
+		SUB3E3	49.	12.08	4.	1.	0.	0.02	
	HYDROGRAPH AT								
+		PC4	25.	12.25	3.	1.	0.	0.02	
	HYDROGRAPH AT								
+		D7S	402.	12.58	96.	31.	10.	0.00	
	3 COMBINED AT								
+		CPC4	426.	12.33	103.	33.	11.	0.04	
	DIVERSION TO								
+		BPC4T	426.	0.08	103.	33.	11.	0.04	
	HYDROGRAPH AT								
+		DPC4T	0.	0.08	0.	0.	0.	0.04	
	3 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	9.22	
	HYDROGRAPH AT								
+		37AW	714.	12.25	82.	25.	8.	0.00	
	ROUTED TO								
+		R14R	584.	12.33	81.	25.	8.	0.00	
+									3.11 12.33
	ROUTED TO								
+		RET141	562.	12.42	75.	25.	8.	0.00	
+									1794.20 12.42
	ROUTED TO								
+		R14.1	498.	12.50	75.	25.	8.	0.00	
+									2.90 12.50
	HYDROGRAPH AT								
+		SUB13N	69.	12.17	7.	2.	1.	0.04	
	ROUTED TO								
+		R14.1	67.	12.25	7.	2.	1.	0.04	
+									1.53 12.25
	HYDROGRAPH AT								
+		SUB14N	78.	12.25	9.	2.	1.	0.05	
	3 COMBINED AT								
+		CP14	561.	12.50	90.	29.	10.	0.09	
	ROUTED TO								
+		RET14	523.	12.58	84.	29.	10.	0.09	
+									1755.21 12.58
	ROUTED TO								
+		R18.1	521.	12.58	84.	29.	10.	0.09	
+									2.41 12.58
	HYDROGRAPH AT								
+		SUB20N	40.	12.17	4.	1.	0.	0.02	
	ROUTED TO								
+		R19	40.	12.25	4.	1.	0.	0.02	
+									1.09 12.25
	HYDROGRAPH AT								
+		SUB19N	78.	12.17	7.	2.	1.	0.04	
	2 COMBINED AT								
+		CP19N	112.	12.17	12.	4.	1.	0.06	
	ROUTED TO								
+		R18NC	112.	12.25	12.	4.	1.	0.06	
+									1.55 12.25
	HYDROGRAPH AT								
+		UB18NC	51.	12.17	4.	1.	0.	0.02	
	3 COMBINED AT								
+		CP18NC	569.	12.58	100.	34.	12.	0.17	
	ROUTED TO								
+		RPC1	578.	12.58	100.	34.	12.	0.17	
+									2.05 12.58
	HYDROGRAPH AT								
+		UB18NA	53.	12.17	5.	1.	0.	0.02	
	ROUTED TO								
+		1RPC1	27.	12.33	5.	1.	0.	0.02	
+									0.36 12.33
	HYDROGRAPH AT								

```
+                    UB18NB      23.  12.17        2.        1.        0.     0.01
        ROUTED TO
+                    2RPC1       13.  12.25        2.        1.        0.     0.01
+                                                                                     0.18      12.25
        HYDROGRAPH AT
+                      PC1       61.  12.42       10.        3.        1.     0.06
        3 COMBINED AT
+                    1CPC1       98.  12.42       17.        5.        2.     0.09
        ROUTED TO
+                    SRPC1       99.  12.42       17.        5.        2.     0.09
+                                                                                  1748.28      12.42
        2 COMBINED AT
+                     CPC1      656.  12.58      116.       39.       13.     0.26
        ROUTED TO
+                   R16NA1      663.  12.58      116.       39.       13.     0.26
+                                                                                     1.94      12.58
        HYDROGRAPH AT
+                   UB16NA       34.  12.17        3.        1.        0.     0.01
        ROUTED TO
+                   R16NA1       30.  12.17        3.        1.        0.     0.01
+                                                                                     0.68      12.17
        2 COMBINED AT
+                   C16NA1      671.  12.58      119.       40.       13.     0.28
        ROUTED TO
+                   R16NB1      659.  12.58      119.       40.       13.     0.28
+                                                                                     1.94      12.58
        HYDROGRAPH AT
+                   UB16NB       38.  12.17        3.        1.        0.     0.02
        ROUTED TO
+                   R16NB1       34.  12.17        3.        1.        0.     0.02
+                                                                                     0.72      12.17
        2 COMBINED AT
+                   C16NB1      668.  12.58      122.       41.       14.     0.29
        ROUTED TO
+                   R16NC1      671.  12.67      122.       41.       14.     0.29
+                                                                                     2.51      12.67
        HYDROGRAPH AT
+                    SUB7N       62.  12.17        5.        2.        1.     0.03
        ROUTED TO
+                     R8NC       54.  12.25        5.        2.        1.     0.03
+                                                                                     1.37      12.25
        HYDROGRAPH AT
+                   SUB8NA       11.  12.08        1.        0.        0.     0.00
        ROUTED TO
+                   SR8NA         1.  13.00        0.        0.        0.     0.00
+                                                                                  1793.19      13.08
        ROUTED TO
+                     R8NB        1.  13.00        0.        0.        0.     0.00
+                                                                                     0.01      13.17
        HYDROGRAPH AT
+                   SUB8NB       29.  12.08        3.        1.        0.     0.01
        2 COMBINED AT
+                   CP8NB        29.  12.08        3.        1.        0.     0.02
        ROUTED TO
+                   SR8NB         2.  11.92        2.        1.        0.     0.02
+                                                                                  1787.24      13.33
        ROUTED TO
+                     R8NC        2.  12.00        2.        1.        0.     0.02
+                                                                                     0.02      12.00
        HYDROGRAPH AT
+                   SUB8NC       42.  12.08        3.        1.        0.     0.02
        3 COMBINED AT
+                   CP8NC        90.  12.17       11.        3.        1.     0.07
        ROUTED TO
+                   SR8NC        14.  12.83       11.        3.        1.     0.07
+                                                                                  1779.89      12.83
        ROUTED TO
+                     R9N        14.  12.83       10.        3.        1.     0.07
```

```
+                                                                                                  0.46        12.83
          HYDROGRAPH AT
+                        SUB9N     119.  12.17        11.        3.        1.     0.05
          2 COMBINED AT
+                         CP9N     129.  12.17        21.        7.        2.     0.12
          ROUTED TO
+                         R10B     126.  12.17        21.        7.        2.     0.12
+                                                                                                  1.59        12.17
          HYDROGRAPH AT
+                       SUB10B      69.  12.08         6.        2.        1.     0.03
          2 COMBINED AT
+                       CP10B     191.  12.17        27.        9.        3.     0.15
          ROUTED TO
+                       R11NA     193.  12.17        27.        9.        3.     0.15
+                                                                                                  1.64        12.17
          HYDROGRAPH AT
+                      UB11NA      18.  12.08         1.        0.        0.     0.01
          2 COMBINED AT
+                      CP11NA     207.  12.17        28.        9.        3.     0.16
          ROUTED TO
+                      SR11NA     131.  12.33        28.        9.        3.     0.16
+                                                                                                1743.49       12.33
          ROUTED TO
+                       R11NB     117.  12.33        28.        9.        3.     0.16
+                                                                                                  0.67        12.33
          HYDROGRAPH AT
+                      UB11NB      19.  12.08         1.        0.        0.     0.01
          2 COMBINED AT
+                      CP11NB     123.  12.33        29.        9.        3.     0.17
          ROUTED TO
+                      SR11NB      72.  12.58        28.        9.        3.     0.17
+                                                                                                1737.54       12.58
          ROUTED TO
+                       R11NC      73.  12.50        28.        9.        3.     0.17
+                                                                                                  0.50        12.50
          HYDROGRAPH AT
+                      UB11NC      16.  12.08         1.        0.        0.     0.01
          2 COMBINED AT
+                      C11NC1      76.  12.50        29.       10.        3.     0.17
          HYDROGRAPH AT
+                      SUB10A      72.  12.17         6.        2.        1.     0.03
          ROUTED TO
+                       R12NB      77.  12.17         6.        2.        1.     0.03
+                                                                                                  0.73        12.17
          HYDROGRAPH AT
+                      UB12NA      31.  12.17         3.        1.        0.     0.02
          ROUTED TO
+                      SR12NA       1.  16.33         1.        0.        0.     0.02
+                                                                                                1743.10       16.92
          ROUTED TO
+                       R12NA       1.  16.50         1.        0.        0.     0.02
+                                                                                                  0.01        16.92
          HYDROGRAPH AT
+                      UB12NB      31.  12.17         3.        1.        0.     0.02
          3 COMBINED AT
+                      CP12NB     108.  12.17        10.        3.        1.     0.06
          ROUTED TO
+                      SR12NB       2.  12.08         2.        2.        1.     0.06
+                                                                                                1745.95       17.42
          ROUTED TO
+                      R11NC2       2.  12.42         2.        2.        1.     0.06
+                                                                                                  0.07        12.92
          2 COMBINED AT
+                      CP11NC      78.  12.50        31.       11.        4.     0.23
          ROUTED TO
+                      SR11NC      63.  12.75        30.       11.        4.     0.23
+                                                                                                1735.43       12.75
```

```
          ROUTED TO
+                    R16NC      63.  12.83      30.      11.      4.    0.23
+                                                                            1.30     12.83

          HYDROGRAPH AT
+                    UB16NC     83.  12.17       7.       2.      1.    0.03

          2 COMBINED AT
+                    CP16NC     90.  12.17      36.      13.      5.    0.27

          ROUTED TO
+                    R16NC1     88.  12.17      36.      13.      5.    0.27
+                                                                            1.11     12.17

          2 COMBINED AT
+                    C16NC1    720.  12.67     158.      54.     19.    0.56

          ROUTED TO
+                    R15N1     724.  12.67     158.      54.     19.    0.56
+                                                                            2.59     12.67

          HYDROGRAPH AT
+                     PC2       82.  12.25       9.       3.      1.    0.05

          2 COMBINED AT
+                    CP15N1    746.  12.67     166.      57.     20.    0.61

          ROUTED TO
+                    SRPC2     722.  12.75     166.      57.     20.    0.61
+                                                                         1734.57     12.75

          HYDROGRAPH AT
+                    UB17NA     23.  12.08       2.       0.      0.    0.01

          ROUTED TO
+                    SR17NA      2.  12.83       1.       0.      0.    0.01
+                                                                         1759.04     12.83

          ROUTED TO
+                     R17NB      2.  12.83       1.       0.      0.    0.01
+                                                                         1756.02     12.83

          HYDROGRAPH AT
+                    UB17NB     23.  12.17       2.       1.      0.    0.01

          2 COMBINED AT
+                    CP17NB     24.  12.17       3.       1.      0.    0.02

          ROUTED TO
+                    SR17NB      1.  11.83       1.       1.      0.    0.02
+                                                                         1756.24     22.75

          ROUTED TO
+                     R17A       1.  11.83       1.       1.      0.    0.02
+                                                                         1752.09     11.83

          HYDROGRAPH AT
+                    SUB17A     24.  12.08       2.       0.      0.    0.01

          2 COMBINED AT
+                    CP17A1     25.  12.08       3.       1.      1.    0.03

          HYDROGRAPH AT
+                    UB17NC     15.  12.08       1.       0.      0.    0.01

          2 COMBINED AT
+                     CP17A     40.  12.08       4.       2.      1.    0.03

          ROUTED TO
+                     R15N      28.  12.17       4.       2.      1.    0.03
+                                                                            0.84     12.17

          HYDROGRAPH AT
+                    SUB15N    114.  12.17      10.       3.      1.    0.04

          2 COMBINED AT
+                     CP15N    142.  12.17      13.       5.      2.    0.07

          ROUTED TO
+                     R15N2    143.  12.17      13.       5.      2.    0.07
+                                                                            1.76     12.17

          2 COMBINED AT
+                    CP15N2    741.  12.75     179.      62.     21.    0.69

          ROUTED TO
+                     R15N2    709.  12.83     178.      62.     21.    0.69
+                                                                            2.26     12.83

          HYDROGRAPH AT
+                      DPC3    343.  12.17      38.      12.      4.    0.00

          2 COMBINED AT
+                     CPC3A    754.  12.83     214.      73.     25.    0.69
```

```
          ROUTED TO
+                    RPC3A     758.  12.83      214.      73.      25.    0.69
+                                                                          2.33     12.83
          HYDROGRAPH AT
+                     DPC4     426.  12.33      103.      33.      11.    0.00
          2 COMBINED AT
+                    CPC4A    1070.  12.75      317.     105.      36.    0.69
          ROUTED TO
+                    RPC4A    1062.  12.83      317.     105.      36.    0.69
+                                                                          2.71     12.83
          DIVERSION TO
+                   BPC4AT    1062.   0.08      317.     105.      36.    0.69
          HYDROGRAPH AT
+                   DPC4AT       0.   0.08        0.       0.       0.    0.69
          HYDROGRAPH AT
+                   SUB1-2     143.  12.17       14.       5.       2.    0.06
          HYDROGRAPH AT
+                   GCRB18      23.  12.17        2.       1.       0.    0.01
          2 COMBINED AT
+                   CPRET1     166.  12.17       16.       5.       2.    0.07
          ROUTED TO
+                    SR18S       0.   0.08        0.       0.       0.    0.07
+                                                                       1738.46     71.83
          HYDROGRAPH AT
+                    SUB5S      59.  12.17        5.       2.       1.    0.03
          HYDROGRAPH AT
+                   GC1216      71.  12.17        6.       2.       1.    0.04
          HYDROGRAPH AT
+                   GC1415      88.  12.17        8.       2.       1.    0.05
          HYDROGRAPH AT
+                    SUB6S      44.  12.17        4.       1.       0.    0.02
          HYDROGRAPH AT
+                    SUB7S      64.  12.17        6.       2.       1.    0.03
          5 COMBINED AT
+                   CPRET2     327.  12.17       30.       9.       3.    0.16
          ROUTED TO
+                   SRRET2       0.   0.08        0.       0.       0.    0.16
+                                                                       1688.82     74.92
          2 COMBINED AT
+                    CLEAR       0.   0.08        0.       0.       0.    0.22
          HYDROGRAPH AT
+                    SUB8S      62.  12.17        5.       2.       1.    0.03
          ROUTED TO
+                    RGC36      54.  12.25        5.       2.       1.    0.03
+                                                                          1.04     12.25
          HYDROGRAPH AT
+                     GC36      71.  12.17        7.       2.       1.    0.04
          2 COMBINED AT
+                   C1GC36     123.  12.17       13.       4.       1.    0.07
          HYDROGRAPH AT
+                    SUB9S      55.  12.17        5.       2.       1.    0.02
          ROUTED TO
+                      R9S      56.  12.17        5.       2.       1.    0.02
+                                                                          3.35     12.17
          2 COMBINED AT
+                   CPGC36     179.  12.17       17.       5.       2.    0.09
          ROUTED TO
+                   SRGC36     201.  12.17       17.       5.       2.    0.09
+                                                                       1668.98     12.17
          HYDROGRAPH AT
+                    SUB7A      22.  12.17        2.       1.       0.    0.01
          ROUTED TO
+                      SR7A      7.  12.42        2.       1.       0.    0.01
+                                                                       1701.96     12.42
          ROUTED TO
+                      R10S      6.  12.58        2.       1.       0.    0.01
+                                                                          2.55     12.58
```

```
          HYDROGRAPH AT
+                      SUB10S      64.  12.17        6.        2.        1.     0.02
          2 COMBINED AT
+                       CP10S      66.  12.17        8.        2.        1.     0.03
          HYDROGRAPH AT
+                      SUB11S      89.  12.08        6.        2.        1.     0.02
          ROUTED TO
+                        R11S      70.  12.17        6.        2.        1.     0.02
+                                                                                        3.57      12.17
          2 COMBINED AT
+                       C10SA     136.  12.17       14.        4.        1.     0.06
          ROUTED TO
+                       R10SA     137.  12.17       14.        4.        1.     0.06
+                                                                                        4.07      12.17
          HYDROGRAPH AT
+                        GC45      36.  12.08        2.        1.        0.     0.01
          2 COMBINED AT
+                      CGC45     157.  12.17       16.        5.        2.     0.07
          HYDROGRAPH AT
+                         PC5      41.  12.33        5.        2.        1.     0.04
          HYDROGRAPH AT
+                       DPC4A    1062.  12.83      317.      105.       36.     0.00
          5 COMBINED AT
+                        CPC5    1172.  12.33      355.      117.       40.     0.42
          ROUTED TO
+                         RC5    1152.  12.42      355.      117.       40.     0.42
+                                                                                        2.82      12.42
          HYDROGRAPH AT
+                       SCN5D      61.  12.25        6.        2.        1.     0.05
          2 COMBINED AT
+                        CN5D    1188.  12.42      361.      119.       41.     0.47
          HYDROGRAPH AT
+                         D52    2164.  12.33      549.      324.      133.     0.00
          HYDROGRAPH AT
+                        S53A     221.  12.25       26.        8.        3.     0.18
          2 COMBINED AT
+                         C53    2374.  12.33      575.      332.      136.     0.18
          HYDROGRAPH AT
+                       S53A1     426.  12.33       53.       16.        5.     0.34
          2 COMBINED AT
+                        C53A    2800.  12.33      628.      347.      141.     0.52
          HYDROGRAPH AT
+                       SCN6B     123.  12.17       12.        4.        1.     0.05
          HYDROGRAPH AT
+                       SCN6D      59.  12.17        5.        1.        0.     0.04
          3 COMBINED AT
+                        CP6D    2902.  12.33      645.      352.      143.     0.61
          HYDROGRAPH AT
+                       SCN6C     284.  12.17       28.        9.        3.     0.14
          2 COMBINED AT
+                        CP6C    3077.  12.33      671.      359.      146.     0.74
          2 COMBINED AT
+                        CP5D    4227.  12.33     1032.      474.      187.     1.21
          HYDROGRAPH AT
+                       SCN5C     232.  12.25       25.        7.        2.     0.19
          HYDROGRAPH AT
+                       SCN6E      34.  12.50        6.        2.        1.     0.04
          3 COMBINED AT
+                      EAST-I    4444.  12.33     1063.      483.      190.     1.45
          ROUTED TO
+                      EAST-O    2006.  13.00     1054.      483.      190.     1.45
+                                                                                     1611.08      13.00
1
```

APPENDIX I

EAST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
50-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(E-4)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  02/25/99  TIME  08:06:54 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

    1           ID    PIMA ROAD THREE BASINS                                  File:  FU50-24.IH1
    2           ID    by  Stantec for the City of Scottsdale             Original: 08-07-97     mcg
    3           ID        Project:  28900082                              Revised: 01-20-99     mcg
    4           ID
    5           ID
    6           ID    50-YEAR, 24-HOUR
    7           ID        ULTIMATE CONDITION:
    8           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
    9           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   10           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   11           ID           DETERMINED BY OTHERS.
   12           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   13           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   14           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   15           ID
   16           ID
                *DIAGRAM
   17           IT       5                    1000
   18           IO       5
                *

   19           KK    S30N
   20           KM     RUNOFF FROM SUBBASIN 30N
   21           BA  0.6518
   22           PH              11    0.68    1.32    2.23    2.49    2.66    2.98    3.37    3.76
   23           LS              82      13              82      13
   24           UK     300   0.350    0.13      20
   25           UK     300   0.050    0.13      80
   26           RK    1550   0.069   0.045  0.0096    TRAP       0      12
   27           RK   10520   0.038   0.040            TRAP      15      15
                *

   28           KK    R30N
   29           KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
   30           RS       1    FLOW      -1
   31           RC   0.022   0.022   0.022    2470    0.01
   32           RX    1000    1012    1020    1028    1036    1044    1052    1064
   33           RY     107     104     102     100     100     102     104     107
                *

   34           KK   S31.1
   35           KM     RUNOFF FROM SUBBASIN 31.1
   36           BA  0.2663
   37           LS            76.6      13            76.6      13
   38           UK     300   0.567    0.13      10
   39           UK     300   0.050    0.13      90
   40           RK    1950   0.056   0.045  0.0147    TRAP       0      10
   41           RK    7600   0.035   0.040            TRAP      22       8
                *
1                                          HEC-1 INPUT                                                    PAGE  2

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

   42           KK   C31.1
   43           KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
   44           HC       2
```

```
                 *
                 *  R31.1
                 *   ****  TOO SHORT TO ROUTE  ****
                 *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
                 *      1    FLOW      -1
                 *  0.022   0.022   0.022    1500    0.01
                 *   1000    1012    1020    1028    1048    1056    1064    1076
                 *    107     104     102     100     100     102     104     107
                 *

   45            KK   S34.2
   46            KM     RUNOFF FROM SUBBASIN 34.2
   47            KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
   48            BA  0.4441
   49            LS            77.3      12            77.3      12
   50            UK      50    0.10    0.13      10
   51            UK     300   0.040    0.13      90
   52            RK    2200  0.0452   0.045  0.0538    TRAP       0      10
   53            RK    8150  0.0386   0.045            TRAP       0      10
                 *

   54            KK   C34.2
   55            KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
   56            HC       2
                 *

   57            KK    S35N
   58            KM     RUNOFF FROM SUBBASIN 35N
   59            BA  0.5482
   60            LS              82      13              82      13
   61            UK     300   0.491    0.13      15
   62            UK     300   0.113    0.13      85
   63            RK    2700   0.079   0.045  0.0242    TRAP       3       6
   64            RK    5050   0.028   0.040            TRAP      15      15
                 *

   65            KK   D35NR
   66            KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
   67            KM        RIGHT BRANCH IS ROUTED TO C36.2
   68            KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
   69            DT   D35NL
   70            DI       0      10      66     168     343     581     805     977    1168    1320
   71            DQ       0       4      28      73     154     261     360     435     518     575
                 *

   72            KK   R35NR
   73            KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
   74            KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
   75            RS       1    FLOW      -1
   76            RC    0.06    0.04    0.06    3500  0.0343
   77            RX    1000    1006    1026    1027    1057    1058    1078    1084
1                                              HEC-1 INPUT                                                    PAGE  3

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

   78            RY     105     103     101     100     100     101     103     105
                 *

   79            KK   S36.2
   80            KM     RUNOFF FROM SUBBASIN 36.2
   81            BA  0.2087
   82            LS            76.6      13            76.6      13
   83            UK     300   0.580    0.13       5
   84            UK     300   0.100    0.13      95
   85            RK    1800   0.036   0.045  0.0145    TRAP      10      10
   86            RK    3520   0.028   0.040            TRAP      20       6
                 *

   87            KK   C36.2
   88            KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
   89            HC       2  0.5411
                 *

   90            KK  D36.2R
   91            KM     DIVERSION AT DESERT HIGHLANDS DRIVE
   92            KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
   93            KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
   94            DT  D36.2L
   95            DI       0      36     166     288     360     430     538     681     859    1074
   96            DQ       0       0       0       0       0      18      60     123     208     315
                 *

   97            KK  R36.2R
   98            KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
   99            KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  100            RS       4    FLOW      -1
  101            RC    0.06    0.04    0.06    7800  0.0321
  102            RX    1000    1043    1053    1068    1093    1098    1133    1218
  103            RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
                 *

  104            KK   S34.1
  105            KM     RUNOFF FROM SUBBASIN 34.1
  106            KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  107            BA  1.1635
```

```
108          LS            77.3      12            77.3      12
109          UK     300   0.590    0.13      25
110          UK     300   0.040    0.13      75
111          RK    2570   0.085   0.045  0.0214    TRAP       0      10
112          RK    8800  0.0325   0.040            TRAP      20      10
             *

113          KK   C34.1
114          KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
115          HC       2  1.5423
             *
1                                          HEC-1 INPUT                                                    PAGE  4

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

116          KK  HVDB-I
117          KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
118          HC       2  2.9029
             *

119          KK  HVDB-O
120          KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
121          KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
122          KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
123          RS       1    STOR      -1
124          SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
125          SV   241.0
126          SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
127          SE    2091
128          SQ       0      10      20      30      40      50      60      70      80      90
129          SQ     100     110     120     130     140
130          SE  2065.0 2066.47 2067.13 2067.67 2068.14 2068.58 2069.04 2071.26 2073.33 2075.68
131          SE  2078.3 2081.19 2084.37 2087.82 2091.54
             *

132          KK   R34.1
133          KM     NORMAL DEPTH CHANNEL ROUTE FROM C34.1 TO C36.1 THROUGH PIMA CHANNEL
134          RS       1    FLOW      -1
135          RC   0.022   0.022   0.022    2200    0.01
136          RX    1000    1012    1020    1028    1036    1044    1052    1064
137          RY     107     104     102     100     100     102     104     107
             *

138          KK   S36.1
139          KM     RUNOFF FROM SUBBASIN 36.1
140          BA  0.1394
141          LS            73.4      11
142          UK     300  0.0420   0.130     100
143          RK    2330  0.0320   0.045  0.0134    TRAP      10      30
144          RK    3200  0.0270   0.040            TRAP      20      30
             *

145          KK   C36.1
146          KM     COMBINE ROUTED HYDROGRAPH FROM C34.1 WITH RUNOFF FROM SUBBASIN 36.1
147          HC       2
             *

148          KK   R36.1
149          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.1 TO C36R1 THROUGH PIMA CHANNEL
150          RS       1    FLOW      -1
151          RC   0.022   0.022   0.022    1520    0.01
152          RX    1000    1012    1020    1028    1036    1044    1052    1064
153          RY     107     104     102     100     100     102     104     107
             *
1                                          HEC-1 INPUT                                                    PAGE  5

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

154          KK   B35NL
155          KM     BRING BACK DIVERTED HYDROGRAPH FROM C35N
156          DR   D35NL
             *

157          KK   R35NL
158          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36R1
159          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
160          RS       5    FLOW      -1
161          RC    0.06    0.04    0.06   14480  0.0318
162          RX    1000    1040    1080    1086    1091    1097    1137    1174
163          RY     105     104     103     100     100     103     104     105
             *

164          KK  B36.2L
165          KM     BRING BACK DIVERTED HYDROGRAPH FROM C36.2
166          DR  D36.2L
             *

167          KK  R36.2L
168          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C36R1
169          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
170          RS       3    FLOW      -1
171          RC    0.06    0.04    0.06   10160  0.0342
172          RX    1000    1030    1060    1066    1076    1082    1112    1142
```

```
173          RY     103   102.5     102     100     100     102   102.5     103
             *

174          KK  S36R1A
175          KM     RUNOFF FROM SUBBASIN 36R1A
176          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
177          BA  0.6310
178          LS            74.3      10
179          UK     300   0.020   0.130     100
180          RK    1420   0.032   0.045  0.0061    TRAP       0      13
181          RK   10800   0.033   0.040            TRAP      10       9
             *

182          KK  C36R1A
183          KM     COMBINE ROUTED HYDROGRAPH FROM C36.1, D35NL & D36.2L W/RUNOFF FROM S36R1A
184          KM        AREA IS AREA FROM C36.1 + S36R1 + 40% OF AREA FROM S35N + 30% OF AREA
185          KM        FROM C36.2
186          HC       4  4.0530
             *

187          KK  S36R1B
188          KM     RUNOFF FROM SUBBASIN 36R1B
189          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
190          BA  0.5863
191          LS            74.3      10
192          UK     300   0.020   0.130     100
193          RK    1420   0.032   0.045  0.0061    TRAP       0      13
194          RK    8500   0.033   0.040            TRAP      10       9
             *
1                                          HEC-1 INPUT                                                    PAGE  6

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

195          KK  C36R1B
196          KM     COMBINE HYDROGRAPH FROM C36R1A W/RUNOFF FROM S36R1B AT C36R1B
197          HC       2  4.6393
             *
             * R36R1B
             *   ****  TOO SHORT TO ROUTE  ****
             *    NORMAL DEPTH CHANNEL ROUTE FROM C36R1B TO C36R2A THROUGH PIMA CHANNEL
             *      1    FLOW      -1
             *  0.022   0.022   0.022    1900    0.01
             *   1000    1012    1020    1028    1036    1044    1052    1064
             *    107     104     102     100     100     102     104     107
             *

198          KK  S36R2A
199          KM     RUNOFF FROM SUBBASIN 36R2A
200          BA  0.1325
201          LS              72      20
202          UK     100   0.045   0.130     100
203          RK    1900   0.032   0.017   0.015    TRAP      15       7
204          RK     800   0.030   0.035            TRAP      10       5
             *

205          KK  C36R2A
206          KM     COMBINE ROUTED HYDROGRAPH FROM C36R1B W/RUNOFF FROM SUBBASIN 36R2A
207          HC       2
             *

208          KK  R36R2A
209          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36R2A TO C36R2B THROUGH PIMA CHANNEL
210          KM     ****  TOO SHORT TO ROUTE  ****
211          KM       1    FLOW      -1
212          KM   0.022   0.022   0.022    2130    0.01
213          KM    1000    1012    1020    1028    1036    1044    1052    1064
214          KM     107     104     102     100     100     102     104     107
215          KM
216          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR SERIES OF INDIVIDUAL
217          KM     ROUTING REACHES THAT ARE TOO SHORT TO ROUTE.
218          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 5030'
219          RT                      1
             *

220          KK  S36R2B
221          KM     RUNOFF FROM SUBBASIN 36R2A
222          BA  0.2417
223          LS              72      12
224          UK     280   0.045   0.100     100
225          RK    1900   0.032   0.017   0.015    TRAP      15       7
226          RK    7360   0.030   0.040            TRAP      30      10
             *
1                                          HEC-1 INPUT                                                    PAGE  7

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

227          KK  C36R2B
228          KM     COMBINE ROUTED HYDROGRAPH FROM C36R2A W/RUNOFF FROM SUBBASIN 36R2B
229          HC       2
             *

230          KK   S51.1
231          KM     RUNOFF FROM SUBBASIN 51.1
```

```
232          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 51.1 AND 49.1 ARE AREA WEIGHTED
233          BA   1.130
234          LS            73.9      12
235          UK     300   0.037   0.130     100
236          RK    1800   0.038   0.045  0.0161    TRAP       0      12
237          RK   14400   0.032   0.040            TRAP      40      15
             *

238          KK  DVDB-I
239          KM     COMBINE HYDROGRAPH FROM C36R2 W/RUNOFF FROM SUBBASIN 51.1
240          HC       2
             *

241          KK  DVDB-O
242          KM     DETENTION BASIN AT DEER VALLEY ROAD
243          KM     PRINCIPAL SPILLWAY:  54" CONDUIT THAT TIES INTO THE PIMA ROAD STORM DRAIN
244          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK
245          KM        13 ACRE-FEET OF STORAGE FOR SEDIMENTAION
246          KM
247          RS       1    STOR      -1
248          SV       0     0.2     0.7     1.7     3.5     6.1    38.6    86.9   143.2   209.9
249          SV   224.1
250          SE    1855    1856    1857    1858    1859    1860    1865    1870    1875    1880
251          SE    1881
252          SQ       0       3      15      28      51      81     143     183     204     216
253          SQ     224     232     240     242     246     248     251     253     256     259
254          SE    1855    1856    1857    1858    1859    1860    1862    1864    1866    1868
255          SE    1870    1872    1874    1875    1876    1877    1878    1879    1880    1881
             *
             *  R51.1
             *     DEER VALLEY BASIN OUTLET CONDUIT TO THOMPSON PEAK PARKWAY
             *     COMBINE WITH RUNOFF FROM DC RANCH
             *       L = 2820 feet
             *

256          KK  D51.1T
257          KM     DIVERT 100% OF FLOW TO RETRIEVE AT THOMPSON PEAK PARKWAY
258          DT  B51.1T
259          DI       0   10000
260          DQ       0   10000
             *
             *
             *     ******************  BEGIN DC RANCH WATERSHED  *******************
             *
             *       THE DC RANCH HEC-1 MODEL WAS DEVELOPED BY WOOD/PATEL ASSOCIATES
             *           WOOD/PATEL FILE NAME:  DC0721C.DAT
             *           MODEL DATE:            4 JANUARY 96
             *
1                                          HEC-1 INPUT                                          PAGE  8

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

261          KK    52D4
262          KM   RUNOFF FROM SUBBASIN 52D4
263          BA    .070
264          LS              75    14.5
265          UK     120    .010     .15     100
266          RK    3100    .035    .045            TRAP      30      10
             *

267          KK   52D4R
268          KM   ROUTE 52D4C THROUGH 52D5 TO CP 52D5C
269          RK    1350    .033    .045            TRAP      10      10
             *

270          KK   52D4B
271          KM   RUNOFF FROM SUBBASIN 52D4B
272          BA    .022
273          LS              75      63
274          UK     120    .010     .15     100
275          RK    2200    .033    .045            TRAP      30      10
             *

276          KK  52D5C1
277          KM   COMBINE 52D4R AND 52D4B
278          HC       2
             *

279          KK   52D5A
280          KM   RUNOFF FROM 52D5A
281          BA   .0232
282          LS              75      63
283          UK     120    .010     .15     100
284          RK    1300    .032    .045            TRAP      30      10
             *

285          KK  52D5AR
286          KM   ROUTE 52D5A THROUGH BEARDSLEY CHANNEL TO CP 52D5C2
287          RK     400   .0143    .035            TRAP      50       4
             *

288          KK  52D5C2
289          KM   COMBINE 25D5C1 AND 52D5AR
290          HC       2
```

```
                 *
291              KK   52D5R
292              KM   ROUTE 52D5C IN BEARDSLEY CHANNEL TO CP 52C3BC2
293              RK     240   .0143    .035            TRAP      50       4
                 *
1                                                HEC-1 INPUT                                                PAGE  9

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

294              KK    52C3
295              KM   RUNOFF FROM SUBBASIN 52C3
296              BA    .006
297              LS              75      65
298              UK     100     .02     .10     100
299              RK     800    .033    .045            TRAP      30      10
                 *

300              KK   52C3R
301              KM   ROUTE 52C3 THROUGH SUBBASIN 52C4 TO CP 52C4C1
302              RK    1350    .034    .045            TRAP      10      10
                 *

303              KK   52C3B
304              KM   RUNOFF FROM SUBBASIN 52C3B
305              BA    .016
306              LS              75      60
307              UK     100     .02     .10     100
308              RK    1400    .034    .045            TRAP      30      10
                 *

309              KK  2C3BC1
310              KM   COMBINE 52C3B AND 52C3R
311              HC       2
                 *

312              KK  2C3BC2
313              KM   COMBINE 52C3BC1 AND 52C5R
314              HC       2
                 *

315              KK  52C3BR
316              KM   ROUTE 52C3BC2 IN BEARDSLEY CHANNEL TO CP 52C4C2
317              RK     430   .0143    .035            TRAP      50       4
                 *
                 *

318              KK     51C     SUB
319              KM        RUNOFF FROM SUB 51C
320              BA   .0972
321              LS              74      15
322              UK     100   .0213     .10     100
323              RK    3900   .0375    .045            TRAP      30      10
                 *

324              KK   51C1D
325              KM   DIVERT 67 PERCENT OF 51C TO WEST (33 PERCENT TO SOUTH)
326              DT  51C1DV
327              DI       0   10000
328              DQ       0    6700
                 *
1                                                HEC-1 INPUT                                                PAGE 10

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

329              KK   51C1R
330              KM   ROUTE 51C1D THROUGH SUBBASIN 52C1
331              RK    1350   .0364    .045            TRAP      10      10
                 *

332              KK    52C1
333              KM   RUNOFF FROM SUBBASIN 52C1
334              BA    .029
335              LS              75    20.5
336              UK     100     .02     .10     100
337              RK    1350    .021    .045            TRAP      30      10
                 *

338              KK   52C1C
339              KM   COMBINE 51C1R AND 52C1
340              HC       2   .0611
                 *

341              KK   52C1R
342              KM   ROUTE 52C1C THROUGH BASIN 52C2A TO CP 52C2BC
343              RK    1500    .033    .045            TRAP      10      10
                 *

344              KK   52C2A
345              KM   RUNOFF FROM SUBBASIN 52C2A
346              BA    .019
347              LS              75       2
348              UK     100     .02     .10     100
```

```
 349          RK    1500    .033    .045            TRAP      30      10
              *

 350          KK  52C2AC
 351          KM   COMBINE 52C2A AND 52C1R
 352          HC       2
              *

 353          KK   52C2B
 354          KM   RUNOFF FROM SUBBASIN 52C2B
 355          BA   .0275
 356          LS              75      11
 357          UK     100     .02     .10     100
 358          RK    2000    .030    .045            TRAP      30      10
              *

 359          KK  52C2BC
 360          KM   COMBINE 52C2B AND 52C2AC
 361          HC       2
              *
```



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

 362          KK  52C2BR
 363          KM   ROUTE 52C2BC THROUGH 52C2C TO CP 52C2CC
 364          RK    1500    .040    .045            TRAP      10      10
              *

 365          KK   52C2C
 366          KM   RUNOFF FROM SUBBASIN 52C2C
 367          BA    .014
 368          LS              75      62
 369          UK     100     .02     .10     100
 370          RK    1500     .04    .045            TRAP      30      10
              *

 371          KK  52C2CC
 372          KM   COMBINE 52C2C AND 52C2BR
 373          HC       2
              *

 374          KK   52C2R
 375          KM   ROUTE 52C2CC THROUGH SUBBASIN 52C4 TO CP 52C4C1
 376          RK    1550    .030    .045            TRAP      10      10
              *

 377          KK    52C4
 378          KM   RUNOFF FROM SUBBASIN 52C4
 379          BA    .017
 380          LS              75      60
 381          UK     100     .02     .10     100
 382          RK    1550    .030    .045            TRAP      30      10
              *

 383          KK  52C4C1
 384          KM   COMBINE 52C4 AND 52C2R
 385          HC       2
              *

 386          KK  52C4C2
 387          KM   COMBINE 52C4C1 AND 52C3BR
 388          HC       2
              *

 389          KK   52C4R
 390          KM   ROUTE 52C4C2 WEST IN BEARDSLEY CHANNEL TO CP 52C15C2
 391          RK     850   .0143    .035            TRAP      50       4
              *

 392          KK   52C13
 393          KM   RUNOFF FROM SUBBASIN 52C13
 394          BA    .023
 395          LS              75      31
 396          UK     100     .02     .10     100
 397          RK     950    .040    .045            TRAP      30      10
              *
```



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

 398          KK  2C13DV
 399          KM   DIVERT FIRST 40 CFS INTO STORM DRAIN; REMAINDER FLOWS OVER ROAD
 400          DT   STORM
 401          DI       0      40    1000
 402          DQ       0      40      40
              *
              * KK52C13R
              * KM ROUTE 52C13 THROUGH SUBBASIN 52C15 TO CP 52C15C1
              * RK  1800    .035    .045            TRAP      10      10
              *

 403          KK   52C15
```

```
404          KM   RUNOFF FROM SUBBASIN 52C15
405          BA    .046
406          LS              75    64.4
407          UK     100     .02     .10     100
408          RK    2050    .036    .045            TRAP      30      10
             *

409          KK  2C15C1
410          KM   COMBINE 52C15 AND 52C13DV
411          HC       2    .046
             *

412          KK  2C15C2
413          KM   COMBINE 52C15C1 AND 52C4R
414          HC       2
             *

415          KK  52C15R
416          KM   ROUTE 52C15C2 IN BEARDSLEY CHANNEL TO CP 52C14C3
417          RK     750   .0143    .035            TRAP      50       4
             *

418          KK  52C14A
419          KM   RUNOFF FROM SUBBASIN 52C14A
420          BA    .041
421          LS              75    67.7
422          UK     100     .02     .10     100
423          RK    2050    .031    .045            TRAP      30      10
             *

424          KK  2C14AC
425          KM   COMBINE 52C14A AND 52C15R
426          HC       2
             *

427          KK  2C14AR
428          KM   ROUTE 52C14AC IN BEARDSLEY CHANNEL TO CP 52C14BC2
429          RK     380   .0143    .035            TRAP      50       4
             *
             *
1                                        HEC-1 INPUT                                                PAGE 13

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

430          KK  51C1DV
431          KM   RETRIEVE DIVERTED FLOW
432          DR  51C1DV
             *

433          KK   51C2D
434          KM   DIVERT 27 PERCENT OF 51C1DV TO WEST (73 PERCENT TO SOUTH)
435          DT  51C2DV
436          DI       0   10000
437          DQ       0    2700
             *

438          KK   51C2R
439          KM   ROUTE 51C2D THROUGH SUBBASIN 52C5 TO CP 52C5C
440          RK     700    .030    .045            TRAP      10      10
             *

441          KK    52C5
442          KM   RUNOFF FROM SUBBASIN 52C5
443          BA    .016
444          LS              75      27
445          UK     100     .02     .10     100
446          RK    1200     .03    .045            TRAP      30      10
             *

447          KK   52C5C
448          KM   COMBINE 51C2R AND 52C5
449          HC       2   .0635
             *

450          KK   52C5R
451          KM   ROUTE 52C5C THROUGH SUBBASIN 52C6 TO CP 52C6C
452          RK    3100    .035    .045            TRAP      10      10
             *

453          KK    52C6
454          KM   RUNOFF FROM SUBBASIN 52C6
455          BA    .036
456          LS              75    31.4
457          UK     100     .02     .10     100
458          RK    3100    .035    .045            TRAP      30      10
             *

459          KK   52C6C
460          KM   COMBINE 52C5R AND 52C6
461          HC       2
             *

462          KK   52C6R
463          KM   ROUTE 52C6C THROUGH SUBBASIN 52C10 TO CP 52C10C2
```

```
 464          RK     450    .032    .045            TRAP      10      10
              *
1                                        HEC-1 INPUT                                                PAGE 14
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 465          KK  51C2DV
 466          KM   RETRIEVE 52C2DV
 467          DR  51C2DV
              *

 468          KK   51C3R
 469          KM   ROUTE 52C2DV THROUGH SUBBASIN 52C7 TO CP 52C7C
 470          RK     700    .040    .045            TRAP      10      10
              *

 471          KK     51B     SUB
 472          KM        RUNOFF FROM SUB 51B
 473          BA   .5711
 474          LS       0    71.9    13.1
 475          UK     100   .0213     .10     100
 476          RK    8900   .0300    .045            TRAP      50      25
              *

 477          KK   51B1D
 478          KM   DIVERT 92 PERCENT OF SUBBASIN 51B TO WEST (8 PERCENT TO SOUTH)
 479          DT  51B1DV
 480          DI       0   10000
 481          DQ       0    9200
              *

 482          KK   51B1R
 483          KM    ROUTE 51B1D THROUGH SUBBASIN 52C7 TO CP 52C7C
 484          RK     450     .04    .045            TRAP      10      10
              *

 485          KK    52C7
 486          KM   RUNOFF FROM SUBBASIN 52C7
 487          BA    .006
 488          LS              75      27
 489          UK     100     .02     .10     100
 490          RK     550     .04    .045            TRAP      30      10
              *

 491          KK   52C7C
 492          KM   COMBINE 51B1R, 51C3R, AND 52C7
 493          HC       3   .0693
              *

 494          KK   52C7R
 495          KM   ROUTE 52C7C THROUGH SUBBASIN 52C9 TO CP 52C9C1
 496          RK    1550    .036    .045            TRAP      10      10
              *

 497          KK  51B1DV
 498          KM   RETRIEVE DIVERTED FLOW 51B1DV
 499          DR  51B1DV
              *
1                                        HEC-1 INPUT                                                PAGE 15
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 500          KK   51B2D
 501          KM   DIVERT 84 PERCENT OF 51B1DV TO WEST (16 PERCENT TO SOUTH)
 502          DT  51B2DV
 503          DI       0   10000
 504          DQ       0    8400
              *

 505          KK   51B2R
 506          KM   ROUTE 51B2D THROUGH SUBBASIN 52C8 TO CP 52C8C
 507          RK     750    .034    .045            TRAP      10      10
              *

 508          KK    52C8
 509          KM   RUNOFF FROM SUBBASIN 52C8
 510          BA    .008
 511          LS              75      27
 512          UK     100     .02     .10     100
 513          RK     750    .034    .045            TRAP      30      10
              *

 514          KK   52C8C
 515          KM   COMBINE 51B2R AND 52C8
 516          HC       2   .4493
              *

 517          KK   52C8R
 518          KM   ROUTE 52C8C THROUGH SUBBASIN 52C9 TO CP 52C9C1
 519          RK    1100    .036    .045            TRAP      10      10
              *

 520          KK  52C9C1
```

```
521          KM   COMBINE 52C7R AND 52C8R
522          HC       2
             *

523          KK  52C9R1
524          KM   ROUTE 52C9C1 THROUGH SUBBASIN 52C9 TO CP 52C9C2
525          RK    1050    .036    .045            TRAP      10      10
             *

526          KK    52C9
527          KM   RUNOFF FROM SUBBASIN 52C9
528          BA    .069
529          LS              75   31.85
530          UK     100     .02     .10     100
531          RK    3150    .036    .045            TRAP      30      10
             *

532          KK  52C9C2
533          KM   COMBINE 52C9R1 AND 52C9
534          HC       2
             *
```

1 HEC-1 INPUT PAGE 16

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

535          KK  52C9R2
536          KM   ROUTE 52C9C2 THROUGH SUBBASIN 52C10 TO CP 52C10C1
537          RK     500    .032    .045            TRAP      10      10
             *

538          KK  2C10C1
539          KM   COMBINE 52C9R2 AND 52C6R
540          HC       2
             *

541          KK  2C10R1
542          KM   ROUTE 52C10C1 THROUGH SUBBASIN 52C10 TO CP 52C10C2
543          RK     300    .032    .045            TRAP      10      10
             *

544          KK   52C10
545          KM   RUNOFF FROM SUBBASIN 52C10
546          BA    .014
547          LS              75    7.85
548          UK     100     .02     .10     100
549          RK     800    .032    .045            TRAP      30      10
             *

550          KK  2C10C2
551          KM   COMBINE 52C10R1 AND 52C10
552          HC       2
             *

553          KK   52C11
554          KM   RUNOFF FROM SUBBASIN 52C11
555          BA   .0425
556          LS              75      27
557          UK     100     .02     .10     100
558          RK    2800    .031    .045            TRAP      30      10
             *

559          KK  2C11R1
560          KM   PIPE ROUTE 52C11 TO CP 52C11C
561          RK     650     .02    .045            CIRC       3
             *

562          KK  52C13D
563          KM   RETRIEVE DIVERTED FLOW
564          DR   STORM
             *

565          KK  52C11C
566          KM   COMBINE 52C13D AND 52C11R1
567          HC       2   .0655
             *
```

1 HEC-1 INPUT PAGE 17

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

568          KK  2C11CR
569          KM   PIPE ROUTE 52C11C TO CP 52C11C2
570          RK     750     .02    .045            CIRC       3
             *

571          KK  2C11C2
572          KM   COMBINE 52C11CR AND 52C10C2
573          HC       2
             *

574          KK  2C11R2
575          KM   ROUTE 52C11C2 THROUGH SUBBASIN 52C12 TO CP 52C12C
576          RK     700     .03    .045            TRAP      10      10
             *
```

```
577          KK   52C12
578          KM   RUNOFF FROM SUBBASIN 52C12
579          BA    .023
580          LS              75      85
581          UK     100     .02     .10     100
582          RK     900     .03    .045            TRAP      30      10
             *

583          KK  52C12C
584          KM   COMBINE 52C11R2 AND 52C12
585          HC       2
             *

586          KK  52C12R
587          KM   ROUTE 52C12C THROUGH SUBBASIN 52C14 TO CP 52C14C1
588          RK    1150    .029    .045            TRAP      10      10
             *

589          KK  52C14B
590          KM   RUNOFF FROM SUBBASIN 52C14B
591          BA    .021
592          LS              75      60
593          UK     100     .02     .10     100
594          RK    1250    .029    .045            TRAP      30      10
             *

595          KK  C14BC1
596          KM   COMBINE 52C14B AND 52C12R
597          HC       2
             *

598          KK  C14BC2
599          KM   COMBINE 52C14BC1 AND 52C14AR
600          HC       2
             *
```

1 HEC-1 INPUT PAGE 18

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

601          KK  52C14R
602          KM   ROUTE 52C14C3 WEST IN BEARDSLEY CHANNEL TO CP 52B5C2
603          RK     600   .0143    .035            TRAP      50       4
             *

604          KK  51B2DV
605          KM   RETRIEVE DIVERTED FLOW
606          DR  51B2DV
             *

607          KK   51B3D
608          KM   DIVERT 84 PERCENT OF 51B2DV TO WEST (16 PERCENT TO SOUTH)
609          DT  51B3DV
610          DI       0   10000
611          DQ       0    8400
             *

612          KK   51B3R
613          KM   ROUTE 51B3D THROUGH SUBBASIN 52B1 TO CP 52B1C
614          RK     600    .039    .045            TRAP      10      10
             *

615          KK    52B1
616          KM   RUNOFF FROM SUBBASIN 52B1
617          BA    .003
618          LS              75      27
619          UK     100     .02     .10     100
620          RK     600    .039    .045            TRAP      30      10
             *

621          KK   52B1C
622          KM   COMBINE 51B3R AND 52B1
623          HC       2   .0736
             *

624          KK   52B1R
625          KM   ROUTE 52B1C THROUGH SUBBASIN 52B2 TO CP 52B2C1
626          RK     930    .037    .045            TRAP      10      10
             *

627          KK  51B3DV
628          KM   RETRIEVE DIVERTED FLOW 51B3DV
629          DR  51B3DV
             *

630          KK   51B4D
631          KM   DIVERT 82 PERCENT OF 51B3DV TO WEST (18 PERCENT TO SOUTH)
632          DT  51B4DV
633          DI       0   10000
634          DQ       0    8200
             *
```

1 HEC-1 INPUT PAGE 19

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

```
635          KK  51B4R1
636          KM   ROUTE 51B4D THROUGH SUBBASIN 52B2 TO CP 52B2C1
637          RK    1350    .037    .045            TRAP      10      10
             *

638          KK  52B2C1
639          KM   COMBINE 51B4R1 AND 52B1R
640          HC       2   .1403
             *

641          KK  52B2R1
642          KM   ROUTE 52B2R1 THROUGH SUBBASIN 52B2 TO CP 52B2C2
643          RK    1000    .037    .045            TRAP      10      10
             *

644          KK    52B2
645          KM   RUNOFF FROM SUBBASIN 52B2
646          BA    .032
647          LS              75      17
648          UK     100     .02     .10     100
649          RK    2350    .037    .045            TRAP      30      10
             *

650          KK  52B2C2
651          KM   COMBINE 52B2 AND 52B2R1
652          HC       2
             *

653          KK  52B2R2
654          KM   ROUTE 52B2C2 THROUGH SUBBASIN 52B3 TO CP 52B3C2
655          RK     850    .026    .045            TRAP      10      10
             *

656          KK  52B3R1
657          KM   ROUTE 52B3C1 THROUGH SUBBASIN 52B3 TO CP 52B3C2
658          RK     500    .024    .045            TRAP      10      10
             *

659          KK    52B3
660          KM   RUNOFF FROM SUBBASIN 52B3
661          BA    .062
662          LS              75    31.8
663          UK     100     .02     .10     100
664          RK    3450    .030    .045            TRAP      30      10
             *

665          KK  52B3C2
666          KM   COMBINE 52B3 AND 52B3R1
667          HC       2
             *
```



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

668          KK  52B3R2
669          KM   ROUTE 52B3C2 THROUGH 52B4 TO CP 52B4C
670          RK    1700    .024    .045            TRAP      10      10
             *

671          KK    52B4
672          KM   RUNOFF FROM SUBBASIN 52B4
673          BA    .026
674          LS              75      62
675          UK     100     .02     .10     100
676          RK    1700    .024    .045            TRAP      30      10
             *

677          KK   52B4C
678          KM   COMBINE 52B4 AND 52B3R2
679          HC       2
             *

680          KK   52B4R
681          KM   ROUTE 52B4C THROUGH SUBBASIN 52B5 TO CP 52B5C1
682          RK     550    .027    .045            TRAP      10      10
             *

683          KK    52B5
684          KM   RUNOFF FROM SUBBASIN 52B5
685          BA    .021
686          LS              75    56.9
687          UK     100     .02     .10     100
688          RK    1400     .03    .045            TRAP      30      10
             *

689          KK  52B5C1
690          KM   COMBINE 52B5 AND 52B4R
691          HC       2
             *

692          KK  52B5C2
693          KM   COMBINE 52B5C1 AND 52C14R
```

```
 694          HC       2
              *

 695          KK   52B5R
 696          KM   ROUTE 52B5C2 IN BEARDSLEY CHANNEL TO CP 52B7C2
 697          RK    1100   .0143    .035            TRAP      50       4
              *

 698          KK  51B4DV
 699          KM   RETRIEVE DIVERTED FLOW 51B4DV
 700          DR  51B4DV
              *
1                                        HEC-1 INPUT                                                PAGE 21

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

 701          KK   51B5D
 702          KM   DIVERT 68 PERCENT OF 51B4DV TO WEST (32 PERCENT TO SOUTH)
 703          DT  51B5DV
 704          DI       0   10000
 705          DQ       0    6800
              *

 706          KK   51B5R
 707          KM   ROUTE 51B5D THROUGH SUBBASIN 52B6 TO CP 51B7C
 708          RK    1250    .035    .045            TRAP      10      10
              *

 709          KK  51B5DV
 710          KM   RETRIEVE DIVERTED FLOW
 711          DR  51B5DV
              *

 712          KK   51B6D
 713          KM   DIVERT 53 PERCENT OF 51B5DV TO WEST (47 PERCENT TO SOUTH)
 714          DT  51B6DV
 715          DI       0   10000
 716          DQ       0    5300
              *

 717          KK   51B6R
 718          KM   ROUTE 51B6D THROUGH SUBBASIN 52B6 TO CP 51B7C
 719          RK     925    .033    .045            TRAP      10      10
              *

 720          KK  51B6DV
 721          KM   RETRIEVE DIVERTED FLOW 51B6DV
 722          DR  51B6DV
              *

 723          KK   51B7D
 724          KM   DIVERT 58 PERCENT OF 51B6DV TO WEST (42 PERCENT TO SOUTH)
 725          DT  51B7DV
 726          DI       0   10000
 727          DQ       0    5800
              *

 728          KK  51B7R1
 729          KM   ROUTE 51B7D THROUGH SUBBASIN 52B6 TO CP 51B7C
 730          RK     530    .033    .045            TRAP      10      10
              *

 731          KK   51B7C
 732          KM   COMBINE 51B7R1, 51B5R, AND 51B6R
 733          HC       3   .2404
              *
1                                        HEC-1 INPUT                                                PAGE 22

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

 734          KK  51B7R2
 735          KM   ROUTE 51B7C THROUGH SUBBASIN 52B6 TO CP 52B6C
 736          RK    2300    .033    .045            TRAP      10      10
              *

 737          KK    52B6
 738          KM   RUNOFF FROM SUBBASIN 52B6
 739          BA    .096
 740          LS              75   13.55
 741          UK     100     .02     .10     100
 742          RK    3200    .033    .045            TRAP      30      10
              *

 743          KK   52B6C
 744          KM   COMBINE 51B7R2 AND 52B6
 745          HC       2
              *

 746          KK   52B6R
 747          KM   ROUTE 52B6C THROUGH SUBBASIN 52B7 TO CP 52B7C1
 748          RK    2750    .028    .045            TRAP      10      10
              *
```

```
 749          KK    52B7
 750          KM   RUNOFF FROM SUBBASIN 52B7
 751          BA    .080
 752          LS              75   78.45
 753          UK     100     .02     .10     100
 754          RK    2750    .028    .045            TRAP      30      10
              *

 755          KK  52B7C1
 756          KM   COMBINE 52B7 AND 52B6R
 757          HC       2
              *

 758          KK  52B7C2
 759          KM   COMBINE 52B7C1 AND 52B5R
 760          HC       2
              *

 761          KK    52A2
 762          KM   RUNOFF FROM SUBBASIN 52A2
 763          BA    .065
 764          LS              75    88.8
 765          UK     100     .02     .10     100
 766          RK    2900    .023    .045            TRAP      30      10
              *
1                                          HEC-1 INPUT                                                    PAGE 23

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

 767          KK  52A2C2
 768          KM   COMBINE 52B7C2 AND 52A2
 769          HC       2    1.62
              *

 770          KK  51B7DV
 771          KM   RETRIEVE DIVERTED FLOW 51B7DV
 772          DR  51B7DV
              *

 773          KK   51B8R
 774          KM   ROUTE 51B7DV THROUGH SUBBASIN 52A1 TO CP 52A1C
 775          RK    3400    .033    .045            TRAP      10      10
              *

 776          KK    52A1
 777          KM   RUNOFF FROM SUBBASIN 52A1
 778          BA    .130
 779          LS              75   32.25
 780          UK     100     .02     .10     100
 781          RK    3400    .033    .045            TRAP      30      10
              *

 782          KK   52A1C
 783          KM   COMBINE 52A1 AND 51B8R
 784          HC       2
              *
              *
              *     ******************  END DC RANCH WATERSHED  ******************
              *
              *
              *     *****************  BEGIN GVSCE MODIFICATIONS  *****************
              *

 785          KK   D51.1
 786          KM   RETRIEVE DIVERTED FLOW
 787          DR  B51.1T
              *

 788          KK    C52A
 789          KM     COMBINE ROUTED HYDROGRAPH FROM C51.1 WITH HYDROGRAPH FROM C52A1C AT
 790          KM     THOMPSON PEAK PARKWAY
 791          HC       2  6.2735
              *
              *   R52A
              *    DEER VALLEY BASIN OUTLET CONDUIT TO JUNCTION AT SIERRA PINTA CHANNEL
              *    IS TOO SHORT TO ROUTE.
              *       L = 3130 feet
              *
1                                          HEC-1 INPUT                                                    PAGE 24

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

 792          KK     C52
 793          KM     COMBINE ROUTED HYDROGRAPH FROM C52A WITH HYDROGRAPH FROM C52A2C AT
 794          KM     BEARDSLEY ROAD
 795          HC       2  7.9160
              *

 796          KK     R52
 797          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR TRAVEL TIME IN THE
 798          KM     CONDUIT.
 799          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 4050'
 800          RT                      1
```

```
                 *
                 *
 801             KK    D52T
 802             KM     DIVERT 100% OF FLOW TO RETRIEVE JUST U/S OF OUTER LOOP DETENTION BASIN
 803             DT    B52T
 804             DI       0   10000
 805             DQ       0   10000
                 *

 806             KK   CLEAR
 807             KM     CLEAR HYDROGRAPHS FROM STACK
 808             HC       2
                 *
                 *
                 *     *****************  BEGIN GRAYHAWK WATERSHED  ******************
                 *
                 *       THE GREYHAWK HEC-1 MODEL (VILLAGES II AND III) WAS DEVELOPED BY DEI
                 *           DEI FILE NAME:  GH23FAB.H1I
                 *           MODEL DATE:     21 MAY 96
                 *

 809             KK     37A     SUB
 810             KM        RUNOFF FROM SUB-BASIN 37A
 811             BA   .6765
 812             LS              74    24.8
 813             UK      61   .0213     .10     100
 814             RK    4800   .0237    .045            TRAP      50     130
                 *

 815             KK    37AE     DIV
 816             KM        SPLIT FLOWS AT SOUTH BOUNDARY OF SUB 37A FOR ROUTING TO DETENTION
 817             KM        BASIN 53R & 38R-1.  THIS DIVERT OPERATION REFLECTS THE BREAK IN THE
 818             KM        DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS.  THIS SPLIT IS
 819             KM        BASED ON NEW CORE NORTH PLAN DEVELOPED BY G.W. LARSON & ASSC., INC.
 820             KM        DATED 6/16/92.  DIVERT RATIO IS BASED ON APPROXIMATE D.A. FROM SUB 37A
 821             KM        THAT IS INTERCEPTED BY EACH CHANNEL SEGMENT ALONG DEER VALLEY ROAD.
 822             KM
 823             KM        (THIS SPLIT HAS BEEN UPDATED FROM THE OLP.6 MODEL TO REFLECT A 30% SPLIT
 824             KM        TO THE SOUTH AND A 70% SPLIT TO THE WEST FOR THIS STUDY AND IS BASED ON
 825             KM        UPSTREAM CONTRIBUTING WATERSHED AREA TO THIS CONCENTRATION POINT)
 826             DT    37AW
 827             DI       0     100     500    1000    1500
1                                          HEC-1 INPUT                                          PAGE 25

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

 828             DQ       0      70     350     700    1050
                 *

 829             KK   37AE1      CP
 830             KM        ROUTE NON-DIVERTED FLOW FROM DIV 37AE THROUGH SUB 5N.  THIS IS A
 831             KM        PRELIMINARY CHANNEL CONFIGURATION FOR THE GOLF COURSE CHANNEL.
 832             RS       1    FLOW
 833             RC    .055    .045    .055     800    .025
 834             RX       0      16      26      30      40      44      54      70
 835             RY       6       2       2       0       0       2       2       6
                 *

 836             KK   SUB5N
 837             KM        RUNOFF FROM SUBBASIN 5 IN NORTH 18 MODEL.
 838             BA   0.029
 839             LS              77      18
 840             UK     100    .013     .15     100
 841             RK    1000   0.005    .018    .015    TRAP      50      20
 842             RK     500    .015    .025            TRAP      10       4
                 *

 843             KK    CP5N
 844             KM        ADD HYDROGRAPHS AT CP5N
 845             HC       2   0.232
                 *

 846             KK   RET5N
 847             KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 5.  18" PIPE OUTFLOW WILL
 848             KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
 849             RS       1    STOR       0       0
 850             SV       0     .04     .33     .93     1.8    2.35    3.16     4.2     6.1
 851             SQ       0       8      10      12      15      17     102     191     668
 852             SE    1797    1798    1800    1802    1804    1805    1806    1807    1808
                 *

 853             KK   R6N.1
 854             KM        ROUTE FLOW FROM CP5 TO CP6 IN NORTH 18 MODEL
 855             KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
 856             KM        CHANNEL.
 857             RS       1    FLOW
 858             RC    .055    .045    .055    2200    .025
 859             RX       0      16      26      30      40      44      54      70
 860             RY       6       2       2       0       0       2       2       6
                 *

 861             KK   SUB6B
 862             KM        RUNOFF FROM WEST PORTION OF EXISTING SUB6N ADJACENT TO CHANNEL
 863             BA    .032
```

```
 864          LS              81       0
 865          UK     200    .025     .15     100
 866          RK    1300    .015    .025            TRAP      10       4
              *
1                                        HEC-1 INPUT                                                    PAGE 26

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

 867          KK    SR6B
 868          KM        ROUTE FLOW THROUGH RETENTION BASIN IN DRIVING RANGE CHANNEL
 869          RS       1    STOR       0       0
 870          SV       0     .17     .57    1.12    1.78
 871          SQ       0       8      10     120     380
 872          SE    1772    1773    1774    1775    1776
              *

 873          KK   CP6.1
 874          KM        ADD HYDROGRAPHS AT CP6.1
 875          HC       2
              *

 876          KK   SUB1N
 877          KM        RUNOFF FROM SUBBASIN 1N
 878          BA    .019
 879          LS              77      18
 880          UK     100    .013     .15     100
 881          RK    1470   .0204    .018            TRAP      50      20
              *

 882          KK    R2NA
 883          KM        ROUTE FLOW FROM CP1 TO CP2NA
 884          RS       1    FLOW
 885          RC     .03     .03     .03     400    .025
 886          RX       0       8      13      17      22      26      31      39
 887          RY       4       2       2       0       0       2       2       4
              *

 888          KK  SUB2NA
 889          KM        RUNOFF FROM SUBBASIN 2NA
 890          BA    .015
 891          LS              81       0
 892          UK     150    .013     .15     100
 893          RK    1050   .0215    .025            TRAP      20       6
              *

 894          KK   CP2NA
 895          KM        ADD HYDROGRAPHS AT CP2NA
 896          HC       2
              *

 897          KK   SR2NA
 898          KM        ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NA
 899          RS       1    STOR       0       0
 900          SV       0    .076    .291    .708     1.2
 901          SQ       0       0       0       0     160
 902          SE    1772    1773    1774    1775    1776
              *
1                                        HEC-1 INPUT                                                    PAGE 27

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

 903          KK    R2NB
 904          KM        ROUTE FLOW FROM CP2NA TO CP2NB
 905          RS       1    FLOW
 906          RC     .03     .03     .03    1050    .015
 907          RX       0       8      13      17      22      26      31      39
 908          RY       4       2       2       0       0       2       2       4
              *

 909          KK  SUB2NB
 910          KM        RUNOFF FROM SUBBASIN 2NB
 911          BA     .03
 912          LS              77      53
 913          UK     150    .013     .15     100
 914          RK    1200    .015    .025            TRAP      20      50
              *

 915          KK   CP2NB
 916          KM        ADD HYDROGRAPHS AT CP2NB
 917          HC       2
              *

 918          KK   SR2NB
 919          KM        STORAGE ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NB
 920          RS       1    STOR       0       0
 921          SV       0     .19     .69    1.66    3.23     4.5
 922          SQ       0       2       8      12      17     170
 923          SE    1796    1798    1800    1802    1804    1805
              *

 924          KK   RCP4N
 925          KM        ROUTE FLOW FROM CP2NB TO CP4N
 926          RS       1    FLOW
```

```
927          RC     .03     .03     .03     740    .018
928          RX       0       8      13      17      22      26      31      39
929          RY       4       2       2       0       0       2       2       4
             *

930          KK   SUB6N
931          KM        RUNOFF FROM SUBBASIN 6 IN NORTH 18 MODEL.  TO LAKE NORTH OF CLUBHOUSE.
932          BA    .049
933          LS              81       0
934          UK     200    .025     .15     100
935          RK    1300    .015    .025            TRAP      10       4
             *

936          KK   RET6N
937          KM        RETENTION ROUTING THROUGH LAKE AT HOLE 18, NORTH COURSE.
938          RS       1    STOR
939          SV       0    3.01    6.64   10.75   13.09   15.90
940          SQ       0       0       0      10      26     100
941          SE    1782    1784    1786    1788    1789    1790
             *
1                                          HEC-1 INPUT                                          PAGE 28

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

942          KK  RCP4N1
943          KM        ROUTE FLOW FROM CP6N TO CP4N
944          RS       1    FLOW
945          RC     .03     .03     .03     550    .018
946          RX       0       8      13      17      22      26      31      39
947          RY       4       2       2       0       0       2       2       4
             *

948          KK  CP4N.1
949          KM        ADD HYDROGRAPHS AT CP4N.1
950          HC       2
             *

951          KK   SUB3N
952          KM        RUNOFF FROM SUBBASIN 3N, NORTH 18 MODEL
953          BA    .027
954          LS              81       0
955          UK     100     .02     .15     100
956          RK    2800  0.0207    .025            TRAP      10       4
             *

957          KK   RET3N
958          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 3.  18" PIPE OUTFLOW WILL
959          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
960          RS       1    STOR       0       0
961          SV       0    1.73    8.97   13.32   15.74
962          SQ       0       4       7       9      11
963          SE    1793    1795    1800    1803    1804
             *

964          KK     R4N
965          KM        ROUTE FLOW FROM CP3N TO CP4N IN NORTH MODEL
966          RS       1    FLOW
967          RC    .035    .035    .035     950    .018
968          RX       0       8      13      17      22      26      31      39
969          RY       4       2       2       0       0       2       2       4
             *

970          KK  CP4N.2
971          KM        ADD HYDROGRAPHS AT CPN.2
972          HC       2
             *

973          KK   SUB4N
974          KM        RUNOFF FROM SUBBASIN 4N.
975          BA    .032
976          LS              77      18
977          UK     100    .015     .15     100
978          RK    1200   0.007    .018            TRAP      50      20
             *
1                                          HEC-1 INPUT                                          PAGE 29

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

979          KK    CP4N
980          KM        ADD HYDROGRAPHS AT CP4N
981          HC       2
             *

982          KK     R6N
983          KM        ROUTE FLOW FROM CP4N TO CP6N ALONG THOMPSON PEAK PKWY AT CLUBHOUSE
984          RS       1    FLOW
985          RC    .045    .035    .045     750    .025
986          RX       0       8      13      17      22      26      31      39
987          RY       4       2       2       0       0       2       2       4
             *

988          KK   SUB6A
989          KM        RUNOFF FROM SUBBASIN 6A (CLUBHOUSE AREA NORTH OF THOMPSON PEAK PKWY).
```

```
 990          BA    .013
 991          LS              83      68
 992          UK     100    .015     .12     100
 993          RK     800     .01    .025            TRAP       2       3
              *

 994          KK   CP6.2
 995          KM        ADD HYDROGRAPHS AT CP6.2
 996          HC       2
              *

 997          KK    CP6N
 998          KM        ADD HYDROGRAPHS AT CP6N
 999          HC       2
              *
              *       ABOVE DISCHARGE FROM NORTH 18 THROUGH BRIDGE AT TPP STATION 103+45
              *

1000          KK   RCP6N
1001          KM        ROUTE FLOW FROM CP6N TO CP3C
1002          RS       1    FLOW
1003          RC    .045    .035    .045     300    .015
1004          RX       0       8      13      17      37      45      51      59
1005          RY       4       2       2       0       0       2       2       4
              *

1006          KK   SUB3C
1007          KM        RUNOFF FROM SUBBASIN 3C, SOUTH COURSE AT MAINTENANCE FACILITY.
1008          BA   .0104
1009          LS              77      68
1010          UK     100    .025     .02     100
1011          RK     600    .015    .035            TRAP      50      20
              *
1                                          HEC-1 INPUT                                          PAGE 30

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

1012          KK    CP3C
1013          KM        COMBINE NORTH COURSE HYDROGRAPH WITH FIRST SOUTH COURSE HYDROGRAPH
1014          HC       2
              *

1015          KK     R3C
1016          KM        ROUTE FLOW FROM SUB3C TO CP3 THROUGH GC1018
1017          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
1018          KM        CHANNEL.
1019          RS       1    FLOW
1020          RC    .055    .045    .055    2050    .025
1021          RX       0      20      30      40      60      70      80     100
1022          RY    1650    1746    1744    1742    1742    1744    1746    1750
              *

1023          KK  GC1018
1024          KM        RUNOFF FROM HOLES NO. 10, 18 AND DRIVING RANGE THAT CONTRIBUTE TO WASH
1025          BA    .044
1026          LS              81       0
1027          UK     200    .025     .15     100
1028          RK    1800   .0233    .025            TRAP      10       4
              *

1029          KK   GC1-9
1030          KM        RUNOFF FROM GOLF COURSE HOLES 1 & 9 CONTRIBUTING TO WASH
1031          BA    .026
1032          LS              81       0
1033          UK     200    .025     .15     100
1034          RK    2110    .022    .025            TRAP      10       4
              *

1035          KK   SUB3S
1036          KM        RUNOFF FROM SUB BASIN 3 SOUTH COURSE
1037          BA   .0102
1038          LS              77      53
1039          UK     100    .010     .15     100
1040          RK     930    .016    .025            TRAP      50      20
              *

1041          KK    CP3S
1042          KM        COMBINE HYDROGRAPHS AT CP3 SOUTH COURSE
1043          HC       4
              *

1044          KK    RT3S
1045          KM        ROUTE FLOW FROM CP3S TO CPGC28
1046          RS       1    FLOW       0       0
1047          RC    .055    .045    .055     900    .023
1048          RX       0      20      30      40      60      70      80     100
1049          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *
1                                          HEC-1 INPUT                                          PAGE 31

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

1050          KK   SUB4S
```

```
1051          KM        RUNOFF FROM SUB BASIN 4 SOUTH COURSE
1052          BA   .0273
1053          LS              77      53
1054          UK     100    .010     .15     100
1055          RK    1780    .018    .015            TRAP      50      20
              *

1056          KK    RT4S
1057          KM        ROUTE FLOW FROM CP4S TO CPGC28
1058          RS       1    FLOW       0       0
1059          RC    .035    .035    .035     650    .015
1060          RX       0      20      30      40      45      55      65      75
1061          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1062          KK   GC2-8
1063          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES NO. 2 AND 8
1064          BA    .014
1065          LS              81       0
1066          UK     200    .025     .15     100
1067          RK     980    .016    .025            TRAP      10       4
              *

1068          KK  1PGC28
1069          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1070          HC       3
              *

1071          KK  SUB3D3
1072          KM        RUNOFF FROM GRAYHAWK ROAD SOUTH OF THOMPOSON PEAK
1073          BA    .014
1074          LS              81       0
1075          UK      50    .015      .1     100
1076          RK    2450    .016    .025            TRAP       5       4
              *

1077          KK  CPGC28
1078          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1079          HC       2
              *

1080          KK  SRGC28
1081          KM        STORAGE THRU DETENTION BASIN ON HOLES 2 AND 8.
1082          RS       1    STOR       0       0
1083          SV       0    .018    .085     .22      .5     1.0     1.7    2.68     3.9
1084          SE    1706    1707    1708    1709    1710    1711    1712    1713    1714
1085          SQ       0      10      18      20      30     108     324     651    1070
              *
```



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

1086          KK    RT7S
1087          KM        ROUTE FLOW FROM SRGC28 TO CP7S
1088          RS       1    STOR       0       0
1089          RC    .055    .045    .055    1700   .0187
1090          RX       0      20      30      40      60      70      80     100
1091          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1092          KK     GC7
1093          KM        RUNOFF FROM SOUTH GOLF COURSE HOLE NO. 7
1094          BA   .0134
1095          LS              81       0
1096          UK     200    .025     .15     100
1097          RK    1380    .020    .025            TRAP      10       4
              *

1098          KK    CP7S
1099          KM        ADD HYDROGRAPHS AT CP7S ON SOUTH COURSE
1100          HC       2  0.6083
              *

1101          KK    D7ST
1102          KM        D7ST IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1103          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1104          KM
1105          KM        DIVERT 100% OF FLOW
1106          DT    B7ST
1107          DI       0   10000
1108          DQ       0   10000
              *

1109          KK   CLEAR
1110          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1111          HC       2
              *
              *
              * THIS PORTION OF MODEL TAKEN FROM,"DRAINAGE REPORT FOR VILLAGE 3 - PHASE 1",
              * APPROVED BY THE CITY OF SCOTTSDALE 7-19-95.  MODIFIED TO ACCOUNT FOR ASBUILT
              * CONDITION
              *
              *
              *
```

```
                 *
1112             KK  SUB3D1
1113             KM        RUNOFF FROM SUBBASIN 3D1, PARCEL 3D.
1114             BA   .0088
1115             LS              77      34
1116             UD     .06
                 *
```



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

1117             KK   RD1B1
1118             KM        FOUTE FLOW FROM 3D1 TO 3B1
1119             RS       1    FLOW      -1
1120             RC    0.03    0.03    0.03    1250    .015
1121             RX       0     0.5       1       7      12      19    19.5      20
1122             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1123             KK  SUB3B1
1124             KM        RUNOFF FROM SUBBASIN 3B1, PARCEL 3B.
1125             BA   .0137
1126             LS              77      47
1127             UD     .06
                 *

1128             KK   CP3B1
1129             KM        ADD HYDROGRAGHS AT CP3B1
1130             HC       2
                 *

1131             KK   RB13F
1132             KM        ROUTE FLOW FROM 3B1 TO SUB3F
1133             RS       1    FLOW      -1
1134             RC    0.03    0.03    0.03    2150    .015
1135             RX       0     0.5       1       7      17      24    24.5      25
1136             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1137             KK   SUB3F
1138             KM        RUNOFF FROM SUBBASIN 3F, PARCEL 3F, SOUTH COURSE MODEL.
1139             BA   .0344
1140             LS              77      68
1141             UK     100    .025     .15     100                          .
1142             RK    1000    .015    .025            TRAP     100      20
                 *

1143             KK    CP3F
1144             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3F ALONG THE POWER CORRIDOR
1145             HC       2
                 *

1146             KK  SUB3B2
1147             KM        RUNOFF FROM SUBBASIN 3B2, PARCEL 3B.
1148             BA   .0246
1149             LS              77      40
1150             UD     .10
                 *

1151             KK   RB2E1
1152             KM        1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1153             RS       1    FLOW      -1
1154             RC    0.03    0.03    0.03     800    0.02
1155             RX       0     0.5       1       7      17      24    24.5      25
1156             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *
```



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

1157             KK   RB2E2
1158             KM       SECOND 1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1159             RS       1    FLOW      -1
1160             RC    0.03    0.03    0.03     600    .015
1161             RX       0     0.5       1       7      17      24    24.5      25
1162             RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
                 *

1163             KK  SUB3E1
1164             KM        RUNOFF FROM SUBBASIN 3E1, PARCEL 3E.
1165             BA   .0246
1166             LS              77      40
1167             UD     .10
                 *

1168             KK  1CPE31
1169             KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E1 ALONG THE POWER CORRIDOR
1170             HC       2
                 *

1171             KK  SUB3D2
1172             KM        RUNOFF FROM SUBBASIN 3D2, PARCEL 3D.
```

```
1173          BA    .022
1174          LS              77      35
1175          UD     .08
              *

1176          KK   RD2E2
1177          KM        ROUTE EXCESS FROM 3D2 TO CP3E2
1178          RS       1    FLOW      -1
1179          RC    0.03    0.03    0.03    1200   .0216
1180          RX       0     0.5       1       7      17      24    24.5      25
1181          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1182          KK  SUB3E2
1183          KM        RUNOFF FROM SUBBASIN 3E2, PARCEL 3E.
1184          BA    .012
1185          LS              77      35
1186          UD     .06
              *

1187          KK   CP3E2
1188          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E2 ALONG THE POWER CORRIDOR
1189          HC       2
              *

1190          KK     PC3
1191          KM        PC3 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1192          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1193          KM
1194          KM        RUNOFF FROM SUBBASIN PC3.
1195          BA  0.0434
1196          LS              77      10
```



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

1197          UK     300    .015     .15     100
1198          RK    2200     .01     .03            TRAP      30       4
              *

1199          KK    CPC3
1200          KM        CPC3 IS A CONCENTRATION POINT ADDED BY GVSCE TO ESTIMATE THE INFLOW TO
1201          KM        THE POWER LINE CHANNEL AT THE HAYDEN ROAD CROSSING.
1202          KM
1203          KM        COMBINE ROUTED HYDROGRAPH FROM SRPC2 W/HYDROGRAPHS FROM CP3E1, CP3E2 AND
1204          KM        CP3F AND RUNOFF FROM PC3.
1205          HC       4  0.1835
              *

1206          KK   DPC3T
1207          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1208          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1209          KM
1210          KM        DIVERT 100% OF FLOW
1211          DT   BPC3T
1212          DI       0   10000
1213          DQ       0   10000
              *

1214          KK  SUB3E3
1215          KM        RUNOFF FROM SUBBASIN 3E3, PARCEL 3E.
1216          BA    .020
1217          LS              77      32
1218          UD     .06
              *

1219          KK     PC4
1220          KM        PC4 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1221          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1222          KM
1223          KM        RUNOFF FROM SUBBASIN PC4.
1224          BA  0.0217
1225          LS              77       0
1226          UK     300    .015     .15     100
1227          RK    1100     .01     .03            TRAP      30       4
              *

1228          KK     D7S
1229          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1230          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1231          KM
1232          KM        RETRIEVE DIVERTED FLOW
1233          DR    B7ST
              *

1234          KK    CPC4
1235          KM        THE HEC1 OPREATION TEMPAD IS CHANGED BY GVSCE TO ESTIMATE THE INFLOW TO
1236          KM        THE POWER LINE CHANNEL WHERE THE FLOW FROM CP7S ENTERS THE CHANNEL.
1237          KM
1238          KM        COMBINE HYDROGRAPH FROM CP3E3 W/RUNOFF FROM PC4.
1239          HC       3   0.650
              *
```



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

```
1240          KK   DPC4T
1241          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1242          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1243          KM
1244          KM        DIVERT 100% OF FLOW
1245          DT   BPC4T
1246          DI       0   10000
1247          DQ       0   10000
              *

1248          KK   CLEAR
1249          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1250          HC       3
              *
              *
              *       THIS ENDS THE PORTION OF THE MODEL TAKEN FROM DRAINAGE REPORT
              *       FOR VILLAGE 3 - PHASE I HEC-1 MODEL BY GILBERTSON ASSOC. INC.
              *       DATED 7-19-95
              *
              *
              *
              * RETURN TO NORTH 18\VILLAGE 2\TPP3 MODEL.
              * THE REMAINDER OF THE SUBBASINS IN THIS  MODEL  WILL CONTRIBUTE TO THE
              * PROPOSED CHANNNEL IN THE POWER EASEMENT AS IDENTIFIED IN THE
              * "COMMUNITY DRAINAGE STUDY - CORE NORTH AND WILL DISCHARGE TO REGIONAL
              * RETENTION BASIN 38R1.
              *
              *

1251          KK    37AW     RET
1252          KM        RETRIEVE DIVERTED FLOW FROM SOUTH BOUNDARY OF SUB 37A TO REFLECT
1253          KM        BREAK IN DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS
1254          DR    37AW
              *

1255          KK    R14R
1256          KM        ROUTE FLOW FROM DIVERT AT DEER VALLEY ROAD (UPSTREAM OF SUBBAIN 5) TO
1257          KM        RET14.1
1258          RS       1    FLOW
1259          RC    .055    .045    .055    2900     .01
1260          RX       0      16      26      30      50      54      64      80
1261          RY       6       2       2       0       0       2       2       6
              * RET 141 HAS BEEN REVISED FOLLOWING REFINEMENT OF GRADING PLANS 11-16-94
              *

1262          KK  RET141
1263          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.1.  18" PIPE OUTFLOW WILL
1264          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1265          RS       1    STOR       0       0
1266          SV       0     .46    2.79    4.56    5.71    6.92    8.24
1267          SQ       0      11      15      22     147     463     968
1268          SE    1778    1785    1790    1792    1793    1794    1795
              *
```



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

1269          KK   R14.1
1270          KM        ROUTE FLOW FROM RET14.1 TO CP14
1271          KM        RET14.1
1272          RS       1    FLOW
1273          RC    .055    .045    .055    1900     .01
1274          RX       0      16      26      30      50      54      64      80
1275          RY       6       2       2       0       0       2       2       6
              *

1276          KK  SUB13N
1277          KM        RUNOFF FROM SUBBASIN 13 NORTH 18 MODEL.
1278          BA    .037
1279          LS              77      24
1280          UK     100    .015     .15     100
1281          RK    2400    .007    .018            TRAP      50      20
              *

1282          KK   R14.1
1283          KM        ROUTE FLOW FROM CP13 TO RET14 NORTH 18 MODEL.
1284          RS       1    FLOW
1285          RC    .055    .045    .055     950    .025
1286          RX       0       8      13      17      22      26      31      39
1287          RY       4       2       2       0       0       2       2       4
              *

1288          KK  SUB14N
1289          KM        RUNOFF FROM SUBBASIN 14 NORTH 18 MODEL.
1290          BA    .049
1291          LS              81       0
1292          UK     300    .025     .15     100
1293          RK    2300     .01    .025            TRAP      10       4
              *

1294          KK    CP14
1295          KM        ADD HYDROGRAPHS AT CP14
```

```
1296          HC       3  0.5595
              *

1297          KK   RET14
1298          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.  18" PIPE OUTFLOW WILL
1299          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1300          RS       1    STOR       0       0
1301          SV       0     .08     .31    1.01    2.16    3.20    4.19    5.69     7.8
1302          SQ       0      14      16      18      20      22     155     464     750
1303          SE    1744    1746    1748    1750    1752    1753    1754    1755    1756
              *

1304          KK   R18.1
1305          KM        ROUTE FLOW FROM RET14 TO CP18
1306          RS       1    FLOW
1307          RC    .055    .045    .055     500    .016
1308          RX       0      16      26      34      54      68      78      96
1309          RY       6       2       2       0       0       2       2       6
              *
1                                          HEC-1 INPUT                                          PAGE 38

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

1310          KK  SUB20N
1311          KM        RUNOFF FROM SUBBASIN 20.
1312          BA    .024
1313          LS              77      24
1314          UK     200     .01     .15     100
1315          RK    1400     .02    .018            TRAP      50      20
              *

1316          KK     R19
1317          KM        ROUTE FLOW FROM CP20 TO CP19
1318          RS       1    FLOW
1319          RC    .035    .035    .035     700     .02
1320          RX       0       8      13      17      22      26      31      39
1321          RY       4       2       2       0       0       2       2       4
              *

1322          KK  SUB19N
1323          KM        RUNOFF FROM SUBBASIN 19.
1324          BA    .038
1325          LS              77      31
1326          UK     150     .01     .15     100
1327          RK    1800    .015    .018            TRAP      50      20
              *

1328          KK   CP19N
1329          KM        ADD HYDROGRAPHS  AT CP19N
1330          HC       2
              *

1331          KK   R18NC
1332          KM        ROUTE FLOW FROM  CP19N TO CP18NC
1333          RS       1    FLOW
1334          RC    .035    .035    .035     700    .013
1335          RX       0       8      13      17      27      31      36      44
1336          RY       4       2       2       0       0       2       2       4
              *

1337          KK  UB18NC
1338          KM        RUNOFF FROM SUBBASIN 18NC.
1339          BA    .021
1340          LS              77      42
1341          UK     100     .01     .15     100
1342          RK    1550     .02    .018            TRAP      50      20
              *

1343          KK  CP18NC
1344          KM        ADD HYDROGRAPHS  AT CP18NC (INCLUDES R18.1, R18, AND SUB18)
1345          HC       3
              *
1                                          HEC-1 INPUT                                          PAGE 39

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

1346          KK    RPC1
1347          KM        ROUTE FLOW FROM CP18N TO CPC1.
1348          RS       1    FLOW
1349          RC    .035    .035    .035     510    .013
1350          RX       0      16      26      34      64      78      88     106
1351          RY       6       2       2       0       0       2       2       6
              *

1352          KK  UB18NA
1353          KM        RUNOFF FROM SUBBASIN 18NA.
1354          BA    .022
1355          LS              77      42
1356          UK     100     .01     .15     100
1357          RK    1450     .02    .018            TRAP      50      20
              *

1358          KK   1RPC1
```

```
1359          KM        ROUTE FLOW FROM CP18NA TO CPC1.
1360          RS       1    FLOW
1361          RC    .035    .035    .035    2550     .01
1362          RX       0      16      26      34      64      78      88     106
1363          RY       8       4       2       0       0       2       4       8
              *

1364          KK  UB18NB
1365          KM        RUNOFF FROM SUBBASIN 18NB.
1366          BA   .0096
1367          LS             77      42
1368          UK     100     .01     .15     100
1369          RK     800     .02    .018            TRAP      50      20
              *

1370          KK   2RPC1
1371          KM        ROUTE FLOW FROM CP18NB TO CPC1.
1372          RS       1    FLOW
1373          RC    .035    .035    .035    2000     .01
1374          RX       0      16      26      34      64      78      88     106
1375          RY       8       4       2       0       0       2       4       8
              *

1376          KK     PC1
1377          KM        RUNOFF FROM SUBBASIN PC1.
1378          BA    .062
1379          LS             77      10
1380          UK     500    .015     .15     100
1381          RK    2700     .01     .03            TRAP      30       4
              *

1382          KK   1CPC1
1383          KM        ADD HYDROGRAPHS  AT CPC1.
1384          HC       3
              *
```



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

1385          KK   SRPC1
1386          KM        STOAGE ROUTE THROUGH DET BASIN IN POWER CORRIDOR.
1387          RS       1    STOR       0       0
1388          SV       0     .29     .73
1389          SQ       0       0     350
1390          SE    1747    1748    1749
              *

1391          KK    CPC1
1392          KM        ADD HYDROGRAPHS  AT CPC1.
1393          HC       2
              *

1394          KK  R16NA1
1395          KM        ROUTE FLOW FROM CPC1 TO C16NA1.
1396          RS       1    FLOW
1397          RC    .035    .035    .035     700    .013
1398          RX       0      16      26      34      74      88      98     116
1399          RY       8       4       2       0       0       2       4       8
              *

1400          KK  UB16NA
1401          KM        RUNOFF FROM SUBBASIN 16NA.
1402          BA   .0139
1403          LS             77      42
1404          UK     100    .015     .15     100
1405          RK    1500    .015    .022            TRAP      50      20
              *

1406          KK  R16NA1
1407          KM        ROUTE FLOW FROM CP16NA TO CP16NA1.
1408          RS       1    FLOW
1409          RC    .035    .035    .035     550    .013
1410          RX       0      16      26      34      44      58      68      86
1411          RY       6       2       2       0       0       2       2       6
              *

1412          KK  C16NA1
1413          KM        ADD HYDROGRAPHS  AT CP16NA1.
1414          HC       2
              *

1415          KK  R16NB1
1416          KM        ROUTE FLOW FROM CP16NA1 TO CP16NB1.
1417          RS       1    FLOW
1418          RC    .035    .035    .035     650    .013
1419          RX       0     .16      26      34      74      88      98     116
1420          RY       8       4       2       0       0       2       4       8
              *
```



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

1421          KK  UB16NB
```

```
1422          KM        RUNOFF FROM SUBBASIN 16NB.
1423          BA   .0156
1424          LS              77      42
1425          UK    100     .015     .15     100
1426          RK   1500     .015    .022            TRAP      50      20
              *

1427          KK  R16NB1
1428          KM        ROUTE FLOW FROM CP16NB TO CP16NB1.
1429          RS      1    FLOW
1430          RC   .035     .035    .035     550    .013
1431          RX      0       16      26      34      44      58      68      86
1432          RY      6        2       2       0       0       2       2       6
              *

1433          KK  C16NB1
1434          KM        ADD HYDROGRAPHS  AT CP16NB1.
1435          HC      2
              *

1436          KK  R16NC1
1437          KM        ROUTE FLOW FROM CP16NB1 TO CP16NC1.
1438          RS      1    FLOW
1439          RC   .035     .035    .035     650    .013
1440          RX      0       16      26      34      54      68      78      96
1441          RY      6        2       2       0       0       2       2       6
              *

1442          KK   SUB7N
1443          KM        RUNOFF FROM SUBBASIN 7N.
1444          BA   .031
1445          LS              77      18
1446          UK    100     .015     .15     100
1447          RK   1900      .01    .018            TRAP      50      20
              *

1448          KK    R8NC
1449          KM        ROUTE FLOW FROM CP7N TO CP8NC.
1450          RS      1    FLOW
1451          RC   .055     .045    .055     700    .025
1452          RX      0       8      13      17      22      26      31      39
1453          RY      4       2       2       0       0       2       2       4
              *

1454          KK  SUB8NA
1455          KM        RUNOFF FROM SUBBASIN 8NA.
1456          BA   .0046
1457          LS              81       0
1458          UK    100      .03     .15     100
1459          RK    450      .03    .025            TRAP      20       6
              *
```



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

1460          KK   SR8NA
1461          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NA.
1462          RS      1    STOR       0       0
1463          SV      0     .51    .816
1464          SQ      0       1      43
1465          SE   1791    1795    1796
              *

1466          KK    R8NB
1467          KM        ROUTE FLOW FROM CP8NA TO CP8NB.
1468          RS      1    FLOW
1469          RC   .025     .025    .025     300     .03
1470          RX      0       12      24      36      56      68      80      92
1471          RY      6        4       2       0       0       2       4       6
              *

1472          KK  SUB8NB
1473          KM        RUNOFF FROM SUBBASIN 8NB.
1474          BA   .0142
1475          LS              81       0
1476          UK    100      .03     .15     100
1477          RK   1150     .025    .025            TRAP      20       6
              *

1478          KK   CP8NB
1479          KM        ADD HYDROGRAPHS AT CP8NB.
1480          HC      2
              *

1481          KK   SR8NB
1482          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NB.
1483          RS      1    STOR       0       0
1484          SV      0   .0124   1.754    2.45
1485          SQ      0       2       2      72
1486          SE   1784    1785    1790    1791
              *

1487          KK    R8NC
1488          KM        ROUTE FLOW FROM CP8NB TO CP8NC.
```

```
1489          RS       1    FLOW
1490          RC    .025    .025    .025     500     .03
1491          RX       0      12      24      36      56      68      80      92
1492          RY       6       4       2       0       0       2       4       6
              *

1493          KK  SUB8NC
1494          KM        RUNOFF FROM SUBBASIN 8NC.
1495          BA   .0182
1496          LS              81       0
1497          UK     100     .03     .15     100
1498          RK     900     .03    .025            TRAP      20       6
              *
1                                        HEC-1 INPUT                                                    PAGE 43

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

1499          KK   CP8NC
1500          KM        ADD HYDROGRAPHS AT CP8NC.
1501          HC       3
              *

1502          KK   SR8NC
1503          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NC.
1504          RS       1    STOR       0       0
1505          SV       0    .404   2.444    3.13   3.979
1506          SQ       0      10      14     151    1004
1507          SE    1771    1775    1780    1781    1782
              *

1508          KK     R9N
1509          KM        ROUTE FLOW FROM CP8N TO CP9N.
1510          RS       1    FLOW
1511          RC    .025    .025    .025    1150    .025
1512          RX       0       8      13      17      22      26      31      39
1513          RY       4       2       2       0       0       2       2       4
              *

1514          KK   SUB9N
1515          KM        RUNOFF FROM SUBBASIN 9N.
1516          BA    .055
1517          LS              77      28
1518          UK     100    .008     .15     100
1519          RK    1700     .01    .018            TRAP      50      20
              *

1520          KK    CP9N
1521          KM        ADD HYDROGRAPHS AT CP9N
1522          HC       2
              *

1523          KK    R10B
1524          KM        ROUTE FLOW FROM CP9N TO CP10B.
1525          RS       1    FLOW
1526          RC     .03     .03     .03     400     .02
1527          RX       0       8      16      24      29      37      45      53
1528          RY       6       4       2       0       0       2       4       6
              *

1529          KK  SUB10B
1530          KM        RUNOFF FROM SUBBASIN 10B.
1531          BA    .028
1532          LS              77      42
1533          UK     100    .015     .15     100
1534          RK     350    .008    .018            TRAP      50      20
1535          RK     600    .008    .025            TRAP      10       4
              *
1                                        HEC-1 INPUT                                                    PAGE 44

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

1536          KK   CP10B
1537          KM        ADD HYDROGRAPHS AT CP10B
1538          HC       2
              *

1539          KK   R11NA
1540          KM        ROUTE FLOW FROM CP10B TO CP11NA.
1541          RS       1    FLOW
1542          RC     .03     .03     .03     200     .04
1543          RX       0       8      16      24      29      37      45      53
1544          RY       6       4       2       0       0       2       4       6
              *

1545          KK  UB11NA
1546          KM        RUNOFF FROM SUBBASIN 11NA.
1547          BA   .0076
1548          LS              81       0
1549          UK     100    .025     .15     100
1550          RK     500     .03    .025            TRAP      30       6
              *

1551          KK  CP11NA
```

```
1552          KM        ADD HYDROGRAPHS AT CP11NA
1553          HC       2
              *

1554          KK  SR11NA
1555          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NA.
1556          RS       1    STOR       0       0
1557          SV       0   .0462   1.425   2.480   3.109   3.856
1558          SQ       0      10      27      27      27     237
1559          SE    1734    1735    1740    1742    1743    1744
              *

1560          KK   R11NB
1561          KM        ROUTE FLOW FROM CP11NA TO CP11NB.
1562          RS       1    FLOW
1563          RC    .025    .025    .025     250     .03
1564          RX       0      12      24      36      56      68      80      92
1565          RY       6       4       2       0       0       2       4       6
              *

1566          KK  UB11NB
1567          KM        RUNOFF FROM SUBBASIN 11NB.
1568          BA   .0078
1569          LS              81       0
1570          UK     100     .04     .15     100
1571          RK     700    .025    .025            TRAP      30       6
              *
```



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

1572          KK  CP11NB
1573          KM        ADD HYDROGRAPHS AT CP11NB
1574          HC       2
              *

1575          KK  SR11NB
1576          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NB.
1577          RS       1    STOR       0       0
1578          SV       0    1.56   2.586
1579          SQ       0      27     111
1580          SE    1732    1737    1738
              *

1581          KK   R11NC
1582          KM        ROUTE FLOW FROM CP11NB TO CP11NC.
1583          RS       1    FLOW
1584          RC    .025    .025    .025     300     .03
1585          RX       0      12      24      36      56      68      80      92
1586          RY       6       4       2       0       0       2       4       6
              *

1587          KK  UB11NC
1588          KM        RUNOFF FROM SUBBASIN 11NC.
1589          BA   .0069
1590          LS              81       0
1591          UK     100     .03     .15     100
1592          RK     650    .028    .025            TRAP      20       5
              *

1593          KK  C11NC1
1594          KM        ADD HYDROGRAPHS AT CP11NC.1
1595          HC       2
              *

1596          KK  SUB10A
1597          KM        RUNOFF FROM SUBBASIN 10A.
1598          BA    .030
1599          LS              77      42
1600          UK     100    .015     .15     100
1601          RK     350    .008    .018            TRAP      50      20
1602          RK     800    .008    .025            TRAP      10       4
              *

1603          KK   R12NB
1604          KM        ROUTE FLOW FROM CP10A TO CP12NB.
1605          RS       1    FLOW
1606          RC    .025    .025    .025     400     .03
1607          RX       0      12      24      36      46      58      70      82
1608          RY       6       4       2       0       0       2       4       6
              *
```



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

1609          KK  UB12NA
1610          KM        RUNOFF FROM SUBBASIN 12NA.
1611          BA   .0153
1612          LS              81       0
1613          UK     150    .025     .15     100
1614          RK     650    .017    .025            TRAP      30       6
              *
```

```
1615          KK  SR12NA
1616          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB1NA.
1617          RS       1    STOR       0       0
1618          SV       0    2.16   3.426   5.071
1619          SQ       0       1       2     142
1620          SE    1741    1745    1746    1747
              *

1621          KK   R12NA
1622          KM        ROUTE FLOW FROM CP12NA TO CP12NB.
1623          RS       1    FLOW
1624          RC    .025    .025    .025     550    .025
1625          RX       0      12      24      36      46      58      70      82
1626          RY       6       4       2       0       0       2       4       6
              *

1627          KK  UB12NB
1628          KM        RUNOFF FROM SUBBASIN 12NB.
1629          BA   .0157
1630          LS              81       0
1631          UK     150    .025     .15     100
1632          RK     650    .017    .025            TRAP      30       6
              *

1633          KK  CP12NB
1634          KM        ADD 3 HYDROGRAPHS AT CP12NB
1635          HC       3
              *

1636          KK  SR12NB
1637          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB12NB.
1638          RS       1    STOR       0       0
1639          SV       0    .922    4.24    7.53
1640          SQ       0       2       2     142
1641          SE    1741    1745    1746    1747
              *

1642          KK  R11NC2
1643          KM        ROUTE FLOW FROM CP12NA TO CP11NC.
1644          RS       1    FLOW
1645          RC    .025    .025    .025     550     .01
1646          RX       0      12      24      36      46      58      70      82
1647          RY       6       4       2       0       0       2       4       6
              *
```



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

1648          KK  CP11NC
1649          KM        ADD HYDROGRAPHS  AT CP11NC
1650          HC       2
              *

1651          KK  SR11NC
1652          KM        ROUTE FLOW THROUGH RETENTION BASIN RT11NC.  18" PIPE OUTFLOW WILL
1653          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1654          RS       1    STOR       0       0
1655          SV       0   1.665   2.303   3.062
1656          SQ       0      27     111     344
1657          SE    1730    1735    1736    1737
              *

1658          KK   R16NC
1659          KM        ROUTE FLOW FROM CP11NC TO CP16NC.
1660          RS       1    FLOW
1661          RC    .035    .035   0.035     950    .025
1662          RX       0       8      13      17      22      26      31      39
1663          RY       4       2       2       0       0       2       2       4
              *

1664          KK  UB16NC
1665          KM        RUNOFF FROM SUBBASIN 16NC.
1666          BA   .0337
1667          LS              77      42
1668          UK     100    .015     .15     100
1669          RK    1600    .015    .022            TRAP      50      20
              *

1670          KK  CP16NC
1671          KM        ADD HYDROGRAPHS  AT CP16NC
1672          HC       2
              *

1673          KK  R16NC1
1674          KM        ROUTE FLOW FROM CP16NC TO CP16NC1.
1675          RS       1    FLOW
1676          RC     .03     .03     .03     550    .013
1677          RX       0      16      26      34      44      58      68      86
1678          RY       6       2       2       0       0       2       2       6
              *

1679          KK  C16NC1
1680          KM        ADD HYDROGRAPHS  AT CP16NC1.
1681          HC       2
```

```
                 *
1682             KK   R15N1
1683             KM        ROUTE FLOW FROM CP16NC1 TO CP15N1.
1684             RS       1    FLOW
1685             RC    .035    .035    .035     600    .013
1686             RX       0      16      26      34      54      68      78      96
1687             RY       6       2       2       0       0       2       2       6
                 *
1                                          HEC-1 INPUT                                                    PAGE 48

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

1688             KK     PC2
1689             KM        RUNOFF FROM SUBBASIN PC2.
1690             BA    .054
1691             LS              77      10
1692             UK     100    .015     .15     100
1693             RK    2700     .01     .03            TRAP      50       4
                 *

1694             KK  CP15N1
1695             KM        ADD HYDROGRAPHS  AT CP15N1
1696             HC       2
                 *

1697             KK   SRPC2
1698             KM        STORAGE ROUTE THRU DETENTION BASINS IN POWER CORRIDOR THIS IS THE TOTAL
1699             KM        FLOW REACHING THE UPSTREAM SIDE OF THE THOMPSON PEAK PARKWAY BRIDGE
1700             RS       1    STOR       0       0
1701             SV       0    1.02    2.70    4.48     5.8     6.9
1702             SQ       0       0     150     350     550     850
1703             SE    1730    1731    1732    1733    1734    1735
                 *

1704             KK  UB17NA
1705             KM        RUNOFF FROM SUBBASIN SUB17NA.
1706             BA  .00979
1707             LS              81       0
1708             UK     150    .025     .05     100
1709             RK     960   .0292    .025            TRAP      30      50
                 *

1710             KK  SR17NA
1711             KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NA.
1712             RS       1    STOR       0       0
1713             SV       0   .0078    .241    .523    1.00   1.735
1714             SQ       0       1       1       1    17.4     251
1715             SE  1755.2    1756    1758    1759    1760    1761
                 *

1716             KK   R17NB
1717             KM        ROUTE FLOW FROM SR17NA TO CP17NB.
1718             RS       1    FLOW
1719             RC    0.03    0.03    0.03     280  0.0286
1720             RX       0      10      20      35      70      85      90     100
1721             RY    1757  1756.8  1756.6    1756    1756    1757    1758    1759
                 *

1722             KK  UB17NB
1723             KM        RUNOFF FROM SUBBASIN SUB17NB.
1724             BA   .0111
1725             LS              81       0
1726             UK     150    .025     .05     100
1727             RK    1200   .0217    .025            TRAP      30      50
                 *
1                                          HEC-1 INPUT                                                    PAGE 49

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

1728             KK  CP17NB
1729             KM        ADD HYDROGRAPHS AT SUB17NB.
1730             HC       2
                 *

1731             KK  SR17NB
1732             KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NB.
1733             RS       1    STOR       0       0
1734             SV       0   .0113   .1469    .635   .9795   1.509   2.254   3.243
1735             SQ       0       1       1       1       1       1    38.2     189
1736             SE  1751.5    1752    1753    1755    1756    1757    1758    1759
                 *

1737             KK    R17A
1738             KM        ROUTE FLOW FROM SR17NB TO CP17A.
1739             RS       1    FLOW
1740             RC    0.03    0.03    0.03     280   0.033
1741             RX       0      15      18      20      24      27      30      35
1742             RY    1755    1754    1753    1752    1752    1753    1754    1755
                 *

1743             KK  SUB17A
1744             KM        RUNOFF FROM SUBBASIN SUB17A.
```

```
1745          BA  .00792
1746          LS              77      34
1747          UK      75     .03     .05     100
1748          RK    1500     .02    .025            TRAP       8       4
              *

1749          KK  CP17A1
1750          KM        ADD HYDROGRAPHS AT CP17A1.
1751          HC       2
              *

1752          KK  UB17NC
1753          KM        RUNOFF FROM SUBBASIN SUB17NC.
1754          BA  .00559
1755          LS              77      12
1756          UK      75     .03     .05     100
1757          RK     910   .0187    .025            TRAP       8       4
              *

1758          KK   CP17A
1759          KM        ADD ALL HYDROGRAPHS AT CP17A.
1760          HC       2
              *

1761          KK    R15N
1762          KM        ROUTE FLOW FROM CP17A TO CP15N.
1763          RS       1    FLOW
1764          RC    .035    .035    .035    1950    .025
1765          RX       0       8      13      17      22      26      31      39
1766          RY       4       2       2       0       0       2       2       4
              *
```



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

1767          KK  SUB15N
1768          KM        RUNOFF FROM SUBBASIN 15N.
1769          BA   .0391
1770          LS              77      68
1771          UK     100     .01     .15     100
1772          RK     400    .008    .018            TRAP      50      20
1773          RK    1700    .015    .025            TRAP      10       4
              *

1774          KK   CP15N
1775          KM        ADD HYDROGRAPHS  AT CP15N
1776          HC       2
              *

1777          KK   R15N2
1778          KM        ROUTE FLOW FROM CP15N TO CP15N1.
1779          RS       1    FLOW
1780          RC     .02     .02     .02     700    .013
1781          RX       0       8      13      17      22      26      31      39
1782          RY       6       2       2       0       0       2       2       6
              *

1783          KK  CP15N2
1784          KM        ADD HYDROGRAPHS  AT CP15N1
1785          KM        THIS IS THE INTERIM OUTFLOW DISCHARGE TO NATURAL WASH.
1786          HC       2  1.1611
              *

1787          KK   R15N2
1788          KM        ROUTE 15N2 IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CP15N2 TO THE
1789          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1790          KM
1791          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1792          RS       1    FLOW      -1
1793          RC    .035    .035    .035    2200    .013
1794          RX       0      16      26      34      64      78      88     106
1795          RY       6       2       2       0       0       2       2       6
              *

1796          KK    DPC3
1797          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1798          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1799          KM
1800          KM        RETRIEVE DIVERTED FLOW
1801          DR   BPC3T
              *

1802          KK   CPC3A
1803          KM        COMBINE CPC3A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE AT THE
1804          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1805          KM
1806          KM        COMBINE ROUTED HYDROGRAPH FROM CP15N2 WITH HYDROGRAPH FROM CPC3
1807          HC       2  1.3446
              *
```



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

```
1808          KK   RPC3A
1809          KM        ROUTE PC3A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC3A VIA
1810          KM        THE POWER LINE CHANNEL.
1811          KM
1812          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1813          RS       1    FLOW      -1
1814          RC    .035    .035    .035    1100    .013
1815          RX       0      16      26      34      64      78      88     106
1816          RY       6       2       2       0       0       2       2       6
              *

1817          KK    DPC4
1818          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1819          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1820          KM
1821          KM        RETRIEVE DIVERTED FLOW
1822          DR   BPC4T
              *

1823          KK   CPC4A
1824          KM        COMBINE CPC4A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE IN THE
1825          KM        POWER LINE CHANNEL
1826          KM
1827          KM        COMBINE ROUTED HYDROGRAPH FROM CPC3A WITH HYDROGRAPH FROM CPC4
1828          HC       2  1.9946
              *

1829          KK   RPC4A
1830          KM        ROUTE PC4A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC4A TO THE
1831          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI RD.
1832          KM
1833          KM        ROUTE FLOW FROM CPC4A TO CPC5.
1834          RS       1    FLOW      -1
1835          RC    .035    .035    .035    1900    .013
1836          RX       0      16      26      34      64      78      88     106
1837          RY       6       2       2       0       0       2       2       6
              *

1838          KK  DPC4AT
1839          KM        DIVERT PC4A IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
1840          KM        LOOP DETENTION BASIN VIAL THE POWER LINE CHANNEL.
1841          KM
1842          KM        DIVERT 100% OF FLOW
1843          DT  BPC4AT
1844          DI       0   10000
1845          DQ       0   10000
              *

1846          KK  SUB1-2
1847          KM        RUNOFF FROM SUB 1 AND 2, SOUTH COURSE MODEL
1848          BA   .0558
1849          LS              77      68
1850          UK     200    .010     .15     100
1851          RK    1370    .027    .015            TRAP      50      20
              *
```



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

1852          KK  GCRB18
1853          KM        RUNOFF FROM GOLF COURSE CONTRIBUTING TO RETENTION BASIN AT HOLE NO. 18
1854          KM        AND HOLE NO. 10, SOUTH COURSE
1855          BA    .012
1856          LS              81       0
1857          UK     200    .025     .15     100
1858          RK     300    .016    .025            TRAP      10       4
              *

1859          KK  CPRET1
1860          KM        COMBINE HYDROGRAPHS AT RETENTION BASINS ON HOLE 18 & 10
1861          HC       2
              *

1862          KK   SR18S
1863          KM        STORAGE ROUTE THRU RETENTION BASIN AT HOLE 18, SOUTH COURSE
1864          RS       1    STOR       0       0
1865          SV       0  1.7635  5.7722  12.174  21.337  28.849  30.151      32
1866          SE    1725    1730    1735    1740    1745    1748    1749    1750
1867          SQ       0       0       0       0       0      42     386     900
              *

1868          KK   SUB5S
1869          KM        RUNOFF FROM SUB 5S
1870          BA   .0263
1871          LS              77      31
1872          UK     100    .010     .15     100
1873          RK    1280    .007    .015            TRAP      50      20
              *

1874          KK  GC1216
1875          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 12, 16, AND 17
1876          BA   .0365
1877          LS              81       0
1878          UK     200    .025     .15     100
```

```
1879          RK    2200    .024    .025            TRAP      10       4
              *

1880          KK  GC1415
1881          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 13, 14, 15 AND RETENTION
1882          BA    .045
1883          LS              81       0
1884          UK     200    .025     .15     100
1885          RK    1300    .022    .025            TRAP      10       4
              *

1886          KK   SUB6S
1887          KM        RUNOFF FROM SUB BASIN 6, SOUTH COURSE
1888          BA    .021
1889          LS              77      42
1890          UK     100    .010     .15     100
1891          RK    2150    .013    .025            TRAP      50      20
              *
1                                          HEC-1 INPUT                                                    PAGE 53

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

1892          KK   SUB7S
1893          KM        RUNOFF FROM SUB BASIN 7, SOUTH COURSE
1894          BA    .027
1895          LS              77      42
1896          UK     100    .010     .15     100
1897          RK    2080    .023    .025            TRAP      50      20
              *

1898          KK  CPRET2
1899          KM        COMBINE HYDROGRAPHS AT RETENTION BASIN 2, SOUTH COURSE
1900          HC       5
              *

1901          KK  SRRET2
1902          KM        STORAGE THRU RETENTION BASIN NO. 2, SOUTH COURSE
1903          RS       1    STOR       0       0
1904          SV       0    .617   3.474   9.858  20.063  35.353  52.685  57.749      62
1905          SE    1670    1675    1680    1685    1690    1695    1699    1700    1701
1906          SQ       0       0       0       0       0       0      32     386     594
              *
              *       NO FLOW RELEASED FROM RETENTION BASIN
              *

1907          KK   CLEAR
1908          KM        THIS OPERATION IS ADDED BY GVSCE
1909          KM
1910          KM        CLEAR HYDROGRAPHS FROM THE STACK
1911          HC       2
              *

1912          KK   SUB8S
1913          KM        RUNOFF FROM SUB BASIN 8, SOUTH COURSE
1914          BA   .0256
1915          LS              77      42
1916          UK     100    .010     .15     100
1917          RK    1600    .015    .025            TRAP      50      20
              *

1918          KK   RGC36
1919          KM        ROUTE SUB8S TO CPGC36
1920          RS       1    FLOW
1921          RC    .055    .045    .055     850     .02
1922          RX       0      16      26      30      40      44      54      70
1923          RY       6       2       2       0       0       2       2       6
              *

1924          KK    GC36
1925          KM        RUNOFF FROM SOUTH COURSE HOLES 3, 6, AND NORTH HALF OF HOLE 4.
1926          BA   .0406
1927          LS              81       0
1928          UK     200    .025     .15     100
1929          RK    2350    .015    .035            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 54

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

1930          KK  C1GC36
1931          KM        COMBINE SUBS 8 AND GC36
1932          HC       2
              *

1933          KK   SUB9S
1934          KM        RUNOFF FROM SUB BASIN 9, SOUTH COURSE
1935          BA    .021
1936          LS              77      53
1937          UK     100    .010     .15     100
1938          RK    1100    .013    .025            TRAP      50      20
              *

1939          KK     R9S
```

```
1940          KM        ROUTE SUB9S TO CPGC36
1941          RS       1    FLOW
1942          RC    .035    .035    .035     500     .02
1943          RX       0       8      12      16      18      22      26      30
1944          RY       6       4       3       2       2       3       4       6
              *

1945          KK  CPGC36
1946          KM        COMBINE SUBS 8 AND 9 SOUTH AND GC36
1947          HC       2
              *

1948          KK  SRGC36
1949          KM        STORAGE THRU DETENTION BASIN ON GC36
1950          RS       1    STOR       0       0
1951          SV       0    0.85     1.0
1952          SE    1664    1668    1669
1953          SQ       0      20     205
              *

1954          KK   SUB7A
1955          KM        RUNOFF FROM SUB7A, SOUTH COURSE EAST SIDE ADJACENT TO PIMA ROAD
1956          BA   .0092
1957          LS              77      42
1958          UK     100    .025     .15     100
1959          RK     950    .015    .025            TRAP      50      20
              *

1960          KK    SR7A
1961          KM        STORAGE THRU DETENTION BASIN ON SUB7A
1962          RS       1    STOR       0       0
1963          SV       0     .68      .8
1964          SE    1700    1703    1704
1965          SQ       0      10     150
              *
```



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

1966          KK    R10S
1967          KM        ROUTE FLOW FROM CP7A TO CP10S
1968          RS       1    FLOW
1969          RC    .035    .035    .035    1400    .015
1970          RX       0       8      12      16      18      22      26      30
1971          RY       6       4       3       2       2       3       4       6
              *

1972          KK  SUB10S
1973          KM        RUNOFF FROM SUB BASIN 10, SOUTH COURSE
1974          BA   .0248
1975          LS              77      53
1976          UK     100    .010     .15     100
1977          RK    1150    .020    .025            TRAP      50      20
              *

1978          KK   CP10S
1979          KM        COMBINE HYDROGRAPHS AT CP10 SOUTH COURSE
1980          HC       2
              *

1981          KK  SUB11S
1982          KM        RUNOFF FROM SUB11, SOUTH COURSE
1983          BA   .0234
1984          LS              77      68
1985          UK     100    .015    .018     100
1986          RK    1050    .015    .025            TRAP     100      20
              *

1987          KK    R11S
1988          KM        ROUTE 11S IS ADDED BY GVSCE TO ROUTE THE RUNOFF FROM SUB11S TO THE
1989          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI DR ALONG HUALAPAI DR.
1990          KM
1991          KM        ROUTE FLOW FROM SUB11S TO CPC5.
1992          RS       1    FLOW      -1
1993          RC    .035    .035    .035     900    .015
1994          RX       0       8      12      16      18      22      26      30
1995          RY       6       4       3       2       2       3       4       6
              *

1996          KK   C10SA
1997          KM        COMBINE 10SA IS ADDED BY GVSCE
1998          KM
1999          KM        COMBINE ROUTED HYDROGRAPH FROM 11S WITH HYDROGRAPH FROM CP10S
2000          HC       2
              *

2001          KK   R10SA
2002          KM        ROUTE 10SA IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
2003          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2004          KM
2005          KM        ROUTE FLOW FROM C10SAS TO CPC5.
2006          RS       1    FLOW      -1
2007          RC    .035    .035    .035     900    .015
```

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

2008          RX       0       8      12      16      18      22      26      30
2009          RY       6       4       3       2       2       3       4       6
              *

2010          KK    GC45
2011          KM        RUNOFF FROM SOUTH COURSE HOLES 4 AND 5
2012          BA   .0127
2013          LS              81       0
2014          UK     200    .015    .025     100
2015          RK     550    .015    .035            TRAP      10       4
              *

2016          KK   CGC45
2017          KM        COMBINE CGC45 IS ADDED BY GVSCE
2018          KM
2019          KM        COMBINE ROUTED HYDROGRAPH FROM 10SA WITH RUNOFF FROM GC45
2020          HC       2
              *

2021          KK     PC5
2022          KM        PC5 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
2023          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
2024          KM
2025          KM        RUNOFF FROM SUBBASIN PC5.
2026          BA  0.0375
2027          LS              77       0
2028          UK     300    .015     .15     100
2029          RK    1900     .01     .03            TRAP      30       4
              *

2030          KK   DPC4A
2031          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
2032          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2033          KM
2034          KM        RETRIEVE DIVERTED FLOW
2035          DR  BPC4AT
              *

2036          KK    CPC5
2037          KM        COMBINE PC5 IS ADDED BY GVSCE TO ESTIMATE THE TOTAL FLOW IN THE POWER
2038          KM        LINE CHANNEL AT THE HUALAPAI CROSSING
2039          KM
2040          KM        COMBINE ROUTED HYDROGRAPH FROM C10SA AND CPC4A WITH HYDROGRAPHS FROM
2041          KM        CGC45, SRGC36 AND PC5
2042          HC       5  2.1022
              *
              *     *******************  END GREYHAWK WATERSHED  ********************
              *

2043          KK     RC5
2044          KM       ROUTE CPC5 THROUGH SUBBASIN CN5C TO OUTER LOOP BASIN
2045          RS       1    FLOW      -1
2046          RC    .035    .035    .035    2000    .013
2047          RX       0      16      26      34      64      78      88     106
2048          RY       6       2       2       0       0       2       2       6
              *
```



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

2049          KK   SCN5D
2050          KM     RUNOFF FROM SUBBASIN CN5D
2051          BA  0.0499
2052          LS              74       0
2053          UK     100   0.025    0.13     100
2054          RK    3100   0.017    0.04            TRAP       0      15
              *

2055          KK    CN5D
2056          KM        COMBINE ROUTED HYDROGRAPH FROM CPC5 W/RUNOFF FROM SCN5D
2057          HC       2
              *

2058          KK     D52
2059          KM     BRING BACK DIVERTED HYDROGRAPH FROM R52
2060          DR    B52T
              *

2061          KK    S53A
2062          KM     RUNOFF FROM SUBBASIN 53A
2063          BA  0.1794
2064          LS              74      11
2065          UK     300   0.022    0.13     100
2066          RK    1475   0.026   0.045  0.0111    TRAP       3       5
2067          RK    1750   0.021    0.04            TRAP      25       5
              *

2068          KK     C53
2069          KM     COMBINE ROUTED HYDROGRAPH FROM FROM C52 WITH RUNOFF FROM SUBBASIN 53A
2070          HC       2  8.0954
              *
```

```
                 *    R53
                 *   ****  TOO SHORT TO ROUTE  ****
                 *

2071             KK   S53A1
2072             KM     RUNOFF FROM SUBBASIN 53A1
2073             BA  0.3376
2074             LS              74      12              74      30
2075             UK     300   0.022    0.13      70
2076             UK     150   0.027    0.13      30
2077             RK    1250   0.023   0.045  0.0087    TRAP       4       5
2078             RK    5050   0.017    0.04            TRAP      35       5
                 *

2079             KK    C53A
2080             KM     COMBINE ROUTED HYDROGRAPH FROM C53 WITH RUNOFF FROM SUBBASSIN 53A1
2081             HC       2  8.4330
                 *
1                                                HEC-1 INPUT                                                PAGE 58

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

2082             KK   SCN6B
2083             KM     RUNOFF FROM SUBBASIN CN6B (WATER CAMPUS)
2084             KM      TOTAL AREA = 0.0542 sm, 0.0022 sm OF THAT IS NON-CONTRIBUTING
2085             BA  0.0520
2086             LS              74      80              74       0
2087             UK     150    0.01    0.15      70
2088             UK     100   0.025    0.13      30
2089             RK     720    0.02    0.03  0.0084    TRAP       5      10
2090             RK     700    0.01   0.045  0.0050    TRAP       0      10
2091             RK     440   0.009   0.035            TRAP       6       3
                 *

2092             KK   SCN6D
2093             KM     RUNOFF FROM SUBBASIN CN6D
2094             KM      TOTAL AREA = 0.0398 sm, 0.0029 sm OF THAT IS NON-CONTRIBUTING
2095             BA  0.0369
2096             LS              74       3
2097             UK     100   0.025    0.13     100
2098             RK    1000   0.017    0.04            TRAP       0      15
                 *

2099             KK    CP6D
2100             KM     COMBINE HYDROGRAPHS FROM C53A W/RUNOFF FROM SCN6D
2101             HC       3
                 *

2102             KK   SCN6C
2103             KM     RUNOFF FROM SUBBASIN CN6C (CAP TREATMENT PLANT AND WATER CAMPUS)
2104             KM      TOTAL AREA = 0.1526 sm, 0.0138 sm OF THAT IS NON-CONTRIBUTING
2105             BA  0.1388
2106             LS              74      80              74       0
2107             UK     150    0.01    0.15      50
2108             UK     100   0.025    0.13      50
2109             RK    1500    0.01    0.03  0.0123    TRAP       5      10
2110             RK     700   0.017    0.04            TRAP       0      15
                 *

2111             KK    CP6C
2112             KM        COMBINE HYDROGRAPH FROM CP6D W/RUNOFF FROM SCN6C
2113             HC       2
                 *

2114             KK    CP5D
2115             KM        COMBINE HYDROGRAPHS FROM CP6C AND CP5D
2116             HC       2
                 *

2117             KK   SCN5C
2118             KM     RUNOFF FROM SUBBASIN CN5C
2119             BA  0.1904
2120             LS              74       0
2121             UK     150   0.020    0.13     100
2122             RK    3700  0.0176    0.04            TRAP       0      15
                 *
1                                                HEC-1 INPUT                                                PAGE 59

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

2123             KK   SCN6E
2124             KM     RUNOFF FROM SUBBASIN CN6E
2125             BA  0.0427
2126             LS              74       5
2127             UK      50    0.01    0.13     100
2128             RK    3200   0.002   0.025            TRAP       0      50
                 *

2129             KK  EAST-I
2130             KM     COMBINE HYDROGRAPH FROM CP5D WITH W/RUNOFF FROM SCN5C AND SCN6E
2131             HC       3
                 *
```

```
2132          KK  EAST-O
2133          KM     PIMA FREEWAY BASIN EAST LOCATED NORTH AND EAST OF HAYDEN ROAD T.I.
2134          KM     (2) 96" OUTLET CONDUIT
2135          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
2136          KM        9 ACRE-FEET OF STORAGE FOR SEDIMENTAION
2137          KM
2138          RS       1    STOR      -1       0
2139          SV       0    0.35    1.11    3.38   12.19   24.00   36.81   43.59   50.74   58.38
2140          SV   66.49   74.88   83.50   92.36  101.45  110.78  120.36  130.25  140.48  145.06
2141          SQ       0      66     127     281     515     791    1047    1161    1263    1355
2142          SQ    1442    1522    1598    1671    1740    1805    1871    1932    1991    2020
2143          SE  1589.9    1591    1592    1594    1596    1598    1600    1601    1602    1603
2144          SE    1604    1605    1606    1607    1608    1609    1610    1611    1612  1612.5
              *
2145          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   19       S30N
               V
               V
   28       R30N
               .
               .
   34          .       S31.1
               .           .
               .           .
   42      C31.1............
               .
               .
   45          .       S34.2
               .           .
               .           .
   54      C34.2............
               .
               .
   57          .        S35N
               .           .
               .           .
   69          .           .-------->   D35NL
   65          .       D35NR
               .           V
               .           V
   72          .       R35NR
               .           .
               .           .
   79          .           .       S36.2
               .           .           .
               .           .           .
   87          .       C36.2............
               .           .
               .           .
   94          .           .-------->  D36.2L
   90          .      D36.2R
               .           V
               .           V
   97          .      R36.2R
               .           .
               .           .
  104          .           .       S34.1
               .           .           .
               .           .           .
  113          .       C34.1............
               .           .
               .           .
  116     HVDB-I............
               V
               V
  119     HVDB-O
               V
               V
  132      R34.1
               .
               .
  138          .       S36.1
               .           .
               .           .
  145      C36.1............
               V
               V
  148      R36.1
               .
               .
  156          .           .<--------   D35NL
  154          .       B35NL
               .           V
               .           V
  157          .       R35NL
               .           .
               .           .
  166          .           .           .<-------- D36.2L
```

```
164          .           .      B36.2L
             .           .          V
             .           .          V
167          .           .      R36.2L
             .           .           .
             .           .           .
174          .           .           .      S36R1A
             .           .           .           .
             .           .           .           .
182     C36R1A.................................
             .
             .
187          .      S36R1B
             .           .
             .           .
195     C36R1B............
             .
             .
198          .      S36R2A
             .           .
             .           .
205     C36R2A............
            V
            V
208     R36R2A
             .
             .
220          .      S36R2B
             .           .
             .           .
227     C36R2B............
             .
             .
230          .       S51.1
             .           .
             .           .
238     DVDB-I............
            V
            V
241     DVDB-O
             .
             .
258          .-------> B51.1T
256     D51.1T
             .
             .
261          .       52D4
             .          V
             .          V
267          .      52D4R
             .           .
             .           .
270          .           .      52D4B
             .           .           .
             .           .           .
276          .      52D5C1............
             .           .
             .           .
279          .           .      52D5A
             .           .          V
             .           .          V
285          .           .     52D5AR
             .           .           .
             .           .           .
288          .      52D5C2............
             .          V
             .          V
291          .      52D5R
             .           .
             .           .
294          .           .       52C3
             .           .          V
             .           .          V
300          .           .      52C3R
             .           .           .
             .           .           .
303          .           .           .      52C3B
             .           .           .           .
             .           .           .           .
309          .           .    2C3BC1............
             .           .           .
             .           .           .
312          .     2C3BC2............
             .          V
             .          V
315          .     52C3BR
             .           .
             .           .
318          .           .        51C
             .           .           .
             .           .           .
326          .           .           .-------> 51C1DV
324          .           .      51C1D
             .           .          V
             .           .          V
```

```
329          .          .      51C1R
             .          .          .
             .          .          .
332          .          .          .        52C1
             .          .          .           .
             .          .          .           .
338          .          .      52C1C............
             .          .          V
             .          .          V
341          .          .      52C1R
             .          .          .
             .          .          .
344          .          .          .       52C2A
             .          .          .           .
             .          .          .           .
350          .          .     52C2AC............
             .          .          .
             .          .          .
353          .          .          .       52C2B
             .          .          .           .
             .          .          .           .
359          .          .     52C2BC............
             .          .          V
             .          .          V
362          .          .     52C2BR
             .          .          .
             .          .          .
365          .          .          .       52C2C
             .          .          .           .
             .          .          .           .
371          .          .     52C2CC............
             .          .          V
             .          .          V
374          .          .      52C2R
             .          .          .
             .          .          .
377          .          .          .        52C4
             .          .          .           .
             .          .          .           .
383          .          .     52C4C1............
             .          .          .
             .          .          .
386          .     52C4C2............
             .          V
             .          V
389          .      52C4R
             .          .
             .          .
392          .          .      52C13
             .          .          .
             .          .          .
400          .          .          .-------> STORM
398          .          .     2C13DV
             .          .          .
             .          .          .
403          .          .          .      52C15
             .          .          .           .
             .          .          .           .
409          .          .     2C15C1............
             .          .          .
             .          .          .
412          .     2C15C2............
             .          V
             .          V
415          .     52C15R
             .          .
             .          .
418          .          .     52C14A
             .          .          .
             .          .          .
424          .     2C14AC............
             .          V
             .          V
427          .     2C14AR
             .          .
             .          .
432          .          .          .<------- 51C1DV
430          .          .     51C1DV
             .          .          .
             .          .          .
435          .          .          .-------> 51C2DV
433          .          .      51C2D
             .          .          V
             .          .          V
438          .          .      51C2R
             .          .          .
             .          .          .
441          .          .          .        52C5
             .          .          .           .
             .          .          .           .
447          .          .      52C5C............
             .          .          V
             .          .          V
450          .          .      52C5R
             .          .          .
```

```
453                 .           .           .
                    .           .           .       52C6
                    .           .           .         .
                    .           .           .         .
459                 .           .       52C6C.............
                    .           .           V
                    .           .           V
462                 .           .       52C6R
                    .           .           .
                    .           .           .
467                 .           .           .           .<-------  51C2DV
465                 .           .           .      51C2DV
                    .           .           .           V
                    .           .           .           V
468                 .           .           .      51C3R
                    .           .           .           .
                    .           .           .           .
471                 .           .           .           .         51B
                    .           .           .           .           .
                    .           .           .           .           .
479                 .           .           .           .           .-------->  51B1DV
477                 .           .           .           .      51B1D
                    .           .           .           .           V
                    .           .           .           .           V
482                 .           .           .           .      51B1R
                    .           .           .           .           .
                    .           .           .           .           .
485                 .           .           .           .           .        52C7
                    .           .           .           .           .          .
                    .           .           .           .           .          .
491                 .           .           .      52C7C........................
                    .           .           .           V
                    .           .           .           V
494                 .           .           .      52C7R
                    .           .           .           .
                    .           .           .           .
499                 .           .           .           .           .<-------  51B1DV
497                 .           .           .           .     51B1DV
                    .           .           .           .           .
                    .           .           .           .           .
502                 .           .           .           .           .-------->  51B2DV
500                 .           .           .           .      51B2D
                    .           .           .           .           V
                    .           .           .           .           V
505                 .           .           .           .      51B2R
                    .           .           .           .           .
                    .           .           .           .           .
508                 .           .           .           .           .        52C8
                    .           .           .           .           .          .
                    .           .           .           .           .          .
514                 .           .           .           .      52C8C............
                    .           .           .           .           V
                    .           .           .           .           V
517                 .           .           .           .      52C8R
                    .           .           .           .           .
                    .           .           .           .           .
520                 .           .           .      52C9C1............
                    .           .           .           V
                    .           .           .           V
523                 .           .           .      52C9R1
                    .           .           .           .
                    .           .           .           .
526                 .           .           .           .        52C9
                    .           .           .           .           .
                    .           .           .           .           .
532                 .           .           .      52C9C2............
                    .           .           .           V
                    .           .           .           V
535                 .           .           .      52C9R2
                    .           .           .           .
                    .           .           .           .
538                 .           .       2C10C1............
                    .           .           V
                    .           .           V
541                 .           .       2C10R1
                    .           .           .
                    .           .           .
544                 .           .           .      52C10
                    .           .           .           .
                    .           .           .           .
550                 .           .       2C10C2............
                    .           .           .
                    .           .           .
553                 .           .           .      52C11
                    .           .           .           V
                    .           .           .           V
559                 .           .           .      2C11R1
                    .           .           .           .
                    .           .           .           .
564                 .           .           .           .           .<-------   STORM
562                 .           .           .           .     52C13D
                    .           .           .           .           .
                    .           .           .           .           .
565                 .           .           .      52C11C............
                    .           .           .           V
```

```
                .         .         .         V
568             .         .         .     2C11CR
                .         .         .         .
                .         .         .         .
571             .         .     2C11C2.........
                .         .         V
                .         .         V
574             .         .     2C11R2
                .         .         .
                .         .         .
577             .         .         .      52C12
                .         .         .         .
                .         .         .         .
583             .         .     52C12C.........
                .         .         V
                .         .         V
586             .         .     52C12R
                .         .         .
                .         .         .
589             .         .         .     52C14B
                .         .         .         .
                .         .         .         .
595             .         .     C14BC1.........
                .         .         .
                .         .         .
598             .     C14BC2.........
                .         V
                .         V
601             .     52C14R
                .         .
                .         .
606             .         .         .<-------  51B2DV
604             .         .     51B2DV
                .         .         .
                .         .         .
609             .         .         .------->  51B3DV
607             .         .      51B3D
                .         .         V
                .         .         V
612             .         .      51B3R
                .         .         .
                .         .         .
615             .         .         .       52B1
                .         .         .         .
                .         .         .         .
621             .         .      52B1C.........
                .         .         V
                .         .         V
624             .         .      52B1R
                .         .         .
                .         .         .
629             .         .         .         .<-------  51B3DV
627             .         .         .     51B3DV
                .         .         .         .
                .         .         .         .
632             .         .         .         .-------> 51B4DV
630             .         .         .      51B4D
                .         .         .         V
                .         .         .         V
635             .         .         .     51B4R1
                .         .         .         .
                .         .         .         .
638             .         .     52B2C1.........
                .         .         V
                .         .         V
641             .         .     52B2R1
                .         .         .
                .         .         .
644             .         .         .       52B2
                .         .         .         .
                .         .         .         .
650             .         .     52B2C2.........
                .         .         V
                .         .         V
653             .         .     52B2R2
                .         .         V
                .         .         V
656             .         .     52B3R1
                .         .         .
                .         .         .
659             .         .         .       52B3
                .         .         .         .
                .         .         .         .
665             .         .     52B3C2.........
                .         .         V
                .         .         V
668             .         .     52B3R2
                .         .         .
                .         .         .
671             .         .         .       52B4
                .         .         .         .
                .         .         .         .
677             .         .      52B4C.........
                .         .         V
                .         .         V
```

```
680          .           .      52B4R
             .           .          .
             .           .          .
683          .           .          .       52B5
             .           .          .          .
             .           .          .          .
689          .           .     52B5C1............
             .           .          .
             .           .          .
692          .     52B5C2............
             .          V
             .          V
695          .      52B5R
             .           .
             .           .
700          .           .          .<-------  51B4DV
698          .           .     51B4DV
             .           .          .
             .           .          .
703          .           .          .------->  51B5DV
701          .           .      51B5D
             .           .          V
             .           .          V
706          .           .      51B5R
             .           .          .
             .           .          .
711          .           .          .           .<-------  51B5DV
709          .           .          .     51B5DV
             .           .          .          .
             .           .          .          .
714          .           .          .          .------->  51B6DV
712          .           .          .      51B6D
             .           .          .          V
             .           .          .          V
717          .           .          .      51B6R
             .           .          .          .
             .           .          .          .
722          .           .          .          .           .<-------  51B6DV
720          .           .          .          .      51B6DV
             .           .          .          .           .
             .           .          .          .           .
725          .           .          .          .           .------->  51B7DV
723          .           .          .          .       51B7D
             .           .          .          .           V
             .           .          .          .           V
728          .           .          .          .      51B7R1
             .           .          .          .           .
             .           .          .          .           .
731          .           .      51B7C.......................
             .           .          V
             .           .          V
734          .           .     51B7R2
             .           .          .
             .           .          .
737          .           .          .       52B6
             .           .          .          .
             .           .          .          .
743          .           .      52B6C............
             .           .          V
             .           .          V
746          .           .      52B6R
             .           .          .
             .           .          .
749          .           .          .       52B7
             .           .          .          .
             .           .          .          .
755          .           .     52B7C1............
             .           .          .
             .           .          .
758          .     52B7C2............
             .           .
             .           .
761          .           .       52A2
             .           .          .
             .           .          .
767          .     52A2C2............
             .           .
             .           .
772          .           .          .<-------  51B7DV
770          .           .     51B7DV
             .           .          V
             .           .          V
773          .           .      51B8R
             .           .          .
             .           .          .
776          .           .          .       52A1
             .           .          .          .
             .           .          .          .
782          .           .      52A1C............
             .           .          .
             .           .          .
787          .           .          .           .<-------  B51.1T
785          .           .          .      D51.1
             .           .          .          .
             .           .          .          .
```

```
788          .          .        C52A............
             .          .           .
             .          .           .
792          .        C52............
             .          V
             .          V
796          .        R52
             .          .
             .          .
803          .          .-------->   B52T
801          .       D52T
             .          .
             .          .
806     CLEAR............
             .
             .
809          .        37A
             .          .
             .          .
826          .          .-------->   37AW
815          .       37AE
             .          V
             .          V
829          .      37AE1
             .          .
             .          .
836          .          .      SUB5N
             .          .         .
             .          .         .
843          .       CP5N............
             .          V
             .          V
846          .      RET5N
             .          V
             .          V
853          .      R6N.1
             .          .
             .          .
861          .          .      SUB6B
             .          .         V
             .          .         V
867          .          .       SR6B
             .          .         .
             .          .         .
873          .      CP6.1............
             .          .
             .          .
876          .          .      SUB1N
             .          .         V
             .          .         V
882          .          .       R2NA
             .          .         .
             .          .         .
888          .          .         .     SUB2NA
             .          .         .        .
             .          .         .        .
894          .          .      CP2NA............
             .          .         V
             .          .         V
897          .          .      SR2NA
             .          .         V
             .          .         V
903          .          .       R2NB
             .          .         .
             .          .         .
909          .          .         .     SUB2NB
             .          .         .        .
             .          .         .        .
915          .          .      CP2NB............
             .          .         V
             .          .         V
918          .          .      SR2NB
             .          .         V
             .          .         V
924          .          .      RCP4N
             .          .         .
             .          .         .
930          .          .         .      SUB6N
             .          .         .         V
             .          .         .         V
936          .          .         .      RET6N
             .          .         .         V
             .          .         .         V
942          .          .         .     RCP4N1
             .          .         .        .
             .          .         .        .
948          .          .     CP4N.1............
             .          .         .
             .          .         .
951          .          .         .      SUB3N
             .          .         .         V
             .          .         .         V
957          .          .         .      RET3N
             .          .         .         V
             .          .         .         V
```

```
 964          .          .          .        R4N
              .          .          .          .
              .          .          .          .
 970          .          .     CP4N.2...........
              .          .          .
              .          .          .
 973          .          .          .      SUB4N
              .          .          .          .
              .          .          .          .
 979          .          .       CP4N...........
              .          .          V
              .          .          V
 982          .          .        R6N
              .          .          .
              .          .          .
 988          .          .          .      SUB6A
              .          .          .          .
              .          .          .          .
 994          .          .     CP6.2...........
              .          .          .
              .          .          .
 997          .       CP6N...........
              .          V
              .          V
1000          .      RCP6N
              .          .
              .          .
1006          .          .     SUB3C
              .          .          .
              .          .          .
1012          .       CP3C...........
              .          V
              .          V
1015          .        R3C
              .          .
              .          .
1023          .          .     GC1018
              .          .          .
              .          .          .
1029          .          .          .      GC1-9
              .          .          .          .
              .          .          .          .
1035          .          .          .          .      SUB3S
              .          .          .          .          .
              .          .          .          .          .
1041          .       CP3S...................................
              .          V
              .          V
1044          .       RT3S
              .          .
              .          .
1050          .          .     SUB4S
              .          .          V
              .          .          V
1056          .          .      RT4S
              .          .          .
              .          .          .
1062          .          .          .      GC2-8
              .          .          .          .
              .          .          .          .
1068          .     1PGC28........................
              .          .
              .          .
1071          .          .     SUB3D3
              .          .          .
              .          .          .
1077          .     CPGC28...........
              .          V
              .          V
1080          .     SRGC28
              .          V
              .          V
1086          .       RT7S
              .          .
              .          .
1092          .          .       GC7
              .          .          .
              .          .          .
1098          .       CP7S...........
              .          .
              .          .
1106          .          .-------->    B7ST
1101          .       D7ST
              .          .
              .          .
1109     CLEAR............
              .
              .
1112          .     SUB3D1
              .          V
              .          V
1117          .      RD1B1
              .          .
              .          .
1123          .          .     SUB3B1
```

```
                .          .          .
                .          .          .
1128            .       CP3B1..........
                .          V
                .          V
1131            .       RB13F
                .          .
                .          .
1137            .          .      SUB3F
                .          .          .
                .          .          .
1143            .       CP3F...........
                .          .
                .          .
1146            .          .     SUB3B2
                .          .          V
                .          .          V
1151            .          .      RB2E1
                .          .          V
                .          .          V
1157            .          .      RB2E2
                .          .          .
                .          .          .
1163            .          .          .     SUB3E1
                .          .          .          .
                .          .          .          .
1168            .          .     1CPE31..........
                .          .          .
                .          .          .
1171            .          .          .     SUB3D2
                .          .          .          V
                .          .          .          V
1176            .          .          .      RD2E2
                .          .          .          .
                .          .          .          .
1182            .          .          .          .     SUB3E2
                .          .          .          .          .
                .          .          .          .          .
1187            .          .          .      CP3E2..........
                .          .          .          .
                .          .          .          .
1190            .          .          .          .        PC3
                .          .          .          .          .
                .          .          .          .          .
1199            .       CPC3...................................
                .          .
                .          .
1211            .          .-------> BPC3T
1206            .       DPC3T
                .          .
                .          .
1214            .          .     SUB3E3
                .          .          .
                .          .          .
1219            .          .          .        PC4
                .          .          .          .
                .          .          .          .
1233            .          .          .          .          .<-------   B7ST
1228            .          .          .          .        D7S
                .          .          .          .          .
                .          .          .          .          .
1234            .          .       CPC4........................
                .          .          .
                .          .          .
1245            .          .          .-------> BPC4T
1240            .          .      DPC4T
                .          .          .
                .          .          .
1248       CLEAR........................
                .
                .
1254            .          .<-------   37AW
1251            .       37AW
                .          V
                .          V
1255            .       R14R
                .          V
                .          V
1262            .      RET141
                .          V
                .          V
1269            .       R14.1
                .          .
                .          .
1276            .          .     SUB13N
                .          .          V
                .          .          V
1282            .          .      R14.1
                .          .          .
                .          .          .
1288            .          .          .     SUB14N
                .          .          .          .
                .          .          .          .
1294            .       CP14........................
                .          V
```

```
                 .        V
1297             .     RET14
                 .        V
                 .        V
1304             .     R18.1
                 .        .
                 .        .
1310             .        .     SUB20N
                 .        .        V
                 .        .        V
1316             .        .       R19
                 .        .        .
                 .        .        .
1322             .        .        .     SUB19N
                 .        .        .        .
                 .        .        .        .
1328             .        .     CP19N............
                 .        .        V
                 .        .        V
1331             .        .     R18NC
                 .        .        .
                 .        .        .
1337             .        .        .     UB18NC
                 .        .        .        .
                 .        .        .        .
1343             .     CP18NC......................
                 .        V
                 .        V
1346             .      RPC1
                 .        .
                 .        .
1352             .        .     UB18NA
                 .        .        V
                 .        .        V
1358             .        .     1RPC1
                 .        .        .
                 .        .        .
1364             .        .        .     UB18NB
                 .        .        .        V
                 .        .        .        V
1370             .        .        .     2RPC1
                 .        .        .        .
                 .        .        .        .
1376             .        .        .        .        PC1
                 .        .        .        .          .
                 .        .        .        .          .
1382             .        .     1CPC1......................
                 .        .        V
                 .        .        V
1385             .        .     SRPC1
                 .        .        .
                 .        .        .
1391             .      CPC1............
                 .        V
                 .        V
1394             .     R16NA1
                 .        .
                 .        .
1400             .        .     UB16NA
                 .        .        V
                 .        .        V
1406             .        .     R16NA1
                 .        .        .
                 .        .        .
1412             .     C16NA1............
                 .        V
                 .        V
1415             .     R16NB1
                 .        .
                 .        .
1421             .        .     UB16NB
                 .        .        V
                 .        .        V
1427             .        .     R16NB1
                 .        .        .
                 .        .        .
1433             .     C16NB1............
                 .        V
                 .        V
1436             .     R16NC1
                 .        .
                 .        .
1442             .        .      SUB7N
                 .        .        V
                 .        .        V
1448             .        .       R8NC
                 .        .        .
                 .        .        .
1454             .        .        .     SUB8NA
                 .        .        .        V
                 .        .        .        V
1460             .        .        .     SR8NA
                 .        .        .        V
                 .        .        .        V
1466             .        .        .      R8NB
```

```
                .         .         .         .
                .         .         .         .
1472            .         .         .         .     SUB8NB
                .         .         .         .         .
                .         .         .         .         .
1478            .         .         .     CP8NB............
                .         .         .         V
                .         .         .         V
1481            .         .         .     SR8NB
                .         .         .         V
                .         .         .         V
1487            .         .         .      R8NC
                .         .         .         .
                .         .         .         .
1493            .         .         .         .     SUB8NC
                .         .         .         .         .
                .         .         .         .         .
1499            .         .    CP8NC........................
                .         .        V
                .         .        V
1502            .         .    SR8NC
                .         .        V
                .         .        V
1508            .         .     R9N
                .         .        .
                .         .        .
1514            .         .         .     SUB9N
                .         .         .         .
                .         .         .         .
1520            .         .     CP9N............
                .         .        V
                .         .        V
1523            .         .     R10B
                .         .        .
                .         .        .
1529            .         .         .     SUB10B
                .         .         .         .
                .         .         .         .
1536            .         .    CP10B............
                .         .        V
                .         .        V
1539            .         .    R11NA
                .         .        .
                .         .        .
1545            .         .         .     UB11NA
                .         .         .         .
                .         .         .         .
1551            .         .   CP11NA............
                .         .        V
                .         .        V
1554            .         .   SR11NA
                .         .        V
                .         .        V
1560            .         .    R11NB
                .         .        .
                .         .        .
1566            .         .         .     UB11NB
                .         .         .         .
                .         .         .         .
1572            .         .   CP11NB............
                .         .        V
                .         .        V
1575            .         .   SR11NB
                .         .        V
                .         .        V
1581            .         .    R11NC
                .         .        .
                .         .        .
1587            .         .         .     UB11NC
                .         .         .         .
                .         .         .         .
1593            .         .   C11NC1............
                .         .        .
                .         .        .
1596            .         .         .     SUB10A
                .         .         .         V
                .         .         .         V
1603            .         .         .      R12NB
                .         .         .         .
                .         .         .         .
1609            .         .         .         .     UB12NA
                .         .         .         .         V
                .         .         .         .         V
1615            .         .         .         .     SR12NA
                .         .         .         .         V
                .         .         .         .         V
1621            .         .         .         .      R12NA
                .         .         .         .         .
                .         .         .         .         .
1627            .         .         .         .         .     UB12NB
                .         .         .         .         .         .
                .         .         .         .         .         .
1633            .         .         .     CP12NB........................
                .         .         .         V
                .         .         .         V
```

```
1636          .          .          .     SR12NB
              .          .          .          V
              .          .          .          V
1642          .          .          .     R11NC2
              .          .          .          .
              .          .          .          .
1648          .          .     CP11NC............
              .          .          V
              .          .          V
1651          .          .     SR11NC
              .          .          V
              .          .          V
1658          .          .      R16NC
              .          .          .
              .          .          .
1664          .          .          .     UB16NC
              .          .          .          .
              .          .          .          .
1670          .          .     CP16NC............
              .          .          V
              .          .          V
1673          .          .     R16NC1
              .          .          .
              .          .          .
1679          .     C16NC1............
              .          V
              .          V
1682          .      R15N1
              .          .
              .          .
1688          .          .        PC2
              .          .          .
              .          .          .
1694          .     CP15N1............
              .          V
              .          V
1697          .      SRPC2
              .          .
              .          .
1704          .          .     UB17NA
              .          .          V
              .          .          V
1710          .          .     SR17NA
              .          .          V
              .          .          V
1716          .          .      R17NB
              .          .          .
              .          .          .
1722          .          .          .     UB17NB
              .          .          .          .
              .          .          .          .
1728          .          .     CP17NB............
              .          .          V
              .          .          V
1731          .          .     SR17NB
              .          .          V
              .          .          V
1737          .          .       R17A
              .          .          .
              .          .          .
1743          .          .          .     SUB17A
              .          .          .          .
              .          .          .          .
1749          .          .     CP17A1............
              .          .          .
              .          .          .
1752          .          .          .     UB17NC
              .          .          .          .
              .          .          .          .
1758          .          .      CP17A............
              .          .          V
              .          .          V
1761          .          .       R15N
              .          .          .
              .          .          .
1767          .          .          .     SUB15N
              .          .          .          .
              .          .          .          .
1774          .          .      CP15N............
              .          .          V
              .          .          V
1777          .          .      R15N2
              .          .          .
              .          .          .
1783          .     CP15N2............
              .          V
              .          V
1787          .      R15N2
              .          .
              .          .
1801          .          .          .<-------   BPC3T
1796          .          .       DPC3
              .          .          .
              .          .          .
1802          .      CPC3A............
```

```
                .          V
                .          V
1808            .      RPC3A
                .          .
                .          .
1822            .          .          .<-------   BPC4T
1817            .          .       DPC4
                .          .          .
                .          .          .
1823            .      CPC4A............
                .          V
                .          V
1829            .      RPC4A
                .          .
                .          .
1843            .          .-------> BPC4AT
1838            .     DPC4AT
                .          .
                .          .
1846            .          .     SUB1-2
                .          .          .
                .          .          .
1852            .          .          .     GCRB18
                .          .          .          .
                .          .          .          .
1859            .          .     CPRET1............
                .          .          V
                .          .          V
1862            .          .      SR18S
                .          .          .
                .          .          .
1868            .          .          .      SUB5S
                .          .          .          .
                .          .          .          .
1874            .          .          .          .     GC1216
                .          .          .          .          .
                .          .          .          .          .
1880            .          .          .          .          .     GC1415
                .          .          .          .          .          .
                .          .          .          .          .          .
1886            .          .          .          .          .          .      SUB6S
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
1892            .          .          .          .          .          .          .      SUB7S
                .          .          .          .          .          .          .          .
                .          .          .          .          .          .          .          .
1898            .          .          .     CPRET2.............................................
                .          .          .          V
                .          .          .          V
1901            .          .          .     SRRET2
                .          .          .          .
                .          .          .          .
1907            .          .      CLEAR............
                .          .          .
                .          .          .
1912            .          .          .      SUB8S
                .          .          .          V
                .          .          .          V
1918            .          .          .      RGC36
                .          .          .          .
                .          .          .          .
1924            .          .          .          .       GC36
                .          .          .          .          .
                .          .          .          .          .
1930            .          .          .     C1GC36............
                .          .          .          .
                .          .          .          .
1933            .          .          .          .      SUB9S
                .          .          .          .          V
                .          .          .          .          V
1939            .          .          .          .       R9S
                .          .          .          .          .
                .          .          .          .          .
1945            .          .          .     CPGC36............
                .          .          .          V
                .          .          .          V
1948            .          .          .     SRGC36
                .          .          .          .
                .          .          .          .
1954            .          .          .          .      SUB7A
                .          .          .          .          V
                .          .          .          .          V
1960            .          .          .          .      SR7A
                .          .          .          .          V
                .          .          .          .          V
1966            .          .          .          .      R10S
                .          .          .          .          .
                .          .          .          .          .
1972            .          .          .          .          .     SUB10S
                .          .          .          .          .          .
                .          .          .          .          .          .
1978            .          .          .          .      CP10S............
                .          .          .          .          .
                .          .          .          .          .
1981            .          .          .          .          .     SUB11S
```

```
                 .         .         .         .         .         V
                 .         .         .         .         .         V
1987             .         .         .         .         .       R11S
                 .         .         .         .         .         .
                 .         .         .         .         .         .
1996             .         .         .         .      C10SA............
                 .         .         .         .         V
                 .         .         .         .         V
2001             .         .         .         .      R10SA
                 .         .         .         .         .
                 .         .         .         .         .
2010             .         .         .         .         .       GC45
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2016             .         .         .         .      CGC45............
                 .         .         .         .         .
                 .         .         .         .         .
2021             .         .         .         .         .        PC5
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2035             .         .         .         .         .         .<-------  BPC4AT
2030             .         .         .         .         .      DPC4A
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2036             .         .      CPC5.............................................
                 .         .         V
                 .         .         V
2043             .         .       RC5
                 .         .         .
                 .         .         .
2049             .         .         .      SCN5D
                 .         .         .         .
                 .         .         .         .
2055             .         .      CN5D............
                 .         .         .
                 .         .         .
2060             .         .         .         .<-------    B52T
2058             .         .         .       D52
                 .         .         .         .
                 .         .         .         .
2061             .         .         .         .       S53A
                 .         .         .         .         .
                 .         .         .         .         .
2068             .         .         .       C53............
                 .         .         .         .
                 .         .         .         .
2071             .         .         .         .      S53A1
                 .         .         .         .         .
                 .         .         .         .         .
2079             .         .         .      C53A............
                 .         .         .         .
                 .         .         .         .
2082             .         .         .         .      SCN6B
                 .         .         .         .         .
                 .         .         .         .         .
2092             .         .         .         .         .      SCN6D
                 .         .         .         .         .         .
                 .         .         .         .         .         .
2099             .         .         .      CP6D........................
                 .         .         .         .
                 .         .         .         .
2102             .         .         .         .      SCN6C
                 .         .         .         .         .
                 .         .         .         .         .
2111             .         .         .      CP6C............
                 .         .         .         .
                 .         .         .         .
2114             .         .      CP5D............
                 .         .         .
                 .         .         .
2117             .         .         .      SCN5C
                 .         .         .         .
                 .         .         .         .
2123             .         .         .         .      SCN6E
                 .         .         .         .         .
                 .         .         .         .         .
2129             .         .     EAST-I........................
                 .         .         V
                 .         .         V
2132             .         .     EAST-O
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  02/25/99  TIME  08:06:54   *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
                    PIMA ROAD THREE BASINS                              File:  FU50-24.IH1
                    by  Stantec for the City of Scottsdale            Original: 08-07-97     mcg
                        Project:  28900082                             Revised: 01-20-99     mcg

                    50-YEAR, 24-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


18 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1    0  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      4    0  ENDING DATE
                    NDTIME        1115  ENDING TIME
                     ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE   83.25 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S30N	1059.	12.33	130.	38.	13.	0.65		
+	ROUTED TO	R30N	1001.	12.33	130.	38.	13.	0.65		
+									103.56	12.33
+	HYDROGRAPH AT	S31.1	356.	12.33	44.	13.	4.	0.27		
+	2 COMBINED AT	C31.1	1356.	12.33	174.	51.	17.	0.92		
+	HYDROGRAPH AT	S34.2	609.	12.33	75.	22.	7.	0.44		
+	2 COMBINED AT	C34.2	1966.	12.33	249.	73.	25.	1.36		
+	HYDROGRAPH AT	S35N	1116.	12.25	110.	32.	11.	0.55		
+	DIVERSION TO	D35NL	495.	12.25	48.	14.	5.	0.55		
+	HYDROGRAPH AT	D35NR	621.	12.25	62.	18.	6.	0.55		
+	ROUTED TO	R35NR	516.	12.33	61.	18.	6.	0.55		
+									101.69	12.33
+	HYDROGRAPH AT	S36.2	345.	12.25	35.	10.	3.	0.21		
+	2 COMBINED AT	C36.2	811.	12.25	96.	28.	10.	0.76		
+	DIVERSION TO	D36.2L	185.	12.25	8.	2.	1.	0.76		
+	HYDROGRAPH AT	D36.2R	626.	12.25	88.	27.	9.	0.76		
+	ROUTED TO	R36.2R	466.	12.67	88.	27.	9.	0.76		
+									101.21	12.67
+	HYDROGRAPH AT	S34.1	1623.	12.33	196.	58.	19.	1.16		
+	2 COMBINED AT	C34.1	1726.	12.33	284.	85.	28.	1.92		
+	2 COMBINED AT	HVDB-I	3692.	12.33	533.	158.	53.	3.28		
+	ROUTED TO	HVDB-O	133.	16.08	132.	121.	53.	3.28		
+									2088.79	16.17
+	ROUTED TO	R34.1	133.	16.17	132.	121.	53.	3.28		
+									101.43	16.25
+	HYDROGRAPH AT	S36.1	147.	12.42	20.	6.	2.	0.14		
+	2 COMBINED AT	C36.1	241.	12.42	147.	126.	55.	3.42		
+	ROUTED TO	R36.1	238.	12.50	147.	126.	55.	3.42		
+									101.91	12.50
+	HYDROGRAPH AT	B35NL	495.	12.25	48.	14.	5.	0.00		
+	ROUTED TO	R35NL	330.	12.58	48.	14.	5.	0.00		

```
+                                                                                    103.01       12.58
          HYDROGRAPH AT
+                    B36.2L     185.  12.25        8.        2.        1.     0.00
          ROUTED TO
+                    R36.2L      78.  12.58        8.        2.        1.     0.00
+                                                                            101.00       12.58
          HYDROGRAPH AT
+                    S36R1A     604.  12.50       92.       27.        9.     0.63
          4 COMBINED AT
+                    C36R1A    1194.  12.50      293.      168.       69.     4.05
          HYDROGRAPH AT
+                    S36R1B     611.  12.42       86.       26.        9.     0.59
          2 COMBINED AT
+                    C36R1B    1741.  12.50      379.      193.       78.     4.64
          HYDROGRAPH AT
+                    S36R2A     240.  12.17       20.        6.        2.     0.13
          2 COMBINED AT
+                    C36R2A    1799.  12.50      397.      199.       80.     4.77
          ROUTED TO
+                    R36R2A    1799.  12.58      397.      199.       80.     4.77
          HYDROGRAPH AT
+                    S36R2B     243.  12.33       33.       10.        3.     0.24
          2 COMBINED AT
+                    C36R2B    1952.  12.58      430.      208.       83.     5.01
          HYDROGRAPH AT
+                     S51.1     998.  12.50      166.       50.       17.     1.13
          2 COMBINED AT
+                    DVDB-I    2918.  12.58      596.      257.      100.     6.14
          ROUTED TO
+                    DVDB-O     251.  16.42      250.      237.      100.     6.14
+                                                                           1878.03       16.50
          DIVERSION TO
+                    B51.1T     251.   0.08      250.      237.      100.     6.14
          HYDROGRAPH AT
+                    D51.1T       0.   0.08        0.        0.        0.     6.14
          HYDROGRAPH AT
+                     52D4      104.  12.25       11.        3.        1.     0.07
          ROUTED TO
+                     52D4R      95.  12.25       11.        3.        1.     0.07
          HYDROGRAPH AT
+                     52D4B      53.  12.17        5.        2.        1.     0.02
          2 COMBINED AT
+                    52D5C1     142.  12.25       16.        5.        2.     0.09
          HYDROGRAPH AT
+                     52D5A      63.  12.17        6.        2.        1.     0.02
          ROUTED TO
+                    52D5AR      60.  12.17        6.        2.        1.     0.02
          2 COMBINED AT
+                    52D5C2     190.  12.25       22.        7.        2.     0.12
          ROUTED TO
+                     52D5R     188.  12.25       22.        7.        2.     0.12
          HYDROGRAPH AT
+                     52C3       18.  12.08        1.        0.        0.     0.01
          ROUTED TO
+                     52C3R      18.  12.17        1.        0.        0.     0.01
          HYDROGRAPH AT
+                     52C3B      42.  12.17        4.        1.        0.     0.02
          2 COMBINED AT
+                    2C3BC1      60.  12.17        5.        2.        1.     0.02
          2 COMBINED AT
+                    2C3BC2     227.  12.17       27.        8.        3.     0.14
          ROUTED TO
+                    52C3BR     227.  12.25       27.        8.        3.     0.14
          HYDROGRAPH AT
```

+	51C	148.	12.17	15.	5.	2.	0.10
+ DIVERSION TO	51C1DV	99.	12.17	10.	3.	1.	0.10
+ HYDROGRAPH AT	51C1D	49.	12.17	5.	1.	0.	0.10
+ ROUTED TO	51C1R	47.	12.25	5.	1.	0.	0.10
+ HYDROGRAPH AT	52C1	59.	12.17	5.	1.	0.	0.03
+ 2 COMBINED AT	52C1C	95.	12.17	10.	3.	1.	0.13
+ ROUTED TO	52C1R	90.	12.25	10.	3.	1.	0.13
+ HYDROGRAPH AT	52C2A	31.	12.17	3.	1.	0.	0.02
+ 2 COMBINED AT	52C2AC	112.	12.25	12.	4.	1.	0.15
+ HYDROGRAPH AT	52C2B	47.	12.17	4.	1.	0.	0.03
+ 2 COMBINED AT	52C2BC	152.	12.17	17.	5.	2.	0.17
+ ROUTED TO	52C2BR	150.	12.25	17.	5.	2.	0.17
+ HYDROGRAPH AT	52C2C	38.	12.17	3.	1.	0.	0.01
+ 2 COMBINED AT	52C2CC	173.	12.25	20.	6.	2.	0.19
+ ROUTED TO	52C2R	163.	12.25	20.	6.	2.	0.19
+ HYDROGRAPH AT	52C4	46.	12.17	4.	1.	0.	0.02
+ 2 COMBINED AT	52C4C1	191.	12.25	24.	7.	2.	0.20
+ 2 COMBINED AT	52C4C2	418.	12.25	51.	16.	5.	0.34
+ ROUTED TO	52C4R	408.	12.25	51.	16.	5.	0.34
+ HYDROGRAPH AT	52C13	55.	12.08	4.	1.	0.	0.02
+ DIVERSION TO	STORM	40.	12.08	4.	1.	0.	0.02
+ HYDROGRAPH AT	2C13DV	15.	12.08	0.	0.	0.	0.02
+ HYDROGRAPH AT	52C15	126.	12.17	11.	4.	1.	0.05
+ 2 COMBINED AT	2C15C1	137.	12.08	12.	4.	1.	0.07
+ 2 COMBINED AT	2C15C2	482.	12.25	63.	19.	7.	0.41
+ ROUTED TO	52C15R	479.	12.25	63.	19.	7.	0.41
+ HYDROGRAPH AT	52C14A	116.	12.17	10.	3.	1.	0.04
+ 2 COMBINED AT	2C14AC	551.	12.17	73.	23.	8.	0.45
+ ROUTED TO	2C14AR	548.	12.25	73.	23.	8.	0.45
+ HYDROGRAPH AT	51C1DV	99.	12.17	10.	3.	1.	0.00
+ DIVERSION TO	51C2DV	27.	12.17	3.	1.	0.	0.00
+ HYDROGRAPH AT	51C2D	72.	12.17	7.	2.	1.	0.00

+	ROUTED TO	51C2R	69.	12.25	7.	2.	1.	0.00
+	HYDROGRAPH AT	52C5	34.	12.17	3.	1.	0.	0.02
+	2 COMBINED AT	52C5C	97.	12.17	10.	3.	1.	0.02
+	ROUTED TO	52C5R	89.	12.33	10.	3.	1.	0.02
+	HYDROGRAPH AT	52C6	68.	12.17	7.	2.	1.	0.04
+	2 COMBINED AT	52C6C	149.	12.25	17.	5.	2.	0.05
+	ROUTED TO	52C6R	143.	12.25	17.	5.	2.	0.05
+	HYDROGRAPH AT	51C2DV	27.	12.17	3.	1.	0.	0.00
+	ROUTED TO	51C3R	25.	12.25	3.	1.	0.	0.00
+	HYDROGRAPH AT	51B	556.	12.33	80.	24.	8.	0.57
+	DIVERSION TO	51B1DV	512.	12.33	73.	22.	7.	0.57
+	HYDROGRAPH AT	51B1D	44.	12.33	6.	2.	1.	0.57
+	ROUTED TO	51B1R	44.	12.33	6.	2.	1.	0.57
+	HYDROGRAPH AT	52C7	14.	12.08	1.	0.	0.	0.01
+	3 COMBINED AT	52C7C	70.	12.25	10.	3.	1.	0.58
+	ROUTED TO	52C7R	69.	12.33	10.	3.	1.	0.58
+	HYDROGRAPH AT	51B1DV	512.	12.33	73.	22.	7.	0.00
+	DIVERSION TO	51B2DV	430.	12.33	62.	19.	6.	0.00
+	HYDROGRAPH AT	51B2D	82.	12.33	12.	4.	1.	0.00
+	ROUTED TO	51B2R	79.	12.42	12.	4.	1.	0.00
+	HYDROGRAPH AT	52C8	17.	12.08	1.	0.	0.	0.01
+	2 COMBINED AT	52C8C	86.	12.33	13.	4.	1.	0.01
+	ROUTED TO	52C8R	85.	12.42	13.	4.	1.	0.01
+	2 COMBINED AT	52C9C1	151.	12.33	23.	7.	2.	0.59
+	ROUTED TO	52C9R1	150.	12.42	23.	7.	2.	0.59
+	HYDROGRAPH AT	52C9	143.	12.17	13.	4.	1.	0.07
+	2 COMBINED AT	52C9C2	232.	12.25	36.	11.	4.	0.65
+	ROUTED TO	52C9R2	230.	12.25	36.	11.	4.	0.65
+	2 COMBINED AT	2C10C1	373.	12.25	53.	16.	5.	0.71
+	ROUTED TO	2C10R1	368.	12.25	53.	16.	5.	0.71
+	HYDROGRAPH AT	52C10	24.	12.17	2.	1.	0.	0.01
+	2 COMBINED AT	2C10C2	382.	12.25	55.	17.	6.	0.72

+	HYDROGRAPH AT 52C11	81.	12.17	8.	2.	1.	0.04
+	ROUTED TO 2C11R1	75.	12.17	8.	2.	1.	0.04
+	HYDROGRAPH AT 52C13D	40.	12.08	4.	1.	0.	0.00
+	2 COMBINED AT 52C11C	115.	12.17	12.	4.	1.	0.04
+	ROUTED TO 2C11CR	108.	12.17	12.	4.	1.	0.04
+	2 COMBINED AT 2C11C2	482.	12.25	67.	20.	7.	0.76
+	ROUTED TO 2C11R2	473.	12.25	67.	20.	7.	0.76
+	HYDROGRAPH AT 52C12	89.	12.08	7.	2.	1.	0.02
+	2 COMBINED AT 52C12C	506.	12.25	73.	23.	8.	0.79
+	ROUTED TO 52C12R	491.	12.25	74.	23.	8.	0.79
+	HYDROGRAPH AT 52C14B	58.	12.08	5.	2.	1.	0.02
+	2 COMBINED AT C14BC1	522.	12.25	78.	24.	8.	0.81
+	2 COMBINED AT C14BC2	1071.	12.25	152.	47.	16.	1.26
+	ROUTED TO 52C14R	1062.	12.25	152.	47.	16.	1.26
+	HYDROGRAPH AT 51B2DV	430.	12.33	62.	19.	6.	0.00
+	DIVERSION TO 51B3DV	361.	12.33	52.	16.	5.	0.00
+	HYDROGRAPH AT 51B3D	69.	12.33	10.	3.	1.	0.00
+	ROUTED TO 51B3R	67.	12.33	10.	3.	1.	0.00
+	HYDROGRAPH AT 52B1	6.	12.08	1.	0.	0.	0.00
+	2 COMBINED AT 52B1C	69.	12.33	10.	3.	1.	0.00
+	ROUTED TO 52B1R	69.	12.42	10.	3.	1.	0.00
+	HYDROGRAPH AT 51B3DV	361.	12.33	52.	16.	5.	0.00
+	DIVERSION TO 51B4DV	296.	12.33	42.	13.	4.	0.00
+	HYDROGRAPH AT 51B4D	65.	12.33	9.	3.	1.	0.00
+	ROUTED TO 51B4R1	64.	12.42	9.	3.	1.	0.00
+	2 COMBINED AT 52B2C1	132.	12.42	20.	6.	2.	0.00
+	ROUTED TO 52B2R1	131.	12.42	20.	6.	2.	0.00
+	HYDROGRAPH AT 52B2	58.	12.17	5.	2.	1.	0.03
+	2 COMBINED AT 52B2C2	153.	12.42	25.	8.	3.	0.04
+	ROUTED TO 52B2R2	152.	12.42	25.	8.	3.	0.04
+	ROUTED TO 52B3R1	151.	12.42	25.	8.	3.	0.04
	HYDROGRAPH AT						

+	52B3	117.	12.17	12.	4.	1.	0.06
+ 2 COMBINED AT	52B3C2	225.	12.25	37.	11.	4.	0.10
+ ROUTED TO	52B3R2	221.	12.33	36.	11.	4.	0.10
+ HYDROGRAPH AT	52B4	71.	12.17	6.	2.	1.	0.03
+ 2 COMBINED AT	52B4C	253.	12.25	43.	13.	4.	0.12
+ ROUTED TO	52B4R	250.	12.33	43.	13.	4.	0.12
+ HYDROGRAPH AT	52B5	54.	12.17	5.	2.	1.	0.02
+ 2 COMBINED AT	52B5C1	278.	12.25	47.	15.	5.	0.14
+ 2 COMBINED AT	52B5C2	1340.	12.25	199.	62.	21.	1.40
+ ROUTED TO	52B5R	1314.	12.25	199.	62.	21.	1.40
+ HYDROGRAPH AT	51B4DV	296.	12.33	42.	13.	4.	0.00
+ DIVERSION TO	51B5DV	201.	12.33	29.	9.	3.	0.00
+ HYDROGRAPH AT	51B5D	95.	12.33	14.	4.	1.	0.00
+ ROUTED TO	51B5R	93.	12.42	14.	4.	1.	0.00
+ HYDROGRAPH AT	51B5DV	201.	12.33	29.	9.	3.	0.00
+ DIVERSION TO	51B6DV	107.	12.33	15.	5.	2.	0.00
+ HYDROGRAPH AT	51B6D	95.	12.33	14.	4.	1.	0.00
+ ROUTED TO	51B6R	92.	12.42	14.	4.	1.	0.00
+ HYDROGRAPH AT	51B6DV	107.	12.33	15.	5.	2.	0.00
+ DIVERSION TO	51B7DV	62.	12.33	9.	3.	1.	0.00
+ HYDROGRAPH AT	51B7D	45.	12.33	6.	2.	1.	0.00
+ ROUTED TO	51B7R1	44.	12.33	6.	2.	1.	0.00
+ 3 COMBINED AT	51B7C	228.	12.42	34.	10.	3.	0.00
+ ROUTED TO	51B7R2	226.	12.42	33.	10.	3.	0.00
+ HYDROGRAPH AT	52B6	166.	12.17	15.	5.	2.	0.10
+ 2 COMBINED AT	52B6C	292.	12.42	49.	15.	5.	0.10
+ ROUTED TO	52B6R	291.	12.42	49.	15.	5.	0.10
+ HYDROGRAPH AT	52B7	244.	12.17	22.	7.	2.	0.08
+ 2 COMBINED AT	52B7C1	373.	12.25	69.	21.	7.	0.18
+ 2 COMBINED AT	52B7C2	1687.	12.25	269.	83.	28.	1.58
+ HYDROGRAPH AT	52A2	206.	12.17	19.	6.	2.	0.06
+ 2 COMBINED AT	52A2C2	1825.	12.25	287.	89.	30.	1.64

	HYDROGRAPH AT								
+		51B7DV	62.	12.33	9.	3.	1.	0.00	
	ROUTED TO								
+		51B8R	60.	12.50	9.	3.	1.	0.00	
	HYDROGRAPH AT								
+		52A1	282.	12.17	25.	8.	3.	0.13	
	2 COMBINED AT								
+		52A1C	289.	12.17	33.	10.	3.	0.13	
	HYDROGRAPH AT								
+		D51.1	251.	16.42	250.	237.	100.	0.00	
	2 COMBINED AT								
+		C52A	378.	12.17	270.	244.	103.	0.13	
	2 COMBINED AT								
+		C52	2164.	12.25	549.	324.	133.	1.77	
	ROUTED TO								
+		R52	2164.	12.33	549.	324.	133.	1.77	
	DIVERSION TO								
+		B52T	2164.	0.08	549.	324.	133.	1.77	
	HYDROGRAPH AT								
+		D52T	0.	0.08	0.	0.	0.	1.77	
	2 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	7.92	
	HYDROGRAPH AT								
+		37A	1020.	12.25	116.	36.	12.	0.68	
	DIVERSION TO								
+		37AW	714.	12.25	82.	25.	8.	0.68	
	HYDROGRAPH AT								
+		37AE	306.	12.25	35.	11.	4.	0.68	
	ROUTED TO								
+		37AE1	302.	12.25	35.	11.	4.	0.68	
+									2.41 12.25
	HYDROGRAPH AT								
+		SUB5N	59.	12.17	5.	2.	1.	0.03	
	2 COMBINED AT								
+		CP5N	347.	12.25	40.	12.	4.	0.71	
	ROUTED TO								
+		RET5N	310.	12.33	38.	12.	4.	0.71	
+									1807.25 12.33
	ROUTED TO								
+		R6N.1	258.	12.42	38.	12.	4.	0.71	
+									2.26 12.42
	HYDROGRAPH AT								
+		SUB6B	63.	12.17	6.	2.	1.	0.03	
	ROUTED TO								
+		SR6B	45.	12.25	6.	2.	1.	0.03	
+									1774.32 12.25
	2 COMBINED AT								
+		CP6.1	288.	12.42	44.	14.	5.	0.74	
	HYDROGRAPH AT								
+		SUB1N	39.	12.17	3.	1.	0.	0.02	
	ROUTED TO								
+		R2NA	39.	12.17	3.	1.	0.	0.02	
+									0.91 12.17
	HYDROGRAPH AT								
+		SUB2NA	29.	12.17	3.	1.	0.	0.01	
	2 COMBINED AT								
+		CP2NA	68.	12.17	6.	2.	1.	0.03	
	ROUTED TO								
+		SR2NA	62.	12.25	5.	1.	0.	0.03	
+									1775.39 12.25
	ROUTED TO								
+		R2NB	52.	12.33	5.	1.	0.	0.03	
+									1.24 12.33
	HYDROGRAPH AT								
+		SUB2NB	77.	12.17	7.	2.	1.	0.03	
	2 COMBINED AT								

```
+                    CP2NB      94.  12.25      12.      4.      1.    0.06
         ROUTED TO
+                    SR2NB      17.  12.83      11.      4.      1.    0.06
+                                                                          1803.92    12.83
         ROUTED TO
+                    RCP4N      17.  12.92      11.      4.      1.    0.06
+                                                                             0.63    12.92
         HYDROGRAPH AT
+                    SUB6N      96.  12.17       9.      2.      1.    0.05
         ROUTED TO
+                    RET6N       0.   0.08       0.      0.      0.    0.05
+                                                                          1785.04    82.42
         ROUTED TO
+                   RCP4N1       0.   0.08       0.      0.      0.    0.05
         2 COMBINED AT
+                   CP4N.1      17.  12.92      11.      4.      1.    0.11
         HYDROGRAPH AT
+                    SUB3N      57.  12.17       5.      1.      0.    0.03
         ROUTED TO
+                    RET3N       4.  13.08       3.      1.      0.    0.03
+                                                                          1794.81    13.08
         ROUTED TO
+                      R4N       4.  13.17       3.      1.      0.    0.03
+                                                                             0.27    13.17
         2 COMBINED AT
+                   CP4N.2      20.  12.92      14.      5.      2.    0.14
         HYDROGRAPH AT
+                    SUB4N      66.  12.17       6.      2.      1.    0.03
         2 COMBINED AT
+                     CP4N      74.  12.17      20.      6.      2.    0.17
         ROUTED TO
+                      R6N      71.  12.17      20.      6.      2.    0.17
+                                                                             1.38    12.17
         HYDROGRAPH AT
+                    SUB6A      48.  12.08       4.      1.      0.    0.01
         2 COMBINED AT
+                    CP6.2     104.  12.17      23.      8.      3.    0.18
         2 COMBINED AT
+                     CP6N     337.  12.42      67.     21.      7.    0.92
         ROUTED TO
+                    RCP6N     335.  12.42      67.     21.      7.    0.92
+                                                                             1.89    12.42
         HYDROGRAPH AT
+                    SUB3C      42.  12.08       3.      1.      0.    0.01
         2 COMBINED AT
+                     CP3C     341.  12.42      69.     22.      7.    0.93
         ROUTED TO
+                      R3C     324.  12.50      69.     22.      7.    0.93
+                                                                          1670.91    12.50
         HYDROGRAPH AT
+                   GC1018      87.  12.17       8.      2.      1.    0.04
         HYDROGRAPH AT
+                    GC1-9      50.  12.17       5.      1.      0.    0.03
         HYDROGRAPH AT
+                    SUB3S      27.  12.17       2.      1.      0.    0.01
         4 COMBINED AT
+                     CP3S     372.  12.50      84.     26.      9.    1.01
         ROUTED TO
+                     RT3S     372.  12.50      84.     26.      9.    1.01
+                                                                          1743.92    12.50
         HYDROGRAPH AT
+                    SUB4S      71.  12.17       6.      2.      1.    0.03
         ROUTED TO
+                     RT4S      69.  12.17       6.      2.      1.    0.03
+                                                                          1743.30    12.17
         HYDROGRAPH AT
+                    GC2-8      28.  12.17       2.      1.      0.    0.01
```

+	3 COMBINED AT	1PGC28	400.	12.50	92.	29.	10.	1.05		
+	HYDROGRAPH AT	SUB3D3	30.	12.17	2.	1.	0.	0.01		
+	2 COMBINED AT	CPGC28	407.	12.50	95.	30.	10.	1.07		
+	ROUTED TO	SRGC28	401.	12.50	94.	30.	10.	1.07		
+									1712.24	12.50
+	ROUTED TO	RT7S	396.	12.58	94.	30.	10.	1.07		
+									1744.10	12.58
+	HYDROGRAPH AT	GC7	26.	12.17	2.	1.	0.	0.01		
+	2 COMBINED AT	CP7S	402.	12.58	96.	31.	10.	1.08		
+	DIVERSION TO	B7ST	402.	0.08	96.	31.	10.	1.08		
+	HYDROGRAPH AT	D7ST	0.	0.08	0.	0.	0.	1.08		
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	9.00		
+	HYDROGRAPH AT	SUB3D1	22.	12.08	2.	1.	0.	0.01		
+	ROUTED TO	RD1B1	18.	12.17	2.	1.	0.	0.01		
+									1.67	12.17
+	HYDROGRAPH AT	SUB3B1	38.	12.08	3.	1.	0.	0.01		
+	2 COMBINED AT	CP3B1	51.	12.08	5.	1.	0.	0.02		
+	ROUTED TO	RB13F	41.	12.25	5.	1.	0.	0.02		
+									1.74	12.25
+	HYDROGRAPH AT	SUB3F	107.	12.08	9.	3.	1.	0.03		
+	2 COMBINED AT	CP3F	133.	12.08	14.	4.	1.	0.06		
+	HYDROGRAPH AT	SUB3B2	56.	12.17	5.	2.	1.	0.02		
+	ROUTED TO	RB2E1	54.	12.17	5.	2.	1.	0.02		
+									1.80	12.17
+	ROUTED TO	RB2E2	51.	12.25	5.	2.	1.	0.02		
+									1.84	12.25
+	HYDROGRAPH AT	SUB3E1	56.	12.17	5.	2.	1.	0.02		
+	2 COMBINED AT	1CPE31	104.	12.17	10.	3.	1.	0.05		
+	HYDROGRAPH AT	SUB3D2	48.	12.17	4.	1.	0.	0.02		
+	ROUTED TO	RD2E2	47.	12.17	4.	1.	0.	0.02		
+									1.73	12.17
+	HYDROGRAPH AT	SUB3E2	30.	12.08	2.	1.	0.	0.01		
+	2 COMBINED AT	CP3E2	71.	12.17	7.	2.	1.	0.03		
+	HYDROGRAPH AT	PC3	53.	12.33	7.	2.	1.	0.04		
+	4 COMBINED AT	CPC3	343.	12.17	38.	12.	4.	0.18		
+	DIVERSION TO	BPC3T	343.	0.08	38.	12.	4.	0.18		

	HYDROGRAPH AT								
+		DPC3T	0.	0.08	0.	0.	0.	0.18	
	HYDROGRAPH AT								
+		SUB3E3	49.	12.08	4.	1.	0.	0.02	
	HYDROGRAPH AT								
+		PC4	25.	12.25	3.	1.	0.	0.02	
	HYDROGRAPH AT								
+		D7S	402.	12.58	96.	31.	10.	0.00	
	3 COMBINED AT								
+		CPC4	426.	12.33	103.	33.	11.	0.04	
	DIVERSION TO								
+		BPC4T	426.	0.08	103.	33.	11.	0.04	
	HYDROGRAPH AT								
+		DPC4T	0.	0.08	0.	0.	0.	0.04	
	3 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	9.22	
	HYDROGRAPH AT								
+		37AW	714.	12.25	82.	25.	8.	0.00	
	ROUTED TO								
+		R14R	584.	12.33	81.	25.	8.	0.00	
+									3.11 12.33
	ROUTED TO								
+		RET141	562.	12.42	75.	25.	8.	0.00	
+									1794.20 12.42
	ROUTED TO								
+		R14.1	498.	12.50	75.	25.	8.	0.00	
+									2.90 12.50
	HYDROGRAPH AT								
+		SUB13N	69.	12.17	7.	2.	1.	0.04	
	ROUTED TO								
+		R14.1	67.	12.25	7.	2.	1.	0.04	
+									1.53 12.25
	HYDROGRAPH AT								
+		SUB14N	78.	12.25	9.	2.	1.	0.05	
	3 COMBINED AT								
+		CP14	561.	12.50	90.	29.	10.	0.09	
	ROUTED TO								
+		RET14	523.	12.58	84.	29.	10.	0.09	
+									1755.21 12.58
	ROUTED TO								
+		R18.1	521.	12.58	84.	29.	10.	0.09	
+									2.41 12.58
	HYDROGRAPH AT								
+		SUB20N	40.	12.17	4.	1.	0.	0.02	
	ROUTED TO								
+		R19	40.	12.25	4.	1.	0.	0.02	
+									1.09 12.25
	HYDROGRAPH AT								
+		SUB19N	78.	12.17	7.	2.	1.	0.04	
	2 COMBINED AT								
+		CP19N	112.	12.17	12.	4.	1.	0.06	
	ROUTED TO								
+		R18NC	112.	12.25	12.	4.	1.	0.06	
+									1.55 12.25
	HYDROGRAPH AT								
+		UB18NC	51.	12.17	4.	1.	0.	0.02	
	3 COMBINED AT								
+		CP18NC	569.	12.58	100.	34.	12.	0.17	
	ROUTED TO								
+		RPC1	578.	12.58	100.	34.	12.	0.17	
+									2.05 12.58
	HYDROGRAPH AT								
+		UB18NA	53.	12.17	5.	1.	0.	0.02	
	ROUTED TO								
+		1RPC1	27.	12.33	5.	1.	0.	0.02	
+									0.36 12.33
	HYDROGRAPH AT								

```
+                    UB18NB      23.  12.17       2.       1.       0.    0.01
        ROUTED TO
+                    2RPC1       13.  12.25       2.       1.       0.    0.01
+                                                                              0.18      12.25
        HYDROGRAPH AT
+                      PC1       61.  12.42      10.       3.       1.    0.06
        3 COMBINED AT
+                    1CPC1       98.  12.42      17.       5.       2.    0.09
        ROUTED TO
+                    SRPC1       99.  12.42      17.       5.       2.    0.09
+                                                                           1748.28      12.42
        2 COMBINED AT
+                     CPC1      656.  12.58     116.      39.      13.    0.26
        ROUTED TO
+                   R16NA1      663.  12.58     116.      39.      13.    0.26
+                                                                              1.94      12.58
        HYDROGRAPH AT
+                   UB16NA       34.  12.17       3.       1.       0.    0.01
        ROUTED TO
+                   R16NA1       30.  12.17       3.       1.       0.    0.01
+                                                                              0.68      12.17
        2 COMBINED AT
+                   C16NA1      671.  12.58     119.      40.      13.    0.28
        ROUTED TO
+                   R16NB1      659.  12.58     119.      40.      13.    0.28
+                                                                              1.94      12.58
        HYDROGRAPH AT
+                   UB16NB       38.  12.17       3.       1.       0.    0.02
        ROUTED TO
+                   R16NB1       34.  12.17       3.       1.       0.    0.02
+                                                                              0.72      12.17
        2 COMBINED AT
+                   C16NB1      668.  12.58     122.      41.      14.    0.29
        ROUTED TO
+                   R16NC1      671.  12.67     122.      41.      14.    0.29
+                                                                              2.51      12.67
        HYDROGRAPH AT
+                    SUB7N       62.  12.17       5.       2.       1.    0.03
        ROUTED TO
+                     R8NC       54.  12.25       5.       2.       1.    0.03
+                                                                              1.37      12.25
        HYDROGRAPH AT
+                   SUB8NA       11.  12.08       1.       0.       0.    0.00
        ROUTED TO
+                    SR8NA        1.  13.00       0.       0.       0.    0.00
+                                                                           1793.19      13.08
        ROUTED TO
+                     R8NB        1.  13.00       0.       0.       0.    0.00
+                                                                              0.01      13.17
        HYDROGRAPH AT
+                   SUB8NB       29.  12.08       3.       1.       0.    0.01
        2 COMBINED AT
+                    CP8NB       29.  12.08       3.       1.       0.    0.02
        ROUTED TO
+                    SR8NB        2.  11.92       2.       1.       0.    0.02
+                                                                           1787.24      13.33
        ROUTED TO
+                     R8NC        2.  12.00       2.       1.       0.    0.02
+                                                                              0.02      12.00
        HYDROGRAPH AT
+                   SUB8NC       42.  12.08       3.       1.       0.    0.02
        3 COMBINED AT
+                    CP8NC       90.  12.17      11.       3.       1.    0.07
        ROUTED TO
+                    SR8NC       14.  12.83      11.       3.       1.    0.07
+                                                                           1779.89      12.83
        ROUTED TO
+                      R9N       14.  12.83      10.       3.       1.    0.07
```

```
+                                                                                                  0.46       12.83
          HYDROGRAPH AT
+                         SUB9N     119.  12.17        11.        3.        1.      0.05
          2 COMBINED AT
+                         CP9N      129.  12.17        21.        7.        2.      0.12
          ROUTED TO
+                         R10B      126.  12.17        21.        7.        2.      0.12
+                                                                                                  1.59       12.17
          HYDROGRAPH AT
+                         SUB10B     69.  12.08         6.        2.        1.      0.03
          2 COMBINED AT
+                         CP10B     191.  12.17        27.        9.        3.      0.15
          ROUTED TO
+                         R11NA     193.  12.17        27.        9.        3.      0.15
+                                                                                                  1.64       12.17
          HYDROGRAPH AT
+                         UB11NA     18.  12.08         1.        0.        0.      0.01
          2 COMBINED AT
+                         CP11NA    207.  12.17        28.        9.        3.      0.16
          ROUTED TO
+                         SR11NA    131.  12.33        28.        9.        3.      0.16
+                                                                                                1743.49      12.33
          ROUTED TO
+                         R11NB     117.  12.33        28.        9.        3.      0.16
+                                                                                                  0.67       12.33
          HYDROGRAPH AT
+                         UB11NB     19.  12.08         1.        0.        0.      0.01
          2 COMBINED AT
+                         CP11NB    123.  12.33        29.        9.        3.      0.17
          ROUTED TO
+                         SR11NB     72.  12.58        28.        9.        3.      0.17
+                                                                                                1737.54      12.58
          ROUTED TO
+                         R11NC      73.  12.50        28.        9.        3.      0.17
+                                                                                                  0.50       12.50
          HYDROGRAPH AT
+                         UB11NC     16.  12.08         1.        0.        0.      0.01
          2 COMBINED AT
+                         C11NC1     76.  12.50        29.       10.        3.      0.17
          HYDROGRAPH AT
+                         SUB10A     72.  12.17         6.        2.        1.      0.03
          ROUTED TO
+                         R12NB      77.  12.17         6.        2.        1.      0.03
+                                                                                                  0.73       12.17
          HYDROGRAPH AT
+                         UB12NA     31.  12.17         3.        1.        0.      0.02
          ROUTED TO
+                         SR12NA      1.  16.33         1.        0.        0.      0.02
+                                                                                                1743.10      16.92
          ROUTED TO
+                         R12NA       1.  16.50         1.        0.        0.      0.02
+                                                                                                  0.01       16.92
          HYDROGRAPH AT
+                         UB12NB     31.  12.17         3.        1.        0.      0.02
          3 COMBINED AT
+                         CP12NB    108.  12.17        10.        3.        1.      0.06
          ROUTED TO
+                         SR12NB      2.  12.08         2.        2.        1.      0.06
+                                                                                                1745.95      17.42
          ROUTED TO
+                         R11NC2      2.  12.42         2.        2.        1.      0.06
+                                                                                                  0.07       12.92
          2 COMBINED AT
+                         CP11NC     78.  12.50        31.       11.        4.      0.23
          ROUTED TO
+                         SR11NC     63.  12.75        30.       11.        4.      0.23
+                                                                                                1735.43      12.75
```

+	ROUTED TO	R16NC	63.	12.83	30.	11.	4.	0.23	
+									1.30 12.83
+	HYDROGRAPH AT	UB16NC	83.	12.17	7.	2.	1.	0.03	
+	2 COMBINED AT	CP16NC	90.	12.17	36.	13.	5.	0.27	
+	ROUTED TO	R16NC1	88.	12.17	36.	13.	5.	0.27	
+									1.11 12.17
+	2 COMBINED AT	C16NC1	720.	12.67	158.	54.	19.	0.56	
+	ROUTED TO	R15N1	724.	12.67	158.	54.	19.	0.56	
+									2.59 12.67
+	HYDROGRAPH AT	PC2	82.	12.25	9.	3.	1.	0.05	
+	2 COMBINED AT	CP15N1	746.	12.67	166.	57.	20.	0.61	
+	ROUTED TO	SRPC2	722.	12.75	166.	57.	20.	0.61	
+									1734.57 12.75
+	HYDROGRAPH AT	UB17NA	23.	12.08	2.	0.	0.	0.01	
+	ROUTED TO	SR17NA	2.	12.83	1.	0.	0.	0.01	
+									1759.04 12.83
+	ROUTED TO	R17NB	2.	12.83	1.	0.	0.	0.01	
+									1756.02 12.83
+	HYDROGRAPH AT	UB17NB	23.	12.17	2.	1.	0.	0.01	
+	2 COMBINED AT	CP17NB	24.	12.17	3.	1.	0.	0.02	
+	ROUTED TO	SR17NB	1.	11.83	1.	1.	0.	0.02	
+									1756.24 22.75
+	ROUTED TO	R17A	1.	11.83	1.	1.	0.	0.02	
+									1752.09 11.83
+	HYDROGRAPH AT	SUB17A	24.	12.08	2.	0.	0.	0.01	
+	2 COMBINED AT	CP17A1	25.	12.08	3.	1.	1.	0.03	
+	HYDROGRAPH AT	UB17NC	15.	12.08	1.	0.	0.	0.01	
+	2 COMBINED AT	CP17A	40.	12.08	4.	2.	1.	0.03	
+	ROUTED TO	R15N	28.	12.17	4.	2.	1.	0.03	
+									0.84 12.17
+	HYDROGRAPH AT	SUB15N	114.	12.17	10.	3.	1.	0.04	
+	2 COMBINED AT	CP15N	142.	12.17	13.	5.	2.	0.07	
+	ROUTED TO	R15N2	143.	12.17	13.	5.	2.	0.07	
+									1.76 12.17
+	2 COMBINED AT	CP15N2	741.	12.75	179.	62.	21.	0.69	
+	ROUTED TO	R15N2	709.	12.83	178.	62.	21.	0.69	
+									2.26 12.83
+	HYDROGRAPH AT	DPC3	343.	12.17	38.	12.	4.	0.00	
+	2 COMBINED AT	CPC3A	754.	12.83	214.	73.	25.	0.69	

	ROUTED TO								
+		RPC3A	758.	12.83	214.	73.	25.	0.69	
+									2.33 12.83
	HYDROGRAPH AT								
+		DPC4	426.	12.33	103.	33.	11.	0.00	
	2 COMBINED AT								
+		CPC4A	1070.	12.75	317.	105.	36.	0.69	
	ROUTED TO								
+		RPC4A	1062.	12.83	317.	105.	36.	0.69	
+									2.71 12.83
	DIVERSION TO								
+		BPC4AT	1062.	0.08	317.	105.	36.	0.69	
	HYDROGRAPH AT								
+		DPC4AT	0.	0.08	0.	0.	0.	0.69	
	HYDROGRAPH AT								
+		SUB1-2	143.	12.17	14.	5.	2.	0.06	
	HYDROGRAPH AT								
+		GCRB18	23.	12.17	2.	1.	0.	0.01	
	2 COMBINED AT								
+		CPRET1	166.	12.17	16.	5.	2.	0.07	
	ROUTED TO								
+		SR18S	0.	0.08	0.	0.	0.	0.07	
+									1738.46 71.83
	HYDROGRAPH AT								
+		SUB5S	59.	12.17	5.	2.	1.	0.03	
	HYDROGRAPH AT								
+		GC1216	71.	12.17	6.	2.	1.	0.04	
	HYDROGRAPH AT								
+		GC1415	88.	12.17	8.	2.	1.	0.05	
	HYDROGRAPH AT								
+		SUB6S	44.	12.17	4.	1.	0.	0.02	
	HYDROGRAPH AT								
+		SUB7S	64.	12.17	6.	2.	1.	0.03	
	5 COMBINED AT								
+		CPRET2	327.	12.17	30.	9.	3.	0.16	
	ROUTED TO								
+		SRRET2	0.	0.08	0.	0.	0.	0.16	
+									1688.82 74.92
	2 COMBINED AT								
+		CLEAR	0.	0.08	0.	0.	0.	0.22	
	HYDROGRAPH AT								
+		SUB8S	62.	12.17	5.	2.	1.	0.03	
	ROUTED TO								
+		RGC36	54.	12.25	5.	2.	1.	0.03	
+									1.04 12.25
	HYDROGRAPH AT								
+		GC36	71.	12.17	7.	2.	1.	0.04	
	2 COMBINED AT								
+		C1GC36	123.	12.17	13.	4.	1.	0.07	
	HYDROGRAPH AT								
+		SUB9S	55.	12.17	5.	2.	1.	0.02	
	ROUTED TO								
+		R9S	56.	12.17	5.	2.	1.	0.02	
+									3.35 12.17
	2 COMBINED AT								
+		CPGC36	179.	12.17	17.	5.	2.	0.09	
	ROUTED TO								
+		SRGC36	201.	12.17	17.	5.	2.	0.09	
+									1668.98 12.17
	HYDROGRAPH AT								
+		SUB7A	22.	12.17	2.	1.	0.	0.01	
	ROUTED TO								
+		SR7A	7.	12.42	2.	1.	0.	0.01	
+									1701.96 12.42
	ROUTED TO								
+		R10S	6.	12.58	2.	1.	0.	0.01	
+									2.55 12.58

+	HYDROGRAPH AT	SUB10S	64.	12.17	6.	2.	1.	0.02	
+	2 COMBINED AT	CP10S	66.	12.17	8.	2.	1.	0.03	
+	HYDROGRAPH AT	SUB11S	89.	12.08	6.	2.	1.	0.02	
+	ROUTED TO	R11S	70.	12.17	6.	2.	1.	0.02	
+									3.57 12.17
+	2 COMBINED AT	C10SA	136.	12.17	14.	4.	1.	0.06	
+	ROUTED TO	R10SA	137.	12.17	14.	4.	1.	0.06	
+									4.07 12.17
+	HYDROGRAPH AT	GC45	36.	12.08	2.	1.	0.	0.01	
+	2 COMBINED AT	CGC45	157.	12.17	16.	5.	2.	0.07	
+	HYDROGRAPH AT	PC5	41.	12.33	5.	2.	1.	0.04	
+	HYDROGRAPH AT	DPC4A	1062.	12.83	317.	105.	36.	0.00	
+	5 COMBINED AT	CPC5	1172.	12.33	355.	117.	40.	0.42	
+	ROUTED TO	RC5	1152.	12.42	355.	117.	40.	0.42	
+									2.82 12.42
+	HYDROGRAPH AT	SCN5D	61.	12.25	6.	2.	1.	0.05	
+	2 COMBINED AT	CN5D	1188.	12.42	361.	119.	41.	0.47	
+	HYDROGRAPH AT	D52	2164.	12.33	549.	324.	133.	0.00	
+	HYDROGRAPH AT	S53A	221.	12.25	26.	8.	3.	0.18	
+	2 COMBINED AT	C53	2374.	12.33	575.	332.	136.	0.18	
+	HYDROGRAPH AT	S53A1	426.	12.33	53.	16.	5.	0.34	
+	2 COMBINED AT	C53A	2800.	12.33	628.	347.	141.	0.52	
+	HYDROGRAPH AT	SCN6B	123.	12.17	12.	4.	1.	0.05	
+	HYDROGRAPH AT	SCN6D	59.	12.17	5.	1.	0.	0.04	
+	3 COMBINED AT	CP6D	2902.	12.33	645.	352.	143.	0.61	
+	HYDROGRAPH AT	SCN6C	284.	12.17	28.	9.	3.	0.14	
+	2 COMBINED AT	CP6C	3077.	12.33	671.	359.	146.	0.74	
+	2 COMBINED AT	CP5D	4227.	12.33	1032.	474.	187.	1.21	
+	HYDROGRAPH AT	SCN5C	232.	12.25	25.	7.	2.	0.19	
+	HYDROGRAPH AT	SCN6E	34.	12.50	6.	2.	1.	0.04	
+	3 COMBINED AT	EAST-I	4444.	12.33	1063.	483.	190.	1.45	
+	ROUTED TO	EAST-O	1957.	13.00	1053.	483.	190.	1.45	
+									1611.43 13.00
1									

APPENDIX J

EAST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
100-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(E-5)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  02/22/99  TIME  11:23:10 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

  1           ID    PIMA ROAD THREE BASINS                                  File: FU100-24.IH1
  2           ID    by  Stantec for the City of Scottsdale             Original: 08-07-97     mcg
  3           ID        Project:  28900082                              Revised: 01-20-99     mcg
  4           ID
  5           ID
  6           ID    100-YEAR, 24-HOUR
  7           ID        ULTIMATE CONDITION:
  8           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
  9           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
 10           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
 11           ID           DETERMINED BY OTHERS.
 12           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
 13           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
 14           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
 15           ID
              *DIAGRAM
 16           IT       5                    1000
 17           IO       5
              *

 18           KK    S30N
 19           KM     RUNOFF FROM SUBBASIN 30N
 20           BA  0.6518
 21           PH              11     0.84    1.53    2.46    2.75    2.94    3.31    3.74    4.17
 22           LS              82       13              82      13
 23           UK     300   0.350     0.13      20
 24           UK     300   0.050     0.13      80
 25           RK    1550   0.069    0.045  0.0096    TRAP       0      12
 26           RK   10520   0.038    0.040            TRAP      15      15
              *

 27           KK    R30N
 28           KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
 29           RS       1    FLOW      -1
 30           RC   0.022   0.022    0.022    2470    0.01
 31           RX    1000    1012     1020    1028    1036    1044    1052    1064
 32           RY     107     104      102     100     100     102     104     107
              *

 33           KK   S31.1
 34           KM     RUNOFF FROM SUBBASIN 31.1
 35           BA  0.2663
 36           LS            76.6      13            76.6      13
 37           UK     300   0.567     0.13      10
 38           UK     300   0.050     0.13      90
 39           RK    1950   0.056    0.045  0.0147    TRAP       0      10
 40           RK    7600   0.035    0.040            TRAP      22       8
              *

 41           KK   C31.1
 42           KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
 43           HC       2
              *
              *  R31.1
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
              *      1    FLOW      -1
```

```
                 *  0.022   0.022   0.022    1500    0.01
                 *   1000    1012    1020    1028    1048    1056    1064    1076
                 *    107     104     102     100     100     102     104     107
                 *
1                                          HEC-1 INPUT                                                    PAGE  2

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

  44             KK   S34.2
  45             KM     RUNOFF FROM SUBBASIN 34.2
  46             KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  47             BA  0.4441
  48             LS            77.3      12            77.3      12
  49             UK     50    0.10    0.13      10
  50             UK    300   0.040    0.13      90
  51             RK   2200  0.0452   0.045  0.0538    TRAP       0      10
  52             RK   8150  0.0386   0.045            TRAP       0      10
                 *

  53             KK   C34.2
  54             KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
  55             HC       2
                 *

  56             KK    S35N
  57             KM     RUNOFF FROM SUBBASIN 35N
  58             BA  0.5482
  59             LS              82      13              82      13
  60             UK    300   0.491    0.13      15
  61             UK    300   0.113    0.13      85
  62             RK   2700   0.079   0.045  0.0242    TRAP       3       6
  63             RK   5050   0.028   0.040            TRAP      15      15
                 *

  64             KK   D35NR
  65             KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
  66             KM        RIGHT BRANCH IS ROUTED TO C36.2
  67             KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
  68             DT   D35NL
  69             DI       0      10      66     168     343     581     805     977    1168    1320
  70             DQ       0      10      66     168     343     581     805     977    1168    1320
                 *

  71             KK   R35NR
  72             KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
  73             KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  74             RS       1    FLOW      -1
  75             RC    0.06    0.04    0.06    3500  0.0343
  76             RX    1000    1006    1026    1027    1057    1058    1078    1084
  77             RY     105     103     101     100     100     101     103     105
                 *

  78             KK   S36.2
  79             KM     RUNOFF FROM SUBBASIN 36.2
  80             BA  0.2087
  81             LS            76.6      13            76.6      13
  82             UK    300   0.580    0.13       5
  83             UK    300   0.100    0.13      95
  84             RK   1800   0.036   0.045  0.0145    TRAP      10      10
  85             RK   3520   0.028   0.040            TRAP      20       6
                 *
1                                          HEC-1 INPUT                                                    PAGE  3

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

  86             KK   C36.2
  87             KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
  88             HC       2
                 *

  89             KK  D36.2R
  90             KM     DIVERSION AT DESERT HIGHLANDS DRIVE
  91             KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
  92             KM        LEFT BRANCH (CODED ON DQ RECORD) IS ROUTED TO C36R1
  93             DT  D36.2L
  94             DI       0      36     166     288     360     430     538     681     859    1074
  95             DQ       0      36     166     288     360     430     538     681     859    1074
                 *

  96             KK  R36.2R
  97             KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
  98             KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  99             RS       4    FLOW      -1
 100             RC    0.06    0.04    0.06    7800  0.0321
 101             RX    1000    1043    1053    1068    1093    1098    1133    1218
 102             RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
                 *

 103             KK   S34.1
 104             KM     RUNOFF FROM SUBBASIN 34.1
 105             KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
 106             BA  1.1635
 107             LS            77.3      12            77.3      12
```

```
108          UK     300   0.590    0.13      25
109          UK     300   0.040    0.13      75
110          RK    2570   0.085   0.045  0.0214    TRAP       0      10
111          RK    8800  0.0325   0.040            TRAP      20      10
             *

112          KK   C34.1
113          KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
114          HC       2
             *

115          KK  HVDB-I
116          KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
117          HC       2
             *

118          KK  HVDB-O
119          KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
120          KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
121          KM        EMERGENCY SPILLWAY:  200' x 1.5' RECT. WEIR - CREST ELEV = 2089.5
122          KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
123          RS       1    STOR      -1
124          SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
125          SV   241.0
126          SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
127          SE    2091
1                                          HEC-1 INPUT                                          PAGE  4

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

128          SQ       0      20      30      40      60      70      80      90     100     110
129          SQ     120     130     135     219     378     590     758     945    1046    1151
130          SE  2065.0 2067.13 2067.67 2068.14 2069.04 2071.26 2073.33 2075.68 2078.30 2081.19
131          SE  2084.4 2087.82 2089.50 2089.80 2090.10 2090.40 2090.60 2090.80 2090.90 2091.00
             *

132          KK   R34.1
133          KM     NORMAL DEPTH CHANNEL ROUTE FROM C34.1 TO C36.1 THROUGH PIMA CHANNEL
134          RS       1    FLOW      -1
135          RC   0.022   0.022   0.022    2200    0.01
136          RX    1000    1012    1020    1028    1036    1044    1052    1064
137          RY     107     104     102     100     100     102     104     107
             *

138          KK   S36.1
139          KM     RUNOFF FROM SUBBASIN 36.1
140          BA  0.1394
141          LS            73.4      11
142          UK     300  0.0420   0.130     100
143          RK    2330  0.0320   0.045  0.0134    TRAP      10      30
144          RK    3200  0.0270   0.040            TRAP      20      30
             *

145          KK   C36.1
146          KM     COMBINE ROUTED HYDROGRAPH FROM C34.1 WITH RUNOFF FROM SUBBASIN 36.1
147          HC       2
             *

148          KK   R36.1
149          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.1 TO C36R1 THROUGH PIMA CHANNEL
150          RS       1    FLOW      -1
151          RC   0.022   0.022   0.022    1520    0.01
152          RX    1000    1012    1020    1028    1036    1044    1052    1064
153          RY     107     104     102     100     100     102     104     107
             *

154          KK   B35NL
155          KM     BRING BACK DIVERTED HYDROGRAPH FROM C35N
156          DR   D35NL
             *

157          KK   R35NL
158          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36R1
159          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
160          RS       5    FLOW      -1
161          RC    0.06    0.04    0.06   14480  0.0318
162          RX    1000    1040    1080    1086    1091    1097    1137    1174
163          RY     105     104     103     100     100     103     104     105
             *
1                                          HEC-1 INPUT                                          PAGE  5

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

164          KK  B36.2L
165          KM     BRING BACK DIVERTED HYDROGRAPH FROM C36.2
166          DR  D36.2L
             *

167          KK  R36.2L
168          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C36R1
169          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
170          RS       3    FLOW      -1
171          RC    0.06    0.04    0.06   10160  0.0342
172          RX    1000    1030    1060    1066    1076    1082    1112    1142
```

```
173          RY     103   102.5     102     100     100     102   102.5     103
             *

174          KK  S36R1A
175          KM     RUNOFF FROM SUBBASIN 36R1A
176          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
177          BA  0.6310
178          LS            74.3      10
179          UK     300   0.020   0.130     100
180          RK    1420   0.032   0.045  0.0061    TRAP       0      13
181          RK   10800   0.033   0.040            TRAP      10       9
             *

182          KK  C36R1A
183          KM     COMBINE ROUTED HYDROGRAPH FROM C36.1, D35NL & D36.2L W/RUNOFF FROM S36R1A
184          KM        AREA IS AREA FROM C36.1 + S36R1 + 40% OF AREA FROM S35N + 30% OF AREA
185          KM        FROM C36.2
186          HC       4  4.0530
             *

187          KK  S36R1B
188          KM     RUNOFF FROM SUBBASIN 36R1B
189          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 36.3, 36R1 AND 35R ARE AREA WEIGHT
190          BA  0.5863
191          LS            74.3      10
192          UK     300   0.020   0.130     100
193          RK    1420   0.032   0.045  0.0061    TRAP       0      13
194          RK    8500   0.033   0.040            TRAP      10       9
             *

195          KK  C36R1B
196          KM     COMBINE HYDROGRAPH FROM C36R1A W/RUNOFF FROM S36R1B AT C36R1B
197          HC       2  4.6393
             *
             * R36R1B
             *   ****  TOO SHORT TO ROUTE  ****
             *    NORMAL DEPTH CHANNEL ROUTE FROM C36R1B TO C36R2A THROUGH PIMA CHANNEL
             *      1    FLOW      -1
             *  0.022   0.022   0.022    1900    0.01
             *   1000    1012    1020    1028    1036    1044    1052    1064
             *    107     104     102     100     100     102     104     107
             *
1                                          HEC-1 INPUT                                                    PAGE  6

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

198          KK  S36R2A
199          KM     RUNOFF FROM SUBBASIN 36R2A
200          BA  0.1325
201          LS              72      20
202          UK     100   0.045   0.130     100
203          RK    1900   0.032   0.017   0.015    TRAP      15       7
204          RK     800   0.030   0.035            TRAP      10       5
             *

205          KK  C36R2A
206          KM     COMBINE ROUTED HYDROGRAPH FROM C36R1B W/RUNOFF FROM SUBBASIN 36R2A
207          HC       2
             *

208          KK  R36R2A
209          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36R2A TO C36R2B THROUGH PIMA CHANNEL
210          KM     ****  TOO SHORT TO ROUTE  ****
211          KM       1    FLOW      -1
212          KM   0.022   0.022   0.022    2130    0.01
213          KM    1000    1012    1020    1028    1036    1044    1052    1064
214          KM     107     104     102     100     100     102     104     107
215          KM
216          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR SERIES OF INDIVIDUAL
217          KM     ROUTING REACHES THAT ARE TOO SHORT TO ROUTE.
218          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 5030'
219          RT                        1
             *

220          KK  S36R2B
221          KM     RUNOFF FROM SUBBASIN 36R2A
222          BA  0.2417
223          LS              72      12
224          UK     280   0.045   0.100     100
225          RK    1900   0.032   0.017   0.015    TRAP      15       7
226          RK    7360   0.030   0.040            TRAP      30      10
             *

227          KK  C36R2B
228          KM     COMBINE ROUTED HYDROGRAPH FROM C36R2A W/RUNOFF FROM SUBBASIN 36R2B
229          HC       2
             *

230          KK   S51.1
231          KM     RUNOFF FROM SUBBASIN 51.1
232          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 51.1 AND 49.1 ARE AREA WEIGHTED
233          BA   1.130
234          LS            73.9      12
235          UK     300   0.037   0.130     100
```

```
 236          RK    1800   0.038   0.045  0.0161    TRAP       0      12
 237          RK   14400   0.032   0.040            TRAP      40      15
              *
1                                          HEC-1 INPUT                                                    PAGE  7

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

 238          KK  DVDB-I
 239          KM     COMBINE HYDROGRAPH FROM C36R2 W/RUNOFF FROM SUBBASIN 51.1
 240          HC       2
              *

 241          KK  DVDB-O
 242          KM     DETENTION BASIN AT DEER VALLEY ROAD
 243          KM     PRINCIPAL SPILLWAY:  54" CONDUIT THAT TIES INTO THE PIMA ROAD STORM DRAIN.
 244          KM        EMERGENCY SPILLWAY:  200' x 1.5' RECT. WEIR - CREST ELEV = 1879.5
 245          KM        13 ACRE-FEET OF STORAGE FOR SEDIMENTAION
 246          RS       1    STOR      -1
 247          SV       0     0.2     0.7     1.7     3.5     6.1    38.6    86.9   143.2   209.9
 248          SV   224.1
 249          SE    1855    1856    1857    1858    1859    1860    1865    1870    1875    1880
 250          SE    1881
 251          SQ       0       3      28      81     181     215     231     240     245     250
 252          SQ     253     254     339     563     791     877     968    1065    1165    1270
 253          SE    1855    1856    1858    1860    1864    1868    1872    1874    1876    1878
 254          SE    1879  1879.5  1879.8  1880.2  1880.5  1880.6  1880.7  1880.8  1880.9    1881
              *
              *  R51.1
              *     DEER VALLEY BASIN OUTLET CONDUIT TO THOMPSON PEAK PARKWAY
              *     COMBINE WITH RUNOFF FROM DC RANCH
              *       L = 2820 feet
              *

 255          KK  D51.1T
 256          KM     DIVERT 100% OF FLOW TO RETRIEVE AT THOMPSON PEAK PARKWAY
 257          DT  B51.1T
 258          DI       0   10000
 259          DQ       0   10000
              *
              *
              *     ******************  BEGIN DC RANCH WATERSHED  *******************
              *
              *       THE DC RANCH HEC-1 MODEL WAS DEVELOPED BY WOOD/PATEL ASSOCIATES
              *           WOOD/PATEL FILE NAME:  DC0721C.DAT
              *           MODEL DATE:            4 JANUARY 96
              *

 260          KK    52D4
 261          KM   RUNOFF FROM SUBBASIN 52D4
 262          BA    .070
 263          LS              75    14.5
 264          UK     120    .010     .15     100
 265          RK    3100    .035    .045            TRAP      30      10
              *

 266          KK   52D4R
 267          KM   ROUTE 52D4C THROUGH 52D5 TO CP 52D5C
 268          RK    1350    .033    .045            TRAP      10      10
              *
1                                          HEC-1 INPUT                                                    PAGE  8

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

 269          KK   52D4B
 270          KM   RUNOFF FROM SUBBASIN 52D4B
 271          BA    .022
 272          LS              75      63
 273          UK     120    .010     .15     100
 274          RK    2200    .033    .045            TRAP      30      10
              *

 275          KK  52D5C1
 276          KM   COMBINE 52D4R AND 52D4B
 277          HC       2
              *

 278          KK   52D5A
 279          KM   RUNOFF FROM 52D5A
 280          BA   .0232
 281          LS              75      63
 282          UK     120    .010     .15     100
 283          RK    1300    .032    .045            TRAP      30      10
              *

 284          KK  52D5AR
 285          KM   ROUTE 52D5A THROUGH BEARDSLEY CHANNEL TO CP 52D5C2
 286          RK     400   .0143    .035            TRAP      50       4
              *

 287          KK  52D5C2
 288          KM   COMBINE 25D5C1 AND 52D5AR
 289          HC       2
              *
```

```
 290          KK   52D5R
 291          KM   ROUTE 52D5C IN BEARDSLEY CHANNEL TO CP 52C3BC2
 292          RK     240   .0143    .035            TRAP      50       4
              *

 293          KK    52C3
 294          KM   RUNOFF FROM SUBBASIN 52C3
 295          BA    .006
 296          LS              75      65
 297          UK     100     .02     .10     100
 298          RK     800    .033    .045            TRAP      30      10
              *

 299          KK   52C3R
 300          KM   ROUTE 52C3 THROUGH SUBBASIN 52C4 TO CP 52C4C1
 301          RK    1350    .034    .045            TRAP      10      10
              *
1                                          HEC-1 INPUT                                                    PAGE  9

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

 302          KK   52C3B
 303          KM   RUNOFF FROM SUBBASIN 52C3B
 304          BA    .016
 305          LS              75      60
 306          UK     100     .02     .10     100
 307          RK    1400    .034    .045            TRAP      30      10
              *

 308          KK  2C3BC1
 309          KM   COMBINE 52C3B AND 52C3R
 310          HC       2
              *

 311          KK  2C3BC2
 312          KM   COMBINE 52C3BC1 AND 52C5R
 313          HC       2
              *

 314          KK  52C3BR
 315          KM   ROUTE 52C3BC2 IN BEARDSLEY CHANNEL TO CP 52C4C2
 316          RK     430   .0143    .035            TRAP      50       4
              *
              *

 317          KK     51C     SUB
 318          KM        RUNOFF FROM SUB 51C
 319          BA   .0972
 320          LS              74      15
 321          UK     100   .0213     .10     100
 322          RK    3900   .0375    .045            TRAP      30      10
              *

 323          KK   51C1D
 324          KM   DIVERT 67 PERCENT OF 51C TO WEST (33 PERCENT TO SOUTH)
 325          DT  51C1DV
 326          DI       0   10000
 327          DQ       0    6700
              *

 328          KK   51C1R
 329          KM   ROUTE 51C1D THROUGH SUBBASIN 52C1
 330          RK    1350   .0364    .045            TRAP      10      10
              *

 331          KK    52C1
 332          KM   RUNOFF FROM SUBBASIN 52C1
 333          BA    .029
 334          LS              75    20.5
 335          UK     100     .02     .10     100
 336          RK    1350    .021    .045            TRAP      30      10
              *
1                                          HEC-1 INPUT                                                    PAGE 10

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

 337          KK   52C1C
 338          KM   COMBINE 51C1R AND 52C1
 339          HC       2   .0611
              *

 340          KK   52C1R
 341          KM   ROUTE 52C1C THROUGH BASIN 52C2A TO CP 52C2BC
 342          RK    1500    .033    .045            TRAP      10      10
              *

 343          KK   52C2A
 344          KM   RUNOFF FROM SUBBASIN 52C2A
 345          BA    .019
 346          LS              75       2
 347          UK     100     .02     .10     100
 348          RK    1500    .033    .045            TRAP      30      10
```

```
                 *
 349             KK  52C2AC
 350             KM   COMBINE 52C2A AND 52C1R
 351             HC       2
                 *

 352             KK   52C2B
 353             KM   RUNOFF FROM SUBBASIN 52C2B
 354             BA   .0275
 355             LS              75      11
 356             UK     100     .02     .10     100
 357             RK    2000    .030    .045            TRAP      30      10
                 *

 358             KK  52C2BC
 359             KM   COMBINE 52C2B AND 52C2AC
 360             HC       2
                 *

 361             KK  52C2BR
 362             KM   ROUTE 52C2BC THROUGH 52C2C TO CP 52C2CC
 363             RK    1500    .040    .045            TRAP      10      10
                 *

 364             KK   52C2C
 365             KM   RUNOFF FROM SUBBASIN 52C2C
 366             BA    .014
 367             LS              75      62
 368             UK     100     .02     .10     100
 369             RK    1500     .04    .045            TRAP      30      10
                 *
1                                          HEC-1 INPUT                                                    PAGE 11

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

 370             KK  52C2CC
 371             KM   COMBINE 52C2C AND 52C2BR
 372             HC       2
                 *

 373             KK   52C2R
 374             KM   ROUTE 52C2CC THROUGH SUBBASIN 52C4 TO CP 52C4C1
 375             RK    1550    .030    .045            TRAP      10      10
                 *

 376             KK    52C4
 377             KM   RUNOFF FROM SUBBASIN 52C4
 378             BA    .017
 379             LS              75      60
 380             UK     100     .02     .10     100
 381             RK    1550    .030    .045            TRAP      30      10
                 *

 382             KK  52C4C1
 383             KM   COMBINE 52C4 AND 52C2R
 384             HC       2
                 *

 385             KK  52C4C2
 386             KM   COMBINE 52C4C1 AND 52C3BR
 387             HC       2
                 *

 388             KK   52C4R
 389             KM   ROUTE 52C4C2 WEST IN BEARDSLEY CHANNEL TO CP 52C15C2
 390             RK     850   .0143    .035            TRAP      50       4
                 *

 391             KK   52C13
 392             KM   RUNOFF FROM SUBBASIN 52C13
 393             BA    .023
 394             LS              75      31
 395             UK     100     .02     .10     100
 396             RK     950    .040    .045            TRAP      30      10
                 *

 397             KK  2C13DV
 398             KM   DIVERT FIRST 40 CFS INTO STORM DRAIN; REMAINDER FLOWS OVER ROAD
 399             DT   STORM
 400             DI       0      40    1000
 401             DQ       0      40      40
                 *
                 * KK52C13R
                 * KM ROUTE 52C13 THROUGH SUBBASIN 52C15 TO CP 52C15C1
                 * RK  1800    .035    .045            TRAP      10      10
                 *
1                                          HEC-1 INPUT                                                    PAGE 12

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

 402             KK   52C15
 403             KM   RUNOFF FROM SUBBASIN 52C15
```

```
404          BA    .046
405          LS              75    64.4
406          UK     100     .02     .10     100
407          RK    2050    .036    .045            TRAP      30      10
             *

408          KK  2C15C1
409          KM   COMBINE 52C15 AND 52C13DV
410          HC       2    .046
             *

411          KK  2C15C2
412          KM   COMBINE 52C15C1 AND 52C4R
413          HC       2
             *

414          KK  52C15R
415          KM   ROUTE 52C15C2 IN BEARDSLEY CHANNEL TO CP 52C14C3
416          RK     750   .0143    .035            TRAP      50       4
             *

417          KK  52C14A
418          KM   RUNOFF FROM SUBBASIN 52C14A
419          BA    .041
420          LS              75    67.7
421          UK     100     .02     .10     100
422          RK    2050    .031    .045            TRAP      30      10
             *

423          KK  2C14AC
424          KM   COMBINE 52C14A AND 52C15R
425          HC       2
             *

426          KK  2C14AR
427          KM   ROUTE 52C14AC IN BEARDSLEY CHANNEL TO CP 52C14BC2
428          RK     380   .0143    .035            TRAP      50       4
             *
             *

429          KK  51C1DV
430          KM   RETRIEVE DIVERTED FLOW
431          DR  51C1DV
             *

432          KK   51C2D
433          KM   DIVERT 27 PERCENT OF 51C1DV TO WEST (73 PERCENT TO SOUTH)
434          DT  51C2DV
435          DI       0   10000
436          DQ       0    2700
             *
1                                        HEC-1 INPUT                                          PAGE 13

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

437          KK   51C2R
438          KM   ROUTE 51C2D THROUGH SUBBASIN 52C5 TO CP 52C5C
439          RK     700    .030    .045            TRAP      10      10
             *

440          KK    52C5
441          KM   RUNOFF FROM SUBBASIN 52C5
442          BA    .016
443          LS              75      27
444          UK     100     .02     .10     100
445          RK    1200     .03    .045            TRAP      30      10
             *

446          KK   52C5C
447          KM   COMBINE 51C2R AND 52C5
448          HC       2   .0635
             *

449          KK   52C5R
450          KM   ROUTE 52C5C THROUGH SUBBASIN 52C6 TO CP 52C6C
451          RK    3100    .035    .045            TRAP      10      10
             *

452          KK    52C6
453          KM   RUNOFF FROM SUBBASIN 52C6
454          BA    .036
455          LS              75    31.4
456          UK     100     .02     .10     100
457          RK    3100    .035    .045            TRAP      30      10
             *

458          KK   52C6C
459          KM   COMBINE 52C5R AND 52C6
460          HC       2
             *

461          KK   52C6R
462          KM   ROUTE 52C6C THROUGH SUBBASIN 52C10 TO CP 52C10C2
463          RK     450    .032    .045            TRAP      10      10
```

```
                 *
464              KK  51C2DV
465              KM   RETRIEVE 52C2DV
466              DR  51C2DV
                 *

467              KK   51C3R
468              KM   ROUTE 52C2DV THROUGH SUBBASIN 52C7 TO CP 52C7C
469              RK     700    .040    .045            TRAP      10      10
                 *
1                                          HEC-1 INPUT                                                PAGE 14

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

470              KK     51B     SUB
471              KM        RUNOFF FROM SUB 51B
472              BA   .5711
473              LS       0    71.9    13.1
474              UK     100   .0213     .10     100
475              RK    8900   .0300    .045            TRAP      50      25
                 *

476              KK   51B1D
477              KM   DIVERT 92 PERCENT OF SUBBASIN 51B TO WEST (8 PERCENT TO SOUTH)
478              DT  51B1DV
479              DI       0   10000
480              DQ       0    9200
                 *

481              KK   51B1R
482              KM    ROUTE 51B1D THROUGH SUBBASIN 52C7 TO CP 52C7C
483              RK     450     .04    .045            TRAP      10      10
                 *

484              KK    52C7
485              KM   RUNOFF FROM SUBBASIN 52C7
486              BA    .006
487              LS              75      27
488              UK     100     .02     .10     100
489              RK     550     .04    .045            TRAP      30      10
                 *

490              KK   52C7C
491              KM   COMBINE 51B1R, 51C3R, AND 52C7
492              HC       3   .0693
                 *

493              KK   52C7R
494              KM   ROUTE 52C7C THROUGH SUBBASIN 52C9 TO CP 52C9C1
495              RK    1550    .036    .045            TRAP      10      10
                 *

496              KK  51B1DV
497              KM   RETRIEVE DIVERTED FLOW 51B1DV
498              DR  51B1DV
                 *

499              KK   51B2D
500              KM   DIVERT 84 PERCENT OF 51B1DV TO WEST (16 PERCENT TO SOUTH)
501              DT  51B2DV
502              DI       0   10000
503              DQ       0    8400
                 *
1                                          HEC-1 INPUT                                                PAGE 15

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

504              KK   51B2R
505              KM   ROUTE 51B2D THROUGH SUBBASIN 52C8 TO CP 52C8C
506              RK     750    .034    .045            TRAP      10      10
                 *

507              KK    52C8
508              KM   RUNOFF FROM SUBBASIN 52C8
509              BA    .008
510              LS              75      27
511              UK     100     .02     .10     100
512              RK     750    .034    .045            TRAP      30      10
                 *

513              KK   52C8C
514              KM   COMBINE 51B2R AND 52C8
515              HC       2   .4493
                 *

516              KK   52C8R
517              KM   ROUTE 52C8C THROUGH SUBBASIN 52C9 TO CP 52C9C1
518              RK    1100    .036    .045            TRAP      10      10
                 *

519              KK  52C9C1
520              KM   COMBINE 52C7R AND 52C8R
```

```
 521          HC       2
              *

 522          KK  52C9R1
 523          KM   ROUTE 52C9C1 THROUGH SUBBASIN 52C9 TO CP 52C9C2
 524          RK    1050    .036    .045            TRAP      10      10
              *

 525          KK    52C9
 526          KM   RUNOFF FROM SUBBASIN 52C9
 527          BA    .069
 528          LS              75   31.85
 529          UK     100     .02     .10     100
 530          RK    3150    .036    .045            TRAP      30      10
              *

 531          KK  52C9C2
 532          KM   COMBINE 52C9R1 AND 52C9
 533          HC       2
              *

 534          KK  52C9R2
 535          KM   ROUTE 52C9C2 THROUGH SUBBASIN 52C10 TO CP 52C10C1
 536          RK     500    .032    .045            TRAP      10      10
              *
1                                          HEC-1 INPUT                                                    PAGE 16

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

 537          KK  2C10C1
 538          KM   COMBINE 52C9R2 AND 52C6R
 539          HC       2
              *

 540          KK  2C10R1
 541          KM   ROUTE 52C10C1 THROUGH SUBBASIN 52C10 TO CP 52C10C2
 542          RK     300    .032    .045            TRAP      10      10
              *

 543          KK   52C10
 544          KM   RUNOFF FROM SUBBASIN 52C10
 545          BA    .014
 546          LS              75    7.85
 547          UK     100     .02     .10     100
 548          RK     800    .032    .045            TRAP      30      10
              *

 549          KK  2C10C2
 550          KM   COMBINE 52C10R1 AND 52C10
 551          HC       2
              *

 552          KK   52C11
 553          KM   RUNOFF FROM SUBBASIN 52C11
 554          BA   .0425
 555          LS              75      27
 556          UK     100     .02     .10     100
 557          RK    2800    .031    .045            TRAP      30      10
              *

 558          KK  2C11R1
 559          KM   PIPE ROUTE 52C11 TO CP 52C11C
 560          RK     650     .02    .045            CIRC       3
              *

 561          KK  52C13D
 562          KM   RETRIEVE DIVERTED FLOW
 563          DR   STORM
              *

 564          KK  52C11C
 565          KM   COMBINE 52C13D AND 52C11R1
 566          HC       2   .0655
              *

 567          KK  2C11CR
 568          KM   PIPE ROUTE 52C11C TO CP 52C11C2
 569          RK     750     .02    .045            CIRC       3
              *
1                                          HEC-1 INPUT                                                    PAGE 17

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

 570          KK  2C11C2
 571          KM   COMBINE 52C11CR AND 52C10C2
 572          HC       2
              *

 573          KK  2C11R2
 574          KM   ROUTE 52C11C2 THROUGH SUBBASIN 52C12 TO CP 52C12C
 575          RK     700     .03    .045            TRAP      10      10
              *
```

```
576          KK   52C12
577          KM   RUNOFF FROM SUBBASIN 52C12
578          BA    .023
579          LS              75      85
580          UK     100     .02     .10     100
581          RK     900     .03    .045            TRAP      30      10
             *

582          KK  52C12C
583          KM   COMBINE 52C11R2 AND 52C12
584          HC       2
             *

585          KK  52C12R
586          KM   ROUTE 52C12C THROUGH SUBBASIN 52C14 TO CP 52C14C1
587          RK    1150    .029    .045            TRAP      10      10
             *

588          KK  52C14B
589          KM   RUNOFF FROM SUBBASIN 52C14B
590          BA    .021
591          LS              75      60
592          UK     100     .02     .10     100
593          RK    1250    .029    .045            TRAP      30      10
             *

594          KK  C14BC1
595          KM   COMBINE 52C14B AND 52C12R
596          HC       2
             *

597          KK  C14BC2
598          KM   COMBINE 52C14BC1 AND 52C14AR
599          HC       2
             *

600          KK  52C14R
601          KM   ROUTE 52C14C3 WEST IN BEARDSLEY CHANNEL TO CP 52B5C2
602          RK     600   .0143    .035            TRAP      50       4
             *
```



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

603          KK  51B2DV
604          KM   RETRIEVE DIVERTED FLOW
605          DR  51B2DV
             *

606          KK   51B3D
607          KM   DIVERT 84 PERCENT OF 51B2DV TO WEST (16 PERCENT TO SOUTH)
608          DT  51B3DV
609          DI       0   10000
610          DQ       0    8400
             *

611          KK   51B3R
612          KM   ROUTE 51B3D THROUGH SUBBASIN 52B1 TO CP 52B1C
613          RK     600    .039    .045            TRAP      10      10
             *

614          KK    52B1
615          KM   RUNOFF FROM SUBBASIN 52B1
616          BA    .003
617          LS              75      27
618          UK     100     .02     .10     100
619          RK     600    .039    .045            TRAP      30      10
             *

620          KK   52B1C
621          KM   COMBINE 51B3R AND 52B1
622          HC       2   .0736
             *

623          KK   52B1R
624          KM   ROUTE 52B1C THROUGH SUBBASIN 52B2 TO CP 52B2C1
625          RK     930    .037    .045            TRAP      10      10
             *

626          KK  51B3DV
627          KM   RETRIEVE DIVERTED FLOW 51B3DV
628          DR  51B3DV
             *

629          KK   51B4D
630          KM   DIVERT 82 PERCENT OF 51B3DV TO WEST (18 PERCENT TO SOUTH)
631          DT  51B4DV
632          DI       0   10000
633          DQ       0    8200
             *

634          KK  51B4R1
635          KM   ROUTE 51B4D THROUGH SUBBASIN 52B2 TO CP 52B2C1
636          RK    1350    .037    .045            TRAP      10      10
```

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

 637            KK  52B2C1
 638            KM   COMBINE 51B4R1 AND 52B1R
 639            HC       2   .1403
                *

 640            KK  52B2R1
 641            KM   ROUTE 52B2R1 THROUGH SUBBASIN 52B2 TO CP 52B2C2
 642            RK    1000    .037    .045            TRAP      10      10
                *

 643            KK    52B2
 644            KM   RUNOFF FROM SUBBASIN 52B2
 645            BA    .032
 646            LS              75      17
 647            UK     100     .02     .10     100
 648            RK    2350    .037    .045            TRAP      30      10
                *

 649            KK  52B2C2
 650            KM   COMBINE 52B2 AND 52B2R1
 651            HC       2
                *

 652            KK  52B2R2
 653            KM   ROUTE 52B2C2 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 654            RK     850    .026    .045            TRAP      10      10
                *

 655            KK  52B3R1
 656            KM   ROUTE 52B3C1 THROUGH SUBBASIN 52B3 TO CP 52B3C2
 657            RK     500    .024    .045            TRAP      10      10
                *

 658            KK    52B3
 659            KM   RUNOFF FROM SUBBASIN 52B3
 660            BA    .062
 661            LS              75    31.8
 662            UK     100     .02     .10     100
 663            RK    3450    .030    .045            TRAP      30      10
                *

 664            KK  52B3C2
 665            KM   COMBINE 52B3 AND 52B3R1
 666            HC       2
                *

 667            KK  52B3R2
 668            KM   ROUTE 52B3C2 THROUGH 52B4 TO CP 52B4C
 669            RK    1700    .024    .045            TRAP      10      10
                *
```



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

 670            KK    52B4
 671            KM   RUNOFF FROM SUBBASIN 52B4
 672            BA    .026
 673            LS              75      62
 674            UK     100     .02     .10     100
 675            RK    1700    .024    .045            TRAP      30      10
                *

 676            KK   52B4C
 677            KM   COMBINE 52B4 AND 52B3R2
 678            HC       2
                *

 679            KK   52B4R
 680            KM   ROUTE 52B4C THROUGH SUBBASIN 52B5 TO CP 52B5C1
 681            RK     550    .027    .045            TRAP      10      10
                *

 682            KK    52B5
 683            KM   RUNOFF FROM SUBBASIN 52B5
 684            BA    .021
 685            LS              75    56.9
 686            UK     100     .02     .10     100
 687            RK    1400     .03    .045            TRAP      30      10
                *

 688            KK  52B5C1
 689            KM   COMBINE 52B5 AND 52B4R
 690            HC       2
                *

 691            KK  52B5C2
 692            KM   COMBINE 52B5C1 AND 52C14R
 693            HC       2
```

```
                 *
 694             KK   52B5R
 695             KM   ROUTE 52B5C2 IN BEARDSLEY CHANNEL TO CP 52B7C2
 696             RK    1100   .0143    .035            TRAP      50       4
                 *

 697             KK  51B4DV
 698             KM   RETRIEVE DIVERTED FLOW 51B4DV
 699             DR  51B4DV
                 *

 700             KK   51B5D
 701             KM   DIVERT 68 PERCENT OF 51B4DV TO WEST (32 PERCENT TO SOUTH)
 702             DT  51B5DV
 703             DI       0   10000
 704             DQ       0    6800
                 *
1                                          HEC-1 INPUT                                                    PAGE 21

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

 705             KK   51B5R
 706             KM   ROUTE 51B5D THROUGH SUBBASIN 52B6 TO CP 51B7C
 707             RK    1250    .035    .045            TRAP      10      10
                 *

 708             KK  51B5DV
 709             KM   RETRIEVE DIVERTED FLOW
 710             DR  51B5DV
                 *

 711             KK   51B6D
 712             KM   DIVERT 53 PERCENT OF 51B5DV TO WEST (47 PERCENT TO SOUTH)
 713             DT  51B6DV
 714             DI       0   10000
 715             DQ       0    5300
                 *

 716             KK   51B6R
 717             KM   ROUTE 51B6D THROUGH SUBBASIN 52B6 TO CP 51B7C
 718             RK     925    .033    .045            TRAP      10      10
                 *

 719             KK  51B6DV
 720             KM   RETRIEVE DIVERTED FLOW 51B6DV
 721             DR  51B6DV
                 *

 722             KK   51B7D
 723             KM   DIVERT 58 PERCENT OF 51B6DV TO WEST (42 PERCENT TO SOUTH)
 724             DT  51B7DV
 725             DI       0   10000
 726             DQ       0    5800
                 *

 727             KK  51B7R1
 728             KM   ROUTE 51B7D THROUGH SUBBASIN 52B6 TO CP 51B7C
 729             RK     530    .033    .045            TRAP      10      10
                 *

 730             KK   51B7C
 731             KM   COMBINE 51B7R1, 51B5R, AND 51B6R
 732             HC       3   .2404
                 *

 733             KK  51B7R2
 734             KM   ROUTE 51B7C THROUGH SUBBASIN 52B6 TO CP 52B6C
 735             RK    2300    .033    .045            TRAP      10      10
                 *
1                                          HEC-1 INPUT                                                    PAGE 22

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

 736             KK    52B6
 737             KM   RUNOFF FROM SUBBASIN 52B6
 738             BA    .096
 739             LS              75   13.55
 740             UK     100     .02     .10     100
 741             RK    3200    .033    .045            TRAP      30      10
                 *

 742             KK   52B6C
 743             KM   COMBINE 51B7R2 AND 52B6
 744             HC       2
                 *

 745             KK   52B6R
 746             KM   ROUTE 52B6C THROUGH SUBBASIN 52B7 TO CP 52B7C1
 747             RK    2750    .028    .045            TRAP      10      10
                 *

 748             KK    52B7
```

```
749          KM   RUNOFF FROM SUBBASIN 52B7
750          BA    .080
751          LS              75   78.45
752          UK     100     .02     .10     100
753          RK    2750    .028    .045            TRAP      30      10
             *

754          KK  52B7C1
755          KM   COMBINE 52B7 AND 52B6R
756          HC       2
             *

757          KK  52B7C2
758          KM   COMBINE 52B7C1 AND 52B5R
759          HC       2
             *

760          KK    52A2
761          KM   RUNOFF FROM SUBBASIN 52A2
762          BA    .065
763          LS              75    88.8
764          UK     100     .02     .10     100
765          RK    2900    .023    .045            TRAP      30      10
             *

766          KK  52A2C2
767          KM   COMBINE 52B7C2 AND 52A2
768          HC       2    1.62
             *
1                                        HEC-1 INPUT                                                PAGE 23

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

769          KK  51B7DV
770          KM   RETRIEVE DIVERTED FLOW 51B7DV
771          DR  51B7DV
             *

772          KK   51B8R
773          KM   ROUTE 51B7DV THROUGH SUBBASIN 52A1 TO CP 52A1C
774          RK    3400    .033    .045            TRAP      10      10
             *

775          KK    52A1
776          KM   RUNOFF FROM SUBBASIN 52A1
777          BA    .130
778          LS              75   32.25
779          UK     100     .02     .10     100
780          RK    3400    .033    .045            TRAP      30      10
             *

781          KK   52A1C
782          KM   COMBINE 52A1 AND 51B8R
783          HC       2
             *
             *
             *     ******************  END DC RANCH WATERSHED  ******************
             *
             *
             *     *****************  BEGIN GVSCE MODIFICATIONS  *****************
             *

784          KK   D51.1
785          KM   RETRIEVE DIVERTED FLOW
786          DR  B51.1T
             *

787          KK    C52A
788          KM     COMBINE ROUTED HYDROGRAPH FROM C51.1 WITH HYDROGRAPH FROM C52A1C AT
789          KM     THOMPSON PEAK PARKWAY
790          HC       2  6.2735
             *
             *   R52A
             *    DEER VALLEY BASIN OUTLET CONDUIT TO JUNCTION AT SIERRA PINTA CHANNEL
             *    IS TOO SHORT TO ROUTE.
             *       L = 3130 feet
             *

791          KK     C52
792          KM     COMBINE ROUTED HYDROGRAPH FROM C52A WITH HYDROGRAPH FROM C52A2C AT
793          KM     BEARDSLEY ROAD
794          HC       2  7.9160
             *
1                                        HEC-1 INPUT                                                PAGE 24

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

795          KK     R52
796          KM     LAG THE HYDROGRAPH BY ONE TIME STEP TO ACCOUNT FOR TRAVEL TIME IN THE
797          KM     CONDUIT.
798          KM        ASSUME WAVE CELERITY = 15-20 fps AND TOTAL LENGTH OF 4050'
799          RT                      1
             *
```

```
                *
 800            KK    D52T
 801            KM     DIVERT 100% OF FLOW TO RETRIEVE JUST U/S OF OUTER LOOP DETENTION BASIN
 802            DT    B52T
 803            DI       0   10000
 804            DQ       0   10000
                *

 805            KK   CLEAR
 806            KM     CLEAR HYDROGRAPHS FROM STACK
 807            HC       2
                *
                *
                *     *****************  BEGIN GRAYHAWK WATERSHED  ******************
                *
                *       THE GREYHAWK HEC-1 MODEL (VILLAGES II AND III) WAS DEVELOPED BY DEI
                *           DEI FILE NAME:  GH23FAB.H1I
                *           MODEL DATE:     21 MAY 96
                *

 808            KK     37A     SUB
 809            KM        RUNOFF FROM SUB-BASIN 37A
 810            BA   .6765
 811            LS              74    24.8
 812            UK      61   .0213     .10     100
 813            RK    4800   .0237    .045            TRAP      50     130
                *

 814            KK    37AE     DIV
 815            KM        SPLIT FLOWS AT SOUTH BOUNDARY OF SUB 37A FOR ROUTING TO DETENTION
 816            KM        BASIN 53R & 38R-1.  THIS DIVERT OPERATION REFLECTS THE BREAK IN THE
 817            KM        DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS.  THIS SPLIT IS
 818            KM        BASED ON NEW CORE NORTH PLAN DEVELOPED BY G.W. LARSON & ASSC., INC.
 819            KM        DATED 6/16/92.  DIVERT RATIO IS BASED ON APPROXIMATE D.A. FROM SUB 37A
 820            KM        THAT IS INTERCEPTED BY EACH CHANNEL SEGMENT ALONG DEER VALLEY ROAD.
 821            KM
 822            KM        (THIS SPLIT HAS BEEN UPDATED FROM THE OLP.6 MODEL TO REFLECT A 30% SPLIT
 823            KM        TO THE SOUTH AND A 70% SPLIT TO THE WEST FOR THIS STUDY AND IS BASED ON
 824            KM        UPSTREAM CONTRIBUTING WATERSHED AREA TO THIS CONCENTRATION POINT)
 825            DT    37AW
 826            DI       0     100     500    1000    1500
 827            DQ       0      70     350     700    1050
                *
1                                          HEC-1 INPUT                                          PAGE 25

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

 828            KK   37AE1      CP
 829            KM        ROUTE NON-DIVERTED FLOW FROM DIV 37AE THROUGH SUB 5N.  THIS IS A
 830            KM        PRELIMINARY CHANNEL CONFIGURATION FOR THE GOLF COURSE CHANNEL.
 831            RS       1    FLOW
 832            RC    .055    .045    .055     800    .025
 833            RX       0      16      26      30      40      44      54      70
 834            RY       6       2       2       0       0       2       2       6
                *

 835            KK   SUB5N
 836            KM        RUNOFF FROM SUBBASIN 5 IN NORTH 18 MODEL.
 837            BA   0.029
 838            LS              77      18
 839            UK     100    .013     .15     100
 840            RK    1000   0.005    .018    .015    TRAP      50      20
 841            RK     500    .015    .025            TRAP      10       4
                *

 842            KK    CP5N
 843            KM        ADD HYDROGRAPHS AT CP5N
 844            HC       2   0.232
                *

 845            KK   RET5N
 846            KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 5.  18" PIPE OUTFLOW WILL
 847            KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
 848            RS       1    STOR       0       0
 849            SV       0     .04     .33     .93     1.8    2.35    3.16     4.2     6.1
 850            SQ       0       8      10      12      15      17     102     191     668
 851            SE    1797    1798    1800    1802    1804    1805    1806    1807    1808
                *

 852            KK   R6N.1
 853            KM        ROUTE FLOW FROM CP5 TO CP6 IN NORTH 18 MODEL
 854            KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
 855            KM        CHANNEL.
 856            RS       1    FLOW
 857            RC    .055    .045    .055    2200    .025
 858            RX       0      16      26      30      40      44      54      70
 859            RY       6       2       2       0       0       2       2       6
                *

 860            KK   SUB6B
 861            KM        RUNOFF FROM WEST PORTION OF EXISTING SUB6N ADJACENT TO CHANNEL
 862            BA    .032
 863            LS              81       0
```

```
 864          UK     200    .025     .15     100
 865          RK    1300    .015    .025            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 26

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

 866          KK    SR6B
 867          KM        ROUTE FLOW THROUGH RETENTION BASIN IN DRIVING RANGE CHANNEL
 868          RS       1    STOR       0       0
 869          SV       0     .17     .57    1.12    1.78
 870          SQ       0       8      10     120     380
 871          SE    1772    1773    1774    1775    1776
              *

 872          KK   CP6.1
 873          KM        ADD HYDROGRAPHS AT CP6.1
 874          HC       2
              *

 875          KK   SUB1N
 876          KM        RUNOFF FROM SUBBASIN 1N
 877          BA    .019
 878          LS              77      18
 879          UK     100    .013     .15     100
 880          RK    1470   .0204    .018            TRAP      50      20
              *

 881          KK    R2NA
 882          KM        ROUTE FLOW FROM CP1 TO CP2NA
 883          RS       1    FLOW
 884          RC     .03     .03     .03     400    .025
 885          RX       0       8      13      17      22      26      31      39
 886          RY       4       2       2       0       0       2       2       4
              *

 887          KK  SUB2NA
 888          KM        RUNOFF FROM SUBBASIN 2NA
 889          BA    .015
 890          LS              81       0
 891          UK     150    .013     .15     100
 892          RK    1050   .0215    .025            TRAP      20       6
              *

 893          KK   CP2NA
 894          KM        ADD HYDROGRAPHS AT CP2NA
 895          HC       2
              *

 896          KK   SR2NA
 897          KM        ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NA
 898          RS       1    STOR       0       0
 899          SV       0    .076    .291    .708     1.2
 900          SQ       0       0       0       0     160
 901          SE    1772    1773    1774    1775    1776
              *
1                                          HEC-1 INPUT                                                    PAGE 27

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

 902          KK    R2NB
 903          KM        ROUTE FLOW FROM CP2NA TO CP2NB
 904          RS       1    FLOW
 905          RC     .03     .03     .03    1050    .015
 906          RX       0       8      13      17      22      26      31      39
 907          RY       4       2       2       0       0       2       2       4
              *

 908          KK  SUB2NB
 909          KM        RUNOFF FROM SUBBASIN 2NB
 910          BA     .03
 911          LS              77      53
 912          UK     150    .013     .15     100
 913          RK    1200    .015    .025            TRAP      20      50
              *

 914          KK   CP2NB
 915          KM        ADD HYDROGRAPHS AT CP2NB
 916          HC       2
              *

 917          KK   SR2NB
 918          KM        STORAGE ROUTE FLOW THROUGH DETENTION BASIN IN SUB2NB
 919          RS       1    STOR       0       0
 920          SV       0     .19     .69    1.66    3.23     4.5
 921          SQ       0       2       8      12      17     170
 922          SE    1796    1798    1800    1802    1804    1805
              *

 923          KK   RCP4N
 924          KM        ROUTE FLOW FROM CP2NB TO CP4N
 925          RS       1    FLOW
 926          RC     .03     .03     .03     740    .018
```

```
927          RX       0       8      13      17      22      26      31      39
928          RY       4       2       2       0       0       2       2       4
             *

929          KK   SUB6N
930          KM        RUNOFF FROM SUBBASIN 6 IN NORTH 18 MODEL.  TO LAKE NORTH OF CLUBHOUSE.
931          BA    .049
932          LS              81       0
933          UK     200    .025     .15     100
934          RK    1300    .015    .025            TRAP      10       4
             *

935          KK   RET6N
936          KM        RETENTION ROUTING THROUGH LAKE AT HOLE 18, NORTH COURSE.
937          RS       1    STOR
938          SV       0    3.01    6.64   10.75   13.09   15.90
939          SQ       0       0       0      10      26     100
940          SE    1782    1784    1786    1788    1789    1790
             *
1                                          HEC-1 INPUT                                          PAGE 28

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

941          KK  RCP4N1
942          KM        ROUTE FLOW FROM CP6N TO CP4N
943          RS       1    FLOW
944          RC     .03     .03     .03     550    .018
945          RX       0       8      13      17      22      26      31      39
946          RY       4       2       2       0       0       2       2       4
             *

947          KK  CP4N.1
948          KM        ADD HYDROGRAPHS AT CP4N.1
949          HC       2
             *

950          KK   SUB3N
951          KM        RUNOFF FROM SUBBASIN 3N, NORTH 18 MODEL
952          BA    .027
953          LS              81       0
954          UK     100     .02     .15     100
955          RK    2800  0.0207    .025            TRAP      10       4
             *

956          KK   RET3N
957          KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 3.  18" PIPE OUTFLOW WILL
958          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
959          RS       1    STOR       0       0
960          SV       0    1.73    8.97   13.32   15.74
961          SQ       0       4       7       9      11
962          SE    1793    1795    1800    1803    1804
             *

963          KK     R4N
964          KM        ROUTE FLOW FROM CP3N TO CP4N IN NORTH MODEL
965          RS       1    FLOW
966          RC    .035    .035    .035     950    .018
967          RX       0       8      13      17      22      26      31      39
968          RY       4       2       2       0       0       2       2       4
             *

969          KK  CP4N.2
970          KM        ADD HYDROGRAPHS AT CPN.2
971          HC       2
             *

972          KK   SUB4N
973          KM        RUNOFF FROM SUBBASIN 4N.
974          BA    .032
975          LS              77      18
976          UK     100    .015     .15     100
977          RK    1200   0.007    .018            TRAP      50      20
             *
1                                          HEC-1 INPUT                                          PAGE 29

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

978          KK    CP4N
979          KM        ADD HYDROGRAPHS AT CP4N
980          HC       2
             *

981          KK     R6N
982          KM        ROUTE FLOW FROM CP4N TO CP6N ALONG THOMPSON PEAK PKWY AT CLUBHOUSE
983          RS       1    FLOW
984          RC    .045    .035    .045     750    .025
985          RX       0       8      13      17      22      26      31      39
986          RY       4       2       2       0       0       2       2       4
             *

987          KK   SUB6A
988          KM        RUNOFF FROM SUBBASIN 6A (CLUBHOUSE AREA NORTH OF THOMPSON PEAK PKWY).
989          BA    .013
```

```
 990          LS              83      68
 991          UK     100    .015     .12     100
 992          RK     800     .01    .025            TRAP       2       3
              *

 993          KK   CP6.2
 994          KM        ADD HYDROGRAPHS AT CP6.2
 995          HC       2
              *

 996          KK    CP6N
 997          KM        ADD HYDROGRAPHS AT CP6N
 998          HC       2
              *
              *       ABOVE DISCHARGE FROM NORTH 18 THROUGH BRIDGE AT TPP STATION 103+45
              *

 999          KK   RCP6N
1000          KM        ROUTE FLOW FROM CP6N TO CP3C
1001          RS       1    FLOW
1002          RC    .045    .035    .045     300    .015
1003          RX       0       8      13      17      37      45      51      59
1004          RY       4       2       2       0       0       2       2       4
              *

1005          KK   SUB3C
1006          KM        RUNOFF FROM SUBBASIN 3C, SOUTH COURSE AT MAINTENANCE FACILITY.
1007          BA   .0104
1008          LS              77      68
1009          UK     100    .025     .02     100
1010          RK     600    .015    .035            TRAP      50      20
              *
1                                          HEC-1 INPUT                                                    PAGE 30

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

1011          KK    CP3C
1012          KM        COMBINE NORTH COURSE HYDROGRAPH WITH FIRST SOUTH COURSE HYDROGRAPH
1013          HC       2
              *

1014          KK     R3C
1015          KM        ROUTE FLOW FROM SUB3C TO CP3 THROUGH GC1018
1016          KM        ASSUME CHANNEL IS SAME CONFIGURATION AS ABOVE FOR PROPOSED GOLF COURSE
1017          KM        CHANNEL.
1018          RS       1    FLOW
1019          RC    .055    .045    .055    2050    .025
1020          RX       0      20      30      40      60      70      80     100
1021          RY    1650    1746    1744    1742    1742    1744    1746    1750
              *

1022          KK  GC1018
1023          KM        RUNOFF FROM HOLES NO. 10, 18 AND DRIVING RANGE THAT CONTRIBUTE TO WASH
1024          BA    .044
1025          LS              81       0
1026          UK     200    .025     .15     100
1027          RK    1800   .0233    .025            TRAP      10       4
              *

1028          KK   GC1-9
1029          KM        RUNOFF FROM GOLF COURSE HOLES 1 & 9 CONTRIBUTING TO WASH
1030          BA    .026
1031          LS              81       0
1032          UK     200    .025     .15     100
1033          RK    2110    .022    .025            TRAP      10       4
              *

1034          KK   SUB3S
1035          KM        RUNOFF FROM SUB BASIN 3 SOUTH COURSE
1036          BA   .0102
1037          LS              77      53
1038          UK     100    .010     .15     100
1039          RK     930    .016    .025            TRAP      50      20
              *

1040          KK    CP3S
1041          KM        COMBINE HYDROGRAPHS AT CP3 SOUTH COURSE
1042          HC       4
              *

1043          KK    RT3S
1044          KM        ROUTE FLOW FROM CP3S TO CPGC28
1045          RS       1    FLOW       0       0
1046          RC    .055    .045    .055     900    .023
1047          RX       0      20      30      40      60      70      80     100
1048          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *
1                                          HEC-1 INPUT                                                    PAGE 31

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

1049          KK   SUB4S
1050          KM        RUNOFF FROM SUB BASIN 4 SOUTH COURSE
```

```
1051          BA   .0273
1052          LS              77      53
1053          UK     100    .010     .15     100
1054          RK    1780    .018    .015            TRAP      50      20
              *

1055          KK    RT4S
1056          KM        ROUTE FLOW FROM CP4S TO CPGC28
1057          RS       1    FLOW       0       0
1058          RC    .035    .035    .035     650    .015
1059          RX       0      20      30      40      45      55      65      75
1060          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1061          KK   GC2-8
1062          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES NO. 2 AND 8
1063          BA    .014
1064          LS              81       0
1065          UK     200    .025     .15     100
1066          RK     980    .016    .025            TRAP      10       4
              *

1067          KK  1PGC28
1068          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1069          HC       3
              *

1070          KK  SUB3D3
1071          KM        RUNOFF FROM GRAYHAWK ROAD SOUTH OF THOMPOSON PEAK
1072          BA    .014
1073          LS              81       0
1074          UK      50    .015      .1     100
1075          RK    2450    .016    .025            TRAP       5       4
              *

1076          KK  CPGC28
1077          KM        ADD HYDROGRAPHS AT CPGC28 AT PROPOSED LOOP ROAD, SOUTH COURSE
1078          HC       2
              *

1079          KK  SRGC28
1080          KM        STORAGE THRU DETENTION BASIN ON HOLES 2 AND 8.
1081          RS       1    STOR       0       0
1082          SV       0    .018    .085     .22      .5     1.0     1.7    2.68     3.9
1083          SE    1706    1707    1708    1709    1710    1711    1712    1713    1714
1084          SQ       0      10      18      20      30     108     324     651    1070
              *
```



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

1085          KK    RT7S
1086          KM        ROUTE FLOW FROM SRGC28 TO CP7S
1087          RS       1    STOR       0       0
1088          RC    .055    .045    .055    1700   .0187
1089          RX       0      20      30      40      60      70      80     100
1090          RY    1750    1746    1744    1742    1742    1744    1746    1750
              *

1091          KK     GC7
1092          KM        RUNOFF FROM SOUTH GOLF COURSE HOLE NO. 7
1093          BA   .0134
1094          LS              81       0
1095          UK     200    .025     .15     100
1096          RK    1380    .020    .025            TRAP      10       4
              *

1097          KK    CP7S
1098          KM        ADD HYDROGRAPHS AT CP7S ON SOUTH COURSE
1099          HC       2  0.6083
              *

1100          KK    D7ST
1101          KM        D7ST IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1102          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1103          KM
1104          KM        DIVERT 100% OF FLOW
1105          DT    B7ST
1106          DI       0   10000
1107          DQ       0   10000
              *

1108          KK   CLEAR
1109          KM        CLEAR HYDROGRAPHS FROM THE STACK.
1110          HC       2
              *
              *
              * THIS PORTION OF MODEL TAKEN FROM,"DRAINAGE REPORT FOR VILLAGE 3 - PHASE 1",
              * APPROVED BY THE CITY OF SCOTTSDALE 7-19-95.  MODIFIED TO ACCOUNT FOR ASBUILT
              * CONDITION
              *
              *
              *
              *
```

```
1111          KK  SUB3D1
1112          KM        RUNOFF FROM SUBBASIN 3D1, PARCEL 3D.
1113          BA   .0088
1114          LS              77      34
1115          UD     .06
              *
```



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

1116          KK   RD1B1
1117          KM        FOUTE FLOW FROM 3D1 TO 3B1
1118          RS       1    FLOW      -1
1119          RC    0.03    0.03    0.03    1250    .015
1120          RX       0     0.5       1       7      12      19    19.5      20
1121          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1122          KK  SUB3B1
1123          KM        RUNOFF FROM SUBBASIN 3B1, PARCEL 3B.
1124          BA   .0137
1125          LS              77      47
1126          UD     .06
              *

1127          KK   CP3B1
1128          KM        ADD HYDROGRAGHS AT CP3B1
1129          HC       2
              *

1130          KK   RB13F
1131          KM        ROUTE FLOW FROM 3B1 TO SUB3F
1132          RS       1    FLOW      -1
1133          RC    0.03    0.03    0.03    2150    .015
1134          RX       0     0.5       1       7      17      24    24.5      25
1135          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1136          KK   SUB3F
1137          KM        RUNOFF FROM SUBBASIN 3F, PARCEL 3F, SOUTH COURSE MODEL.
1138          BA   .0344
1139          LS              77      68
1140          UK     100    .025     .15     100
1141          RK    1000    .015    .025            TRAP     100      20
              *

1142          KK    CP3F
1143          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3F ALONG THE POWER CORRIDOR
1144          HC       2
              *

1145          KK  SUB3B2
1146          KM        RUNOFF FROM SUBBASIN 3B2, PARCEL 3B.
1147          BA   .0246
1148          LS              77      40
1149          UD     .10
              *

1150          KK   RB2E1
1151          KM        1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1152          RS       1    FLOW      -1
1153          RC    0.03    0.03    0.03     800    0.02
1154          RX       0     0.5       1       7      17      24    24.5      25
1155          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *
```



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

1156          KK   RB2E2
1157          KM       SECOND 1/2 OF ENTIRE ROUTING REACH FROM 3B2 TO CP3E1
1158          RS       1    FLOW      -1
1159          RC    0.03    0.03    0.03     600    .015
1160          RX       0     0.5       1       7      17      24    24.5      25
1161          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1162          KK  SUB3E1
1163          KM        RUNOFF FROM SUBBASIN 3E1, PARCEL 3E.
1164          BA   .0246
1165          LS              77      40
1166          UD     .10
              *

1167          KK  1CPE31
1168          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E1 ALONG THE POWER CORRIDOR
1169          HC       2
              *

1170          KK  SUB3D2
1171          KM        RUNOFF FROM SUBBASIN 3D2, PARCEL 3D.
1172          BA    .022
```

```
1173          LS              77      35
1174          UD     .08
              *

1175          KK   RD2E2
1176          KM        ROUTE EXCESS FROM 3D2 TO CP3E2
1177          RS       1    FLOW      -1
1178          RC    0.03    0.03    0.03    1200   .0216
1179          RX       0     0.5       1       7      17      24    24.5      25
1180          RY     3.2     3.1     3.0     1.0     1.0     3.0     3.1     3.2
              *

1181          KK  SUB3E2
1182          KM        RUNOFF FROM SUBBASIN 3E2, PARCEL 3E.
1183          BA    .012
1184          LS              77      35
1185          UD     .06
              *

1186          KK   CP3E2
1187          KM        ESTIMATED PEAK DISCHARGE RATE AT POINT CP3E2 ALONG THE POWER CORRIDOR
1188          HC       2
              *

1189          KK     PC3
1190          KM        PC3 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1191          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1192          KM
1193          KM        RUNOFF FROM SUBBASIN PC3.
1194          BA  0.0434
1195          LS              77      10
```



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

1196          UK     300    .015     .15     100
1197          RK    2200     .01     .03            TRAP      30       4
              *

1198          KK    CPC3
1199          KM        CPC3 IS A CONCENTRATION POINT ADDED BY GVSCE TO ESTIMATE THE INFLOW TO
1200          KM        THE POWER LINE CHANNEL AT THE HAYDEN ROAD CROSSING.
1201          KM
1202          KM        COMBINE ROUTED HYDROGRAPH FROM SRPC2 W/HYDROGRAPHS FROM CP3E1, CP3E2 AND
1203          KM        CP3F AND RUNOFF FROM PC3.
1204          HC       4  0.1835
              *

1205          KK   DPC3T
1206          KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1207          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1208          KM
1209          KM        DIVERT 100% OF FLOW
1210          DT   BPC3T
1211          DI       0   10000
1212          DQ       0   10000
              *

1213          KK  SUB3E3
1214          KM        RUNOFF FROM SUBBASIN 3E3, PARCEL 3E.
1215          BA    .020
1216          LS              77      32
1217          UD     .06
              *

1218          KK     PC4
1219          KM        PC4 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
1220          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
1221          KM
1222          KM        RUNOFF FROM SUBBASIN PC4.
1223          BA  0.0217
1224          LS              77       0
1225          UK     300    .015     .15     100
1226          RK    1100     .01     .03            TRAP      30       4
              *

1227          KK     D7S
1228          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1229          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1230          KM
1231          KM        RETRIEVE DIVERTED FLOW
1232          DR    B7ST
              *

1233          KK    CPC4
1234          KM        THE HEC1 OPREATION TEMPAD IS CHANGED BY GVSCE TO ESTIMATE THE INFLOW TO
1235          KM        THE POWER LINE CHANNEL WHERE THE FLOW FROM CP7S ENTERS THE CHANNEL.
1236          KM
1237          KM        COMBINE HYDROGRAPH FROM CP3E3 W/RUNOFF FROM PC4.
1238          HC       3   0.650
              *
```



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

```
1239        KK   DPC4T
1240        KM        DPC3T IS A DIVERSION ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1241        KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1242        KM
1243        KM        DIVERT 100% OF FLOW
1244        DT   BPC4T
1245        DI       0   10000
1246        DQ       0   10000
            *

1247        KK   CLEAR
1248        KM        CLEAR HYDROGRAPHS FROM THE STACK.
1249        HC       3
            *
            *
            *       THIS ENDS THE PORTION OF THE MODEL TAKEN FROM DRAINAGE REPORT
            *       FOR VILLAGE 3 - PHASE I HEC-1 MODEL BY GILBERTSON ASSOC. INC.
            *       DATED 7-19-95
            *
            *
            *
            * RETURN TO NORTH 18\VILLAGE 2\TPP3 MODEL.
            * THE REMAINDER OF THE SUBBASINS IN THIS  MODEL  WILL CONTRIBUTE TO THE
            * PROPOSED CHANNNEL IN THE POWER EASEMENT AS IDENTIFIED IN THE
            * "COMMUNITY DRAINAGE STUDY - CORE NORTH AND WILL DISCHARGE TO REGIONAL
            * RETENTION BASIN 38R1.
            *
            *

1250        KK    37AW     RET
1251        KM        RETRIEVE DIVERTED FLOW FROM SOUTH BOUNDARY OF SUB 37A TO REFLECT
1252        KM        BREAK IN DEER VALLEY ROAD CHANNEL BETWEEN HAYDEN & PIMA ROADS
1253        DR    37AW
            *

1254        KK    R14R
1255        KM        ROUTE FLOW FROM DIVERT AT DEER VALLEY ROAD (UPSTREAM OF SUBBAIN 5) TO
1256        KM        RET14.1
1257        RS       1    FLOW
1258        RC    .055    .045    .055    2900     .01
1259        RX       0      16      26      30      50      54      64      80
1260        RY       6       2       2       0       0       2       2       6
            * RET 141 HAS BEEN REVISED FOLLOWING REFINEMENT OF GRADING PLANS 11-16-94
            *

1261        KK  RET141
1262        KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.1.  18" PIPE OUTFLOW WILL
1263        KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1264        RS       1    STOR       0       0
1265        SV       0     .46    2.79    4.56    5.71    6.92    8.24
1266        SQ       0      11      15      22     147     463     968
1267        SE    1778    1785    1790    1792    1793    1794    1795
            *
```



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

1268        KK   R14.1
1269        KM        ROUTE FLOW FROM RET14.1 TO CP14
1270        KM        RET14.1
1271        RS       1    FLOW
1272        RC    .055    .045    .055    1900     .01
1273        RX       0      16      26      30      50      54      64      80
1274        RY       6       2       2       0       0       2       2       6
            *

1275        KK  SUB13N
1276        KM        RUNOFF FROM SUBBASIN 13 NORTH 18 MODEL.
1277        BA    .037
1278        LS              77      24
1279        UK     100    .015     .15     100
1280        RK    2400    .007    .018            TRAP      50      20
            *

1281        KK   R14.1
1282        KM        ROUTE FLOW FROM CP13 TO RET14 NORTH 18 MODEL.
1283        RS       1    FLOW
1284        RC    .055    .045    .055     950    .025
1285        RX       0       8      13      17      22      26      31      39
1286        RY       4       2       2       0       0       2       2       4
            *

1287        KK  SUB14N
1288        KM        RUNOFF FROM SUBBASIN 14 NORTH 18 MODEL.
1289        BA    .049
1290        LS              81       0
1291        UK     300    .025     .15     100
1292        RK    2300     .01    .025            TRAP      10       4
            *

1293        KK    CP14
1294        KM        ADD HYDROGRAPHS AT CP14
1295        HC       3  0.5595
```

```
                *
1296            KK   RET14
1297            KM        ROUTE FLOW THROUGH RETENTION BASIN NO. 14.  18" PIPE OUTFLOW WILL
1298            KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1299            RS       1    STOR       0       0
1300            SV       0     .08     .31    1.01    2.16    3.20    4.19    5.69     7.8
1301            SQ       0      14      16      18      20      22     155     464     750
1302            SE    1744    1746    1748    1750    1752    1753    1754    1755    1756
                *

1303            KK   R18.1
1304            KM        ROUTE FLOW FROM RET14 TO CP18
1305            RS       1    FLOW
1306            RC    .055    .045    .055     500    .016
1307            RX       0      16      26      34      54      68      78      96
1308            RY       6       2       2       0       0       2       2       6
                *
1                                          HEC-1 INPUT                                          PAGE 38

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

1309            KK  SUB20N
1310            KM        RUNOFF FROM SUBBASIN 20.
1311            BA    .024
1312            LS              77      24
1313            UK     200     .01     .15     100
1314            RK    1400     .02    .018            TRAP      50      20
                *

1315            KK     R19
1316            KM        ROUTE FLOW FROM CP20 TO CP19
1317            RS       1    FLOW
1318            RC    .035    .035    .035     700     .02
1319            RX       0       8      13      17      22      26      31      39
1320            RY       4       2       2       0       0       2       2       4
                *

1321            KK  SUB19N
1322            KM        RUNOFF FROM SUBBASIN 19.
1323            BA    .038
1324            LS              77      31
1325            UK     150     .01     .15     100
1326            RK    1800    .015    .018            TRAP      50      20
                *

1327            KK   CP19N
1328            KM        ADD HYDROGRAPHS  AT CP19N
1329            HC       2
                *

1330            KK   R18NC
1331            KM        ROUTE FLOW FROM  CP19N TO CP18NC
1332            RS       1    FLOW
1333            RC    .035    .035    .035     700    .013
1334            RX       0       8      13      17      27      31      36      44
1335            RY       4       2       2       0       0       2       2       4
                *

1336            KK  UB18NC
1337            KM        RUNOFF FROM SUBBASIN 18NC.
1338            BA    .021
1339            LS              77      42
1340            UK     100     .01     .15     100
1341            RK    1550     .02    .018            TRAP      50      20
                *

1342            KK  CP18NC
1343            KM        ADD HYDROGRAPHS  AT CP18NC (INCLUDES R18.1, R18, AND SUB18)
1344            HC       3
                *
1                                          HEC-1 INPUT                                          PAGE 39

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

1345            KK    RPC1
1346            KM        ROUTE FLOW FROM CP18N TO CPC1.
1347            RS       1    FLOW
1348            RC    .035    .035    .035     510    .013
1349            RX       0      16      26      34      64      78      88     106
1350            RY       6       2       2       0       0       2       2       6
                *

1351            KK  UB18NA
1352            KM        RUNOFF FROM SUBBASIN 18NA.
1353            BA    .022
1354            LS              77      42
1355            UK     100     .01     .15     100
1356            RK    1450     .02    .018            TRAP      50      20
                *

1357            KK   1RPC1
1358            KM        ROUTE FLOW FROM CP18NA TO CPC1.
```

```
1359          RS       1    FLOW
1360          RC    .035    .035    .035    2550     .01
1361          RX       0      16      26      34      64      78      88     106
1362          RY       8       4       2       0       0       2       4       8
              *

1363          KK  UB18NB
1364          KM        RUNOFF FROM SUBBASIN 18NB.
1365          BA   .0096
1366          LS              77      42
1367          UK     100     .01     .15     100
1368          RK     800     .02    .018            TRAP      50      20
              *

1369          KK   2RPC1
1370          KM        ROUTE FLOW FROM CP18NB TO CPC1.
1371          RS       1    FLOW
1372          RC    .035    .035    .035    2000     .01
1373          RX       0      16      26      34      64      78      88     106
1374          RY       8       4       2       0       0       2       4       8
              *

1375          KK     PC1
1376          KM        RUNOFF FROM SUBBASIN PC1.
1377          BA    .062
1378          LS              77      10
1379          UK     500    .015     .15     100
1380          RK    2700     .01     .03            TRAP      30       4
              *

1381          KK   1CPC1
1382          KM        ADD HYDROGRAPHS  AT CPC1.
1383          HC       3
              *
```



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

1384          KK   SRPC1
1385          KM        STOAGE ROUTE THROUGH DET BASIN IN POWER CORRIDOR.
1386          RS       1    STOR       0       0
1387          SV       0     .29     .73
1388          SQ       0       0     350
1389          SE    1747    1748    1749
              *

1390          KK    CPC1
1391          KM        ADD HYDROGRAPHS  AT CPC1.
1392          HC       2
              *

1393          KK  R16NA1
1394          KM        ROUTE FLOW FROM CPC1 TO C16NA1.
1395          RS       1    FLOW
1396          RC    .035    .035    .035     700    .013
1397          RX       0      16      26      34      74      88      98     116
1398          RY       8       4       2       0       0       2       4       8
              *

1399          KK  UB16NA
1400          KM        RUNOFF FROM SUBBASIN 16NA.
1401          BA   .0139
1402          LS              77      42
1403          UK     100    .015     .15     100
1404          RK    1500    .015    .022            TRAP      50      20
              *

1405          KK  R16NA1
1406          KM        ROUTE FLOW FROM CP16NA TO CP16NA1.
1407          RS       1    FLOW
1408          RC    .035    .035    .035     550    .013
1409          RX       0      16      26      34      44      58      68      86
1410          RY       6       2       2       0       0       2       2       6
              *

1411          KK  C16NA1
1412          KM        ADD HYDROGRAPHS  AT CP16NA1.
1413          HC       2
              *

1414          KK  R16NB1
1415          KM        ROUTE FLOW FROM CP16NA1 TO CP16NB1.
1416          RS       1    FLOW
1417          RC    .035    .035    .035     650    .013
1418          RX       0      16      26      34      74      88      98     116
1419          RY       8       4       2       0       0       2       4       8
              *
```



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

1420          KK  UB16NB
1421          KM        RUNOFF FROM SUBBASIN 16NB.
```

```
1422          BA   .0156
1423          LS              77      42
1424          UK     100    .015     .15     100
1425          RK    1500    .015    .022            TRAP      50      20
              *

1426          KK  R16NB1
1427          KM        ROUTE FLOW FROM CP16NB TO CP16NB1.
1428          RS       1    FLOW
1429          RC    .035    .035    .035     550    .013
1430          RX       0      16      26      34      44      58      68      86
1431          RY       6       2       2       0       0       2       2       6
              *

1432          KK  C16NB1
1433          KM        ADD HYDROGRAPHS  AT CP16NB1.
1434          HC       2
              *

1435          KK  R16NC1
1436          KM        ROUTE FLOW FROM CP16NB1 TO CP16NC1.
1437          RS       1    FLOW
1438          RC    .035    .035    .035     650    .013
1439          RX       0      16      26      34      54      68      78      96
1440          RY       6       2       2       0       0       2       2       6
              *

1441          KK   SUB7N
1442          KM        RUNOFF FROM SUBBASIN 7N.
1443          BA    .031
1444          LS              77      18
1445          UK     100    .015     .15     100
1446          RK    1900     .01    .018            TRAP      50      20
              *

1447          KK    R8NC
1448          KM        ROUTE FLOW FROM CP7N TO CP8NC.
1449          RS       1    FLOW
1450          RC    .055    .045    .055     700    .025
1451          RX       0       8      13      17      22      26      31      39
1452          RY       4       2       2       0       0       2       2       4
              *

1453          KK  SUB8NA
1454          KM        RUNOFF FROM SUBBASIN 8NA.
1455          BA   .0046
1456          LS              81       0
1457          UK     100     .03     .15     100
1458          RK     450     .03    .025            TRAP      20       6
              *
```



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

1459          KK   SR8NA
1460          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NA.
1461          RS       1    STOR       0       0
1462          SV       0     .51    .816
1463          SQ       0       1      43
1464          SE    1791    1795    1796
              *

1465          KK    R8NB
1466          KM        ROUTE FLOW FROM CP8NA TO CP8NB.
1467          RS       1    FLOW
1468          RC    .025    .025    .025     300     .03
1469          RX       0      12      24      36      56      68      80      92
1470          RY       6       4       2       0       0       2       4       6
              *

1471          KK  SUB8NB
1472          KM        RUNOFF FROM SUBBASIN 8NB.
1473          BA   .0142
1474          LS              81       0
1475          UK     100     .03     .15     100
1476          RK    1150    .025    .025            TRAP      20       6
              *

1477          KK   CP8NB
1478          KM        ADD HYDROGRAPHS AT CP8NB.
1479          HC       2
              *

1480          KK   SR8NB
1481          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NB.
1482          RS       1    STOR       0       0
1483          SV       0   .0124   1.754    2.45
1484          SQ       0       2       2      72
1485          SE    1784    1785    1790    1791
              *

1486          KK    R8NC
1487          KM        ROUTE FLOW FROM CP8NB TO CP8NC.
1488          RS       1    FLOW
```

```
1489          RC    .025    .025    .025     500     .03
1490          RX       0      12      24      36      56      68      80      92
1491          RY       6       4       2       0       0       2       4       6
              *

1492          KK  SUB8NC
1493          KM        RUNOFF FROM SUBBASIN 8NC.
1494          BA   .0182
1495          LS              81       0
1496          UK     100     .03     .15     100
1497          RK     900     .03    .025            TRAP      20       6
              *
1                                          HEC-1 INPUT                                                    PAGE 43

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

1498          KK   CP8NC
1499          KM        ADD HYDROGRAPHS AT CP8NC.
1500          HC       3
              *

1501          KK   SR8NC
1502          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB8NC.
1503          RS       1    STOR       0       0
1504          SV       0    .404   2.444    3.13   3.979
1505          SQ       0      10      14     151    1004
1506          SE    1771    1775    1780    1781    1782
              *

1507          KK     R9N
1508          KM        ROUTE FLOW FROM CP8N TO CP9N.
1509          RS       1    FLOW
1510          RC    .025    .025    .025    1150    .025
1511          RX       0       8      13      17      22      26      31      39
1512          RY       4       2       2       0       0       2       2       4
              *

1513          KK   SUB9N
1514          KM        RUNOFF FROM SUBBASIN 9N.
1515          BA    .055
1516          LS              77      28
1517          UK     100    .008     .15     100
1518          RK    1700     .01    .018            TRAP      50      20
              *

1519          KK    CP9N
1520          KM        ADD HYDROGRAPHS AT CP9N
1521          HC       2
              *

1522          KK    R10B
1523          KM        ROUTE FLOW FROM CP9N TO CP10B.
1524          RS       1    FLOW
1525          RC     .03     .03     .03     400     .02
1526          RX       0       8      16      24      29      37      45      53
1527          RY       6       4       2       0       0       2       4       6
              *

1528          KK  SUB10B
1529          KM        RUNOFF FROM SUBBASIN 10B.
1530          BA    .028
1531          LS              77      42
1532          UK     100    .015     .15     100
1533          RK     350    .008    .018            TRAP      50      20
1534          RK     600    .008    .025            TRAP      10       4
              *
1                                          HEC-1 INPUT                                                    PAGE 44

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

1535          KK   CP10B
1536          KM        ADD HYDROGRAPHS AT CP10B
1537          HC       2
              *

1538          KK   R11NA
1539          KM        ROUTE FLOW FROM CP10B TO CP11NA.
1540          RS       1    FLOW
1541          RC     .03     .03     .03     200     .04
1542          RX       0       8      16      24      29      37      45      53
1543          RY       6       4       2       0       0       2       4       6
              *

1544          KK  UB11NA
1545          KM        RUNOFF FROM SUBBASIN 11NA.
1546          BA   .0076
1547          LS              81       0
1548          UK     100    .025     .15     100
1549          RK     500     .03    .025            TRAP      30       6
              *

1550          KK  CP11NA
1551          KM        ADD HYDROGRAPHS AT CP11NA
```

```
1552          HC       2
              *

1553          KK  SR11NA
1554          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NA.
1555          RS       1    STOR       0       0
1556          SV       0   .0462   1.425   2.480   3.109   3.856
1557          SQ       0      10      27      27      27     237
1558          SE    1734    1735    1740    1742    1743    1744
              *

1559          KK   R11NB
1560          KM        ROUTE FLOW FROM CP11NA TO CP11NB.
1561          RS       1    FLOW
1562          RC    .025    .025    .025     250     .03
1563          RX       0      12      24      36      56      68      80      92
1564          RY       6       4       2       0       0       2       4       6
              *

1565          KK  UB11NB
1566          KM        RUNOFF FROM SUBBASIN 11NB.
1567          BA   .0078
1568          LS              81       0
1569          UK     100     .04     .15     100
1570          RK     700    .025    .025            TRAP      30       6
              *
1                                          HEC-1 INPUT                                                    PAGE 45

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

1571          KK  CP11NB
1572          KM        ADD HYDROGRAPHS AT CP11NB
1573          HC       2
              *

1574          KK  SR11NB
1575          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB11NB.
1576          RS       1    STOR       0       0
1577          SV       0    1.56   2.586
1578          SQ       0      27     111
1579          SE    1732    1737    1738
              *

1580          KK   R11NC
1581          KM        ROUTE FLOW FROM CP11NB TO CP11NC.
1582          RS       1    FLOW
1583          RC    .025    .025    .025     300     .03
1584          RX       0      12      24      36      56      68      80      92
1585          RY       6       4       2       0       0       2       4       6
              *

1586          KK  UB11NC
1587          KM        RUNOFF FROM SUBBASIN 11NC.
1588          BA   .0069
1589          LS              81       0
1590          UK     100     .03     .15     100
1591          RK     650    .028    .025            TRAP      20       5
              *

1592          KK  C11NC1
1593          KM        ADD HYDROGRAPHS AT CP11NC.1
1594          HC       2
              *

1595          KK  SUB10A
1596          KM        RUNOFF FROM SUBBASIN 10A.
1597          BA    .030
1598          LS              77      42
1599          UK     100    .015     .15     100
1600          RK     350    .008    .018            TRAP      50      20
1601          RK     800    .008    .025            TRAP      10       4
              *

1602          KK   R12NB
1603          KM        ROUTE FLOW FROM CP10A TO CP12NB.
1604          RS       1    FLOW
1605          RC    .025    .025    .025     400     .03
1606          RX       0      12      24      36      46      58      70      82
1607          RY       6       4       2       0       0       2       4       6
              *
1                                          HEC-1 INPUT                                                    PAGE 46

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

1608          KK  UB12NA
1609          KM        RUNOFF FROM SUBBASIN 12NA.
1610          BA   .0153
1611          LS              81       0
1612          UK     150    .025     .15     100
1613          RK     650    .017    .025            TRAP      30       6
              *

1614          KK  SR12NA
```

```
1615          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB1NA.
1616          RS       1    STOR       0       0
1617          SV       0    2.16   3.426   5.071
1618          SQ       0       1       2     142
1619          SE    1741    1745    1746    1747
              *

1620          KK   R12NA
1621          KM        ROUTE FLOW FROM CP12NA TO CP12NB.
1622          RS       1    FLOW
1623          RC    .025    .025    .025     550    .025
1624          RX       0      12      24      36      46      58      70      82
1625          RY       6       4       2       0       0       2       4       6
              *

1626          KK  UB12NB
1627          KM        RUNOFF FROM SUBBASIN 12NB.
1628          BA   .0157
1629          LS              81       0
1630          UK     150    .025     .15     100
1631          RK     650    .017    .025            TRAP      30       6
              *

1632          KK  CP12NB
1633          KM        ADD 3 HYDROGRAPHS AT CP12NB
1634          HC       3
              *

1635          KK  SR12NB
1636          KM        STOAGE ROUTE THROUGH FAIRWAY DETENTION AREA IN SUB12NB.
1637          RS       1    STOR       0       0
1638          SV       0    .922    4.24    7.53
1639          SQ       0       2       2     142
1640          SE    1741    1745    1746    1747
              *

1641          KK  R11NC2
1642          KM        ROUTE FLOW FROM CP12NA TO CP11NC.
1643          RS       1    FLOW
1644          RC    .025    .025    .025     550     .01
1645          RX       0      12      24      36      46      58      70      82
1646          RY       6       4       2       0       0       2       4       6
              *
```



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

1647          KK  CP11NC
1648          KM        ADD HYDROGRAPHS  AT CP11NC
1649          HC       2
              *

1650          KK  SR11NC
1651          KM        ROUTE FLOW THROUGH RETENTION BASIN RT11NC.  18" PIPE OUTFLOW WILL
1652          KM        BLEED FLOWS TO DRAIN THE BASIN AFTER THE STORM HAS PASSED.
1653          RS       1    STOR       0       0
1654          SV       0   1.665   2.303   3.062
1655          SQ       0      27     111     344
1656          SE    1730    1735    1736    1737
              *

1657          KK   R16NC
1658          KM        ROUTE FLOW FROM CP11NC TO CP16NC.
1659          RS       1    FLOW
1660          RC    .035    .035   0.035     950    .025
1661          RX       0       8      13      17      22      26      31      39
1662          RY       4       2       2       0       0       2       2       4
              *

1663          KK  UB16NC
1664          KM        RUNOFF FROM SUBBASIN 16NC.
1665          BA   .0337
1666          LS              77      42
1667          UK     100    .015     .15     100
1668          RK    1600    .015    .022            TRAP      50      20
              *

1669          KK  CP16NC
1670          KM        ADD HYDROGRAPHS  AT CP16NC
1671          HC       2
              *

1672          KK  R16NC1
1673          KM        ROUTE FLOW FROM CP16NC TO CP16NC1.
1674          RS       1    FLOW
1675          RC     .03     .03     .03     550    .013
1676          RX       0      16      26      34      44      58      68      86
1677          RY       6       2       2       0       0       2       2       6
              *

1678          KK  C16NC1
1679          KM        ADD HYDROGRAPHS  AT CP16NC1.
1680          HC       2
              *
```

```
1681          KK   R15N1
1682          KM        ROUTE FLOW FROM CP16NC1 TO CP15N1.
1683          RS       1    FLOW
1684          RC    .035    .035    .035     600    .013
1685          RX       0      16      26      34      54      68      78      96
1686          RY       6       2       2       0       0       2       2       6
              *
1                                          HEC-1 INPUT                                                    PAGE 48

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


1687          KK     PC2
1688          KM        RUNOFF FROM SUBBASIN PC2.
1689          BA    .054
1690          LS              77      10
1691          UK     100    .015     .15     100
1692          RK    2700     .01     .03            TRAP      50       4
              *

1693          KK  CP15N1
1694          KM        ADD HYDROGRAPHS  AT CP15N1
1695          HC       2
              *

1696          KK   SRPC2
1697          KM        STORAGE ROUTE THRU DETENTION BASINS IN POWER CORRIDOR THIS IS THE TOTAL
1698          KM        FLOW REACHING THE UPSTREAM SIDE OF THE THOMPSON PEAK PARKWAY BRIDGE
1699          RS       1    STOR       0       0
1700          SV       0    1.02    2.70    4.48     5.8     6.9
1701          SQ       0       0     150     350     550     850
1702          SE    1730    1731    1732    1733    1734    1735
              *

1703          KK  UB17NA
1704          KM        RUNOFF FROM SUBBASIN SUB17NA.
1705          BA  .00979
1706          LS              81       0
1707          UK     150    .025     .05     100
1708          RK     960   .0292    .025            TRAP      30      50
              *

1709          KK  SR17NA
1710          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NA.
1711          RS       1    STOR       0       0
1712          SV       0   .0078    .241    .523    1.00   1.735
1713          SQ       0       1       1       1    17.4     251
1714          SE  1755.2    1756    1758    1759    1760    1761
              *

1715          KK   R17NB
1716          KM        ROUTE FLOW FROM SR17NA TO CP17NB.
1717          RS       1    FLOW
1718          RC    0.03    0.03    0.03     280  0.0286
1719          RX       0      10      20      35      70      85      90     100
1720          RY    1757  1756.8  1756.6    1756    1756    1757    1758    1759
              *

1721          KK  UB17NB
1722          KM        RUNOFF FROM SUBBASIN SUB17NB.
1723          BA   .0111
1724          LS              81       0
1725          UK     150    .025     .05     100
1726          RK    1200   .0217    .025            TRAP      30      50
              *
1                                          HEC-1 INPUT                                                    PAGE 49

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


1727          KK  CP17NB
1728          KM        ADD HYDROGRAPHS AT SUB17NB.
1729          HC       2
              *

1730          KK  SR17NB
1731          KM        STORAGE ROUTE THROUGH DETENTION BASIN SR17NB.
1732          RS       1    STOR       0       0
1733          SV       0   .0113   .1469    .635   .9795   1.509   2.254   3.243
1734          SQ       0       1       1       1       1       1    38.2     189
1735          SE  1751.5    1752    1753    1755    1756    1757    1758    1759
              *

1736          KK    R17A
1737          KM        ROUTE FLOW FROM SR17NB TO CP17A.
1738          RS       1    FLOW
1739          RC    0.03    0.03    0.03     280   0.033
1740          RX       0      15      18      20      24      27      30      35
1741          RY    1755    1754    1753    1752    1752    1753    1754    1755
              *

1742          KK  SUB17A
1743          KM        RUNOFF FROM SUBBASIN SUB17A.
1744          BA  .00792
```

```
1745          LS              77      34
1746          UK      75     .03     .05     100
1747          RK    1500     .02    .025            TRAP       8       4
              *

1748          KK  CP17A1
1749          KM        ADD HYDROGRAPHS AT CP17A1.
1750          HC       2
              *

1751          KK  UB17NC
1752          KM        RUNOFF FROM SUBBASIN SUB17NC.
1753          BA  .00559
1754          LS              77      12
1755          UK      75     .03     .05     100
1756          RK     910   .0187    .025            TRAP       8       4
              *

1757          KK   CP17A
1758          KM        ADD ALL HYDROGRAPHS AT CP17A.
1759          HC       2
              *

1760          KK    R15N
1761          KM        ROUTE FLOW FROM CP17A TO CP15N.
1762          RS       1    FLOW
1763          RC    .035    .035    .035    1950    .025
1764          RX       0       8      13      17      22      26      31      39
1765          RY       4       2       2       0       0       2       2       4
              *
```



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

1766          KK  SUB15N
1767          KM        RUNOFF FROM SUBBASIN 15N.
1768          BA   .0391
1769          LS              77      68
1770          UK     100     .01     .15     100
1771          RK     400    .008    .018            TRAP      50      20
1772          RK    1700    .015    .025            TRAP      10       4
              *

1773          KK   CP15N
1774          KM        ADD HYDROGRAPHS  AT CP15N
1775          HC       2
              *

1776          KK   R15N2
1777          KM        ROUTE FLOW FROM CP15N TO CP15N1.
1778          RS       1    FLOW
1779          RC     .02     .02     .02     700    .013
1780          RX       0       8      13      17      22      26      31      39
1781          RY       6       2       2       0       0       2       2       6
              *

1782          KK  CP15N2
1783          KM        ADD HYDROGRAPHS  AT CP15N1
1784          KM        THIS IS THE INTERIM OUTFLOW DISCHARGE TO NATURAL WASH.
1785          HC       2  1.1611
              *

1786          KK   R15N2
1787          KM        ROUTE 15N2 IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CP15N2 TO THE
1788          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1789          KM
1790          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1791          RS       1    FLOW      -1
1792          RC    .035    .035    .035    2200    .013
1793          RX       0      16      26      34      64      78      88     106
1794          RY       6       2       2       0       0       2       2       6
              *

1795          KK    DPC3
1796          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1797          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1798          KM
1799          KM        RETRIEVE DIVERTED FLOW
1800          DR   BPC3T
              *

1801          KK   CPC3A
1802          KM        COMBINE CPC3A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE AT THE
1803          KM        POWER LINE CHANNEL CROSSING AT HAYDEN RD.
1804          KM
1805          KM        COMBINE ROUTED HYDROGRAPH FROM CP15N2 WITH HYDROGRAPH FROM CPC3
1806          HC       2  1.3446
              *
```



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

1807          KK   RPC3A
```

```
1808          KM        ROUTE PC3A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC3A VIA
1809          KM        THE POWER LINE CHANNEL.
1810          KM
1811          KM        ROUTE FLOW FROM CP15N2 TO CPC3A.
1812          RS      1    FLOW      -1
1813          RC    .035    .035    .035    1100    .013
1814          RX      0      16      26      34      64      78      88     106
1815          RY      6       2       2       0       0       2       2       6
              *

1816          KK    DPC4
1817          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
1818          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
1819          KM
1820          KM        RETRIEVE DIVERTED FLOW
1821          DR   BPC4T
              *

1822          KK   CPC4A
1823          KM        COMBINE CPC4A IS ADDED BY GVSCE TO ESTIMATE THE TOTAL DISCHARGE IN THE
1824          KM        POWER LINE CHANNEL
1825          KM
1826          KM        COMBINE ROUTED HYDROGRAPH FROM CPC3A WITH HYDROGRAPH FROM CPC4
1827          HC      2  1.9946
              *

1828          KK   RPC4A
1829          KM        ROUTE PC4A IS ADDED BY GVSCE TO ROUTE THE HYDROGRAPH FROM CPC4A TO THE
1830          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI RD.
1831          KM
1832          KM        ROUTE FLOW FROM CPC4A TO CPC5.
1833          RS      1    FLOW      -1
1834          RC    .035    .035    .035    1900    .013
1835          RX      0      16      26      34      64      78      88     106
1836          RY      6       2       2       0       0       2       2       6
              *

1837          KK  DPC4AT
1838          KM        DIVERT PC4A IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
1839          KM        LOOP DETENTION BASIN VIAL THE POWER LINE CHANNEL.
1840          KM
1841          KM        DIVERT 100% OF FLOW
1842          DT  BPC4AT
1843          DI      0   10000
1844          DQ      0   10000
              *

1845          KK  SUB1-2
1846          KM        RUNOFF FROM SUB 1 AND 2, SOUTH COURSE MODEL
1847          BA   .0558
1848          LS              77      68
1849          UK     200    .010     .15     100
1850          RK    1370    .027    .015            TRAP      50      20
              *
```



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

1851          KK  GCRB18
1852          KM        RUNOFF FROM GOLF COURSE CONTRIBUTING TO RETENTION BASIN AT HOLE NO. 18
1853          KM        AND HOLE NO. 10, SOUTH COURSE
1854          BA    .012
1855          LS              81       0
1856          UK     200    .025     .15     100
1857          RK     300    .016    .025            TRAP      10       4
              *

1858          KK  CPRET1
1859          KM        COMBINE HYDROGRAPHS AT RETENTION BASINS ON HOLE 18 & 10
1860          HC      2
              *

1861          KK   SR18S
1862          KM        STORAGE ROUTE THRU RETENTION BASIN AT HOLE 18, SOUTH COURSE
1863          RS      1    STOR       0       0
1864          SV      0  1.7635  5.7722  12.174  21.337  28.849  30.151      32
1865          SE    1725    1730    1735    1740    1745    1748    1749    1750
1866          SQ       0       0       0       0       0      42     386     900
              *

1867          KK   SUB5S
1868          KM        RUNOFF FROM SUB 5S
1869          BA   .0263
1870          LS              77      31
1871          UK     100    .010     .15     100
1872          RK    1280    .007    .015            TRAP      50      20
              *

1873          KK  GC1216
1874          KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 12, 16, AND 17
1875          BA   .0365
1876          LS              81       0
1877          UK     200    .025     .15     100
1878          RK    2200    .024    .025            TRAP      10       4
```

```
                 *
1879             KK  GC1415
1880             KM        RUNOFF FROM SOUTH GOLF COURSE HOLES 13, 14, 15 AND RETENTION
1881             BA    .045
1882             LS              81       0
1883             UK     200    .025     .15     100
1884             RK    1300    .022    .025            TRAP      10       4
                 *

1885             KK   SUB6S
1886             KM        RUNOFF FROM SUB BASIN 6, SOUTH COURSE
1887             BA    .021
1888             LS              77      42
1889             UK     100    .010     .15     100
1890             RK    2150    .013    .025            TRAP      50      20
                 *
1                                              HEC-1 INPUT                                          PAGE 53

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

1891             KK   SUB7S
1892             KM        RUNOFF FROM SUB BASIN 7, SOUTH COURSE
1893             BA    .027
1894             LS              77      42
1895             UK     100    .010     .15     100
1896             RK    2080    .023    .025            TRAP      50      20
                 *

1897             KK  CPRET2
1898             KM        COMBINE HYDROGRAPHS AT RETENTION BASIN 2, SOUTH COURSE
1899             HC       5
                 *

1900             KK  SRRET2
1901             KM        STORAGE THRU RETENTION BASIN NO. 2, SOUTH COURSE
1902             RS       1    STOR       0       0
1903             SV       0    .617   3.474   9.858  20.063  35.353  52.685  57.749      62
1904             SE    1670    1675    1680    1685    1690    1695    1699    1700    1701
1905             SQ       0       0       0       0       0       0      32     386     594
                 *
                 *       NO FLOW RELEASED FROM RETENTION BASIN
                 *

1906             KK   CLEAR
1907             KM        THIS OPERATION IS ADDED BY GVSCE
1908             KM
1909             KM        CLEAR HYDROGRAPHS FROM THE STACK
1910             HC       2
                 *

1911             KK   SUB8S
1912             KM        RUNOFF FROM SUB BASIN 8, SOUTH COURSE
1913             BA   .0256
1914             LS              77      42
1915             UK     100    .010     .15     100
1916             RK    1600    .015    .025            TRAP      50      20
                 *

1917             KK   RGC36
1918             KM        ROUTE SUB8S TO CPGC36
1919             RS       1    FLOW
1920             RC    .055    .045    .055     850     .02
1921             RX       0      16      26      30      40      44      54      70
1922             RY       6       2       2       0       0       2       2       6
                 *

1923             KK    GC36
1924             KM        RUNOFF FROM SOUTH COURSE HOLES 3, 6, AND NORTH HALF OF HOLE 4.
1925             BA   .0406
1926             LS              81       0
1927             UK     200    .025     .15     100
1928             RK    2350    .015    .035            TRAP      10       4
                 *
1                                              HEC-1 INPUT                                          PAGE 54

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

1929             KK  C1GC36
1930             KM        COMBINE SUBS 8 AND GC36
1931             HC       2
                 *

1932             KK   SUB9S
1933             KM        RUNOFF FROM SUB BASIN 9, SOUTH COURSE
1934             BA    .021
1935             LS              77      53
1936             UK     100    .010     .15     100
1937             RK    1100    .013    .025            TRAP      50      20
                 *

1938             KK     R9S
1939             KM        ROUTE SUB9S TO CPGC36
```

```
1940          RS       1    FLOW
1941          RC    .035    .035    .035     500     .02
1942          RX       0       8      12      16      18      22      26      30
1943          RY       6       4       3       2       2       3       4       6
              *

1944          KK  CPGC36
1945          KM        COMBINE SUBS 8 AND 9 SOUTH AND GC36
1946          HC       2
              *

1947          KK  SRGC36
1948          KM        STORAGE THRU DETENTION BASIN ON GC36
1949          RS       1    STOR       0       0
1950          SV       0    0.85     1.0
1951          SE    1664    1668    1669
1952          SQ       0      20     205
              *

1953          KK   SUB7A
1954          KM        RUNOFF FROM SUB7A, SOUTH COURSE EAST SIDE ADJACENT TO PIMA ROAD
1955          BA   .0092
1956          LS              77      42
1957          UK     100    .025     .15     100
1958          RK     950    .015    .025            TRAP      50      20
              *

1959          KK    SR7A
1960          KM        STORAGE THRU DETENTION BASIN ON SUB7A
1961          RS       1    STOR       0       0
1962          SV       0     .68      .8
1963          SE    1700    1703    1704
1964          SQ       0      10     150
              *
```



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

1965          KK    R10S
1966          KM        ROUTE FLOW FROM CP7A TO CP10S
1967          RS       1    FLOW
1968          RC    .035    .035    .035    1400    .015
1969          RX       0       8      12      16      18      22      26      30
1970          RY       6       4       3       2       2       3       4       6
              *

1971          KK  SUB10S
1972          KM        RUNOFF FROM SUB BASIN 10, SOUTH COURSE
1973          BA   .0248
1974          LS              77      53
1975          UK     100    .010     .15     100
1976          RK    1150    .020    .025            TRAP      50      20
              *

1977          KK   CP10S
1978          KM        COMBINE HYDROGRAPHS AT CP10 SOUTH COURSE
1979          HC       2
              *

1980          KK  SUB11S
1981          KM        RUNOFF FROM SUB11, SOUTH COURSE
1982          BA   .0234
1983          LS              77      68
1984          UK     100    .015    .018     100
1985          RK    1050    .015    .025            TRAP     100      20
              *

1986          KK    R11S
1987          KM        ROUTE 11S IS ADDED BY GVSCE TO ROUTE THE RUNOFF FROM SUB11S TO THE
1988          KM        POWER LINE CHANNEL CROSSING AT HUALAPAI DR ALONG HUALAPAI DR.
1989          KM
1990          KM        ROUTE FLOW FROM SUB11S TO CPC5.
1991          RS       1    FLOW      -1
1992          RC    .035    .035    .035     900    .015
1993          RX       0       8      12      16      18      22      26      30
1994          RY       6       4       3       2       2       3       4       6
              *

1995          KK   C10SA
1996          KM        COMBINE 10SA IS ADDED BY GVSCE
1997          KM
1998          KM        COMBINE ROUTED HYDROGRAPH FROM 11S WITH HYDROGRAPH FROM CP10S
1999          HC       2
              *

2000          KK   R10SA
2001          KM        ROUTE 10SA IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE OUTER
2002          KM        LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2003          KM
2004          KM        ROUTE FLOW FROM C10SAS TO CPC5.
2005          RS       1    FLOW      -1
2006          RC    .035    .035    .035     900    .015
```

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

2007          RX       0       8      12      16      18      22      26      30
2008          RY       6       4       3       2       2       3       4       6
              *

2009          KK    GC45
2010          KM        RUNOFF FROM SOUTH COURSE HOLES 4 AND 5
2011          BA   .0127
2012          LS              81       0
2013          UK     200    .015    .025     100
2014          RK     550    .015    .035            TRAP      10       4
              *

2015          KK   CGC45
2016          KM        COMBINE CGC45 IS ADDED BY GVSCE
2017          KM
2018          KM        COMBINE ROUTED HYDROGRAPH FROM 10SA WITH RUNOFF FROM GC45
2019          HC       2
              *

2020          KK     PC5
2021          KM        PC5 IS A SUBBASIN ADDED BY GVSCE TO ESTIMATE THE SURFACE RUNOFF FROM
2022          KM        THE POWER LINE CORRIDOR WHICH ENTERS THE POWER LINE CHANNEL
2023          KM
2024          KM        RUNOFF FROM SUBBASIN PC5.
2025          BA  0.0375
2026          LS              77       0
2027          UK     300    .015     .15     100
2028          RK    1900     .01     .03            TRAP      30       4
              *

2029          KK   DPC4A
2030          KM        THIS OPERATION IS ADDED BY GVSCE IN ORDER TO ROUTE RUNOFF TO THE
2031          KM        OUTER LOOP DETENTION BASIN VIA THE POWER LINE CHANNEL.
2032          KM
2033          KM        RETRIEVE DIVERTED FLOW
2034          DR  BPC4AT
              *

2035          KK    CPC5
2036          KM        COMBINE PC5 IS ADDED BY GVSCE TO ESTIMATE THE TOTAL FLOW IN THE POWER
2037          KM        LINE CHANNEL AT THE HUALAPAI CROSSING
2038          KM
2039          KM        COMBINE ROUTED HYDROGRAPH FROM C10SA AND CPC4A WITH HYDROGRAPHS FROM
2040          KM        CGC45, SRGC36 AND PC5
2041          HC       5  2.1022
              *
              *     *******************  END GREYHAWK WATERSHED  ********************
              *

2042          KK     RC5
2043          KM       ROUTE CPC5 THROUGH SUBBASIN CN5C TO OUTER LOOP BASIN
2044          RS       1    FLOW      -1
2045          RC    .035    .035    .035    2000    .013
2046          RX       0      16      26      34      64      78      88     106
2047          RY       6       2       2       0       0       2       2       6
              *
```



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

2048          KK   SCN5D
2049          KM     RUNOFF FROM SUBBASIN CN5D
2050          BA  0.0499
2051          LS              74       0
2052          UK     100   0.025    0.13     100
2053          RK    3100   0.017    0.04            TRAP       0      15
              *

2054          KK    CN5D
2055          KM        COMBINE ROUTED HYDROGRAPH FROM CPC5 W/RUNOFF FROM SCN5D
2056          HC       2
              *

2057          KK     D52
2058          KM     BRING BACK DIVERTED HYDROGRAPH FROM R52
2059          DR    B52T
              *

2060          KK    S53A
2061          KM     RUNOFF FROM SUBBASIN 53A
2062          BA  0.1794
2063          LS              74      11
2064          UK     300   0.022    0.13     100
2065          RK    1475   0.026   0.045  0.0111    TRAP       3       5
2066          RK    1750   0.021    0.04            TRAP      25       5
              *

2067          KK     C53
2068          KM     COMBINE ROUTED HYDROGRAPH FROM FROM C52 WITH RUNOFF FROM SUBBASIN 53A
2069          HC       2  8.0954
              *
              *    R53
```

```
                 *   ****  TOO SHORT TO ROUTE  ****
                 *
2070             KK   S53A1
2071             KM     RUNOFF FROM SUBBASIN 53A1
2072             BA  0.3376
2073             LS              74      12              74      30
2074             UK     300   0.022    0.13      70
2075             UK     150   0.027    0.13      30
2076             RK    1250   0.023   0.045  0.0087    TRAP       4       5
2077             RK    5050   0.017    0.04            TRAP      35       5
                 *

2078             KK    C53A
2079             KM     COMBINE ROUTED HYDROGRAPH FROM C53 WITH RUNOFF FROM SUBBASSIN 53A1
2080             HC       2  8.4330
                 *
1                                                HEC-1 INPUT                                          PAGE 58

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

2081             KK   SCN6B
2082             KM     RUNOFF FROM SUBBASIN CN6B (WATER CAMPUS)
2083             KM      TOTAL AREA = 0.0542 sm, 0.0022 sm OF THAT IS NON-CONTRIBUTING
2084             BA  0.0520
2085             LS              74      80              74       0
2086             UK     150    0.01    0.15      70
2087             UK     100   0.025    0.13      30
2088             RK     720    0.02    0.03  0.0084    TRAP       5      10
2089             RK     700    0.01   0.045  0.0050    TRAP       0      10
2090             RK     440   0.009   0.035            TRAP       6       3
                 *

2091             KK    C53A
2092             KM     COMBINE HYDROGRAPH FROM C53A WITH RUNOFF FROM SUBBASIN CN6B
2093             HC       2
                 *

2094             KK   SCN6D
2095             KM     RUNOFF FROM SUBBASIN CN6D
2096             KM      TOTAL AREA = 0.0398 sm, 0.0029 sm OF THAT IS NON-CONTRIBUTING
2097             BA  0.0369
2098             LS              74       3
2099             UK     100   0.025    0.13     100
2100             RK    1000   0.017    0.04            TRAP       0      15
                 *

2101             KK    CP6D
2102             KM     COMBINE HYDROGRAPHS FROM C53A W/RUNOFF FROM SCN6D
2103             HC       2
                 *

2104             KK   SCN6C
2105             KM     RUNOFF FROM SUBBASIN CN6C (CAP TREATMENT PLANT AND WATER CAMPUS)
2106             KM      TOTAL AREA = 0.1526 sm, 0.0138 sm OF THAT IS NON-CONTRIBUTING
2107             BA  0.1388
2108             LS              74      80              74       0
2109             UK     150    0.01    0.15      50
2110             UK     100   0.025    0.13      50
2111             RK    1500    0.01    0.03  0.0123    TRAP       5      10
2112             RK     700   0.017    0.04            TRAP       0      15
                 *

2113             KK    CP6C
2114             KM        COMBINE HYDROGRAPH FROM CP6D W/RUNOFF FROM SCN6C
2115             HC       2
                 *

2116             KK    CP5D
2117             KM        COMBINE HYDROGRAPHS FROM CP6C AND CP5D
2118             HC       2
                 *
1                                                HEC-1 INPUT                                          PAGE 59

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

2119             KK   SCN5C
2120             KM     RUNOFF FROM SUBBASIN CN5C
2121             BA  0.1904
2122             LS              74       0
2123             UK     150   0.020    0.13     100
2124             RK    3700  0.0176    0.04            TRAP       0      15
                 *

2125             KK   SCN6E
2126             KM     RUNOFF FROM SUBBASIN CN6E
2127             BA  0.0427
2128             LS              74       5
2129             UK      50    0.01    0.13     100
2130             RK    3200   0.002   0.025            TRAP       0      50
                 *

2131             KK  EAST-I
```

```
2132          KM     COMBINE HYDROGRAPH FROM CP5D WITH W/RUNOFF FROM SCN5C AND SCN6E
2133          HC       3
              *

2134          KK  EAST-O
2135          KM     PIMA FREEWAY BASIN EAST LOCATED NORTH AND EAST OF HAYDEN ROAD T.I.
2136          KM     (2) 96" OUTLET CONDUIT
2137          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
2138          KM        9 ACRE-FEET OF STORAGE FOR SEDIMENTAION
2139          KM
2140          RS       1    STOR      -1       0
2141          SV       0    0.35    1.11    3.38   12.19   24.00   36.81   43.59   50.74   58.38
2142          SV   66.49   74.88   83.50   92.36  101.45  110.78  120.36  130.25  140.48  145.06
2143          SQ       0      66     127     281     515     791    1047    1161    1263    1355
2144          SQ    1442    1522    1598    1671    1740    1805    1871    1932    1991    2020
2145          SE  1589.9    1591    1592    1594    1596    1598    1600    1601    1602    1603
2146          SE    1604    1605    1606    1607    1608    1609    1610    1611    1612  1612.5
2147          ST  1612.5    3500     2.8     1.5
              *
2148          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   18        S30N
                V
                V
   27        R30N
                .
                .
   33           .       S31.1
                .           .
                .           .
   41      C31.1............
                .
                .
   44           .       S34.2
                .           .
                .           .
   53      C34.2............
                .
                .
   56           .        S35N
                .           .
                .           .
   68           .           .-------->   D35NL
   64           .       D35NR
                .           V
                .           V
   71           .       R35NR
                .           .
                .           .
   78           .           .       S36.2
                .           .           .
                .           .           .
   86           .       C36.2............
                .           .
                .           .
   93           .           .-------->  D36.2L
   89           .      D36.2R
                .           V
                .           V
   96           .      R36.2R
                .           .
                .           .
  103           .           .       S34.1
                .           .           .
                .           .           .
  112           .       C34.1............
                .           .
                .           .
  115     HVDB-I............
                V
                V
  118     HVDB-O
                V
                V
  132      R34.1
                .
                .
  138           .       S36.1
                .           .
                .           .
  145      C36.1............
                V
                V
  148      R36.1
                .
                .
  156           .           .<--------   D35NL
  154           .       B35NL
                .           V
```

```
                .          V
157             .       R35NL
                .          .
                .          .
166             .          .          .<-------  D36.2L
164             .          .     B36.2L
                .          .          V
                .          .          V
167             .          .     R36.2L
                .          .          .
                .          .          .
174             .          .          .     S36R1A
                .          .          .          .
                .          .          .          .
182        C36R1A...................................
                .
                .
187             .     S36R1B
                .          .
                .          .
195        C36R1B............
                .
                .
198             .     S36R2A
                .          .
                .          .
205        C36R2A............
                V
                V
208        R36R2A
                .
                .
220             .     S36R2B
                .          .
                .          .
227        C36R2B............
                .
                .
230             .      S51.1
                .          .
                .          .
238        DVDB-I............
                V
                V
241        DVDB-O
                .
                .
257             .-------> B51.1T
255        D51.1T
                .
                .
260             .       52D4
                .          V
                .          V
266             .      52D4R
                .          .
                .          .
269             .          .      52D4B
                .          .          .
                .          .          .
275             .     52D5C1............
                .          .
                .          .
278             .          .      52D5A
                .          .          V
                .          .          V
284             .          .     52D5AR
                .          .          .
                .          .          .
287             .     52D5C2............
                .          V
                .          V
290             .      52D5R
                .          .
                .          .
293             .          .       52C3
                .          .          V
                .          .          V
299             .          .      52C3R
                .          .          .
                .          .          .
302             .          .          .      52C3B
                .          .          .          .
                .          .          .          .
308             .          .     2C3BC1............
                .          .          .
                .          .          .
311             .     2C3BC2............
                .          V
                .          V
314             .     52C3BR
                .          .
                .          .
317             .          .        51C
                .          .          .
```

```
325          .          .          .-------> 51C1DV
323          .          .      51C1D
             .          .          V
             .          .          V
328          .          .      51C1R
             .          .          .
             .          .          .
331          .          .          .        52C1
             .          .          .          .
             .          .          .          .
337          .          .      52C1C............
             .          .          V
             .          .          V
340          .          .      52C1R
             .          .          .
             .          .          .
343          .          .          .       52C2A
             .          .          .          .
             .          .          .          .
349          .          .     52C2AC............
             .          .          .
             .          .          .
352          .          .          .       52C2B
             .          .          .          .
             .          .          .          .
358          .          .     52C2BC............
             .          .          V
             .          .          V
361          .          .     52C2BR
             .          .          .
             .          .          .
364          .          .          .       52C2C
             .          .          .          .
             .          .          .          .
370          .          .     52C2CC............
             .          .          V
             .          .          V
373          .          .      52C2R
             .          .          .
             .          .          .
376          .          .          .        52C4
             .          .          .          .
             .          .          .          .
382          .          .     52C4C1............
             .          .          .
             .          .          .
385          .     52C4C2............
             .          V
             .          V
388          .      52C4R
             .          .
             .          .
391          .          .      52C13
             .          .          .
             .          .          .
399          .          .          .-------> STORM
397          .          .     2C13DV
             .          .          .
             .          .          .
402          .          .          .       52C15
             .          .          .          .
             .          .          .          .
408          .          .     2C15C1............
             .          .          .
             .          .          .
411          .     2C15C2............
             .          V
             .          V
414          .     52C15R
             .          .
             .          .
417          .          .     52C14A
             .          .          .
             .          .          .
423          .     2C14AC............
             .          V
             .          V
426          .     2C14AR
             .          .
             .          .
431          .          .          .<------- 51C1DV
429          .          .     51C1DV
             .          .          .
             .          .          .
434          .          .          .-------> 51C2DV
432          .          .      51C2D
             .          .          V
             .          .          V
437          .          .      51C2R
             .          .          .
             .          .          .
440          .          .          .        52C5
             .          .          .          .
             .          .          .          .
```

```
446          .          .      52C5C............
             .          .          V
             .          .          V
449          .          .      52C5R
             .          .          .
             .          .          .
452          .          .          .       52C6
             .          .          .          .
             .          .          .          .
458          .          .      52C6C............
             .          .          V
             .          .          V
461          .          .      52C6R
             .          .          .
             .          .          .
466          .          .          .          .<-------  51C2DV
464          .          .          .     51C2DV
             .          .          .          V
             .          .          .          V
467          .          .          .      51C3R
             .          .          .          .
             .          .          .          .
470          .          .          .          .         51B
             .          .          .          .          .
             .          .          .          .          .
478          .          .          .          .          .-------> 51B1DV
476          .          .          .          .      51B1D
             .          .          .          .          V
             .          .          .          .          V
481          .          .          .          .      51B1R
             .          .          .          .          .
             .          .          .          .          .
484          .          .          .          .          .        52C7
             .          .          .          .          .          .
             .          .          .          .          .          .
490          .          .          .      52C7C........................
             .          .          .          V
             .          .          .          V
493          .          .          .      52C7R
             .          .          .          .
             .          .          .          .
498          .          .          .          .          .<-------  51B1DV
496          .          .          .          .     51B1DV
             .          .          .          .          .
             .          .          .          .          .
501          .          .          .          .          .-------> 51B2DV
499          .          .          .          .      51B2D
             .          .          .          .          V
             .          .          .          .          V
504          .          .          .          .      51B2R
             .          .          .          .          .
             .          .          .          .          .
507          .          .          .          .          .        52C8
             .          .          .          .          .          .
             .          .          .          .          .          .
513          .          .          .          .      52C8C............
             .          .          .          .          V
             .          .          .          .          V
516          .          .          .          .      52C8R
             .          .          .          .          .
             .          .          .          .          .
519          .          .          .      52C9C1............
             .          .          .          V
             .          .          .          V
522          .          .          .      52C9R1
             .          .          .          .
             .          .          .          .
525          .          .          .          .       52C9
             .          .          .          .          .
             .          .          .          .          .
531          .          .          .      52C9C2............
             .          .          .          V
             .          .          .          V
534          .          .          .      52C9R2
             .          .          .          .
             .          .          .          .
537          .          .     2C10C1............
             .          .          V
             .          .          V
540          .          .     2C10R1
             .          .          .
             .          .          .
543          .          .          .      52C10
             .          .          .          .
             .          .          .          .
549          .          .     2C10C2............
             .          .          .
             .          .          .
552          .          .          .      52C11
             .          .          .          V
             .          .          .          V
558          .          .          .     2C11R1
             .          .          .          .
             .          .          .          .
563          .          .          .          .          .<-------   STORM
```

```
561          .          .          .          .      52C13D
             .          .          .          .          .
             .          .          .          .          .
564          .          .          .     52C11C............
             .          .          .          V
             .          .          .          V
567          .          .          .     2C11CR
             .          .          .          .
             .          .          .          .
570          .          .     2C11C2............
             .          .          V
             .          .          V
573          .          .     2C11R2
             .          .          .
             .          .          .
576          .          .          .      52C12
             .          .          .          .
             .          .          .          .
582          .          .     52C12C............
             .          .          V
             .          .          V
585          .          .     52C12R
             .          .          .
             .          .          .
588          .          .          .     52C14B
             .          .          .          .
             .          .          .          .
594          .          .     C14BC1............
             .          .          .
             .          .          .
597          .     C14BC2............
             .          V
             .          V
600          .     52C14R
             .          .
             .          .
605          .          .          .<-------  51B2DV
603          .          .     51B2DV
             .          .          .
             .          .          .
608          .          .          .------->  51B3DV
606          .          .      51B3D
             .          .          V
             .          .          V
611          .          .      51B3R
             .          .          .
             .          .          .
614          .          .          .       52B1
             .          .          .          .
             .          .          .          .
620          .          .      52B1C............
             .          .          V
             .          .          V
623          .          .      52B1R
             .          .          .
             .          .          .
628          .          .          .          .<-------  51B3DV
626          .          .          .     51B3DV
             .          .          .          .
             .          .          .          .
631          .          .          .          .------->  51B4DV
629          .          .          .      51B4D
             .          .          .          V
             .          .          .          V
634          .          .          .     51B4R1
             .          .          .          .
             .          .          .          .
637          .          .     52B2C1............
             .          .          V
             .          .          V
640          .          .     52B2R1
             .          .          .
             .          .          .
643          .          .          .       52B2
             .          .          .          .
             .          .          .          .
649          .          .     52B2C2............
             .          .          V
             .          .          V
652          .          .     52B2R2
             .          .          V
             .          .          V
655          .          .     52B3R1
             .          .          .
             .          .          .
658          .          .          .       52B3
             .          .          .          .
             .          .          .          .
664          .          .     52B3C2............
             .          .          V
             .          .          V
667          .          .     52B3R2
             .          .          .
             .          .          .
670          .          .          .       52B4
```

```
                .          .          .          .
                .          .          .          .
676             .          .      52B4C...........
                .          .          V
                .          .          V
679             .          .      52B4R
                .          .          .
                .          .          .
682             .          .          .       52B5
                .          .          .          .
                .          .          .          .
688             .          .     52B5C1...........
                .          .          .
                .          .          .
691             .     52B5C2...........
                .          V
                .          V
694             .      52B5R
                .          .
                .          .
699             .          .          .<-------  51B4DV
697             .          .     51B4DV
                .          .          .
                .          .          .
702             .          .          .------->  51B5DV
700             .          .      51B5D
                .          .          V
                .          .          V
705             .          .      51B5R
                .          .          .
                .          .          .
710             .          .          .          .<-------  51B5DV
708             .          .          .     51B5DV
                .          .          .          .
                .          .          .          .
713             .          .          .          .------->  51B6DV
711             .          .          .      51B6D
                .          .          .          V
                .          .          .          V
716             .          .          .      51B6R
                .          .          .          .
                .          .          .          .
721             .          .          .          .          .<-------  51B6DV
719             .          .          .          .     51B6DV
                .          .          .          .          .
                .          .          .          .          .
724             .          .          .          .          .------->  51B7DV
722             .          .          .          .      51B7D
                .          .          .          .          V
                .          .          .          .          V
727             .          .          .          .     51B7R1
                .          .          .          .          .
                .          .          .          .          .
730             .          .      51B7C.......................
                .          .          V
                .          .          V
733             .          .     51B7R2
                .          .          .
                .          .          .
736             .          .          .       52B6
                .          .          .          .
                .          .          .          .
742             .          .      52B6C...........
                .          .          V
                .          .          V
745             .          .      52B6R
                .          .          .
                .          .          .
748             .          .          .       52B7
                .          .          .          .
                .          .          .          .
754             .          .     52B7C1...........
                .          .          .
                .          .          .
757             .     52B7C2...........
                .          .
                .          .
760             .          .       52A2
                .          .          .
                .          .          .
766             .     52A2C2...........
                .          .
                .          .
771             .          .          .<-------  51B7DV
769             .          .     51B7DV
                .          .          V
                .          .          V
772             .          .      51B8R
                .          .          .
                .          .          .
775             .          .          .       52A1
                .          .          .          .
                .          .          .          .
781             .          .      52A1C...........
                .          .          .
```

```
                .          .          .
786             .          .          .          .<-------  B51.1T
784             .          .          .      D51.1
                .          .          .          .
                .          .          .          .
787             .          .      C52A............
                .          .          .
                .          .          .
791             .       C52............
                .         V
                .         V
795             .       R52
                .         .
                .         .
802             .         .------->    B52T
800             .      D52T
                .         .
                .         .
805         CLEAR............
                .
                .
808             .       37A
                .         .
                .         .
825             .         .------->    37AW
814             .      37AE
                .         V
                .         V
828             .     37AE1
                .         .
                .         .
835             .         .      SUB5N
                .         .          .
                .         .          .
842             .      CP5N............
                .         V
                .         V
845             .     RET5N
                .         V
                .         V
852             .     R6N.1
                .         .
                .         .
860             .         .      SUB6B
                .         .          V
                .         .          V
866             .         .       SR6B
                .         .          .
                .         .          .
872             .     CP6.1............
                .         .
                .         .
875             .         .      SUB1N
                .         .          V
                .         .          V
881             .         .       R2NA
                .         .          .
                .         .          .
887             .         .          .      SUB2NA
                .         .          .          .
                .         .          .          .
893             .         .      CP2NA............
                .         .          V
                .         .          V
896             .         .      SR2NA
                .         .          V
                .         .          V
902             .         .       R2NB
                .         .          .
                .         .          .
908             .         .          .      SUB2NB
                .         .          .          .
                .         .          .          .
914             .         .      CP2NB............
                .         .          V
                .         .          V
917             .         .      SR2NB
                .         .          V
                .         .          V
923             .         .      RCP4N
                .         .          .
                .         .          .
929             .         .          .      SUB6N
                .         .          .          V
                .         .          .          V
935             .         .          .      RET6N
                .         .          .          V
                .         .          .          V
941             .         .          .     RCP4N1
                .         .          .          .
                .         .          .          .
947             .         .     CP4N.1............
                .         .          .
                .         .          .
950             .         .          .      SUB3N
```

```
                .          .          .          V
                .          .          .          V
956             .          .          .       RET3N
                .          .          .          V
                .          .          .          V
963             .          .          .         R4N
                .          .          .          .
                .          .          .          .
969             .          .     CP4N.2...........
                .          .          .
                .          .          .
972             .          .          .       SUB4N
                .          .          .          .
                .          .          .          .
978             .          .       CP4N...........
                .          .          V
                .          .          V
981             .          .        R6N
                .          .          .
                .          .          .
987             .          .          .       SUB6A
                .          .          .          .
                .          .          .          .
993             .          .      CP6.2...........
                .          .          .
                .          .          .
996             .       CP6N...........
                .          V
                .          V
999             .      RCP6N
                .          .
                .          .
1005            .          .      SUB3C
                .          .          .
                .          .          .
1011            .       CP3C...........
                .          V
                .          V
1014            .        R3C
                .          .
                .          .
1022            .          .     GC1018
                .          .          .
                .          .          .
1028            .          .          .       GC1-9
                .          .          .          .
                .          .          .          .
1034            .          .          .          .       SUB3S
                .          .          .          .          .
                .          .          .          .          .
1040            .       CP3S.................................
                .          V
                .          V
1043            .       RT3S
                .          .
                .          .
1049            .          .      SUB4S
                .          .          V
                .          .          V
1055            .          .       RT4S
                .          .          .
                .          .          .
1061            .          .          .       GC2-8
                .          .          .          .
                .          .          .          .
1067            .     1PGC28......................
                .          .
                .          .
1070            .          .     SUB3D3
                .          .          .
                .          .          .
1076            .     CPGC28...........
                .          V
                .          V
1079            .     SRGC28
                .          V
                .          V
1085            .       RT7S
                .          .
                .          .
1091            .          .        GC7
                .          .          .
                .          .          .
1097            .       CP7S...........
                .          .
                .          .
1105            .          .-------->    B7ST
1100            .       D7ST
                .          .
                .          .
1108       CLEAR............
                .
                .
1111            .     SUB3D1
                .          V
```

```
                .          V
1116            .      RD1B1
                .          .
                .          .
1122            .          .     SUB3B1
                .          .          .
                .          .          .
1127            .      CP3B1............
                .          V
                .          V
1130            .      RB13F
                .          .
                .          .
1136            .          .      SUB3F
                .          .          .
                .          .          .
1142            .       CP3F............
                .          .
                .          .
1145            .          .     SUB3B2
                .          .          V
                .          .          V
1150            .          .      RB2E1
                .          .          V
                .          .          V
1156            .          .      RB2E2
                .          .          .
                .          .          .
1162            .          .          .     SUB3E1
                .          .          .          .
                .          .          .          .
1167            .          .     1CPE31............
                .          .          .
                .          .          .
1170            .          .          .     SUB3D2
                .          .          .          V
                .          .          .          V
1175            .          .          .      RD2E2
                .          .          .          .
                .          .          .          .
1181            .          .          .          .     SUB3E2
                .          .          .          .          .
                .          .          .          .          .
1186            .          .          .      CP3E2............
                .          .          .          .
                .          .          .          .
1189            .          .          .          .        PC3
                .          .          .          .          .
                .          .          .          .          .
1198            .       CPC3...................................
                .          .
                .          .
1210            .          .-------->   BPC3T
1205            .      DPC3T
                .          .
                .          .
1213            .          .     SUB3E3
                .          .          .
                .          .          .
1218            .          .          .         PC4
                .          .          .          .
                .          .          .          .
1232            .          .          .          .          .<-------    B7ST
1227            .          .          .          .        D7S
                .          .          .          .          .
                .          .          .          .          .
1233            .          .       CPC4........................
                .          .          .
                .          .          .
1244            .          .          .-------->   BPC4T
1239            .          .      DPC4T
                .          .          .
                .          .          .
1247       CLEAR........................
                .
                .
1253            .          .<-------    37AW
1250            .       37AW
                .          V
                .          V
1254            .       R14R
                .          V
                .          V
1261            .      RET141
                .          V
                .          V
1268            .      R14.1
                .          .
                .          .
1275            .          .     SUB13N
                .          .          V
                .          .          V
1281            .          .      R14.1
                .          .          .
                .          .          .
```

```
1287          .           .           .      SUB14N
              .           .           .           .
              .           .           .           .
1293          .       CP14.......................
              .          V
              .          V
1296          .      RET14
              .          V
              .          V
1303          .      R18.1
              .           .
              .           .
1309          .           .      SUB20N
              .           .           V
              .           .           V
1315          .           .        R19
              .           .           .
              .           .           .
1321          .           .           .      SUB19N
              .           .           .           .
              .           .           .           .
1327          .           .      CP19N............
              .           .           V
              .           .           V
1330          .           .      R18NC
              .           .           .
              .           .           .
1336          .           .           .      UB18NC
              .           .           .           .
              .           .           .           .
1342          .     CP18NC.......................
              .          V
              .          V
1345          .       RPC1
              .           .
              .           .
1351          .           .      UB18NA
              .           .           V
              .           .           V
1357          .           .      1RPC1
              .           .           .
              .           .           .
1363          .           .           .      UB18NB
              .           .           .           V
              .           .           .           V
1369          .           .           .      2RPC1
              .           .           .           .
              .           .           .           .
1375          .           .           .           .        PC1
              .           .           .           .          .
              .           .           .           .          .
1381          .           .      1CPC1........................
              .           .           V
              .           .           V
1384          .           .      SRPC1
              .           .           .
              .           .           .
1390          .       CPC1............
              .          V
              .          V
1393          .     R16NA1
              .           .
              .           .
1399          .           .      UB16NA
              .           .           V
              .           .           V
1405          .           .      R16NA1
              .           .           .
              .           .           .
1411          .     C16NA1............
              .          V
              .          V
1414          .     R16NB1
              .           .
              .           .
1420          .           .      UB16NB
              .           .           V
              .           .           V
1426          .           .      R16NB1
              .           .           .
              .           .           .
1432          .     C16NB1............
              .          V
              .          V
1435          .     R16NC1
              .           .
              .           .
1441          .           .      SUB7N
              .           .           V
              .           .           V
1447          .           .       R8NC
              .           .           .
              .           .           .
1453          .           .           .      SUB8NA
              .           .           .           V
```

```
                 .         .         .         V
1459             .         .         .      SR8NA
                 .         .         .         V
                 .         .         .         V
1465             .         .         .      R8NB
                 .         .         .         .
                 .         .         .         .
1471             .         .         .         .      SUB8NB
                 .         .         .         .         .
                 .         .         .         .         .
1477             .         .         .      CP8NB............
                 .         .         .         V
                 .         .         .         V
1480             .         .         .      SR8NB
                 .         .         .         V
                 .         .         .         V
1486             .         .         .      R8NC
                 .         .         .         .
                 .         .         .         .
1492             .         .         .         .      SUB8NC
                 .         .         .         .         .
                 .         .         .         .         .
1498             .         .      CP8NC........................
                 .         .         V
                 .         .         V
1501             .         .      SR8NC
                 .         .         V
                 .         .         V
1507             .         .       R9N
                 .         .         .
                 .         .         .
1513             .         .         .      SUB9N
                 .         .         .         .
                 .         .         .         .
1519             .         .      CP9N............
                 .         .         V
                 .         .         V
1522             .         .      R10B
                 .         .         .
                 .         .         .
1528             .         .         .      SUB10B
                 .         .         .         .
                 .         .         .         .
1535             .         .      CP10B............
                 .         .         V
                 .         .         V
1538             .         .      R11NA
                 .         .         .
                 .         .         .
1544             .         .         .      UB11NA
                 .         .         .         .
                 .         .         .         .
1550             .         .      CP11NA............
                 .         .         V
                 .         .         V
1553             .         .      SR11NA
                 .         .         V
                 .         .         V
1559             .         .      R11NB
                 .         .         .
                 .         .         .
1565             .         .         .      UB11NB
                 .         .         .         .
                 .         .         .         .
1571             .         .      CP11NB............
                 .         .         V
                 .         .         V
1574             .         .      SR11NB
                 .         .         V
                 .         .         V
1580             .         .      R11NC
                 .         .         .
                 .         .         .
1586             .         .         .      UB11NC
                 .         .         .         .
                 .         .         .         .
1592             .         .      C11NC1............
                 .         .         .
                 .         .         .
1595             .         .         .      SUB10A
                 .         .         .         V
                 .         .         .         V
1602             .         .         .      R12NB
                 .         .         .         .
                 .         .         .         .
1608             .         .         .         .      UB12NA
                 .         .         .         .         V
                 .         .         .         .         V
1614             .         .         .         .      SR12NA
                 .         .         .         .         V
                 .         .         .         .         V
1620             .         .         .         .      R12NA
                 .         .         .         .         .
                 .         .         .         .         .
1626             .         .         .         .         .      UB12NB
```

```
                .         .         .         .         .         .
                .         .         .         .         .         .
1632            .         .         .     CP12NB.......................
                .         .         .         V
                .         .         .         V
1635            .         .         .     SR12NB
                .         .         .         V
                .         .         .         V
1641            .         .         .     R11NC2
                .         .         .         .
                .         .         .         .
1647            .         .     CP11NC............
                .         .         V
                .         .         V
1650            .         .     SR11NC
                .         .         V
                .         .         V
1657            .         .      R16NC
                .         .         .
                .         .         .
1663            .         .         .     UB16NC
                .         .         .         .
                .         .         .         .
1669            .         .     CP16NC............
                .         .         V
                .         .         V
1672            .         .     R16NC1
                .         .         .
                .         .         .
1678            .     C16NC1............
                .         V
                .         V
1681            .      R15N1
                .         .
                .         .
1687            .         .        PC2
                .         .         .
                .         .         .
1693            .     CP15N1............
                .         V
                .         V
1696            .      SRPC2
                .         .
                .         .
1703            .         .     UB17NA
                .         .         V
                .         .         V
1709            .         .     SR17NA
                .         .         V
                .         .         V
1715            .         .      R17NB
                .         .         .
                .         .         .
1721            .         .         .     UB17NB
                .         .         .         .
                .         .         .         .
1727            .         .     CP17NB............
                .         .         V
                .         .         V
1730            .         .     SR17NB
                .         .         V
                .         .         V
1736            .         .       R17A
                .         .         .
                .         .         .
1742            .         .         .     SUB17A
                .         .         .         .
                .         .         .         .
1748            .         .     CP17A1............
                .         .         .
                .         .         .
1751            .         .         .     UB17NC
                .         .         .         .
                .         .         .         .
1757            .         .      CP17A............
                .         .         V
                .         .         V
1760            .         .       R15N
                .         .         .
                .         .         .
1766            .         .         .     SUB15N
                .         .         .         .
                .         .         .         .
1773            .         .      CP15N............
                .         .         V
                .         .         V
1776            .         .      R15N2
                .         .         .
                .         .         .
1782            .     CP15N2............
                .         V
                .         V
1786            .      R15N2
                .         .
                .         .
```

```
1800          .           .           .<-------   BPC3T
1795          .           .        DPC3
              .           .           .
              .           .           .
1801          .      CPC3A............
              .          V
              .          V
1807          .      RPC3A
              .           .
              .           .
1821          .           .           .<-------   BPC4T
1816          .           .        DPC4
              .           .           .
              .           .           .
1822          .      CPC4A............
              .          V
              .          V
1828          .      RPC4A
              .           .
              .           .
1842          .           .-------> BPC4AT
1837          .     DPC4AT
              .           .
              .           .
1845          .           .     SUB1-2
              .           .           .
              .           .           .
1851          .           .           .     GCRB18
              .           .           .           .
              .           .           .           .
1858          .           .     CPRET1............
              .           .           V
              .           .           V
1861          .           .      SR18S
              .           .           .
              .           .           .
1867          .           .           .      SUB5S
              .           .           .           .
              .           .           .           .
1873          .           .           .           .      GC1216
              .           .           .           .           .
              .           .           .           .           .
1879          .           .           .           .           .      GC1415
              .           .           .           .           .           .
              .           .           .           .           .           .
1885          .           .           .           .           .           .      SUB6S
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
1891          .           .           .           .           .           .           .           .      SUB7S
              .           .           .           .           .           .           .           .           .
              .           .           .           .           .           .           .           .           .
1897          .           .           .     CPRET2.............................................
              .           .           .           V
              .           .           .           V
1900          .           .           .     SRRET2
              .           .           .           .
              .           .           .           .
1906          .           .      CLEAR............
              .           .           .
              .           .           .
1911          .           .           .      SUB8S
              .           .           .           V
              .           .           .           V
1917          .           .           .      RGC36
              .           .           .           .
              .           .           .           .
1923          .           .           .           .       GC36
              .           .           .           .           .
              .           .           .           .           .
1929          .           .           .     C1GC36............
              .           .           .           .
              .           .           .           .
1932          .           .           .           .      SUB9S
              .           .           .           .          V
              .           .           .           .          V
1938          .           .           .           .        R9S
              .           .           .           .           .
              .           .           .           .           .
1944          .           .           .     CPGC36............
              .           .           .           V
              .           .           .           V
1947          .           .           .     SRGC36
              .           .           .           .
              .           .           .           .
1953          .           .           .           .      SUB7A
              .           .           .           .          V
              .           .           .           .          V
1959          .           .           .           .       SR7A
              .           .           .           .          V
              .           .           .           .          V
1965          .           .           .           .       R10S
              .           .           .           .           .
              .           .           .           .           .
1971          .           .           .           .           .      SUB10S
              .           .           .           .           .           .
```

```
1977                                  CP10S............
                                          .
                                          .
1980                                      .     SUB11S
                                          .         V
                                          .         V
1986                                      .       R11S
                                          .          .
                                          .          .
1995                                      .     C10SA............
                                          .         V
                                          .         V
2000                                      .     R10SA
                                          .          .
                                          .          .
2009                                      .       GC45
                                          .          .
                                          .          .
2015                                      .     CGC45............
                                          .          .
                                          .          .
2020                                      .        PC5
                                          .          .
                                          .          .
2034                                      .          .          .<-------  BPC4AT
2029                                      .          .      DPC4A
                                          .          .          .
                                          .          .          .
2035                            CPC5...............................................
                                   V
                                   V
2042                             RC5
                                   .
                                   .
2048                                .      SCN5D
                                   .          .
                                   .          .
2054                            CN5D............
                                   .
                                   .
2059                                .<-------    B52T
2057                                .        D52
                                   .          .
                                   .          .
2060                                .          .       S53A
                                   .          .          .
                                   .          .          .
2067                                .        C53............
                                   .          .
                                   .          .
2070                                .          .      S53A1
                                   .          .          .
                                   .          .          .
2078                                .       C53A............
                                   .          .
                                   .          .
2081                                .          .      SCN6B
                                   .          .          .
                                   .          .          .
2091                                .       C53A............
                                   .          .
                                   .          .
2094                                .          .      SCN6D
                                   .          .          .
                                   .          .          .
2101                                .       CP6D............
                                   .          .
                                   .          .
2104                                .          .      SCN6C
                                   .          .          .
                                   .          .          .
2113                                .       CP6C............
                                   .          .
                                   .          .
2116                            CP5D............
                                   .
                                   .
2119                                .      SCN5C
                                   .          .
                                   .          .
2125                                .          .      SCN6E
                                   .          .          .
                                   .          .          .
2131                            EAST-I........................
                                   V
                                   V
2134                            EAST-O
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************                    *****************************************
*                                         *                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                    *    U.S. ARMY CORPS OF ENGINEERS       *
*              MAY   1991                 *                    *    HYDROLOGIC ENGINEERING CENTER      *
*           VERSION 4.0.1E                *                    *          609 SECOND STREET            *
```

```
                    PIMA ROAD THREE BASINS                          File: FU100-24.IH1
                    by  Stantec for the City of Scottsdale        Original: 08-07-97     mcg
                        Project:  28900082                         Revised: 01-20-99     mcg

                    100-YEAR, 24-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.

 17 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT           HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      4    0  ENDING DATE
                     NDTIME        1115  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE   83.25 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

        *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT
```

```
*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

WARNING --- ROUTED OUTFLOW (    920.) IS GREATER THAN MAXIMUM OUTFLOW (    850.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    878.) IS GREATER THAN MAXIMUM OUTFLOW (    850.) IN STORAGE-OUTFLOW TABLE

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

WARNING --- ROUTED OUTFLOW (    257.) IS GREATER THAN MAXIMUM OUTFLOW (    205.) IN STORAGE-OUTFLOW TABLE

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
```

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S30N	1264.	12.33	151.	44.	15.	0.65		
+	ROUTED TO	R30N	1240.	12.33	151.	44.	15.	0.65		
+									103.91	12.33
+	HYDROGRAPH AT	S31.1	447.	12.33	52.	15.	5.	0.27		
+	2 COMBINED AT	C31.1	1686.	12.33	203.	60.	20.	0.92		
+	HYDROGRAPH AT	S34.2	753.	12.33	88.	26.	9.	0.44		
+	2 COMBINED AT	C34.2	2440.	12.33	291.	86.	29.	1.36		
+	HYDROGRAPH AT	S35N	1354.	12.25	127.	37.	12.	0.55		
+	DIVERSION TO	D35NL	1354.	0.08	127.	37.	12.	0.55		
+	HYDROGRAPH AT	D35NR	0.	0.08	0.	0.	0.	0.55		
+	ROUTED TO	R35NR	0.	0.08	0.	0.	0.	0.55		
+									100.00	0.00
+	HYDROGRAPH AT	S36.2	433.	12.25	41.	12.	4.	0.21		
+	2 COMBINED AT	C36.2	433.	12.25	41.	12.	4.	0.76		
+	DIVERSION TO	D36.2L	433.	0.08	41.	12.	4.	0.76		
+	HYDROGRAPH AT	D36.2R	0.	0.08	0.	0.	0.	0.76		
+	ROUTED TO	R36.2R	0.	0.08	0.	0.	0.	0.76		
+									100.00	0.00
+	HYDROGRAPH AT	S34.1	2132.	12.25	232.	68.	23.	1.16		
+	2 COMBINED AT	C34.1	2132.	12.25	232.	68.	23.	1.92		
+	2 COMBINED AT	HVDB-I	4417.	12.33	523.	154.	51.	3.28		
+	ROUTED TO	HVDB-O	132.	15.75	131.	120.	51.	3.28		
+									2088.56	15.75
+	ROUTED TO	R34.1	132.	15.83	131.	120.	51.	3.28		
+									101.42	15.83
+	HYDROGRAPH AT	S36.1	181.	12.42	24.	7.	2.	0.14		
+	2 COMBINED AT	C36.1	282.	12.42	151.	126.	54.	3.42		

	ROUTED TO								
+		R36.1	279.	12.42	151.	126.	54.	3.42	
+									102.04 12.42
	HYDROGRAPH AT								
+		B35NL	1354.	12.25	127.	37.	12.	0.00	
	ROUTED TO								
+		R35NL	728.	12.75	127.	37.	12.	0.00	
+									103.95 12.75
	HYDROGRAPH AT								
+		B36.2L	433.	12.25	41.	12.	4.	0.00	
	ROUTED TO								
+		R36.2L	280.	12.50	41.	12.	4.	0.00	
+									102.00 12.50
	HYDROGRAPH AT								
+		S36R1A	801.	12.42	111.	33.	11.	0.63	
	4 COMBINED AT								
+		C36R1A	1822.	12.50	428.	206.	81.	4.05	
	HYDROGRAPH AT								
+		S36R1B	770.	12.42	103.	30.	10.	0.59	
	2 COMBINED AT								
+		C36R1B	2547.	12.42	531.	236.	91.	4.64	
	HYDROGRAPH AT								
+		S36R2A	294.	12.08	24.	7.	2.	0.13	
	2 COMBINED AT								
+		C36R2A	2623.	12.42	553.	242.	94.	4.77	
	ROUTED TO								
+		R36R2A	2623.	12.50	553.	242.	94.	4.77	
	HYDROGRAPH AT								
+		S36R2B	323.	12.33	40.	12.	4.	0.24	
	2 COMBINED AT								
+		C36R2B	2839.	12.50	593.	254.	98.	5.01	
	HYDROGRAPH AT								
+		S51.1	1298.	12.50	199.	59.	20.	1.13	
	2 COMBINED AT								
+		DVDB-I	4137.	12.50	792.	312.	118.	6.14	
	ROUTED TO								
+		DVDB-O	899.	13.42	403.	281.	118.	6.14	
+									1880.62 13.42
	DIVERSION TO								
+		B51.1T	899.	0.08	403.	281.	118.	6.14	
	HYDROGRAPH AT								
+		D51.1T	0.	0.08	0.	0.	0.	6.14	
	HYDROGRAPH AT								
+		52D4	128.	12.25	13.	4.	1.	0.07	
	ROUTED TO								
+		52D4R	125.	12.25	13.	4.	1.	0.07	
	HYDROGRAPH AT								
+		52D4B	66.	12.17	6.	2.	1.	0.02	
	2 COMBINED AT								
+		52D5C1	179.	12.25	19.	6.	2.	0.09	
	HYDROGRAPH AT								
+		52D5A	76.	12.17	6.	2.	1.	0.02	
	ROUTED TO								
+		52D5AR	72.	12.17	6.	2.	1.	0.02	
	2 COMBINED AT								
+		52D5C2	233.	12.25	25.	8.	3.	0.12	
	ROUTED TO								
+		52D5R	232.	12.25	26.	8.	3.	0.12	
	HYDROGRAPH AT								
+		52C3	23.	12.08	2.	1.	0.	0.01	
	ROUTED TO								
+		52C3R	22.	12.17	2.	1.	0.	0.01	
	HYDROGRAPH AT								
+		52C3B	53.	12.08	4.	1.	0.	0.02	
	2 COMBINED AT								

+	2C3BC1	71.	12.17	6.	2.	1.	0.02
+ 2 COMBINED AT	2C3BC2	291.	12.17	31.	10.	3.	0.14
+ ROUTED TO	52C3BR	277.	12.25	32.	10.	3.	0.14
+ HYDROGRAPH AT	51C	198.	12.17	18.	5.	2.	0.10
+ DIVERSION TO	51C1DV	132.	12.17	12.	4.	1.	0.10
+ HYDROGRAPH AT	51C1D	65.	12.17	6.	2.	1.	0.10
+ ROUTED TO	51C1R	60.	12.25	6.	2.	1.	0.10
+ HYDROGRAPH AT	52C1	72.	12.17	6.	2.	1.	0.03
+ 2 COMBINED AT	52C1C	121.	12.17	12.	3.	1.	0.13
+ ROUTED TO	52C1R	112.	12.25	12.	3.	1.	0.13
+ HYDROGRAPH AT	52C2A	41.	12.17	3.	1.	0.	0.02
+ 2 COMBINED AT	52C2AC	141.	12.17	15.	4.	1.	0.15
+ HYDROGRAPH AT	52C2B	63.	12.17	5.	1.	0.	0.03
+ 2 COMBINED AT	52C2BC	203.	12.17	20.	6.	2.	0.17
+ ROUTED TO	52C2BR	189.	12.25	20.	6.	2.	0.17
+ HYDROGRAPH AT	52C2C	45.	12.08	4.	1.	0.	0.01
+ 2 COMBINED AT	52C2CC	214.	12.25	24.	7.	2.	0.19
+ ROUTED TO	52C2R	211.	12.25	24.	7.	2.	0.19
+ HYDROGRAPH AT	52C4	54.	12.17	5.	1.	0.	0.02
+ 2 COMBINED AT	52C4C1	241.	12.25	28.	9.	3.	0.20
+ 2 COMBINED AT	52C4C2	518.	12.25	59.	18.	6.	0.34
+ ROUTED TO	52C4R	512.	12.25	60.	18.	6.	0.34
+ HYDROGRAPH AT	52C13	72.	12.08	5.	2.	1.	0.02
+ DIVERSION TO	STORM	40.	12.08	4.	1.	0.	0.02
+ HYDROGRAPH AT	2C13DV	32.	12.08	1.	0.	0.	0.02
+ HYDROGRAPH AT	52C15	151.	12.08	13.	4.	1.	0.05
+ 2 COMBINED AT	2C15C1	184.	12.08	13.	4.	1.	0.07
+ 2 COMBINED AT	2C15C2	601.	12.17	73.	22.	8.	0.41
+ ROUTED TO	52C15R	594.	12.25	73.	23.	8.	0.41
+ HYDROGRAPH AT	52C14A	136.	12.17	12.	4.	1.	0.04
+ 2 COMBINED AT	2C14AC	703.	12.17	85.	26.	9.	0.45
+ ROUTED TO	2C14AR	685.	12.17	85.	26.	9.	0.45

+	HYDROGRAPH AT	51C1DV	132.	12.17	12.	4.	1.	0.00
+	DIVERSION TO	51C2DV	36.	12.17	3.	1.	0.	0.00
+	HYDROGRAPH AT	51C2D	97.	12.17	9.	3.	1.	0.00
+	ROUTED TO	51C2R	86.	12.17	9.	3.	1.	0.00
+	HYDROGRAPH AT	52C5	41.	12.17	3.	1.	0.	0.02
+	2 COMBINED AT	52C5C	126.	12.17	12.	4.	1.	0.02
+	ROUTED TO	52C5R	125.	12.25	12.	4.	1.	0.02
+	HYDROGRAPH AT	52C6	87.	12.17	8.	2.	1.	0.04
+	2 COMBINED AT	52C6C	196.	12.25	20.	6.	2.	0.05
+	ROUTED TO	52C6R	190.	12.25	20.	6.	2.	0.05
+	HYDROGRAPH AT	51C2DV	36.	12.17	3.	1.	0.	0.00
+	ROUTED TO	51C3R	32.	12.25	3.	1.	0.	0.00
+	HYDROGRAPH AT	51B	715.	12.33	96.	29.	10.	0.57
+	DIVERSION TO	51B1DV	657.	12.33	88.	26.	9.	0.57
+	HYDROGRAPH AT	51B1D	57.	12.33	8.	2.	1.	0.57
+	ROUTED TO	51B1R	57.	12.33	8.	2.	1.	0.57
+	HYDROGRAPH AT	52C7	19.	12.08	1.	0.	0.	0.01
+	3 COMBINED AT	52C7C	90.	12.25	12.	4.	1.	0.58
+	ROUTED TO	52C7R	88.	12.33	12.	4.	1.	0.58
+	HYDROGRAPH AT	51B1DV	657.	12.33	88.	26.	9.	0.00
+	DIVERSION TO	51B2DV	552.	12.33	74.	22.	7.	0.00
+	HYDROGRAPH AT	51B2D	105.	12.33	14.	4.	1.	0.00
+	ROUTED TO	51B2R	103.	12.33	14.	4.	1.	0.00
+	HYDROGRAPH AT	52C8	23.	12.08	2.	1.	0.	0.01
+	2 COMBINED AT	52C8C	110.	12.33	16.	5.	2.	0.01
+	ROUTED TO	52C8R	107.	12.33	16.	5.	2.	0.01
+	2 COMBINED AT	52C9C1	195.	12.33	28.	8.	3.	0.59
+	ROUTED TO	52C9R1	191.	12.33	28.	8.	3.	0.59
+	HYDROGRAPH AT	52C9	181.	12.17	15.	5.	2.	0.07
+	2 COMBINED AT	52C9C2	294.	12.25	43.	13.	4.	0.65
+	ROUTED TO	52C9R2	294.	12.25	43.	13.	4.	0.65
+	2 COMBINED AT	2C10C1	484.	12.25	63.	19.	6.	0.71

+	ROUTED TO	2C10R1	479.	12.25	63.	19.	6.	0.71
+	HYDROGRAPH AT	52C10	33.	12.08	3.	1.	0.	0.01
+	2 COMBINED AT	2C10C2	495.	12.25	66.	20.	7.	0.72
+	HYDROGRAPH AT	52C11	103.	12.17	9.	3.	1.	0.04
+	ROUTED TO	2C11R1	96.	12.17	9.	3.	1.	0.04
+	HYDROGRAPH AT	52C13D	40.	12.08	4.	1.	0.	0.00
+	2 COMBINED AT	52C11C	136.	12.17	13.	4.	1.	0.04
+	ROUTED TO	2C11CR	128.	12.17	13.	4.	1.	0.04
+	2 COMBINED AT	2C11C2	612.	12.25	79.	24.	8.	0.76
+	ROUTED TO	2C11R2	603.	12.25	79.	24.	8.	0.76
+	HYDROGRAPH AT	52C12	111.	12.08	7.	2.	1.	0.02
+	2 COMBINED AT	52C12C	639.	12.25	86.	26.	9.	0.79
+	ROUTED TO	52C12R	624.	12.25	86.	26.	9.	0.79
+	HYDROGRAPH AT	52C14B	74.	12.08	6.	2.	1.	0.02
+	2 COMBINED AT	C14BC1	657.	12.25	92.	28.	9.	0.81
+	2 COMBINED AT	C14BC2	1330.	12.25	176.	54.	18.	1.26
+	ROUTED TO	52C14R	1324.	12.25	177.	54.	18.	1.26
+	HYDROGRAPH AT	51B2DV	552.	12.33	74.	22.	7.	0.00
+	DIVERSION TO	51B3DV	464.	12.33	62.	19.	6.	0.00
+	HYDROGRAPH AT	51B3D	88.	12.33	12.	4.	1.	0.00
+	ROUTED TO	51B3R	87.	12.33	12.	4.	1.	0.00
+	HYDROGRAPH AT	52B1	9.	12.08	1.	0.	0.	0.00
+	2 COMBINED AT	52B1C	90.	12.33	12.	4.	1.	0.00
+	ROUTED TO	52B1R	87.	12.33	12.	4.	1.	0.00
+	HYDROGRAPH AT	51B3DV	464.	12.33	62.	19.	6.	0.00
+	DIVERSION TO	51B4DV	380.	12.33	51.	15.	5.	0.00
+	HYDROGRAPH AT	51B4D	83.	12.33	11.	3.	1.	0.00
+	ROUTED TO	51B4R1	81.	12.33	11.	3.	1.	0.00
+	2 COMBINED AT	52B2C1	168.	12.33	24.	7.	2.	0.00
+	ROUTED TO	52B2R1	164.	12.42	24.	7.	2.	0.00
+	HYDROGRAPH AT	52B2	76.	12.17	6.	2.	1.	0.03
	2 COMBINED AT							

+	52B2C2	195.	12.33	30.	9.	3.	0.04
ROUTED TO							
+	52B2R2	192.	12.33	30.	9.	3.	0.04
ROUTED TO							
+	52B3R1	190.	12.42	30.	9.	3.	0.04
HYDROGRAPH AT							
+	52B3	150.	12.17	14.	4.	1.	0.06
2 COMBINED AT							
+	52B3C2	289.	12.25	43.	13.	4.	0.10
ROUTED TO							
+	52B3R2	279.	12.33	43.	13.	4.	0.10
HYDROGRAPH AT							
+	52B4	85.	12.17	7.	2.	1.	0.03
2 COMBINED AT							
+	52B4C	326.	12.25	50.	15.	5.	0.12
ROUTED TO							
+	52B4R	319.	12.25	50.	15.	5.	0.12
HYDROGRAPH AT							
+	52B5	68.	12.08	6.	2.	1.	0.02
2 COMBINED AT							
+	52B5C1	353.	12.25	56.	17.	6.	0.14
2 COMBINED AT							
+	52B5C2	1677.	12.25	232.	71.	24.	1.40
ROUTED TO							
+	52B5R	1655.	12.25	233.	71.	24.	1.40
HYDROGRAPH AT							
+	51B4DV	380.	12.33	51.	15.	5.	0.00
DIVERSION TO							
+	51B5DV	259.	12.33	35.	10.	3.	0.00
HYDROGRAPH AT							
+	51B5D	122.	12.33	16.	5.	2.	0.00
ROUTED TO							
+	51B5R	118.	12.33	16.	5.	2.	0.00
HYDROGRAPH AT							
+	51B5DV	259.	12.33	35.	10.	3.	0.00
DIVERSION TO							
+	51B6DV	137.	12.33	18.	5.	2.	0.00
HYDROGRAPH AT							
+	51B6D	122.	12.33	16.	5.	2.	0.00
ROUTED TO							
+	51B6R	119.	12.33	16.	5.	2.	0.00
HYDROGRAPH AT							
+	51B6DV	137.	12.33	18.	5.	2.	0.00
DIVERSION TO							
+	51B7DV	80.	12.33	11.	3.	1.	0.00
HYDROGRAPH AT							
+	51B7D	58.	12.33	8.	2.	1.	0.00
ROUTED TO							
+	51B7R1	57.	12.33	8.	2.	1.	0.00
3 COMBINED AT							
+	51B7C	294.	12.33	40.	12.	4.	0.00
ROUTED TO							
+	51B7R2	287.	12.42	40.	12.	4.	0.00
HYDROGRAPH AT							
+	52B6	216.	12.17	18.	5.	2.	0.10
2 COMBINED AT							
+	52B6C	373.	12.33	58.	17.	6.	0.10
ROUTED TO							
+	52B6R	369.	12.42	58.	17.	6.	0.10
HYDROGRAPH AT							
+	52B7	288.	12.17	24.	8.	3.	0.08
2 COMBINED AT							
+	52B7C1	486.	12.25	81.	25.	8.	0.18

+	2 COMBINED AT	52B7C2	2141.	12.25	314.	96.	32.	1.58	
+	HYDROGRAPH AT	52A2	247.	12.17	21.	7.	2.	0.06	
+	2 COMBINED AT	52A2C2	2293.	12.25	334.	103.	35.	1.64	
+	HYDROGRAPH AT	51B7DV	80.	12.33	11.	3.	1.	0.00	
+	ROUTED TO	51B8R	77.	12.42	11.	3.	1.	0.00	
+	HYDROGRAPH AT	52A1	355.	12.17	29.	9.	3.	0.13	
+	2 COMBINED AT	52A1C	367.	12.17	39.	12.	4.	0.13	
+	HYDROGRAPH AT	D51.1	899.	13.42	403.	281.	118.	0.00	
+	2 COMBINED AT	C52A	924.	13.42	429.	290.	122.	0.13	
+	2 COMBINED AT	C52	2694.	12.25	755.	383.	156.	1.77	
+	ROUTED TO	R52	2694.	12.33	755.	383.	156.	1.77	
+	DIVERSION TO	B52T	2694.	0.08	755.	383.	156.	1.77	
+	HYDROGRAPH AT	D52T	0.	0.08	0.	0.	0.	1.77	
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	7.92	
+	HYDROGRAPH AT	37A	1216.	12.25	136.	41.	14.	0.68	
+	DIVERSION TO	37AW	851.	12.25	95.	29.	10.	0.68	
+	HYDROGRAPH AT	37AE	365.	12.25	41.	12.	4.	0.68	
+	ROUTED TO	37AE1	371.	12.25	41.	12.	4.	0.68	
+									2.61 12.25
+	HYDROGRAPH AT	SUB5N	76.	12.17	6.	2.	1.	0.03	
+	2 COMBINED AT	CP5N	422.	12.25	47.	14.	5.	0.71	
+	ROUTED TO	RET5N	380.	12.33	45.	14.	5.	0.71	
+									1807.40 12.33
+	ROUTED TO	R6N.1	325.	12.42	45.	14.	5.	0.71	
+									2.48 12.42
+	HYDROGRAPH AT	SUB6B	81.	12.17	7.	2.	1.	0.03	
+	ROUTED TO	SR6B	61.	12.25	7.	2.	1.	0.03	
+									1774.46 12.25
+	2 COMBINED AT	CP6.1	357.	12.42	51.	16.	5.	0.74	
+	HYDROGRAPH AT	SUB1N	48.	12.17	4.	1.	0.	0.02	
+	ROUTED TO	R2NA	49.	12.17	4.	1.	0.	0.02	
+									1.05 12.17
+	HYDROGRAPH AT	SUB2NA	37.	12.17	3.	1.	0.	0.01	
+	2 COMBINED AT	CP2NA	87.	12.17	7.	2.	1.	0.03	
+	ROUTED TO	SR2NA	73.	12.25	6.	2.	1.	0.03	
+									1775.46 12.25

	ROUTED TO								
+		R2NB	69.	12.25	6.	2.	1.	0.03	
+									1.44 12.25
	HYDROGRAPH AT								
+		SUB2NB	94.	12.17	8.	2.	1.	0.03	
	2 COMBINED AT								
+		CP2NB	130.	12.25	14.	4.	1.	0.06	
	ROUTED TO								
+		SR2NB	41.	12.58	13.	4.	1.	0.06	
+									1804.16 12.58
	ROUTED TO								
+		RCP4N	42.	12.58	13.	4.	1.	0.06	
+									1.05 12.58
	HYDROGRAPH AT								
+		SUB6N	122.	12.17	10.	3.	1.	0.05	
	ROUTED TO								
+		RET6N	0.	0.08	0.	0.	0.	0.05	
+									1785.53 58.33
	ROUTED TO								
+		RCP4N1	0.	0.08	0.	0.	0.	0.05	
	2 COMBINED AT								
+		CP4N.1	42.	12.58	13.	4.	1.	0.11	
	HYDROGRAPH AT								
+		SUB3N	73.	12.17	6.	2.	1.	0.03	
	ROUTED TO								
+		RET3N	4.	13.08	4.	2.	1.	0.03	
+									1795.10 13.17
	ROUTED TO								
+		R4N	4.	13.17	3.	2.	1.	0.03	
+									0.29 13.25
	2 COMBINED AT								
+		CP4N.2	46.	12.58	17.	6.	2.	0.14	
	HYDROGRAPH AT								
+		SUB4N	82.	12.17	7.	2.	1.	0.03	
	2 COMBINED AT								
+		CP4N	92.	12.17	23.	8.	3.	0.17	
	ROUTED TO								
+		R6N	90.	12.17	23.	8.	3.	0.17	
+									1.57 12.17
	HYDROGRAPH AT								
+		SUB6A	61.	12.08	4.	1.	0.	0.01	
	2 COMBINED AT								
+		CP6.2	127.	12.17	27.	9.	3.	0.18	
	2 COMBINED AT								
+		CP6N	411.	12.42	78.	25.	8.	0.92	
	ROUTED TO								
+		RCP6N	409.	12.42	78.	25.	8.	0.92	
+									2.10 12.42
	HYDROGRAPH AT								
+		SUB3C	53.	12.08	3.	1.	0.	0.01	
	2 COMBINED AT								
+		CP3C	416.	12.42	80.	26.	9.	0.93	
	ROUTED TO								
+		R3C	398.	12.42	80.	26.	9.	0.93	
+									1672.41 12.42
	HYDROGRAPH AT								
+		GC1018	111.	12.17	9.	3.	1.	0.04	
	HYDROGRAPH AT								
+		GC1-9	66.	12.17	5.	2.	1.	0.03	
	HYDROGRAPH AT								
+		SUB3S	32.	12.17	3.	1.	0.	0.01	
	4 COMBINED AT								
+		CP3S	463.	12.42	97.	31.	10.	1.01	
	ROUTED TO								
+		RT3S	457.	12.50	97.	31.	10.	1.01	
+									1744.14 12.50

+	HYDROGRAPH AT	SUB4S	85.	12.17	7.	2.	1.	0.03	
+	ROUTED TO	RT4S	85.	12.17	7.	2.	1.	0.03	
+									1743.43 12.17
+	HYDROGRAPH AT	GC2-8	35.	12.17	3.	1.	0.	0.01	
+	3 COMBINED AT	1PGC28	489.	12.42	107.	34.	11.	1.05	
+	HYDROGRAPH AT	SUB3D3	36.	12.17	3.	1.	0.	0.01	
+	2 COMBINED AT	CPGC28	498.	12.42	110.	35.	12.	1.07	
+	ROUTED TO	SRGC28	500.	12.25	110.	35.	12.	1.07	
+									1712.54 12.25
+	ROUTED TO	RT7S	491.	12.50	110.	35.	12.	1.07	
+									1744.32 12.50
+	HYDROGRAPH AT	GC7	34.	12.17	3.	1.	0.	0.01	
+	2 COMBINED AT	CP7S	504.	12.33	112.	35.	12.	1.08	
+	DIVERSION TO	B7ST	504.	0.08	112.	35.	12.	1.08	
+	HYDROGRAPH AT	D7ST	0.	0.08	0.	0.	0.	1.08	
+	2 COMBINED AT	CLEAR	0.	0.08	0.	0.	0.	9.00	
+	HYDROGRAPH AT	SUB3D1	27.	12.08	2.	1.	0.	0.01	
+	ROUTED TO	RD1B1	23.	12.17	2.	1.	0.	0.01	
+									1.75 12.17
+	HYDROGRAPH AT	SUB3B1	47.	12.08	3.	1.	0.	0.01	
+	2 COMBINED AT	CP3B1	63.	12.08	6.	2.	1.	0.02	
+	ROUTED TO	RB13F	49.	12.17	6.	2.	1.	0.02	
+									1.83 12.17
+	HYDROGRAPH AT	SUB3F	133.	12.08	10.	3.	1.	0.03	
+	2 COMBINED AT	CP3F	164.	12.08	15.	5.	2.	0.06	
+	HYDROGRAPH AT	SUB3B2	68.	12.17	6.	2.	1.	0.02	
+	ROUTED TO	RB2E1	65.	12.17	6.	2.	1.	0.02	
+									1.90 12.17
+	ROUTED TO	RB2E2	61.	12.25	6.	2.	1.	0.02	
+									1.93 12.25
+	HYDROGRAPH AT	SUB3E1	68.	12.17	6.	2.	1.	0.02	
+	2 COMBINED AT	1CPE31	127.	12.17	12.	4.	1.	0.05	
+	HYDROGRAPH AT	SUB3D2	59.	12.17	5.	2.	1.	0.02	
+	ROUTED TO	RD2E2	58.	12.17	5.	2.	1.	0.02	
+									1.82 12.17
+	HYDROGRAPH AT	SUB3E2	38.	12.08	3.	1.	0.	0.01	
+	2 COMBINED AT	CP3E2	87.	12.17	8.	2.	1.	0.03	

```
                HYDROGRAPH AT
+                        PC3      71.  12.25      8.      2.      1.    0.04
                4 COMBINED AT
+                       CPC3     422.  12.17     44.     13.      4.    0.18
                DIVERSION TO
+                      BPC3T     422.   0.08     44.     13.      4.    0.18
                HYDROGRAPH AT
+                      DPC3T      0.    0.08      0.      0.      0.    0.18
                HYDROGRAPH AT
+                     SUB3E3      62.  12.08      5.      1.      0.    0.02
                HYDROGRAPH AT
+                        PC4      34.  12.25      4.      1.      0.    0.02
                HYDROGRAPH AT
+                         D7S    504.  12.33    112.     35.     12.    0.00
                3 COMBINED AT
+                       CPC4     549.  12.33    120.     38.     13.    0.04
                DIVERSION TO
+                      BPC4T     549.   0.08    120.     38.     13.    0.04
                HYDROGRAPH AT
+                      DPC4T      0.    0.08      0.      0.      0.    0.04
                3 COMBINED AT
+                      CLEAR      0.    0.08      0.      0.      0.    9.22
                HYDROGRAPH AT
+                       37AW     851.  12.25     95.     29.     10.    0.00
                ROUTED TO
+                       R14R     712.  12.33     95.     29.     10.    0.00
+                                                                          3.41      12.33
                ROUTED TO
+                     RET141     710.  12.33     88.     29.     10.    0.00
+                                                                       1794.49      12.33
                ROUTED TO
+                      R14.1     610.  12.50     88.     29.     10.    0.00
+                                                                          3.18      12.50
                HYDROGRAPH AT
+                     SUB13N      90.  12.17      8.      2.      1.    0.04
                ROUTED TO
+                      R14.1      82.  12.25      8.      2.      1.    0.04
+                                                                          1.71      12.25
                HYDROGRAPH AT
+                     SUB14N     100.  12.17     10.      3.      1.    0.05
                3 COMBINED AT
+                       CP14     696.  12.42    106.     34.     11.    0.09
                ROUTED TO
+                      RET14     634.  12.50    100.     34.     11.    0.09
+                                                                       1755.59      12.50
                ROUTED TO
+                      R18.1     638.  12.58    100.     34.     11.    0.09
+                                                                          2.62      12.58
                HYDROGRAPH AT
+                     SUB20N      53.  12.17      5.      2.      1.    0.02
                ROUTED TO
+                        R19      50.  12.25      5.      2.      1.    0.02
+                                                                          1.22      12.25
                HYDROGRAPH AT
+                     SUB19N      98.  12.17      9.      3.      1.    0.04
                2 COMBINED AT
+                      CP19N     144.  12.17     14.      4.      1.    0.06
                ROUTED TO
+                      R18NC     137.  12.25     14.      4.      1.    0.06
+                                                                          1.74      12.25
                HYDROGRAPH AT
+                     UB18NC      62.  12.17      5.      2.      1.    0.02
                3 COMBINED AT
+                     CP18NC     689.  12.58    118.     40.     13.    0.17
                ROUTED TO
+                       RPC1     688.  12.58    118.     40.     13.    0.17
+                                                                          2.24      12.58
```

```
          HYDROGRAPH AT
+                    UB18NA      64.  12.17        5.        2.        1.     0.02
          ROUTED TO
+                     1RPC1      32.  12.33        5.        2.        1.     0.02
+                                                                            0.43      12.33
          HYDROGRAPH AT
+                    UB18NB      28.  12.08        2.        1.        0.     0.01
          ROUTED TO
+                     2RPC1      16.  12.25        2.        1.        0.     0.01
+                                                                            0.22      12.25
          HYDROGRAPH AT
+                       PC1      79.  12.33       12.        4.        1.     0.06
          3 COMBINED AT
+                     1CPC1     125.  12.33       20.        6.        2.     0.09
          ROUTED TO
+                     SRPC1     125.  12.33       20.        6.        2.     0.09
+                                                                         1748.36      12.33
          2 COMBINED AT
+                      CPC1     791.  12.50      137.       46.       15.     0.26
          ROUTED TO
+                    R16NA1     788.  12.58      137.       46.       15.     0.26
+                                                                            2.14      12.58
          HYDROGRAPH AT
+                    UB16NA      42.  12.17        3.        1.        0.     0.01
          ROUTED TO
+                    R16NA1      38.  12.17        3.        1.        0.     0.01
+                                                                            0.77      12.17
          2 COMBINED AT
+                    C16NA1     796.  12.58      141.       47.       16.     0.28
          ROUTED TO
+                    R16NB1     810.  12.58      141.       47.       16.     0.28
+                                                                            2.17      12.58
          HYDROGRAPH AT
+                    UB16NB      47.  12.17        4.        1.        0.     0.02
          ROUTED TO
+                    R16NB1      44.  12.17        4.        1.        0.     0.02
+                                                                            0.83      12.17
          2 COMBINED AT
+                    C16NB1     819.  12.58      144.       48.       16.     0.29
          ROUTED TO
+                    R16NC1     824.  12.58      144.       48.       16.     0.29
+                                                                            2.73      12.58
          HYDROGRAPH AT
+                     SUB7N      80.  12.17        6.        2.        1.     0.03
          ROUTED TO
+                      R8NC      71.  12.17        6.        2.        1.     0.03
+                                                                            1.58      12.17
          HYDROGRAPH AT
+                    SUB8NA      15.  12.08        1.        0.        0.     0.00
          ROUTED TO
+                     SR8NA       1.  13.00        1.        0.        0.     0.00
+                                                                         1793.62      13.08
          ROUTED TO
+                      R8NB       1.  13.00        1.        0.        0.     0.00
+                                                                            0.01      13.08
          HYDROGRAPH AT
+                    SUB8NB      40.  12.08        3.        1.        0.     0.01
          2 COMBINED AT
+                     CP8NB      40.  12.08        3.        1.        0.     0.02
          ROUTED TO
+                     SR8NB       2.  11.83        2.        1.        0.     0.02
+                                                                         1787.79      13.67
          ROUTED TO
+                      R8NC       2.  11.92        2.        1.        0.     0.02
+                                                                            0.02      11.92
          HYDROGRAPH AT
+                    SUB8NC      57.  12.08        4.        1.        0.     0.02
```

	3 COMBINED AT								
+		CP8NC	113.	12.17	12.	4.	1.	0.07	
	ROUTED TO								
+		SR8NC	36.	12.50	12.	4.	1.	0.07	
+									1780.16 12.50
	ROUTED TO								
+		R9N	34.	12.50	12.	4.	1.	0.07	
+									0.77 12.50
	HYDROGRAPH AT								
+		SUB9N	148.	12.17	12.	4.	1.	0.05	
	2 COMBINED AT								
+		CP9N	159.	12.17	24.	8.	3.	0.12	
	ROUTED TO								
+		R10B	158.	12.17	24.	8.	3.	0.12	
+									1.76 12.17
	HYDROGRAPH AT								
+		SUB10B	89.	12.08	7.	2.	1.	0.03	
	2 COMBINED AT								
+		CP10B	235.	12.17	31.	10.	3.	0.15	
	ROUTED TO								
+		R11NA	239.	12.17	31.	10.	3.	0.15	
+									1.81 12.17
	HYDROGRAPH AT								
+		UB11NA	24.	12.08	2.	0.	0.	0.01	
	2 COMBINED AT								
+		CP11NA	256.	12.17	32.	10.	3.	0.16	
	ROUTED TO								
+		SR11NA	151.	12.25	32.	10.	3.	0.16	
+									1743.59 12.25
	ROUTED TO								
+		R11NB	161.	12.33	32.	10.	3.	0.16	
+									0.80 12.33
	HYDROGRAPH AT								
+		UB11NB	25.	12.08	2.	0.	0.	0.01	
	2 COMBINED AT								
+		CP11NB	168.	12.33	33.	11.	4.	0.17	
	ROUTED TO								
+		SR11NB	102.	12.50	33.	11.	4.	0.17	
+									1737.89 12.50
	ROUTED TO								
+		R11NC	101.	12.42	32.	11.	4.	0.17	
+									0.62 12.42
	HYDROGRAPH AT								
+		UB11NC	22.	12.08	1.	0.	0.	0.01	
	2 COMBINED AT								
+		C11NC1	105.	12.42	34.	11.	4.	0.17	
	HYDROGRAPH AT								
+		SUB10A	90.	12.08	7.	2.	1.	0.03	
	ROUTED TO								
+		R12NB	93.	12.17	7.	2.	1.	0.03	
+									0.81 12.17
	HYDROGRAPH AT								
+		UB12NA	38.	12.08	3.	1.	0.	0.02	
	ROUTED TO								
+		SR12NA	1.	16.67	1.	1.	0.	0.02	
+									1743.49 16.58
	ROUTED TO								
+		R12NA	1.	16.17	1.	1.	0.	0.02	
+									0.01 16.67
	HYDROGRAPH AT								
+		UB12NB	40.	12.08	3.	1.	0.	0.02	
	3 COMBINED AT								
+		CP12NB	132.	12.17	11.	4.	1.	0.06	
	ROUTED TO								
+		SR12NB	6.	13.50	3.	2.	1.	0.06	
+									1746.03 13.50
	ROUTED TO								
+		R11NC2	6.	13.58	3.	2.	1.	0.06	

```
+                                                                                                  0.19        13.58
          2 COMBINED AT
+                        CP11NC     107.  12.42     37.     13.     5.    0.23
          ROUTED TO
+                        SR11NC      96.  12.67     35.     13.     5.    0.23
+                                                                                             1735.82        12.67
          ROUTED TO
+                         R16NC      95.  12.67     35.     13.     5.    0.23
+                                                                                                 1.61        12.67
          HYDROGRAPH AT
+                        UB16NC     101.  12.17      8.      3.     1.    0.03
          2 COMBINED AT
+                        CP16NC     110.  12.17     42.     16.     6.    0.27
          ROUTED TO
+                        R16NC1     110.  12.17     42.     16.     6.    0.27
+                                                                                                 1.25        12.17
          2 COMBINED AT
+                        C16NC1     913.  12.58    187.     63.    22.    0.56
          ROUTED TO
+                         R15N1     896.  12.58    187.     63.    22.    0.56
+                                                                                                 2.84        12.58
          HYDROGRAPH AT
+                           PC2     104.  12.17     10.      3.     1.    0.05
          2 COMBINED AT
+                        CP15N1     926.  12.58    197.     66.    23.    0.61
          ROUTED TO
+                         SRPC2     920.  12.67    197.     66.    23.    0.61
+                                                                                             1735.23        12.67
          HYDROGRAPH AT
+                        UB17NA      31.  12.08      2.      1.     0.    0.01
          ROUTED TO
+                        SR17NA       4.  12.58      1.      1.     0.    0.01
+                                                                                             1759.16        12.58
          ROUTED TO
+                         R17NB       4.  12.67      1.      1.     0.    0.01
+                                                                                             1756.04        12.67
          HYDROGRAPH AT
+                        UB17NB      30.  12.08      2.      1.     0.    0.01
          2 COMBINED AT
+                        CP17NB      31.  12.08      4.      1.     0.    0.02
          ROUTED TO
+                        SR17NB       1.  11.75      1.      1.     0.    0.02
+                                                                                             1756.86        23.25
          ROUTED TO
+                          R17A       1.  11.75      1.      1.     0.    0.02
+                                                                                             1752.09        11.75
          HYDROGRAPH AT
+                        SUB17A      30.  12.08      2.      1.     0.    0.01
          2 COMBINED AT
+                        CP17A1      31.  12.08      3.      2.     1.    0.03
          HYDROGRAPH AT
+                        UB17NC      20.  12.08      1.      0.     0.    0.01
          2 COMBINED AT
+                         CP17A      51.  12.08      4.      2.     1.    0.03
          ROUTED TO
+                          R15N      36.  12.17      4.      2.     1.    0.03
+                                                                                                 0.95        12.17
          HYDROGRAPH AT
+                        SUB15N     136.  12.17     11.      4.     1.    0.04
          2 COMBINED AT
+                         CP15N     172.  12.17     15.      5.     2.    0.07
          ROUTED TO
+                         R15N2     175.  12.17     15.      5.     2.    0.07
+                                                                                                 1.95        12.17
          2 COMBINED AT
+                        CP15N2     945.  12.67    211.     71.    25.    0.69
          ROUTED TO
```

```
+                    R15N2      912.  12.75      210.      71.      25.    0.69
+                                                                                  2.54      12.75
        HYDROGRAPH AT
+                     DPC3      422.  12.17       44.      13.       4.    0.00
        2 COMBINED AT
+                    CPC3A      973.  12.75      252.      84.      29.    0.69
        ROUTED TO
+                    RPC3A      971.  12.75      252.      84.      29.    0.69
+                                                                                  2.61      12.75
        HYDROGRAPH AT
+                     DPC4      549.  12.33      120.      38.      13.    0.00
        2 COMBINED AT
+                    CPC4A     1369.  12.75      372.     122.      42.    0.69
        ROUTED TO
+                    RPC4A     1365.  12.75      372.     122.      42.    0.69
+                                                                                  3.04      12.75
        DIVERSION TO
+                   BPC4AT     1365.   0.08      372.     122.      42.    0.69
        HYDROGRAPH AT
+                   DPC4AT        0.   0.08        0.       0.       0.    0.69
        HYDROGRAPH AT
+                   SUB1-2      173.  12.17       16.       5.       2.    0.06
        HYDROGRAPH AT
+                   GCRB18       29.  12.17        3.       1.       0.    0.01
        2 COMBINED AT
+                   CPRET1      203.  12.17       19.       6.       2.    0.07
        ROUTED TO
+                    SR18S        0.   0.08        0.       0.       0.    0.07
+                                                                               1739.51      73.75
        HYDROGRAPH AT
+                    SUB5S       73.  12.17        6.       2.       1.    0.03
        HYDROGRAPH AT
+                   GC1216       92.  12.17        8.       2.       1.    0.04
        HYDROGRAPH AT
+                   GC1415      112.  12.17        9.       3.       1.    0.05
        HYDROGRAPH AT
+                    SUB6S       55.  12.17        5.       2.       1.    0.02
        HYDROGRAPH AT
+                    SUB7S       80.  12.17        7.       2.       1.    0.03
        5 COMBINED AT
+                   CPRET2      412.  12.17       35.      10.       3.    0.16
        ROUTED TO
+                   SRRET2        0.   0.08        0.       0.       0.    0.16
+                                                                               1690.14      82.58
        2 COMBINED AT
+                    CLEAR        0.   0.08        0.       0.       0.    0.22
        HYDROGRAPH AT
+                    SUB8S       77.  12.17        6.       2.       1.    0.03
        ROUTED TO
+                    RGC36       66.  12.17        6.       2.       1.    0.03
+                                                                                  1.17      12.17
        HYDROGRAPH AT
+                     GC36       96.  12.17        8.       2.       1.    0.04
        2 COMBINED AT
+                   C1GC36      161.  12.17       15.       4.       1.    0.07
        HYDROGRAPH AT
+                    SUB9S       66.  12.17        6.       2.       1.    0.02
        ROUTED TO
+                     R9S        68.  12.17        6.       2.       1.    0.02
+                                                                                  3.47      12.17
        2 COMBINED AT
+                   CPGC36      229.  12.17       20.       6.       2.    0.09
        ROUTED TO
+                   SRGC36      257.  12.17       20.       6.       2.    0.09
+                                                                               1669.28      12.17
        HYDROGRAPH AT
```

```
+                    SUB7A     27.  12.08      2.      1.      0.    0.01
        ROUTED TO
+                    SR7A       8.  12.42      2.      1.      0.    0.01
+                                                                          1702.27    12.42
        ROUTED TO
+                    R10S       7.  12.58      2.      1.      0.    0.01
+                                                                             2.60    12.58
        HYDROGRAPH AT
+                   SUB10S     77.  12.17      7.      2.      1.    0.02
        2 COMBINED AT
+                    CP10S     79.  12.17      9.      3.      1.    0.03
        HYDROGRAPH AT
+                   SUB11S    113.  12.08      7.      2.      1.    0.02
        ROUTED TO
+                    R11S      84.  12.17      7.      2.      1.    0.02
+                                                                             3.70    12.17
        2 COMBINED AT
+                    C10SA    164.  12.17     16.      5.      2.    0.06
        ROUTED TO
+                    R10SA    168.  12.17     16.      5.      2.    0.06
+                                                                             4.26    12.17
        HYDROGRAPH AT
+                    GC45      48.  12.08      3.      1.      0.    0.01
        2 COMBINED AT
+                    CGC45    191.  12.17     18.      6.      2.    0.07
        HYDROGRAPH AT
+                     PC5      55.  12.25      7.      2.      1.    0.04
        HYDROGRAPH AT
+                   DPC4A    1365.  12.75    372.    122.     42.    0.00
        5 COMBINED AT
+                    CPC5    1466.  12.33    416.    136.     47.    0.42
        ROUTED TO
+                     RC5    1435.  12.42    416.    136.     47.    0.42
+                                                                             3.11    12.42
        HYDROGRAPH AT
+                   SCN5D      79.  12.25      8.      2.      1.    0.05
        2 COMBINED AT
+                    CN5D    1474.  12.42    424.    138.     47.    0.47
        HYDROGRAPH AT
+                     D52    2694.  12.33    755.    383.    156.    0.00
        HYDROGRAPH AT
+                    S53A     303.  12.25     32.      9.      3.    0.18
        2 COMBINED AT
+                     C53    2943.  12.33    786.    392.    159.    0.18
        HYDROGRAPH AT
+                   S53A1     529.  12.33     63.     19.      6.    0.34
        2 COMBINED AT
+                    C53A    3472.  12.33    849.    410.    166.    0.52
        HYDROGRAPH AT
+                   SCN6B     156.  12.17     13.      4.      1.    0.05
        2 COMBINED AT
+                    C53A    3557.  12.25    862.    413.    167.    0.57
        HYDROGRAPH AT
+                   SCN6D      74.  12.17      6.      2.      1.    0.04
        2 COMBINED AT
+                    CP6D    3599.  12.25    868.    415.    168.    0.61
        HYDROGRAPH AT
+                   SCN6C     365.  12.17     32.     10.      3.    0.14
        2 COMBINED AT
+                    CP6C    3899.  12.25    899.    424.    171.    0.74
        2 COMBINED AT
+                    CP5D    5237.  12.33   1323.    557.    218.    1.21
        HYDROGRAPH AT
+                   SCN5C     302.  12.25     30.      9.      3.    0.19
        HYDROGRAPH AT
```

```
+                        SCN6E        43.   12.50          7.          2.          1.       0.04
          3 COMBINED AT
+                        EAST-I     5508.   12.25       1360.        568.        222.       1.45
          ROUTED TO
+                        EAST-O     3460.   12.75       1347.        568.        222.       1.45
+                                                                                          1612.78       12.75
1
```

APPENDIX K

WEST SIDE ULTIMATE BUILD-OUT AND 50% NO CLOGGING CONDITION
100-YEAR, 6-HOUR OUTPUT FILE PRINTOUT
(W-1)

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY  1991               *
*           VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
* RUN DATE  03/01/99  TIME  08:28:51   *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

       1           ID    PIMA FREEWAY WEST BASIN
       2           ID    by Pentacore AZ                                    File: WB10024.IH1
       3           ID        Project:  5009.0001                            Date: 02-18-99  wso
       4           ID
       5           ID    Stand alone model for the Pima Freeway West Basin.
       6           ID    Stage-Discharge relation based on 50% clogging at trashrack.
       7           ID    100-yr, 24-hr model - ARF based on 0.93 sq.miles
       8           ID
       9           ID    The following header from original file by Stantec
      10           ID    ****************************************************************************
      11           ID
      12           ID    PIMA ROAD THREE BASINS                             File: FU100-24.IH1
      13           ID    by  Stantec for the City of Scottsdale           Original: 08-07-97     mcg
      14           ID        Project:  28900082                            Revised: 01-20-99     mcg
      15           ID
      16           ID
      17           ID    100-YEAR, 24-HOUR
      18           ID        ULTIMATE CONDITION:
      19           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
      20           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
      21           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
      22           ID           DETERMINED BY OTHERS.
      23           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
      24           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
      25           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
      26           ID
      27           ID    ****************************************************************************
      28           ID
                   *DIAGRAM
      29           IT       5                     720
      30           IO       5
                   *
                   *

      31           KK   SCNA1     SUB
      32           KM         RUNOFF FROM SUB CNA1
      33           BA  0.1168
                   *
                   *  100-year precipitation, 24-hour storm duration
                   *  ARF based on 0.93 square mile basin area
                   *
      34           PH            0.93      .84     1.53     2.46     2.75     2.94     3.31     3.74     4.17
      35           LS              77
      36           UK     300   0.015     0.13      100
      37           RK    1900   0.015     0.04             TRAP        0       20
                   *
      38           KM   ****************************************************************
      39           KM   ************ BEGIN GILBERTSON GRAYHAWK VILLAGE ******************
      40           KM   ****************************************************************
                   *
                   *
1                                          HEC-1 INPUT                                                    PAGE  2

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

      41           KK      1G
```

```
 42          KM
 43          KM        NOTE: ALL HEC-1 DATA FOR SUB-BASINS 1G THROUGH 1L ARE TAKEN FROM
 44          KM              GILBERTSON ASSOCIATES MODEL UDPLAN.DAT, AS PUBLISHED IN THE
 45          KM              AUGUST 1995 REPORT TITLED "UNIT DRAINAGE PLAN, GRAYHAWK VILLAGE 1"
 46          KM              THE GILBERTSON MODEL USED SCS UNIT HYDROGRAPH METHODOLOGY.
 47          KM
 48          KM              THE CITY OF SCOTTSDALE HAS REQUIRED GILBERTSON ASSOCIATES TO RE-DO
 49          KM              THIS MODEL WITH KINEMATIC WAVE METHOGOLOGY IN ORDER TO BE
 50          KM              CONSISTENT WITH ALL PREVIOUS MODELING EFFORTS FOR THIS AREA.
 51          KM              AS OF 10/18/95, GILBERTSON ASSOCIATES HAS NOT COMPLIED WITH THIS
 52          KM              REQUEST.  ACCORDINGLY, THE UNIT HYDROGRAPH DATA WILL BE USED FOR
 53          KM              THE REFERENCED SUB-BASINS UNTIL THIS REVISED MODELING DATA IS
 54          KM              AVAILABLE.
 55          KM        EXCESS RUNOFF FROM SUBAREA 1G
 56          BA    .059
 57          LS              74      53
 58          UD     .06
             *

 59          KK   DET1G
 60          KM        DETENTION FOR PARCEL 1G
 61          RS       1    STOR       0
 62          SV       0     4.8
 63          SQ       0      26
 64          SE       0       3
 65          ST       3      15     2.8     1.5
             *

 66          KK   R1GI1
 67          KM        ROUTE DET1G TO THOMPSON PEAK PARKWAY
 68          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 69          KM                        SIDE SLOPE = 3:1 (H:V)
 70          KM                        MAX DEPTH  = 1.6 FT.
 71          KM                        BOT.WIDTH  = 8.0 FT.
 72          RS       1    FLOW      -1
 73          RC   0.025   0.025   0.025    1400   0.017
 74          RX       0     0.5     1.0     5.8    13.8    18.6      19    19.5
 75          RY     1.8     1.7     1.6       0       0     1.6     1.7     1.8
             *

 76          KK      1I
 77          KM        EXCESS RUNOFF FROM SUBAREA 1I
 78          BA    .062
 79          LS              74      52
 80          UD     .07
             *

 81          KK   DET1I
 82          KM        DETENTION FOR SUBAREA 1I
 83          RS       1    STOR       0
 84          SV       0     4.0
 85          SQ       0      39
 86          SE       0       3
```



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

 87          ST       3      15     2.8     1.5
             *

 88          KK   CP1I1
 89          KM        COMBINE HYDROGRAPHS FROM R1GI1 AND DET1I
 90          HC       2
             *

 91          KK      1J
 92          KM        EXCESS RUNOFF FROM SUBAREA 1J
 93          BA   .0175
 94          LS              74      64
 95          UD     .06
             *

 96          KK   DET1J
 97          KM        DETENTION FOR SUBAREA 1J
 98          RS       1    STOR       0
 99          SV       0     2.1
100          SQ       0      11
101          SE       0       3
102          ST       3      15     2.8     1.5
             *

103          KK   R1JI2
104          KM        ROUTE DET1J TO 76TH STREET (WEST)
105          KM        TRIANGULAR CHANNEL PER PLANS (1661-E-94)
106          KM                        SIDE SLOPE = 4:1 (H:V)
107          KM                        MAX DEPTH  = 3.0 FT.
108          RS       1    FLOW      -1
109          RC    .025    .025    .025    1400    .005
110          RX       0     0.5     1.0    12.9      13      25    25.5      26
111          RY     3.2     3.1     3.0       0       0     3.0     3.1     3.2
             *

112          KK   CP1I2
113          KM        COMBINE HYDROGRAPHS FROM DET1J AND 1I
114          HC       2
```

```
                 *
 115             KK   R1IL1
 116             KM        ROUTE 1I TO 1L
 117             KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 118             KM                        SIDE SLOPE = 3:1 (H:V)
 119             KM                        MAX DEPTH  = 3.5 FT.
 120             KM                        BOT.WIDTH  = 8.0 FT.
 121             RS       1    FLOW      -1
 122             RC     .03     .03     .03     730    .015
 123             RX       0     0.5     1.0    11.5    19.5      30    30.5      31
 124             RY     3.7     3.6     3.5       0       0     3.5     3.6     3.7
                 *
1                                          HEC-1 INPUT                                          PAGE  4

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

 125             KK      1L
 126             KM        EXCESS RUNOFF FROM SUBAREA 1L
 127             BA   .0484
 128             LS              74       64
 129             UD    .217
                 *

 130             KK   CP1L1
 131             KM        COMBINE HYDROGRAPHS FROM 1L AND R1IL1
 132             HC       2
                 *
 133             KM   ****************************************************************
 134             KM   ************ END GILBERTSON GRAYHAWK VILLAGE ********************
 135             KM   ****************************************************************
                 *

 136             KK     RA2
 137             KM        ROUTE FLOW THROUGH SUBBASIN CNA2 FROM GRAYHAWK
 138             KM        TRAPEZOIDAL CHANNEL B=20 Z=10
 139             RS       2    FLOW      -1
 140             RC    .050   0.025    .050    4200  0.0167
 141             RX       0      10      20      60      80     120     130     140
 142             RY       6       5       4       0       0       4       5       6
                 *
                 *

 143             KK   SCNA2     SUB
 144             KM         RUNOFF FROM SUB CNA2
 145             BA  0.2755
 146             LS              77
 147             UK     250  0.0167    0.13     100
 148             RK    3900  0.0167    0.04            TRAP       0      15
                 *

 149             KK     CA2
 150             KM        COMBINE ROUTED HYDROGRAPH FROM CP1L1 W/RUNOFF FROM CNA2
 151             HC       2
                 *

 152             KK    CPA2
 153             KM        COMBINE RUNOFF FROM CNA1 WITH HYDROGRAPH FROM CA2
 154             HC       2
                 *

 155             KK   SCNA3     SUB
 156             KM         RUNOFF FROM SUB CNA3
 157             BA  0.1230
 158             LS              77
 159             UK     300  0.0179    0.13     100
 160             RK    5300  0.0179    0.04            TRAP       0      20
                 *
1                                          HEC-1 INPUT                                          PAGE  5

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

 161             KK    CPA3
 162             KM        COMBINE HYDROGRAPH CPA2 W/RUNOFF FROM SCNA3
 163             HC       2
                 *

 164             KK   SCNA4     SUB
 165             KM         RUNOFF FROM SUB CNA4
 166             BA  0.1582
 167             LS              77
 168             UK     200   0.015    0.13     100
 169             RK    4500  0.0181    0.04            TRAP       0      15
                 *

 170             KK    CPA4
 171             KM        COMBINE HYDROGRAPH CPA3 W/RUNOFF FROM SCNA4
 172             HC       2
                 *

 173             KK   SCNA5     SUB
 174             KM         RUNOFF FROM SUB CNA5
 175             BA  0.0678
```

```
176          LS              77       5
177          UK      50    0.01    0.13     100
178          RK    5000   0.002   0.025            TRAP       0      50
             *

179          KK  WEST-I
180          KM        COMBINE HYDROGRAPH FROM CPA4 W/RUNOFF FROM SCNAS
181          HC       2
             *
             *

182          KK  WEST-0
183          KM     PIMA FREEWAY BASIN WEST LOCATED NORTH AND EAST OF SCOTTSDALE ROAD T.I.
184          KM     (1) 48" OUTLET CONDUIT
185          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
186          KM  ***** Stage-Storage curve from design drawings ***************************
187          KM        2 ACRE-FEET OF STORAGE FOR SEDIMENTAION
188          KM
189          RS       1    STOR      -1       0
190          SV       0   0.002    0.13    0.59    1.79    3.88    6.83   10.86   15.27   20.06
191          SV   25.22   30.79   37.00   43.83   50.66
192          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
193          SE    1605    1606    1607    1608    1609
194          SQ       0      12      24      36      67      95     113     127     143     153
195          SQ     164     175     184     220     277
196          SE  1595.0  1596.0    1597    1598    1599    1600    1601    1602    1603    1604
197          SE    1605    1606    1607    1608    1609
             *
198          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   31      SCNA1
              .
              .
   41         .          1G
              .           V
              .           V
   59         .       DET1G
              .           V
              .           V
   66         .       R1GI1
              .           .
              .           .
   76         .           .          1I
              .           .           V
              .           .           V
   81         .           .       DET1I
              .           .           .
              .           .           .
   88         .       CP1I1............
              .           .
              .           .
   91         .           .          1J
              .           .           V
              .           .           V
   96         .           .       DET1J
              .           .           V
              .           .           V
  103         .           .       R1JI2
              .           .           .
              .           .           .
  112         .       CP1I2............
              .           V
              .           V
  115         .       R1IL1
              .           .
              .           .
  125         .           .          1L
              .           .           .
              .           .           .
  130         .       CP1L1............
              .           V
              .           V
  136         .         RA2
              .           .
              .           .
  143         .           .       SCNA2
              .           .           .
              .           .           .
  149         .         CA2............
              .           .
              .           .
  152       CPA2............
              .
              .
  155         .       SCNA3
              .           .
              .           .
  161       CPA3............
              .
```

```
                .
  164           .       SCNA4
                .          .
                .          .
  170        CPA4............
                .
                .
  173           .       SCNA5
                .          .
                .          .
  179      WEST-I............
                V
                V
  182      WEST-O

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                        *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              MAY   1991                *                                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.0.1E              *                                    *         609 SECOND STREET            *
*     Lahey F77L-EM/32 version 5.01      *                                    *      DAVIS, CALIFORNIA 95616         *
*       Dodson & Associates, Inc.        *                                    *          (916) 551-1748              *
*  RUN DATE  03/01/99  TIME  08:28:51    *                                    *                                      *
****************************************                                    ****************************************
```

```
                    PIMA FREEWAY WEST BASIN
                    by Pentacore AZ                                  File: WB10024.IH1
                        Project:  5009.0001                          Date: 02-18-99  wso

                    Stand alone model for the Pima Freeway West Basin.
                    Stage-Discharge relation based on 50% clogging at trashrack.
                    100-yr, 24-hr model - ARF based on 0.93 sq.miles

                    The following header from original file by Stantec
                    ***************************************************************************

                    PIMA ROAD THREE BASINS                              File: FU100-24.IH1
                    by  Stantec for the City of Scottsdale            Original: 08-07-97     mcg
                        Project:  28900082                             Revised: 01-20-99     mcg


                    100-YEAR, 24-HOUR
                        ULTIMATE CONDITION:
                           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                           DETERMINED BY OTHERS.
                           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.

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


  30 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         720  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME        1155  ENDING TIME
                       ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL    0.08 HOURS
                       TOTAL TIME BASE   59.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

1
                                                   RUNOFF SUMMARY
                                              FLOW IN CUBIC FEET PER SECOND
                                           TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
```

	OPERATION	STATION	FLOW	PEAK	6-HOUR	24-HOUR	72-HOUR	AREA	STAGE	MAX STAGE
+	HYDROGRAPH AT	SCNA1	208.	12.25	21.	6.	2.	0.12		
+	HYDROGRAPH AT	1G	214.	12.08	15.	5.	2.	0.06		
+	ROUTED TO	DET1G	29.	12.50	14.	5.	2.	0.06		
+									3.11	12.50
+	ROUTED TO	R1GI1	28.	12.58	14.	5.	2.	0.06		
+									0.59	12.58
+	HYDROGRAPH AT	1I	203.	12.08	16.	5.	2.	0.06		
+	ROUTED TO	DET1I	50.	12.42	16.	5.	2.	0.06		
+									3.29	12.42
+	2 COMBINED AT	CP1I1	76.	12.42	30.	10.	4.	0.12		
+	HYDROGRAPH AT	1J	68.	12.08	5.	2.	1.	0.02		
+	ROUTED TO	DET1J	9.	12.50	4.	2.	1.	0.02		
+									2.33	12.50
+	ROUTED TO	R1JI2	8.	12.67	4.	2.	1.	0.02		
+									0.90	12.67
+	2 COMBINED AT	CP1I2	84.	12.42	34.	11.	5.	0.14		
+	ROUTED TO	R1IL1	83.	12.50	34.	11.	5.	0.14		
+									1.24	12.50
+	HYDROGRAPH AT	1L	116.	12.25	14.	4.	2.	0.05		
+	2 COMBINED AT	CP1L1	184.	12.33	47.	15.	6.	0.19		
+	ROUTED TO	RA2	167.	12.50	47.	15.	6.	0.19		
+									0.93	12.50
+	HYDROGRAPH AT	SCNA2	498.	12.25	50.	14.	6.	0.28		
+	2 COMBINED AT	CA2	595.	12.25	97.	30.	12.	0.46		
+	2 COMBINED AT	CPA2	803.	12.25	118.	36.	14.	0.58		
+	HYDROGRAPH AT	SCNA3	171.	12.33	22.	6.	3.	0.12		
+	2 COMBINED AT	CPA3	934.	12.25	141.	42.	17.	0.70		
+	HYDROGRAPH AT	SCNA4	272.	12.25	29.	8.	3.	0.16		
+	2 COMBINED AT	CPA4	1206.	12.25	170.	50.	20.	0.86		
+	HYDROGRAPH AT	SCNA5	64.	12.58	13.	4.	1.	0.07		
+	2 COMBINED AT	WEST-I	1253.	12.25	182.	54.	22.	0.93		
+	ROUTED TO	WEST-O	217.	13.17	168.	54.	22.	0.93		
+									1607.92	13.17

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)

```
          SCNA1  MANE        1.92    211.78    733.84      1.93      5.00    207.71    735.00        1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1209E+02 OUTFLOW=0.1204E+02 BASIN STORAGE=0.1444E-02 PERCENT ERROR=   0.5

          SCNA2  MANE        2.83    504.88    733.89      1.93      5.00    497.63    735.00        1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.2853E+02 OUTFLOW=0.2840E+02 BASIN STORAGE=0.2422E-02 PERCENT ERROR=   0.4

          SCNA3  MANE        3.17    173.83    740.52      1.93      5.00    170.56    740.00        1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1274E+02 OUTFLOW=0.1267E+02 BASIN STORAGE=0.1402E-02 PERCENT ERROR=   0.5

          SCNA4  MANE        2.84    277.80    737.05      1.93      5.00    272.08    735.00        1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1638E+02 OUTFLOW=0.1631E+02 BASIN STORAGE=0.1072E-02 PERCENT ERROR=   0.4

          SCNA5  MANE        3.97     64.39    758.94      2.05      5.00     64.19    755.00        2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.7422E+01 OUTFLOW=0.7413E+01 BASIN STORAGE=0.1687E-03 PERCENT ERROR=   0.1

1                    SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1G
                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                            ELEVATION            0.00              3.00              3.00
                            STORAGE              0.                 5.                5.
                            OUTFLOW              0.                26.               26.

                  RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                   OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                  PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                  1.00       3.11       0.11        5.        29.       0.42        12.50       0.00
1                    SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1I
                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                            ELEVATION            0.00              3.00              3.00
                            STORAGE              0.                 4.                4.
                            OUTFLOW              0.                39.               39.

                  RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                   OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                  PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                  1.00       3.29       0.29        4.        50.       0.50        12.42       0.00
1                    SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1J
                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                            ELEVATION            0.00              3.00              3.00
                            STORAGE              0.                 2.                2.
                            OUTFLOW              0.                11.               11.

                  RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                   OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                  PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                  1.00       2.33       0.00        2.         9.       0.00        12.50       0.00

*** NORMAL END OF HEC-1 ***
```

APPENDIX L

WEST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
100-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(W-2)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY  1991            *
*          VERSION 4.0.1E           *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  02/22/99  TIME  15:25:56 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

   1          ID    PIMA ROAD THREE BASINS                                  File: HAPPY-24.IH1
   2          ID    by  Stantech for the City of Scottsdale            Original: 08-07-97     mcg
   3          ID        Project:  28900051
   4          ID
   5          ID
   6          ID    100-YEAR, 24-HOUR STORM
   7          ID        10% LEVEL DESIGN FOR HAPPY VALLEY DETENTION BASIN
   8          ID        100% OF FLOWSPLITS ARE ROUTED TO HAPPY VALLEY DETENTION BASIN
   9          ID
              *DIAGRAM
  10          IT       5                    2000
  11          IO       5
              *

  12          KK    S30N
  13          KM     RUNOFF FROM SUBBASIN 30N
  14          BA  0.6518
  15          PH              11      .84    1.53    2.46    2.75    2.94    3.31    3.74    4.17
  16          LS              82      13              82      13
  17          UK     300   0.350    0.13      20
  18          UK     300   0.050    0.13      80
  19          RK    1550   0.069   0.045  0.0096    TRAP       0      12
  20          RK   10520   0.038   0.040            TRAP      15      15
              *

  21          KK    R30N
  22          KM     NORMAL DEPTH CHANNEL ROUTE FROM C30N TO C31.1 THROUGH PIMA CHANNEL
  23          RS       1    FLOW      -1
  24          RC   0.022   0.022   0.022    2470    0.01
  25          RX    1000    1012    1020    1028    1036    1044    1052    1064
  26          RY     107     104     102     100     100     102     104     107
              *

  27          KK   S31.1
  28          KM     RUNOFF FROM SUBBASIN 31.1
  29          BA  0.2663
  30          LS            76.6      13            76.6      13
  31          UK     300   0.567    0.13      10
  32          UK     300   0.050    0.13      90
  33          RK    1950   0.056   0.045  0.0147    TRAP       0      10
  34          RK    7600   0.035   0.040            TRAP      22       8
              *

  35          KK   C31.1
  36          KM     COMBINE ROUTED HYDROGRAPH FROM S30N WITH RUNOFF FROM SUBBASIN 31.1
  37          HC       2
              *
              *  R31.1
              *   ****  TOO SHORT TO ROUTE  ****
              *    NORMAL DEPTH CHANNEL ROUTE FROM C31.1 TO C34.1 THROUGH PIMA CHANNEL
              *      1    FLOW      -1
              *  0.022   0.022   0.022    1500    0.01
              *   1000    1012    1020    1028    1048    1056    1064    1076
              *    107     104     102     100     100     102     104     107
              *
1                                          HEC-1 INPUT                                                    PAGE  2
```

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

  38          KK   S34.2
  39          KM     RUNOFF FROM SUBBASIN 34.2
  40          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
  41          BA  0.4441
  42          LS            77.3      12            77.3      12
  43          UK     50    0.10    0.13      10
  44          UK    300   0.040    0.13      90
  45          RK   2200  0.0452   0.045  0.0538    TRAP       0      10
  46          RK   8150  0.0386   0.045            TRAP       0      10
              *

  47          KK   C34.2
  48          KM     COMBINE ROUTED HYDROGRAPH FROM C31.1 WITH RUNOFF FROM SUBBASIN 34.2
  49          HC       2
              *

  50          KK    S35N
  51          KM     RUNOFF FROM SUBBASIN 35N
  52          BA  0.5482
  53          LS              82      13              82      13
  54          UK    300   0.491    0.13      15
  55          UK    300   0.113    0.13      85
  56          RK   2700   0.079   0.045  0.0242    TRAP       3       6
  57          RK   5050   0.028   0.040            TRAP      15      15
              *

  58          KK   D35NR
  59          KM     DIVERSION JUST DOWNSTREAM OF THE ALMA SCHOOL ROAD CULVERT
  60          KM        RIGHT BRANCH IS ROUTED TO C36.2
  61          KM        100% OF FLOWSPLIT IS ROUTED TO HAPPY VALLEY DETENTION BASIN
  62          DT   D35NL
  63          DI       0      10      66     168     343     581     805     977    1168    1320
  64          DQ       0       0       0       0       0       0       0       0       0       0
              *

  65          KK   R35NR
  66          KM     NORMAL DEPTH CHANNEL ROUTE FROM S35N TO C36.2
  67          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  68          RS       1    FLOW      -1
  69          RC    0.06    0.04    0.06    3500  0.0343
  70          RX    1000    1006    1026    1027    1057    1058    1078    1084
  71          RY     105     103     101     100     100     101     103     105
              *

  72          KK   S36.2
  73          KM     RUNOFF FROM SUBBASIN 36.2
  74          BA  0.2087
  75          LS            76.6      13            76.6      13
  76          UK    300   0.580    0.13       5
  77          UK    300   0.100    0.13      95
  78          RK   1800   0.036   0.045  0.0145    TRAP      10      10
  79          RK   3520   0.028   0.040            TRAP      20       6
              *
1                                        HEC-1 INPUT                                        PAGE  3

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

  80          KK   C36.2
  81          KM     COMBINE ROUTED HYDROGRAPH FROM S35N WITH RUNOFF FROM SUBBASIN 36.2
  82          HC       2
              *

  83          KK  D36.2R
  84          KM     DIVERSION AT DESERT HIGHLANDS DRIVE
  85          KM        RIGHT BRANCH, AT GOLF CART CROSSING IS ROUTED TO C34.1
  86          KM        100% OF FLOWSPLIT IS ROUTED TO HAPPY VALLEY DETENTION BASIN
  87          DT  D36.2L
  88          DI       0      36     166     288     360     430     538     681     859    1074
  89          DQ       0       0       0       0       0       0       0       0       0       0
              *

  90          KK  R36.2R
  91          KM     NORMAL DEPTH CHANNEL ROUTE FROM C36.2 TO C34.1
  92          KM        SOURCE: 1993 MAPPING (2' CI) PROVIDED BY COS
  93          RS       4    FLOW      -1
  94          RC    0.06    0.04    0.06    7800  0.0321
  95          RX    1000    1043    1053    1068    1093    1098    1133    1218
  96          RY   102.6   100.6   100.5     100     100   100.5   100.6   102.6
              *

  97          KK   S34.1
  98          KM     RUNOFF FROM SUBBASIN 34.1
  99          KM        RAINFALL LOSSES FOR GREINER SUBBASINS 31.2 AND 34.1 ARE WEIGHTED BY AREA
 100          BA  1.1635
 101          LS            77.3      12            77.3      12
 102          UK    300   0.590    0.13      25
 103          UK    300   0.040    0.13      75
 104          RK   2570   0.085   0.045  0.0214    TRAP       0      10
 105          RK   8800  0.0325   0.040            TRAP      20      10
              *
```

```
 106          KK   C34.1
 107          KM     COMBINE ROUTED HYDROGRAPH FROM C36.2 W/RUNOFF FROM SUBBASIN 34.1
 108          HC       2
              *

 109          KK  HVDB-I
 110          KM     COMBINE HYDROGRAPH FROM C34.2 W/ C34.1
 111          HC       2
              *

 112          KK  HVDB-O
 113          KM     DETENTION BASIN AT HAPPY VALLEY ROAD - NONREGULATORY STRUCTURE
 114          KM        PRINCIPAL SPILLWAY:  42" x 800' RCP WITH A SLOPE OF 0.5%
 115          KM        EMERGENCY SPILLWAY:  200' x 1.5' RECT. WEIR - CREST ELEV = 2089.5
 116          KM        11 ACRE-FEET OF STORAGE FOR SEDIMENTAION
 117          RS       1    STOR      -1
 118          SV       0     0.2     0.7     1.8     3.4     5.4    36.3    89.1   151.2   225.3
 119          SV   241.0
 120          SE    2065    2066    2067    2068    2069    2070    2075    2080    2085    2090
 121          SE    2091
1                                          HEC-1 INPUT                                          PAGE  4

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

 122          SQ       0      20      30      40      60      70      80      90     100     110
 123          SQ     120     130     135     219     378     590     758     945    1046    1151
 124          SE  2065.0 2067.13 2067.67 2068.14 2069.04 2071.26 2073.33 2075.68 2078.30 2081.19
 125          SE  2084.4 2087.82 2089.50 2089.80 2090.10 2090.40 2090.60 2090.80 2090.90 2091.00
              *
 126          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   12        S30N
                V
                V
   21        R30N
                .
                .
   27           .       S31.1
                .           .
                .           .
   35       C31.1............
                .
                .
   38           .       S34.2
                .           .
                .           .
   47       C34.2............
                .
                .
   50           .        S35N
                .           .
                .           .
   62           .           .-------->   D35NL
   58           .       D35NR
                .           V
                .           V
   65           .       R35NR
                .           .
                .           .
   72           .           .       S36.2
                .           .           .
                .           .           .
   80           .       C36.2............
                .           .
                .           .
   87           .           .-------->  D36.2L
   83           .      D36.2R
                .           V
                .           V
   90           .      R36.2R
                .           .
                .           .
   97           .           .       S34.1
                .           .           .
                .           .           .
  106           .       C34.1............
                .           .
                .           .
  109       HVDB-I............
                V
                V
  112       HVDB-O

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*************************************                    *************************************
 *                                   *                    *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *   U.S. ARMY CORPS OF ENGINEERS    *
 *              MAY   1991           *                    *   HYDROLOGIC ENGINEERING CENTER   *
 *           VERSION 4.0.1E          *                    *         609 SECOND STREET         *
```

```
                    PIMA ROAD THREE BASINS                          File: HAPPY-24.IH1
                    by  Stantech for the City of Scottsdale       Original: 08-07-97     mcg
                        Project:  28900051

                    100-YEAR, 24-HOUR STORM
                        10% LEVEL DESIGN FOR HAPPY VALLEY DETENTION BASIN
                        100% OF FLOWSPLITS ARE ROUTED TO HAPPY VALLEY DETENTION BASIN

 11 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     7    0  ENDING DATE
                   NDTIME       2235  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL    0.08 HOURS
                   TOTAL TIME BASE  166.58 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION       STATION      FLOW    PEAK                                          AREA      STAGE     MAX STAGE
+                                                        6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                         S30N      1264.   12.33        151.         44.         15.      0.65
        ROUTED TO
+                         R30N      1240.   12.33        151.         44.         15.      0.65
+                                                                                                   103.91      12.33

        HYDROGRAPH AT
+                        S31.1       447.   12.33         52.         15.          5.      0.27
        2 COMBINED AT
+                        C31.1      1686.   12.33        203.         60.         20.      0.92
        HYDROGRAPH AT
+                        S34.2       753.   12.33         88.         26.          9.      0.44
        2 COMBINED AT
+                        C34.2      2440.   12.33        291.         86.         29.      1.36
        HYDROGRAPH AT
+                         S35N      1354.   12.25        127.         37.         12.      0.55
        DIVERSION TO
+                        D35NL         0.   12.25          0.          0.          0.      0.55
        HYDROGRAPH AT
+                        D35NR      1354.   12.25        127.         37.         12.      0.55
```

```
          ROUTED TO
+                        R35NR      1134.   12.33        127.        37.        12.      0.55
+                                                                                          102.58      12.33
          HYDROGRAPH AT
+                        S36.2       433.   12.25         41.        12.         4.      0.21
          2 COMBINED AT
+                        C36.2      1551.   12.25        168.        49.        16.      0.76
          DIVERSION TO
+                       D36.2L         0.   12.25          0.         0.         0.      0.76
          HYDROGRAPH AT
+                       D36.2R      1551.   12.25        168.        49.        16.      0.76
          ROUTED TO
+                       R36.2R      1127.   12.58        168.        49.        16.      0.76
+                                                                                          101.80      12.58
          HYDROGRAPH AT
+                        S34.1      2132.   12.25        232.        68.        23.      1.16
          2 COMBINED AT
+                        C34.1      2318.   12.33        399.       117.        39.      1.92
          2 COMBINED AT
+                       HVDB-I      4758.   12.33        690.       203.        68.      3.28
          ROUTED TO
+                       HVDB-O       684.   13.33        264.       157.        68.      3.28
+                                                                                         2090.51      13.33
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                       (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                              COMPUTATION INTERVAL
          ISTAQ    ELEMENT      DT       PEAK    TIME TO      VOLUME      DT       PEAK    TIME TO      VOLUME
                                                   PEAK                                      PEAK

                               (MIN)     (CFS)     (MIN)       (IN)    (MIN)     (CFS)     (MIN)        (IN)

            S30N   MANE        4.54   1287.67    736.37       2.53     5.00   1264.36    740.00        2.53

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.8813E+02 OUTFLOW=0.8798E+02 BASIN STORAGE=0.7389E-04 PERCENT ERROR=   0.2

            S31.1  MANE        3.94    456.11    739.40       2.15     5.00    446.89    740.00        2.16

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.3070E+02 OUTFLOW=0.3060E+02 BASIN STORAGE=0.5025E-04 PERCENT ERROR=   0.3

            S34.2  MANE        3.86    785.42    736.94       2.18     5.00    753.45    740.00        2.18

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.5178E+02 OUTFLOW=0.5166E+02 BASIN STORAGE=0.7248E-04 PERCENT ERROR=   0.2

            S35N   MANE        2.27   1449.91    732.06       2.53     5.00   1353.94    735.00        2.53

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.7413E+02 OUTFLOW=0.7409E+02 BASIN STORAGE=0.3923E-04 PERCENT ERROR=   0.1

            S36.2  MANE        1.79    449.47    733.88       2.16     5.00    432.81    735.00        2.16

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.2406E+02 OUTFLOW=0.2404E+02 BASIN STORAGE=0.2307E-04 PERCENT ERROR=   0.1

            S34.1  MANE        3.13   2159.47    737.94       2.18     5.00   2131.88    735.00        2.18

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1357E+03 OUTFLOW=0.1353E+03 BASIN STORAGE=0.1396E-03 PERCENT ERROR=   0.2


 *** NORMAL END OF HEC-1 ***
```

APPENDIX M

WEST SIDE ULTIMATE BUILD-OUT AND NO CLOGGING CONDITION
50-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(W-3)

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              MAY   1991           *
 *           VERSION 4.0.1E          *
 *     Lahey F77L-EM/32 version 5.01 *
 *       Dodson & Associates, Inc.   *
 *  RUN DATE  03/01/99  TIME  08:46:59  *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                    HEC-1 INPUT                                    PAGE  1

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

         1          ID    PIMA FREEWAY WEST BASIN
         2          ID    by Pentacore AZ                                  File:  WB100-6.IH1
         3          ID        Project:  5009.0001                          Date: 02-18-99  wso
         4          ID
         5          ID    Stand alone model for the Pima Freeway West Basin.
         6          ID    Stage-Discharge relation based on no clogging at trashrack.
         7          ID    100-yr, 6-hr model - ARF based on 0.93 sq.miles
         8          ID
         9          ID    The following header from original file by Stantec
        10          ID    ***************************************************************************
        11          ID
        12          ID    PIMA ROAD THREE BASINS                           File:  FU100-6.IH1
        13          ID    by  Stantec for the City of Scottsdale         Original: 08-07-97     mcg
        14          ID        Project:  28900082                          Revised: 01-20-99     mcg
        15          ID
        16          ID
        17          ID    100-YEAR, 6-HOUR
        18          ID        ULTIMATE CONDITION:
        19          ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
        20          ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
        21          ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
        22          ID           DETERMINED BY OTHERS.
        23          ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
        24          ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
        25          ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
        26          ID
                    *DIAGRAM
        27          IT       5                     720
        28          IO       5
                    *
                    *
                    *
                    *

        29          KK   SCNA1     SUB
        30          KM         RUNOFF FROM SUB CNA1
        31          BA  0.1168
                    *
                    *  100-year precipitation, 6-hour storm duration
                    *  ARF based on 0.93 sq.mile basin area
                    *
        32          PH            0.93     .84    1.53    2.46    2.75    2.94    3.31
        33          LS              77
        34          UK     300   0.015    0.13     100
        35          RK    1900   0.015    0.04            TRAP       0      20
                    *
        36          KM   ***************************************************************
        37          KM   ************ BEGIN GILBERTSON GRAYHAWK VILLAGE ******************
        38          KM   ***************************************************************
                    *
                    *
1                                    HEC-1 INPUT                                    PAGE  2

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

        39          KK      1G
```

```
 40          KM
 41          KM        NOTE: ALL HEC-1 DATA FOR SUB-BASINS 1G THROUGH 1L ARE TAKEN FROM
 42          KM              GILBERTSON ASSOCIATES MODEL UDPLAN.DAT, AS PUBLISHED IN THE
 43          KM              AUGUST 1995 REPORT TITLED "UNIT DRAINAGE PLAN, GRAYHAWK VILLAGE 1"
 44          KM              THE GILBERTSON MODEL USED SCS UNIT HYDROGRAPH METHODOLOGY.
 45          KM
 46          KM              THE CITY OF SCOTTSDALE HAS REQUIRED GILBERTSON ASSOCIATES TO RE-DO
 47          KM              THIS MODEL WITH KINEMATIC WAVE METHOGOLOGY IN ORDER TO BE
 48          KM              CONSISTENT WITH ALL PREVIOUS MODELING EFFORTS FOR THIS AREA.
 49          KM              AS OF 10/18/95, GILBERTSON ASSOCIATES HAS NOT COMPLIED WITH THIS
 50          KM              REQUEST.  ACCORDINGLY, THE UNIT HYDROGRAPH DATA WILL BE USED FOR
 51          KM              THE REFERENCED SUB-BASINS UNTIL THIS REVISED MODELING DATA IS
 52          KM              AVAILABLE.
 53          KM        EXCESS RUNOFF FROM SUBAREA 1G
 54          BA    .059
 55          LS              74      53
 56          UD     .06
             *

 57          KK   DET1G
 58          KM        DETENTION FOR PARCEL 1G
 59          RS       1    STOR       0
 60          SV       0     4.8
 61          SQ       0      26
 62          SE       0       3
 63          ST       3      15     2.8     1.5
             *

 64          KK   R1GI1
 65          KM        ROUTE DET1G TO THOMPSON PEAK PARKWAY
 66          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 67          KM                        SIDE SLOPE = 3:1 (H:V)
 68          KM                        MAX DEPTH  = 1.6 FT.
 69          KM                        BOT.WIDTH  = 8.0 FT.
 70          RS       1    FLOW      -1
 71          RC   0.025   0.025   0.025    1400   0.017
 72          RX       0     0.5     1.0     5.8    13.8    18.6      19    19.5
 73          RY     1.8     1.7     1.6       0       0     1.6     1.7     1.8
             *

 74          KK      1I
 75          KM        EXCESS RUNOFF FROM SUBAREA 1I
 76          BA    .062
 77          LS              74      52
 78          UD     .07
             *

 79          KK   DET1I
 80          KM        DETENTION FOR SUBAREA 1I
 81          RS       1    STOR       0
 82          SV       0     4.0
 83          SQ       0      39
 84          SE       0       3
```



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

 85          ST       3      15     2.8     1.5
             *

 86          KK   CP1I1
 87          KM        COMBINE HYDROGRAPHS FROM R1G1I AND DET1I
 88          HC       2
             *

 89          KK      1J
 90          KM        EXCESS RUNOFF FROM SUBAREA 1J
 91          BA   .0175
 92          LS              74      64
 93          UD     .06
             *

 94          KK   DET1J
 95          KM        DETENTION FOR SUBAREA 1J
 96          RS       1    STOR       0
 97          SV       0     2.1
 98          SQ       0      11
 99          SE       0       3
100          ST       3      15     2.8     1.5
             *

101          KK   R1JI2
102          KM        ROUTE DET1J TO 76TH STREET (WEST)
103          KM        TRIANGULAR CHANNEL PER PLANS (1661-E-94)
104          KM                        SIDE SLOPE = 4:1 (H:V)
105          KM                        MAX DEPTH  = 3.0 FT.
106          RS       1    FLOW      -1
107          RC    .025    .025    .025    1400    .005
108          RX       0     0.5     1.0    12.9      13      25    25.5      26
109          RY     3.2     3.1     3.0       0       0     3.0     3.1     3.2
             *

110          KK   CP1I2
111          KM        COMBINE HYDROGRAPHS FROM DET1J AND 1I
112          HC       2
```

```
                *
 113            KK   R1IL1
 114            KM        ROUTE 1I TO 1L
 115            KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 116            KM                        SIDE SLOPE = 3:1 (H:V)
 117            KM                        MAX DEPTH  = 3.5 FT.
 118            KM                        BOT.WIDTH  = 8.0 FT.
 119            RS       1    FLOW      -1
 120            RC     .03     .03     .03     730    .015
 121            RX       0     0.5     1.0    11.5    19.5      30    30.5      31
 122            RY     3.7     3.6     3.5       0       0     3.5     3.6     3.7
                *
1                                          HEC-1 INPUT                                          PAGE  4

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

 123            KK      1L
 124            KM        EXCESS RUNOFF FROM SUBAREA 1L
 125            BA   .0484
 126            LS              74      64
 127            UD    .217
                *

 128            KK   CP1L1
 129            KM        COMBINE HYDROGRAPHS FROM 1L AND R1IL1
 130            HC       2
                *
 131            KM   ****************************************************************
 132            KM   ************ END GILBERTSON GRAYHAWK VILLAGE ********************
 133            KM   ****************************************************************
                *

 134            KK     RA2
 135            KM        ROUTE FLOW THROUGH SUBBASIN CNA2 FROM GRAYHAWK
 136            KM        TRAPEZOIDAL CHANNEL B=20 Z=10
 137            RS       2    FLOW      -1
 138            RC    .050   0.025    .050    4200  0.0167
 139            RX       0      10      20      60      80     120     130     140
 140            RY       6       5       4       0       0       4       5       6
                *
                *

 141            KK   SCNA2     SUB
 142            KM         RUNOFF FROM SUB CNA2
 143            BA  0.2755
 144            LS              77
 145            UK     250  0.0167    0.13     100
 146            RK    3900  0.0167    0.04            TRAP       0      15
                *

 147            KK     CA2
 148            KM        COMBINE ROUTED HYDROGRAPH FROM CP1L1 W/RUNOFF FROM CNA2
 149            HC       2
                *

 150            KK    CPA2
 151            KM        COMBINE RUNOFF FROM CNA1 WITH HYDROGRAPH FROM CA2
 152            HC       2
                *

 153            KK   SCNA3     SUB
 154            KM         RUNOFF FROM SUB CNA3
 155            BA  0.1230
 156            LS              77
 157            UK     300  0.0179    0.13     100
 158            RK    5300  0.0179    0.04            TRAP       0      20
                *
1                                          HEC-1 INPUT                                          PAGE  5

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

 159            KK    CPA3
 160            KM        COMBINE HYDROGRAPH CPA2 W/RUNOFF FROM SCNA3
 161            HC       2
                *

 162            KK   SCNA4     SUB
 163            KM         RUNOFF FROM SUB CNA4
 164            BA  0.1582
 165            LS              77
 166            UK     200   0.015    0.13     100
 167            RK    4500  0.0181    0.04            TRAP       0      15
                *

 168            KK    CPA4
 169            KM        COMBINE HYDROGRAPH CPA3 W/RUNOFF FROM SCNA4
 170            HC       2
                *

 171            KK   SCNA5     SUB
 172            KM         RUNOFF FROM SUB CNA5
 173            BA  0.0678
```

```
174          LS              77       5
175          UK      50    0.01    0.13     100
176          RK    5000   0.002   0.025            TRAP       0      50
             *

177          KK  WEST-I
178          KM        COMBINE HYDROGRAPH FROM CPA4 W/RUNOFF FROM SCNA5
179          HC       2
             *
             *

180          KK  WEST-0
181          KM     PIMA FREEWAY BASIN WEST LOCATED NORTH AND EAST OF SCOTTSDALE ROAD T.I.
182          KM     (1) 48" OUTLET CONDUIT
183          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK.
184          KM  ***** Stage-Storage curve from design drawings ***************************
185          KM        2 ACRE-FEET OF STORAGE FOR SEDIMENTAION
186          KM
187          RS       1    STOR      -1       0
188          SV       0   0.002    0.13    0.59    1.79    3.88    6.83   10.86   15.27   20.06
189          SV   25.22   30.79   37.00   43.83   50.66
190          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
191          SE    1605    1606    1607    1608    1609
192          SQ       0      12      25      37      70      99     119     133     151     161
193          SQ     171     183     193     203     212
194          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
195          SE    1605    1606    1607    1608    1609
             *
196          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   29      SCNA1
              .
              .
   39         .          1G
              .           V
              .           V
   57         .       DET1G
              .           V
              .           V
   64         .       R1GI1
              .           .
              .           .
   74         .           .          1I
              .           .           V
              .           .           V
   79         .           .      DET1I
              .           .           .
              .           .           .
   86         .       CP1I1............
              .           .
              .           .
   89         .           .          1J
              .           .           V
              .           .           V
   94         .           .      DET1J
              .           .           V
              .           .           V
  101         .           .      R1JI2
              .           .           .
              .           .           .
  110         .       CP1I2............
              .           V
              .           V
  113         .       R1IL1
              .           .
              .           .
  123         .           .          1L
              .           .           .
              .           .           .
  128         .       CP1L1............
              .           V
              .           V
  134         .         RA2
              .           .
              .           .
  141         .           .      SCNA2
              .           .           .
              .           .           .
  147         .         CA2............
              .           .
              .           .
  150       CPA2............
              .
              .
  153         .       SCNA3
              .           .
              .           .
  159       CPA3............
              .
```

```
                .
  162           .       SCNA4
                .           .
                .           .
  168        CPA4............
                .
                .
  171           .       SCNA5
                .           .
                .           .
  177      WEST-I............
                V
                V
  180      WEST-0

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                      *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              MAY   1991              *                                    *   HYDROLOGIC ENGINEERING CENTER      *
*           VERSION 4.0.1E             *                                    *         609 SECOND STREET            *
*     Lahey F77L-EM/32 version 5.01    *                                    *      DAVIS, CALIFORNIA 95616         *
*       Dodson & Associates, Inc.      *                                    *          (916) 551-1748              *
*  RUN DATE  03/01/99  TIME  08:46:59  *                                    *                                      *
****************************************                                    ****************************************
```

PIMA FREEWAY WEST BASIN
by Pentacore AZ — File: WB100-6.IH1
Project: 5009.0001 — Date: 02-18-99 wso

Stand alone model for the Pima Freeway West Basin.
Stage-Discharge relation based on no clogging at trashrack.
100-yr, 6-hr model - ARF based on 0.93 sq.miles

The following header from original file by Stantec
****

PIMA ROAD THREE BASINS — File: FU100-6.IH1
by Stantec for the City of Scottsdale — Original: 08-07-97 mcg
Project: 28900082 — Revised: 01-20-99 mcg

100-YEAR, 6-HOUR
ULTIMATE CONDITION:
POWER LINE CHANNEL IS INCLUDED. THE POWER LINE CHANNEL COLLECTS RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN. THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE DETERMINED BY OTHERS.
THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.

```
 28 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        720  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3   0  ENDING DATE
                   NDTIME       1155  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL    0.08 HOURS
                   TOTAL TIME BASE   59.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION  FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                      6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          SCNA1    140.   3.25         16.         4.          2.        0.12
          HYDROGRAPH AT
```

```
+                          1G      199.   3.08        14.        4.        1.     0.06
        ROUTED TO
+                       DET1G       25.   3.50        13.        4.        1.     0.06
+                                                                                          2.88       3.50
        ROUTED TO
+                       R1GI1       25.   3.58        13.        4.        1.     0.06
+                                                                                          0.55       3.58
        HYDROGRAPH AT
+                          1I      188.   3.08        15.        4.        2.     0.06
        ROUTED TO
+                       DET1I       41.   3.42        14.        4.        2.     0.06
+                                                                                          3.09       3.42
        2 COMBINED AT
+                       CP1I1       65.   3.50        27.        7.        3.     0.12
        HYDROGRAPH AT
+                          1J       65.   3.08         5.        1.        0.     0.02
        ROUTED TO
+                       DET1J        8.   3.50         4.        1.        0.     0.02
+                                                                                          2.19       3.50
        ROUTED TO
+                       R1JI2        8.   3.67         4.        1.        0.     0.02
+                                                                                          0.88       3.67
        2 COMBINED AT
+                       CP1I2       73.   3.50        31.        9.        3.     0.14
        ROUTED TO
+                       R1IL1       73.   3.50        31.        9.        3.     0.14
+                                                                                          1.15       3.50
        HYDROGRAPH AT
+                          1L      110.   3.25        13.        3.        1.     0.05
        2 COMBINED AT
+                       CP1L1      169.   3.33        43.       12.        5.     0.19
        ROUTED TO
+                         RA2      153.   3.50        43.       12.        5.     0.19
+                                                                                          0.88       3.50
        HYDROGRAPH AT
+                       SCNA2      344.   3.33        38.        9.        4.     0.28
        2 COMBINED AT
+                         CA2      472.   3.33        80.       21.        9.     0.46
        2 COMBINED AT
+                        CPA2      613.   3.33        96.       25.       10.     0.58
        HYDROGRAPH AT
+                       SCNA3      125.   3.42        17.        4.        2.     0.12
        2 COMBINED AT
+                        CPA3      714.   3.33       113.       29.       12.     0.70
        HYDROGRAPH AT
+                       SCNA4      202.   3.33        22.        5.        2.     0.16
        2 COMBINED AT
+                        CPA4      916.   3.33       134.       35.       14.     0.86
        HYDROGRAPH AT
+                       SCNA5       49.   3.75        10.        3.        1.     0.07
        2 COMBINED AT
+                      WEST-I      953.   3.33       144.       37.       15.     0.93
        ROUTED TO
+                      WEST-0      186.   4.25       143.       37.       15.     0.93
+                                                                                       1606.34       4.25
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                      INTERPOLATED TO
                                                                   COMPUTATION INTERVAL
      ISTAQ    ELEMENT      DT       PEAK    TIME TO      VOLUME      DT       PEAK    TIME TO      VOLUME
                                             PEAK                                          PEAK

                          (MIN)     (CFS)     (MIN)       (IN)    (MIN)      (CFS)     (MIN)        (IN)

        SCNA1   MANE       2.19    147.92    197.48       1.28     5.00     140.30    195.00        1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.8006E+01 OUTFLOW=0.7943E+01 BASIN STORAGE=0.8401E-03 PERCENT ERROR=   0.8

        SCNA2   MANE       3.12    363.64    197.52       1.27     5.00     343.59    200.00        1.28
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1888E+02 OUTFLOW=0.1872E+02 BASIN STORAGE=0.1260E-02 PERCENT ERROR=   0.9

          SCNA3  MANE        3.48    125.49    205.18      1.27      5.00    124.80    205.00        1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.8431E+01 OUTFLOW=0.8353E+01 BASIN STORAGE=0.7472E-03 PERCENT ERROR=   0.9

          SCNA4  MANE        2.06    205.21    198.91      1.28      5.00    202.22    200.00        1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1084E+02 OUTFLOW=0.1077E+02 BASIN STORAGE=0.6571E-03 PERCENT ERROR=   0.7

          SCNA5  MANE        2.65     49.14    223.50      1.38      5.00     49.05    225.00        1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.5012E+01 OUTFLOW=0.5000E+01 BASIN STORAGE=0.8297E-04 PERCENT ERROR=   0.2

1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1G
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          0.00              3.00              3.00
                              STORAGE            0.                5.                5.
                              OUTFLOW            0.               26.               26.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV     OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        2.88         0.00        5.        25.       0.00         3.50        0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1I
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          0.00              3.00              3.00
                              STORAGE            0.                4.                4.
                              OUTFLOW            0.               39.               39.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV     OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        3.09         0.09        4.        41.       0.33         3.42        0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1J
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          0.00              3.00              3.00
                              STORAGE            0.                2.                2.
                              OUTFLOW            0.               11.               11.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV     OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        2.19         0.00        2.         8.       0.00         3.50        0.00

*** NORMAL END OF HEC-1 ***
```

APPENDIX N

WEST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
50-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(W-4)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  03/01/99  TIME  08:29:44*
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                    HEC-1 INPUT                                    PAGE  1

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

    1           ID    PIMA FREEWAY WEST BASIN
    2           ID    by Pentacore AZ                                  File: WB1006.IH1
    3           ID        Project:  5009.0001                          Date: 02-18-99  wso
    4           ID
    5           ID    Stand alone model for the Pima Freeway West Basin.
    6           ID    Stage-Discharge relation based on 50% clogging at trashrack.
    7           ID    100-yr, 6-hr model - ARF based on 0.93 sq.miles
    8           ID
    9           ID    The following header from original file by Stantec
   10           ID    ***************************************************************************
   11           ID
   12           ID    PIMA ROAD THREE BASINS                           File:  FU100-6.IH1
   13           ID    by  Stantec for the City of Scottsdale         Original: 08-07-97     mcg
   14           ID        Project:  28900082                          Revised: 01-20-99     mcg
   15           ID
   16           ID
   17           ID    100-YEAR, 6-HOUR
   18           ID        ULTIMATE CONDITION:
   19           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
   20           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   21           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   22           ID           DETERMINED BY OTHERS.
   23           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   24           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   25           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   26           ID
                *DIAGRAM
   27           IT       5                    720
   28           IO       5
                *
                *
                *
                *

   29           KK   SCNA1     SUB
   30           KM         RUNOFF FROM SUB CNA1
   31           BA  0.1168
                *
                *  100-year precipitation, 6-hour storm duration
                *  ARF based on 0.93 sq.mile basin area
                *
   32           PH            0.93     .84    1.53    2.46    2.75    2.94    3.31
   33           LS              77
   34           UK     300   0.015    0.13     100
   35           RK    1900   0.015    0.04            TRAP       0      20
                *
   36           KM   ***************************************************************
   37           KM   ************ BEGIN GILBERTSON GRAYHAWK VILLAGE ******************
   38           KM   ***************************************************************
                *
                *
1                                    HEC-1 INPUT                                    PAGE  2

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

   39           KK      1G
```

```
 40          KM
 41          KM        NOTE: ALL HEC-1 DATA FOR SUB-BASINS 1G THROUGH 1L ARE TAKEN FROM
 42          KM              GILBERTSON ASSOCIATES MODEL UDPLAN.DAT, AS PUBLISHED IN THE
 43          KM              AUGUST 1995 REPORT TITLED "UNIT DRAINAGE PLAN, GRAYHAWK VILLAGE 1"
 44          KM              THE GILBERTSON MODEL USED SCS UNIT HYDROGRAPH METHODOLOGY.
 45          KM
 46          KM              THE CITY OF SCOTTSDALE HAS REQUIRED GILBERTSON ASSOCIATES TO RE-DO
 47          KM              THIS MODEL WITH KINEMATIC WAVE METHOGOLOGY IN ORDER TO BE
 48          KM              CONSISTENT WITH ALL PREVIOUS MODELING EFFORTS FOR THIS AREA.
 49          KM              AS OF 10/18/95, GILBERTSON ASSOCIATES HAS NOT COMPLIED WITH THIS
 50          KM              REQUEST.  ACCORDINGLY, THE UNIT HYDROGRAPH DATA WILL BE USED FOR
 51          KM              THE REFERENCED SUB-BASINS UNTIL THIS REVISED MODELING DATA IS
 52          KM              AVAILABLE.
 53          KM        EXCESS RUNOFF FROM SUBAREA 1G
 54          BA    .059
 55          LS              74      53
 56          UD     .06
             *

 57          KK   DET1G
 58          KM        DETENTION FOR PARCEL 1G
 59          RS       1    STOR       0
 60          SV       0     4.8
 61          SQ       0      26
 62          SE       0       3
 63          ST       3      15     2.8     1.5
             *

 64          KK   R1GI1
 65          KM        ROUTE DET1G TO THOMPSON PEAK PARKWAY
 66          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 67          KM                        SIDE SLOPE = 3:1 (H:V)
 68          KM                        MAX DEPTH  = 1.6 FT.
 69          KM                        BOT.WIDTH  = 8.0 FT.
 70          RS       1    FLOW      -1
 71          RC   0.025   0.025   0.025    1400   0.017
 72          RX       0     0.5     1.0     5.8    13.8    18.6      19    19.5
 73          RY     1.8     1.7     1.6       0       0     1.6     1.7     1.8
             *

 74          KK      1I
 75          KM        EXCESS RUNOFF FROM SUBAREA 1I
 76          BA    .062
 77          LS              74      52
 78          UD     .07
             *

 79          KK   DET1I
 80          KM        DETENTION FOR SUBAREA 1I
 81          RS       1    STOR       0
 82          SV       0     4.0
 83          SQ       0      39
 84          SE       0       3
```



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

 85          ST       3      15     2.8     1.5
             *

 86          KK   CP1I1
 87          KM        COMBINE HYDROGRAPHS FROM R1G1I AND DET1I
 88          HC       2
             *

 89          KK      1J
 90          KM        EXCESS RUNOFF FROM SUBAREA 1J
 91          BA   .0175
 92          LS              74      64
 93          UD     .06
             *

 94          KK   DET1J
 95          KM        DETENTION FOR SUBAREA 1J
 96          RS       1    STOR       0
 97          SV       0     2.1
 98          SQ       0      11
 99          SE       0       3
100          ST       3      15     2.8     1.5
             *

101          KK   R1JI2
102          KM        ROUTE DET1J TO 76TH STREET (WEST)
103          KM        TRIANGULAR CHANNEL PER PLANS (1661-E-94)
104          KM                        SIDE SLOPE = 4:1 (H:V)
105          KM                        MAX DEPTH  = 3.0 FT.
106          RS       1    FLOW      -1
107          RC    .025    .025    .025    1400    .005
108          RX       0     0.5     1.0    12.9      13      25    25.5      26
109          RY     3.2     3.1     3.0       0       0     3.0     3.1     3.2
             *

110          KK   CP1I2
111          KM        COMBINE HYDROGRAPHS FROM DET1J AND 1I
112          HC       2
```

```
                 *
 113             KK   R1IL1
 114             KM        ROUTE 1I TO 1L
 115             KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 116             KM                        SIDE SLOPE = 3:1 (H:V)
 117             KM                        MAX DEPTH  = 3.5 FT.
 118             KM                        BOT.WIDTH  = 8.0 FT.
 119             RS       1    FLOW      -1
 120             RC     .03     .03     .03     730    .015
 121             RX       0     0.5     1.0    11.5    19.5      30    30.5      31
 122             RY     3.7     3.6     3.5       0       0     3.5     3.6     3.7
                 *
1                                          HEC-1 INPUT                                          PAGE  4

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

 123             KK      1L
 124             KM        EXCESS RUNOFF FROM SUBAREA 1L
 125             BA   .0484
 126             LS              74      64
 127             UD    .217
                 *

 128             KK   CP1L1
 129             KM        COMBINE HYDROGRAPHS FROM 1L AND R1IL1
 130             HC       2
                 *
 131             KM   ****************************************************************
 132             KM   ************ END GILBERTSON GRAYHAWK VILLAGE ********************
 133             KM   ****************************************************************
                 *

 134             KK     RA2
 135             KM        ROUTE FLOW THROUGH SUBBASIN CNA2 FROM GRAYHAWK
 136             KM        TRAPEZOIDAL CHANNEL B=20 Z=10
 137             RS       2    FLOW      -1
 138             RC    .050   0.025    .050    4200  0.0167
 139             RX       0      10      20      60      80     120     130     140
 140             RY       6       5       4       0       0       4       5       6
                 *
                 *

 141             KK   SCNA2     SUB
 142             KM         RUNOFF FROM SUB CNA2
 143             BA  0.2755
 144             LS              77
 145             UK     250  0.0167    0.13     100
 146             RK    3900  0.0167    0.04            TRAP       0      15
                 *

 147             KK     CA2
 148             KM        COMBINE ROUTED HYDROGRAPH FROM CP1L1 W/RUNOFF FROM CNA2
 149             HC       2
                 *

 150             KK    CPA2
 151             KM        COMBINE RUNOFF FROM CNA1 WITH HYDROGRAPH FROM CA2
 152             HC       2
                 *

 153             KK   SCNA3     SUB
 154             KM         RUNOFF FROM SUB CNA3
 155             BA  0.1230
 156             LS              77
 157             UK     300  0.0179    0.13     100
 158             RK    5300  0.0179    0.04            TRAP       0      20
                 *
1                                          HEC-1 INPUT                                          PAGE  5

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

 159             KK    CPA3
 160             KM        COMBINE HYDROGRAPH CPA2 W/RUNOFF FROM SCNA3
 161             HC       2
                 *

 162             KK   SCNA4     SUB
 163             KM         RUNOFF FROM SUB CNA4
 164             BA  0.1582
 165             LS              77
 166             UK     200   0.015    0.13     100
 167             RK    4500  0.0181    0.04            TRAP       0      15
                 *

 168             KK    CPA4
 169             KM        COMBINE HYDROGRAPH CPA3 W/RUNOFF FROM SCNA4
 170             HC       2
                 *

 171             KK   SCNA5     SUB
 172             KM         RUNOFF FROM SUB CNA5
 173             BA  0.0678
```

```
174          LS              77       5
175          UK      50    0.01    0.13     100
176          RK    5000   0.002   0.025            TRAP       0      50
             *

177          KK  WEST-I
178          KM        COMBINE HYDROGRAPH FROM CPA4 W/RUNOFF FROM SCNA5
179          HC       2
             *
             *

180          KK  WEST-0
181          KM     PIMA FREEWAY BASIN WEST LOCATED NORTH AND EAST OF SCOTTSDALE ROAD T.I.
182          KM     (1) 48" OUTLET CONDUIT
183          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
184          KM  ***** Stage-Storage curve from design drawings ***************************
185          KM        2 ACRE-FEET OF STORAGE FOR SEDIMENTAION
186          KM
187          RS       1    STOR      -1       0
188          SV       0   0.002    0.13    0.59    1.79    3.88    6.83   10.86   15.27   20.06
189          SV   25.22   30.79   37.00   43.83   50.66
190          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
191          SE    1605    1606    1607    1608    1609
192          SQ       0      12      24      36      67      95     113     127     143     153
193          SQ     164     175     184     194     203
194          SE  1595.0  1596.0    1597    1598    1599    1600    1601    1602    1603    1604
195          SE    1605    1606    1607    1608    1609
             *
196          ZZ
```

1

```
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    29      SCNA1
              .
              .
    39        .          1G
              .           V
              .           V
    57        .       DET1G
              .           V
              .           V
    64        .       R1GI1
              .           .
              .           .
    74        .           .          1I
              .           .           V
              .           .           V
    79        .           .       DET1I
              .           .           .
              .           .           .
    86        .       CP1I1............
              .           .
              .           .
    89        .           .          1J
              .           .           V
              .           .           V
    94        .           .       DET1J
              .           .           V
              .           .           V
   101        .           .       R1JI2
              .           .           .
              .           .           .
   110        .       CP1I2............
              .           V
              .           V
   113        .       R1IL1
              .           .
              .           .
   123        .           .          1L
              .           .           .
              .           .           .
   128        .       CP1L1............
              .           V
              .           V
   134        .         RA2
              .           .
              .           .
   141        .           .       SCNA2
              .           .           .
              .           .           .
   147        .         CA2............
              .           .
              .           .
   150      CPA2............
              .
              .
   153        .       SCNA3
              .           .
              .           .
   159      CPA3............
              .
```

```
                .
  162           .       SCNA4
                .          .
                .          .
  168        CPA4............
                .
                .
  171           .       SCNA5
                .          .
                .          .
  177      WEST-I............
                V
                V
  180      WEST-O

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                        *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              MAY   1991                *                                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.0.1E              *                                    *         609 SECOND STREET            *
*     Lahey F77L-EM/32 version 5.01      *                                    *      DAVIS, CALIFORNIA 95616         *
*       Dodson & Associates, Inc.        *                                    *          (916) 551-1748              *
*  RUN DATE  03/01/99  TIME  08:29:44    *                                    *                                      *
****************************************                                    ****************************************


                        PIMA FREEWAY WEST BASIN
                        by Pentacore AZ                                  File: WB1006.IH1
                            Project:  5009.0001                          Date: 02-18-99  wso

                        Stand alone model for the Pima Freeway West Basin.
                        Stage-Discharge relation based on 50% clogging at trashrack.
                        100-yr, 6-hr model - ARF based on 0.93 sq.miles

                        The following header from original file by Stantec
                        ***************************************************************************

                        PIMA ROAD THREE BASINS                            File:  FU100-6.IH1
                        by  Stantec for the City of Scottsdale          Original: 08-07-97     mcg
                            Project:  28900082                           Revised: 01-20-99     mcg


                        100-YEAR, 6-HOUR
                            ULTIMATE CONDITION:
                               POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                               RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                               THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                               DETERMINED BY OTHERS.
                               THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                               THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                               THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


  28 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         720  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME        1155  ENDING TIME
                       ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL    0.08 HOURS
                       TOTAL TIME BASE   59.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT
1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                        TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM    TIME OF
          OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                         SCNA1      140.    3.25          16.          4.          2.       0.12
          HYDROGRAPH AT
```

```
+                          1G      199.   3.08        14.        4.        1.      0.06
        ROUTED TO
+                       DET1G       25.   3.50        13.        4.        1.      0.06
+                                                                                          2.88       3.50
        ROUTED TO
+                       R1GI1       25.   3.58        13.        4.        1.      0.06
+                                                                                          0.55       3.58
        HYDROGRAPH AT
+                          1I      188.   3.08        15.        4.        2.      0.06
        ROUTED TO
+                       DET1I       41.   3.42        14.        4.        2.      0.06
+                                                                                          3.09       3.42
        2 COMBINED AT
+                       CP1I1       65.   3.50        27.        7.        3.      0.12
        HYDROGRAPH AT
+                          1J       65.   3.08         5.        1.        0.      0.02
        ROUTED TO
+                       DET1J        8.   3.50         4.        1.        0.      0.02
+                                                                                          2.19       3.50
        ROUTED TO
+                       R1JI2        8.   3.67         4.        1.        0.      0.02
+                                                                                          0.88       3.67
        2 COMBINED AT
+                       CP1I2       73.   3.50        31.        9.        3.      0.14
        ROUTED TO
+                       R1IL1       73.   3.50        31.        9.        3.      0.14
+                                                                                          1.15       3.50
        HYDROGRAPH AT
+                          1L      110.   3.25        13.        3.        1.      0.05
        2 COMBINED AT
+                       CP1L1      169.   3.33        43.       12.        5.      0.19
        ROUTED TO
+                         RA2      153.   3.50        43.       12.        5.      0.19
+                                                                                          0.88       3.50
        HYDROGRAPH AT
+                       SCNA2      344.   3.33        38.        9.        4.      0.28
        2 COMBINED AT
+                         CA2      472.   3.33        80.       21.        9.      0.46
        2 COMBINED AT
+                        CPA2      613.   3.33        96.       25.       10.      0.58
        HYDROGRAPH AT
+                       SCNA3      125.   3.42        17.        4.        2.      0.12
        2 COMBINED AT
+                        CPA3      714.   3.33       113.       29.       12.      0.70
        HYDROGRAPH AT
+                       SCNA4      202.   3.33        22.        5.        2.      0.16
        2 COMBINED AT
+                        CPA4      916.   3.33       134.       35.       14.      0.86
        HYDROGRAPH AT
+                       SCNA5       49.   3.75        10.        3.        1.      0.07
        2 COMBINED AT
+                      WEST-I      953.   3.33       144.       37.       15.      0.93
        ROUTED TO
+                      WEST-0      179.   4.33       142.       37.       15.      0.93
+                                                                                       1606.44       4.33
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                       (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                   INTERPOLATED TO
                                                                 COMPUTATION INTERVAL
      ISTAQ    ELEMENT      DT        PEAK    TIME TO      VOLUME      DT       PEAK    TIME TO      VOLUME
                                                 PEAK                                     PEAK

                          (MIN)      (CFS)     (MIN)       (IN)    (MIN)      (CFS)     (MIN)        (IN)

        SCNA1   MANE       2.19     147.92    197.48       1.28     5.00     140.30    195.00        1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.8006E+01 OUTFLOW=0.7943E+01 BASIN STORAGE=0.8401E-03 PERCENT ERROR=   0.8

        SCNA2   MANE       3.12     363.64    197.52       1.27     5.00     343.59    200.00        1.28
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1888E+02 OUTFLOW=0.1872E+02 BASIN STORAGE=0.1260E-02 PERCENT ERROR=   0.9

          SCNA3  MANE        3.48    125.49    205.18      1.27      5.00    124.80    205.00       1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.8431E+01 OUTFLOW=0.8353E+01 BASIN STORAGE=0.7472E-03 PERCENT ERROR=   0.9

          SCNA4  MANE        2.06    205.21    198.91      1.28      5.00    202.22    200.00       1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1084E+02 OUTFLOW=0.1077E+02 BASIN STORAGE=0.6571E-03 PERCENT ERROR=   0.7

          SCNA5  MANE        2.65     49.14    223.50      1.38      5.00     49.05    225.00       1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.5012E+01 OUTFLOW=0.5000E+01 BASIN STORAGE=0.8297E-04 PERCENT ERROR=   0.2

1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1G
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION            0.00              3.00              3.00
                              STORAGE              0.                 5.                5.
                              OUTFLOW              0.                26.               26.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        2.88        0.00         5.        25.       0.00         3.50        0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1I
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION            0.00              3.00              3.00
                              STORAGE              0.                 4.                4.
                              OUTFLOW              0.                39.               39.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        3.09        0.09         4.        41.       0.33         3.42        0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1J
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION            0.00              3.00              3.00
                              STORAGE              0.                 2.                2.
                              OUTFLOW              0.                11.               11.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                   1.00        2.19        0.00         2.         8.       0.00         3.50        0.00

*** NORMAL END OF HEC-1 ***
```

APPENDIX O

WEST SIDE ULTIMATE BUILD-OUT AND 50% CLOGGING CONDITION
100-YEAR, 24-HOUR OUTPUT FILE PRINTOUT
(W-5)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  03/01/99  TIME  08:50:29 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                    HEC-1 INPUT                                    PAGE  1

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

    1           ID    PIMA FREEWAY WEST BASIN
    2           ID    by Pentacore AZ                                  File:  WB50-24.IH1
    3           ID        Project:  5009.0001                          Date: 02-18-99  wso
    4           ID
    5           ID    Stand alone model for the Pima Freeway West Basin.
    6           ID    Stage-Discharge relation based on no clogging at trashrack.
    7           ID    50-yr, 24-hr model - ARF based on 0.93 sq.miles
    8           ID
    9           ID    The following header from original file by Stantec
   10           ID    ****************************************************************************
   11           ID
   12           ID    PIMA ROAD THREE BASINS                           File:  FU50-24.IH1
   13           ID    by  Stantec for the City of Scottsdale         Original: 08-07-97     mcg
   14           ID        Project:  28900082                          Revised: 01-20-99     mcg
   15           ID
   16           ID
   17           ID    50-YEAR, 24-HOUR
   18           ID        ULTIMATE CONDITION:
   19           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
   20           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   21           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   22           ID           DETERMINED BY OTHERS.
   23           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   24           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   25           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   26           ID
                *DIAGRAM
   27           IT       5                    720
   28           IO       5
                *
                *

   29           KK   SCNA1     SUB
   30           KM         RUNOFF FROM SUB CNA1
   31           BA  0.1168
                *
                *  50-year precipitation, 24-hour storm duration
                *  ARF based on 0.93 sq.mile basin area
                *
   32           PH            0.93     .68    1.32    2.46    2.49    2.66    2.98    3.37    3.76
   33           LS              77
   34           UK     300   0.015    0.13     100
   35           RK    1900   0.015    0.04            TRAP       0      20
                *
   36           KM   ****************************************************************
   37           KM   ************ BEGIN GILBERTSON GRAYHAWK VILLAGE ******************
   38           KM   ****************************************************************
                *
                *
1                                    HEC-1 INPUT                                    PAGE  2

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

   39           KK      1G
   40           KM
   41           KM        NOTE: ALL HEC-1 DATA FOR SUB-BASINS 1G THROUGH 1L ARE TAKEN FROM
```

```
 42          KM              GILBERTSON ASSOCIATES MODEL UDPLAN.DAT, AS PUBLISHED IN THE
 43          KM              AUGUST 1995 REPORT TITLED "UNIT DRAINAGE PLAN, GRAYHAWK VILLAGE 1"
 44          KM              THE GILBERTSON MODEL USED SCS UNIT HYDROGRAPH METHODOLOGY.
 45          KM
 46          KM              THE CITY OF SCOTTSDALE HAS REQUIRED GILBERTSON ASSOCIATES TO RE-DO
 47          KM              THIS MODEL WITH KINEMATIC WAVE METHOGOLOGY IN ORDER TO BE
 48          KM              CONSISTENT WITH ALL PREVIOUS MODELING EFFORTS FOR THIS AREA.
 49          KM              AS OF 10/18/95, GILBERTSON ASSOCIATES HAS NOT COMPLIED WITH THIS
 50          KM              REQUEST.  ACCORDINGLY, THE UNIT HYDROGRAPH DATA WILL BE USED FOR
 51          KM              THE REFERENCED SUB-BASINS UNTIL THIS REVISED MODELING DATA IS
 52          KM              AVAILABLE.
 53          KM        EXCESS RUNOFF FROM SUBAREA 1G
 54          BA    .059
 55          LS              74      53
 56          UD     .06
             *

 57          KK   DET1G
 58          KM        DETENTION FOR PARCEL 1G
 59          RS       1    STOR       0
 60          SV       0     4.8
 61          SQ       0      26
 62          SE       0       3
 63          ST       3      15     2.8     1.5
             *

 64          KK   R1GI1
 65          KM        ROUTE DET1G TO THOMPSON PEAK PARKWAY
 66          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 67          KM                        SIDE SLOPE = 3:1 (H:V)
 68          KM                        MAX DEPTH  = 1.6 FT.
 69          KM                        BOT.WIDTH  = 8.0 FT.
 70          RS       1    FLOW      -1
 71          RC   0.025   0.025   0.025    1400   0.017
 72          RX       0     0.5     1.0     5.8    13.8    18.6      19    19.5
 73          RY     1.8     1.7     1.6       0       0     1.6     1.7     1.8
             *

 74          KK      1I
 75          KM        EXCESS RUNOFF FROM SUBAREA 1I
 76          BA    .062
 77          LS              74      52
 78          UD     .07
             *

 79          KK   DET1I
 80          KM        DETENTION FOR SUBAREA 1I
 81          RS       1    STOR       0
 82          SV       0     4.0
 83          SQ       0      39
 84          SE       0       3
```



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

 85          ST       3      15     2.8     1.5
             *

 86          KK   CP1I1
 87          KM        COMBINE HYDROGRAPHS FROM R1G1I AND DET1I
 88          HC       2
             *

 89          KK      1J
 90          KM        EXCESS RUNOFF FROM SUBAREA 1J
 91          BA   .0175
 92          LS              74      64
 93          UD     .06
             *

 94          KK   DET1J
 95          KM        DETENTION FOR SUBAREA 1J
 96          RS       1    STOR       0
 97          SV       0     2.1
 98          SQ       0      11
 99          SE       0       3
100          ST       3      15     2.8     1.5
             *

101          KK   R1JI2
102          KM        ROUTE DET1J TO 76TH STREET (WEST)
103          KM        TRIANGULAR CHANNEL PER PLANS (1661-E-94)
104          KM                        SIDE SLOPE = 4:1 (H:V)
105          KM                        MAX DEPTH  = 3.0 FT.
106          RS       1    FLOW      -1
107          RC    .025    .025    .025    1400    .005
108          RX       0     0.5     1.0    12.9      13      25    25.5      26
109          RY     3.2     3.1     3.0       0       0     3.0     3.1     3.2
             *

110          KK   CP1I2
111          KM        COMBINE HYDROGRAPHS FROM DET1J AND 1I
112          HC       2
             *
```

```
 113          KK   R1IL1
 114          KM        ROUTE 1I TO 1L
 115          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 116          KM                        SIDE SLOPE = 3:1 (H:V)
 117          KM                        MAX DEPTH  = 3.5 FT.
 118          KM                        BOT.WIDTH  = 8.0 FT.
 119          RS       1    FLOW      -1
 120          RC     .03     .03     .03     730    .015
 121          RX       0     0.5     1.0    11.5    19.5      30    30.5      31
 122          RY     3.7     3.6     3.5       0       0     3.5     3.6     3.7
              *
1                                          HEC-1 INPUT                                                    PAGE  4

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


 123          KK      1L
 124          KM        EXCESS RUNOFF FROM SUBAREA 1L
 125          BA   .0484
 126          LS              74      64
 127          UD    .217
              *

 128          KK   CP1L1
 129          KM        COMBINE HYDROGRAPHS FROM 1L AND R1IL1
 130          HC       2
              *
 131          KM   ****************************************************************
 132          KM   ************ END GILBERTSON GRAYHAWK VILLAGE ********************
 133          KM   ****************************************************************
              *

 134          KK     RA2
 135          KM        ROUTE FLOW THROUGH SUBBASIN CNA2 FROM GRAYHAWK
 136          KM        TRAPEZOIDAL CHANNEL B=20 Z=10
 137          RS       2    FLOW      -1
 138          RC    .050   0.025    .050    4200  0.0167
 139          RX       0      10      20      60      80     120     130     140
 140          RY       6       5       4       0       0       4       5       6
              *
              *

 141          KK   SCNA2     SUB
 142          KM         RUNOFF FROM SUB CNA2
 143          BA  0.2755
 144          LS              77
 145          UK     250  0.0167    0.13     100
 146          RK    3900  0.0167    0.04            TRAP       0      15
              *

 147          KK     CA2
 148          KM        COMBINE ROUTED HYDROGRAPH FROM CP1L1 W/RUNOFF FROM CNA2
 149          HC       2
              *

 150          KK    CPA2
 151          KM        COMBINE RUNOFF FROM CNA1 WITH HYDROGRAPH FROM CA2
 152          HC       2
              *

 153          KK   SCNA3     SUB
 154          KM         RUNOFF FROM SUB CNA3
 155          BA  0.1230
 156          LS              77
 157          UK     300  0.0179    0.13     100
 158          RK    5300  0.0179    0.04            TRAP       0      20
              *
1                                          HEC-1 INPUT                                                    PAGE  5

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


 159          KK    CPA3
 160          KM        COMBINE HYDROGRAPH CPA2 W/RUNOFF FROM SCNA3
 161          HC       2
              *

 162          KK   SCNA4     SUB
 163          KM         RUNOFF FROM SUB CNA4
 164          BA  0.1582
 165          LS              77
 166          UK     200   0.015    0.13     100
 167          RK    4500  0.0181    0.04            TRAP       0      15
              *

 168          KK    CPA4
 169          KM        COMBINE HYDROGRAPH CPA3 W/RUNOFF FROM SCNA4
 170          HC       2
              *

 171          KK   SCNA5     SUB
 172          KM         RUNOFF FROM SUB CNA5
 173          BA  0.0678
 174          LS              77       5
 175          UK      50    0.01    0.13     100
```

```
176          RK    5000   0.002   0.025            TRAP       0      50
             *

177          KK  WEST-I
178          KM        COMBINE HYDROGRAPH FROM CPA4 W/RUNOFF FROM SCNA5
179          HC       2
             *
             *

180          KK  WEST-0
181          KM     PIMA FREEWAY BASIN WEST LOCATED NORTH AND EAST OF SCOTTSDALE ROAD T.I.
182          KM     (1) 54" OUTLET CONDUIT
183          KM        STAGE-DISCHARGE RATING CURVE REFLECTS NO CLOGGING OF THE TRASHRACK.
184          KM  ***** Stage-Storage curve from design drawings ****************************
185          KM        2 ACRE-FEET OF STORAGE FOR SEDIMENTAION
186          KM
187          RS       1    STOR      -1       0
188          SV       0   0.002    0.13    0.59    1.79    3.88    6.83   10.86   15.27   20.06
189          SV   25.22   30.79   37.00   43.83   50.66
190          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
191          SE    1605    1606    1607    1608    1609
192          SQ       0      12      25      37      70      99     119     133     151     161
193          SQ     171     183     193     203     212
194          SE  1595.0  1596.0    1597    1598    1599    1600    1601    1602    1603    1604
195          SE    1605    1606    1607    1608    1609
             *
196          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   29      SCNA1
               .
               .
   39          .          1G
               .           V
               .           V
   57          .       DET1G
               .           V
               .           V
   64          .       R1GI1
               .           .
               .           .
   74          .           .          1I
               .           .           V
               .           .           V
   79          .           .       DET1I
               .           .           .
               .           .           .
   86          .       CP1I1............
               .           .
               .           .
   89          .           .          1J
               .           .           V
               .           .           V
   94          .           .       DET1J
               .           .           V
               .           .           V
  101          .           .       R1JI2
               .           .           .
               .           .           .
  110          .       CP1I2............
               .           V
               .           V
  113          .       R1IL1
               .           .
               .           .
  123          .           .          1L
               .           .           .
               .           .           .
  128          .       CP1L1............
               .           V
               .           V
  134          .         RA2
               .           .
               .           .
  141          .           .       SCNA2
               .           .           .
               .           .           .
  147          .         CA2............
               .           .
               .           .
  150       CPA2............
               .
               .
  153          .       SCNA3
               .           .
               .           .
  159       CPA3............
               .
               .
  162          .       SCNA4
```

```
                .          .
                .          .
  168        CPA4............
                .
                .
  171           .       SCNA5
                .          .
                .          .
  177      WEST-I............
                V
                V
  180      WEST-O

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                      *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              MAY   1991              *                                    *   HYDROLOGIC ENGINEERING CENTER      *
*           VERSION 4.0.1E             *                                    *         609 SECOND STREET            *
*     Lahey F77L-EM/32 version 5.01    *                                    *      DAVIS, CALIFORNIA 95616         *
*       Dodson & Associates, Inc.      *                                    *          (916) 551-1748              *
*  RUN DATE  03/01/99  TIME  08:50:29  *                                    *                                      *
****************************************                                    ****************************************


                         PIMA FREEWAY WEST BASIN
                         by Pentacore AZ                                File:  WB50-24.IH1
                             Project:  5009.0001                        Date: 02-18-99  wso

                         Stand alone model for the Pima Freeway West Basin.
                         Stage-Discharge relation based on no clogging at trashrack.
                         50-yr, 24-hr model - ARF based on 0.93 sq.miles

                         The following header from original file by Stantec
                         ***************************************************************************

                         PIMA ROAD THREE BASINS                             File:  FU50-24.IH1
                         by  Stantec for the City of Scottsdale          Original: 08-07-97     mcg
                             Project:  28900082                           Revised: 01-20-99     mcg


                         50-YEAR, 24-HOUR
                             ULTIMATE CONDITION:
                                POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                                RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                                THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                                DETERMINED BY OTHERS.
                                THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                                THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                                THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


  28 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        720  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME       1155  ENDING TIME
                       ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL    0.08 HOURS
                       TOTAL TIME BASE   59.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT
1
                                                RUNOFF SUMMARY
                                         FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                        6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          SCNA1     161.   12.25         18.          5.          2.       0.12

          HYDROGRAPH AT
+                             1G     176.   12.08         14.          4.          2.       0.06
```

```
          ROUTED TO
+                        DET1G       25.   12.58        12.        4.        2.      0.06
+                                                                                             2.90      12.58

          ROUTED TO
+                        R1GI1       25.   12.58        12.        4.        2.      0.06
+                                                                                             0.55      12.58

          HYDROGRAPH AT
+                           1I      169.   12.08        14.        4.        2.      0.06

          ROUTED TO
+                        DET1I       41.   12.50        14.        4.        2.      0.06
+                                                                                             3.08      12.50

          2 COMBINED AT
+                        CP1I1       66.   12.50        26.        9.        3.      0.12

          HYDROGRAPH AT
+                           1J       57.   12.08         4.        1.        1.      0.02

          ROUTED TO
+                        DET1J        8.   12.58         4.        1.        1.      0.02
+                                                                                             2.17      12.58

          ROUTED TO
+                        R1JI2        8.   12.67         4.        1.        1.      0.02
+                                                                                             0.88      12.67

          2 COMBINED AT
+                        CP1I2       73.   12.50        30.       10.        4.      0.14

          ROUTED TO
+                        R1IL1       73.   12.58        30.       10.        4.      0.14
+                                                                                             1.15      12.58

          HYDROGRAPH AT
+                           1L      102.   12.25        12.        4.        2.      0.05

          2 COMBINED AT
+                        CP1L1      161.   12.33        42.       14.        6.      0.19

          ROUTED TO
+                           RA2     148.   12.50        42.       14.        6.      0.19
+                                                                                             0.86      12.50

          HYDROGRAPH AT
+                        SCNA2      387.   12.25        42.       12.        5.      0.28

          2 COMBINED AT
+                           CA2     488.   12.33        83.       26.       10.      0.46

          2 COMBINED AT
+                          CPA2     638.   12.33       101.       31.       12.      0.58

          HYDROGRAPH AT
+                        SCNA3      143.   12.42        18.        5.        2.      0.12

          2 COMBINED AT
+                          CPA3     766.   12.33       120.       36.       14.      0.70

          HYDROGRAPH AT
+                        SCNA4      213.   12.33        24.        7.        3.      0.16

          2 COMBINED AT
+                          CPA4     979.   12.33       143.       43.       17.      0.86

          HYDROGRAPH AT
+                        SCNA5       56.   12.67        11.        3.        1.      0.07

          2 COMBINED AT
+                       WEST-I     1022.   12.33       154.       46.       18.      0.93

          ROUTED TO
+                       WEST-0      191.   13.08       151.       46.       18.      0.93
+                                                                                          1606.84      13.08
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                                 COMPUTATION INTERVAL
          ISTAQ    ELEMENT      DT       PEAK    TIME TO      VOLUME       DT       PEAK    TIME TO      VOLUME
                                                   PEAK                                              PEAK

                               (MIN)     (CFS)     (MIN)      (IN)     (MIN)      (CFS)     (MIN)       (IN)

            SCNA1  MANE         2.11    164.72    736.30      1.61      5.00     161.32    735.00       1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1011E+02 OUTFLOW=0.1005E+02 BASIN STORAGE=0.1371E-02 PERCENT ERROR=   0.5

            SCNA2  MANE         2.94    393.34    737.51      1.61      5.00     387.08    735.00       1.61
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.2384E+02 OUTFLOW=0.2372E+02 BASIN STORAGE=0.2325E-02 PERCENT ERROR=   0.5

            SCNA3  MANE        2.80    144.41    744.44      1.61      5.00    143.29    745.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1065E+02 OUTFLOW=0.1059E+02 BASIN STORAGE=0.1571E-02 PERCENT ERROR=   0.5

            SCNA4  MANE        3.04    223.84    738.20      1.61      5.00    213.23    740.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1369E+02 OUTFLOW=0.1362E+02 BASIN STORAGE=0.1258E-02 PERCENT ERROR=   0.5

            SCNA5  MANE        3.82     55.95    759.95      1.73      5.00     55.93    760.00        1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.6253E+01 OUTFLOW=0.6243E+01 BASIN STORAGE=0.1647E-03 PERCENT ERROR=   0.2

1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1G
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                5.                5.
                                OUTFLOW            0.               26.               26.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00       2.90       0.00         5.        25.       0.00       12.58       0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1I
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                4.                4.
                                OUTFLOW            0.               39.               39.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00       3.08       0.08         4.        41.       0.25       12.50       0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1J
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                2.                2.
                                OUTFLOW            0.               11.               11.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF     RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF     W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00       2.17       0.00         2.         8.       0.00       12.58       0.00

*** NORMAL END OF HEC-1 ***
```

APPENDIX P

HAPPY VALLEY BASIN EMERGENCY SPILLWAY OPERATION FOR THE 100-YEAR, 24-HOUR STORM OUTPUT FILE PRINTOUT (HV-1)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991           *
*           VERSION 4.0.1E          *
*     Lahey F77L-EM/32 version 5.01 *
*       Dodson & Associates, Inc.   *
* RUN DATE  03/01/99  TIME  08:30:44 *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                          PAGE  1

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

    1           ID    PIMA FREEWAY WEST BASIN
    2           ID    by Pentacore AZ                                    File: WB5024.IH1
    3           ID        Project:  5009.0001                            Date: 02-18-99  wso
    4           ID
    5           ID    Stand alone model for the Pima Freeway West Basin.
    6           ID    Stage-Discharge relation based on 50% clogging at trashrack.
    7           ID    50-yr, 24-hr model - ARF based on 0.93 sq.miles
    8           ID
    9           ID    The following header from original file by Stantec
   10           ID    ***************************************************************************
   11           ID
   12           ID    PIMA ROAD THREE BASINS                             File:  FU50-24.IH1
   13           ID    by  Stantec for the City of Scottsdale           Original: 08-07-97     mcg
   14           ID        Project:  28900082                            Revised: 01-20-99     mcg
   15           ID
   16           ID
   17           ID    50-YEAR, 24-HOUR
   18           ID        ULTIMATE CONDITION:
   19           ID           POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
   20           ID           RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
   21           ID           THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
   22           ID           DETERMINED BY OTHERS.
   23           ID           THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
   24           ID           THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
   25           ID           THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.
   26           ID
                *DIAGRAM
   27           IT       5                    720
   28           IO       5
                *
                *

   29           KK   SCNA1     SUB
   30           KM         RUNOFF FROM SUB CNA1
   31           BA  0.1168
                *
                *  50-year precipitation, 24-hour storm duration
                *  ARF based on 0.93 sq.mile basin area
                *
   32           PH            0.93     .68    1.32    2.46    2.49    2.66    2.98    3.37    3.76
   33           LS              77
   34           UK     300   0.015    0.13     100
   35           RK    1900   0.015    0.04            TRAP       0      20
                *
   36           KM   ******************************************************************
   37           KM   ************ BEGIN GILBERTSON GRAYHAWK VILLAGE ******************
   38           KM   ******************************************************************
                *
                *
1                                          HEC-1 INPUT                                          PAGE  2

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

   39           KK      1G
   40           KM
   41           KM        NOTE: ALL HEC-1 DATA FOR SUB-BASINS 1G THROUGH 1L ARE TAKEN FROM
```

```
 42          KM              GILBERTSON ASSOCIATES MODEL UDPLAN.DAT, AS PUBLISHED IN THE
 43          KM              AUGUST 1995 REPORT TITLED "UNIT DRAINAGE PLAN, GRAYHAWK VILLAGE 1"
 44          KM              THE GILBERTSON MODEL USED SCS UNIT HYDROGRAPH METHODOLOGY.
 45          KM
 46          KM              THE CITY OF SCOTTSDALE HAS REQUIRED GILBERTSON ASSOCIATES TO RE-DO
 47          KM              THIS MODEL WITH KINEMATIC WAVE METHOGOLOGY IN ORDER TO BE
 48          KM              CONSISTENT WITH ALL PREVIOUS MODELING EFFORTS FOR THIS AREA.
 49          KM              AS OF 10/18/95, GILBERTSON ASSOCIATES HAS NOT COMPLIED WITH THIS
 50          KM              REQUEST.  ACCORDINGLY, THE UNIT HYDROGRAPH DATA WILL BE USED FOR
 51          KM              THE REFERENCED SUB-BASINS UNTIL THIS REVISED MODELING DATA IS
 52          KM              AVAILABLE.
 53          KM        EXCESS RUNOFF FROM SUBAREA 1G
 54          BA    .059
 55          LS              74      53
 56          UD     .06
             *

 57          KK   DET1G
 58          KM        DETENTION FOR PARCEL 1G
 59          RS       1    STOR       0
 60          SV       0     4.8
 61          SQ       0      26
 62          SE       0       3
 63          ST       3      15     2.8     1.5
             *

 64          KK   R1GI1
 65          KM        ROUTE DET1G TO THOMPSON PEAK PARKWAY
 66          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 67          KM                        SIDE SLOPE = 3:1 (H:V)
 68          KM                        MAX DEPTH  = 1.6 FT.
 69          KM                        BOT.WIDTH  = 8.0 FT.
 70          RS       1    FLOW      -1
 71          RC   0.025   0.025   0.025    1400   0.017
 72          RX       0     0.5     1.0     5.8    13.8    18.6      19    19.5
 73          RY     1.8     1.7     1.6       0       0     1.6     1.7     1.8
             *

 74          KK      1I
 75          KM        EXCESS RUNOFF FROM SUBAREA 1I
 76          BA    .062
 77          LS              74      52
 78          UD     .07
             *

 79          KK   DET1I
 80          KM        DETENTION FOR SUBAREA 1I
 81          RS       1    STOR       0
 82          SV       0     4.0
 83          SQ       0      39
 84          SE       0       3
```



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

 85          ST       3      15     2.8     1.5
             *

 86          KK   CP1I1
 87          KM        COMBINE HYDROGRAPHS FROM R1G1I AND DET1I
 88          HC       2
             *

 89          KK      1J
 90          KM        EXCESS RUNOFF FROM SUBAREA 1J
 91          BA   .0175
 92          LS              74      64
 93          UD     .06
             *

 94          KK   DET1J
 95          KM        DETENTION FOR SUBAREA 1J
 96          RS       1    STOR       0
 97          SV       0     2.1
 98          SQ       0      11
 99          SE       0       3
100          ST       3      15     2.8     1.5
             *

101          KK   R1JI2
102          KM        ROUTE DET1J TO 76TH STREET (WEST)
103          KM        TRIANGULAR CHANNEL PER PLANS (1661-E-94)
104          KM                        SIDE SLOPE = 4:1 (H:V)
105          KM                        MAX DEPTH  = 3.0 FT.
106          RS       1    FLOW      -1
107          RC    .025    .025    .025    1400    .005
108          RX       0     0.5     1.0    12.9      13      25    25.5      26
109          RY     3.2     3.1     3.0       0       0     3.0     3.1     3.2
             *

110          KK   CP1I2
111          KM        COMBINE HYDROGRAPHS FROM DET1J AND 1I
112          HC       2
             *
```

```
 113          KK   R1IL1
 114          KM        ROUTE 1I TO 1L
 115          KM        TRAPEZOIDAL CHANNEL PER 76TH STREET PLANS
 116          KM                        SIDE SLOPE = 3:1 (H:V)
 117          KM                        MAX DEPTH  = 3.5 FT.
 118          KM                        BOT.WIDTH  = 8.0 FT.
 119          RS       1    FLOW      -1
 120          RC     .03     .03     .03     730    .015
 121          RX       0     0.5     1.0    11.5    19.5      30    30.5      31
 122          RY     3.7     3.6     3.5       0       0     3.5     3.6     3.7
              *
1                                          HEC-1 INPUT                                                PAGE  4

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


 123          KK      1L
 124          KM        EXCESS RUNOFF FROM SUBAREA 1L
 125          BA   .0484
 126          LS              74      64
 127          UD    .217
              *

 128          KK   CP1L1
 129          KM        COMBINE HYDROGRAPHS FROM 1L AND R1IL1
 130          HC       2
              *
 131          KM   ****************************************************************
 132          KM   ************ END GILBERTSON GRAYHAWK VILLAGE *********************
 133          KM   ****************************************************************
              *

 134          KK     RA2
 135          KM        ROUTE FLOW THROUGH SUBBASIN CNA2 FROM GRAYHAWK
 136          KM        TRAPEZOIDAL CHANNEL B=20 Z=10
 137          RS       2    FLOW      -1
 138          RC    .050   0.025    .050    4200  0.0167
 139          RX       0      10      20      60      80     120     130     140
 140          RY       6       5       4       0       0       4       5       6
              *
              *

 141          KK   SCNA2     SUB
 142          KM         RUNOFF FROM SUB CNA2
 143          BA  0.2755
 144          LS              77
 145          UK     250  0.0167    0.13     100
 146          RK    3900  0.0167    0.04            TRAP       0      15
              *

 147          KK     CA2
 148          KM        COMBINE ROUTED HYDROGRAPH FROM CP1L1 W/RUNOFF FROM CNA2
 149          HC       2
              *

 150          KK    CPA2
 151          KM        COMBINE RUNOFF FROM CNA1 WITH HYDROGRAPH FROM CA2
 152          HC       2
              *

 153          KK   SCNA3     SUB
 154          KM         RUNOFF FROM SUB CNA3
 155          BA  0.1230
 156          LS              77
 157          UK     300  0.0179    0.13     100
 158          RK    5300  0.0179    0.04            TRAP       0      20
              *
1                                          HEC-1 INPUT                                                PAGE  5

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


 159          KK    CPA3
 160          KM        COMBINE HYDROGRAPH CPA2 W/RUNOFF FROM SCNA3
 161          HC       2
              *

 162          KK   SCNA4     SUB
 163          KM         RUNOFF FROM SUB CNA4
 164          BA  0.1582
 165          LS              77
 166          UK     200   0.015    0.13     100
 167          RK    4500  0.0181    0.04            TRAP       0      15
              *

 168          KK    CPA4
 169          KM        COMBINE HYDROGRAPH CPA3 W/RUNOFF FROM SCNA4
 170          HC       2
              *

 171          KK   SCNA5     SUB
 172          KM         RUNOFF FROM SUB CNA5
 173          BA  0.0678
 174          LS              77       5
 175          UK      50    0.01    0.13     100
```

```
176          RK    5000   0.002   0.025          TRAP       0      50
             *

177          KK  WEST-I
178          KM        COMBINE HYDROGRAPH FROM CPA4 W/RUNOFF FROM SCNA5
179          HC       2
             *
             *

180          KK  WEST-O
181          KM     PIMA FREEWAY BASIN WEST LOCATED NORTH AND EAST OF SCOTTSDALE ROAD T.I.
182          KM     (1) 54" OUTLET CONDUIT
183          KM        STAGE-DISCHARGE RATING CURVE REFLECTS 50% CLOGGING OF THE TRASHRACK.
184          KM  ***** Stage-Storage curve from design drawings ***************************
185          KM        2 ACRE-FEET OF STORAGE FOR SEDIMENTAION
186          KM
187          RS       1    STOR      -1       0
188          SV       0   0.002    0.13    0.59    1.79    3.88    6.83   10.86   15.27   20.06
189          SV   25.22   30.79   37.00   43.83   50.66
190          SE  1595.5    1596    1597    1598    1599    1600    1601    1602    1603    1604
191          SE    1605    1606    1607    1608    1609
192          SQ       0      12      24      36      67      95     113     127     143     153
193          SQ     164     175     184     194     203
194          SE  1595.0  1596.0    1597    1598    1599    1600    1601    1602    1603    1604
195          SE    1605    1606    1607    1608    1609
             *
196          ZZ
```

1

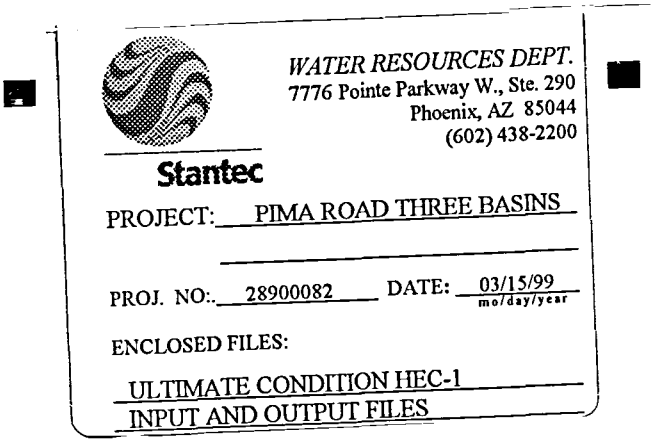
SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   29      SCNA1
               .
               .
   39          .          1G
               .           V
               .           V
   57          .       DET1G
               .           V
               .           V
   64          .       R1GI1
               .           .
               .           .
   74          .           .          1I
               .           .           V
               .           .           V
   79          .           .       DET1I
               .           .           .
               .           .           .
   86          .       CP1I1............
               .           .
               .           .
   89          .           .          1J
               .           .           V
               .           .           V
   94          .           .       DET1J
               .           .           V
               .           .           V
  101          .           .       R1JI2
               .           .           .
               .           .           .
  110          .       CP1I2............
               .           V
               .           V
  113          .       R1IL1
               .           .
               .           .
  123          .           .          1L
               .           .           .
               .           .           .
  128          .       CP1L1............
               .           V
               .           V
  134          .         RA2
               .           .
               .           .
  141          .           .       SCNA2
               .           .           .
               .           .           .
  147          .         CA2............
               .           .
               .           .
  150       CPA2............
               .
               .
  153          .       SCNA3
               .           .
               .           .
  159       CPA3............
               .
               .
  162          .       SCNA4
```

```
                .          .
                .          .
  168        CPA4............
                .
                .
  171           .       SCNA5
                .          .
                .          .
  177      WEST-I............
                V
                V
  180      WEST-O

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                      *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
*              MAY   1991              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
*           VERSION 4.0.1E             *                                    *          609 SECOND STREET           *
*     Lahey F77L-EM/32 version 5.01    *                                    *       DAVIS, CALIFORNIA 95616        *
*       Dodson & Associates, Inc.      *                                    *           (916) 551-1748             *
* RUN DATE  03/01/99  TIME  08:30:44   *                                    *                                      *
****************************************                                    ****************************************


                        PIMA FREEWAY WEST BASIN
                        by Pentacore AZ                                File: WB5024.IH1
                            Project:  5009.0001                        Date: 02-18-99  wso

                        Stand alone model for the Pima Freeway West Basin.
                        Stage-Discharge relation based on 50% clogging at trashrack.
                        50-yr, 24-hr model - ARF based on 0.93 sq.miles

                        The following header from original file by Stantec
                        ***************************************************************************

                        PIMA ROAD THREE BASINS                             File:  FU50-24.IH1
                        by  Stantec for the City of Scottsdale           Original: 08-07-97     mcg
                            Project:  28900082                            Revised: 01-20-99     mcg


                        50-YEAR, 24-HOUR
                            ULTIMATE CONDITION:
                               POWER LINE CHANNEL IS INCLUDED.  THE POWER LINE CHANNEL COLLECTS
                               RUNOFF FROM GRAYHAWK AND ROUTES IT TO THE PIMA FREEWAY EAST-BASIN.
                               THE ULTIMATE LOCATION AND GEOMETRY OF THE POWER LINE CHANNEL IS TO BE
                               DETERMINED BY OTHERS.
                               THE 10% DESIGN FOR HAPPY VALLEY DETENTION BASIN IS INCLUDED.
                               THE 60% DESIGN FOR DEER VALLEY DETENTION BASIN IS INCLUDED.
                               THE FINAL DESIGN FOR THE PIMA FREEWAY BASINS ARE INCLUDED.


  28 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        720  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME       1155  ENDING TIME
                       ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL    0.08 HOURS
                       TOTAL TIME BASE   59.92 HOURS

          ENGINEERING UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT
1
                                                  RUNOFF SUMMARY
                                            FLOW IN CUBIC FEET PER SECOND
                                          TIME IN HOURS,  AREA IN SQUARE MILES

                                        PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION       FLOW     PEAK                                          AREA      STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          SCNA1        161.   12.25        18.          5.          2.       0.12

          HYDROGRAPH AT
+                            1G         176.   12.08        14.          4.          2.       0.06
```

```
          ROUTED TO
+                        DET1G       25.   12.58        12.        4.        2.      0.06
+                                                                                            2.90      12.58

          ROUTED TO
+                        R1GI1       25.   12.58        12.        4.        2.      0.06
+                                                                                            0.55      12.58

          HYDROGRAPH AT
+                           1I      169.   12.08        14.        4.        2.      0.06

          ROUTED TO
+                        DET1I       41.   12.50        14.        4.        2.      0.06
+                                                                                            3.08      12.50

          2 COMBINED AT
+                        CP1I1       66.   12.50        26.        9.        3.      0.12

          HYDROGRAPH AT
+                           1J       57.   12.08         4.        1.        1.      0.02

          ROUTED TO
+                        DET1J        8.   12.58         4.        1.        1.      0.02
+                                                                                            2.17      12.58

          ROUTED TO
+                        R1JI2        8.   12.67         4.        1.        1.      0.02
+                                                                                            0.88      12.67

          2 COMBINED AT
+                        CP1I2       73.   12.50        30.       10.        4.      0.14

          ROUTED TO
+                        R1IL1       73.   12.58        30.       10.        4.      0.14
+                                                                                            1.15      12.58

          HYDROGRAPH AT
+                           1L      102.   12.25        12.        4.        2.      0.05

          2 COMBINED AT
+                        CP1L1      161.   12.33        42.       14.        6.      0.19

          ROUTED TO
+                          RA2      148.   12.50        42.       14.        6.      0.19
+                                                                                            0.86      12.50

          HYDROGRAPH AT
+                        SCNA2      387.   12.25        42.       12.        5.      0.28

          2 COMBINED AT
+                          CA2      488.   12.33        83.       26.       10.      0.46

          2 COMBINED AT
+                         CPA2      638.   12.33       101.       31.       12.      0.58

          HYDROGRAPH AT
+                        SCNA3      143.   12.42        18.        5.        2.      0.12

          2 COMBINED AT
+                         CPA3      766.   12.33       120.       36.       14.      0.70

          HYDROGRAPH AT
+                        SCNA4      213.   12.33        24.        7.        3.      0.16

          2 COMBINED AT
+                         CPA4      979.   12.33       143.       43.       17.      0.86

          HYDROGRAPH AT
+                        SCNA5       56.   12.67        11.        3.        1.      0.07

          2 COMBINED AT
+                       WEST-I     1022.   12.33       154.       46.       18.      0.93

          ROUTED TO
+                       WEST-0      183.   13.08       149.       46.       18.      0.93
+                                                                                         1606.94      13.08
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
          ISTAQ    ELEMENT      DT        PEAK     TIME TO      VOLUME      DT      PEAK     TIME TO      VOLUME
                                                     PEAK                                              PEAK

                               (MIN)      (CFS)     (MIN)       (IN)     (MIN)    (CFS)     (MIN)        (IN)

            SCNA1  MANE         2.11     164.72    736.30       1.61      5.00   161.32    735.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1011E+02 OUTFLOW=0.1005E+02 BASIN STORAGE=0.1371E-02 PERCENT ERROR=   0.5

            SCNA2  MANE         2.94     393.34    737.51       1.61      5.00   387.08    735.00        1.61
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.2384E+02 OUTFLOW=0.2372E+02 BASIN STORAGE=0.2325E-02 PERCENT ERROR=   0.5

            SCNA3  MANE        2.80    144.41    744.44      1.61      5.00    143.29    745.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1065E+02 OUTFLOW=0.1059E+02 BASIN STORAGE=0.1571E-02 PERCENT ERROR=   0.5

            SCNA4  MANE        3.04    223.84    738.20      1.61      5.00    213.23    740.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.1369E+02 OUTFLOW=0.1362E+02 BASIN STORAGE=0.1258E-02 PERCENT ERROR=   0.5

            SCNA5  MANE        3.82     55.95    759.95      1.73      5.00     55.93    760.00        1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.0000E+00 EXCESS=0.6253E+01 OUTFLOW=0.6243E+01 BASIN STORAGE=0.1647E-03 PERCENT ERROR=   0.2

1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1G
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                5.                5.
                                OUTFLOW            0.               26.               26.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF      RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF      W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00        2.90       0.00        5.        25.       0.00       12.58       0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1I
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                4.                4.
                                OUTFLOW            0.               39.               39.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF      RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF      W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00        3.08       0.08        4.        41.       0.25       12.50       0.00
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    DET1J
                      (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION          0.00              3.00              3.00
                                STORAGE            0.                2.                2.
                                OUTFLOW            0.               11.               11.

                   RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                    OF      RESERVOIR    DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                   PMF      W.S.ELEV   OVER DAM     AC-FT       CFS       HOURS       HOURS       HOURS

                   1.00        2.17       0.00        2.         8.       0.00       12.58       0.00

*** NORMAL END OF HEC-1 ***
```



WATER RESOURCES DEPT.
7776 Pointe Parkway W., Ste. 290
Phoenix, AZ 85044
(602) 438-2200

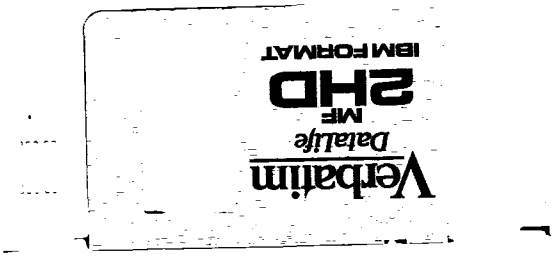
Stantec

PROJECT: PIMA ROAD THREE BASINS

PROJ. NO.: 28900082 DATE: 03/15/99
mo/day/year

ENCLOSED FILES:

ULTIMATE CONDITION HEC-1
INPUT AND OUTPUT FILES



APPENDIX Q

DISKETTE OF HEC-1 FILES

APPENDIX R

PIMA FREEWAY BASINS OUTFLOW HYDROGRAPHS

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
0.00	0	0	0
0.08	0	0	0
0.17	0	0	0
0.25	0	0	0
0.33	0	0	0
0.42	1	1	2
0.50	1	1	2
0.58	2	1	3
0.67	4	2	6
0.75	6	2	8
0.83	9	2	11
0.92	13	2	15
1.00	18	3	21
1.08	23	3	26
1.17	29	3	32
1.25	34	4	38
1.33	39	4	43
1.42	44	4	48
1.50	48	4	52
1.58	53	5	58
1.67	57	5	62
1.75	62	5	67
1.83	66	6	72
1.92	70	6	76
2.00	74	6	80
2.08	79	7	86
2.17	84	7	91
2.25	91	8	99
2.33	98	8	106
2.42	106	8	114
2.50	115	9	124
2.58	126	10	136
2.67	139	10	149
2.75	158	12	170
2.83	188	13	201
2.92	235	15	250
3.00	300	22	322
3.08	386	35	421
3.17	640	75	715
3.25	1040	112	1152
3.33	1367	134	1501

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
3.42	1572	153	1725
3.50	1708	162	1870
3.58	1805	169	1974
3.67	1872	174	2046
3.75	1919	179	2098
3.83	1950	182	2132
3.92	1968	184	2152
4.00	1976	185	2161
4.08	1975	186	2161
4.17	1966	186	2152
4.25	1950	186	2136
4.33	1927	186	2113
4.42	1898	186	2084
4.50	1866	186	2052
4.58	1830	185	2015
4.67	1790	185	1975
4.75	1747	184	1931
4.83	1702	184	1886
4.92	1654	183	1837
5.00	1606	182	1788
5.08	1556	181	1737
5.17	1504	180	1684
5.25	1452	178	1630
5.33	1396	177	1573
5.42	1340	176	1516
5.50	1283	175	1458
5.58	1225	173	1398
5.67	1168	172	1340
5.75	1109	171	1280
5.83	1052	170	1222
5.92	996	168	1164
6.00	945	167	1112
6.08	900	166	1066
6.17	859	164	1023
6.25	819	163	982
6.33	779	162	941
6.42	742	160	902
6.50	708	159	867
6.58	677	157	834
6.67	648	156	804
6.75	621	154	775

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
6.83	597	152	749
6.92	573	151	724
7.00	552	147	699
7.08	531	144	675
7.17	510	141	651
7.25	492	138	630
7.33	475	135	610
7.42	459	132	591
7.50	445	129	574
7.58	433	127	560
7.67	421	124	545
7.75	411	122	533
7.83	402	119	521
7.92	394	115	509
8.00	386	110	496
8.08	379	106	485
8.17	373	102	475
8.25	367	96	463
8.33	362	89	451
8.42	357	82	439
8.50	353	75	428
8.58	349	69	418
8.67	345	59	404
8.75	342	50	392
8.83	339	43	382
8.92	336	37	373
9.00	334	33	367
9.08	331	29	360
9.17	329	25	354
9.25	327	16	343
9.33	324	11	335
9.42	322	3	325
9.50	320	9	329
9.58	317	3	320
9.67	315	8	323
9.75	312	3	315
9.83	310	7	317
9.92	307	3	310
10.00	305	7	312
10.08	302	3	305
10.17	300	6	306

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
10.25	298	3	301
10.33	296	5	301
10.42	294	3	297
10.50	292	5	297
10.58	289	3	292
10.67	287	4	291
10.75	285	3	288
10.83	283	4	287
10.92	281	3	284
11.00	280	4	284
11.08	279	2	281
11.17	277	3	280
11.25	277	2	279
11.33	276	3	279
11.42	275	2	277
11.50	274	3	277
11.58	273	2	275
11.67	273	3	276
11.75	272	2	274
11.83	271	2	273
11.92	270	2	272
12.00	270	2	272
12.08	269	2	271
12.17	268	2	270
12.25	268	2	270
12.33	267	2	269
12.42	266	2	268
12.50	266	2	268
12.58	265	1	266
12.67	264	2	266
12.75	264	1	265
12.83	263	1	264
12.92	262	1	263
13.00	261	1	262
13.08	261	1	262
13.17	260	1	261
13.25	259	1	260
13.33	258	1	259
13.42	257	1	258
13.50	256	1	257
13.58	254	1	255

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
13.67	253	1	254
13.75	252	1	253
13.83	251	1	252
13.92	249	1	250
14.00	248	1	249
14.08	247	1	248
14.17	246	1	247
14.25	245	1	246
14.33	244	1	245
14.42	243	1	244
14.50	242	1	243
14.58	241	1	242
14.67	240	1	241
14.75	240	1	241
14.83	239	1	240
14.92	238	1	239
15.00	238	1	239
15.08	237	1	238
15.17	237	1	238
15.25	236	0	236
15.33	236	0	236
15.42	235	0	235
15.50	235	0	235
15.58	235	0	235
15.67	234	0	234
15.75	234	0	234
15.83	234	0	234
15.92	233	0	233
16.00	233	0	233
16.08	232	0	232
16.17	232	0	232
16.25	232	0	232
16.33	231	0	231
16.42	231	0	231
16.50	231	0	231
16.58	230	0	230
16.67	230	0	230
16.75	230	0	230
16.83	229	0	229
16.92	229	0	229
17.00	229	0	229

Table R-1

Combined outflow from the Pima Freeway East- and West-Basins for the 100-year, 6-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
17.08	228	0	228
17.17	228	0	228
17.25	228	0	228
17.33	227	0	227
17.42	227	0	227
17.50	227	0	227
17.58	226	0	226
17.67	226	0	226
17.75	226	0	226
17.83	226	0	226
17.92	225	0	225
18.00	225	0	225
18.08	225	0	225
18.17	224	0	224
18.25	224	0	224
18.33	224	0	224
18.42	223	0	223
18.50	223	0	223
18.58	222	0	222
18.67	222	0	222
18.75	222	0	222
18.83	221	0	221
18.92	221	0	221
19.00	220	0	220
19.08	220	0	220
19.17	220	0	220
19.25	219	0	219
19.33	219	0	219
19.42	218	0	218
19.50	218	0	218
19.58	218	0	218
19.67	217	0	217
19.75	217	0	217
19.83	216	0	216
19.92	216	0	216
20.00	216	0	216

Table R-2

Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
0.00	0	0	0
0.08	0	0	0
0.17	0	0	0
0.25	0	0	0
0.33	0	0	0
0.42	0	0	0
0.50	0	0	0
0.58	0	0	0
0.67	0	0	0
0.75	1	0	1
0.83	1	1	2
0.92	1	1	2
1.00	1	1	2
1.08	2	1	3
1.17	2	1	3
1.25	2	1	3
1.33	3	1	4
1.42	4	1	5
1.50	4	1	5
1.58	5	1	6
1.67	6	1	7
1.75	7	1	8
1.83	8	1	9
1.92	8	1	9
2.00	9	1	10
2.08	10	1	11
2.17	10	1	11
2.25	11	1	12
2.33	11	1	12
2.42	12	1	13
2.50	12	1	13
2.58	13	1	14
2.67	13	1	14
2.75	14	1	15
2.83	14	2	16
2.92	15	2	17
3.00	15	2	17
3.08	16	2	18
3.17	16	2	18
3.25	17	2	19
3.33	17	2	19

Table R-2

Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
3.42	18	2	20
3.50	18	2	20
3.58	19	2	21
3.67	19	2	21
3.75	20	2	22
3.83	20	2	22
3.92	21	2	23
4.00	21	2	23
4.08	22	2	24
4.17	22	2	24
4.25	23	2	25
4.33	24	2	26
4.42	24	2	26
4.50	25	2	27
4.58	26	2	28
4.67	26	2	28
4.75	27	2	29
4.83	28	2	30
4.92	28	2	30
5.00	29	2	31
5.08	30	2	32
5.17	30	2	32
5.25	31	2	33
5.33	32	2	34
5.42	32	2	34
5.50	33	2	35
5.58	34	2	36
5.67	34	2	36
5.75	35	2	37
5.83	36	2	38
5.92	36	2	38
6.00	37	2	39
6.08	37	2	39
6.17	38	3	41
6.25	38	3	41
6.33	39	3	42
6.42	40	3	43
6.50	41	3	44
6.58	42	3	45
6.67	43	3	46
6.75	44	3	47

Table R-2

Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
6.83	45	3	48
6.92	46	3	49
7.00	47	3	50
7.08	48	3	51
7.17	49	3	52
7.25	51	3	54
7.33	51	3	54
7.42	52	3	55
7.50	53	3	56
7.58	54	3	57
7.67	55	3	58
7.75	56	3	59
7.83	57	3	60
7.92	58	4	62
8.00	59	4	63
8.08	60	4	64
8.17	61	4	65
8.25	62	4	66
8.33	63	4	67
8.42	64	4	68
8.50	65	4	69
8.58	66	4	70
8.67	67	4	71
8.75	68	4	72
8.83	69	4	73
8.92	70	4	74
9.00	71	4	75
9.08	72	4	76
9.17	73	4	77
9.25	75	5	80
9.33	76	5	81
9.42	77	5	82
9.50	79	5	84
9.58	80	5	85
9.67	81	5	86
9.75	83	5	88
9.83	84	5	89
9.92	86	5	91
10.00	88	5	93
10.08	89	5	94
10.17	91	5	96

Table R-2

Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
10.25	93	6	99
10.33	95	6	101
10.42	98	6	104
10.50	100	6	106
10.58	103	6	109
10.67	106	6	112
10.75	109	7	116
10.83	112	7	119
10.92	116	7	123
11.00	119	7	126
11.08	124	7	131
11.17	128	8	136
11.25	133	8	141
11.33	138	8	146
11.42	144	8	152
11.50	152	8	160
11.58	160	8	168
11.67	172	8	180
11.75	191	10	201
11.83	224	13	237
11.92	280	17	297
12.00	332	28	360
12.08	447	48	495
12.17	720	93	813
12.25	1112	124	1236
12.33	1415	146	1561
12.42	1610	160	1770
12.50	1745	169	1914
12.58	1840	177	2017
12.67	1908	183	2091
12.75	1953	187	2140
12.83	1982	189	2171
12.92	1999	191	2190
13.00	2006	191	2197
13.08	2003	191	2194
13.17	1992	191	2183
13.25	1973	191	2164
13.33	1949	190	2139
13.42	1919	190	2109
13.50	1885	189	2074
13.58	1845	188	2033

Table R-2

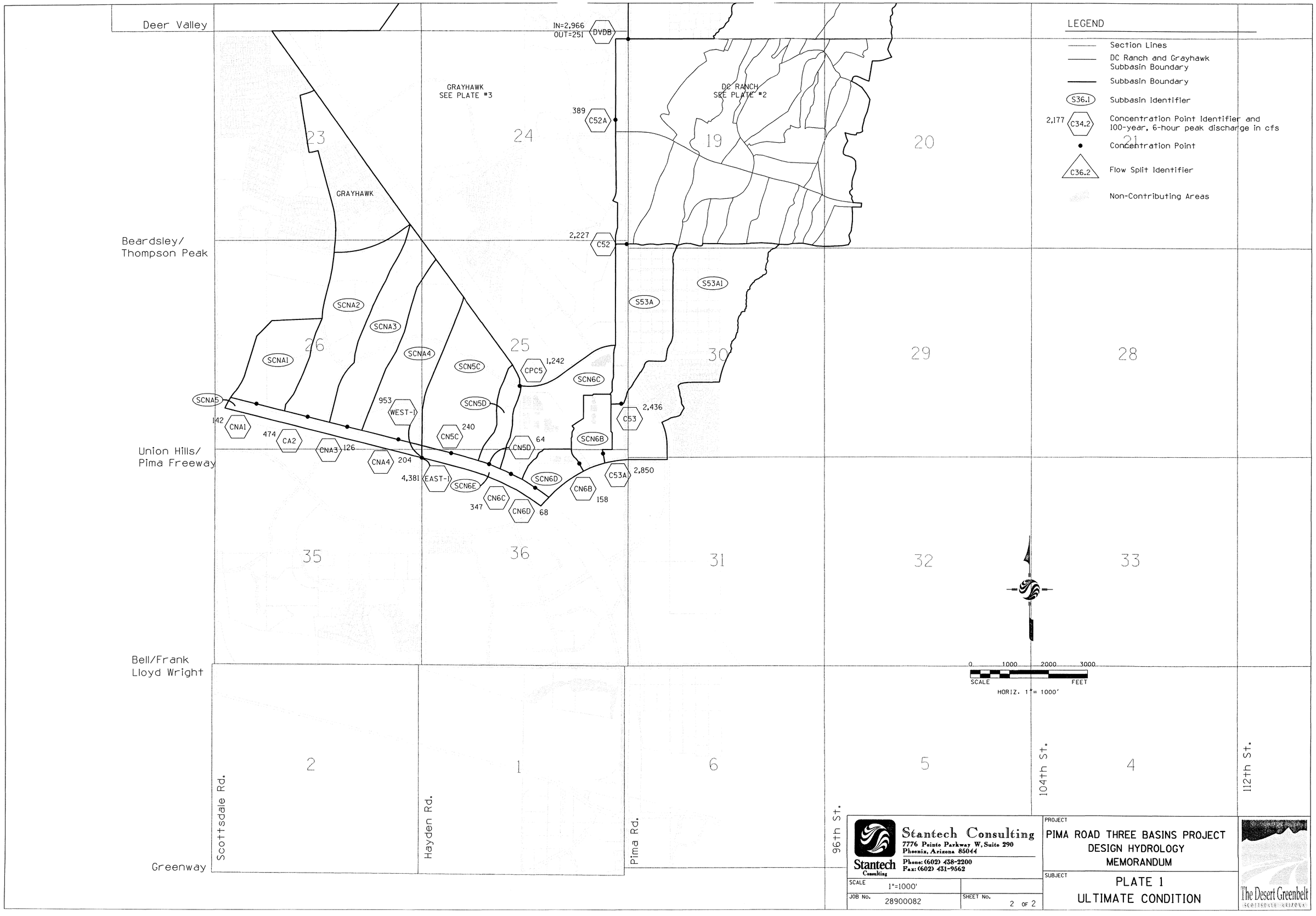
Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
13.67	1802	187	1989
13.75	1757	186	1943
13.83	1711	185	1896
13.92	1662	184	1846
14.00	1609	183	1792
14.08	1556	182	1738
14.17	1504	181	1685
14.25	1447	179	1626
14.33	1389	178	1567
14.42	1330	177	1507
14.50	1269	175	1444
14.58	1210	174	1384
14.67	1146	172	1318
14.75	1087	171	1258
14.83	1023	169	1192
14.92	966	168	1134
15.00	915	167	1082
15.08	870	165	1035
15.17	828	164	992
15.25	785	163	948
15.33	747	161	908
15.42	715	160	875
15.50	686	158	844
15.58	662	157	819
15.67	640	155	795
15.75	622	154	776
15.83	605	153	758
15.92	591	151	742
16.00	578	148	726
16.08	566	146	712
16.17	556	143	699
16.25	547	140	687
16.33	538	138	676
16.42	530	135	665
16.50	522	133	655
16.58	515	131	646
16.67	509	129	638
16.75	503	127	630
16.83	498	125	623
16.92	493	123	616
17.00	489	121	610

Table R-2

Combined outflow from the Pima Freeway East- and West-Basins for the 50-year, 24-hour storm

Time hours	Peak Discharge East cfs	West cfs	Combined cfs
17.08	484	118	602
17.17	480	115	595
17.25	477	111	588
17.33	473	108	581
17.42	470	104	574
17.50	467	101	568
17.58	463	98	561
17.67	460	92	552
17.75	458	86	544
17.83	455	82	537
17.92	452	77	529
18.00	450	73	523
18.08	447	68	515
18.17	444	62	506
18.25	442	57	499
18.33	439	52	491
18.42	437	48	485
18.50	434	45	479
18.58	431	42	473
18.67	429	39	468
18.75	426	37	463
18.83	423	35	458
18.92	421	34	455
19.00	418	32	450
19.08	415	31	446
19.17	413	30	443
19.25	410	29	439
19.33	407	28	435
19.42	405	27	432
19.50	403	27	430
19.58	400	26	426
19.67	398	25	423
19.75	396	25	421
19.83	394	23	417
19.92	392	22	414
20.00	390	22	412



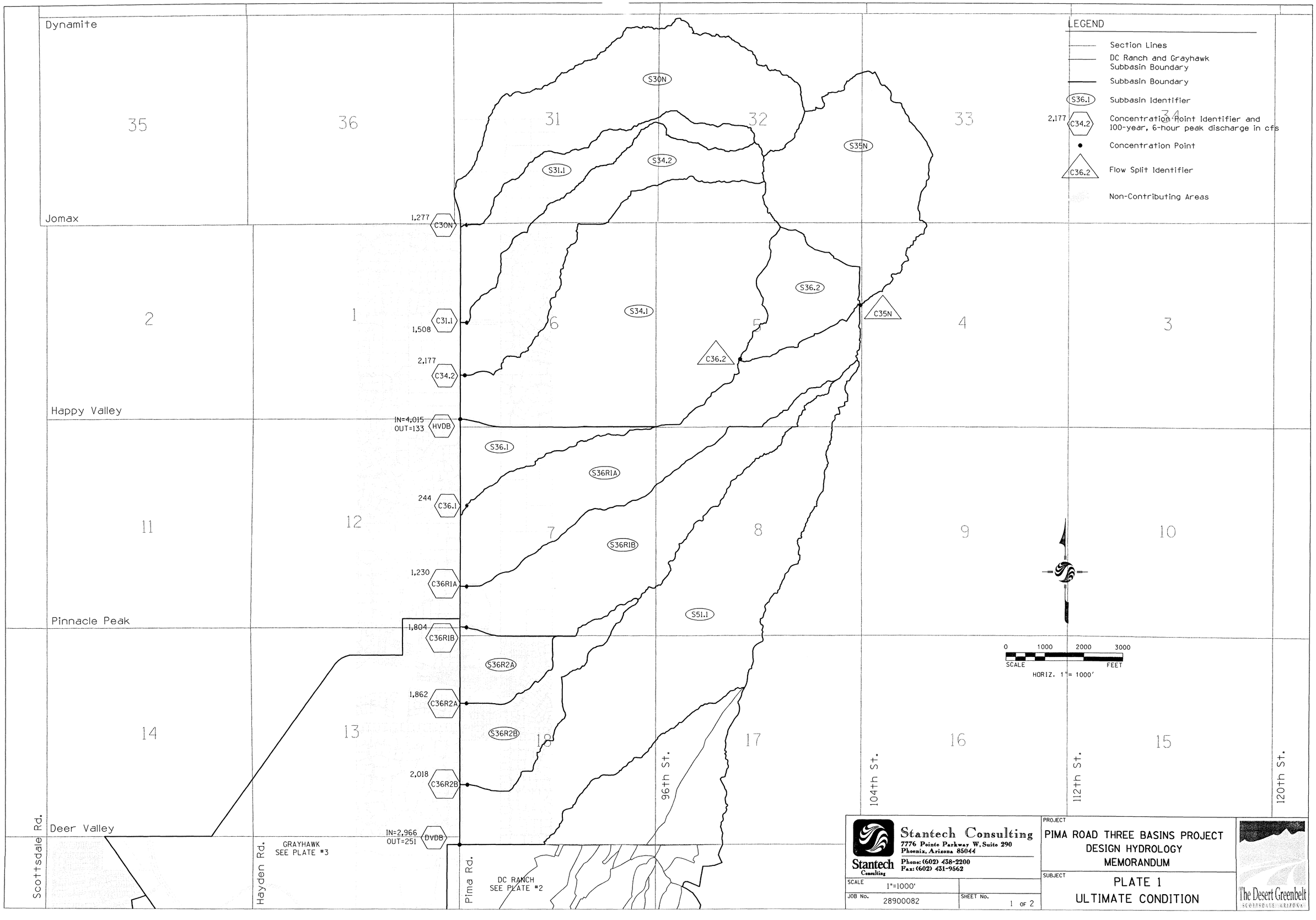
Stantech Consulting
7776 Pointe Parkway W, Suite 290
Phoenix, Arizona 85044
Phone: (602) 438-2200
Fax: (602) 431-9562

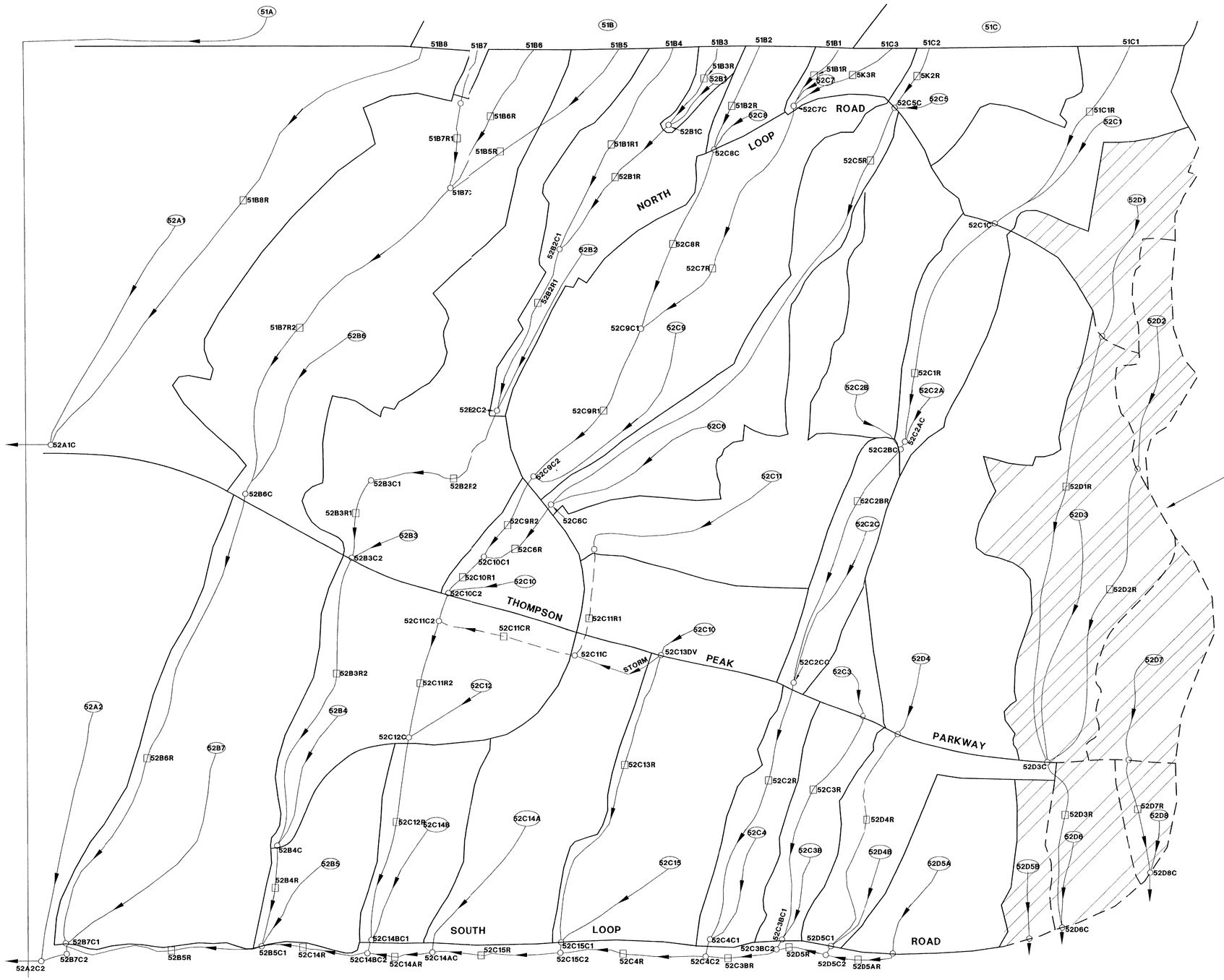
SCALE	1"=1000'
JOB No.	28900082
SHEET No.	2 OF 2

PROJECT
PIMA ROAD THREE BASINS PROJECT
DESIGN HYDROLOGY
MEMORANDUM

SUBJECT
PLATE 1
ULTIMATE CONDITION

The Desert Greenbelt
SCOTTSDALE ARIZONA


LEGEND
Section Lines
DC Ranch and Grayhawk Subbasin Boundary
Subbasin Boundary
S36.1 Subbasin Identifier
2,177 C34.2 Concentration Point Identifier and 100-year, 6-hour peak discharge in cfs
Concentration Point
C36.2 Flow Split Identifier
Non-Contributing Areas
Dynamite
Jomax
Happy Valley
Pinnacle Peak
Deer Valley
Scottsdale Rd.
Hayden Rd.
Pima Rd.
96th St.
104th St.
112th St.
120th St.
35
36
31
32
33
34
2
1
6
5
4
3
11
12
7
8
9
10
14
13
18
17
16
15
S30N
S31.1
S34.2
S35N
S36.2
S34.1
C35N
C36.2
S36.1
S36R1A
S36R1B
S51.1
S36R2A
S36R2B
1,277 C30N
1,508 C31.1
2,177 C34.2
IN=4,015 OUT=133 HVDB
244 C36.1
1,230 C36R1A
1,804 C36R1B
1,862 C36R2A
2,018 C36R2B
IN=2,966 OUT=251 DVDB
GRAYHAWK SEE PLATE #3
DC RANCH SEE PLATE #2
0 1000 2000 3000
SCALE FEET
HORIZ. 1"= 1000'
Stantech Consulting
7776 Pointe Parkway W, Suite 290
Phoenix, Arizona 85044
Phone: (602) 438-2200
Fax: (602) 431-9562
SCALE 1"=1000'
JOB No. 28900082
SHEET No. 1 OF 2
PROJECT
PIMA ROAD THREE BASINS PROJECT
DESIGN HYDROLOGY
MEMORANDUM
SUBJECT
PLATE 1
ULTIMATE CONDITION
The Desert Greenbelt
SCOTTSDALE, ARIZONA



0 300 600 900
SCALE FEET
1" = 300'

NOTES:
ALL INFORMATION PROVIDED BY WOOD/PATEL ASSOCIATES

LEGEND

- FLOW PATH
- SUBBASIN BOUNDARY
- NONCONTRIBUTING SUBBASINS TO THE PIMA ROAD CHANNEL WATERSHED
- 52C15 — SUBBASIN IDENTIFIER
- ROUTE
- CONCENTRATION POINT

Stantech Consulting Inc.
7776 Pointe Parkway W, Suite 290
Phoenix, Arizona 85044 USA
Phone: (602) 438-2200 Fax: (602) 431-9562
Fax: (602) 431-9609 (Land Development)

SCALE 1" = 300'	
JOB No. 28900082	SHEET No. 1 OF 1

PROJECT
PIMA ROAD THREE BASINS PROJECT DESIGN HYDROLOGY MEMORANDUM

SUBJECT
PLATE 2
DC Ranch On-Site Watershed Map

The Desert Greenbelt
SCOTTSDALE, ARIZONA

DEER VALLEY ROAD ALIGNMENT

37AW 37AW 37AE

DEER VALLEY CHANNEL Q100=779CFS

PC1 SUB18NA SUB18NB SUB18NC SUB19N SUB20N SUB14N SUB13N SUB7N SUB8NB SUB8NA SUB8NC SUB6B SUB5N SUB1N SUB2NA SUB2NB SUB6N SUB3N SUB10A SUB12NA SUB16NA SUB12NB SUB10B SUB9N SUB17NA SUB6A SUB4N SUB16NB SUB11NA SUB17NC SUB17NB SUB3C GC1018 SUB1-2 SUB11NC SUB11NB SUB16NC SUB3D1 SUB15N SUB3B1 SUB3D2 GC1-8 SUB3B2 SUB3D3 SUB3S SUB4S SUB3F SUB3E1 GC2-8 SUB5S GC1216 SUB3E2 GC1415 SUB3E3 GC7 SUB6S SUB7S SUB8S SUB7A SUB9S SUB11S GC36 SUB10S GC45

RET141 Q100= 617CFS

CP5N Q100= 577CFS

CP1N Q100=43CFS

SR2NA Q100=64CFS

CP2NB Q100= 97CFS

CP2N

Q100=4CFS

27CFS

CP4N Q100=82CFS

SR6B

6N Q100=368CFS

CP20

CP19

CP18N Q100= 615CFS

SR12NA

CPC1 Q100= 710CFS

16NA Q100= 39CFS

16NB Q100= 44CFS

C16NA1 Q100= 725CFS

C16NB1 Q100= 721CFS

C16NC1 Q100= 790CFS

SRPC2 Q100=813CFS

INTERIM OUTFALL TO NATURAL GRADE. REFER TO POWER CORRIDOR PLANS BY GILBERTSON & ASSOC.

Q100=18CFS

SR12NB

CP10B Q100=212CFS

CP9N 00=142CFS

145CFS

84CFS

Q100=72CFS

CP17A Q100=44CFS

CP16NC Q100= 100CFS

CP3B1 Q100= 51CFS

CP15N Q100=162CFS

CP3S Q100= 408

GC28 100= 36CFS

CP3F Q100= 157CFS

CP3E1 Q100= 117CFS

CP3E2 Q100= 81CFS

CP3E3 Q100= 55CFS

CP7S Q100=438CFS

Q100= 70CFS

Q100= 64CFS

Q100= 103CFS

SRGC36 Q100=193CFS

CP10S Q100= 94CFS

CGC45 Q100=40CFS

THOMPSON PEAK PARKWAY

GRAYHAWK DRIVE

HAYDEN ROAD

PIMA ROAD

HUALAPAI DRIVE

0 400 800 1200

SCALE FEET

LEGEND

2a.	PARCEL OR TRACT NAME
→	FLOW DIRECTION
———	DRAINAGE BOUNDARY
GC36	BASIN IDENTIFICATION
● CP1	CONCENTRATION POINT
● DET1	DETENTION BASIN
Q100=700 CFS	100-YEAR, 6-HOUR PROPOSED PEAK DISCHARGE
■	PROPOSED CHANNELS AND DETENTION BASINS

NOTES:

1. ALL INFORMATION PROVIDED BY DEI PROFESSIONAL SERVICES.
2. ALL OFF-SITE DISCHARGES TO BE CONVEYED DOWN THE POWER LINE CHANNEL TO THE UNION HILLS DETENTION BASIN.

Stantech Consulting Inc.
7776 Pointe Parkway W, Suite 290
Phoenix, Arizona 85044 USA
Phone: (602) 438-2200 Fax: (602) 431-9562
Fax: (602) 431-9609 (Land Development)

PROJECT
PIMA ROAD THREE BASINS PROJECT
DESIGN HYDROLOGY
MEMORANDUM

SUBJECT
PLATE 3
Grayhawk On-Site Watershed Map

SCALE 1"=400'	
JOB No. 28900082	SHEET No. 1 OF 1

The Desert Greenbelt SCOTTSDALE, ARIZONA