MASTER DRAINAGE REPORT UPDATE
FOR
EASTMARK

Revised April 24, 2014
Revised April 15, 2014
Revised December 16, 2013
Revised February 4, 2013
December 20, 2011

REVIEWED BY
CITY STAFF
5/1/14 BY
DATE

WOOD/PATEL
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FOR
EASTMARK

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WP# 144173

DMB® Master Developer Approval EASTMARK

_____ Date _____

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TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... *iii*

1.0 INTRODUCTION **1**

1.1 General Background and Project Location 1
1.2 Scope of Master Drainage Report 2
1.3 Development Unit Master Plan Approvals 3

2.0 DESCRIPTION OF STUDY AREA **4**

2.1 Existing Soil Conditions 4
2.2 Rainfall Seasons 4
2.3 FEMA Flood Insurance Rate Map (FIRM) 4
2.4 Section 404 Jurisdictional Areas 5
2.5 East Mesa Area Drainage Master Plan 6
2.6 Upstream Development 7

3.0 EXISTING DRAINAGE CONDITION **8**

3.1 Existing Drainage Plan 8
3.1.1 Northern Boundary 8
3.1.2 Eastern Boundary 9
3.1.3 Western Boundary 10
3.1.4 Southern Boundary 10
3.2 Existing Condition Hydrology 11

4.0 PROPOSED DRAINAGE CONDITION **12**

4.1 Proposed Drainage Plan 12
4.2 Proposed Condition Hydrology 14
4.3 Proposed Hydraulics 15
4.3.1 Street Hydraulics 15
4.3.2 Powerline Floodway Channel, Channel Corridors, and Storm Drain Systems 15
4.4 Erosion and Sedimentation Control 17
4.4.1 Erosion Control 17
4.4.2 Sedimentation 17
4.5 Retention 18
4.5.1 Retention Storage 18
4.5.2 Stormwater Quality 20
4.6 Sustainability Techniques 20
4.7 Maintenance 20

5.0 CONCLUSIONS **21**

6.0 REFERENCES **22**

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APPENDICES

Appendix A Existing Condition Data and Hydrology

- Hydrology Existing Condition 100-Year, 24-hour HEC-1 Output
- NOAA Atlas Precipitation Data
- Existing Condition HEC-1 Sub-Basin Data
- Existing Condition HEC-1 Soil Data
- Existing Condition HEC-1 Land Use Data
- Existing Condition HEC-1 Routing Data
- Offsite Retention Updates for HEC-1

Appendix B Post Developed Data and Hydrology

- Hydrology Post Developed 100-Year, 24-hour HEC-1 Output
- Post Developed HEC-1 Sub-Basin Data
- Post Developed HEC-1 Soil Data
- Post Developed HEC-1 Land Use Data
- Post Developed HEC-1 Routing Data
- Onsite Retention Volume Summary
- Offsite Retention Updates for HEC-1

Appendix C Hydraulics

- Preliminary Channel Calculations
- Existing Pacific Proving Grounds Channel Analysis

Appendix D Miscellaneous

- Flood Control District of Maricopa County Letter

PLATES

Plate 1 Vicinity Map
Plate 2 Soils Map
Plate 3 Flood Insurance Rate Map
Plate 4 Section 404 Jurisdictional Delineation Map
Plate 5 Existing Condition HEC-1 Schematic
Plate 6 Post-Developed HEC-1 Schematic
Plate 7 Post-Developed Drainage Map
Plate 8 East Mesa Area Drainage Master Plan Map

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EXECUTIVE SUMMARY

This report supersedes the approved *Master Drainage Report for Eastmark*, dated December 16, 2013, and supersedes the previously-revised Master Drainage Report Update for Eastmark, dated April 15, 2014, which was prepared for updates to DU 3/4, and is currently in the review process with the City of Mesa. This update has been prepared to specifically incorporate proposed land use for Eastmark (previously known as Mesa Proving Grounds) Development Unit 5 East (DU 5E). The land use plan has been prepared and provided to Wood, Patel & Associates, Inc. (Wood/Patel) by DMB Mesa Proving Grounds, LLC. DU 5E is planned for the next phase of development within Eastmark, and is bound by Elliot Road to the north, DU 6N to the east, and DU 5 to the south and west. Changes to the *Master Drainage Report Update for Eastmark* include:

- Revised land uses within DU 5E were incorporated to reflect more detailed planning, including removal of the previously-planned golf course. Minor adjustments were made to land uses within Development Unit's that have not undergone detailed planning.

- Wood/Patel received final lot counts for the DU 7 parcels which showed a reduction of lots from 2,129 dwelling units in previous mater plans to 1,958 dwelling units within this update. The excess 171 units have been allocated to DU 5. Required retention volume calculations within DU 7 and DU 5 have been revised accordingly.

- Revised watershed boundaries based on a revised preliminary grading plan provided by a consultant of DMB Mesa Proving Grounds, LLC.

- Revised Post-Developed Condition Hydrology including revised future retention. Due to revised land uses, portions of DU 5 and DU 5E require retention of the 100-year, 24-hour volume. Refer to Table 10 within Appendix B for retention requirements.

Refer to Plate 1 – *Vicinity Map*.

1.0 INTRODUCTION

1.1 General Background and Project Location

Eastmark (Site) is anticipated to be a 3,151-acre master planned community in the City of Mesa (COM). It is a Planned Community District (PCD), which is a mixed-use development that will include single-family residential, multi-family residential, urban mixed-use, commercial mixed-use, resort, golf, industrial, various community uses, and open spaces. This *Master Drainage Report for Eastmark* utilizes plans provided by DMB Mesa Proving Grounds, LLC and TerraWest Communities for anticipated development unit land uses throughout the Site.

This Master Drainage Report has been prepared in accordance with Wood, Patel & Associates, Inc.'s (Wood/Patel's) understanding of the City of Mesa (City) and the Flood Control District of Maricopa County (FCDMC) drainage requirements.

The Site is located within Sections 14, 15, 22, 23, 26, and 27, Township 1 South, Range 7 East of the Gila and Salt River Meridian. The Site is bounded by Elliot Road to the north, the Pacific Proving Grounds on the south, Ellsworth Road to the west, and Signal Butte Road to the east (refer to Plate 1 – *Vicinity Map*).

The Site consists of multiple automotive test tracks, a small group of commercial/ industrial buildings, undisturbed desert, the former First Solar industrial building at the southwest corner of Elliot Road and Signal Butte Road, and residential and community uses within DU 7 which have been partially constructed at the northwest corner of Signal Butte Road and Ray Road. Wood/Patel understands the existing First Solar building will be retrofitted on the interior, but the exterior will essentially remain the same, and therefore, will have no effect on the current drainage within Eastmark. Additionally, Wood/Patel understands that Development Units 3 South, 8, and 9 are currently in the design and review process, and construction is anticipated once permits are received.

The Site was previously used by General Motors as a desert automobile testing facility. The majority of the Site is surrounded by undeveloped desert along the northern, western, and southern boundaries. Along the eastern boundary, the Site is bordered by two residential developments that have recently been constructed or are currently under construction, including Nova Vista and Bella Via (formerly known as Mountain Horizons).

In addition, the Powerline Floodway Channel bisects the Site along the Ray Road alignment. This is a major FCDMC facility that provides conveyance of discharge from the Powerline Flood Retarding Structures, approximately three miles east of the Site, and drainage conveyance for stormwater runoff for areas adjacent to the channel. Ultimately, the flow is conveyed to the East Maricopa Floodway (EMF) west of the Site.

1.2 Scope of Master Drainage Report

The Master Drainage Report was prepared to support the development of 20 million square feet of non-residential space and 15,000 residential dwelling units. The drainage analysis is consistent with procedures and standards of the City of Mesa and the Flood Control District of Maricopa County. The proposed drainage plan provides an outline for the required major drainage facilities for storage and conveyance of stormwater runoff for the development of Eastmark.

The Site is planned as a PCD. In accordance with the PCD, the total square footage of non-residential, and total number of residential dwelling units developed within the Site, may be less than contemplated in this Report. Also, the actual location of land uses may be different than contemplated in this Report. There are nine development units that comprise the PCD. Within each development unit are low-and high-density ranges for development. The *Master Drainage Report for Eastmark* utilizes the high-density range to estimate future land use across the Site. Regardless of the land use, the required retention volume will be predicated on the final land use consistent with the drainage design requirements for the City of Mesa and meeting existing condition peak flows are runoff volumes leaving the Site.

A more detailed analysis of the drainage system for each development unit will be provided with each Development Unit Master Drainage Report. Each Development Unit Master Drainage Report will address changes in the development units and adjacent development units which may occur as development progresses and densities change. This Report includes more detailed land use planning for Development Unit 5 East, with minor adjustments to the land use budget for the remainder of the Site. Updates to the Master Drainage Report may be required if significant changes are made to the land uses and assumptions utilized to prepare this report.

1.3 Development Unit Master Plan Approvals

As each development unit is planned, this *Master Drainage Report for Eastmark* shall be updated as a living document to reflect changes to the land use plan that would affect the full build-out drainage system. Since the development of Eastmark spans over many years the criteria used to size the system has and will change from time to time to account for better information and changes in technology. Each development unit shall be master planned, utilizing current approved criteria which accurately reflects drainage conditions on a master planned level for the entire community. The approvals of development unit drainage master plans and corresponding criteria are as follows:

- DU 6 North – Approved report dated April 22, 2011 with 2007 City of Mesa wastewater criteria.
- DU 7 – Approved report dated December 20, 2011 with 2009 City of Mesa wastewater criteria.
- DU 8 & 9 – Approved report dated February 1, 2013 with 2009 City of Mesa wastewater criteria.
- DU 3 South - Approved report dated December 16, 2013 with 2009 City of Mesa wastewater criteria.
- DU 3/4 – Report dated April 15, 2014 has been submitted and is in the review process with the City of Mesa.
- DU 5 East – DU master plan is currently being prepared and shall be submitted subsequently.

2.0 DESCRIPTION OF STUDY AREA

2.1 Existing Soil Conditions

According to the Natural Resources Conservation Service's Soil Survey, Eastmark is located within the Aguila-Carefree soil survey area. The majority of the surface soils onsite are classified as sandy loam, clay loam, or loam. Please refer to Plate 2 – *Soils Map*, and Appendices A and B for information pertaining to existing soil conditions.

2.2 Rainfall Seasons

There are two distinct rainfall seasons associated with the desert southwest corresponding to the project area. The first season occurs during the winter months from November to March when the area is subjected to occasional storms from the Pacific Ocean. While classified as a rainfall season, there can be long periods with little or no precipitation. Generally storms occurring during the winter rainfall season are classified as being long duration, low intensity storms.

The second rainfall period occurs during the summer months of June through August, and is commonly referred to as Monsoon Season. During this season, Arizona is subjected to widespread thunderstorm activity whose moisture supply originates both in the Gulf of Mexico and along Mexico's west coast. These thunderstorms are typically classified as being short duration, high intensity storms with extreme variability per location.

2.3 FEMA Flood Insurance Rate Map (FIRM)

The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (FIRM) Panel Number 04013C2760L, dated October 16, 2013, indicates that the western edge of the Site, approximately 800 acres, is within Zone "X" Shaded.

Zone "X" Shaded is defined by FEMA as follows:

> *"Areas of 0.2% annual chance flood: areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood."*

Panel Number 04013C2760L also indicates area beyond the eastern map boundary is within Zone "D". The FEMA website indicates this area is within the Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (FIRM) Panel Number 04013C2780L. The FEMA website shows the panel as not printed, and does not indicate a flood zone designation. Based on the Zone "D" markings on Panel Number 04013C2760L, and previously-mapped Panel Number 04013CIND0A, dated September 30, 2005, portions of Eastmark within Panel Number 04013C2780L, approximately 2,160 acres is believed to be within a FEMA Zone "D".

Zone "D" is defined by FEMA as follows:

"Areas in which flood hazards are undetermined."

The remaining southern-most portion of Eastmark, approximately 190 acres, is now located within Panel Number 04013C2790L. The FEMA website shows the panel as not printed, and does not indicate a flood zone designation. The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (FIRM) Panel Number 04013CIND0A dated September 30, 2005, references Panel Number 04013C2715F, which indicates that the southern-most portion of the Site is within "No special flood hazard areas". Panel Number 04013C2715F has a note that states "Panel Not Printed – No Special Flood Hazard Areas".

"No special flood hazard areas" is defined by FEMA as follows:

"All areas within 0.2% annual chance floodplain."

Refer to Plate 3 – *Flood Insurance Rate Map* for an illustration.

2.4 Section 404 Jurisdictional Areas

The Congress of the United States has assigned to the U.S. Army Corps of Engineers (Corps) the responsibility for regulation of construction and other work in the Waters of the United States. The Corps is charged with protecting our nation's harbors and navigation channels from destruction and encroachments, and with restoring and maintaining environmental quality. This is accomplished by regulating activity in three areas: discharge of dredged or fill material in coastal and inland waters and wetlands,

construction and dredging in navigable waters of the United States, and transport of dredged material for dumping into ocean waters.

A Jurisdictional Delineation has been completed by the Corps on the Site. The Powerline Floodway channel, a small wash, and a detention basin have been designated as Jurisdictional. The Powerline Floodway and wash are jurisdictional conveyance facilities, and the detention basin is considered a jurisdictional wetland. Please refer to Plate 4 – *Section 404 Jurisdictional Delineation Map* for location of Jurisdictional Areas.

Proposed disturbances to the Jurisdictional areas are required to be permitted with the Corps. A Section 404 Individual Permit will be required for disturbance during development with conditions that must be adhered.

2.5 East Mesa Area Drainage Master Plan

The East Mesa Area Drainage Master Plan (ADMP), prepared in 1998 by Dibble & Associates, Inc. and Hoskin Ryan Consultants, Inc., is a regional drainage study prepared for the FCDMC. Eastmark is located in the eastern portion of the study, which is bound by the FRS in Pinal County to the east and the EMF to the west. In general, the area drains northeast to southwest and outlets into the EMF. The ADMP sets the regional drainage constraints for facilities within the study area of Eastmark.

HEC-1 hydrologic models for the East Mesa ADMP have been provided by FCDMC. The most current model MIDCURE.DAT, which supersedes previous HEC-1 models, was updated and utilized as the existing condition model for the *Master Drainage Report for Eastmark.* In addition, the WS4-SEM.DAT model provided by the FCDMC was updated and utilized to analyze the full build-out condition. Please refer to Plate 8 – *East Mesa Area Drainage Master Plan Map* for regional drainage facilities.

Anticipated future studies may be conducted under the auspices of FCDMC. Results of future studies may reflect a reduction of offsite peak flows impacting existing and future drainage infrastructure within Eastmark. Peak flow evaluation for design of future facilities should consider the most current published East Mesa ADMP. It is anticipated the City of Mesa will accept relevant changes and allow for future drainage infrastructure to utilize the most current peak flow information.

2.6 Upstream Development

The upstream watershed has been mostly developed between Signal Butte Road and Meridian Road, in Maricopa County. The watershed within Pinal County is undeveloped to the FRS.

The upstream residential developments' approved drainage reports are referenced in this Report. The stormwater storage and conveyance facilities were incorporated into the hydrologic models of the *Master Drainage Report for Eastmark.*

3.0 EXISTING DRAINAGE CONDITION

3.1 Existing Drainage Plan

The existing slope of the Site ranges from 0.5 percent to 1 percent. The Site slopes from northeast to southwest. However some historic drainage patterns have been altered to route offsite flows around the Site and onsite flows around existing automotive test tracks. The Site is covered with typical Sonoran Desert vegetation including mesquite trees, saguaro cactus, creosote, etc.

Existing berms surrounding the Site, north of the Powerline Floodway, currently retain 75 percent of the stormwater runoff produced onsite, as estimated by the Flood Control District of Maricopa County, and have been modeled accordingly within the current 100-year, 24-hour FCDMC model. The remaining onsite stormwater, approximately 261 cfs, discharges in a location near the existing buildings and into the Powerline Floodway at the northeast corner of Ellsworth Road and the Ray Road alignment. Onsite stormwater runoff from the portion of the Site south of the Powerline Floodway currently discharges downstream to the Pacific Proving Grounds through existing channels and natural washes (refer to Plate 5 – *Existing Condition HEC-1 Schematic*).

3.1.1 Northern Boundary

Offsite flows impacting the northern boundary are currently collected and conveyed within the Elliot detention basin and storm drain system. Currently, the City and FCDMC are planning another connection to the system that will outlet flows from the Sunland Springs Channel and Siphon Draw Detention Basins. The majority of offsite flows are conveyed north of Elliot Road in natural washes. The washes discharge to the existing Elliot Road detention basins which discharge flows to the Elliot storm drain system. These flows are conveyed west to Ellsworth Road through a 78-inch to 114-inch diameter storm drain. Additional stormwater runoff produced northeast of the Elliot Road and Ellsworth Road intersection is added to the storm drain system by a 90-inch diameter storm drain beneath Elliot Road. In the existing condition, approximately 1,323 cubic feet per second (cfs) within the storm drain system is then conveyed south along Ellsworth Road through a double-barrel 102-inch diameter storm drain. Approximately 1,500 feet south of the intersection, the flow is directed southwest beneath Ellsworth Road and outfalls into a channel

that crosses the Arizona State Land Department property and connects to the Loop 202 drainage channel. Ultimately, these flows discharge to the EMF.

3.1.2 Eastern Boundary

Offsite flows impacting the eastern boundary between Elliot Road and Ray Road are diverted south by existing channels, washes, and berms along the west side of Signal Butte Road. In the existing condition, approximately 419 cfs impacts the Site near Warner Road from an existing double-barrel 10-foot by 3-foot box culvert from Bella Via (formerly known as Mountain Horizons). A channel along the west side of Signal Butte Road was constructed with DU 7 to convey the offsite flow south to the Powerline Floodway, south of Ray Road.

The primary function of the Powerline Floodway is to be the principal outlet for the FRS structures to the east, and secondly, to convey overland flow from the area west of the FRS to the EMF. At Signal Butte Road, the floodway currently carries approximately 697 cfs during the 100-year, 24-hour storm event, based on the updated existing condition model. These flows are conveyed within the Powerline Floodway, and combine with onsite flows from Eastmark at Ellsworth Road. The combined flow is approximately 661 cfs, based on the updated existing condition model. At this point, runoff continues westerly, combines with the Ellsworth Road channel, and discharges to the EMF. Future analysis of the Powerline Floodway hydraulics and capacity shall include the base flow of 600 cfs in addition to the 100-year calculated peak flow at specific locations. The base flow is the outlet discharge anticipated from Powerline, Vineyard, and Rittenhouse flood retarding structures.

Offsite flows impacting the eastern boundary of Eastmark, from Ray Road to Williams Field Road, are diverted south by existing berms and a channel along the west side of Signal Butte Road. There are two point impacts from the Bella Via development. One is approximately 1,000 feet south of the Powerline Floodway, where offsite flows are conveyed through a double-barrel 10-foot by 3-foot box culvert. The second point impact is at Galveston Street, where offsite flows are conveyed through a double-barrel 8-foot by 3-foot box culvert. These combined flows are approximately 694 cfs.

Between Galveston Street and Williams Field Road, the upstream impact is from a combination of an undeveloped property including approximately 105 acres, and low-density residential within the Maricopa County jurisdiction, which discharges flow in washes and sheet flow of approximately 775 cfs. The flow continues westerly in a channel between the test track and Williams Field Road, and discharges to the Pacific Proving Grounds. There is an existing channel corridor on Pacific Proving Grounds that receives this flow in the existing condition, routes the flow around the property, and discharges to the Ellsworth Channel. A combined onsite and offsite flow of approximately 1,090 cfs discharges to the Pacific Proving Grounds in this location. In the post-developed condition, the onsite peak flow discharging to the channel is reduced due to onsite retention for the 100-year, 2-hour storm event. A HEC-RAS model, contained in Appendix C, shows this channel has proper capacity to receive the post-developed flow of approximately 946 cfs. A channel is proposed to be constructed along the west side of the Signal Butte Road alignment and the north side of the Williams Field Road alignment with the development of DU's 8 and 9.

3.1.3 Western Boundary

The western boundary is not impacted by offsite flows entering the Site. As mentioned in Section 3.1.1, the Elliot Road storm drain system continues south along Ellsworth Road. Approximately 1,500 feet south of Elliot Road, the storm drain discharges into a channel on the west side of Ellsworth Road. Additional storm drain systems were added along Ellsworth Road with the Maricopa County Department of Transportation (MCDOT) project. One system, north of Warner Road, connects to the Elliot Road storm drain system. The second system is south of the Elliot Outfall Channel and connects to the Powerline Floodway.

3.1.4 Southern Boundary

There are no offsite impacts crossing the southern boundary along Williams Field Road. There are several discharge points to Pacific Proving Grounds along this common boundary. In the existing conditions, the 4 discharges are approximately 90 cfs, 225 cfs, 156 cfs, and 1,090 cfs from north to south, respectively.

3.2 Existing Condition Hydrology

Existing condition hydrology has been modeled utilizing *DDMSW Version 3.3.2*, provided by the FCDMC, and the *United States Army Corps of Engineers HEC-1, Flood Hydrograph Package, Version 4.1*, (June 1998) to determine offsite and onsite peak flows prior to the development of the Site for the 100-year, 24-hour storm event. Please refer to Plate 5 – *Existing Condition HEC-1 Schematic*, and Appendix A for the HEC-1 output. The MIDCURE.DAT model provided by FCDMC was updated and utilized for previous approved *Eastmark Master Drainage Reports*. This Eastmark Master Drainage Report Update does not include any revisions to the existing condition hydrology.

Previously, offsite Sub-basins 73B, 73C, 74B, 74C, 77B, 77C, 78B, and 78C have been updated to reflect recent and current development within the existing condition model MPGEX.DAT. Sub-basins 73A, 74A, 75, 77A, and 78A were modeled with unchanged parameters. Sub-basin 79A was divided into four new sub-basins to determine existing peak flows leaving the Site along the western boundary. Routing reaches were updated within offsite developed sub-basins to reflect existing conveyance channels. Offsite retention volumes were calculated and modeled using approved drainage reports for the adjacent developments with 80 percent of the total required retention volume for each sub-basin being diverted within the HEC-1 models for retention. The remaining 20 percent of the required retention volume was considered not to be retained consistent with FCDMC requirements to account for unknowns and neglect of maintenance.

The precipitation depth of 3.60 inches in the model was not changed. Rainfall losses were calculated using the Green and Ampt method. Parameters were taken from soil data collected using the NRCS Web Soil Survey and existing land uses. In order to remain consistent with the current FCDMC MIDCURE.DAT, the Phoenix Valley S-Graph was used to develop runoff hydrographs. Runoff hydrographs were routed using the Normal Depth Storage Routing Method. See Appendix A for data and models used to develop the existing condition hydrology.

4.0 PROPOSED DRAINAGE CONDITION

4.1 Proposed Drainage Plan

The overall drainage concept for Eastmark is to route offsite flow through and around the Site within channels and storm drain systems to discharge flows at their historical location and provide retention of onsite stormwater in accordance with jurisdictional requirements. Refer to Plate 6 – *Post-Developed HEC-1 Schematic,* and Plate 7 – *Post-Developed Drainage Map* for watershed delineations and locations.

Offsite flows impacting the northern boundary will be collected in the Elliot Road detention and storm drain system and discharge south of Elliot Road along Ellsworth Road. Offsite flows impacting the eastern boundary between Elliot Road and Ray Road will be collected in a proposed channel, conveyed to the existing Powerline Floodway channel, and discharged at Signal Butte Road and Ray Road. A portion of the channel has been constructed with the DU 7 improvements. Offsite flows impacting the eastern boundary between Ray Road and Williams Field Road will be collected in a proposed channel, and then conveyed west along Williams Field Road, and discharged to Pacific Proving Grounds at the historical location.

Onsite flows will be conveyed through a hierarchy of roadways and storm drain systems to onsite retention basins for storage. Retention basins are designed to retain runoff generated by the 100-year, 2-hour storm event for the majority of the Site and 100-year, 24-hour storm storage for the remaining site to reduce post-developed runoff volumes and peak flows to pre-development levels. Onsite runoff in excess of these storm events will be discharged within emergency outfall drainage corridors and/or storm drain systems. In all locations, lowest floor elevations shall be set a minimum of one foot above the emergency overflow elevation or any 100-year water surface elevation adjacent the Site, whichever is greater.

The Site has been divided into nine development units. The individual development units are highlighted and labeled on Plate 6 and Plate 7. Each development unit has a low- and high-density range of proposed development. The high-density range was utilized to develop the proposed drainage requirements for the Site. If the density varies at the development unit stage, the model will be reanalyzed in the individual Development Unit

Master Drainage Reports. More detailed planning for DU 5E has been incorporated within this study.

The first phase of development was located in the northeastern portion of the Site, and consisted of a solar panel manufacturing facility. The facility was planned for four identical phases. Phase one of the facility was constructed prior to change of ownership. Phase one occupies approximately half of Sub-basin 02B. The 100-year, 2-hour retention volume provided for phase one was calculated to be 14.5 acre-feet within the *Final Drainage Report for First Solar MSA-01, Mesa, Arizona,* April 18, 2011, by Beck Consulting Engineers, Inc. The total calculated and modeled required retention volume for Sub-basin 02B is 25.4 acre-feet.

Storm water retention for the 100-year, 2-hour event will be stored locally within each individual development parcel. Previous master planning included a golf course within DU 5 which stored runoff in excess of the 100-year, 2-hour event up to the 100-year, 24-hour event volume. Previous area tributary to the golf course and the northern portion of the Great Park will provide storm water retention for the 100-year, 24-hour event, which will be stored locally for Sub-basins 01A, 01B, 03, 06A, 07, and 07A to reduce the overall Eastmark runoff volume discharging to the Powerline Floodway.

The Great Park is planned as a multi-functional area including passive and active recreation and will provide 100-year, 24-hour storm water storage for the park. The Great Park Master Plan will include provisions for lake design, retention, landscaping, improvements, and other amenities.

Retention basin sizing is discussed further in Section 4.5, illustrated on Plate 7, and summarized in Table 10 in the appendices. In the event that the basin capacities are exceeded, excess flow will be conveyed by emergency outfall corridors along roadways and/or landscaped tracts. These corridors are conceptually planned along Mesquite Road, Warner Road North, Point Twenty-Two Boulevard, and Ray Road.
Retention basins will be designed to drain retained runoff within 36 hours after a storm event. Land uses depicted in the hydrologic models are conceptual and subject to change based on the allowable criteria for a PCD. Each development unit will have a Master Drainage Report that will substantiate any changes from this *Master Drainage Report*.

4.2 Proposed Condition Hydrology

Wood/Patel coordinated with FCDMC to update the existing condition hydrology of the upstream watersheds and create a proposed full build out hydrologic model for the development of the Site. In addition, hydraulic analysis was performed on FCDMC facilities including the Powerline Floodway, East Maricopa Floodway, Rittenhouse, and Chandler Heights Detentions Basins, to verify these facilities were not adversely affected by the proposed development of the Site. The previous *Master Drainage Report* contemplated a regional approach with a major storage facility within the Great Park. See Appendix D for a copy of the FCDMC letters indicating their no-objection to the previous *Master Drainage Report*. The individual parcel retention concept changes within this Report are consistent with the previous report, and demonstrate lower 100-year, 24-hour discharges and volumes, as compared to the FCDMC model.

FCDMC provided their full build-out model, WS4-SEM.DAT, which was updated and utilized for this *Master Drainage Report*. Please refer to Plate 6 and Appendix B for the HEC-1 model and supporting documentation. The conceptual land use budget and conceptual drainage plan were utilized to delineate onsite sub-basins. The Rational Method was used to determine 100-year, 2-hour and 100-year, 24-hour required retention volumes, and the volumes were inserted into the model as diversions. Based on point precipitation frequency estimates from NOAA Atlas 14, the 100-year, 2-hour precipitation is 2.19 inches and the 100-year, 24-hour precipitation depth is 3.51 inches. Flows in excess of proposed basin capacities were routed downstream to historic outfall locations as identified in the existing condition HEC-1 model. Future development parcels will address onsite retention and interim condition discharges to the Powerline Floodway and downstream regional drainage facilities. The analysis shall be submitted to the City of Mesa and FCDMC for approval and concurrence.

Offsite routing parameters along Signal Butte Road and Williams Field Road were updated to reflect future channels planned to convey offsite flows along the boundary. The following table provides a summary of 100-year, 24-hour discharges for the existing and proposed conditions which indicates decreased peak discharges leaving the Site.

EXISTING CONDITION		PROPOSED CONDITION	
Location ID	Discharge	Location ID	Discharge
CP 75	661cfs	CP75	626 cfs
79A1	90 cfs	RET17	0 cfs
79A2	225 cfs	CP19A	61 cfs
79A3	156 cfs	RET19	81 cfs
C79B1	1,090 cfs	CP22B	939 cfs

4.3 Proposed Hydraulics

4.3.1 Street Hydraulics

Arterials and major collectors shall be designed to convey the peak flows generated by a 10-year peak storm within the roadway infrastructure with a spread limited to one traffic lane in each direction. All other public roadways shall be designed to convey the peak flows generated by a 10-year peak storm between the curbs. All roadways shall be designed to convey the 100-year storm within the right-of-way and adjacent parkway. Where the peak flows exceed the capacity of the public street to convey the peak flows, storm drains or other drainage facilities shall be installed and sized to carry the excess flows (i.e., when the 10-year peak exceeds the spread criteria or exceeds the curb capacity of the public street, or when the right-of-way cannot convey the 100-year peak). Storm drain and channel systems will convey stormwater runoff to retention basins located throughout the Site.

4.3.2 Powerline Floodway Channel, Channel Corridors, and Storm Drain Systems

The Powerline Floodway channel and the proposed drainage corridor along Signal Butte Road and Williams Field Road will be used to route offsite flows through and around the Site to their historical discharge locations. These facilities shall be engineered in accordance with applicable agency criteria. Preliminary channel systems are depicted on Plate 6 and Plate 7, with calculations provided in Appendix C.

The Powerline Floodway between Signal Butte Road and Ellsworth Road is planned to remain undisturbed. In the future, any modifications to the Powerline Floodway will require updated hydrology and hydraulic modeling with detailed construction documents for review and permitting by the FCDMC and the City of Mesa.

Existing storm drain systems within Ellsworth Road collect and convey stormwater runoff produced within the roadway rights-of-way to drainage facilities downstream of Eastmark, per the previously approved Drainage Report *MCDOT Project No. 68927-2 Ellsworth Road – Phase 2 Ray Road to Portobello Avenue* by Stantec Consulting, Inc., dated December 2004. The north Ellsworth storm drain system collects runoff for the 10-year storm event from approximately one-half mile south of Elliot Road and connects to the Elliot storm drain system. Retention, as required for this east half-street of Ellsworth Road, will need to be provided.

The south Ellsworth storm drain system collects runoff from approximately one-half mile south of Elliot Road and connects to the Powerline Floodway channel. A portion of this system has been designed to convey the 100-year storm event from the existing General Motors buildings site. Retention, as required for this east half-street of Ellsworth Road, will be provided as necessary. A portion of the onsite runoff or Ellsworth Road runoff in the 100-year storm event may be discharged to the south Ellsworth storm drain. This will need to be evaluated and approved in detail when Ellsworth Road is widened to its ultimate cross-section. Research of the Elliot Road storm drain system and approved drainage report *Elliot Road Detention Basins and Outfall Channel Phases I and II*, by Wood/Patel, dated May 2000, indicates that no site-specific hydraulic calculations were performed for the roadway storm drain stub-outs. At the time, it was unknown exactly in what manner the roadway would be widened and the necessary storm drain connections. There are existing 18-inch stub-outs approximately every quarter mile, per the as-built plans dated December 2003. However, Elliot Road was included within the watershed and the Elliot storm drain system was designed to accommodate the 100-year, 24-hour storm event for the rights-of-way. When Elliot Road is widened, detailed calculations will be required for approval and permitting. Properly sized storm drain connections will be designed as required to connect to the Elliot storm drain system with the ultimate roadway design.

Proposed channels adjacent to Signal Butte Road and Williams Field Road shall convey stormwater runoff produced within the roadway rights-of-way, combined

with offsite flows east of the Site to drainage facilities downstream of Eastmark. The flow impacting the Site north of Ray Road will be conveyed in a channel southerly along Signal Butte and combined with the Powerline Floodway, then conveyed through the Site and discharged at Ray and Ellsworth Roads, as it does in the historical condition. The flow impacting the Site south of Ray Road will be conveyed in a channel southerly along Signal Butte, then westerly along Williams Field Road, and discharged to the existing channel on Pacific Proving Grounds, as it does in the historical condition.

4.4 Erosion and Sedimentation Control

4.4.1 Erosion Control

The proposed development is planned to utilize engineered channels and storm drain systems to collect and convey offsite flows through and around the Site. Due to the relatively flat topography, improved channels will most likely be designed for "sub-critical" flow. If the topography requires, channels may be designed as "super-critical" where special considerations, with respect to super-elevated flow, channel transition configuration, channel bank and toe protection, freeboard requirements, and safety, are required. Proper channel protection shall be designed and specified within final drainage reports in conjunction with detailed improvement plans.

Onsite runoff shall be conveyed within a hierarchy of roadways, landscaped tracts, channels, and storm drain systems to retention basins. The onsite conveyance system will minimize erosion and sediment deposition. Best Management Practices shall be applied to control erosion and sedimentation during Site construction.

4.4.2 Sedimentation

Special consideration must be taken in regards to sedimentation. The Site lies within an area that has a history of sediment issues. The cohesionless soils, sparse vegetation, and high-intensity rainfall cause large amounts of sediment to move through washes and channels. There is continual, dynamic interaction between sediment particles and the transporting medium, water. Culverts and

channels shall be designed with slope and velocity to carry sediment through the system and prevent large amounts of sediment deposition.

4.5 Retention

4.5.1 Retention Storage

Currently, the portion of the Site north of the Powerline Floodway is retained by a series of berms along Ellsworth, Elliot, and Signal Butte Roads. Due to this existing condition, the FCDMC originally required Eastmark to retain the majority of runoff from the 100-year, 24-hour storm event in the proposed condition. Twenty-five percent of the onsite flow from this sub-basin is allowed to discharge 261 cfs into the Powerline Floodway. The modeling indicates storage for the 100-year, 2-hour storm event for the majority of the Site, with the remaining portion of the Site storing runoff from the 100-year, 24-hour storm will reduce peak flows and volumes discharging from the Site lower than the original East Mesa ADMP and subsequent FCDMC models. By providing onsite storage, FCDMC drainage structures downstream will be positively impacted due to the decreased peak flows and runoff volumes. The table below illustrates this along the Powerline Floodway:

Discharge Location	Updated FCDMC Full Build-Out Model	Eastmark Updated Full Build-Out Model
Powerline Channel at Ellsworth	672 cfs	626 cfs
	181 ac-ft	181 ac-ft

To further evaluate the impacts of the onsite retention, analysis of additional downstream FCDMC facilities was performed. This included review of pre-development and post-development flowrates and water surface elevations along the Powerline Floodway and EMF. Also, review of the impacts to the FCDMC Rittenhouse and Chandler Heights detention basins was performed to verify these facilities are not being negatively impacted. HEC-1 and HEC-RAS models, provided by FCDMC, were updated based on the post-developed condition of Eastmark. Since flows from DU 5E are reduced (4,514 cfs previous master plan update at concentration point EMFRIT and 4,511 cfs this master plan update), the table below illustrates the results of the previous analysis.

Basin	Location	Cross-Section	Original Design		Update Eastmark Model	
			Peak Flow (CFS)	Water Surface Elevation (FT)	Peak Flow (CFS)	Water Surface Elevation (FT)
Rittenhouse	EMF	17.082	5,897	1,322.01	5,501	1,321.24
Rittenhouse	EMF	16.93	3,536	1,316.70	3,417	1,316.47
Rittenhouse	EMF	16	3,887	1,315.36	3,751	1,315.24
Chandler Heights	Queen Creek Wash	5535	5,536	1,308.60	5,535	1,308.60
Chandler Heights	Queen Creek Wash	5377	2,312	1,308.47	2,309	1,308.47
Chandler Heights	Queen Creek Wash	1084.9	2,304	1,301.95	2,308	1,301.95
Chandler Heights	EMF	13.084	3,859	1,305.83	3,725	1,305.71
Chandler Heights	EMF	11.987	3,806	1,301.75	3,689	1,301.69
Chandler Heights	EMF	11.74	4,361	1,301.10	4,330	1,301.08
Chandler Heights	EMF	11.033	6,610	1,299.40	6,584	1,299.39

As shown by the results, FCDMC facilities are not negatively impacted by retention for the 100-year, 2-hour and 100-year, 24-hour storm event on Eastmark.

Provided retention, for areas within Eastmark currently developed, under construction, and designed and in the review process, has been incorporated within the update of this Report. The required retention volumes for the areas north and south of the Powerline Floodway are 418.7 ac-ft and 75.5 ac-ft, respectively. The current retention provided based upon final drainage reports provided to Wood/Patel for the areas north and south of the Powerline Floodway are 81.0 ac-ft and 12.5 ac-ft, respectively and the modeled retention volumes are 420.3 ac-ft and 77.7 ac-ft, respectively.

Refer to *Table 10 – Onsite Retention Volume Summary* within Appendix B, and Plate 7 at the end of the report, for a detailed summary of required retention volumes per applicable watershed. This is based on a 100-year, 2-hour precipitation depth of 2.19 inches and 100-year, 24-hour precipitation depth of 3.51 inches obtained from NOAA Atlas 14 Precipitation Frequency Data. Retention basins will be required to dissipate storm water within 36 hours.

4.5.2 Stormwater Quality

The required retention storage volume for the Site exceeds the first flush requirement of storing the first one-half inch of runoff. All runoff will have settlement time within retention basins prior to draining by percolation, drywells, release into natural watercourses, and/or release into existing storm drain systems.

4.6 Sustainability Techniques

Eastmark is anticipated to be developed as a sustainable community. Designs will incorporate simple techniques to manage stormwater in a practical manner that will be considered environmentally responsible. In the future, new techniques and technologies will advance in sustainable stormwater management that may be incorporated into the Site.

4.7 Maintenance

Ongoing maintenance of the designed or recommended drainage systems will be required to preserve the design integrity and purpose of the drainage system. Failure to provide maintenance can prevent the drainage system from performing to its intended design purpose, and can result in reduced performance. Maintenance is the responsibility of private developers and owners associations for facilities on private property within all easements and private streets, except for drainage structures within public rights-of-way accepted by the City of Mesa for maintenance. Ownership and maintenance responsibilities will be associated with developments discharging to retention facilities and will be managed by the owners associations established for the Site. A regular maintenance program is required to have drainage systems perform to the level of protection or service as presented in this Report.

5.0 CONCLUSIONS

Based on the analysis of the *Master Drainage Report for Eastmark*, the following conclusions can be made:

1. This *Master Drainage Report for Eastmark* is prepared in accordance with Wood, Patel & Associates, Inc.'s understanding of the drainage parameters set by the Flood Control District of Maricopa County and the City of Mesa.

2. Offsite flows shall be conveyed through and around the Site adequately per jurisdictional requirements. FCDMC reviewed the earlier *Master Drainage Report* and concurred with the proposed flows into their facilities, by letter dated January 11, 2012, and included in Appendix D. Individual Development Unit Master Drainage Reports will also be submitted to FCDMC with the appropriate modeling for review and approval as the Site develops.

3. Peak flows and runoff volumes for the post-development 100-year, 24-hour storm shall not exceed existing conditions as calculated using HEC-1 computer modeling.

4. Onsite retention shall be provided to retain runoff generated by the 100-year, 2-hour storm event for the majority of the developed areas and 100-year 24-hour retention in key locations which will prevent post-developed discharges from exceeding historical existing condition discharges.

5. Analysis of downstream FCDMC structures including the Powerline Floodway, East Maricopa Floodway, Rittenhouse Detention Basin, and Chandler Heights Detention Basin show development as proposed within this report for Eastmark does not have negative impacts on these facilities.

6. Flow in excess of onsite storage capacity shall outfall in historic locations with existing condition characteristics without increasing historical flows.

7. Lowest floor elevations shall be set a minimum of one foot above the adjacent 100-year water surface elevation or emergency outfall water surface elevation, whichever is greater.

8. Drainage infrastructure will be designed in accordance with the appropriate criteria per the City of Mesa and/or Flood Control District of Maricopa County.

9. Ongoing maintenance is required for all drainage systems in order to assure design performance.

6.0 REFERENCES

1. *Final Drainage Report for Mountain Heights*, Infinity Engineering Services, LTD., September 12, 2001.

2. *Drainage Report for Mass Grading of Nova Vista*, CMX, L.L.C., June 28, 2006.

3. *Addendum Drainage Report for Unit D of Nova Vista*, CMX, L.L.C., October 19, 2006.

4. *Final Drainage Report for Mountain Horizons North of the Powerline Floodway*, CMX, L.L.C., January 18, 2006.

5. *Final Drainage Report for Mountain Horizons South of the Powerline Floodway*, CMX, L.L.C., February 10, 2006.

6. *Offsite Flow Management for Gila River Ranches*, CMX, L.L.C., December 2, 2004.

7. *Final Drainage Report for Gila River Ranches*, CMX, L.L.C., January 25, 2005.

8. *Master Drainage Plan for Mountain Ranch*, DEI Professional Services, LLC, December 8, 1999.

9. *Final Drainage Report for a Portion of East Elliot Road at Mountain Ranch*, DEI Professional Services, LLC, February 22, 2000.

10. *Final Drainage Report for Keighley Place (S05-43)*, Landaide, Inc., March 26, 2007.

11. *Drainage Report MCDOT Project No. #68927-2 Ellsworth Road-Phase 2 Ray Rd. to Portobello Ave.*, Stantec Consulting, Inc., December 2004.

12. *Elliot Road Detention Basins and Outfall Channel Phases I & II*, Wood, Patel & Associates, Inc., May 2, 2000.

13. *Drainage Design Manual for Maricopa, County, Arizona, Volumes 1 Hydrology*, Flood Control District of Maricopa County, August 15, 2013.

14. *Drainage Design Manual for Maricopa County, Arizona, Volume 2 Hydraulics*, Flood Control District of Maricopa County, August 15, 2013.

15. *Drainage Policies and Standards for Maricopa County*, Arizona, Flood Control District of Maricopa County, Draft January 2013.

16. *2012 Engineering & Design Standards*, City of Mesa.

17. *Flood Insurance Rate Map 04013C2760L*, Federal Emergency Management Agency (FEMA), October 16, 2013.

18. *HEC-1 Flood Hydrograph Package*, US Army Corps of Engineers, June 1998.

19. *FlowMaster 2005*, Haestad Methods, Inc., 2004.

20. *Final Drainage Report for First Solar MSA-01, Mesa, Arizona*, Beck Consulting Engineers, Inc., April 18, 2011.

21. *Master Drainage Report for Mesa Proving Grounds*, Wood, Patel & Associates, Inc., December 20, 2011.

22. *Master Drainage Report for DU-7 at Mesa Proving Grounds*, Wood, Patel & Associates, Inc., December 20, 2013.

23. *Master Drainage Report Update for Eastmark,* Wood, Patel & Associates, Inc., April 4, 2013.

24. *Master Drainage Report Update for Eastmark,* Wood, Patel & Associates, Inc., December 16, 2013.

25. *Master Drainage Report for DU-3S at Mesa Proving Grounds*, Wood, Patel & Associates, Inc., February 4, 2013.

26. *Final Drainage Report for Eastmark DU7 South Parcels 7-1, 7-2, 7-3A, 7-3B, 7-4A, 7-4B, 7-5*, Entellus, June 2012.

27. *Final Drainage Report for Eastmark DU7 South Parcels 7-18, 7-19, 7-20, 7-21*, Entellus, June 2012.

28. *Final Drainage Report for Eastmark Master Planned Community DU7 North Parcels 6-12*, Hoskin Ryan Consultants, April 30, 2013.

29. *Final Drainage Report for Eastmark Master Planned Community DU7 North Parcels 13-17*, Hoskin Ryan Consultants, June 6, 2013.

30. *Eastmark E. Ray Road Improvement Plans*, Hoskin Ryan Consultants, May 21, 2012.

31. *Eastmark Great Park Phase 1 Improvement Plans*, Westwood Professional Service, Inc., September 5, 2012.

32. *Eastmark Great Park Phase 2 Improvement Plans*, Westwood Professional Service, Inc., November 11, 2013.

33. *Master Drainage Report Update for Eastmark,* Wood, Patel & Associates, Inc., April 15, 2014.

APPENDIX A

EXISTING CONDITION DATA AND HYDROLOGY

Hydrology Existing Condition

100-Year, 24-Hour HEC-1 Output

```
1**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998            *
*            VERSION 4.1             *
*                                    *
*  RUN DATE   07JUL08  TIME  07:23:20 *
*                                    *
**************************************
```

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

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

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


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

   1          ID  ***********************************************************************
   2          ID       MODEL REVISED:
   3          ID       01-23-08
   4          ID
   5          ID       MODEL REVISION DESCRIPTION:
   6          ID
   7          ID       REFERENCE NEBUILDA.DSS WHEN RUNNING MODEL.
   8          ID
   9          ID       THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
  10          ID       DISTRICT OF MARICOPA COUNTY (MIDCURE.DAT).  WATERSHEDS 73B, 73C,
  11          ID       74B, 74C, 77B, 77C, 78B, 78C, AND 79A HAVE ALL BEEN UPDATED TO
  12          ID       REFLECT CURRENT WATERSHED DELINEATIONS, NEW DEVELOPMENT, CURRENT
  13          ID       RETENTION,AND FLOOD ROUTING.
  14          ID
  15          ID       MODEL REVISED BY:
  16          ID       WOOD, PATEL & ASSOCIATES, INC.
  17          ID       DANIEL W. MATTHEWS, E.I.T.
  18          ID
  19          ID       FILE PATH:
  20          ID       R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\HYDROLOGY
  21          ID       \MPG Existing Condition Full Model (MPGEX)\MPGEX.DAT
  22          ID
  23          ID  ***********************************************************************
  24          ID  FILE:  MIDCURE.DAT   JULY 12, 2006
  25          ID  THE FOLLOWING MINOR MODIFICATIONS WERE MADE ON THIS DATE:
  26          ID   1) "C69" CHANGED TO "CP69"
  27          ID   2) "CP62" @ COMBINATION OF 62DTF AND 62F CHANGED TO "CP62F"
  28          ID   3) "CP62" @ COMBINATION OF 62CTE AND 62E CHANGED TO "CP62CE"
  29          ID   4) "C62C" @ COMBINATION OF 62ATC AND 62C CHANGED TO "CP62C"
  30          ID   5) "C67A" CHANGED TO "CP67A"
  31          ID   6) "C67B" CHANGED TO "CP67B"
  32          ID
  33          ID  ***********************************************************************
  34          ID  ----------------------------------------------------------------------
  35          ID
  36          ID  MODEL DATE OF APRIL 17, 2003:
  37          ID  THIS MODEL IS AN UPDATE TO THE MODEL DESCRIBED BELOW FOR DEC. 03,2002.
  38          ID  THE CHANGES ARE:
  39          ID
  40          ID   1) DIVERSION OF FLOW FOR THE 404 REQUIREMENT ADDED TO DIVERT FLOWS FROM
  41          ID      CRISMON CHANNEL THROUGH SUB-BASIN 67E;
  42          ID   2) SOUTHERN PORTION (THAT DRAINING TO POWERLINE FLOODWAY AND ELLSWORTH ROAD
  43          ID      CHANNEL) COMPLETELY REVISED TO REFLECT THE UPDATED MODEL PREPARED BY
  44          ID      DIBBLE UNDER THE ELLSWORTH ROAD CHANNEL PROJECT;
  45          ID   3) ADDITIONAL ID RECORDS PROVIDED BELOW TO FURTHER EXPLAIN THE MODELING
  46          ID      ASSUMPTIONS MADE FOR THE ELLIOT BASINS UNDER EXISTING LAND USE CONDITIONS
  47          ID   4) THE STUB DIVERSION AT THE INTERSECTION OF ELLIOT AND ELLSWORTH ROADS HAS
  48          ID      BEEN REVISED TO TAKE 180 CFS.
  49          ID
  50          ID  ADDITIONAL MODELING NOTES:
  51          ID   THE PEAK FLOW AT THE END OF CRISMON CHANNEL AFTER THE DIVERSION OF THE 404
  52          ID   FLOW IS 1443 CFS.  OF THIS 1443 CFS, 410 CFS IS DIVERTED INTO THE ELLIOT
  53          ID   DRAIN.  THE REMAINDER OF THE FLOW IS THEN DIVERTED INTO BASIN WA AND ROUTED
  54          ID   THROUGH THROUGH BASIN WB.
  55          ID
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  56          ID
  57          ID   ***********************************************************************
  58          ID
  59          ID   MODEL DATE OF DEC. 03, 2002: ELLIOT BASINS AND CRISMON CHANNEL EXTENDED TO
  60          ID   BASIN WA IN THIS MODEL.  BASIN EA MODELED AS DIVERSION OF 35.3 AC-FT.  BASIN
  61          ID   WA OVERFLOWS TOP OF BASIN.  THE PURPOSE OF THIS MODEL IS TO DETERMINE SURFACE
  62          ID   FLOWS AT THE INTERSECTION OF ELLSWORTH AND ELLIOT ROADS FOR THE ELLSWORTH RD
  63          ID   PROJECT.
  64          ID   (CWR 12/03/02)
  65          ID
  66          ID   MODEL DATE OF JUNE 10, 2002
  67          ID
  68          ID   THIS MODEL IS BEING USED TO EVALUATE THE EMF UNDER CURRENT LANDUSE CONDITIONS
  69          ID   WITH THE FOLLOWING STRUCTURES IN PLACE:
  70          ID
  71          ID    1. ELLIOT ROAD STORM DRAIN ON SOUTH SIDE OF ELLIOT ROAD FROM 1/2 MILE EAST
  72          ID       OF CRISMON TO ITS OUTLET WEST OF ELLSWORTH ROAD
  73          ID
  74          ID    2. SANTAN FWY CHANNEL AND BASINS ALONG EAST SIDE OF SANTAN FWY
  75          ID
  76          ID    3. ELLSWORTH ROAD CHANNEL FROM PECOS ROAD NORTH TO THE POWERLINE FLOODWAY
  77          ID
  78          ID     HEC-1 Model for Santan Channel Design
  79          ID
  80          ID     Existing Condition, 100-year, 24-hour Storm
  81          ID     Original Model: TESTADOT.DAT, May 9, 2002, Dave Degerness, FCDMC
  82          ID     Modified Model: EXIST_S.DAT, MAY 20, 2002, SZ, Wood/Patel
  83          ID
  84          ID  ***********************************************************************
  85          ID        MODEL NAME: TESTADOT.DAT
  86          ID
  87          ID     ATTENTION: THE FOLLOWING DESCRIPTION DESCRIBES THIS MODEL
  88          ID                YOU MAY IGNORE IF YOU WISH THE REST OF THE COMMENTS
  89          ID
  90          ID     THIS MODEL WAS PREPARED BY DAVE DEGERNESS OF THE FLOOD CONTROL DISTRICT
  91          ID     OF MARICOPA COUNTY FOR USE BY WOOD/PATEL TO DESIGN THE ADOT SANTAN FWY
  92          ID     CHANNEL. DIBBLE AND ASSOCIATES WILL ALSO USE THIS MODEL FOR DESIGN
  93          ID     PURPOSES FOR THE ELLSWORTH CHANNEL PROJECT.
  94          ID
  95          ID     REVISION DATE IS MAY 9, 2002
  96          ID
  97          ID     REVISIONS INCLUDE THE FOLLOWING:
  98          ID      1. UPDATED LANDUSE FROM AERIAL PHOTOGRAPHS DATED 2001 FROM FCD ARCHIVES.
  99          ID         SUBBASINS UPDATED LIE EAST OF THE PROPOSED SANTAN CHANNEL ALIGNMENT AND
 100          ID         NORTH OF ELLIOT ROAD. 11 OF THE 19 SUBBASIN IN THIS AREA EXPERIENCED
 101          ID         A LANDUSE UPDATE WITH AN ASSOCIATED RETENTION VOLUME
 102          ID
 103          ID      2. SUBBASIN ROUTING CHANGES IN THE VICINITY OF CRISMON AND GUADALUPE ROADS
 104          ID         TO ACCOUNT FOR THE SANTA RITA RANCH AND MESQUITE CANYON DEVELOPMENTS.
 105          ID
 106          ID      3. RETENTION VOLUMES FOR SUBBASINS CALCULATED BY VOLUME EQUATION GIVEN ON
 107          ID         PAGE 3-7 OF FCD HYDROLOGY MANUAL. COMPOSITE C VALUE WAS CALCULATED AND
 108          ID         USED FOR VOLUME DETERMINATION. VOLUMES USED IN THIS MODEL WERE
 109          ID         80% OF THE CALCULATED VOLUME.
 110          ID
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 111          ID      4. ELLIOT STORM DRAIN IN PLACE FROM STATION 90+15 TO ITS OUTLET WEST OF
 112          ID         ELLSWORTH ROAD AT ELLSWORTH ROAD STATION 99+05
 113          ID
 114          ID      5. FOUR DIVERSIONS INTO THE PIPE SYSTEM TOTALING 1100 CFS:
 115          ID           A. 500 CFS AT END OF PIPE: STATION 90+15
 116          ID           B. 250 CFS AT FIRST DIP CROSSING ON ELLIOT ROAD: STATION 69+80
 117          ID           C. 250 CFS AT SECOND DIP CROSSING ON ELLIOT ROAD: STATION 65+05
 118          ID           D. 100 CFS AT B2 IN PIPE STUBOUT AT CORNER OF ELLIOT AND ELLSWORTH
 119          ID              STATION 11+00
 120          ID
 121          ID  ***********************************************************************
 122          ID
 123          ID
 124          ID
 125          ID    ****************************************************************
 126          ID         PROJECT:  Queen Creek/Sanokai Wash Hydraulic Master Plan &
 127          ID                   East Maricopa Floodway Capacity Mitigation Study
 128          ID   PREPARED FOR:  Flood Control District of Maricopa County
 129          ID    PREPARED BY:  Huitt-Zollars, Inc
 130          ID       FILENAME:  X-SEMESA.DAT
 131          ID           DATE:  Dec 1999
 132          ID
 133          ID    This model is for the 100-year, 24 hr existing conditions event
 134          ID    for the watershed area tributary to the EMF approximately between
 135          ID    Queen Creek Rd./Rittenhouse Rd. and the Superstition Freeway.
 136          ID
 137          ID    This model was constructed from previous study models and updated
 138          ID    for new existing hydrologic conditions as part of the Queen Creek/
 139          ID    Sanokai Wash HMP & EMF Capacity Mitigation Study.  Previous
 140          ID    studies include the East Mesa ADMP and the Queen Creek ADMS.
 141          ID
 142          ID    This model is one of four supporting hydrologic models used to
 143          ID    evaluate flow in the East Maricopa Floodway (EMF).  Each model
 144          ID    evaluates the hydrology for a specific area that is ultimately
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 145          ID    tributary to the EMF. The four supporting models are:
 146          ID
 147          ID       *  X-NWMESA.DAT - Existing conditions hydrology for NE Mesa
 148          ID                         (~east of the EMF to the CAP(at Hawes Rd.)
 149          ID                         & ~south of McKellips Rd. to US60)
 150          ID
 151          ID       *  X-NEMESA.DAT - Existing conditions hydrology for NW Mesa
 152          ID                         (~area northeast of Hawes Rd./US60)
 153          ID
 154          ID       *  X-SEMESA.DAT - Existing conditions hydrology for SE Mesa
 155          ID                         (~area east of the EMF from US60 south to
 156          ID                          Rittenhouse Rd. (excluding areas
 157          ID                          tributary to Queen Creek))
 158          ID                          X-SEMESA.DAT imports hydrographs from
 159          ID                          X-NEMESA.DAT via DSS files.  Therefore,
 160          ID                          X-NEMESA.DAT must be run first and then
 161          ID                          when running X-SEMESA.DAT, X-NEMESA.DSS
 162          ID                          must be specified as the DSS file
 163          ID                          (the default would be X-SEMESA.DSS)
 164          ID
 165          ID       *  X-QCSW.DAT   - Existing conditions hydrology for Queen
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 166          ID                          Creek/Sanokai Wash area (all areas
 167          ID                          tributary to Queen Creek & Sanokai Wash
 168          ID                          and areas tributary to the EMF south of
 169          ID                          Rittenhouse Rd.)
 170          ID
 171          ID    IT IS IMPORTANT TO NOTE THAT THE SUPPORTING MODELS DO NOT
 172          ID    CORRECTLY ROUTE FLOWS ALONG THE EMF NOR DO THEY IMPORT ALL
 173          ID    THE NECESSARY FLOWS TO CORRECTLY EVALUATE FLOWS WITHIN THE
 174          ID    EMF.  TO EVALUATE FLOWS WITHIN THE EMF, ALL THE SUPPORTING
 175          ID    MODELS SHOULD BE RUN (TO DEVELOP THE TAPE21 FILE) AND THEN
 176          ID    THE EMF ROUTING MODEL (X-EMF-RT.DAT).  ONLY THE EMF ROUTING
 177          ID    MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.
 178          ID
 179          ID    The model X-EMF-RT.DAT is the "routing" model used to evaluate
 180          ID    flows in the EMF for the existing conditions.  The model imports
 181          ID    hydrographs via TAPE21 files from the supporting hydrologic
 182          ID    models and then routes them along the EMF from approximately
 183          ID    Brown Rd. and south to Hunt Hwy (the County Line).
 184          ID
 185          ID    ***********************************************************************
 186          ID              RECOMMENDED RUN ORDER FOR EMF HYDROLOGY MODELS
 187          ID    ***********************************************************************
 188          ID
 189          ID         1. Erase any existing TAPE21 file in run directory.
 190          ID         2. Run X-NEMESA.DAT, X-NWMESA.DAT & X-QCSW.DAT (any order)
 191          ID         3. Run X-SEMESA.DAT (specifying X-NEMESA.DSS as DSS file)
 192          ID         4. Run X-EMF-RT.DAT
 193          ID
 194          ID    ***********************************************************************
 195          ID   HYDROLOGY FOR THE EMF-E CAPACITY STUDY
 196          ID
 197          ID   SOUTHEAST MESA AREA DRAINAGE MASTER PLAN
 198          ID   AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
 199          ID   MARCH 1998
 200          ID   SOUTHEAST MESA HIGH RESOLUTION MODEL
 201          ID
 202          ID   FILENAME:  SMQC.DAT
 203          ID
 204          ID   THIS MODEL REPRESENTS THE EXISTING CONDITION OF THE WATERSHED.
 205          ID   THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
 206          ID   CONDITIONS.
 207          ID
 208          ID   100-YEAR 24-HOUR FREQUENCY
 209          ID
 210          ID   THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
 211          ID   AND EAST OF THE CAP
 212          ID
 213          ID   METHODOLOGY
 214          ID   THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
 215          ID   SCS TYPE II RAINFALL DISTRIBUTION
 216          ID   S-GRAPH HYDROGRAPH
 217          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
 218          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
 219          ID   APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
 220          ID   EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 221          ID   DATED 1994
 222          ID   THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS
 223          ID
 224          ID   STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
 225          ID   DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
 226          ID   AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
 227          ID   HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
 228          ID   DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.
 229          ID
 230          ID   ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
 231          ID   CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL
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232          ID
233          ID
234          ID   NOTE: MUST USE MESANW.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS SUPERSTITN
235          ID
236          ID
237          ID     LAST UPDATED ON  6/04/98
238          ID
239          ID
240          ID   DDM MCUHP2 SOUTH EAST MESA ADMP - SOUTH OF SUPERSTITION FREEWAY
             *DIAGRAM
241          IT       5  1APR97    0000    2000
242          IO       5
243          IN      15
244          JD    3.60    0.01
245          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
246          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
247          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
248          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
249          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
250          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
251          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
252          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
253          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
254          PC    .983    .986    .989    .992    .995    .998   1.000
255          JD    3.58    1.00
256          JD    3.49    5.00
257          JD    3.38   10.00
258          JD    3.24   30.00
259          JD    3.10   60.00
260          JD    3.05   90.00
261          JD    3.00   120.0
262          JD    2.97  150.00
             *
             * DDM   ***** Preserved *****

263          KK    SOSS
264          KM   INFLOW FROM SOSSAMAN BASIN VIA SOSSAMAN CHANNEL
265          KM   QI CARDS ARE BASED ON THE PEAK OF 1800CFS TO SOSSAMAN CHANNEL
266          BA   12.50
267          ZR  =QI A=SOSSAMAN DRAIN B=AT SUPERSTITION C-FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

268          KK   RSOSS
269          KM   ROUTE FLOWS VIA SOSSAMAN CHANNEL TO BASELINE ROAD
270          RS       1    FLOW      -1
271          RC    .030    .025    .030    3500    .005
272          RX       0       5      10      35      75     110     115     120
273          RY      10      10      10       4       4      10      10      10
             * DDM   ***** Updated *****

274          KK     59A
275          KM   BASIN 59A
276          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
277          KM    L=        .9  Lca=        .3   S=   34.9  Kn= .071  LAG=  30.2
278          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
279          BA     .26
280          LG     .24     .25    4.55     .41   32.00
281          UI     30.     74.    140.    180.    235.    354.    298.    230.    176.    131.
282          UI     68.     50.     32.     19.      9.      9.      9.      9.      0.      0.
283          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

284          KK    C59A
285          KM    SOSSAMAN DRAIN AT BASELINE ROAD
286          HC       2
             * DDM   ***** Preserved *****

287          KK  59A59B
288          KM   ROUTE S59A TO 59B VIA SOSSAMAN CHANNEL
289          KM   BLOCK WALL ON LEFT BANK, SOSSAMAN ROAD ON RIGHT BANK
290          RS       2    FLOW      -1
291          RC    .025    .018    .013    6500   .0015
292          RX       0       3      13      38      78     103     128     203
293          RY      16      10      10       0       0      10       8      10
             * DDM   ***** Updated *****

294          KK     59B
295          KM   BASIN 59B
296          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
297          KM    L=       1.2  Lca=        .7   S=   33.9  Kn= .095  LAG=  63.7
298          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
299          BA     .94
300          LG     .24     .26    4.65     .38   19.00
301          UI     50.     50.     57.    168.    206.    243.    275.    304.    345.    388.
302          UI    471.    602.    618.    511.    445.    400.    354.    310.    273.    240.
303          UI    202.    147.     94.     86.     81.     67.     50.     50.     32.     15.
304          UI     15.     15.     15.     15.     15.     15.     15.     15.      0.      0.
305          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
```

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

 306          KK    C59B
 307          KM   SOSSAMAN CHANNEL AT GUADALUPE ROAD
 308          HC       2
              *
              * DDM    ***** Preserved *****

 309          KK  S9BT60
 310          KM     ROUTE S9B TO 60 GUADALUPE CHANNEL.  Assumed v=5ft/sec for NSTP calculation
 311          RS       1    FLOW      -1
 312          RC     .02     .013     .02    5500    .005
 313          RX       0      518     522     522     560     560     580    2580
 314          RY     8.5      8.5     8.5       0       0       8       7       6
              * DDM    ***** Updated *****

 315          KK      60
 316          KM   BASIN 60
 317          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 318          KM    L=       2.4  Lca=       1.4   S=   31.8  Kn= .102  LAG= 120.0
 319          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 320          BA    2.30
 321          LG     .22     .26    4.65     .39   20.00
 322          UI     65.     65.     65.     65.     65.    136.    212.    241.    266.    300.
 323          UI    317.    346.    363.    383.    406.    434.    467.    494.    528.    591.
 324          UI    675.    766.    860.    811.    724.    661.    612.    574.    541.    514.
 325          UI    483.    447.    417.    391.    369.    337.    316.    299.    263.    232.
 326          UI    186.    162.    114.    114.    113.    106.    106.    106.     71.     65.
 327          UI     65.     65.     65.     50.     20.     20.     20.     20.     20.     20.
 328          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 329          UI     20.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 330          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM    ***** Preserved *****

 331          KK     R60
 332          KM   RETAIN THE 100 YR 2 HR RUNOFF VOLUME
 333          DT     D60     100
 334          DI       0   10000
 335          DQ       0   10000
              * DDM    ***** Preserved *****

 336          KK  EMFGUA
 337          KM     COMBINE S59 AND S60 AT EMF, GUADALUPE ROAD
 338          KO                                      21
 339          HC       2
              *
              * DDM    ***** Preserved *****

 340          KK  GUATEL
 341          KM   ROUTE EMF FLOW FROM GUADALUPE ROAD TO ELLIOT ROAD
 342          RS       5    FLOW      -1
 343          RC     .03     .022     .03    6000   .0003
 344          RX       0      500     520     553     693     726     740     742
 345          RY      14       12      11       0       0      11      11      12
              *
              * DDM    ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 346          KK      64
 347          KM   BASIN 64
 348          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 349          KM    L=       1.2  Lca=        .6   S=   25.4  Kn= .104  LAG=  70.1
 350          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 351          KO                                      21
 352          BA     .81
 353          LG     .34     .34    4.70     .26     .00
 354          UI     39.     39.     39.    108.    145.    181.    201.    223.    245.    276.
 355          UI    307.    366.    456.    505.    424.    369.    331.    302.    266.    238.
 356          UI    212.    187.    161.    120.     84.     69.     65.     64.     42.     39.
 357          UI     39.     21.     12.     12.     12.     12.     12.     12.     12.     12.
 358          UI     12.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 359          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              * DDM    ***** Preserved *****

 360          KK  EMFELL
 361          KM     COMBINE CP2 AND S64 AT EMF, ELLIOT ROAD
 362          HC       2
              *
              * DDM    ***** Preserved *****

 363          KK  ELTWAR
 364          KM   ROUTE EMF FLOW AT ELLIOT ROAD TO WARNER ROAD VIA THE EMF
 365          RS       4    FLOW      -1
 366          RC     .03     .022     .03    5500   .0003
 367          RX       0      500     520     553     693     726     740     742
 368          RY      14       12      11       0       0      11      11      12
              *
              *
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```
 369          KK     62B
 370          KM   BASIN 62B
 371          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 372          KM    L=        .6  Lca=        .3   S=   47.5  Kn= .086  LAG=  32.7
 373          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 374          BA     .23
 375          LG     .38      .30     4.65      .38     8.00
 376          UI     24.      52.     107.     138.     173.     243.     289.     215.     171.     133.
 377          UI     97.      52.      40.      26.      18.      7.       7.       7.       7.       0.
 378          UI      0.       0.       0.       0.       0.      0.       0.       0.       0.       0.
 379          UI      0.       0.       0.       0.       0.      0.       0.       0.       0.       0.
              *
              *
              * DDM   ***** Preserved *****

 380          KK   62BTD
 381          KM   ROUTE 62B TO 62D VIA HAWES ROAD
 382          RS       4    FLOW      -1
 383          RC    .045     .04     .045    5280   .0041
 384          RX       0      50      75      77     127     129     154     204
 385          RY       2    1.75    1.50       0       0     1.5    1.75       2
              *
              * DDM   ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 386          KK     62D
 387          KM   BASIN 62D
 388          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 389          KM    L=        .9  Lca=        .3   S=   30.7  Kn= .092  LAG=  43.6
 390          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 391          BA     .46
 392          LG     .42      .29     4.65      .40     1.00
 393          UI     36.      36.     124.     165.     200.     234.     281.     381.     445.     349.
 394          UI    293.     245.     203.     168.     118.      69.      60.      47.      36.      23.
 395          UI     11.      11.      11.      11.      11.      11.       0.       0.       0.       0.
 396          UI      0.       0.       0.       0.       0.      0.       0.       0.       0.       0.
              *
              * DDM   ***** Preserved *****

 397          KK   CP62D
 398          KM   COMBINE FLOWS FROM SUBBASINS 62A, 62B, AND 62D
 399          HC       2
              * HC     3
              *
              * DDM   ***** Preserved *****

 400          KK   62DTF
 401          KM   ROUTE 62D TO 62F VIA HAWES ROAD
 402          RS       8    FLOW      -1
 403          RC    .045    .024     .045    3600   .0033
 404          RX       0     500     750     753     793     796    1046    1546
 405          RY       3     1.5    1.25       0       0    1.25     1.5       3
              *
              *
              * DDM   ***** Updated *****

 406          KK     62F
 407          KM   BASIN 62F
 408          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 409          KM    L=        .6  Lca=        .4   S=   31.9  Kn= .083  LAG=  35.7
 410          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 411          BA     .26
 412          LG     .34      .33     4.65      .29     2.00
 413          UI     24.      44.     100.     130.     159.     202.     294.     257.     203.     163.
 414          UI    130.      96.      53.      41.      29.     24.       7.       7.       7.       7.
 415          UI      7.       0.       0.       0.       0.      0.       0.       0.       0.       0.
 416          UI      0.       0.       0.       0.       0.      0.       0.       0.       0.       0.
              * DDM   ***** Preserved *****
              *  KK  CP62

 417          KK   CP62F
 418          KM   COMBINE FLOWS FROM SUBBASINS 62D, 62E AND 62F AND 62C
 419          HC       2
              * HC     4
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 420          KK   62T63
 421          KM     ROUTE CP62 TO S63 vIA WASH.
 422          KM     WASH CROSSING HAWES, NORTH OF ELLIOT
 423          KS       5    FLOW      -1
 424          RC    .045     .04     .045    6000  0.0055
 425          RX       0     500     750     770     780     800    1050    1550
 426          RY       5       4       3       0       0       3       4       5
              * DDM   ***** Updated *****

 427          KK      63
 428          KM   BASIN 63
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```
429          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
430          KM    L=       2.0  Lca=       1.5   S=   20.0  Kn= .088  LAG= 108.0
431          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
432          BA     .91
433          LG     .37     .32    4.65     .32    2.00
434          UI     28.     28.     28.     28.     30.     93.    101.    114.    132.    141.
435          UI    153.    162.    172.    183.    200.    214.    229.    258.    303.    339.
436          UI    379.    341.    304.    277.    256.    240.    227.    211.    195.    179.
437          UI    168.    155.    143.    134.    119.    103.     82.     66.     50.     50.
438          UI     48.     47.     47.     34.     28.     28.     28.     28.     15.      9.
439          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
440          UI      9.      9.      9.      9.      0.      0.      0.      0.      0.      0.
441          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

442          KK    CP63
443          KM     COMBINE S63 AND CP62
444          HC       2
             * DDM   ***** Preserved *****

445          KK   63T71
446          KM     ROUTE CP63 TO S71 VIA SHEET FLOW
447          KM     SOSSAMAN SOUTH OF ELLIOT
448          RS      11    FLOW      -1
449          RC    .055    .045    .055    5280  0.0005
450          RX       0    1000    1005    1010    1013    1043    1543    2043
451          RY       6       5       0       0       3       5       2       5
             * ***********************************************************************
             * DWM   ***** UPDATED *****
             * BASIN 68B WAS SEPERATED INTO 3 BASINS TO CALCULATE OFFSITE FLOW IMPACTS
             * TO BASIN 25.
             *

452          KK    68B1   BASIN
453          KM   BASIN 68B1
454          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
455          KM    L=0.75  Lca=0.38  S=32.3  Kn=0.090  LAG=41.6
456          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
457          BA   0.146
458          LG    0.35    0.37    5.20    0.21       0
459          UI      12      15      41      57      69      81     101     142     134     105
460          UI      90      73      59      46      27      20      17      12       8       4
461          UI       4       4       3       4       0       0       0       0       0       0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

462          UI       0       0       0       0       0       0       0       0       0       0
463          UI       0       0       0       0       0       0       0       0       0       0
             *
             *

464          KK    68B2   BASIN
465          KM   BASIN 68B2
466          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
467          KM    L=0.55  Lca=0.28  S=32.4  Kn=0.090  LAG=32.9
468          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
469          BA   0.060
470          LG    0.35    0.37    5.20    0.21       0
471          UI       6      14      26      36      44      60      74      56      44      34
472          UI      26      14      10       7       5       2       2       2       2       0
473          UI       0       0       0       0       0       0       0       0       0       0
474          UI       0       0       0       0       0       0       0       0       0       0
475          UI       0       0       0       0       0       0       0       0       0       0
             *
             *

476          KK    68B3   BASIN
477          KM   BASIN 68B3
478          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
479          KM    L=0.36  Lca=0.18  S=32.2  Kn=0.090  LAG=23.7
480          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
481          BA   0.036
482          LG    0.35    0.37    5.20    0.21       0
483          UI       5      19      29      40      61      45      32      22      10       7
484          UI       4       1       2       2       0       0       0       0       0       0
485          UI       0       0       0       0       0       0       0       0       0       0
486          UI       0       0       0       0       0       0       0       0       0       0
487          UI       0       0       0       0       0       0       0       0       0       0
             *
             *

488          KK    CP68
489          KM   COMBINE FLOWS FROM BASINS 68B1, 68B2, AND 68B3
490          HC       3
             *
             *
             * DDM   ***** Preserved *****

491          KK  68B169
492          KM   ROUTE S68B TO S69 VIA WASH CROSSING HAWES
493          RS       3    FLOW      -1
494          RC    .045     .04    .045    2750   .0036
495          RX       0     500     950    1003    1007    1057    1511    2011
496          RY       4     3.5       3       0       0       2     2.5       3
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                    *
                    * DDM    ***** Updated *****
1                                          HEC-1 INPUT                                                          PAGE 12

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

 497                KK      69
 498                KM    BASIN 69
 499                KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 500                KM     L=        .7  Lca=        .3   S=   22.4  Kn= .094  LAG=  42.3
 501                KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 502                BA      .09
 503                LG      .41      .31     4.70      .35      .00
 504                UI       7.       8.      26.      35.      41.      49.      60.      84.      85.      67.
 505                UI      57.      46.      38.      31.      18.      13.      12.       7.       7.       2.
 506                UI       2.       2.       2.       2.       2.       0.       0.       0.       0.       0.
 507                UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                    *
                    * DDN    ***** Preserved *****
                    *  KK    C69

 508                KK     CP69
 509                KM    COMBINE FLOWS FROM C68B AND 69
 510                HC        2
                    *
                    * DDM    ***** Preserved *****

 511                KK    69T71
 512                KM      ROUTE S69 TO S71 VIA WASH AND SHEET FLOW, INCREASE OVERBANK N VALUES
 513                RS       11     FLOW       -1
 514                RC     .055     .045     .055     6000    .0033
 515                RX        0      500     1000     1001     1002     1500     2000     2500
 516                RY        4        3        2        0        0        2        3        4
                    *
                    * DDM    ***** Updated *****

 517                KK       71
 518                KM    BASIN 71
 519                KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 520                KM     L=       2.4  Lca=        .9   S=   25.4  Kn= .093  LAG=  97.2
 521                KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 522                BA     0.86
 523                LG      .39      .32     4.70      .32      .00
 524                UI      38.      38.      38.      38.      83.     127.     144.     174.     186.     204.
 525                UI     216.     231.     252.     275.     294.     330.     387.     453.     500.     441.
 526                UI     392.     357.     329.     307.     287.     261.     239.     222.     202.     186.
 527                UI     174.     145.     115.      98.      67.      67.      63.      62.      62.      38.
 528                UI      38.      38.      38.      24.      12.      12.      12.      12.      12.      12.
 529                UI      12.      12.      12.      12.      12.      12.      12.      12.       0.       0.
 530                UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                    *
                    *

 531                KK       25   BASIN
 532                KM    BASIN 25
 533                KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 534                KM     L=0.90  Lca=0.41  S=16.7  Kn=0.086  LAG=53.7
 535                KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 536                BA    0.208
 537                LG     0.39     0.32     4.70     0.32        0
1                                          HEC-1 INPUT                                                          PAGE 13

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

 538                UI       14       14       37       59       72       83       95      114      147      180
 539                UI      148      122      107       92       76       64       48       28       24       23
 540                UI       14       15        6        5        4        4        5        4        4        0
 541                UI        0        0        0        0        0        0        0        0        0        0
 542                UI        0        0        0        0        0        0        0        0        0        0
                    *
                    *

 543                KK    25T71    RDUTE
 544                KM    ROUTE BASIN 25 TO BASIN 71 VIA WASH AND SHEET FLOW
 545                RS       11     FLOW       -1
 546                RC    0.045    0.040    0.045     5686   0.0050     0.00
 547                RX     0.00   500.00  1000.00  1003.00  1007.00  1011.00  1511.00  2011.00
 548                RY     3.00     2.50     2.00     0.00     0.00     2.00     2.50     3.00
                    *
                    *
                    * DDM    ***** Preserved *****

 549                KK     CP71
 550                KM    COMBINE 63T71, 69T71, 71, 25T71
 551                HC        4
                    *
                    * DDM    ***** Preserved *****

 552                KK    71T72
 553                KM     ROUTE CP71 TO S72 VIA DIKE
 554                KM      WASH WEST OF INTERSECTION OF SOSSAMAN & WARNER
                    * KO                                          21
 555                RS        2     FLOW       -1
 556                RC     .055     .045     .055     3750    .0037
```

```
557          RX       0     500    1000    1007    1017    1025    1530    2030
558          RY       9     8.5       8       0       0       8     8.5       9
             *
             * DDM   ***** Updated *****

559          KK      72
560          KM   BASIN 72
561          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
562          KM    L=       1.8  Lca=        .6   S=   13.1  Kn= .089  LAG=  79.1
563          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
564          BA     .84
565          LG     .35     .37    5.30     .20    1.00
566          UI     36.     36.     36.     66.    123.    146.    170.    189.    206.    224.
567          UI    248.    274.    308.    383.    445.    449.    383.    340.    308.    284.
568          UI    256.    230.    211.    184.    170.    144.    110.     82.     63.     61.
569          UI     59.     53.     36.     36.     36.     20.     11.     11.     11.     11.
570          UI     11.     11.     11.     11.     11.     11.     11.      0.      0.      0.
571          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
1                                          HEC-1 INPUT                                                    PAGE 14

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

572          KK  CPKNOX
573          KM   COMBINE FLOW AT KNOX ROAD BEFORE COMBINING FLOW IN THE EMF
574          KO                                      21
575          HC       2
             * DDM   ***** Preserved *****

576          KK  EMFWAK
577          KM   COMBINE ROUTED FLOW FROM 71 WITH EMF
578          HC       2
             *
             * DDM   ***** Preserved *****

579          KK  WARTKN
580          KM   ROUTE EMF WARNER ROAD FLOW TO KNOX ROAD
581          RS       2    FLOW      -1
582          RC     .03    .022     .03    2500   .0003
583          RX       0     500     520     553     693     726     740     742
584          RY      14      12      11       0       0      11      11      12
             *
             * DDM   ***** Updated *****

585          KK     70B
586          KM   BASIN 70B
587          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
588          KM    L=       1.0  Lca=        .7   S=   23.8  Kn= .090  LAG=  63.2
589          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
590          BA     .33
591          LG     .37     .27    8.00     .08    1.00
592          UI     20.     20.     24.     68.     84.     99.    112.    124.    141.    159.
593          UI    194.    250.    246.    204.    178.    160.    141.    124.    109.     96.
594          UI     78.     56.     36.     34.     33.     25.     20.     20.     10.      6.
595          UI      6.      6.      6.      6.      6.      6.      6.      0.      0.      0.
596          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

597          KK      26   BASIN
598          KM   BASIN 26
599          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
600          KM    L=0.42  Lca=0.19  S=21.4  Kn=0.090  LAG=27.7
601          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
602          BA   0.045
603          LG    0.37    0.27    8.00    0.08       1
604          UI       5      16      28      36      51      65      47      36      26      15
605          UI       9       6       3       1       2       1       0       0       0       0
606          UI       0       0       0       0       0       0       0       0       0       0
607          UI       0       0       0       0       0       0       0       0       0       0
608          UI       0       0       0       0       0       0       0       0       0       0
             *
             *
1                                          HEC-1 INPUT                                                    PAGE 15

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

609          KK  26T70B   ROUTE
610          KM   ROUTE BASIN 26 TO BASIN 70B VIA WASH AND SHEET FLOW
611          RS       3    FLOW      -1
612          RC   0.045   0.040   0.045    4688  0.0057    0.00
613          RX    0.00  500.00 1000.00 1003.00 1007.00 1011.00 1511.00 2011.00
614          RY    3.00    2.50    2.00    0.00    0.00    2.00    2.50    3.00
             *
             *

615          KK   CP70B
616          KM   COMBINE ROUTED FLOW FROM 26 AND 70B
617          HC       2
             *
             *

618          KK  70BT76
```

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619          KM   ROUTE 70B TO 76B VIA WASH CROSSING SOSSAMAN, SOUTH OF WARNER ROAD
620          RS      11     FLOW      -1
621          RC    .045      .04     .045     5500    .0041
622          RX       0      500     1000     1003     1007     1011     1511     2011
623          RY       4      3.5        3        0        0        2      2.5        3
             *
             * DDM   ***** Updated *****

624          KK     76B
625          KM   BASIN 76B
626          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
627          KM    L=       1.8  Lca=        .9   S=   27.4  Kn= .091  LAG=  82.1
628          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
629          BA     .64
630          LG     .36      .26     8.80      .05      .00
631          UI     26.      26.      26.      40.      87.     102.     122.     134.     146.     158.
632          UI    174.     193.     210.     247.     299.     345.     306.     266.     240.     219.
633          UI    203.     182.     164.     151.     133.     123.     104.      80.      61.      46.
634          UI     45.      43.      42.      26.      26.      26.      21.       8.       8.       8.
635          UI      8.       8.       8.       8.       8.       8.       8.       8.       8.       0.
636          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
637          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *

638          KK    KNOX
639          KM   COMBINE AT KNOX ROAD
640          KO                                      21
641          HC       2
             *

642          KK  EMFKNX
643          KM   COMBINE FLOWS IN EMF AT KNOX ROAD
644          HC       2
             *
             * DDM   ***** Preserved *****
```



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

645          KK   CAP1A
646          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
647          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
648          KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS PER PIPE
649          IN      60
650          BA     .01
651          QI       0       65      217      217      217      217      217      217      217      217
652          QI     217      217      217      217      217      217      217      217      217      217
653          QI     217      217      217      217      217
             *
             * DDM   ***** Preserved *****

654          KK   RCA1A
655          KM   ROUTE FLOW FROM CAP OVERCHUTE CAP1A TO C65A AT GUADALUPE RD ALIGNMENT AND
656          KM   MOUNTAIN RD ALIGNMENT (1/2 MILE EAST OF SIGNAL BUTTE RD).
657          RS       9     FLOW      -1
658          RC    .045      .04     .045     8000     .004
659          RX       0      500     1000     1006     1026     1032     1511     2011
660          RY       4      3.5        3        0        0        3      3.5        4
             *
             * DDM   ***** Preserved *****

661          KK   CAP1B
662          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
663          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
664          KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS PER PIPE
665          IN      60
666          BA     .01
667          QI       0       65      217      217      217      217      217      217      217      217
668          QI     217      217      217      217      217      217      217      217      217      217
669          QI     217      217      217      217      217
             *
             * DDM   ***** Preserved *****

670          KK  RCAP1B
671          KM   ROUTE FLOW FROM CAP OVERCHUTE CAP1B TO C65A AT GUADALUPE RD ALIGNMENT AND
672          KM   MOUNTAIN RD ALIGNMENT (1/2 MILE EAST OF SIGNAL BUTTE RD).
673          RS      10     FLOW      -1
674          RC    .045      .04     .045     8500     .004
675          RX       0      500     1000     1006     1026     1032     1511     2011
676          RY       4      3.5        3        0        0        3      3.5        4
             *
             * DDM   ***** Updated *****

677          KK    65AWBASIN
678          KM   BASIN 65AW
679          KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
680          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
681          KM    L=       .9  Lca=        .6   S=   54.7  Kn= .090  LAG=  26.1
682          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
683          BA   0.433
684          LG    0.30     0.25     5.30     0.23       15
685          UI      53      163      279      363      542      612      445      333      237      117
686          UI      84       54       19       17       16       17        0        0        0        0
```

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

 687          UI       0       0       0       0       0       0       0       0       0       0
              *

 688          KK   D65AW
 689          KM   DIVERT FOR RETENTION VOLUME
 690          DT  DIV65A       6
 691          DI       0   10000
 692          DQ       0   10000
              * DDM   ***** Preserved *****

 693          KK   C65AW
 694          KM   COMBINE FLOWS FROM CAP OVERCHUTES 1A AND 1B (131+90 & 150+00) AND 65A
 695          HC       3
              *
              * DDM   ***** Preserved *****

 696          KK  65AWTB
 697          KM   ROUTE 65A TO 65B VIA SIPHON DRAW
 698          RS      11    FLOW      -1
 699          RC    .045     .04    .045   11500    .0003
 700          RX       0     500    1000    1003    1053    1056    1511    2011
 701          RY       4     3.5       3       0       0       2     2.5       3
              *
              * DDM   ***** Updated *****

 702          KK     65A
 703          KM   BASIN 65A
 704          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 705          KM    L=      1.6  Lca=       .9   S=   51.2  Kn= .089  LAG=  69.7
 706          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 707          BA    2.54
 708          LG     .35     .36    5.10     .26    1.00
 709          UI    122.    122.    122.    345.    457.    572.    635.    703.    775.    875.
 710          UI    972.   1166.   1460.   1573.   1316.   1148.   1032.    937.    826.    739.
 711          UI    654.    583.    493.    362.    244.    217.    201.    198.    122.    122.
 712          UI    122.     52.     38.     38.     38.     38.     38.     38.     38.     38.
 713          UI     38.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 714          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

 715          KK   65ATB
 716          KM   ROUTE FLOW FROM MERIDIAN RD TO CRISMON ROAD ALIGNMENT ALONG ELLIOT RD.
 717          RS       8    FLOW      -1
 718          RC     .05    .045    .045   10500    .005
 719          RX       0      20      25      30      38      43     100     200
 720          RY      12       8       8       0       0       5       6       7
              *
              * DDM   ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 721          KK     65BBASIN
 722          KM   BASIN 65B
 723          KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
 724          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 725          KM    L=      2.0  Lca=      1.2   S=   37.5  Kn= .090  LAG=  91.5
 726          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 727          BA   1.374
 728          LG    0.32    0.37    6.00    0.15       0
 729          UI      57      57      57      92     194     225     267     299     322     345
 730          UI     388     426     463     565     677     747     650     559     512     470
 731          UI     433     382     353     313     284     258     209     163     111     101
 732          UI      95      95      75      56      57      57      26      18      18      17
 733          UI      18      17      18      17      18      17      18      17       0       0
 734          UI       0       0       0       0       0       0       0       0       0       0
 735          UI       0       0       0       0       0       0       0       0       0       0
              *

 736          KK    D65B
 737          KM   DIVERSION FOR RETENTION
 738          DT  DIV65B      16
 739          DI       0   10000
 740          DQ       0   10000
              * DDM   ***** Preserved *****

 741          KK   CP65B
 742          KM   COMBINE S65A WITH 65B
 743          HC       3
              *

 744          KK  DIVPIP
 745          KM   DIVERT FLOWS BELOW 500 CFS INTO THE ELLIOT ROAD PIPE.
 746          KM   FOLLOW FLOW CAPACITIES FROM FINAL DESIGN OF ELLIOT BASINS:  500 CFS DIRECTLY
 747          KM   INTO PIPE; 30 CFS FROM DIVERSION STRUCTURE INTO PIPE; AND, 10 CFS FROM
 748          KM   BASIN EA OUTFLOW INTO PIPE.  (CWR 11/25/02)
              * KM DIVERT FLOWS BELOW 500 CFS INTO THE ELLIOT ROAD PIPE. AVAILABLE HEADWATER
              * KM DETERMINED BY CATCH BASIN IN WOOD/PATEL DESIGN. FLOWS ABOVE 500 CFS TRAVEL
              * KM IN ORIGINAL ROUTING TOWARD THE CORNER OF ELLIOT AND ELLSWORTH ROAD
              * KM DIVERT OCCURS AT STATION 90+15 IN WOOD PATEL PLANS
```

```
 749          DT    PIPE
 750          DI       0     500     600     800    1000    1200    1400    1600    1800    2000
 751          DQ       0     500     500     500     500     500     500     500     500     500
              *

 752          KK      EA
 753          KM   DIVERSION FOR BASIN EA STORAGE
 754          DT  DIV65B    35.3
 755          DI       0   10000
 756          DQ       0   10000
              *
              * DDM   ***** Preserved *****
1                                                HEC-1 INPUT                                                    PAGE 19

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

 757          KK  65TA66
 758          KM   ROUTE 65B TO 66D VIA GM PERIMETER CHANNEL
 759          KM   ROUTING CHANGED TO ROUTE FLOW TO THE FIRST DIP CROSSING ALONG ELLIOT RD
 760          KM   WHICH IS AT STATION 69+80
 761          RS       1    FLOW      -1
 762          RC    0.05   0.045   0.045    2055    .005
 763          RX       0      20      25      30      38      43     100     200
 764          RY      12       8       8       0       0       5       6       7
              *
              *

 765          KK  65TB66
 766          KM   ROUTE 65B TO 66D VIA GM PERIMETER CHANNEL
 767          KM   ROUTING CHANGED TO ROUTE FLOW TO THE SECOND DIP CROSSING ALONG ELLIOT RD
 768          KM   WHICH IS AT STATION 65+05
 769          RS       1    FLOW      -1
 770          RC    0.05   0.045   0.045     475    .005
 771          RX       0      20      25      30      38      43     100     200
 772          RY      12       8       8       0       0       5       6       7
              *
              *

 773          KK  65TC66
 774          KM   ROUTE 65B TO 66D VIA GM PERIMETER CHANNEL
 775          KM   ROUTING CHANGED TO ROUTE FLOW FROM THE SECOND DIP CROSSING ALONG ELLIOT AT
 776          KM   STA 65+05 TO THE CORNER OF ELLIOT AND ELLSWORTH ROADS STA 11+00 IN THE WOOD
 777          KM   PATEL ENGINEERING DRAWINGS, A DISTANCE OF 5405 FEET
 778          RS       5    FLOW      -1
 779          RC    0.05   0.045   0.045    5405    .005
 780          RX       0      20      25      30      38      43     100     200
 781          RY      12       8       8       0       0       5       6       7
              *

 782          KK     66A
 783          KM   BASIN 66A
 784          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 785          KM    L=       .7  Lca=       .3   S=   55.9  Kn= .086  LAG=  31.2
 786          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 787          BA     .26
 788          LG     .35     .38    6.00     .17    5.00
 789          UI     29.     68.    132.    170.    217.    326.    310.    236.    183.    141.
 790          UI     86.     49.     38.     28.      9.      9.      9.      9.      0.      0.
 791          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

 792          KK   66AIB
 793          KM   ROUTE S66A TO 66B VIA WASH CROSSING BASELINE
 794          RS       5    FLOW      -1
 795          RC    .045     .04    .045    7500   .0077
 796          RX       0     500     980    1003    1007    1031    1511    2011
 797          RY       4     3.5       3       0       0       3     3.5       4
              *
              * DDM   ***** Updated *****
1                                                HEC-1 INPUT                                                    PAGE 20

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

 798          KK     66B
 799          KM   BASIN 66B
 800          KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
 801          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 802          KM    L=      1.6  Lca=      1.0   S=   43.3  Kn= .090  LAG=  77.0
 803          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 804          BA   0.668
 805          LG    0.31    0.33    5.00    0.23       2
 806          UI      31      30      31      76     112     136     155     173     185     209
 807          UI     233     263     332     389     371     316     282     254     232     206
 808          UI     183     162     149     125      93      67      55      51      51      36
 809          UI      31      31      23      10       9      10       9       9      10       9
 810          UI      10       9       9       0       0       0       0       0       0       0
 811          UI       0       0       0       0       0       0       0       0       0       0
              *

 812          KK    D66B
 813          KM   RETENTION VOLUME DIVERSION
 814          DT  DIV66B      13
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```
815          DI       0   10000
816          DQ       0   10000
             *
             * DDM   ***** Preserved *****

817          KK   CP66B
818          KM   COMBINE $66A AND $66B
819          HC       2
             *

820          KK   66BTC
821          KM   ROUTE FLOW FROM CP66B TO CP67C VIA A NEW CHANNEL ALONG THE SOUTH SIDE OF
822          KM   GUADALUPE ROAD TO SUBBASIN 67C. CHANNEL IS PART OF THE SANTA RITA RANCH
823          KM   DEVELOPMENT AND WAS DESIGNED BY DAVID EVANS. THIS PORTION OF THE CHANNEL IS
824          KM   PREDOMINATELY GRASS
825          RS       2    FLOW      -1
826          RC    .035    .030    .035    2640   .0048
827          RX       0       5      10      18      48      66      71      76
828          RY      50      48      47    42.5    42.5      47      48      50
             *
             *
             * DDM   ***** Preserved *****

829          KK  ADOT-E
830          KM   INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY ENTERING 67A
831          KM   FROM EAST ADOT DETENTION BASIN 4105.
832          BA    0.01
833          ZR  =QI A=ADOT EAST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE 21

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

834          KK  AET67A
835          KM    ROUTE SUPERSTITION FLOW THROUGH 67A TO BASELINE ROAD
836          IN      15
837          RS       3    FLOW      -1
838          RC    .045    .040    .045    5500    .010
839          RX       0     100     110     120     130     140     150     250
840          RY       5       4       3       1       1       3       4       5
             *
             * DDM   ***** Updated *****

841          KK     67A
842          KM   BASIN 67A
843          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
844          KM    L=      1.0  Lca=       .7   S=   42.9  Kn= .082  LAG=  50.1
845          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
846          BA     .30
847          LG     .32     .34    4.70     .28    9.00
848          UI     20.     20.     52.     82.    101.    116.    135.    158.    208.    253.
849          UI    211.    177.    154.    130.    111.     95.     69.     44.     35.     33.
850          UI     21.     20.     12.      6.      6.      6.      6.      6.      6.      0.
851          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
852          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
             *  KK  C67A

853          KK   CP67A
854          KM    COMBINE FLOWS FROM SUP3 AND SUBBASIN 67A
855          HC       2
             *
             * DDM   ***** Preserved *****

856          KK   67ATC
857          KM   ROUTE 67A TO 67C VIA WASH CROSSING BASELINE
858          RS       5    FLOW      -1
859          RC    .055    .045    .055    6300   .0071
860          RX       0     500     980    1003    1007    1031    1511    2011
861          RY       4     3.5       3       0       0       3     3.5       4
             *
             * DDM   ***** Preserved *****

862          KK    SUP2
863          KM   INFLOW FROM NORTH OF SUPERSTITION FREEWAY, DISCHARGING INTO 67B
864          BA    0.01
865          ZR  =QI A=ADOT WEST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****

866          KK   RSUP2
867          KM   ROUTE SUP2 THROUGH SUBBASIN 67B
868          IN      15
869          RS      11    FLOW      -1
870          RC    .045    .045    .045    4500   .0056
871          RX       0     500    1000    1003    1007    1011    1511    2011
1                                        HEC-1 INPUT                                          PAGE 22

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

872          RY       4     3.5       3       0       0       2     2.5       3
             *
```

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                * DDM   ***** Updated *****

 873            KK     67BBASIN
 874            KM   BASIN 67B
 875            KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
 876            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 877            KM    L=       1.2  Lca=        .9   S=   28.0  Kn= .083  LAG=  64.5
 878            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 879            BA   0.532
 880            LG    0.30    0.32    4.90    0.26      16
 881            UI      31      31      54     110     141     162     182     209     237     287
 882            UI     383     373     306     271     236     204     181     155     129      96
 883            UI      59      54      51      36      30      30       9      10       9      10
 884            UI       9      10       9      10       0       0       0       0       0       0
 885            UI       0       0       0       0       0       0       0       0       0       0
                *

 886            KK    D67B
 887            KM   DIVERSION FOR RETENTION VOLUME
 888            DT  DIV67B      16
 889            D1       0   10000
 890            DQ       0   10000
                *
                * DDM   ***** Preserved *****
                *  KK  C67B

 891            KK   CP67B
 892            KM   COMBINE FLOWS FROM SUP2 AND SUBBASIN 67B
 893            HC       2
                * DDM   ***** Preserved *****

 894            KK   67BTC
 895            KM   ROUTE SUBBASIN 67B TO 67C ALONG CRISMON ROAD
 896            KM   DIRT CHANNEL WITH MUCH VEGETATION, LEFT BANK DESERT, RIGHT BANK IS AG FIELD
 897            RS      11    FLOW      -1
 898            RC    .045    .055    .065    5280   .0046
 899            RX       0     500    1000    1003    1018    1021    1556    2056
 900            RY       8       7       6       1       1       6       7       8
                *
                * DDM   ***** Updated *****

 901            KK     67CBASIN
 902            KM   BASIN 67C
 903            KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
 904            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 905            KM    L=       1.2  Lca=        .7   S=   40.2  Kn= .090  LAG=  59.3
 906            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 907            BA   0.925
 908            LG    0.34    0.35    5.10    0.22       4
 909            UI      54      55     102     196     254     291     325     378     428     536
 910            UI     693     631     527     462     405     350     306     262     211     145
 911            UI      95      92      86      55      54      36      16      17      17      16
 912            UI      17      17      17      16       0       0       0       0       0       0
```



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

 913            UI       0       0       0       0       0       0       0       0       0       0
                *

 914            KK    D67C
 915            KM   DIVERSION FOR RETENTION
 916            DT  DIV67C       8
 917            D1       0   10000
 918            DQ       0   10000
                *
                * DDM   ***** Preserved *****

 919            KK    C67C
 920            KM   COMBINE SUBBASINS 67C AND 67A AND 67B
 921            HC       3
                *

 922            KK   CP67C
 923            KM   ADDED A CONCENTRATION POINT TO ACCOUNT FOR FLOWS COMING FROM THE NEW CHANNEL
 924            KM   ALONG GUADALUPE ROAD
 925            HC       2
                *
                *

 926            KK   67CTD
 927            KM   ROUTE FLOW IN THE GUNITE CHANNEL FROM UNDER THE BOX CULVERT AT THE
 928            KM   INTERSECTION OF GUADALUPE AND CRISMON TO APPROX 1/2 MILE SOUTH WERE IT WILL
 929            KM   BE COMBINDED WITH SUBBASIN 67D
 930            RS       1    FLOW      -1
 931            RC    .025    .018    .025    2640    .004
 932            RX       0       5      10      22      38      50      55      60
 933            RY      50      48      47      41      41      47      48      50
                *
                * DDM   ***** Updated *****

 934            KK     67DBASIN
 935            KM   BASIN 67D
 936            KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN PROJECT
 937            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
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938          KM    L=        .6  Lca=        .4   S=   34.7  Kn= .090  LAG=  36.9
939          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
940          BA   0.125
941          LG    0.33    0.31    5.20    0.21       8
942          UI      14      39      71      92     124     177     134     105      79      53
943          UI      26      20      15       5       4       4       5       0       0       0
944          UI       0       0       0       0       0       0       0       0       0       0
945          UI       0       0       0       0       0       0       0       0       0       0
             *

946          KK    D67D
947          KM   DIVERSION FOR RETENTION
948          DT  DIV67D      5
949          DI       0   10000
950          DQ       0   10000
             *
```



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

951          KK   CP67D
952          KM   COMBINE FLOWS IN THE GUNITE LINED CHANNEL WITH FLOW FROM SUBBASIN 67D.
953          KM   FLOWS WILL BE CARRIED FOR A SHORT DISTANCE IN THE SAME PORTION OF GUNITE
954          KM   CHANNEL ALONG THE SOUTH SIDE OF THE MESQUITE CANYON DEVELOPMENT AND THEN
955          KM   VIA A NATURAL WASH WHERE FLOW WILL BE COMBINDED WITH SUBBASIN 67E
956          HC       2
             *
             *

957          KK   67T66
958          KM   REACH CN-2 plus culvert CNC-2
959          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
             *  KM OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
960          KM   OF GUADALUPE ROAD TO THE NATURAL WASH IN SUBBASIN 66C.
             *       Sta. 20+00 to Sta. 39+00
961          RS       1    FLOW      -1
962          RC    .032    .032    .032    1000  0.0035
963          RX       0       6      12      24      64      76      82      88
964          RY       4       3       2       0       0       2       3       4
             *
             *

965          KK     66CBASIN
             * KO      1
966          KM   BASIN 66C
967          KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN CHANNEL PROJECT
968          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
969          KM    L=       1.1  Lca=       .7   S=   39.5  Kn= .090  LAG=  57.8
970          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
971          BA   0.499
972          LG    0.33    0.38    5.40    0.19       5
973          UI      34      34      95     142     179     202     235     285     371     432
974          UI     349     292     254     214     179     151     106      61      57      50
975          UI      34      32      10      11      10      11      10      11      10       0
976          UI       0       0       0       0       0       0       0       0       0       0
977          UI       0       0       0       0       0       0       0       0       0       0
             *

978          KK    D66C
979          KM   DIVERSION FOR RETENTION VOLUME
980          DT  DIV66C     14
981          DI       0   10000
982          DQ       0   10000
             *

983          KK   CP66C
984          KM   COMBINE 67D AND 66C
             * KO      2
985          HC       2
             *
```



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

986          KK  67T66C
987          KM   REACH CN-2 plus culvert CNC-2
988          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
             *  KM OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
989          KM   OF GUADALUPE ROAD TO THE ELLIOT BASIN SPLITTER.
             *       Sta. 20+00 to Sta. 39+00
990          RS       1    FLOW      -1
991          RC    .032    .032    .032    1600  0.0035
992          RX       0       6      12      24      64      76      82      88
993          RY       4       3       2       0       0       2       3       4
             *
             * ADD DIVERSION OF FLOW TO SUBBASIN 67E FOR 404 REQUIREMENT (CWR 04/16/03)

994          KK   DI67E
995          KM   DIVERT LOW FLOW FOR 404 PERMIT TO SUBBASIN 67E
996          DT    404A
997          DI       0      24      76   10000
998          DQ       0      24      76      76
             *
```

```
                 * BEGIN REVISIONS FOR ADDITION OF BASINS WA AND WB (CWR 12/04/02)

 999             KK    D166
                 * KM  DIVERT FLOW TO DETENTION BASIN WA
1000             KM    DIVERT FLOW TO ELLIOT DRAIN
1001             KM    By-pass Flow Reduced to 410 cfs from 458, SZ, 5-17-99
1002             KM   LAST DI/DQ VALUE INCREASED TO 2000/1590 FROM 1000/590 TO ADDRESS INCREASE EX
1003             KM   CONDITIONS Q (CWR 12/04/02)
                 * KO     1       2
1004             DT    DSWA
1005             DI       0     150     363   411.0   456.0     513     577     643     712    2000
1006             DQ       0     150     363     410     410     410     410     410     410     410
                 * DQ     0       0       0    32.0     71.     122     179     239     302      15
                 *

1007             KK  RS66D1
                 * KO     1
1008             KM   ELLIOT BASIN, WEST A
1009             KM   TWO PONDS OPERATING IN SERIES.
                 * KM BASIN PICKS UP FLOWS FROM SUBBASIN 66C (CWR 11/25/02)
1010             KM        Bottom Elevation Lowered to 1415.0 ft from 1420, and 18" Bleed-off
1011             KM        Pipe Added from WA to Elliot Channel
                 *       Since the bleed-off pipe length is short, no routing is provided.
                 *       Existing SS = 1423   20   2.5   1.5, SZ, 5-18-99
1012             RS       1    STOR       0
1013             SV       0    1.60   10.00   25.50   34.70   44.20   54.10   64.40   75.10   86.00
1014             SE  1415.0    1417    1419    1421    1422    1423    1424    1425    1426    1427
1015             SL  1416.0  1.7672     .62      .5
1016             SS  1423.5      20     3.0     1.5
                 *
1                                          HEC-1 INPUT                                          PAGE 26

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

1017             KK    B-WA
1018             KM        Bleed-off Flow from WA to Elliot Channel = 18" Pipe, SZ, 6-15-99
1019             KM   DIVERT FLOWS TO ELLIOT DRAIN.  BY-PASS FLOWS TO BASIN WB (CWR 11/25/02)
                 * KM      Divert Flow to WB by Weir Spillover (SS card on RS66D1)
                 *       RS66D1 is the total routed flow = SL + SS
                 *       This operation is designed to separate weir flow from pipe flow
1020             DT    D-WA
1021             DI       0       5      10      15   17.59   40.87   80.62  131.76  192.12  260.43
1022             DQ       0       5      10      15   17.59   19.67   20.62   21.56   22.42   23.23
                 * DQ     0       0       0       0       0    21.2    60.0   110.2   169.7     237
                 *

1023             KK  RS66D2
                 * KO     1
1024             KM   ELLIOT BASIN, WEST B
1025             KM   TWO PONDS OPERATING IN SERIES.
1026             KM        Bottom Elevation Lowered to 1413.5 ft from 1414, and 36" Bleed-off
1027             KM        Pipe Reduced to 18" from WB to Elliot Channel
                 * *       Since the bleed-off pipe length is short, no routing is provided.
                 * *       Existing SS = 1420.5   80   2.5   1.5, SZ, 5-18-99
1028             RS       1    STOR       0
1029             SV       0    4.40    8.80   14.50   21.00   28.00   35.30   42.90   50.90   59.20
1030             SE  1412.0    1415    1416    1417    1418    1419    1420    1421    1422    1423
1031             SL  1413.0  1.7672     .62      .5
1032             SS  1422.5      50     2.5     1.5
                 *

1033             KK    B-WB
1034             KM   DIVERT FLOWS TO ELLIOT DRAIN.  BY-PASS FLOWS TO ELLIOT ROAD (CWR 12/03/02)
1035             DI    D-WB
1036             DI       0       5      10      15      28      30     100     200     400     800
1037             DQ       0       5      10      15      28      28      28      28      28      28
                 *
                 *
                 * DDM   ***** Preserved *****

1038             KK   66CTD
1039             KM   ROUTE OVERFLOW FROM BASIN WB IN SHALLOW DITCH ALONG ELLIOT ROAD
1040             RS       1    FLOW      -1
1041             RC     .03     .03    .035    1320    .004
1042             RX       0       5      10      25      30      38      45      80
1043             RY     1.6     1.6     1.5       0       0     1.6     1.6     1.7
                 *
                 * DDM   ***** Updated *****

1044             KK     66D
1045             KM   BASIN 66D
1046             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1047             KM    L=      1.0  Lca=       .7   S=   28.6  Kn= .090  LAG=  59.4
1048             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1049             BA     .31
1050             LG     .35     .36    6.80     .11     .00
1051             UI     18.     18.     28.     62.     78.     91.    102.    115.    132.    155.
1052             UI    200.    224.    184.    158.    141.    123.    107.     93.     82.     62.
1                                          HEC-1 INPUT                                          PAGE 27

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

1053             UI     43.     31.     29.     27.     18.     18.     12.      5.      5.      5.
1054             UI      5.      5.      5.      5.      5.      0.      0.      0.      0.      0.
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1055        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            * DDM   ***** Preserved *****
            *

1056        KK    C66D
1057        KM   COMBINE 66D AND OVERFLOW FROM BASIN WB
1058        HC       2
            *
            * DDM   ***** Preserved *****
            *

1059        KK  4THDIV
1060        KM   DIVERT OCCURS NEAR STATION 11+00 OF WOOD PATEL PLANS. THIS DIVERT REPRESENTS
1061        KM   THE FLOW GOING TO THE EXPANDED STUBOUT WHICH WAS 60IN. AND IS NOW 82IN.
1062        KM   CAPACITY IS 300 CFS BUT THE DIVERT WILL BE MODELED AS 100 CFS SINCE THE
1063        KM   ELLIOT PIPE SYSTEMS CAPACITY IS AROUND 1100 CFS
1064        DT  STUBD1
1065        DI       0     180     200     300     500    1000    1200    1400    1600    1800
1066        DQ       0     180     180     180     180     180     100     100     100     180
            * DI     0   10000
            * DQ     0   10000
            *

1067        KK    CP66
1068        KM   COMBINE FLOWS FROM C66D AND C65
1069        HC       2
            *

1070        KK  66DT70
            * KM ROUTE 66D TO 70A VIA GM CHANNEL. WASH N AND W OF GMPG INCLUDING CHANNEL
            * KM FLOWS CROSSING ELLSWORTH SOUTH OF ELLIOT
1071        KM   ROUTE NOT NECESSARILY VIA GM CHANNEL ANYMORE BUT ALONG SAME GENERAL
1072        KM   ALIGNMENT TO THE SOUTHWEST TOWARD SUBBASIN 70A
1073        RS       3    FLOW      -1
1074        RC    .055    .045    .055    3500   .0054
1075        RX       0     100     950    1050    1060    1163    1663    2000
1076        RY       5       4       3       0       0       3       4       5
            *

1077        KK  RECPIP
1078        KM   RECALL THE PIPE FLOW OF 500 CFS THAT WAS DIVERTED AT CP65B, APPROX .52 MILES
1079        KM   EAST OF CRISMON. FLOWS ARE ROUTED IN A PIPE OF FROM 78IN TO 114IN FOR A
1080        KM   DISTANCE OF APPOX. 9,425 FEET. OVERALL SLOPOE IS APPROX FROM WOOD-PATEL
1081        KM   DRAWINGS AND 9.5 FT DIAMTER IS THE LARGEST PIPE SIZE.
1082        DR    PIPE
            *

1083        KK  ROPIPE
1084        KM   ROUTE THE PIPE FLOW IN THE ELLIOT ROAD PIPE SYSTEM TO SUBBASIN 70A
1085        KM   THIS ROUTING WILL ROUTE THE 500 CFS FLOW IN A 90" PIPE TO THE FIRST LOW FLOW
1086        KM   CROSSING AT STA 69+80, FLOW STARTED AT 90+15
1087        RD    2035   .0064    .013            CIRC     7.5
            * RD  9425    .005    .013            CIRC     9.5
            *
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1088        KK  ROPIP2
1089        KM   ROUTE THE FLOW IN THE ELLIOT ROAD PIPE SYSTEM FROM STA 69+80 TO STA 65+05
1090        KM   FLOW WILL BE ROUTED IN A PIPE OF 114" DIAMETER. ROUTE DISTANCE IS 475 FT
1091        KM   HOWEVER TO AVOID AN ERROR THE ROUTE DISTANCE WAS EXTENDED TO 2000 FT
1092        RD    2000   .0048    .013            CIRC     9.5
            *
            * KKREELL2
            * KM RECALL THE 250 CFS DIVERT AT STA 65+05
            * DR ELLI2
            *

1093        KK  REWASP
1094        KM   RECALL THE 410 CFS DIVERT FROM THE CRISMON CHANNEL SPLITTER
1095        DR    DSWA
            *

1096        KK  CPIPE2
1097        KM   COMBINE PIPE FLOWS IN THE ELLIOT ROAD PIPE SYSTEM AT STA 65+05
1098        HC       2    4.34
            *

1099        KK  ROPIP3
1100        KM   ROUTE THE FLOW IN THE ELLIOT ROAD PIPE SYSTEM FROM STA 65+05 TO 11+00,
1101        KM   A DISTANCE OF 5405 FT AT THAT POINT IT WILL PICK UP THE DIVERT FROM 82IN.
1102        KM   ELLIOT/ELLSWORTH PIPE STUBOUT
1103        KM   OVERALL SLOPE OF .0025 FROM EXAMINATION OF DRAWINGS. PIPE SIZE IS 114"
1104        RD    5405   .0025    .013            CIRC     9.5
            *

1105        KK  RED-WA
1106        KM   RECALL THE OUTFLOW FROM BASIN WA
1107        DR    D-WA
            *

1108        KK  RED-WB
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1109          KM   RECALL THE OUTFLOW FROM BASIN WB
1110          DR    D-WB
              *

1111          KK  CPIPWA
1112          KM   COMBINE PIPE FLOWS IN THE ELLIOT ROAD PIPE SYSTEM AT STA 65+00 + OUTFLOW
1113          KM   FROM BASIN WA (OUTFLOW FROM BASIN WA NOT ROUTED SINCE SUCH A SHORT DISTANCE
1114          KM   AND NO ATTENUATION IS ANTICIPATED)
1115          HC       3    4.34
              *

1116          KK  RESTUB
1117          KM   RECALL THE 100 CFS DIVERSION FOR THE ELLIOT STUBOUT AT THE NORTHWEST CORNER
1118          KM   ELLIOT AND ELLSWORTH ROADS.
1119          DR  STUBDI
              *
1                                        HEC-1 INPUT                                          PAGE 29

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

1120          KK  CPIPE3
1121          KM   COMBINE THE FLOW COMING FROM THE EAST IN THE ELLIOT PIPE WITH THE RECALLED
1122          KM   FLOW OF 100 CFS FROM THE 82IN. PIPE STUBOUT. COMBINE OCCURS AT STA 11+00
1123          HC       2    4.34
              *

1124          KK  ROPIP4
1125          KM   ROUTE THE FLOW IN THE ELLIOT PIPE SYSTEM FROM STA 11+00 TO ITS OUTLET AT
1126          KM   STA 99+05 OF THE ELLSWORTH ROAD SYSTEM. THE DISTANCE WILL BE APPROX. 105 FT
1127          KM   THE MODEL BOMBS AT A DISTANCE OF 105 FEET, INCREASED TO 1000 FEET
1128          KM   PIPE SIZE IS 102 INCHES
              * RD   105   .0015    .013            CIRC     8.5
1129          RD    1000   .0015    .013            CIRC     8.5
              *

1130          KK  C_FLOW
1131          KM   Combined Flow at the Culvert under Ellsworth Road
1132          HC       2
              *

1133          KK  66T70A
1134          KM   ROUTE THE FLOW FROM THE Culvert OUTLET TO Santan Channel in 70A
1135          RS       2    FLOW      -1
1136          RC    .055    .045    .055    1200   .0054
1137          RX       0     100     950    1050    1060    1163    1663    2000
1138          RY       5       4       3       0       0       3       4       5
              *
              * DDM   ***** Updated *****
              * RETURN DIVERT FROM CRISMON CHANNEL FOR 404 PERMIT (CWR 04/16/03)

1139          KK    RD66
1140          KM    RETURN DIVERT FROM CRISMON CHANNEL FOR 404 PERMIT REQUIREMENTS
1141          DR    404A
              *
              * ROUTE FLOW FROM DIVERSION IN NATURAL WASH (CWR 04/16/03)

1142          KK  RT404A
1143          KM   ROUTE FLOW FROM DIVERSION IN NATURAL WASH
1144          RS       8    FLOW      -1
1145          RC   0.045   0.040   0.045    5300   0.007
1146          RX       0     500    1000    1003    1053    1056    1511    2011
1147          RY       4     3.5       3       0       0       2     2.5       3
              *

1148          KK     67EBASIN
1149          KM   BASIN 67E
1150          KM   BASIN UPDATED FOR LANDUSE FOR THE ADOT SANTAN PROJECT
1151          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1152          KM    L=      1.2  Lca=       .7   S=   32.3  Kn= .090  LAG=  63.6
1153          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1154          BA   0.583
1155          LG    0.33    0.34    5.40    0.19       5
1156          UI      35      36      74     132     170     195     219     258     294     384
1157          UI     460     378     323     287     243     212     183     151     110      67
1                                        HEC-1 INPUT                                          PAGE 30

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

1158          UI      60      59      37      36      25      11      11      11      12      11
1159          UI      11      11       0       0       0       0       0       0       0       0
1160          UI       0       0       0       0       0       0       0       0       0       0
              *

1161          KK    D67E
1162          KM   DIVERSION FOR RETENTION
1163          DT  DIV67E      16
1164          DI       0   10000
1165          DQ       0   10000
              *
              * COMBINE FLOWS FROM 404 DIVERSION WITH FLOWS FROM SUBBASIN 67E

1166          KK   CP67E
1167          KM   COMBINE FLOWS FROM 404 DIVERSION WITH FLOWS FROM SUBBASIN 67E
1168          HC       2
```

```
                 *
                 *
                 * DDM   ***** Preserved *****

1169             KK   67T68
1170             KM    ROUTE S67 TO S68 VIA WASH
1171             RS       5    FLOW      -1
1172             RC    .045     .04    .045    2500   .0068
1173             RX       0     500     950    1003    1007    1057    1511    2011
1174             RY       4     3.5       3       0       0       2     2.5       3
                 *
                 *  DDM   ***** Updated *****

1175             KK     62A
1176             KM   BASIN 62A
1177             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1178             KM    L=        .8  Lca=        .5   S=   30.0  Km= .092  LAG=  46.9
1179             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1180             BA     .38
1181             LG     .46     .25    4.50     .55    8.00
1182             UI     27.     27.     82.    117.    143.    165.    195.    239.    329.    310.
1183             UI    250.    215.    180.    152.    128.     91.     56.     46.     41.     27.
1184             UI     26.      8.      8.      8.      8.      8.      8.      8.      0.      0.
1185             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****
                 *

1186             KK   62ATC
1187             KM   ROUTE 62A TO 62C BY A CHANNEL ALONG SANTAN FWY
1188             RS       1    FLOW      -1
1189             RC    .040    .016    .040    5280   .0033
1190             RX      69      74      86     100     112     126     138     143
1191             RY       9     7.2       7       0      .5       7     7.2       9
                 *
1                                          HEC-1 INPUT                                                    PAGE 31

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


1192             KK     62CBASIN
1193             KM   BASIN 62C
1194             KM   BASIN UPDATED FOR LANDUSE FOR ADOT SANTAN FWY CHANNEL PROJECT
1195             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1196             KM    L=        .6  Lca=        .3   S=   24.2  Km= .080  LAG=  32.3
1197             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1198             BA   0.546
1199             LG    0.30    0.30    4.65    0.31      13
1200             UI      64     169     310     398     547     770     587     458     344     230
1201             UI     117      88      62      20      19      19      20       0       0       0
1202             UI       0       0       0       0       0       0       0       0       0       0
1203             UI       0       0       0       0       0       0       0       0       0       0
                 *

1204             KK    D62C
1205             KM    DIVERT FOR RETENTION VOLUME
1206             DT  DIV62C      17
1207             DI       0   10000
1208             DQ       0   10000
                 *
                 * DDM   ***** Preserved *****
                 *  KK  C62C

1209             KK   CP62C
1210             KM   COMBINE FLOW FROM BASIN 62A AND 62C
1211             HC       2
                 *

1212             KK   62CTE
1213             KM   ROUTE BASIN 62C TO BASIN 62E BY CHANNEL ON EAST SIDE OF PROPOSED SANTAN FRWY
1214             RS       1    FLOW      -1
1215             RC    .040    .016    .040    2000   .0040
1216             RX      67      72      84     100     112     128     140     145
1217             RY      10     8.2       8       0      .5       8     8.2      10
                 *
                 * DDM   ***** Updated *****

1218             KK     62E
1219             KM   BASIN 62E
1220             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1221             KM    L=        .6  Lca=        .3   S=   31.9  Km= .088  LAG=  35.9
1222             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1223             BA     .15
1224             LG     .34     .35    4.65     .28    2.00
1225             UI     14.     26.     59.     77.     94.    119.    173.    154.    121.     98.
1226             UI     78.     59.     33.     24.     18.     14.      5.      4.      4.      4.
1227             UI      4.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1228             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****
                 *  KK  CP62
1                                          HEC-1 INPUT                                                    PAGE 32

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

```
1229        KK   C62CE
1230        KM   COMBINE FLOWS FROM SUBBASIN 62C AND 62E
1231        HC       2
            *
            * DDM   ***** Updated *****

1232        KK     61ABASIN
1233        KM   BASIN 61A
1234        KM   SUBBASIN UPDATED FOR LANDUSE FOR ADOT SANTAN CHANNEL PROJECT
1235        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1236        KM    L=      .9  Lca=        .4   S=   36.8  Kn= .078  LAG=  40.3
1237        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1238        BA   0.519
1239        LG    0.35    0.28    4.20    0.51      12
1240        UI      45      74     178     235     287     349     484     564     427     350
1241        UI     287     229     163      92      76      53      46      14      14      14
1242        UI      14      14       0       0       0       0       0       0       0       0
1243        UI       0       0       0       0       0       0       0       0       0       0
            *

1244        KK    D61A
1245        KM   DIVERT FOR DEVELOPED LAND WITHIN SUBBASIN BOUNDARIES
1246        KM   DIVERT BASED UPON VOLUME EQUATION OF FCD HYDROLOGY MANUAL PAGE 3-7
1247        KM   IN CASES WHERE MORE THAN ONE TYPE OF DEVELOPED LANDUSE EXISTS, THE C COEFF
1248        KM   WAS AREA AVERAGED FOR USE IN THE FORMULA. RETENTION VOLUME IS BASED UPON
1249        KM   80% EFFECTIVENESS OF THE PURE CALCULATED VOLUME
1250        DT  DIV61A    14.5
1251        DI       0   10000
1252        DQ       0   10000
            *
            * DDM   ***** Preserved *****

1253        KK   61AIB
1254        KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
1255        RS       8    FLOW      -1
1256        RC    .035    .024    .035    5280    .008
1257        RX       0     500     750     752     802     852    1102    1602
1258        RY       3       2     1.5     1.2     1.2     1.5       2       3
            *
            * DDM   ***** Updated *****

1259        KK     61BBASIN
1260        KM   BASIN 61B
1261        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1262        KM    L=      1.4  Lca=       .7   S=   39.7  Kn= .099  LAG=  70.8
1263        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1264        BA   1.092
1265        LG    0.39    0.26    4.80    0.43       7
1266        UI      68      68     148     257     331     375     423     504     580     766
1267        UI     868     693     595     528     445     385     337     263     176     122
1268        UI     112      97      68      68      28      21      21      20      21      21
1269        UI      21      21       0       0       0       0       0       0       0       0
1270        UI       0       0       0       0       0       0       0       0       0       0
1271        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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

1272        KK    D61B
1273        KM   DIVERSION TO ACCOUNT FOR DEVELOPMENT
1274        DT  DIV61B       45
1275        DI       0   10000
1276        DQ       0   10000
            *
            * DDM   ***** Preserved *****

1277        KK   CP61B
1278        KM   COMBINE FLOWS FROM S61A AND S61B
1279        HC       2
            *

1280        KK  61T62E
1281        KM    ROUTE S61B TO S62E. WASH CROSSING ELLSWORTH AT STAFF GAUGE
1282        RS       2    FLOW      -1
1283        RC    0.45    0.04    0.45    3500  0.0057
1284        RX       0     500     980    1006    1012    1035    1515    2015
1285        RY       5     4.5       4       0       0       4     4.5       5
            *
            * DDM   ***** Preserved *****

1286        KK   CF62E
1287        KM   COMBINE FLOWS FROM SUBBASIN 62C, 61B AND SUBBASIN 62E
            * KO     1
1288        HC       2
            *

1289        KK  62T68A
1290        KM   ROUTE FLOW FROM CP62E TO SUBBASIN 68A BY CHANNEL ALONG PROPOSED ALIGNMENT
1291        KM   OF SANTAN FREEWAY
1292        RS       2    FLOW      -1
1293        RC    .040    .016    .040    3280   .0035
1294        RX      67      72      84     100     112     128     140     145
```

```
1295        RY      10     8.2       8       0      .5       8     8.2      10
            *
            *

1296        KK    68A1   BASIN
1297        KM   BASIN 68A1
1298        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1299        KM    L=0.92  Lca=0.46  S=37.7  Kn=0.087  LAG=45.3
1300        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1301        BA   0.297
1302        LG    0.34    0.38    5.70    0.18       3
1303        UI      22      22      72      98     122     139     165     218     276     233
1304        UI     195     164     136     116      92      56      39      36      25      22
1305        UI      11       7       7       6       7       7       7       0       0       0
1306        UI       0       0       0       0       0       0       0       0       0       0
1307        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
```



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

1308        KK  CP68A1 COMBINE
1309        KM    COMBINE FLOWS FROM 67T68,62T68A, 68A1
1310        HC       3
            *
            *

1311        KK    68A2   BASIN
1312        KM   BASIN 68A2
1313        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1314        KM    L=0.50  Lca=0.25  S=37.8  Kn=0.087  LAG=28.5
1315        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1316        BA   0.048
1317        LG    0.35    0.38    5.70    0.18       3
1318        UI       5      16      28      37      50      69      51      39      30      18
1319        UI      10       7       4       2       2       2       2       0       0       0
1320        UI       0       0       0       0       0       0       0       0       0       0
1321        UI       0       0       0       0       0       0       0       0       0       0
1322        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1323        KK  CP68A2 COMBINE
1324        KM    COMBINE FLOWS FROM CP68A1 AND 68A2
1325        HC       2
            *
            *

1326        KK  68T70A
1327        KM   ROUTE FLOW FROM CP68A AT ELLIOT AND ANTAN FREEWAY ALIGNMENT TO SUBBASIN 70A,
1328        KM   AT THE POINT WHERE SIPHON DRAW INTERSECT THE FREEWAY ALIGNMENT. CHANNEL IS
1329        KM   NATURAL AND ONLY APPROXIMATE IN ROUTING PARAMETERS
1330        RS       3    FLOW      -1
1331        RC    .030    .030    .030    3960   .0006
1332        RX       0       5      20      20      30      40      45      50
1333        RY      15       5       4       0       0       4       5      15
            *
            *

1334        KK    70A1   BASIN
1335        KM   BASIN 70A1
1336        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1337        KM    L=0.52  Lca=0.26  S=3.8  Kn=0.030  LAG=15.7
1338        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1339        BA   0.053
1340        LG    0.10    0.25    5.70    0.29      80
1341        UI      18      61     106     110      65      29      13       3       4       0
1342        UI       0       0       0       0       0       0       0       0       0       0
1343        UI       0       0       0       0       0       0       0       0       0       0
1344        UI       0       0       0       0       0       0       0       0       0       0
1345        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
```



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

1346        KK      23   BASIN
1347        KM   BASIN 23
1348        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1349        KM    L=0.78  Lca=0.36  S=17.9  Kn=0.089  LAG=45.7
1350        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1351        BA   0.218
1352        LG    0.35    0.36    6.80    0.11       0
1353        UI      16      16      51      72      87     100     120     153     202     173
1354        UI     143     123     101      85      69      46      29      26      19      16
1355        UI      10       5       5       5       5       5       5       0       0       0
1356        UI       0       0       0       0       0       0       0       0       0       0
1357        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
```

```
1358        KK  CP70A1 COMBINE
1359        KM    COMBINE FLOWS FROM 66T70A, 68T70A, 70A1, AND 23
1360        HC       4
            *
            *

1361        KK  70A1T2
1362        KM   ROUTE FLOW ALONG LOOP 202 WITHIN THE EAST CHANNEL FROM MESQUITE ROAD TO
1363        KM   WARNER ROAD.
1364        RS       2    FLOW      -1
1365        RC    .025    .025    .025    2675  0.0005
1366        RX       0       8      16      59      91     134     142     150
1367        RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
            *
            *

1368        KK    70A2   BASIN
1369        KM   BASIN 70A2
1370        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1371        KM    L=0.51  Lca=0.26  S=19.6  Kn=0.030  LAG=11.4
1372        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1373        BA   0.036
1374        LG    0.10    0.15    8.40    0.10      80
1375        UI      25      77     106      49      15       4       0       0       0       0
1376        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1377        KK      24   BASIN
1378        KM   BASIN 24
1379        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1380        KM    L=0.83  Lca=0.38  S=24.1  Kn=0.089  LAG=45.2
1381        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1382        BA   0.252
1383        LG    0.35    0.36    6.80    0.11       0
1384        UI      19      19      61      84     102     119     140     189     235     197
1385        UI     164     138     116      97      77      48      33      31      20      19
1386        UI       9       5       6       6       6       5       0       0       0       0
1387        UI       0       0       0       0       0       0       0       0       0       0
```



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

1388        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1389        KK  CP70A2
1390        KM   COMBINE FLOWS FROM 70A1T2 AND BASINS 24 AND 70A2
1391        KM
1392        HC       3
            *
            *

1393        KK  70T76A
1394        KM   DIBBLE DRAINAGE FACILITY
1395        KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT
1396        KM   REACH ET-3A, ET-3B
1397        RS       3    FLOW      -1
1398        RC    .025    .025    .025    4500  0.0005
1399        RX       0       8      16      59      91     134     142     150
1400        RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
            *
            *
            * DDM   ***** Updated *****

1401        KK      76A
1402        KM   BASIN 76A
1403        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1404        KM    L=      3.0  Lca=      1.8   S=   23.0  Kn= .090  LAG= 135.0
1405        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
            *  KO                                    21
1406        BA    1.91
1407        LG     .35     .27    8.80     .05     .00
1408        UI     48.     48.     48.     48.     48.     48.    134.    157.    180.    193.
1409        UI    219.    232.    248.    261.    273.    287.    302.    321.    343.    362.
1410        UI    379.    418.    466.    549.    560.    643.    593.    537.    495.    463.
1411        UI    433.    412.    391.    374.    353.    329.    309.    292.    277.    257.
1412        UI    241.    230.    219.    186.    170.    137.    130.     84.     84.     84.
1413        UI     81.     78.     78.     78.     53.     48.     48.     48.     48.     48.
1414        UI     27.     15.     15.     15.     15.     15.     15.     15.     15.     15.
1415        UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
1416        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1417        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1418        KK    C76A
1419        KM   COMBINE SANTAN FREEWAY CHANNEL FLOWS WITH SUBBASIN 76A
1420        HC       2
            *

1421        KK  76ATPR
1422        KM   DIBBLE DRAINAGE FACILITY
1423        KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT TO NEW POWERLINE FLOODWAY ALGN.
```

```
1424          KM   REACH ET-2A, ET-2B
1425          KM   THE ROUTING IS TAKING FLOW VIA THE SANTAN FWY CHANNEL, NOT VIA THE NEW
1426          KM   POWERLINE FLOODWAY ALIGNMENT
1                                        HEC-1 INPUT                                                    PAGE 37

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

1427          KO                                   21
1428          RS       3    FLOW      -1
1429          RC    .025    .025    .025    5750   .0005
1430          RX       0       8      16      61      93     138     146     154
1431          RY    10.7     7.6     7.5       0       0     7.5     7.4    10.7
              *

1432          KK  EMFSTN
1433          KM   COMBINE FLOWS IN EMF AT Santan Road
1434          HC       2
              *

1435          KK  KNXTRY
1436          KM   ROUTE EMF KNOX ROAD FLOW TO RAY ROAD
1437          RS       1    FLOW      -1
1438          RC     .03    .022     .03    3000   .0003
1439          RX       0     500     520     553     693     726     740     742
1440          RY      14      12      11       0       0      11      11      12
              *
              *
              *
              *
              *  THE PARAMETERS FOR MANY OF THE SUB-BASINS FROM THIS POINT ON IN THE MODEL
              *  WERE REVISED BY DIBBLE UNDER THE ELLSWORTH ROAD CHANNEL DESIGN PROJECT (2002)
              * ****************SUB-BASIN 73A - NO CHANGE DM*********************************

1441          KK     73A   BASIN
1442          KM   BASIN 73A
1443          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1444          KM    L=      2.3  Lca=      1.0   S=   34.9  Kn= .093  LAG=  94.5
1445          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1446          BA   0.947
1447          LG    0.35    0.36    5.00    0.28       0
1448          UI      32      33      33      32      70     108     125     149     159     174
1449          UI     188     198     215     238     250     278     329     383     430     393
1450          UI     344     311     291     267     250     232     210     194     180     163
1451          UI     152     132     108      94      59      57      55      54      53      39
1452          UI      33      33      32      29      10      10      10      10      10      10
1453          UI      10       0       0       0       0       0       0       0       0       0
1454          UI       0       0       0       0       0       0       0       0       0       0
              *
              * ****************UPDATED SECTION 11-29-07 DM*********************************
              *

1455          KK   73ATB   ROUTE
1456          KM   ROUTE 73A TO 73B
1457          RS       2    FLOW      -1
1458          RC   0.045   0.040   0.045    2830  0.0050    0.00
1459          RX    0.00    5.00   10.00   20.00  120.00  130.00  135.00  140.00
1460          RY    2.50    2.50    2.50    0.00    0.00    2.50    2.50    2.50
              *
1                                        HEC-1 INPUT                                                    PAGE 38

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

1461          KK     73B   BASIN
1462          KM   BASIN 73B
1463          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1464          KM    L=0.56  Lca=0.28   S=30.4  Kn=0.040  LAG=14.9
1465          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1466          LG    0.25    0.25    5.40    0.27      30
1467          UI     169     530     973     829     481     180      73      30       0       0
1468          UI       0       0       0       0       0       0       0       0       0       0
              *

1469          KK  RET73B  DIVERT
1470          KM   80% OF THE COMBINED RETENTION VOLUMES FROM MOUNTAIN RANCH, MOUNTAIN HEIGHTS,
1471          KM   AND STRATSFORD ESTATES PER APPROVED DRAINAGE REPORTS.
1472          DT  73BRET    39.5     0.0
1473          DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1474          DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

1475          KK   CP73B COMBINE
1476          KM   COMBINE BASIN 73B AND ROUTE 73ATB
1477          HC       2
              *

1478          KK   73BTC   ROUTE
1479          KM   ROUTE 73B TO 73C
1480          RS       4    FLOW      -1
1481          RC   0.045   0.040   0.045    4500  0.0050    0.00
1482          RX    0.00    5.00   10.00   22.00  122.00  134.00  139.00  144.00
1483          RY    3.00    3.00    3.00    0.00    0.00    3.00    3.00    3.00
              *

1484          KK     73C   BASIN
```

```
1485        KM   BASIN 73C
1486        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1487        KM    L=1.30  Lca=0.65   S=23.1  Kn=0.040  LAG=29.8
1488        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1489        BA   0.585
1490        LG    0.25    0.25    5.40    0.27      30
1491        UI      88     344     512     764    1019     695     488     287     149      88
1492        UI      31      27      26       0       0       0       0       0       0       0
1493        UI       0       0       0       0       0       0       0       0       0       0
            *

1494        KK  RET73C  DIVERT
1495        KM   80% OF THE COMBINED RETENTION VOLUMES FROM NOVA VISTA AND MOUNTAIN HORIZONS
1496        KM   (NORTH) PER APPROVED DRAINAGE REPORTS.
1497        DT  73CRET    37.2     0.0
1498        DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1499        DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1500        KK   CP73C COMBINE
1501        KM   COMBINE SUB-BASIN 73C AND ROUTE 73BTC
1502        HC       2
            *

1503        KK  73T74C   ROUTE
1504        KM   ROUTE 73C TO 74C
1505        RS      11    FLOW      -1
1506        RC   0.035   0.030   0.035    4880  0.0028    0.00
1507        RX    0.00   50.00  100.00  108.00  168.00  176.00  226.00  276.00
1508        RY    3.00    2.50    2.00    0.00    0.00    2.00    2.50    3.00
            *
            * ********************SUB-BASIN 74A - NO CHANGE 11-29-07 DM*****************

1509        KK     74A   BASIN
1510        KM   BASIN 74A
1511        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1512        KM    L=       2.4  Lca=       1.0   S=   42.2  Kn= .095  LAG=  92.9
1513        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1514        BA   0.754
1515        LG    0.35    0.36    5.00    0.28       0
1516        UI      26      27      26      27      62      90     102     124     132     143
1517        UI     154     165     178     196     210     238     291     320     342     303
1518        UI     268     243     228     212     196     178     163     152     138     125
1519        UI     114      98      75      57      47      46      43      44      35      26
1520        UI      27      26      25       9       8       8       8       8       8       8
1521        UI       9       0       0       0       0       0       0       0       0       0
1522        UI       0       0       0       0       0       0       0       0       0       0
            * ****************SECTION UPDATED 11-29-07 DM*****************************
            *

1523        KK   74ATB   ROUTE
1524        KM   ROUTE FLOW FROM BASIN 74A VIA THE POWERLINE FLOODWAY FROM MERIDIAN ROAD TO
1525        KM   MOUNTAIN ROAD. FLOW ENTERS THE POWERLINE FLOODWAY VIA A 75FT WEIR ON THE
1526        KM   NORTHWEST CORNER OF THE MERIDIAN ROAD AND POWERLINE FLOODWAY INTERSECTION.
1527        RS       1    FLOW      -1
1528        RC   0.013   0.013   0.013    3200  0.0060    0.00
1529        RX    0.00    7.00   21.50   30.00   36.00   44.50   59.00   66.00
1530        RY    6.00    5.50    5.50    0.00    0.00    5.50    5.50    6.00
            *

1531        KK     74B   BASIN
1532        KM   BASIN 74B
1533        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1534        KM    L=1.10  Lca=0.55   S=28.2  Kn=0.040  LAG=25.2
1535        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1536        BA   0.333
1537        LG    0.25    0.25    5.80    0.22      30
1538        UI      45     154     245     330     528     430     318     229     122      76
1539        UI      44      18      14      14       0       0       0       0       0       0
1540        UI       0       0       0       0       0       0       0       0       0       0
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1541        KK  RET74B  DIVERT
1542        KM   80% OF THE COMBINED RETENTION VOLUMES FROM GILA RIVER RANCHES AND STRATSFORD
1543        KM   ESTATES PER APPROVED DRAINAGE REPORTS.
1544        DT  74BRET    17.8     0.0
1545        DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1546        DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *

1547        KK   CP74B COMBINE
1548        KM   COMBINE BASIN 74B AND ROUTE 74ATB
1549        HC       2
            *

1550        KK   74BTC   ROUTE
1551        KM   ROUTE FLOW VIA THE POWERLINE FLOODWAY FROM MOUNTAIN ROAD TO SIGNAL BUTTE
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1552        KM   ROAD.
1553        RS       1    FLOW      -1
1554        RC   0.013   0.013   0.013    3100  0.0055    0.00
1555        RX    0.00    7.00   21.50   30.00   36.00   44.50   59.00   66.00
1556        RY    6.00    5.50    5.50    0.00    0.00    5.50    5.50    6.00
            *

1557        KK     74C   BASIN
1558        KM   BASIN 74C
1559        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1560        KM    L=1.22  Lca=0.40   S=25.4  Kn=0.040  LAG=23.7
1561        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1562        BA   0.345
1563        LG    0.25    0.17    6.80    0.15      30
1564        UI      48     180     276     386     598     428     310     211      97      65
1565        UI      35      15      15      16       0       0       0       0       0       0
1566        UI       0       0       0       0       0       0       0       0       0       0
            *

1567        KK  RET74C  DIVERT
1568        KM   80% OF THE COMBINED RETENTION VOLUMES FROM MOUNTAIN HORIZONS (NORTH)PER
1569        KM   APPROVED DRAINAGE REPORTS.
1570        DT  74CRET    22.6     0.0
1571        DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1572        DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *

1573        KK   CP74C COMBINE
            * KO      2
1574        KM   COMBINE BASIN 74C AND ROUTES 73CT74C AND 74BTC
1575        HC       3
            *

1576        KK  74CT75   ROUTE
1577        KM    ROUTE CP74C TO S75 VIA POWERLINE FLOODWAY. Vel of 10 ft/sec for NSTP calc.
1578        RS       3    FLOW      -1
1579        RC   0.030   0.013   0.030   10700  0.0047    0.00
1580        RX    0.00    5.60   20.10   30.00   39.00   49.90   69.40   75.00
1581        RY    6.25    7.25    7.25    0.00    0.00    7.25    7.25    6.25
            *
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1582        KK      75   BASIN
1583        KM   BASIN 75
1584        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1585        KM    L=      4.0  Lca=      3.0   S=   20.0  Kn= .087  LAG= 182.3
1586        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1587        BA   4.005             0.25
1588        LG    0.34    0.35    6.80    0.13       3
1589        UI      74      74      74      73      75      73      74      75     177     242
1590        UI     247     283     283     335     339     360     377     396     408     424
1591        UI     436     453     477     492     515     554     559     580     624     666
1592        UI     726     823     864     916    1012     934     871     820     760     724
1593        UI     699     661     637     620     592     573     554     521     496     473
            *

1594        KK    CP75 COMBINE
1595        KM   COMBINE BASIN 75 AND ROUTE 74CT75
            * KO      2
1596        HC       2
            *
            *

1597        KK   75TCP
1598        KM   ROUTE 75 THROUGH POWERLINE FLOODWAY TO AIR FORCE CHANNEL
1599        RS       1    FLOW      -1
1600        RC     .03    .013     .03    6000   .0041
1601        RX       0    1005    1023  1030.5  1036.5    1044    1062    2067
1602        RY       6       5       5       0       0       5       5       6
            * ****************SUB-BASIN 77A - NO CHANGE 11-29-07 DM**********************

1603        KK     77A   BASIN
1604        KM   BASIN 77A
1605        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1606        KM    L=      2.9  Lca=      1.5   S=   31.1  Kn= .092  LAG= 119.0
1607        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1608        BA   1.739
1609        LG    0.35    0.36    5.00    0.28       0
1610        UI      49      50      48      49      50     108     162     186     204     229
1611        UI     246     262     277     297     308     332     362     377     404     467
1612        UI     538     576     666     601     537     499     460     427     410     385
1613        UI     361     335     310     292     275     251     237     229     187     160
1614        UI     142     104      87      87      83      81      81      72      49      50
1615        UI      49       0       0       0       0       0       0       0       0       0
1616        UI       0       0       0       0       0       0       0       0       0       0
1617        UI       0       0       0       0       0       0       0       0       0       0
1618        UI       0       0       0       0       0       0       0       0       0       0
            * ****************SECTION UPDATED 11-29-07 DM*********************************
            *

1619        KK   77ATB   ROUTE
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1620          KM   ROUTE BASIN 77A THROUGH THE KEIGHLEY PLACE SUBDIVISION FROM MERIDIAN ROAD TO
1621          KM   TO MOUNTAIN ROAD.
1622          RS       1    FLOW      -1
1623          RC   0.045   0.040   0.045    3000  0.0050    0.00
1624          RX    0.00    5.00   10.00   37.00   47.00   74.00   79.00   84.00
1                                          HEC-1 INPUT                                                PAGE 42

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

1625          RY    5.50    5.00    4.50    0.00    0.00    4.50    5.00    5.50
              *

1626          KK     77B   BASIN
1627          KM   BASIN 77B
1628          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1629          KM    L=0.56  Lca=0.26   S=28.6  Kn=0.077  LAG=28.2
1630          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1631          BA   0.349
1632          LG    0.19    0.30    5.40    0.30      18
1633          UI     100     337     536     757     486     273     113      54      20      21
1634          UI       0       0       0       0       0       0       0       0       0       0
              *

1635          KK  RET77B  DIVERT
1636          KM   80% OF THE COMBINED RETENTION VOLUMES FROM GILA RIVER RANCHES AND KEIGHLEY
1637          KM   PLACE PER APPROVED DRAINAGE REPORTS.
1638          DT  77BRET     6.4     0.0
1639          DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1640          DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

1641          KK   CP77B COMBINE
1642          KM   COMBINE FLOW FROM BASIN 77B AND ROUTE 77ATB
1643          HC       2
              *

1644          KK   77BTC   ROUTE
1645          KM   ROUTE FLOW THROUGH THE MOUNTAIN HORIZONS (SOUTH) DEVELOPEMENT FROM MOUNTAIN
1646          KM   ROAD TO SIGNAL BUTTE ROAD.
1647          RS      11    FLOW      -1
1648          RC   0.045   0.040   0.045    4750  0.0042    0.00
1649          RX    0.00    5.00   10.00   20.00   85.00  105.00  110.00  115.00
1650          RY    5.00    4.00    3.00    0.00    0.00    3.00    4.00    5.00
              *

1651          KK     77C   BASIN
1652          KM   BASIN 77C
1653          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1654          KM    L=0.76  Lca=0.51   S=23.7  Kn=0.040  LAG=22.0
1655          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1656          BA   0.279
1657          LG    0.25    0.25    6.00    0.21      30
1658          UI      42     172     257     388     485     324     228     119      66      38
1659          UI      14      13      13       0       0       0       0       0       0       0
              *

1660          KK  RET77C  DIVERT
1661          KM   80% OF THE COMBINED RETENTION VOLUMES FROM MOUNTAIN HORIZONS (SOUTH) PER
1662          KM   APPROVED DRAINAGE REPORTS.
1663          DT  77CRET    16.8     0.0
1664          DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1665          DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
              *
1                                          HEC-1 INPUT                                                PAGE 43

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

1666          KK    C77C COMBINE
1667          KM   COMBINE FLOWS FROM BASIN 77C AND ROUTE 77BTC
1668          HC       2
              *

1669          KK  77CT78   ROUTE
1670          KM   ROUTE FLOW FROM 77C TO 78C
1671          RS       3    FLOW      -1
1672          RC   0.035   0.022   0.035    2400  0.0020    0.00
1673          RX    0.00  100.00  110.00  115.00  120.00  125.00  130.00  135.00
1674          RY    4.00    3.00    2.50    0.00    0.00    2.50    8.00    9.00
              * ******************SUB-BASIN 78A - NO CHANGE 11-29-07 DM**********************

1675          KK     78A   BASIN
1676          KM   BASIN 78A
1677          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1678          KM    L=       3.7  Lca=       2.1   S=   28.5  Kn= .090  LAG= 149.0
1679          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1680          BA   1.882
1681          LG    0.35    0.36    5.00    0.28       0
1682          UI      53      55      53      53      54     125     175     205     226     251
1683          UI     270     290     302     325     343     363     399     416     450     515
1684          UI     615     636     722     638     575     536     494     463     439     413
1685          UI     387     358     332     313     293     270     253     234     206     158
1686          UI     153      95      95      96      88      87      89      66      53      54
1687          UI      54       0       0       0       0       0       0       0       0       0
1688          UI       0       0       0       0       0       0       0       0       0       0
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1689        UI       0       0       0       0       0       0       0       0       0       0
1690        UI       0       0       0       0       0       0       0       0       0       0
1691        UI       0       0       0       0       0       0       0       0       0       0
            * ********************SECTION UPDATED 11-29-07 DM*****************************

1692        KK   78ATB   ROUTE
1693        KM   ROUTE FLOW FROM 78A TO 78B
1694        RS       9    FLOW      -1
1695        RC   0.045   0.040   0.045    3500  0.0042    0.00
1696        RX    0.00  500.00  980.00 1003.00 1007.00 1031.00 1511.00 2011.00
1697        RY    4.50    3.50    3.00    0.00    0.00    3.00    3.50    4.50
            *

1698        KK     78B   BASIN
1699        KM   BASIN 78B
1700        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1701        KM    L=0.60  Lca=0.40   S=31.7  Kn=0.050  LAG=21.7
1702        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1703        BA   0.396
1704        LG    0.30    0.36    6.80    0.15      15
1705        UI      61     254     371     576     682     457     315     156      90      48
1706        UI      20      19       0       0       0       0       0       0       0       0
            *
1                                          HEC-1 INPUT                                          PAGE 44

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

1707        KK   CP78B COMBINE
1708        KM   COMBINE FLOWS FROM BASIN 78B AND ROUTE 78ATB
1709        HC       2
            *

1710        KK   78BTC   ROUTE
1711        KM   ROUTE 78B TO 78C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1712        KM   WESTERN EDGE OF 78C.
1713        RS      11    FLOW      -1
1714        RC   0.035   0.022   0.035    4500  0.0033    0.00
1715        RX    0.00  100.00  110.00  115.00  120.00  125.00  130.00  135.00
1716        RY    5.00    4.00    3.50    0.00    0.00    3.50    8.00    9.00
            *

1717        KK     78C   BASIN
1718        KM   BASIN 78C
1719        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1720        KM    L=0.50  Lca=0.30   S=31.8  Kn=0.077  LAG=27.9
1721        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1722        BA   0.288
1723        LG    0.18    0.26    7.60    0.14       6
1724        UI      80     273     428     624     405     236      96      48      17      16
1725        UI       0       0       0       0       0       0       0       0       0       0
            *

1726        KK  RET78C  DIVERT
1727        KM   80% OF THE COMBINED RETENTION VOLUMES FROM MOUNTAIN HORIZONS (SOUTH) PER
1728        KM   APPROVED DRAINAGE REPORTS.
1729        DT  78CRET     2.2     0.0
1730        DI     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
1731        DQ     0.0   100.0  1000.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
            *

1732        KK    C78C COMBINE
1733        KM   COMBINE FLOWS FROM BASIN 78C AND ROUTE 78BTC
1734        HC       2
            *

1735        KK   C78C2 COMBINE
            * KO     2
1736        KM   COMBINE FLOWS FROM C78C AND ROUTE 77CT78
1737        HC       2
            *

1738        KK  78CT79   ROUTE
1739        KM   ROUTE FLOW FROM 78C TO 79A
1740        RS       3    FLOW      -1
1741        RC   0.035   0.022   0.035   10560  0.0044    0.00
1742        RX    0.00  500.00  800.00  805.00  820.00  825.00 1125.00 1625.00
1743        RY    7.00    6.00    5.00    0.00    0.00    5.00    6.00    7.00
            *
            *
1                                          HEC-1 INPUT                                          PAGE 45

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

1744        KK    79A4   BASIN
1745        KM   BASIN 79A4
1746        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1747        KM    L=1.53  Lca=0.56   S=16.3  Kn=0.090  LAG=71.9
1748        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1749        BA   0.376
1750        LG    0.10    0.33    7.30    0.15      35
1751        UI      17      18      18      44      66      79      89     100     108     121
1752        UI     135     156     193     230     205     174     157     141     128     113
1753        UI     103      89      81      66      49      31      31      28      28      17
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1754        UI      18      17       8       5       6       5       6       5       5       6
1755        UI       5       6       0       0       0       0       0       0       0       0
            *
            *

1756        KK   C79B1 COMBINE
1757        KM   COMBINE HYDROGRAPHS 78CT79 AND 79A4.
1758        HC       2
            *
            *

1759        KK    79A1   BASIN
1760        KM   BASIN 79A1
1761        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1762        KM    L=1.56  Lca=0.98   S=27.6  Kn=0.090  LAG=81.1
1763        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1764        BA   0.200
1765        LG    0.10    0.35    4.10    0.65      25
1766        UI       8       9       8      13      28      33      39      43      47      50
1767        UI      57      62      67      82      97     108      95      83      74      68
1768        UI      63      56      51      46      42      38      30      24      17      14
1769        UI      14      14      11       8       9       8       4       2       3       3
1770        UI       2       3       2       3       2       3       2       3       0       0
            *
            *

1771        KK    79A2   BASIN
1772        KM   BASIN 79A2
1773        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1774        KM    L=0.70  Lca=0.34   S=30.0  Kn=0.090  LAG=39.4
1775        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1776        BA   0.229
1777        LG    0.10    0.37    6.60    0.20      25
1778        UI      19      29      73      98     119     142     191     243     196     159
1779        UI     133     106      84      50      35      29      20      14       6       6
1780        UI       6       6       6       0       0       0       0       0       0       0
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1781        KK    79A3   BASIN
1782        KM   BASIN 79A3
1783        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1784        KM    L=0.59  Lca=0.30   S=25.4  Kn=0.090  LAG=45.7
1785        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1786        BA   0.155
1787        LG    0.10    0.27    8.80    0.09      25
1788        UI      11      12      36      51      62      71      85     109     144     123
1789        UI     102      87      71      61      49      33      20      19      14      11
1790        UI       7       3       4       3       4       4       3       0       0       0
            *
            *

1791        KK   C79B2 COMBINE
1792        KM   COMBINE HYDROGRAPHS 79A1, 79A2, AND 79A3.
1793        HC       3
            *
            *

1794        KK     79A   BASIN
1795        KM   BASIN 79A
1796        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1797        KM    L=1.43  Lca=0.82  S=14.7  Kn=0.090  LAG=82.6
1798        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1799        BA   1.067
1800        LG    0.10    0.15    7.60    0.14       0
1801        UI       0      43      44      43      63     146     167     203     224     240
1802        UI     262     288     316     346     408     489     565     524     446     400
1803        UI     372     340     305     278     255     223     209     178     140     110
1804        UI      76      76      72      71      47      44      44      42      13      13
1805        UI      14      13      13      14      13      13      14      13      13      14
            *
            *

1806        KK    C79A COMBINE
1807        KM   COMBINE HYDROGRAPHS C79B1, C79B2, AND 79A.
            * KO      2
1808        HC       3
            *

1809        KK     79B   BASIN
1810        KM   BASIN 79B
1811        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1812        KM    L=      1.4  Lca=      .6   S=     9.0  Kn= .090  LAG=  77.7
1813        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1814        BA   0.997
1815        LG    0.35    0.25    9.70    0.05       0
1816        UI      43      43      43      83     150     177     205     232     247     271
1817        UI     305     330     383     479     547     517     448     396     359     335
1818        UI     298     264     244     216     195     160     123      79      77      71
1819        UI      71      51      43      43      40      13      13      13      14      13
1820        UI      13      13      13      14      13      13       0       0       0       0
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1821        UI      0       0       0       0       0       0       0       0       0       0
            *
1                                          HEC-1 INPUT                                                    PAGE 47

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

1822        KK   C79A2
1823        KM   COMBINE SUBBASIN 79B WITH SUBBASIN 79A
1824        HC       2
            *
            *

1825        KK     78F   BASIN
1826        KM   BASIN 78F
1827        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1828        KM    L=       3.7  Lca=       2.1   S=   32.6  Kn= .090  LAG= 145.0
1829        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1830        BA   4.192
1831        LG    0.34    0.35    5.00    0.28       1
1832        UI     101     102     101     101     103     101     241     337     369     387
1833        UI     469     483     509     553     568     591     635     662     695     758
1834        UI     787     828     919    1032    1188    1258    1349    1230    1137    1038
1835        UI     971     928     873     826     800     746     699     666     623     590
1836        UI     558     518     494     474     416     388     297     290     209     181
1837        UI     179       0       0       0       0       0       0       0       0       0
1838        UI       0       0       0       0       0       0       0       0       0       0
1839        UI       0       0       0       0       0       0       0       0       0       0
1840        UI       0       0       0       0       0       0       0       0       0       0
1841        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1842        KK   78FTD
1843        KM   ROUTE FLOWS FROM 78F TO 78D VIA WASH
1844        RS       7    FLOW      -1
1845        RC    .045     .04    .045    6250   .0041
1846        RX       0     500     950    1003    1007    1061    1511    2011
1847        RY       5     4.5       4       0       0       4     4.5       5
            *
            *
            *

1848        KK     78D   BASIN
1849        KM   BASIN 78D
1850        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1851        KM    L=       1.2  Lca=       .5   S=   21.7  Kn= .090  LAG=  58.6
1852        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1853        BA   0.887
1854        LG    0.33    0.28    8.00    0.09       7
1855        UI      55      56     120     209     268     305     344     409     471     622
1856        UI     705     563     483     429     362     312     274     214     143      99
1857        UI      91      79      56      55      22      17      17      17      17      17
1858        UI      17      17       0       0       0       0       0       0       0       0
1859        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
            *
1                                          HEC-1 INPUT                                                    PAGE 48

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

1860        KK    C78D
1861        KM   COMBINE FLOWS FROM 82A WITH FLOWS FROM 78D
1862        HC       2
            *
            *

1863        KK     82B   BASIN
1864        KM   BASIN 82B
1865        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1866        KM    L=        .9  Lca=       .4   S=   21.2  Kn= .090  LAG=  17.2
1867        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1868        BA   0.920
1869        LG    0.26    0.25    5.00    0.40      48
1870        UI     102     263     490     628     836    1243    1020     799     604     445
1871        UI     232     171     105      63      31      31      32       0       0       0
1872        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1873        KK   DITRW
1874        KM    DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
1875        KM   VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
1876        DT     TRW   110.7
1877        DI       0   10000
1878        DQ       0   10000
            *

1879        KK   C78D2
1880        KM   COMBINE FLOWS FROM 78D AND 78F WITH FLOW FROM 82B
1881        HC       2
            *
            *
```

```
1882        KK    82A4   BASIN
1883        KM   BASIN 82A4
1884        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1885        KM    L=      3.5  Lca=      1.5   S=   29.1  Kn= .090  LAG= 128.0
1886        KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
1887        BA   2.133
1888        LG    0.34    0.36    5.10    0.27       2
1889        UI      57      58      57      57      58      91     188     206     219     263
1890        UI     280     294     314     334     347     368     395     421     445     479
1891        UI     541     617     688     764     718     646     586     547     521     485
1892        UI     459     444     402     377     359     336     311     291     274     260
1893        UI     222     186     164     128     101     102     100      94      94      95
1894        UI      63       0       0       0       0       0       0       0       0       0
1895        UI       0       0       0       0       0       0       0       0       0       0
1896        UI       0       0       0       0       0       0       0       0       0       0
1897        UI       0       0       0       0       0       0       0       0       0       0
1898        UI       0       0       0       0       0       0       0       0       0       0
1899        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1900        KK   R82A4
1901        KM   ROUTE FROM GERMANN RD NORTH FOR 1/2 MILE ALONG MERIDIAN RD TO 82A3.
1902        RS       2    FLOW      -1
1903        RC     .03     .03     .05    2640   .0015
1904        RX       0      50      75      83     113     121     146     196
1905        RY       4       4       4       0       0       1       2       3
            *
            *

1906        KK    82A3   BASIN
1907        KM   BASIN 82A3
1908        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1909        KM    L=      3.6  Lca=      2.0   S=   28.3  Kn= .090  LAG= 145.0
1910        KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
1911        BA   2.020
1912        LG    0.35    0.36    5.00    0.28       0
1913        UI      47      47      47      46      48      46      82     156     161     179
1914        UI     201     216     230     248     256     266     280     293     308     334
1915        UI     349     361     391     420     478     552     566     631     582     528
1916        UI     489     462     434     407     395     374     361     336     314     297
1917        UI     286     271     248     239     227     215     192     179     135     136
1918        UI     100       0       0       0       0       0       0       0       0       0
1919        UI       0       0       0       0       0       0       0       0       0       0
1920        UI       0       0       0       0       0       0       0       0       0       0
1921        UI       0       0       0       0       0       0       0       0       0       0
1922        UI       0       0       0       0       0       0       0       0       0       0
1923        UI       0       0       0       0       0       0       0       0       0       0
1924        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1925        KK   C82A3
1926        KM   COMBINE FLOWS FROM 82A4 AND 82A3
1927        HC       2
            *
            *

1928        KK  RC82A3
1929        KM   ROUTE FROM 1/2 MILE NORTH OF GERMANN RD NORTHWEST ALONG DIKE TO PECOS RD.
1930        RS       2    FLOW      -1
1931        RC     .03     .03     .05    2700   .0015
1932        RX       0      50      75      83     113     121     146     196
1933        RY       4       4       4       0       0       1       2       3
            *
            *

1934        KK    CAP2
1935        KM   INFLOW FROM EAST OF THE CAP THROUGH 1 - 36" PIPE OVERCHUTE
1936        KM   STATION #536+00 SALT-GILA AQUEDUCT REACH 2
1937        KM   QI CARDS BASED ON OVERCHUTE CAPACITY OF 64 CFS
1938        IN      60
1939        BA     .01
1940        QI       0      20      64      64      64      64      64      64      64      64
1941        QI      64      64      64      64      64      64      64      64      64      64
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1942        QI      64      64      64      64      64
            *
            *

1943        KK   RCAP2
1944        KM   ROUTE CAP2 THROUGH 82A VIA WASH
1945        IN      15
1946        RS      11    FLOW      -1
1947        RC    .045     .04    .045   24000    .005
1948        RX       0     500    1000    1010    1020    1030    1530    2030
1949        RY       8       5       3       0       0       3       5       8
```

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                 *
                 *
1950             KK    82A2   BASIN
1951             KM   BASIN 82A2
1952             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1953             KM    L=       4.6  Lca=       2.9   S=   27.2  Kn= .090  LAG= 185.0
1954             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
1955             BA   4.130
1956             LG    0.35    0.36    5.00    0.28       0
1957             UI      75      76      75      75      75      75      75      76     159     246
1958             UI     248     283     288     330     345     362     373     400     410     427
1959             UI     442     455     476     492     516     549     565     582     613     656
1960             UI     712     776     905     860    1000     994     925     857     799     759
1961             UI     732     691     663     646     617     590     585     543     517     501
1962             UI     477       0       0       0       0       0       0       0       0       0
1963             UI       0       0       0       0       0       0       0       0       0       0
1964             UI       0       0       0       0       0       0       0       0       0       0
1965             UI       0       0       0       0       0       0       0       0       0       0
1966             UI       0       0       0       0       0       0       0       0       0       0
1967             UI       0       0       0       0       0       0       0       0       0       0
1968             UI       0       0       0       0       0       0       0       0       0       0
1969             UI       0       0       0       0       0       0       0       0       0       0
1970             UI       0       0       0       0       0       0       0       0       0       0
1971             UI       0       0       0       0       0       0       0       0       0       0
                 *

1972             KK   C82A2
1973             KM   COMBINE FLOWS FROM CAP OVERCHUTE AND SUBBASIN 82A2
1974             HC       2
                 *
                 *

1975             KK    82A1   BASIN
1976             KM   BASIN 82A1
1977             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1978             KM    L=       3.6  Lca=       .9   S=   33.9  Kn= .090  LAG= 103.0
1979             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
1980             BA   3.120
1981             LG    0.35    0.36    5.00    0.28       0
1982             UI     100     102     101     200     152     331     373     430     477     514
1983             UI     560     590     630     686     737     785     884    1006    1168    1355
1984             UI    1235    1090    1010     918     849     814     750     684     635     592
1985             UI     542     502     470     401     335     289     190     180     176     165
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LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1986             UI     167     148     100     102     100     101      67      31      31      31
1987             UI      31       0       0       0       0       0       0       0       0       0
1988             UI       0       0       0       0       0       0       0       0       0       0
1989             UI       0       0       0       0       0       0       0       0       0       0
1990             UI       0       0       0       0       0       0       0       0       0       0
                 *
                 *

1991             KK    C82A
1992             KM   COMBINE ALL THE FLOWS AT 1/4 MILE WEST OF MERIDIAN RD AT PECOS RD.
1993             HC       3
                 *
                 *

1994             KK   82ATD
1995             KM   ROUTE FLOW FROM SUBBASIN 82A TO 78D VIA WASH
1996             RS       4    FLOW      -1
1997             RC    .045     .04    .045    4250   .0056
1998             RX       0     500     950    1010    1025    1085    1535    2035
1999             RY       8       5       3       0       0       3       5       8
                 *
                 *

2000             KK   C78D3
2001             KM   COMBINE FLOW FROM 82A WITH FLOW FROM C78D
2002             HC       2
                 *
                 *

2003             KK   78DTE
2004             KM   ROUTE FLOWS FROM 78D TO 78E VIA WASH
2005             RS       4    FLOW      -1
2006             RC    .045     .04    .045    5280   .0041
2007             RX       0     500     950    1000    1010    1070    1511    2011
2008             RY       7       5       3       0       0       3       5       7
                 *
                 *

2009             KK    78E   BASIN
2010             KM   BASIN 78E
2011             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2012             KM    L=       1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
2013             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2014             BA   1.006
2015             LG    0.35    0.26    8.80    0.06       1
2016             UI      59      60     110     214     276     316     354     411     465     583
2017             UI     754     687     572     503     440     381     333     285     229     158
```

```
2018        UI     104      99      94      59      60      38      18      18      19      18
2019        UI      18      18      18      18       0       0       0       0       0       0
2020        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2021        KK    C78E
2022        KM   COMBINE FLOWS FROM 78D AND 78E (CRISMAN ROAD)
2023        HC       2
            *
            *

2024        KK      83   BASIN
2025        KM   BASIN 83
2026        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2027        KM    L=      2.0  Lca=        .5   S=   15.0  Kn= .098  LAG=  84.4
2028        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2029        BA   1.007
2030        LG    0.49    0.25    5.00    0.41       1
2031        UI      40      41      40      53     133     154     184     205     223     238
2032        UI     263     291     310     364     446     505     504     432     382     355
2033        UI     322     296     268     243     218     203     179     147     117      78
2034        UI      71      69      66      58      41      40      40      28      13      12
2035        UI      13      12      12      13      12      12      13      12      13      12
2036        UI       0       0       0       0       0       0       0       0       0       0
2037        UI       0       0       0       0       0       0       0       0       0       0
            *

2038        KK   C78E2
2039        KM   COMBINE FLOWS ALONG PECOS ROAD AT CRISMON ROAD INTERSECTION
2040        HC       2
            *

2041        KK  78ET84
2042        KM   ROUTE FLOW FROM INTERSECTION OF PECOS RD AND CRISMON RD TO THE CORNER OF
2043        KM   PECOS AND ELLSWORTH WHERE IT WILL BE COMBINED WITH SUBBASIN 84
2044        KM   ROUTING IS VIA PECOS ROAD
2045        RS       6    FLOW      -1
2046        RC     .06    .055    .065    5280   .0032
2047        RX       0     500    1000    1002    1006    1046    1546    2046
2048        RY       4     3.5      .5      .5     3.5     4.5       5     5.5
            *
            *

2049        KK      84   BASIN
2050        KM   BASIN 84
2051        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2052        KM    L=      2.0  Lca=        .5   S=   12.5  Kn= .100  LAG=  89.1
2053        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2054        BA   0.991
2055        LG    0.50    0.25    4.70    0.47       0
2056        UI      37      38      37      37     117     136     160     181     198     215
2057        UI     231     251     275     301     346     421     482     461     401     363
2058        UI     331     303     286     255     232     219     190     179     157     124
2059        UI     102      67      67      62      62      54      37      38      38      32
2060        UI      12      11      12      11      12      11      12      11      11      12
2061        UI      11       0       0       0       0       0       0       0       0       0
2062        UI       0       0       0       0       0       0       0       0       0       0
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2063        KK     C84
2064        KM     COMBINE C83 AND 84
2065        HC       2
            * KO     2
            *
            *

2066        KK    EC-4   ROUTE   REACH
2067        KM   ELLSWORTH ROAD CHANNEL REACH-4
2068        KM   ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
2069        KM   THE POINT 1/2 MILE NORTH OF PECOS WHERE FLOW FROM GM ENTERS
2070        RS       1    FLOW      -1
2071        RC   0.030   0.030   0.030    3000  0.0010    0.00
2072        RX     0.0    16.0    32.8    49.6   114.6   131.4   148.2   164.2
2073        RY     6.4     6.7     3.4     0.0     0.0     3.4     6.7     6.4
            *

2074        KK   C79B3
2075        HC       2
            *

2076        KK    EC-3   ROUTE   REACH
2077        KM   ROUTE FLOWS FROM THE COMBINE POINT OF SUB-BASIN 79B TO
2078        KM   WILLIAMS FIELD ROAD ALIGNMENT AT THE GM MANIFOLD STRUCTURE
2079        RS       2    FLOW      -1
2080        RC   0.030   0.030   0.030    3500  0.0010    0.00
2081        RX     0.0    16.0    32.7    49.4   114.4   131.1   147.8   163.8
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```
2082        RY     6.4     6.7     3.3     0.0     0.0     3.3     6.7     6.4
            *

2083        KK    EC-2   ROUTE   REACH
2084        KM   ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
2085        KM   PERIMETER CHANNEL TO A POINT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
2086        RS       2    FLOW      -1
2087        RC   0.030   0.030   0.030    4200  0.0010    0.00
2088        RX     0.0    16.0    33.2    50.4   160.4   177.5   194.7   210.7
2089        RY     6.6     6.9     3.4     0.0     0.0     3.4     6.9     6.6
            *

2090        KK    EC-1   ROUTE   REACH
2091        KM   ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
2092        KM   FROM A POINT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD TO POWERLINE FLOODWAY.
2093        RS       1    FLOW      -1
2094        RC   0.030   0.030   0.030    3201  0.0010    0.00
2095        RX     0.0    16.0    33.2    50.4   160.4   177.5   194.7   210.7
2096        RY     6.6     6.9     3.4     0.0     0.0     3.4     6.9     6.6
            *
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2097        KK   CPPWR
2098        KM   COMBINE FLOWS FROM 75 AND 79 IN THE POWERLINE FLOODWAY ALONG RAY ROAD
2099        KM    AND AT HAWES ROAD.
            * KO      2
2100        HC        2
            *
            *

2101        KK  CPT80A
2102        KM   ROUTE CPPWR THROUGH AIR FORCE PERIMETER CHANNEL (POWERLINE FLOODWAY)
2103        RS       2    FLOW      -1
2104        RC    .055    .025    .055    9000   .0038
2105        RX       0    1005    1023    1040    1100    1117    1135    2140
2106        RY       9     8.5     8.5       0       0     8.5     8.5       9
            *
            *

2107        KK     80A   BASIN
2108        KM   BASIN 80A
2109        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2110        KM    L=      3.8  Lca=      2.2   S=   14.2  Kn= .038  LAG=  73.7
2111        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2112        BA   2.639
2113        LG    0.15    0.15    9.70    0.06      55
2114        UI     153     155     269     543     702     804     901    1037    1174    1424
2115        UI    1902    1849    1519    1344    1170    1016     893     770     641     477
2116        UI     292     263     254     179     153     147      47      47      47      47
2117        UI      46      48      46      47       0       0       0       0       0       0
2118        UI       0       0       0       0       0       0       0       0       0       0
2119        UI       0       0       0       0       0       0       0       0       0       0
            *

2120        KK  CPOWER
2121        KM   COMBINE FLOWS FROM C79A AND SUBBASIN 80A
2122        KM   ALSO COMBINES THE FLOWS FROM THE DIBBLE DRAINAGE FACILITY ROUTED BY 76ATER
            * KO      2                                21
            * HC      3
2123        HC        2
            *
            *

2124        KK  EMFPOW
2125        KM   EMF AT POWERLINE
            * KO      2
2126        HC        2
            *
            *

2127        KK  POWTWI
2128        KM   ROUTE EMF FLOW TO WILLIAMS FIELD ROAD VIA THE EMF
2129        KM   THIS SECTION IS CONCRETE LINE TO PAST POWER ROAD BRIDGE
2130        RS       2    FLOW      -1
2131        RC     .03    .012     .03    4750   .0003
2132        RX       0     500     520     553     693     726     740     742
```



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

2133        RY      14      12      11       0       0      11      11      12
            *
            *

2134        KK     80B   BASIN
2135        KM   BASIN 80B
2136        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2137        KM    L=      1.5  Lca=       .9   S=   18.4  Kn= .047  LAG=  44.7
2138        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
            * KO                                       21
2139        BA   1.116
```

```
2140        LG    0.14    0.17    6.80    0.18      50
2141        UI      96     142     364     486     588     708     953    1206     937     775
2142        UI     638     511     397     229     164     136      97      59      29      30
2143        UI      29      30      29       0       0       0       0       0       0       0
2144        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2145        KK     81B   BASIN
2146        KM   BASIN 81B
2147        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2148        KM    L=      1.1  Lca=       .4   S=    6.9  Kn= .065  LAG=  48.6
2149        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2150        BA   0.842
2151        LG    0.35    0.25    4.70    0.42      26
2152        UI      54      55     131     215     271     306     353     415     506     676
2153        UI     642     514     446     393     329     280     237     167     100      93
2154        UI      84      54      55      26      17      17      16      17      17      16
2155        UI      17       0       0       0       0       0       0       0       0       0
2156        UI       0       0       0       0       0       0       0       0       0       0
            *

2157        KK  80B81B
2158        KM   COMBINE FLOWS ON WILLIAMS GATEWAY BEFORE ENTERING INTO THE EMF
2159        KO                                      21
2160        HC       2
            *
            *

2161        KK  EMFWIL
2162        KM   COMBINE FLOWS INTO THE EMF WEST OF WILLIAMS AFB FROM 80A, EMFPOWERLINE AND
2163        KM   EMFRAY
            * KO      2
2164        HC       2
            *
            *

2165        KK  WILTSF
2166        KM   ROUTE EMF FLOW FROM WILLIAMS FIELD ROAD TO THE SOUTHERN PACIFIC RAILROAD
2167        KM      (AT RITTENHOUSE ROAD)
2168        RS       2    FLOW      -1
2169        RC     .03    .022     .03    5000   .0003
2170        RX       0     500     520     553     693     726     740     742
2171        RY      14      12      11       0       0      11      11      12
            *
            * KK82BT83
            * KM   ROUTE 82B TO S83 VIA PECOS ROAD
            * RS      6    FLOW      -1
            * RC   .045    .025    .045    5260   .0032
            * RX      0     500    1000    1002    1006    1046    1546    2046
            * RY    4.5     4.0      .5       0       0      .5     4.5     5.5
            *
            * KK   C83
            * KM   COMBINE C82B AND 83
            * HC      2
            *
            * KK 83T84
            * KM   ROUTE S83 TO S84 VIA PECOS ROAD
            * RS      6    FLOW      -1
            * RC    .06    .055    .065    5260   .0032
            * RX      0     500    1000    1002    1006    1046    1546    2046
            * RY      4     3.5      .5      .5     3.5     4.5       5     5.5
            *
            * KK 84T85
            * KM  ROUTE S84 TO S85 VIA WAFB SOUTH PERIMETER CHANNEL
            * RS      4    FLOW      -1
            * RC   0.06   0.035    0.06    5260   .0039
            * RX      0     500    1000    1013    1028    1041    1541    2041
            * RY    5.5       5     4.5       0       0     4.5       5     5.5
            *
```



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

2172        KK      85   BASIN
2173        KM   BASIN 85
2174        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2175        KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .100  LAG=  86.1
2176        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2177        BA   1.005
2178        LG    0.48    0.25    4.30    0.60       4
2179        UI      41      42      41      63     137     161     193     213     231     248
2180        UI     277     300     333     392     472     542     485     419     374     348
2181        UI     317     286     260     235     210     197     162     124      96      73
2182        UI      71      67      65      41      42      41      32      13      13      12
2183        UI      23      13      12      13      13      12      13      13       0       0
2184        UI       0       0       0       0       0       0       0       0       0       0
2185        UI       0       0       0       0       0       0       0       0       0       0
            *
            * KK   C85
            * KM  COMBINE C84 AND 85
            * HC      2
            *
```

```
2186          KK   85T86
2187          KM     ROUTE S85 TO S86 VIA WAFB SOUTH PERIMETER CHANNEL
2188          RS       3    FLOW      -1
2189          RC   0.055   0.035   0.055    5280   .0039
2190          RX       0     500    1000    1013    1028    1041    1541    2041
2191          RY     5.5       5     4.5       0       0     4.5       5     5.5
              *

2192          KK      86   BASIN
2193          KM   BASIN 86
2194          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2195          KM    L=       2.0  Lca=       .5   S=   15.0  Kn= .100  LAG=  86.1
2196          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2197          BA   1.001
2198          LG    0.50    0.25    4.55    0.52       1
2199          UI      39      40      40      47     131     150     178     201     216     231
2200          UI     255     283     302     346     421     486     510     435     384     356
2201          UI     322     289     271     244     223     202     185     156     121      92
2202          UI      70      69      65      65      43      39      40      40      12      12
2203          UI      12      12      13      12      12      12      12      12      13      12
2204          UI       0       0       0       0       0       0       0       0       0       0
2205          UI       0       0       0       0       0       0       0       0       0       0
              *

2206          KK     C86
2207          KM     COMBINE 85 AND 86
2208          HC       2
              *
```



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

2209          KK   86T91
2210          KM     ROUTE S86 TO S91 VIA WAFB SOUTH PERIMETER CHANNEL. Grassy v=3ft/sec
2211          RS       6    FLOW      -1
2212          RC    0.05   0.035    0.05    5500   .0025
2213          RX       0     500    1000    1013    1028    1041    1541    2041
2214          RY     5.5       5     4.5       0       0     4.5       5     5.5
              *
              *

2215          KK     87A   BASIN
2216          KM   BASIN 87A
2217          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2218          KM    L=       1.0  Lca=       .5   S=   24.9  Kn= .100  LAG=  58.5
2219          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2220          BA   0.492
2221          LG    0.49    0.25    5.00    0.41       1
2222          UI      29      29      54     105     135     154     173     201     228     285
2223          UI     369     335     280     247     214     187     162     140     112      77
2224          UI      51      49      46      29      29      19       8       9       9       9
2225          UI       9       9       9       9       0       0       0       0       0       0
2226          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2227          KK   87ATB
2228          KM   ROUTE 87A TO 87B VIA SHEET FLOW
2229          RS       6    FLOW      -1
2230          RC    .040    .040    .040    2640   .0056
2231          RX       0     500    1000    1005    1006    1011    1511    2011
2232          RY       1      .5       0       0       0      .5       1     1.5
              *
              *

2233          KK     87B   BASIN
2234          KM   BASIN 87B
2235          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2236          KM    L=        .9  Lca=       .5   S=   11.6  Kn= .100  LAG=  63.8
2237          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2238          BA   0.492
2239          LG    0.50    0.25    5.00    0.42       0
2240          UI      26      26      29      87     108     126     142     160     178     201
2241          UI     245     310     325     273     234     209     189     163     143     129
2242          UI     107      78      53      45      43      37      26      26      19       8
2243          UI       8       8       8       8       8       7       8       8       0       0
2244          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2245          KK     C87
2246          KM   COMBINE FLOW FROM SUBBASINS 87A AND 87B
2247          HC       2
              *
              *
```



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

2248          KK  87T88B
2249          KM     ROUTE S87 TO S88 VIA GERMANN ROAD
2250          RS      11    FLOW      -1
2251          RC    .045    .025    .045    5280    .002
```

```
2252        RX      0    1000    1005    1010    1050    1060    1560    2060
2253        RY     14      13      18      12      11      14    14.5      15
            *
            *

2254        KK     88A   BASIN
2255        KM   BASIN 88A
2256        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2257        KM    L=        .8  Lca=        .2   S=   13.2  Kn= .100  LAG=  46.2
2258        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2259        BA   0.502
2260        LG    0.50    0.25    5.00    0.42       0
2261        UI      37      37     115     163     197     228     273     340     465     400
2262        UI     333     283     234     199     161     113      65      61      48      37
2263        UI      26      11      11      11      11      12      11       0       0       0
2264        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2265        KK   88A1B
2266        KM   ROUTE FLOWS FROM SUBBASIN 88A TO 88B VIA SHEET FLOW
2267        RS       4    FLOW      -1
2268        RC     .04     .04     .04    2640   .0090
2269        RX       0     500    1000    1001    1002    1500    2000    2500
2270        RY       1     1.5       0       0       0      .5       1     1.5
            *
            *

2271        KK     88B   BASIN
2272        KM   BASIN 88B
2273        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2274        KM    L=        .9  Lca=        .6   S=   21.2  Kn= .100  LAG=  63.8
2275        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2276        BA   0.498
2277        LG    0.47    0.25    5.00    0.41       5
2278        UI      28      28      43      97     124     143     160     183     208     240
2279        UI     315     359     299     258     228     200     176     152     133     108
2280        UI      74      49      48      46      29      28      24       9       9       8
2281        UI       9       8       9       8       9       0       0       0       0       0
2282        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2283        KK    C88B
2284        KM   COMBINE FLOWS FROM SUBBASINS 88A AND 88B
2285        HC       2
            *
            *
```



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

2286        KK     C88
2287        KM    COMBINE 87 AND 88
2288        HC       2
            *

2289        KK   88T89
2290        KM     ROUTE S88 TO S89 VIA GERMANN ROAD
2291        RS      11    FLOW      -1
2292        RC    .045    .025    .045    5280    .004
2293        RX       0    1000    1005    1010    1050    1060    1560    2060
2294        RY      14      13      18      12      11      14    14.5      15
            *
            *

2295        KK     89A   BASIN
2296        KM   BASIN 89A
2297        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2298        KM    L=       1.0  Lca=        .6   S=   19.0  Kn= .100  LAG=  67.5
2299        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2300        BA   0.498
2301        LG    0.50    0.25    4.60    0.52       0
2302        UI      25      25      25      77     100     119     134     148     164     186
2303        UI     214     268     320     293     245     217     201     176     153     138
2304        UI     122     103      76      51      44      42      39      25      25      24
2305        UI       8       8       7       8       8       7       8       8       7       8
2306        UI       0       0       0       0       0       0       0       0       0       0
2307        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2308        KK   89A1B
2309        KM   ROUTE FLOWS FROM SUBBASIN 89A TO 89B VIA SHEET FLOW
2310        RS       8    FLOW      -1
2311        RC    .040    .040    .040    2640   .0037
2312        RX       0     500    1000    1001    1002    1500    2000    2500
2313        RY       1      .5       0       0       0      .5       1     1.5
            *
            *

2314        KK     89B   BASIN
2315        KM   BASIN 89B
2316        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
```

```
2317        KM    L=       .9  Lca=       .5   S=   23.2  Kn= .100  LAG=  58.3
2318        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2319        BA   0.496
2320        LG    0.50    0.25    4.80    0.47       0
2321        UI      29      29      51     101     132     152     169     195     220     268
2322        UI     358     347     286     252     220     191     168     144     121      90
2323        UI      55      49      48      33      29      28       8       9       9       9
2324        UI       9       9       9       8       0       0       0       0       0       0
2325        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
1                                          HEC-1 INPUT                                          PAGE 60

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

2326        KK    C89B
2327        KM   COMBINE FLOWS FROM SUBBASINS 89A AND 89B
2328        HC       2
            *
            *

2329        KK     C89
2330        KM   COMBINE FLOWS FROM C89B AND C88
2331        HC       2
            *
            *

2332        KK   89T90
2333        KM    ROUTE S89 TO S90 VIA GERMANN ROAD
2334        RS      11    FLOW      -1
2335        RC    .045    .025    .045    8818   .0045
2336        RX       0    1000    1005    1010    1050    1060    1560    2060
2337        RY      14      13      38      12      11      14    14.5      15
            *
            *

2338        KK     90A   BASIN
2339        KM   BASIN 90A
2340        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2341        KM    L=       .6  Lca=       .2   S=   24.2  Kn= .099  LAG=  33.4
2342        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2343        BA   0.480
2344        LG    0.49    0.26    4.55    0.51       0
2345        UI      48     105     216     278     352     481     590     449     353     276
2346        UI     207     112      82      57      41      15      15      14      15       0
2347        UI       0       0       0       0       0       0       0       0       0       0
2348        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2349        KK   90A1B
2350        KM   ROUTE FLOWS FROM SUBBASIN 90A TO 90B VIA SHEET FLOW
2351        RS      11    FLOW      -1
2352        RC    .055     .04    .055    4000   .0037
2353        RX       0     500    1000    1001    1002    1500    2000    2500
2354        RY       1      .5       0       0       0      .5       1     1.5
            *
            *

2355        KK     90B   BASIN
2356        KM   BASIN 90B
2357        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2358        KM    L=      2.0  Lca=      1.2   S=   15.3  Kn= .068  LAG=  80.7
2359        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2360        BA   0.825
2361        LG    0.36    0.25    4.65    0.41      11
2362        UI      36      36      36      74     127     150     174     195     210     229
2363        UI     260     281     330     409     470     419     364     326     294     277
2364        UI     239     218     197     175     154     122      93      63      63      59
1                                          HEC-1 INPUT                                          PAGE 61

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

2365        UI      57      36      36      36      22      11      11      12      11      11
2366        UI      11      11      11      11      11       0       0       0       0       0
2367        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2368        KK    C90B
2369        KM   COMBINE FLOWS FROM 90A AND 90B
2370        HC       2
            *
            *  ***********************************************************************
            *  ***********************************************************************
            *
            *       THE FOLLOWING SUBBASINS AND ROUTING INFORMATION WERE
            *       ORIGINALLY INSERTED FROM THE QUEEN CREEK ADMS.  THE
            *       LOSS PARAMETERS HAVE BEEN UPDATED FROM THE SCS METHOD
            *       (WHICH IS NOT A CURRENTLY ACCEPTABLE DISTRICT METHODOLOGY)
            *       TO THE GREEN-AMPT METHOD AS REQUESTED BY THE DISTRICT
            *       AS PART OF THE QUEEN CREEK/SANOKAI WASH HMP & EMF
            *       CAPACITY MITIGATION STUDY.  NO ATTEMPT WAS MADE TO MATCH
            *       PREVIOUS PEAKS NOR WERE ANY ROUTING REVISIONS MADE EXCEPT
```

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*       AS NECESSARY DUE TO CHANGES IN HYDROLOGIC COMBINATION POINTS.
*
*  ***********************************************************************
*  ***********************************************************************
*
*  ***********  UPDATED TO GREEN-AMPT  ***********

KK  SUB258
KM   BASIN 258
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      4.6  Lca=      2.5   S=   24.8  Kn= .062  LAG= 122.0
KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
BA    3.65
LG     .34     .17    4.70     .42   18.00
UI    110.    110.    110.    110.    110.    217.    232.    299.    386.    574.
UI    583.    717.    579.    644.    772.    918.    802.    927.    927.    927.
UI    927.    927.    927.    927.    834.    772.    772.    772.    866.    865.
UI    583.    579.    583.    650.    605.    458.    421.    421.    381.    331.
UI    315.    309.    352.    309.    211.    211.    190.    178.    178.    159.
UI    136.    136.    136.    125.    101.    101.    101.    101.    101.     74.
UI     63.     63.     63.     63.     63.     63.     63.     63.     29.     14.
UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
UI     14.     14.     14.     14.     14.     14.     14.     14.     14.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*
```



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

KK   RO259
KM        ROUTE SUB258 TO CO262
RM      11     1.57     0.20
*
*  ***********  UPDATED TO GREEN-AMPT  ***********

KK  SUB260
KM   BASIN 260
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.0  Lca=      .5   S=   23.2  Kn= .100  LAG=  60.7
KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
BA     .98
LG     .50     .00    4.80     .46     .00
UI     60.     60.     89.    145.    262.    352.    335.    455.    474.    502.
UI    502.    502.    430.    422.    459.    314.    339.    276.    228.    188.
UI    169.    172.    114.     98.     88.     74.     68.     55.     55.     44.
UI     34.     34.     34.     34.      7.      7.      7.      7.      7.      7.
UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
UI      7.      7.      7.      7.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK   CO262
KM        COMBINE SUB260 AND RO259
HC       2
*

KK   RO263
KM        ROUTE CO262 TO CO266
RM      11     1.56     0.20
*
*  ***********  UPDATED TO GREEN-AMPT  ***********

KK  SUB264
KM   BASIN 264
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.0  Lca=      .6   S=   20.0  Kn= .100  LAG=  65.8
KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
BA    1.00
LG     .50     .00    4.70     .48     .00
UI     56.     56.     70.    117.    202.    301.    325.    355.    426.    470.
UI    470.    470.    470.    404.    392.    428.    327.    301.    306.    221.
UI    204.    165.    164.    148.    107.     90.     84.     69.     68.     51.
UI     51.     51.     32.     32.     32.     32.     28.      7.      7.      7.
UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
UI      7.      7.      7.      7.      7.      7.      7.      7.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*
```



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

KK   CO266
KM        COMBINE SUB264 AND RO263
HC       2
*

KK   RO267
KM        ROUTE CO266 TO CO270
RM      11     3.31     0.20
*
```

```
                 *  ***********  UPDATED TO GREEN-AMPT  ***********
2434             KK  SUB268
2435             KM   BASIN 268
2436             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2437             KM    L=      2.0  Lca=       1.1   S=   13.4  Kn= .090  LAG= 107.0
2438             KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2439             BA     .97
2440             LG     .45      .04     4.65      .48     6.00
2441             UI     33.      33.      33.      33.      52.      70.      87.     122.     176.     197.
2442             UI    191.     176.     234.     274.     245.     281.     281.     281.     281.     281.
2443             UI    281.     253.     234.     234.     252.     251.     209.     176.     178.     199.
2444             UI    166.     133.     128.     122.     100.      96.      95.     108.      77.      64.
2445             UI     60.      54.      54.      47.      41.      41.      41.      31.      31.      31.
2446             UI     31.      31.      19.      19.      19.      19.      19.      19.      19.      18.
2447             UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
2448             UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
2449             UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
2450             UI      4.       4.       4.       4.       4.       0.       0.       0.       0.       0.
2451             UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *

2452             KK   CO270
2453             KM        COMBINE RUNOFF FROM RO267 AND SUB268
2454             HC       2
                 *
                 *

2455             KK   RO283
2456             KM        ROUTE CO282 TO CONCENTRATION POINT C90
2457             RM      11     2.78     0.20
                 *
                 *  ***********************************************************
                 *  ***********************************************************
                 *
                 *       THIS ENDS THE UPDATES TO THE QC ADMS INSERTIONS FOR THIS
                 *       PORTION OF THE MODEL.
                 *
                 *  ***********************************************************
                 *  ***********************************************************
                 *
                 *
1                                          HEC-1 INPUT                                                    PAGE 64

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

2458             KK     C90
2459             KM    COMBINE C89 AND C90B
2460             HC       3
                 *
                 *

2461             KK   90T91
2462             KM    ROUTE S90 TO S91 VIA SPRR
2463             RS       2    FLOW      -1
2464             RC    .045     .022     .045     6178     .004
2465             RX       0      500     1000     1015     1065     1076     1576     2076
2466             RY       5      4.5        4        0        0        5      5.5        6
                 *

2467             KK      91   BASIN
2468             KM   BASIN 91
2469             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2470             KM    L=      1.4  Lca=       .6   S=   18.4  Kn= .089  LAG=  67.3
2471             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2472             BA   0.459
2473             LG   0.37     0.33     4.65     0.35        0
2474             UI     22       22       22       61       83      102      115      127      138      157
2475             UI    175      208      258      287      240      208      188      169      149      137
2476             UI    119      106       91       67       46       39       37       36       23       22
2477             UI     22       12        6        7        7        7        6        7        7        7
2478             UI      7        0        0        0        0        0        0        0        0        0
2479             UI      0        0        0        0        0        0        0        0        0        0
                 *

2480             KK    CP91
2481             KM     COMBINE 91, 90,AND 86 AT EMF NEAR THE RITTENHOUSE CHANNEL
2482             HC       3
                 *
                 *

2483             KK     81A   BASIN
2484             KM   BASIN 81A
2485             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2486             KM    L=      3.3  Lca=       1.9   S=   16.4  Kn= .032  LAG=  54.1
2487             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2488             BA   1.814
2489             LG   0.15     0.25     4.70     0.42       55
2490             UI    119      120      299      481      606      686      789      931     1184     1509
2491             UI   1335     1090      954      826      689      587      475      305      212      199
2492             UI    155      119      104       37       36       37       37       37       37       36
2493             UI      0        0        0        0        0        0        0        0        0        0
2494             UI      0        0        0        0        0        0        0        0        0        0
                 *
```

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

2495          KK   CP91A
2496          KM   COMBINE FLOWS FOR A ROUTE VIA THE RITTENHOUSE CHANNEL
2497          HC       2
              *
              *

2498          KK     R91
2499          KM   ROUTE 91 TO EMF
2500          KO                                      21
2501          RS       1    FLOW      -1
2502          RC   0.035   0.022   0.035    4000   0.003
2503          RX       0     100     130     140     170     180     210     310
2504          RY       8       7       6       0       0       6       7       8
              *
              *
              * KK 81A1B
              * KM ROUTE SUBASIN 81A TO 81B VIA ROAD NETWORK FOR ON-BASE HOUSEING
              * RS      9    FLOW      -1
              * RC  .013    .013    .013    8000   .0035
              * RX      0     500     750     753    1053    1056    1303    1803
              * RY      3     1.5       1      .6      .6       1     1.5       3
              *
              *
              *
              * KKRITTEN
              * KM COMBINE FLOWS AT RITTENHOUSE ROAD BEFORE ENTERING INTO THE EMF.
              * KO                                      21
              * HC      2
              * HC      3
              *
              *

2505          KK  EMFRIT
2506          KM   COMBINE 81A AND 81B AND RITTENHOUSE
2507          KO                                      21
2508          HC       2
              *
              *
2509          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  263        SOSS
                V
                V
  268       RSOSS
                .
                .
  274           .          59A
                .            .
                .            .
  284        C59A............
                V
                V
  287      59A59B
                .
                .
  294           .          59B
                .            .
                .            .
  306        C59B............
                V
                V
  309      59BT60
                .
                .
  315           .           60
                .            .
                .            .
  333           .            .------->     D60
  331           .          R6D
                .            .
                .            .
  336      EMFGUA............
                V
                V
  340      GUATEL
                .
                .
  346           .           64
                .            .
                .            .
  360      EMFELJ............
                V
                V
  363      ELTWAR
                .
                .
  369           .          62B
                .            V
                .            V
  380           .        62BTD
                .            .
                .            .
  386           .            .          62D
                .            .            .
                .            .            .
  397           .        CP62D............
                .            V
                .            V
  400           .        62DTF
                .            .
                .            .
  406           .            .          62F
                .            .            .
                .            .            .
  417           .        CP62F............
                .            V
                .            V
  420           .        62T63
                .            .
                .            .
  427           .            .           63
                .            .            .
                .            .            .
  442           .         CP63............
                .            V
                .            V
  445           .        63T71
                .            .
                .            .
  452           .            .        68B1
                .            .          .
                .            .          .
  464           .            .          .        68B2
                .            .          .          .
                .            .          .          .
  476           .            .          .          .        68B3
                .            .          .          .          .
                .            .          .          .          .
```

```
488          .           .        CP68.......................
             .           .           V
             .           .           V
491          .           .      68BT69
             .           .           .
             .           .           .
497          .           .           .          69
             .           .           .           .
             .           .           .           .
508          .           .        CP69............
             .           .           V
             .           .           V
511          .           .       69T71
             .           .           .
             .           .           .
517          .           .           .          71
             .           .           .           .
             .           .           .           .
531          .           .           .           .          25
             .           .           .           .           V
             .           .           .           .           V
543          .           .           .           .       25T71
             .           .           .           .           .
             .           .           .           .           .
549          .        CP71.................................
             .           V
             .           V
552          .       71T72
             .           .
             .           .
559          .           .          72
             .           .           .
             .           .           .
572          .      CPKNOX............
             .           .
             .           .
576     EMFWAR............
             V
             V
579     WARTKN
             .
             .
585          .         70B
             .           .
             .           .
597          .           .          26
             .           .           V
             .           .           V
609          .           .      26T70B
             .           .           .
             .           .           .
615          .       CP70B............
             .           V
             .           V
618          .      70BT76
             .           .
             .           .
624          .           .         76B
             .           .           .
             .           .           .
638          .        KNOX............
             .           .
             .           .
642     EMFKNX............
             .
             .
645          .       CAP1A
             .           V
             .           V
654          .       RCA1A
             .           .
             .           .
661          .           .      CAP1B
             .           .           V
             .           .           V
670          .           .     RCAP1B
             .           .           .
             .           .           .
677          .           .           .        65AW
             .           .           .           .
             .           .           .           .
690          .           .           .           .-------> DIV65A
688          .           .           .       D65AW
             .           .           .           .
             .           .           .           .
693          .       C65AW........................
             .           V
             .           V
696          .      65AWTB
             .           .
             .           .
702          .           .        65A
             .           .           V
             .           .           V
715          .           .      65ATB
```

```
721                 65B
                     .
738                  .-------> DIV65B
736                D65B
                     .
741          CP65B.......................
                     .
749                  .------->   PIPE
744          DIVPIP
                     .
754                  .-------> DIV65B
752                EA
                     V
                     V
757          65TA66
                     V
                     V
765          65TB66
                     V
                     V
773          65TC66
                     .
782                66A
                     V
                     V
792              66ATB
                     .
798                 66B
                     .
814                  .-------> DIV66B
812                D66B
                     .
                     .
817              CP66B............
                     V
                     V
820              66BTC
                     .
829             ADOT-E
                     V
                     V
834             AET67A
                     .
                     .
841                        67A
                           .
                           .
853             CP67A............
                     V
                     V
856              67ATC
                     .
                     .
862                       SUP2
                           V
                           V
866                      RSUP2
                           .
                           .
873                           .        67B
                              .         .
                              .         .
888                           .         .-------> DIV67B
886                           .       D67B
                              .         .
                              .         .
891                          CP67B............
                              V
                              V
894                          67BTC
                              .
                              .
901                           .        67C
                              .         .
                              .         .
916                           .         .-------> DIV67C
914                           .       D67C
                              .         .
                              .         .
919                      C67C........................
                              .
                              .
922              CP67C............
                     V
                     V
```

```
 926                    67CTD
                          .
 934                      .        67D
                          .          .
 948                      .          .-------> DIV67D
 946                      .       D67D
                          .          .
 951                    CP67D............
                          V
                          V
 957                    67T66
                          .
 965                      .        66C
                          .          .
 980                      .          .-------> DIV66C
 978                      .       D66C
                          .          .
 983                    CP66C............
                          V
                          V
 986                   67T66C
                          .
 996                      .------->   404A
 994                    DI67E
                          .
1004                      .------->   DSWA
 999                     DI66
                          V
                          V
1007                   RS66D1
                          .
1020                      .------->   D-WA
1017                    B-WA
                          V
                          V
1023                   RS66D2
                          .
1035                      .------->   D-WB
1033                    B-WB
                          V
                          V
1038                    66CID
                          .
1044                      .        66D
                          .          .
1056                    C66D............
                          .
                          .
1064                      .-------> STUBDI
1059                   4THDIV
                          .
                          .
1067                CP66............
                       V
                       V
1070              66DI70
                       .
                       .
1082                      .<-------   PIPE
1077                   RECPIP
                          V
                          V
1083                   ROPIPE
                          V
                          V
1088                   ROPIP2
                          .
                          .
1095                      .          .<-------   DSWA
1093                      .      REWASP
                          .          .
                          .          .
1096                   CPIPE2............
                          V
                          V
1099                   ROPIP3
                          .
                          .
1107                      .          .<-------   D-WA
1105                      .      RED-WA
                          .          .
                          .          .
1110                      .          .          .<-------   D-WB
```

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1108                                                  RED-WB
1111                        CPIPWA.......................
1119                                                  .<-------  STOBD1
1116                                            RESTOB
1120                        CPIPE3............
1124                        ROPIP4
1130                  C_FLOW............
                            V
                            V
1133                  66T70A
1141                                  .<-------    404A
1139                            RD66
                                  V
                                  V
1142                        RT404A
1148                                          67E
1163                                                .-------> DIV67E
1161                                          D67E
1166                        CP67E............
                                  V
                                  V
1169                        67T68
1175                                          62A
                                                V
                                                V
1186                                        62ATC
1192                                                    62C
1206                                                      .-------> DIV62C
1204                                                    D62C
1209                                        CP62C............
                                                V
                                                V
1212                                        62CTE
1218                                                    62E
1229                                        C62CE............
1232                                                    61A
1250                                                      .-------> DIV61A
1244                                                    D61A
                                                          V
                                                          V
1253                                                  61ATB
1259                                                            61B
1274                                                              .-------> DIV61B
1272                                                          D61B
1277                                                  CP61B............
                                                          V
                                                          V
1280                                                61T62E
1286                                        CP62E............
                                                V
                                                V
1289                                        62T60A
```

```
1296                                                    68A1
1308                  CP68A1.......................
1311                                          68A2
1323                  CP68A2............
                            V
                            V
1326                  68T70A
1334                                          70A1
1346                                                      23
1358            CP70A1...............................
                     V
                     V
1361            70A1T2
1368                        70A2
1377                                            24
1389            CP70A2......................
                     V
                     V
1393            70T76A
1401                         76A
1418             C76A............
                     V
                     V
1421            76ATPR
1432      EMFSTN............
               V
               V
1435      KNXTRY
1441              73A
                     V
                     V
1455            73ATB
1461                         73B
1472                                  -------> 73BRET
1469                        RET73B
1475            CP73B............
                     V
                     V
1478            73BTC
1484                         73C
1497                                  -------> 73CRET
1494                        RET73C
1500            CP73C............
                     V
                     V
1503           73T74C
1509                         74A
                                V
                                V
1523                        74ATB
1531                                          74B
```

```
1544                                                  .-------> 74BRET
1541                                          RET74B
                                                  .
                                                  .
1547                                  CP74B............
                                          V
                                          V
1550                                  74BTC
                                                  .
                                                  .
1557                                              .       74C
                                                  .
                                                  .
1570                                              .-------> 74CRET
1567                                          RET74C
                                                  .
                                                  .
1573                          CP74C........................
                                  V
                                  V
1576                          74CT75
                                  .
                                  .
1582                                  .       75
                                  .           .
                                  .           .
1594                          CP75............
                                  V
                                  V
1597                          75TCP
                                  .
                                  .
1603                                  .       77A
                                  .           V
                                  .           V
1619                                  .   77ATB
                                  .           .
                                  .           .
1626                                  .       .       77B
                                  .           .       .
                                  .           .       .
1638                                  .       .       .-------> 77BRET
1635                                  .           RET77B
                                  .           .       .
                                  .           .       .
1641                                  .   CP77B............
                                  .           V
                                  .           V
1644                                  .   77BTC
                                  .           .
                                  .           .
1651                                  .       .       77C
                                  .           .       .
                                  .           .       .
1663                                  .       .       .-------> 77CRET
1660                                  .           RET77C
                                  .           .       .
                                  .           .       .
1666                                  .   C77C............
                                  .           V
                                  .           V
1669                                  .   77CT78
                                  .           .
                                  .           .
1675                                  .       .       78A
                                  .           .       V
                                  .           .       V
1692                                  .       .   78ATB
                                  .           .       .
                                  .           .       .
1698                                  .       .       .       78B
                                  .           .       .       .
                                  .           .       .       .
1707                                  .       .   CP78B............
                                  .           .       V
                                  .           .       V
1710                                  .       .   78BTC
                                  .           .       .
                                  .           .       .
1717                                  .       .       .       78C
                                  .           .       .       .
                                  .           .       .       .
1729                                  .       .       .       .-------> 78CRET
1726                                  .       .       .   RET78C
                                  .           .       .       .
                                  .           .       .       .
1732                                  .       .   C78C............
                                  .           .       .
                                  .           .       .
1735                                  .   C78C2............
                                  .           V
                                  .           V
1738                                  .   78CT79
                                  .           .
```

```
1744                79A4
                     .
1756          C79B1............
                     .
1759                79A1
                     .
1771                         79A2
                                .
1781                                   79A3
                                          .
1791                C79B2......................
                     .
1794                         79A
                                .
1806          C79A......................
                     .
1809                79B
                     .
1822          C79A2............
                     .
1825                78F
                     V
                    V
1842                78FTD
                     .
1848                         78D
                                .
1860                C78D............
                     .
1863                         B2B
                                .
1876                                .-------->     TRW
1873                       DITRW
                                .
1879                C78D2...........
                     .
1882                        82A4
                                V
                                V
1900                       R82A4
                                .
1906                                   82A3
                                          .
1925                       C82A3............
                                V
                                V
1928                      RC82A3
                                .
1934                                   CAP2
                                          V
                                          V
1943                                  RCAP2
                                          .
1950                                                   82A2
                                                         .
1972                                  CB2A2............
                                          .
1975                                                   B2A1
                                                         .
1991                       C82A......................
                                V
                                V
1994                       82ATD
                                .
2000                C7BD3............
                     V
                     V
2003                78DTE
                     .
```

```
2009          .          .          .          .        78E
              .          .          .          .          .
              .          .          .          .          .
2021          .          .          .      C78E...........
              .          .          .          .
              .          .          .          .
2024          .          .          .          .         83
              .          .          .          .          .
              .          .          .          .          .
2038          .          .          .     C78E2...........
              .          .          .          V
              .          .          .          V
2041          .          .          .    78ET84
              .          .          .          .
              .          .          .          .
2049          .          .          .          .         84
              .          .          .          .          .
              .          .          .          .          .
2063          .          .          .       C84...........
              .          .          .          V
              .          .          .          V
2066          .          .          .      EC-4
              .          .          .          .
              .          .          .          .
2074          .          .     C79B3...........
              .          .          V
              .          .          V
2076          .          .       EC-3
              .          .          V
              .          .          V
2083          .          .       EC-2
              .          .          V
              .          .          V
2090          .          .       EC-1
              .          .          .
              .          .          .
2097          .     CPPWR...........
              .          V
              .          V
2101          .    CPT80A
              .          .
              .          .
2107          .          .        80A
              .          .          .
              .          .          .
2120          .    CPOWER...........
              .          .
              .          .
2124    EMFPOW...........
              V
              V
2127    POWIWI
              .
              .
2134          .       80B
              .          .
              .          .
2145          .          .        81B
              .          .          .
              .          .          .
2157          .    80B81B...........
              .          .
              .          .
2161    EMFWIL...........
              V
              V
2165    WILTSP
              .
              .
2172          .        85
              .          V
              .          V
2186          .     85T86
              .          .
              .          .
2192          .          .        86
              .          .          .
              .          .          .
2206          .       C86...........
              .          V
              .          V
2209          .     86I91
              .          .
              .          .
2215          .          .       87A
              .          .         V
              .          .         V
2227          .          .     87ATB
              .          .          .
              .          .          .
2233          .          .          .        87B
              .          .          .          .
              .          .          .          .
2245          .          .       C87...........
              .          .         V
```

```
                                  V
2248                        87T88B
                                  .
                                  .
2254                                  88A
                                    V
                                    V
2265                                88ATB
                                  .
                                  .
2271                                    .         88B
                                    .           .
                                    .           .
2283                                C88B............
                                    .
                                    .
2286                          C88............
                                  V
                                  V
2289                        88T89
                                  .
                                  .
2295                                  89A
                                    V
                                    V
2308                                89ATB
                                  .
                                  .
2314                                    .         89B
                                    .           .
                                    .           .
2326                                C89B............
                                    .
                                    .
2329                          C89............
                                  V
                                  V
2332                        89T90
                                  .
                                  .
2338                                  90A
                                    V
                                    V
2349                                90ATB
                                  .
                                  .
2355                                    .         90B
                                    .           .
                                    .           .
2368                                C90B............
                                    .
                                    .
2371                                    .      SUB258
                                    .           V
                                    .           V
2391                                    .      RO259
                                    .           .
                                    .           .
2394                                    .           .      SUB260
                                    .           .           .
                                    .           .           .
2408                                    .      CO262............
                                    .           V
                                    .           V
2411                                    .      RO263
                                    .           .
                                    .           .
2414                                    .           .      SUB264
                                    .           .           .
                                    .           .           .
2428                                    .      CO266............
                                    .           V
                                    .           V
2431                                    .      RO267
                                    .           .
                                    .           .
2434                                    .           .      SUB268
                                    .           .           .
                                    .           .           .
2452                                    .      CO270............
                                    .           V
                                    .           V
2455                                    .      RO283
                                    .           .
                                    .           .
2458                          C90........................
                                  V
                                  V
2461                        90T91
                                  .
                                  .
2467                                  91
                                    .
                                    .
2480                    CP91........................
```

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                .          .
                .          .
2483            .          .         81A
                .          .          .
                .          .          .
2495            .       CP91A...........
                .          V
                .          V
2498            .         R91
                .          .
                .          .
2505       EMFRIT...........
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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	SOSS	1695.	12.67	588.	208.	83.	12.50		
+	ROUTED TO	RSOSS	1671.	12.75	586.	208.	83.	12.50		
+	HYDROGRAPH AT	59A	298.	12.33	41.	13.	4.	.26		
+	2 COMBINED AT	C59A	1763.	12.67	619.	218.	87.	12.76		
+	ROUTED TO	59A59B	1726.	12.83	614.	218.	87.	12.76		
+	HYDROGRAPH AT	59B	582.	12.92	125.	36.	12.	.94		
+	2 COMBINED AT	C59B	2249.	12.92	719.	249.	97.	13.70		
+	ROUTED TO	59BT60	2235.	12.92	718.	249.	97.	13.70		
+	HYDROGRAPH AT	60	853.	13.75	302.	88.	30.	2.30		
+	DIVERSION TO	D60	853.	13.75	187.	50.	17.	2.30		
+	HYDROGRAPH AT	R60	636.	14.17	139.	38.	13.	2.30		
+	2 COMBINED AT	EMFGUA	2235.	12.92	825.	281.	108.	16.00		
+	ROUTED TO	GUATEL	2093.	13.33	805.	280.	107.	16.00		
+	HYDROGRAPH AT	64	435.	13.00	86.	22.	7.	.81		
+	2 COMBINED AT	EMFELL	2340.	13.33	860.	298.	114.	16.81		
+	ROUTED TO	ELTWAR	2191.	13.67	848.	298.	114.	16.81		
+	HYDROGRAPH AT	62B	215.	12.42	25.	7.	2.	.23		
+	ROUTED TO	62BTD	166.	12.75	25.	7.	2.	.23		
+	HYDROGRAPH AT	62D	320.	12.58	43.	11.	4.	.46		
+	2 COMBINED AT	CP62D	450.	12.67	68.	18.	6.	.69		
+	ROUTED TO	62DTF	349.	13.33	67.	18.	6.	.69		
+	HYDROGRAPH AT	62F	230.	12.42	27.	7.	2.	.26		
+	2 COMBINED AT	CP62F	436.	12.50	95.	24.	8.	.95		
+	ROUTED TO	62T63	376.	12.92	94.	24.	8.	.95		
+	HYDROGRAPH AT	63	321.	13.58	93.	24.	8.	.91		
+	2 COMBINED AT	CP63	654.	13.58	184.	48.	16.	1.86		
+	ROUTED TO	63T71	457.	15.25	181.	47.	16.	1.86		
+	HYDROGRAPH AT	68B1	122.	12.50	16.	4.	1.	.15		
+	HYDROGRAPH AT	68B2	60.	12.42	7.	2.	1.	.06		

+	HYDROGRAPH AT	68B3	45.	12.25	4.	1.	0.	.04
+	3 COMBINED AT	C968	199.	12.42	27.	7.	2.	.24
+	ROUTED TO	68BT69	178.	12.67	27.	7.	2.	.24
+	HYDROGRAPH AT	69	66.	12.58	9.	2.	1.	.09
+	2 COMBINED AT	CP69	236.	12.67	35.	9.	3.	.33
+	ROUTED TO	69T71	156.	13.83	35.	9.	3.	.33
+	HYDROGRAPH AT	71	411.	13.42	107.	27.	9.	.86
+	HYDROGRAPH AT	25	139.	12.67	20.	5.	2.	.21
+	ROUTED TO	25T71	73.	14.25	20.	5.	2.	.21
+	4 COMBINED AT	CP71	539.	13.50	320.	86.	29.	3.26
+	ROUTED TO	71T72	521.	13.67	319.	86.	29.	3.26
+	HYDROGRAPH AT	72	427.	13.08	96.	24.	8.	.84
+	2 COMBINED AT	CPKNOX	752.	13.58	403.	109.	36.	4.10
+	2 COMBINED AT	EMFWAR	2830.	13.67	1172.	393.	145.	20.91
+	ROUTED TO	WARTKN	2770.	13.83	1169.	393.	145.	20.91
+	HYDROGRAPH AT	70B	279.	12.83	55.	14.	5.	.33
+	HYDROGRAPH AT	26	60.	12.33	7.	2.	1.	.05
+	ROUTED TO	26T70B	45.	12.67	7.	2.	1.	.05
+	2 COMBINED AT	CP70B	318.	12.83	61.	15.	5.	.38
+	ROUTED TO	70BT76	232.	14.00	61.	15.	5.	.38
+	HYDROGRAPH AT	76B	416.	13.17	104.	26.	9.	.64
+	2 COMBINED AT	KNOX	466.	13.17	165.	41.	14.	1.01
+	2 COMBINED AT	EMFKNX	3134.	13.83	1287.	428.	157.	21.92
+	HYDROGRAPH AT	CAP1A	217.	2.00	217.	217.	217.	.01
+	ROUTED TO	RCA1A	217.	2.92	217.	217.	217.	.01
+	HYDROGRAPH AT	CAP1B	217.	2.00	217.	217.	217.	.01
+	ROUTED TO	RCAP1B	217.	2.92	217.	217.	217.	.01
+	HYDROGRAPH AT	65AW	534.	12.33	61.	17.	6.	.43
+	DIVERSION TO	DIV65A	166.	11.92	10.	3.	1.	.43
+	HYDROGRAPH AT	D65AW	534.	12.33	54.	14.	5.	.43
+	3 COMBINED AT	C65AW	968.	12.33	488.	448.	439.	.45
	ROUTED TO							

+	65AWTB	524.	16.50	485.	448.	439.	.45
+ HYDROGRAPH AT	65A	1298.	13.00	257.	65.	22.	2.54
+ ROUTED TO	65ATB	1057.	13.67	257.	65.	22.	2.54
+ HYDROGRAPH AT	65B	753.	13.17	181.	48.	16.	1.37
+ DIVERSION TO	DIV65B	330.	12.42	29.	8.	3.	1.37
+ HYDROGRAPH AT	D65B	753.	13.17	157.	40.	13.	1.37
+ 3 COMBINED AT	CP65B	1941.	13.58	880.	550.	473.	4.37
+ DIVERSION TO	PIPE	500.	12.50	499.	455.	441.	4.37
+ HYDROGRAPH AT	DIVPIP	1441.	13.58	381.	95.	32.	4.37
+ DIVERSION TO	DIV65B	1016.	13.00	71.	18.	6.	4.37
+ HYDROGRAPH AT	EA	1441.	13.58	310.	77.	26.	4.37
+ ROUTED TO	65TA66	1400.	13.67	309.	77.	26.	4.37
+ ROUTED TO	65TB66	1395.	13.67	309.	77.	26.	4.37
+ ROUTED TO	65TC66	1323.	14.08	309.	77.	26.	4.37
+ HYDROGRAPH AT	66A	284.	12.33	32.	8.	3.	.26
+ ROUTED TO	66ATB	227.	12.75	32.	8.	3.	.26
+ HYDROGRAPH AT	66B	366.	13.00	77.	20.	7.	.67
+ DIVERSION TO	DIV66B	273.	12.75	26.	7.	2.	.67
+ HYDROGRAPH AT	D66B	366.	13.00	52.	13.	4.	.67
+ 2 COMBINED AT	CP66B	539.	12.92	84.	21.	7.	.93
+ ROUTED TO	66BTC	524.	13.08	84.	21.	7.	.93
+ HYDROGRAPH AT	ADOT-E	251.	14.50	182.	67.	22.	.01
+ ROUTED TO	AET67A	250.	14.75	181.	67.	22.	.01
+ HYDROGRAPH AT	67A	216.	12.67	35.	10.	3.	.30
+ 2 COMBINED AT	CP67A	253.	14.75	198.	76.	26.	.31
+ ROUTED TO	67ATC	251.	15.17	196.	76.	26.	.31
+ HYDROGRAPH AT	SUP2	442.	13.00	384.	218.	73.	.01
+ ROUTED TO	RSUP2	398.	16.33	382.	218.	73.	.01
+ HYDROGRAPH AT	67B	366.	12.75	71.	20.	7.	.53
+ DIVERSION TO	DIV67B	295.	12.58	30.	8.	3.	.53
+ HYDROGRAPH AT	D67B	366.	12.75	46.	12.	4.	.53
+ 2 COMBINED AT	CP67B	414.	13.92	390.	230.	77.	.54

+	ROUTED TO	67BTC	402.	17.50	390.	230.	77.	.54
+	HYDROGRAPH AT	67C	619.	12.75	108.	28.	9.	.93
+	DIVERSION TO	DIV67C	286.	12.25	15.	4.	1.	.93
+	HYDROGRAPH AT	D67C	619.	12.75	95.	24.	8.	.93
+	3 COMBINED AT	C67C	914.	13.08	628.	328.	111.	1.78
+	2 COMBINED AT	CP67C	1407.	13.08	707.	348.	117.	2.70
+	ROUTED TO	67CTD	1389.	13.17	706.	348.	117.	2.70
+	HYDROGRAPH AT	67D	145.	12.33	16.	4.	1.	.13
+	DIVERSION TO	DIV67D	145.	12.33	10.	3.	1.	.13
+	HYDROGRAPH AT	D67D	106.	12.42	7.	2.	1.	.13
+	2 COMBINED AT	CP67D	1393.	13.17	710.	350.	118.	2.83
+	ROUTED TO	67T66	1372.	13.17	710.	350.	118.	2.83
+	HYDROGRAPH AT	66C	385.	12.67	61.	16.	5.	.50
+	DIVERSION TO	DIV66C	332.	12.50	27.	7.	2.	.50
+	HYDROGRAPH AT	D66C	385.	12.67	34.	9.	3.	.50
+	2 COMBINED AT	CP66C	1504.	13.17	741.	358.	120.	3.33
+	ROUTED TO	67T66C	1481.	13.25	740.	358.	120.	3.33
+	DIVERSION TO	404A	76.	12.42	76.	64.	22.	3.33
+	HYDROGRAPH AT	DI67E	1405.	13.25	664.	294.	98.	3.33
+	DIVERSION TO	DSWA	410.	12.67	410.	229.	76.	3.33
+	HYDROGRAPH AT	DI66	995.	13.25	254.	65.	22.	3.33
+	ROUTED TO	RS66D1	187.	15.08	142.	53.	21.	3.33
+	DIVERSION TO	D-WA	22.	15.08	22.	19.	10.	3.33
+	HYDROGRAPH AT	B-WA	165.	15.08	120.	34.	11.	3.33
+	ROUTED TO	RS66D2	26.	20.08	26.	23.	11.	3.33
+	DIVERSION TO	D-WB	26.	20.08	26.	23.	11.	3.33
+	HYDROGRAPH AT	B-WB	0.	.00	0.	0.	0.	3.33
+	ROUTED TO	66CTD	0.	.00	0.	0.	0.	3.33
+	HYDROGRAPH AT	66D	223.	12.83	40.	10.	3.	.31
+	2 COMBINED AT	C66D	216.	12.83	38.	10.	3.	3.64
+	DIVERSION TO	STUBDI	180.	12.67	37.	9.	3.	3.64
+	HYDROGRAPH AT	4THDIV	36.	12.83	1.	0.	0.	3.64

+	2 COMBINED AT	CP66	1323.	14.08	310.	78.	26.	8.01
+	ROUTED TO	66DT70	1196.	14.33	290.	73.	24.	8.01
+	HYDROGRAPH AT	RECPIP	500.	12.50	499.	455.	441.	4.37
+	ROUTED TO	ROPIPE	500.	12.58	499.	455.	441.	4.37
+	ROUTED TO	ROPIP2	500.	12.67	499.	455.	441.	4.37
+	HYDROGRAPH AT	REWA$P	410.	12.67	410.	229.	76.	3.33
+	2 COMBINED AT	CPIPE2	910.	12.67	909.	684.	517.	4.34
+	ROUTED TO	ROPIP3	910.	13.00	909.	684.	517.	4.34
+	HYDROGRAPH AT	RED-WA	22.	15.08	22.	19.	10.	3.33
+	HYDROGRAPH AT	RED-WB	26.	20.08	26.	23.	11.	3.33
+	3 COMBINED AT	CPIPWA	956.	17.83	947.	725.	538.	4.34
+	HYDROGRAPH AT	RESTUB	180.	12.67	37.	9.	3.	3.64
+	2 COMBINED AT	CPIPE3	1106.	12.92	969.	733.	542.	4.34
+	ROUTED TO	ROPIP4	1100.	12.92	968.	733.	541.	4.34
+	2 COMBINED AT	C_FLOW	2089.	14.42	1238.	799.	562.	12.35
+	ROUTED TO	66T70A	2065.	14.58	1237.	799.	562.	12.35
+	HYDROGRAPH AT	RD66	76.	12.42	76.	64.	22.	3.33
+	ROUTED TO	RT404A	76.	13.42	76.	64.	22.	3.33
+	HYDROGRAPH AT	67E	421.	12.75	72.	19.	6.	.58
+	DIVERSION TO	DIV67E	360.	12.58	31.	8.	3.	.58
+	HYDROGRAPH AT	D67E	421.	12.75	42.	11.	4.	.58
+	2 COMBINED AT	CP67E	463.	12.75	117.	74.	26.	.58
+	ROUTED TO	67T68	398.	13.17	116.	74.	26.	.58
+	HYDROGRAPH AT	62A	230.	12.67	35.	10.	3.	.38
+	ROUTED TO	62ATC	205.	12.75	35.	10.	3.	.38
+	HYDROGRAPH AT	62C	600.	12.33	69.	19.	6.	.55
+	DIVERSION TO	DIV62C	565.	12.25	32.	9.	3.	.55
+	HYDROGRAPH AT	D62C	598.	12.33	40.	11.	4.	.55
+	2 COMBINED AT	CP62C	680.	12.33	75.	20.	7.	.93
+	ROUTED TO	62CTE	671.	12.42	75.	20.	7.	.93
+	HYDROGRAPH AT	62E	137.	12.42	16.	4.	1.	.15
	2 COMBINED AT							

+		C62CE	803.	12.42	91.	24.	8.	1.08
+	HYDROGRAPH AT	61A	410.	12.50	56.	16.	5.	.52
+	DIVERSION TO	DIV61A	395.	12.42	27.	7.	2.	.52
+	HYDROGRAPH AT	D61A	373.	12.58	31.	8.	3.	.52
+	ROUTED TO	61ATB	219.	13.25	31.	8.	3.	.52
+	HYDROGRAPH AT	61B	663.	12.75	112.	30.	10.	1.09
+	DIVERSION TO	DIV61B	663.	12.75	88.	23.	8.	1.09
+	HYDROGRAPH AT	D61B	321.	13.17	28.	7.	2.	1.09
+	2 COMBINED AT	CP61B	493.	13.25	56.	15.	5.	1.61
+	ROUTED TO	61T62E	394.	13.42	56.	15.	5.	1.61
+	2 COMBINED AT	CP62E	803.	12.42	147.	40.	13.	2.69
+	ROUTED TO	62T68A	713.	12.58	139.	38.	13.	2.69
+	HYDROGRAPH AT	68A1	242.	12.58	35.	9.	3.	.30
+	3 COMBINED AT	CP68A1	967.	12.58	276.	120.	41.	3.57
+	HYDROGRAPH AT	68A2	55.	12.33	6.	1.	0.	.05
+	2 COMBINED AT	CP68A2	993.	12.58	281.	121.	42.	3.62
+	ROUTED TO	68T70A	846.	12.83	280.	121.	42.	3.62
+	HYDROGRAPH AT	70A1	102.	12.08	13.	4.	1.	.05
+	HYDROGRAPH AT	23	193.	12.58	28.	7.	2.	.22
+	4 COMBINED AT	CP70A1	2258.	14.50	1474.	915.	602.	16.23
+	ROUTED TO	70A1T2	2235.	14.67	1472.	915.	602.	16.23
+	HYDROGRAPH AT	70A2	79.	12.08	9.	3.	1.	.04
+	HYDROGRAPH AT	24	225.	12.58	32.	8.	3.	.25
+	3 COMBINED AT	CP70A2	2235.	14.67	1487.	924.	605.	16.52
+	ROUTED TO	70T76A	2197.	14.92	1484.	924.	605.	16.52
+	HYDROGRAPH AT	76A	807.	14.00	303.	77.	26.	1.91
+	2 COMBINED AT	C76A	2610.	14.83	1730.	990.	627.	18.43
+	ROUTED TO	76ATPR	2573.	15.08	1725.	990.	627.	18.43
+	2 COMBINED AT	EMFSTN	5181.	13.92	2881.	1383.	771.	40.35
+	ROUTED TO	KNXTRY	5056.	14.08	2873.	1383.	771.	40.35
+	HYDROGRAPH AT	73A	363.	13.42	94.	23.	8.	.95
+	ROUTED TO	73ATB	340.	13.58	94.	23.	8.	.95

+	HYDROGRAPH AT	73B	747.	12.08	68.	20.	7.	.95
+	DIVERSION TO	73BRET	747.	12.08	68.	20.	7.	.95
+	HYDROGRAPH AT	RET73B	6.	20.75	2.	1.	0.	.95
+	2 COMBINED AT	CP73B	340.	13.58	94.	24.	8.	1.89
+	ROUTED TO	73BTC	313.	13.92	91.	23.	8.	1.89
+	HYDROGRAPH AT	73C	822.	12.25	94.	28.	9.	.58
+	DIVERSION TO	73CRET	822.	12.25	70.	19.	6.	.58
+	HYDROGRAPH AT	RET73C	501.	12.42	33.	10.	3.	.58
+	2 COMBINED AT	CP73C	419.	12.42	121.	32.	11.	2.48
+	ROUTED TO	73T74C	327.	14.17	118.	32.	11.	2.48
+	HYDROGRAPH AT	74A	290.	13.33	75.	19.	6.	.75
+	ROUTED TO	74ATB	288.	13.42	75.	19.	6.	.75
+	HYDROGRAPH AT	74B	455.	12.25	55.	16.	5.	.33
+	DIVERSION TO	74BRET	455.	12.25	33.	9.	3.	.33
+	HYDROGRAPH AT	RET74B	382.	12.33	27.	8.	3.	.33
+	2 COMBINED AT	CP74B	437.	12.33	101.	26.	9.	1.09
+	ROUTED TO	74BTC	401.	12.42	101.	26.	9.	1.09
+	HYDROGRAPH AT	74C	516.	12.25	62.	18.	6.	.34
+	DIVERSION TO	74CRET	516.	12.25	42.	11.	4.	.34
+	HYDROGRAPH AT	RET74C	360.	12.42	25.	7.	2.	.34
+	3 COMBINED AT	CP74C	697.	12.42	234.	63.	21.	3.91
+	ROUTED TO	74CT75	510.	12.67	232.	63.	21.	3.91
+	HYDROGRAPH AT	75	261.	14.75	96.	25.	8.	4.01
+	2 COMBINED AT	CP75	661.	14.42	308.	83.	28.	7.92
+	ROUTED TO	75TCP	657.	14.50	308.	83.	28.	7.92
+	HYDROGRAPH AT	77A	548.	13.75	167.	42.	14.	1.74
+	ROUTED TO	77ATB	518.	13.83	166.	42.	14.	1.74
+	HYDROGRAPH AT	77B	532.	12.17	47.	14.	5.	.35
+	DIVERSION TO	77BRET	204.	11.92	11.	3.	1.	.35
+	HYDROGRAPH AT	RET77B	532.	12.17	39.	10.	3.	.35
+	2 COMBINED AT	CP77B	551.	12.17	204.	52.	17.	2.09
+	ROUTED TO	77BTC	513.	14.08	203.	52.	17.	2.09

+	HYDROGRAPH AT	77C	407.	12.25	46.	14.	5.	.28
+	DIVERSION TO	77CRET	407.	12.25	31.	8.	3.	.28
+	HYDROGRAPH AT	RET77C	280.	12.33	19.	5.	2.	.28
+	2 COMBINED AT	C77C	694.	12.42	220.	57.	19.	2.37
+	ROUTED TO	77CT78	536.	12.67	220.	57.	19.	2.37
+	HYDROGRAPH AT	78A	592.	13.67	180.	45.	15.	1.88
+	ROUTED TO	78ATB	523.	14.42	180.	45.	15.	1.88
+	HYDROGRAPH AT	78B	558.	12.25	56.	16.	5.	.40
+	2 COMBINED AT	CP78B	565.	12.25	233.	60.	20.	2.28
+	ROUTED TO	78BTC	518.	14.75	233.	60.	20.	2.28
+	HYDROGRAPH AT	78C	475.	12.17	40.	10.	3.	.29
+	DIVERSION TO	78CRET	80.	11.83	4.	1.	0.	.29
+	HYDROGRAPH AT	RET78C	475.	12.17	37.	9.	3.	.29
+	2 COMBINED AT	C78C	775.	12.17	268.	69.	23.	2.57
+	2 COMBINED AT	C78C2	984.	12.58	476.	123.	41.	4.93
+	ROUTED TO	78CT79	927.	14.75	474.	123.	41.	4.93
+	HYDROGRAPH AT	79A4	261.	13.00	66.	20.	7.	.38
+	2 COMBINED AT	C79B1	1090.	12.83	533.	142.	47.	5.31
+	HYDROGRAPH AT	79A1	90.	13.17	24.	8.	3.	.20
+	HYDROGRAPH AT	79A2	225.	12.50	35.	10.	3.	.23
+	HYDROGRAPH AT	79A3	156.	12.58	28.	8.	3.	.16
+	3 COMBINED AT	C79B2	417.	12.50	87.	26.	9.	.58
+	HYDROGRAPH AT	79A	645.	13.25	155.	39.	13.	1.07
+	3 COMBINED AT	C79A	1726.	12.83	747.	200.	67.	6.96
+	HYDROGRAPH AT	79B	672.	13.08	161.	40.	13.	1.00
+	2 COMBINED AT	C79A2	2227.	13.00	888.	235.	78.	7.96
+	HYDROGRAPH AT	78F	1138.	14.00	388.	98.	33.	4.19
+	ROUTED TO	78FTD	1031.	14.58	388.	98.	33.	4.19
+	HYDROGRAPH AT	78D	742.	12.75	132.	35.	12.	.89
+	2 COMBINED AT	C78D	1040.	14.58	511.	131.	44.	5.08
+	HYDROGRAPH AT	82B	1104.	12.33	166.	54.	18.	.92
	DIVERSION TO							

+		TRW	1104.	12.33	166.	54.	18.	.92
+	HYDROGRAPH AT	DTTRW	0.	.00	0.	0.	0.	.92
+	2 COMBINED AT	C78D2	1040.	14.58	511.	131.	44.	6.00
+	HYDROGRAPH AT	82A4	662.	13.83	211.	54.	18.	2.13
+	ROUTED TO	R82A4	618.	14.00	211.	54.	18.	2.13
+	HYDROGRAPH AT	82A3	528.	14.17	183.	46.	15.	2.02
+	2 COMBINED AT	C82A3	1118.	14.08	386.	98.	33.	4.15
+	ROUTED TO	RC82A3	1079.	14.25	386.	98.	33.	4.15
+	HYDROGRAPH AT	CAP2	64.	20.00	64.	64.	64.	.01
+	ROUTED TO	RCAP2	64.	23.83	64.	64.	64.	.01
+	HYDROGRAPH AT	82A2	850.	14.83	310.	78.	26.	4.13
+	2 COMBINED AT	C82A2	882.	14.83	342.	132.	87.	4.14
+	HYDROGRAPH AT	82A1	1099.	13.50	298.	75.	25.	3.12
+	3 COMBINED AT	C82A	2078.	14.25	953.	286.	138.	11.41
+	ROUTED TO	82ATD	2053.	14.58	952.	285.	138.	11.41
+	2 COMBINED AT	C78D3	2949.	14.58	1388.	396.	175.	17.41
+	ROUTED TO	78DTE	2874.	14.92	1386.	395.	174.	17.41
+	HYDROGRAPH AT	78E	844.	12.75	158.	40.	13.	1.01
+	2 COMBINED AT	C78E	2874.	14.92	1520.	429.	186.	18.42
+	HYDROGRAPH AT	83	398.	13.17	91.	23.	8.	1.01
+	2 COMBINED AT	C78E2	2880.	14.92	1586.	446.	191.	19.43
+	ROUTED TO	78ET84	2827.	15.42	1576.	445.	191.	19.43
+	HYDROGRAPH AT	84	349.	13.25	83.	21.	7.	.99
+	2 COMBINED AT	C84	2827.	15.42	1632.	460.	196.	20.42
+	ROUTED TO	EC-4	2811.	15.50	1625.	459.	196.	20.42
+	2 COMBINED AT	C79B3	3455.	15.17	2364.	658.	262.	28.37
+	ROUTED TO	EC-3	3442.	15.33	2356.	658.	262.	28.37
+	ROUTED TO	EC-2	3426.	15.50	2341.	657.	262.	28.37
+	ROUTED TO	EC-1	3412.	15.58	2326.	656.	261.	28.37
+	2 COMBINED AT	CPPWR	3645.	15.50	2522.	711.	280.	36.29
+	ROUTED TO	CPT80A	3638.	15.58	2506.	710.	279.	36.29
+	HYDROGRAPH AT	80A	2427.	12.75	595.	189.	63.	2.64

+	2 COMBINED AT	CPOWER	3695.	15.58	2836.	850.	326.	38.93
+	2 COMBINED AT	EMFPOW	8093.	14.08	5321.	2136.	1064.	79.28
+	ROUTED TO	POWTW1	8050.	14.25	5316.	2135.	1064.	79.28
+	HYDROGRAPH AT	80B	1269.	12.50	226.	72.	24.	1.12
+	HYDROGRAPH AT	81B	613.	12.67	118.	36.	12.	.84
+	2 COMBINED AT	80B81B	1736.	12.50	340.	106.	36.	1.96
+	2 COMBINED AT	EMFWIL	8126.	14.25	5465.	2209.	1089.	81.24
+	ROUTED TO	WILTSP	8015.	14.42	5448.	2209.	1089.	81.24
+	HYDROGRAPH AT	85	364.	13.17	83.	22.	7.	1.00
+	ROUTED TO	85T86	331.	13.42	83.	22.	7.	1.00
+	HYDROGRAPH AT	86	354.	13.25	81.	21.	7.	1.00
+	2 COMBINED AT	C86	639.	13.33	160.	42.	14.	2.01
+	ROUTED TO	86T91	580.	13.83	160.	42.	14.	2.01
+	HYDROGRAPH AT	87A	269.	12.75	45.	11.	4.	.49
+	ROUTED TO	87ATB	226.	13.25	45.	11.	4.	.49
+	HYDROGRAPH AT	87B	240.	12.92	43.	11.	4.	.49
+	2 COMBINED AT	C87	400.	13.00	88.	22.	7.	.98
+	ROUTED TO	87T88B	339.	14.08	87.	22.	7.	.98
+	HYDROGRAPH AT	88A	319.	12.58	44.	11.	4.	.50
+	ROUTED TO	88ATB	262.	12.92	44.	11.	4.	.50
+	HYDROGRAPH AT	88B	274.	12.83	49.	13.	4.	.50
+	2 COMBINED AT	C88B	519.	12.92	93.	24.	8.	1.00
+	2 COMBINED AT	C88	681.	12.92	176.	45.	15.	1.98
+	ROUTED TO	88T89	593.	13.83	176.	45.	15.	1.98
+	HYDROGRAPH AT	89A	215.	12.92	39.	10.	3.	.50
+	ROUTED TO	89ATB	172.	13.58	39.	10.	3.	.50
+	HYDROGRAPH AT	89B	251.	12.83	41.	10.	3.	.50
+	2 COMBINED AT	C89B	258.	12.83	80.	20.	7.	.99
+	2 COMBINED AT	C89	770.	13.75	250.	64.	21.	2.98
+	ROUTED TO	89T90	695.	14.92	250.	64.	21.	2.98
+	HYDROGRAPH AT	90A	370.	12.42	38.	10.	3.	.48
+	ROUTED TO	90ATB	196.	13.50	38.	10.	3.	.48

+	HYDROGRAPH AT	90B	405.	13.08	94.	26.	9.	.82
+	2 COMBINED AT	C90B	470.	13.33	131.	35.	12.	1.30
+	HYDROGRAPH AT	SUB258	1024.	13.50	462.	136.	45.	3.65
+	ROUTED TO	RO259	952.	15.17	459.	136.	45.	3.65
+	HYDROGRAPH AT	SUB260	569.	12.75	124.	31.	10.	.98
+	2 COMBINED AT	CO262	955.	15.17	561.	165.	55.	4.63
+	ROUTED TO	RO263	908.	16.75	554.	165.	55.	4.63
+	HYDROGRAPH AT	SUB264	528.	12.75	124.	31.	10.	1.00
+	2 COMBINED AT	CO266	908.	16.67	615.	195.	65.	5.63
+	ROUTED TO	RO267	778.	19.92	581.	193.	65.	5.63
+	HYDROGRAPH AT	SUB268	314.	13.25	119.	32.	11.	.97
+	2 COMBINED AT	CO270	778.	19.92	588.	223.	75.	6.60
+	ROUTED TO	RO283	725.	22.67	571.	221.	74.	6.60
+	3 COMBINED AT	C90	829.	13.50	559.	303.	102.	10.88
+	ROUTED TO	90T91	815.	15.17	558.	303.	102.	10.88
+	HYDROGRAPH AT	91	223.	13.00	43.	11.	4.	.46
+	3 COMBINED AT	CP91	1410.	13.67	659.	345.	116.	13.35
+	HYDROGRAPH AT	81A	1585.	12.67	349.	115.	38.	1.81
+	2 COMBINED AT	CP91A	1872.	12.75	934.	441.	151.	15.16
+	ROUTED TO	R91	1824.	12.83	932.	441.	151.	15.16
+	2 COMBINED AT	EMFRIT	8951.	14.42	6134.	2566.	1209.	96.40

NOAA Atlas Precipitation Data

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Arizona 33.3325 N 111.62 W 1420 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Mon Oct 22 2007

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Help | D

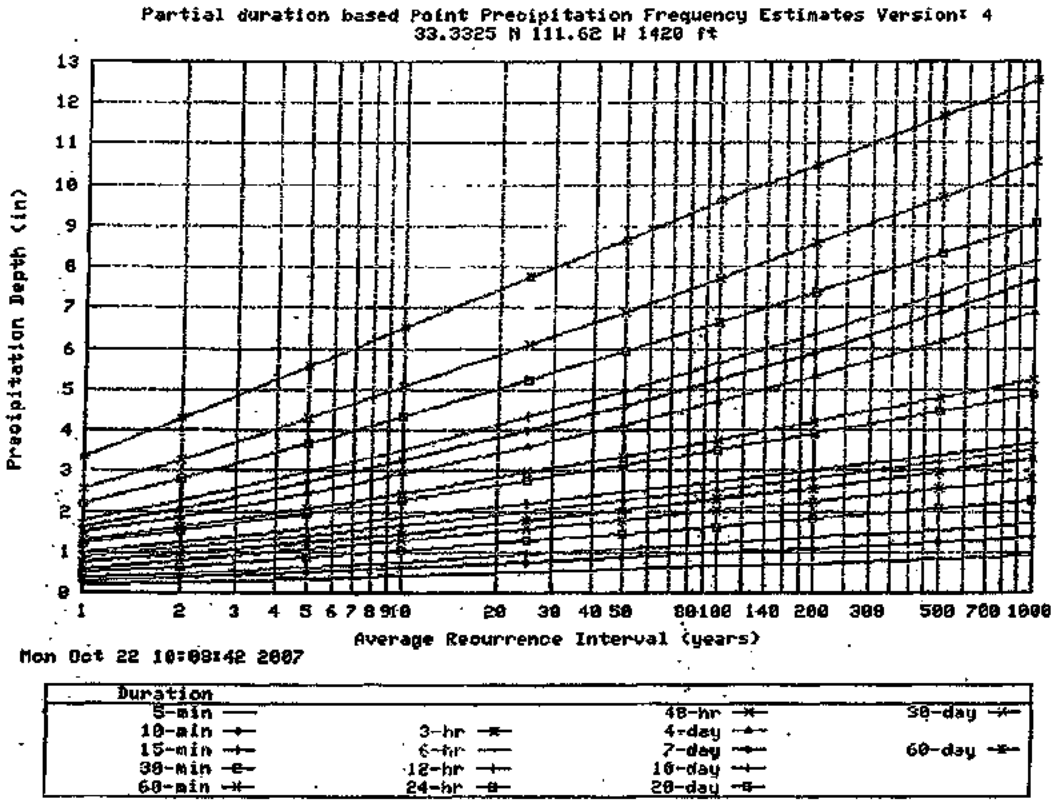
Precipitation Frequency Estimates (inches)

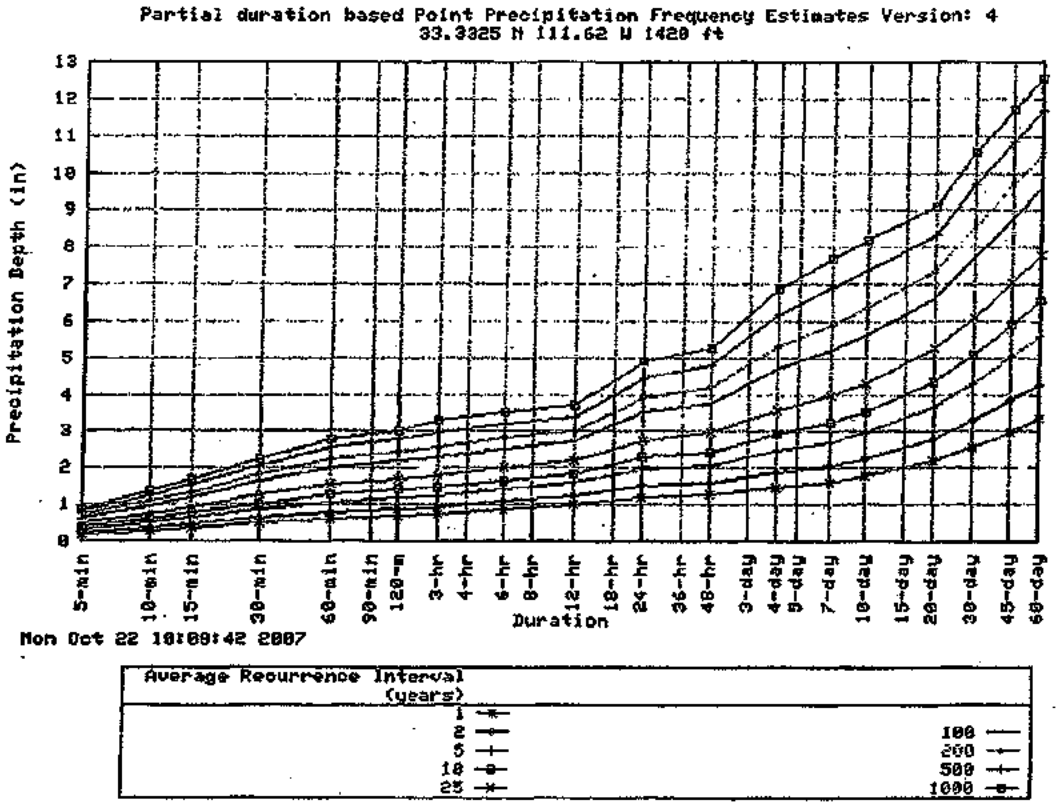
ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.19	0.29	0.36	0.48	0.60	0.68	0.73	0.88	0.99	1.21	1.27	1.47	1.62	1.77	2.19	2.56	2.99	3.33
2	0.25	0.38	0.47	0.63	0.78	0.89	0.93	1.11	1.26	1.52	1.61	1.87	2.07	2.25	2.81	3.28	3.84	4.28
5	0.34	0.51	0.64	0.85	1.06	1.18	1.22	1.42	1.58	1.95	2.08	2.45	2.71	2.96	3.68	4.29	5.02	5.58
10	0.40	0.61	0.76	1.03	1.27	1.40	1.45	1.66	1.84	2.29	2.44	2.92	3.24	3.52	4.35	5.06	5.90	6.53
25	0.50	0.76	0.94	1.26	1.56	1.71	1.77	2.00	2.19	2.75	2.95	3.59	3.98	4.32	5.25	6.10	7.05	7.76
50	0.57	0.86	1.07	1.44	1.78	1.95	2.03	2.26	2.46	3.12	3.35	4.13	4.59	4.96	5.94	6.91	7.93	8.68
100	0.64	0.97	1.21	1.63	2.01	2.19	2.30	2.54	2.74	3.51	3.77	4.70	5.24	5.64	6.65	7.73	8.81	9.60
200	0.71	1.09	1.35	1.81	2.24	2.44	2.58	2.82	3.02	3.90	4.20	5.31	5.92	6.36	7.37	8.57	9.69	10.49
500	0.81	1.24	1.53	2.06	2.56	2.78	2.97	3.21	3.40	4.45	4.79	6.17	6.89	7.36	8.35	9.70	10.84	11.66
1000	0.89	1.35	1.68	2.26	2.79	3.04	3.28	3.52	3.69	4.88	5.25	6.87	7.68	8.17	9.10	10.57	11.71	12.53

Text version of table

* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.

MESA PROVING GROUNDS ONSITE PRECIPITATION DEPTHS


Partial duration based Point Precipitation Frequency Estimates Version: 4
33.3325 N 111.62 W 1420 ft
Precipitation Depth (in)
Average Recurrence Interval (years)
Mon Oct 22 10:09:42 2007
Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
48-hr
4-day
7-day
10-day
20-day
30-day
60-day



Confidence Limits -

* Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.23	0.35	0.44	0.59	0.73	0.82	0.89	1.03	1.14	1.36	1.42	1.62	1.79	1.95	2.42	2.81	3.29	3.65
2	0.30	0.46	0.57	0.77	0.96	1.06	1.14	1.31	1.44	1.72	1.81	2.07	2.28	2.48	3.10	3.60	4.22	4.70
5	0.41	0.62	0.77	1.04	1.29	1.41	1.49	1.67	1.81	2.19	2.33	2.70	2.99	3.25	4.05	4.70	5.51	6.12
10	0.49	0.75	0.93	1.25	1.54	1.68	1.76	1.95	2.10	2.57	2.74	3.22	3.57	3.86	4.79	5.54	6.48	7.16
25	0.60	0.91	1.13	1.52	1.88	2.04	2.14	2.33	2.49	3.09	3.30	3.94	4.38	4.73	5.77	6.68	7.75	8.52
50	0.68	1.04	1.29	1.74	2.15	2.32	2.44	2.63	2.79	3.50	3.75	4.54	5.05	5.43	6.54	7.56	8.71	9.53
100	0.77	1.17	1.45	1.95	2.42	2.61	2.76	2.95	3.11	3.93	4.22	5.18	5.76	6.18	7.33	8.48	9.69	10.55
200	0.86	1.30	1.61	2.17	2.69	2.90	3.09	3.28	3.43	4.38	4.71	5.86	6.53	6.97	8.13	9.41	10.67	11.55
500	0.98	1.49	1.84	2.48	3.07	3.30	3.56	3.74	3.88	5.01	5.40	6.83	7.62	8.11	9.24	10.69	11.98	12.88
1000	1.07	1.63	2.02	2.72	3.36	3.63	3.94	4.11	4.24	5.53	5.95	7.63	8.53	9.02	10.11	11.71	12.99	13.88

* The upper bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are greater than.
** These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

*** Lower bound of the 90% confidence interval**

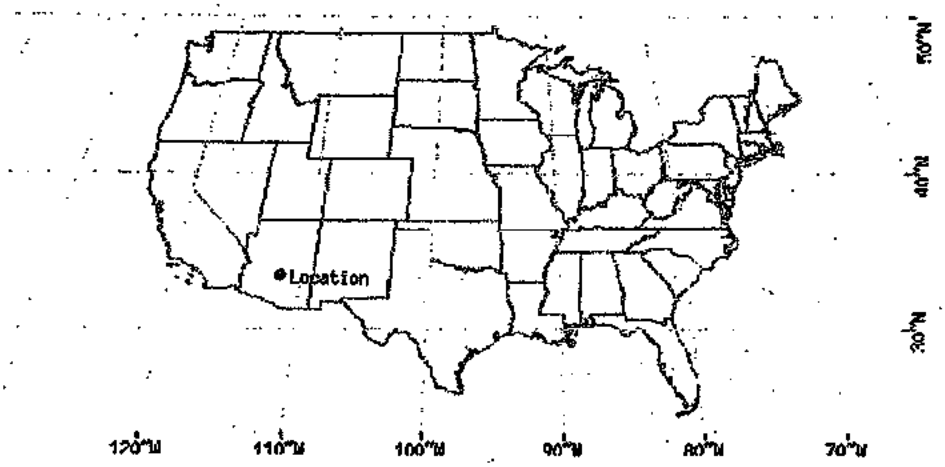
Precipitation Frequency Estimates (inches)

ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.16	0.24	0.30	0.41	0.50	0.58	0.61	0.76	0.87	1.08	1.14	1.34	1.48	1.61	1.99	2.33	2.72	3.04
2	0.21	0.32	0.40	0.53	0.66	0.75	0.79	0.96	1.10	1.37	1.44	1.70	1.88	2.06	2.55	2.98	3.49	3.90
5	0.28	0.43	0.53	0.71	0.88	0.99	1.03	1.22	1.39	1.74	1.86	2.22	2.46	2.69	3.34	3.90	4.56	5.08
10	0.34	0.51	0.63	0.85	1.05	1.17	1.21	1.42	1.60	2.04	2.18	2.64	2.93	3.19	3.93	4.60	5.35	5.93
25	0.41	0.62	0.76	1.03	1.27	1.41	1.46	1.69	1.88	2.43	2.61	3.23	3.58	3.90	4.73	5.52	6.38	7.03
50	0.46	0.70	0.86	1.16	1.44	1.58	1.64	1.88	2.09	2.73	2.94	3.69	4.10	4.44	5.33	6.22	7.14	7.83
100	0.51	0.77	0.96	1.29	1.59	1.75	1.82	2.07	2.29	3.04	3.27	4.17	4.64	5.01	5.94	6.93	7.90	8.62
200	0.56	0.84	1.05	1.41	1.75	1.91	2.01	2.26	2.49	3.34	3.60	4.66	5.20	5.60	6.54	7.63	8.63	9.38
500	0.62	0.94	1.16	1.57	1.94	2.12	2.25	2.51	2.73	3.74	4.03	5.34	5.96	6.40	7.33	8.55	9.58	10.35
1000	0.66	1.00	1.25	1.68	2.08	2.27	2.42	2.68	2.92	4.04	4.35	5.88	6.57	7.03	7.92	9.23	10.28	11.05

* The lower bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a gives frequency are less than.
** These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

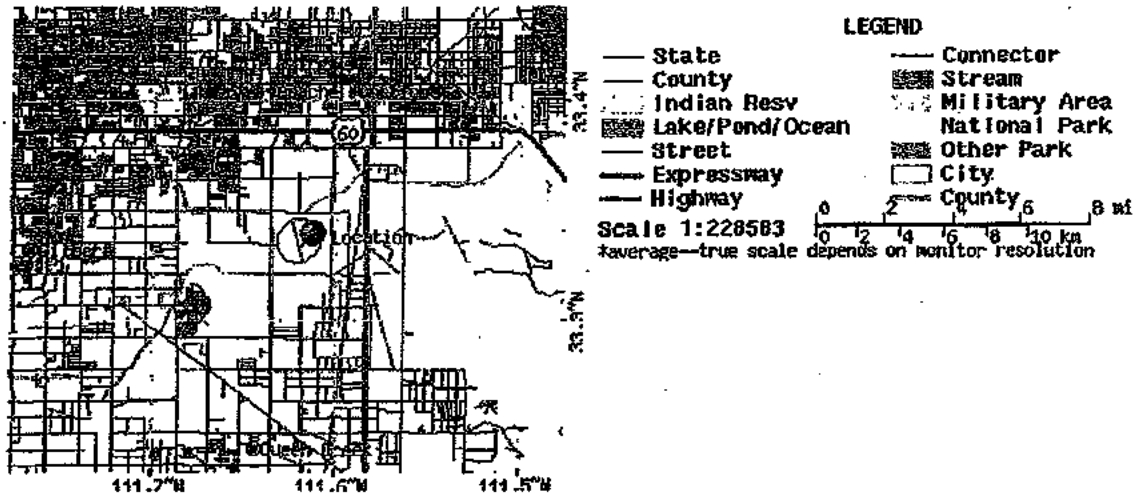
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Maps -



These maps were produced using a direct map request from the U.S. Census Bureau Mapping and Cartographic Resources Tiger Map Server.

Please read disclaimer for more information.



Other Maps/Photographs -

View USGS digital orthophoto quadrangle (DOQ) covering this location from TerraServer; USGS Aerial Photograph may also be available
from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the USGS for more information.

Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

Climate Data Sources -

Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information
about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study,
please refer to our documentation.

Using the National Climatic Data Center's (NCDC) station search engine, locate other climate stations within:

+/-30 minutes ...OR... +/-1 degree of this location (33.3325/-111.62). Digital ASCII data can be obtained directly from NCDC.

Find Natural Resources Conservation Service (NRCS) SNOTEL (SNOwpack TELemetry) stations by visiting the Western Regional Climate Center's state-specific SNOTEL station maps.

Hydrometeorological Design Studies Center
DOC/NOAA/National Weather Service
1325 East-West Highway
Silver Spring, MD 20910

(301) 713-1669
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Existing Condition HEC-1 Sub-Basin Data

Table 1 - Existing HEC-1 Sub-Basin Data

Description: Sub-basin data based on aerial photo and topography

Location Eastmark - East Mesa, Arizona

Date: 05/30/08

Reference: DDMSW Version 3.3.2

SUB-BASINS (EAST OF ELLSWORTH ROAD)								
Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Length (ft)	Length (mi)	USGE (ft)	DSGE (ft)	Lca (mi)
73A	26400845	606.08	0.947	12144	2.30	1567.3	1487.0	1.00
73B	11854970	272.15	0.425	2957	0.56	1487.0	1470.0	0.28
73C	16310497	374.44	0.585	7022	1.33	1480.0	1450.0	0.30
74A	21020314	482.56	0.754	12672	2.40	1563.0	1461.7	1.00
74B	9278312	213.00	0.333	6917	1.31	1490.0	1459.0	0.41
74C	9606165	220.53	0.345	6442	1.22	1471.0	1440.0	0.40
75	111652992	2563.20	4.005	21120	4.00	1465.0	1385.0	3.00
77A	48480538	1112.96	1.739	15312	2.90	1559.0	1468.8	1.50
77B	9740171	223.60	0.349	2957	0.56	1469.0	1453.0	0.26
77C	7769721	178.37	0.279	4013	0.76	1457.0	1439.0	0.51
78A	52467149	1204.48	1.882	19536	3.70	1558.0	1452.6	2.10
78B	11047090	253.61	0.396	3168	0.60	1460.0	1441.0	0.40
78C	8018731	184.08	0.288	2640	0.50	1448.0	1432.1	0.30
79A1	5573617	127.95	0.1999	8237	1.56	1435.0	1392.0	0.98
79A2	6371618	146.27	0.2285	3696	0.70	1430.0	1409.0	0.34
79A3	4316890	99.10	0.1548	3115	0.59	1426.0	1411.0	0.55
79A4	10483383	240.67	0.3760	8078	1.53	1435.0	1410.0	0.56
79A	29746253	682.88	1.067	7524	1.43	1411.0	1390.0	0.82

SUB-BASINS (WEST OF ELLSWORTH ROAD)								
Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Length (ft)	Length (mi)	USGE (ft)	DSGE (ft)	Lca (mi)
23	6088253	139.77	0.218	3767	0.71	1405.0	1391.0	0.36
24	7031535	161.42	0.252	3967	0.75	1400.0	1380.0	0.38
25	5794910	133.03	0.208	4355	0.82	1390.0	1375.0	0.41
26	1264710	29.03	0.045	2028	0.38	1389.0	1380.0	0.19
68A1	8293239	190.39	0.297	4843	0.92	1425.7	1391.0	0.46
68A2	1336285	30.68	0.048	2634	0.50	1410.9	1392.0	0.25
68B1	4078185	93.62	0.146	3951	0.75	1402.2	1378.0	0.38
68B2	1681764	38.61	0.060	2916	0.55	1395.8	1378.0	0.28
68B3	989689	22.72	0.036	1916	0.36	1392.6	1381.0	0.18
70A1	1491048	34.23	0.053	2750	0.52	1392.0	1390.0	0.26
70A2	994745	22.84	0.036	2700	0.51	1390.0	1380.0	0.26
70B	9099867	208.90	0.326	8448	1.60	1390.0	1342.0	1.10
71	23991985	550.78	0.861	8448	1.60	1378.0	1335.8	0.80

Existing Condition HEC-1 Soil Data

Table 2 - Existing HEC-1 - Soils Data

Description: Existing Condition Soil Data

Location Eastmark - East Mesa, Arizona

Date: 05/30/08

Reference: NRCS Web Soil Survey
Aguila-Carefree Area Soil Survey

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
23	50	Estrella Loams	40.58	0.0634
	55	Gilman Loams	9.09	0.0142
	77	Mohall Clay Loam	66.95	0.1046
	112	Tremant Gravelly Sandy Loams	23.20	0.0363
		TOTAL	139.82	0.2185
24	77	Mohall Clay Loam	103.31	0.1614
	79	Mohall Clay	37.93	0.0593
	112	Tremant Gravelly Sandy Loams	20.18	0.0315
		TOTAL	161.42	0.2522
25	50	Estrella Loams	87.80	0.1372
	55	Gilman Loams	2.13	0.0033
	76	Mohall Loam, Calcareous Solum	4.52	0.0071
	77	Mohall Clay Loam	14.50	0.0227
	112	Tremant Gravelly Sandy Loams	24.08	0.0376
		TOTAL	133.03	0.2079
26	50	Estrella Loams	2.87	0.0045
	77	Mohall Clay Loam	6.53	0.0102
	112	Tremant Gravelly Sandy Loams	19.63	0.0307
		TOTAL	29.03	0.0454
73A	N/A	No Data Available	606.08	0.9470
		TOTAL	606.08	0.9470
73B	1	Antho Sandy Loams	73.75	0.1152
	50	Estrella Loams	10.61	0.0166
	55	Gilman Loams	15.78	0.0247
	75	Mohall Loam	62.59	0.0978
	77	Mohall Clay Loam	80.28	0.1254
	112	Tremant Gravelly Sandy Loams	29.14	0.0455
		TOTAL	272.15	0.4252
73C	1	Antho Sandy Loams	76.01	0.1188
	50	Estrella Loams	85.37	0.1334
	75	Mohall Loam	128.81	0.2013
	77	Mohall Clay Loam	84.25	0.1316
		TOTAL	374.44	0.5851
74A	N/A	No Data Available	482.56	0.7540
		TOTAL	482.56	0.7540
74B	1	Antho Sandy Loams	112.04	0.1751
	77	Mohall Clay Loam	97.34	0.1521
	112	Tremant Gravelly Sandy Loams	3.62	0.0057
		TOTAL	213.00	0.3329
74C	1	Antho Sandy Loams	55.57	0.0868
	50	Estrella Loams	11.47	0.0179
	77	Mohall Clay Loam	136.29	0.2130
	112	Tremant Gravelly Sandy Loams	16.76	0.0262
	115	Tremant-Antho Complex, 1-5 %Slope	0.44	0.0007
		TOTAL	220.53	0.3446

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
75	1	Antho Sandy Loams	30.76	0.0481
	2	Antho Gravelly Sandy Loams	12.82	0.0200
	50	Estrella Loams	215.31	0.3364
	55	Gilman Loams	2.56	0.0040
	75	Mohall Loam	833.04	1.3016
	77	Mohall Clay Loam	966.33	1.5099
	78	Mohall Clay Loam, Calcareous Solum	87.15	0.1362
	79	Mohall Clay	176.86	0.2763
	112	Tremant Gravelly Sandy Loams	238.37	0.3725
		TOTAL	2563.20	4.0050
77A	N/A	No Data Available	1112.96	1.7390
		TOTAL	1112.96	1.7390
77B	1	Antho Sandy Loams	76.92	0.1202
	77	Mohall Clay Loam	81.39	0.1272
	112	Tremant Gravelly Sandy Loams	65.29	0.1020
		TOTAL	223.60	0.3494
77C	1	Antho Sandy Loams	4.82	0.0075
	77	Mohall Clay Loam	74.56	0.1165
	78	Mohall Clay Loam, Calcareous Solum	9.10	0.0142
	112	Tremant Gravelly Sandy Loams	89.54	0.1399
	115	Tremant-Antho Complex, 1-5 %Slope	0.35	0.0005
		TOTAL	178.37	0.2786
78A	N/A	No Data Available	1204.48	1.8820
		TOTAL	1204.48	1.8820
78B	22	Contine Clay Loam	66.95	0.1046
	77	Mohall Clay Loam	79.63	0.1244
	112	Tremant Gravelly Sandy Loams	107.03	0.1672
		TOTAL	253.61	0.3962
78C	22	Contine Clay Loam	128.67	0.2010
	77	Mohall Clay Loam	2.76	0.0043
	112	Tremant Gravelly Sandy Loams	52.65	0.0823
		TOTAL	184.08	0.2876
79A1	2	Antho Gravelly Sandy Loams	16.38	0.0256
	50	Estrella Loams	8.06	0.0126
	55	Gilman Loams	7.17	0.0112
	78	Mohall Clay Loam, Calcareous Solum	0.13	0.0002
	112	Tremant Gravelly Sandy Loams	96.21	0.1503
		TOTAL	127.95	0.1999
79A2	1	Antho Sandy Loams	0.58	0.0009
	2	Antho Gravelly Sandy Loams	14.63	0.0229
	50	Estrella Loams	54.85	0.0857
	78	Mohall Clay Loam, Calcareous Solum	74.74	0.1168
	115	Tremant-Antho Complex, 1-5 %Slope	1.47	0.0023
		TOTAL	146.27	0.2286

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
79A3	22	Contine Clay Loam	32.70	0.0511
	77	Mohall Clay Loam	32.60	0.0509
	78	Mohall Clay Loam, Calcareous Solum	31.51	0.0492
	112	Tremant Gravelly Sandy Loams	1.49	0.0023
	115	Tremant-Antho Complex, 1-5 %Slope	0.80	0.0013
		TOTAL	99.10	0.1548
79A4	1	Antho Sandy Loams	3.85	0.0060
	22	Contine Clay Loam	89.53	0.1399
	50	Estrella Loams	16.61	0.0260
	77	Mohall Clay Loam	43.80	0.0684
	78	Mohall Clay Loam, Calcareous Solum	23.59	0.0369
	112	Tremant Gravelly Sandy Loams	52.71	0.0824
	115	Tremant-Antho Complex, 1-5 %Slope	10.58	0.0165
		TOTAL	240.67	0.3761
79A	2	Antho Gravelly Sandy Loams	4.78	0.0075
	22	Contine Clay Loam	226.03	0.3532
	76	Mohall Loam, Calcareous Solum	7.51	0.0117
	77	Mohall Clay Loam	62.82	0.0982
	78	Mohall Clay Loam, Calcareous Solum	219.69	0.3436
	112	Tremant Gravelly Sandy Loams	161.85	0.2529
		TOTAL	682.88	1.0671
68A1	50	Estrella Loams	55.97	0.0875
	55	Gilman Loams	57.12	0.0893
	77	Mohall Clay Loam	60.54	0.0946
	112	Tremant Gravelly Sandy Loams	16.74	0.0262
		TOTAL	190.37	0.2976
68A2	50	Estrella Loams	18.01	0.0281
	55	Gilman Loams	12.43	0.0194
	77	Mohall Clay Loam	0.24	0.0004
		TOTAL	30.68	0.0479
68B1	50	Estrella Loams	20.88	0.0326
	55	Gilman Loams	1.03	0.0016
	77	Mohall Clay Loam	15.92	0.0249
	112	Tremant Gravelly Sandy Loams	55.79	0.0872
		TOTAL	93.62	0.1463
68B2	50	Estrella Loams	23.20	0.0363
	77	Mohall Clay Loam	15.41	0.0241
		TOTAL	38.61	0.0604
68B3	50	Estrella Loams	20.18	0.0315
	77	Mohall Clay Loam	2.54	0.0040
		TOTAL	22.72	0.0355
70A1	50	Estrella Loams	17.94	0.0280
	77	Mohall Clay Loam	10.54	0.0165
	112	Tremant Gravelly Sandy Loams	5.75	0.0090
		TOTAL	34.23	0.0535
70A2	77	Mohall Clay Loam	20.26	0.0317
	112	Tremant Gravelly Sandy Loams	2.58	0.0040
		TOTAL	22.84	0.0357

Existing Condition HEC-1 Land Use Data

Table 3 - Existing HEC-1 Land Use Data

Description: Land use data based on existing development and aerial photos

Location Eastmark - East Mesa, Arizona

Date: 05/30/08

Reference: DDMSW Version 3.3.2

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Land Use	Land Use Area (sq. mi.)
23	6088253	139.77	0.2184	Passive Open Space	0.2184
24	7031535	161.42	0.2522	Passive Open Space	0.2522
25	5794910	133.03	0.2079	Passive Open Space	0.2079
26	1264710	29.03	0.0454	Passive Open Space	0.0454
73A	26400845	606.08	0.9470	Passive Open Space	0.8499
73B	11854970	272.15	0.4252	Small Lot Residential (4-6 DU/Acre)	0.4252
73C	16310497	374.44	0.5851	Small Lot Residential (4-6 DU/Acre)	0.5851
74A	21020314	482.56	0.7540	Passive Open Space	0.7887
74B	9278312	213.00	0.3328	Small Lot Residential (4-6 DU/Acre)	0.3494
74C	9606165	220.53	0.3446	Small Lot Residential (4-6 DU/Acre)	0.2787
75	111652992	2563.20	4.0050	Other Employment - Low	4.0050
77A	48480538	1112.96	1.7390	Passive Open Space	1.6948
77B	9740171	223.60	0.3494	Medium Lot Residential (2-4 DU/Acre)	0.1429
				Estate Residential (1/5 - 1 DU/Acre)	0.2065
77C	7769721	178.37	0.2787	Small Lot Residential (4-6 DU/Acre)	0.2787
78A	52467149	1204.48	1.8820	Passive Open Space	1.9671
78B	11047090	253.61	0.3963	Estate Residential (1/5 - 1 DU/Acre)	0.3963
78C	8018731	184.08	0.2876	Passive Open Space	0.1684
				Medium Lot Residential (2-4 DU/Acre)	0.0354
				Estate Residential (1/5 - 1 DU/Acre)	0.0838
79A1	5573617	127.95	0.1999	Other Employment - Low	0.1999
79A2	6371618	146.27	0.2285	Other Employment - Low	0.2285
79A3	4316890	99.10	0.1548	Other Employment - Low	0.1548
79A4	10483383	240.67	0.3760	Other Employment - Low	0.3760
79A	29746253	682.88	1.0670	Other Employment - Low	1.0670
68A1	8293239	190.39	0.2975	Passive Open Space	0.2975
68A2	1336285	30.68	0.0479	Passive Open Space	0.0479
68B1	4078185	93.62	0.1463	Passive Open Space	0.1463
68B2	1681764	38.61	0.0603	Passive Open Space	0.0603
68B3	989689	22.72	0.0355	Passive Open Space	0.0355
70A1	1491048	34.23	0.0535	General Transportation	0.0535
70A2	994745	22.84	0.0357	General Transportation	0.0357

Existing Condition HEC-1 Routing Data

Table 4 - Existing HEC-1 Routing Data

Description: Routing parameters based on existing channels and drainage corridors

Location Eastmark - East Mesa, Arizona
East Mesa, Arizona

Date: 5/30/2008

Reference: DDMSW Version 3.3.2

Routing ID	LOB N	CHAN N	ROB N	Length (ft)	Slope (ft/ft)	RX1	RX2	LB	RX4	RX5	RB	RX7	RX8	RY1	RY2	LB	RY4	RY5	RB	RY7	RY8
73ATB	0.060	0.060	0.060	2830.00	0.0050	0.0	5.00	10	20	120	130	135	140	2.50	2.50	2.50	0.00	0.00	2.50	2.50	2.50
73BTC	0.045	0.035	0.045	4500.00	0.0050	0.0	5.00	10	22	122	134	139	144	3.00	3.00	3.00	0.00	0.00	3.00	3.00	3.00
73T74C	0.035	0.022	0.035	3500.00	0.0034	0.0	500.00	1000	1001	1016	1516	2016	2516	6	5.50	5.00	2.00	2.00	3.50	4.50	5.50
74ATB	0.030	0.013	0.030	3200.00	0.0060	0.0	7.00	21.5	30	36	44.5	59	66	5.00	5.50	5.50	0.00	0.00	5.50	5.50	5.00
74BTC	0.030	0.013	0.030	3100.00	0.0055	0.0	7.00	21.5	30	36	44.5	59	66	5.00	5.50	5.50	0.00	0.00	5.50	5.50	5.00
74CT75	0.030	0.013	0.030	10700.00	0.0045	0.0	5.60	20.1	30	29	49.9	69.4	75	6.25	7.25	7.25	0.00	0.00	7.25	7.25	6.25
77ATB	0.045	0.040	0.045	3000.00	0.0060	0.0	500.00	980	1003	1007	1031	1511	2011	4.00	3.50	3.00	0.00	0.00	3.00	3.50	4.00
77BTC	0.045	0.040	0.045	4750.00	0.0042	0.0	500.00	950	1003	1007	1061	1511	2011	4.00	3.50	3.00	0.00	0.00	3.00	3.50	4.00
77CT78	0.035	0.022	0.035	2400.00	0.0020	0.0	100.00	110	115	120	125	130	135	4.00	3.00	2.50	0.00	0.00	2.50	8.00	9.00
78ATB	0.045	0.040	0.045	3500.00	0.0042	0.0	500.00	980	1003	1007	1031	1511	2011	4.50	3.50	3.00	0.00	0.00	3.00	3.50	4.50
78BTC	0.035	0.022	0.035	4500.00	0.0033	0.0	100.00	110	115	120	125	130	135	5.00	4.00	3.50	0.00	0.00	3.50	8.00	9.00
78CT79	0.035	0.022	0.035	10560.00	0.0044	0.0	500.00	800	805	820	825	1125	1625	7.00	6.00	5.00	0.00	0.00	5.00	6.00	7.00
70A1T2	0.025	0.025	0.025	2675.00	0.0005	0.0	8.0	16.0	59.0	91.0	134.0	142.0	150.0	7.40	7.30	7.20	0.00	0.00	7.20	7.10	7.00
68T70A	0.030	0.030	0.030	3960.00	0.0006	0.0	5.0	10.0	20.0	30.0	40.0	45.0	50.0	10.00	6.00	4.00	0.00	0.00	4.00	5.00	10.00
26T71	0.045	0.040	0.045	5686.00	0.0050	0.0	500.0	1000.0	1003.0	1007.0	1011.0	1511.0	2011.0	3.00	2.50	2.00	0.00	0.00	2.00	2.50	3.00
26T70B	0.045	0.040	0.045	4688.00	0.0057	0.0	500.0	1000.0	1003.0	1007.0	1011.0	1511.0	2011.0	3.00	2.50	2.00	0.00	0.00	2.00	2.50	3.00

Offsite Retention Updates for HEC-1

Table 5 - Existing Condition HEC-1 - Offsite Retention Updates

Description: Retention provided by existing developments

Location: Eastmark - East Mesa, Arizona

Date: 05/30/08

Reference: Final Drainage Report for Mountain Horizons (North of the Powerline Floodway)
Final Drainage Report for Mountain Horizons (South of the Powerline Floodway)
Drainage Report for Mass Grading of Nova Vista (Signal Butte Rd & Elliot Rd)
Final Drainage Report for Gila River Ranches (Warner and Meridian)
Drainage Report for Mountain Heights
Final Drainage Report for Keighley Place

Watershed	Development	Basin ID	Retention Required (acre-ft)	Total Retention Required (acre-ft)	Account for 80% in HEC-1 (acre-ft)	Total Volume To HEC-1 (acre-ft)
73B	Mountain Ranch	A2	7.11	32.0	25.6	39.5
		A1	2.87			
		OS1	2.07			
		C1	4.06			
		C2	3.15			
		C3	0.53			
		D1	4.49			
		D2	2.44			
		OS2	1.68			
		OS3	1.62			
		OS4	1.96			
	Mountain Heights	A	2.90	9.6	7.7	
		B	1.18			
		C	0.59			
		D	0.61			
		E	3.56			
		F	0.76			
	Stratford Estates	A	4.67	7.7	6.2	
		1/2 B AND C	2.99			
73C	Nova Vista	B1	4.83	31.8	25.4	37.2
		B2	1.51			
		B3	5.29			
		B4	0.49			
		B5	7.15			
		B6	1.77			
		B7	0.73			
		B8	5.14			
		B9	3.58			
		B10	0.54			
		B11	0.36			
		B12	0.06			
		B13	0.14			
		B14	0.11			
		B15	0.07			
		B16	0.04			
	Mountain Horizons (North)	A1	4.80	14.7	11.8	
		B1	4.83			
		C1	5.07			
74B	Gila River Ranches	A, B, C	10.29	19.2	15.4	17.8
		D1, D2	2.28			
		E	2.49			
		F1, F2, F3, F4	2.22			
		K1	0.28			
		K2	0.91			
		M1	0.15			
		M2	0.23			
		N	0.34			
	Strateford Estates	1/2 B AND C	2.99	3.0	2.4	
74C	Mountain Horizons (North)	D1	5.98	28.3	22.6	22.6
		E1	3.86			
		F1, F2, F3, F4, F5	6.46			
		G1	4.57			
		H1, H2	4.24			
		J1	2.13			
		X1	0.98			
77B	Gila River Ranches	G, H3	3.64	8.0	6.4	6.4
		H1, H2	2.02			
		J1a, J1b, J1c	2.00			
		P	0.22			
		Q	0.11			
	Keighley Place[1]	A-1	0.00	0.0	0.0	
		A-2	0.00			
		G-1	0.00			
		G-2	0.00			
		G-3	0.00			
		G-4	0.00			
		G-5	0.00			
		J	0.00			
77C	Mountain Horizons (South)	A1	3.51	21.0	16.8	16.8
		A2	0.96			
		B1	2.07			
		B2	0.80			
		B3	0.36			
		B4	0.73			
		C1	2.99			
		D1	2.06			
		D2	2.54			
		F2	1.88			
		F3A, F3B	2.95			
78C	Mountain Horizons (South)	E1	0.42	2.7	2.2	2.2
		E2	2.28			
					Total	142.5

Notes:
1) Currently a final plat has been approved for Keighley Place but no construction has begun. Retention from the approved final drainage report was NOT applied to the existing condition HEC-1 model updates.

APPENDIX B

Post Developed Data and Hydrology

Hydrology Post Developed

100-Year, 24-Hour HEC-1 Output

```
1*************************************                                    *************************************
 *                                   *                                    *                                   *
 *  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                    *  U.S. ARMY CORPS OF ENGINEERS     *
 *            JUN  1998              *                                    *  HYDROLOGIC ENGINEERING CENTER    *
 *          VERSION 4.1              *                                    *        609 SECOND STREET          *
 *                                   *                                    *     DAVIS, CALIFORNIA 95616       *
 * RUN DATE  18APR14  TIME  09:56:21 *                                    *       (916) 756-1104              *
 *                                   *                                    *                                   *
 *************************************                                    *************************************

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

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

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

1                                                HEC-1 INPUT                                                    PAGE  1

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

        1           ID
        2           ID     FILE: EMDU5E.DAT
        3           ID
        4           ID     MODEL REVISED: 04-18-2014
        5           ID
        6           ID     PROJECT: EASTMARK MASTER DRAINAGE UPDATE (FOR DEVELOPMENT UNIT 5 EAST)
        7           ID
        8           ID     THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES
        9           ID        FOR DEVELOPMENT UNIT 5 EAST (DU 5E).
       10           ID
       11           ID     MODEL REVISION DESCRIPTION:
       12           ID
       13           ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
       14           ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USE FOR DU 5E HAS
       15           ID        CHANGED FROM GOLF TO INDUSTRIAL.  AREAS THAT PREVIOUSLY DRAINED TO GOLF
       16           ID        WHERE 100-YEAR, 24-HOUR RETENTION WAS PROVIDED WILL NOW BE REQUIRED TO
       17           ID        SELF RETAIN RETENTION VOLUME FROM THEIR SITE FOR THE 100-YEAR, 24-HOUR
       18           ID        STORM PEAK FLOWS HAVE REMAINED THE SAME.  THE REMAINING PORTION OF LAND
       19           ID        THAT WAS ASSOCIATED WITH GOLF HAS BEEN REVISED TO RESIDENTIAL USE.
       20           ID
       21           ID        MODEL REVISED BY:
       22           ID        WOOD, PATEL & ASSOCIATES, INC.
       23           ID        DANIEL MATTHEWS, P.E.
       24           ID
       25           ID        FILE PATH:
       26           ID        R:\MESA PROVING GROUNDS\2014\144173\PROJECT SUPPORT\REPORTS\DRAINAGE\
       27           ID        EASTMARK OVERALL MASTER DRAINAGE UPDATE\HYDROLOGY\PROPOSED\EMDU5E.DAT
       28           ID
       29           ID   ***********************************************************************
       30           ID
       31           ID     FILE: EMDU34.DAT
       32           ID
       33           ID     MODEL REVISED: 04-14-2014
       34           ID
       35           ID     PROJECT: EASTMARK MASTER DRAINAGE UPDATE FOR DEVELOPMENT UNIT 3/4
       36           ID
       37           ID     THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES
       38           ID        FOR DEVELOPMENT UNIT 3/4 (DU 3/4).
       39           ID
       40           ID     MODEL REVISION DESCRIPTION:
       41           ID
       42           ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
       43           ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USE FOR DU 3/4 HAS BEEN
       44           ID        REVISED TO REFLECT MORE DETAILED PLANNING.  MINOR ADJUSTMENTS TO LAND
       45           ID        USES OUTSIDE OF DU 3/4 HAVE BEEN MADE.  ADDITIONALLY WATERSHED
       46           ID        BOUNDARIES HAVE BEEN REVISED TO REFLECT A CONCEPTUAL MASS GRADE PLAN
       47           ID        PROVIDED TO WOOD/PATEL BY A CONSULTANT OF THE DEVELOPER DMB MESA
       48           ID        PROVING GROUNDS LLC.
       49           ID
       50           ID        MODEL REVISED BY:
       51           ID        WOOD, PATEL & ASSOCIATES, INC.
       52           ID        DANIEL MATTHEWS, P.E.
       53           ID
       54           ID        FILE PATH:
       55           ID        R:\MESA PROVING GROUNDS\2011\113697.09\PROJECT SUPPORT\REPORTS\
1                                                HEC-1 INPUT                                                    PAGE  2

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

       56           ID        EASTMARK OVERALL DRAINAGE MASTER UPDATE\HYDROLOGY\PROPOSED\EMDU34.DAT
       57           ID
       58           ID   ***********************************************************************
       59           ID     FILE: EMDU39.DAT
       60           ID
       61           ID     MODEL REVISED: 12-11-2013
       62           ID
```

```
  63          ID     PROJECT: EASTMARK MASTER DRAINAGE UPDATE FOR DEVELOPMENT UNIT 3 SOUTH
  64          ID
  65          ID     THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES
  66          ID        FOR DEVELOPMENT UNIT 3 SOUTH (DU-3S).
  67          ID
  68          ID     MODEL REVISION DESCRIPTION:
  69          ID
  70          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
  71          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USES FOR DU-3S ARE
  72          ID        CONSISTENT WITH THE PREVIOUS MODEL (EMDU89.DAT) THEREFORE RESULTING
  73          ID        PEAK FLOWS HAVE REMAINED THE SAME.
  74          ID
  75          ID        MODEL REVISED BY:
  76          ID        WOOD, PATEL & ASSOCIATES, INC.
  77          ID        DANIEL MATTHEWS, P.E.
  78          ID
  79          ID        FILE PATH:
  80          ID        R:\MESA PROVING GROUNDS\2011\113697.08\PROJECT SUPPORT\REPORTS\
  81          ID        EASTMARK OVERALL DRAINAGE MASTER UPDATE\HYDROLOGY\PROPOSED\EMDU3S.DAT
  82          ID
  83          ID   ***********************************************************************
  84          ID
  85          ID     FILE: EMDU89.DAT
  86          ID
  87          ID     MODEL REVISED: 1-22-2013
  88          ID
  89          ID     PROJECT: EASTMARK 646
  90          ID
  91          ID     THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT UPDATED PLANNING
  92          ID        FOR DEVELOPMENT UNITS 8&9 (DU 8&9).
  93          ID
  94          ID     MODEL REVISION DESCRIPTION:
  95          ID
  96          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
  97          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  ONSITE WATERSHEDS WERE
  98          ID        UPDATED TO REFLECT CURRENT PLAN FOR DEVELOPMENT UNITS 8 & 9.
  99          ID
 100          ID        MODEL REVISED BY:
 101          ID        WOOD, PATEL & ASSOCIATES, INC.
 102          ID        DARREN E. SMITH, P.E.
 103          ID
 104          ID        FILE PATH:
 105          ID        R:\MESA PROVING GROUNDS\2012\123835\PROJECT SUPPORT\REPORTS\
 106          ID        DRAINAGE\HYDROLOGY\PROPOSED\EMDU89.DAT
 107          ID
 108          ID   ***********************************************************************
 109          ID
 110          ID        FILE: MPGDU7.DAT
1                                          HEC-1 INPUT                                    PAGE  3

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

 111          ID
 112          ID        MODEL REVISED: 09-07-2011
 113          ID
 114          ID        PROJECT: MESA PROVING GROUNDS
 115          ID
 116          ID        THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
 117          ID        BELOW.  REFERENCING WS2-NEM.DSS IS STILL REQUIRED.
 118          ID
 119          ID        THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT UPDATED PLANNING
 120          ID        FOR DEVELOPMENT UNIT 7 (DU7)PROVIDED BY ARIZONA LAND DESIGN ON 09/02/201
 121          ID        09/02/2011.
 122          ID
 123          ID        MODEL REVISION DESCRIPTION:
 124          ID
 125          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
 126          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  ONSITE WATERSHEDS WERE
 127          ID        UPDATED TO REFLECT A GRADING PLAN PROVIDED BY LD TEAM ON 8/30/2011.
 128          ID        MODELING OF THE POWERLINE FLOODWAY HAS BEEN UPDATED TO REFLECT THE
 129          ID        EXISTING SECTIONS AND SLOPE PER AS-BUILT DRAWINGS ACROSS THE MPG
 130          ID        SITE.
 131          ID
 132          ID        MODEL REVISED BY:
 133          ID        WOOD, PATEL & ASSOCIATES, INC.
 134          ID        DANIEL W. MATTHEWS, E.I.T.
 135          ID
 136          ID        FILE PATH:
 137          ID        R:\MESA PROVING GROUNDS\2011\113697\PROJECT SUPPORT\REPORTS\
 138          ID        DRAINAGE\HYDROLOGY\MPGDU7.DAT
 139          ID
 140          ID
 141          ID   **********************************************************************
 142          ID
 143          ID        FILE: MPG20RT2.DAT
 144          ID
 145          ID        MODEL REVISED: 04-25-2011
 146          ID
 147          ID        PROJECT: MESA PROVING GROUNDS
 148          ID
 149          ID        THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
 150          ID        BELOW.  REFERENCING WS2-NEM.DSS IS STILL REQUIRED.
 151          ID
 152          ID        THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
 153          ID        THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
 154          ID        BY SWABACK PARTNERS ON 12/12/07.
 155          ID
 156          ID        MODEL REVISION DESCRIPTION:
 157          ID
 158          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
 159          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  ONSITE WATERSHEDS 01 AND
 160          ID        20 WERE UPDATED TO REFLECT THE INCORPORATION OF THE FIRST SOLAR SITE
 161          ID        IN THE NORTHEAST CORNER OF DU-6.  WATERSHED 02 WAS SPLIT INTO 02A AND
 162          ID        02B.  LAND USE WAS CHANGED TO INDUSTRIAL FOR 02B AND ENTIRELEY
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 163          ID        RESIDENTIAL FOR 02A.
 164          ID        THE FIRST SOLAR SITE RUNOFF WILL NOW BE RETAINED ENTIRELY ONSITE.
 165          ID
1                                          HEC-1 INPUT                                                    PAGE  4

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

 166          ID        MODEL REVISED BY:
 167          ID        WOOD, PATEL & ASSOCIATES, INC.
 168          ID        STEPHEN M. SCINTO, P.E.
 169          ID
 170          ID        FILE PATH:
 171          ID        R:\MESA PROVING GROUNDS\2010\103564.04\PROJECT SUPPORT\REPORTS\
 172          ID        DRAINAGE\HYDROLOGY\POST-DEVELOPED 100YR2HR RETENTION MODEL\
 173          ID        MPG20RT2.DAT
 174          ID
 175          ID    ***************************************************************************
 176          ID
 177          ID        FILE: MPG20RT2.DAT
 178          ID
 179          ID        MODEL REVISED: 09-16-08
 180          ID
 181          ID        PROJECT: MESA PROVING GROUNDS
 182          ID
 183          ID        THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
 184          ID        BELOW.  REFERENCING WS2-NEM.DSS IS STILL REQUIRED.
 185          ID
 186          ID        THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
 187          ID        THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
 188          ID        BY SWABACK PARTNERS ON 12/12/07.
 189          ID
 190          ID        MODEL REVISION DESCRIPTION:
 191          ID
 192          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
 193          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  ONSITE WATERSHEDS 01, 02,
 194          ID        03, AND 06 WERE UPDATED TO REFLECT THE CURRENT GOLF COURSE
 195          ID        CONFIGURATION.
 196          ID
 197          ID        MODEL REVISED BY:
 198          ID        WOOD, PATEL & ASSOCIATES, INC.
 199          ID        DANIEL W. MATTHEWS, E.I.T.
 200          ID
 201          ID        FILE PATH:
 202          ID        R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND
 203          ID        PLAN\2ND SUBMITTAL(COM)\HYDROLOGY\MPG20RT2.DAT
 204          ID
 205          ID    ***************************************************************************
 206          ID
 207          ID        FILE: MPG20RT2.DAT
 208          ID
 209          ID        MODEL REVISED: 05-15-08
 210          ID
 211          ID        PROJECT: MESA PROVING GROUNDS
 212          ID
 213          ID        MODEL REVISION DESCRIPTION:
 214          ID
 215          ID        THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
 216          ID        BELOW.  REFERENCING WS2-NEM.DSS IS STILL REQUIRED.
 217          ID
 218          ID
 219          ID        THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
 220          ID        THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
1                                          HEC-1 INPUT                                                    PAGE  5

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

 221          ID        BY SWABACK PARTNERS ON 12/12/07.
 222          ID
 223          ID
 224          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
 225          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  WATERSHED 79A WAS UPDATED
 226          ID        AS REQUESTED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY TO REDUCE THE
 227          ID        PERCENT IMPERVIOUS VALUE FROM 80% TO 0% TO MATCH THE LAND USE AS MODELED
 228          ID        WITHIN THE EAST MESA ADMP.
 229          ID
 230          ID        MODEL REVISED BY:
 231          ID        WOOD, PATEL & ASSOCIATES, INC.
 232          ID        DANIEL W. MATTHEWS, E.I.T.
 233          ID
 234          ID        FILE PATH:
 235          ID        R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND
 236          ID        PLAN\2ND SUBMITTAL\POST-DEVELOPED 100YR2HR RETENTION MODEL (MPG20RT2)\
 237          ID        MPG20RT2.DAT
 238          ID
 239          ID    ***************************************************************************
 240          ID
 241          ID        FILE: MPG20RT2.DAT
 242          ID
 243          ID        MODEL REVISED: 01-08-08
 244          ID
 245          ID        PROJECT: MESA PROVING GROUNDS
 246          ID
 247          ID        MODEL REVISION DESCRIPTION:
 248          ID
 249          ID        THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
 250          ID        BELOW.  REFERENCING WS2-NEM.DSS IS STILL REQUIRED.
 251          ID
 252          ID
 253          ID        THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
 254          ID        THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
 255          ID        BY SWABACK PARTNERS ON 12/12/07.
 256          ID
 257          ID
 258          ID        THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
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 259          ID        DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT).  WATERSHEDS 68A, 68B,
 260          ID        70A, 70B, 71, 73B, 73C, 74B, 74C, 75, 77B, 77C, 78B, 78C, AND 79A
 261          ID        HAVE ALL BEEN UPDATED TO REFLECT CURRENT WATERSHED DELINEATIONS,
 262          ID        NEW DEVELOPMENT, CURRENT RETENTION,AND FLOOD ROUTING.  BASIN 75
 263          ID        HAS BEEN UPDATED TO REFLECT PLANNED DEVELOPEMENT FOR THE MESA
 264          ID        PROVING GROUNDS SITE.
 265          ID
 266          ID        MODEL REVISED BY:
 267          ID        WOOD, PATEL & ASSOCIATES, INC.
 268          ID        DANIEL W. MATTHEWS, E.I.T.
 269          ID
 270          ID        FILE PATH:
 271          ID        R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND
 272          ID        PLAN\HYDROLOGY\POST-DEVELOPED 100YR2HR RETENTION MODEL (MPG20RT2)\
 273          ID        MPG20RT2.DAT
 274          ID
 275          ID    ***********************************************************************
1                                          HEC-1 INPUT                                          PAGE  6

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

 276          ID
 277          ID
 278          ID    ID  Kirkham Michael:
 279          ID    Last Revised Date:  1/22/03
 280          ID    Filename:  WS4-SEM.DAT
 281          ID
 282          ID    Comments Dated 1/22/03 (CJ)
 283          ID
 284          ID    This model should be used ONLY for the Rittenhouse and Chandler Heights
 285          ID    Basin Design Project - Final Design Analyses.
 286          ID
 287          ID    This model is one of several models that represent the EMF watershed.
 288          ID    This model covers the Southeast Mesa Area and should reference as a DSS
 289          ID    the watershed model for the Northeast Mesa Area (Filename WS2-NEM.DAT).
 290          ID
 291          ID    This model is necessary to determine the input hydrographs for the
 292          ID    Rittenhouse Basin Design HEC-RAS Unsteady State analysis.  To develop
 293          ID    the necessary input hydrographs the following models should be run in order.
 294          ID    Because the files utilize a TAPE21 file to export import hydrographs
 295          ID    between models, prior to running the FIRST model (WS1-NWM.DAT) any existing
 296          ID    TAPE21 file in the directory should be deleted.  The run procedure order is:
 297          ID
 298          ID         1)  WS1-NWM.DAT
 299          ID         2)  WS2-NEM.DAT
 300          ID         3)  WS3-QCSW.DAT
 301          ID         4)  WS4-SEM.DAT (referencing WS2-NEM.DSS for the DSS file)
 302          ID         5)  RT1-BASE.DAT
 303          ID
 304          ID    The necessary input hydrographs for the Rittenhouse Basin analysis
 305          ID    are determined in RT1-BASE.  In that output file, the hydrograph at
 306          ID    RWFLD1 should be exported and used as the input hydrograph at the
 307          ID    EMF Reach 4 Cross Section 17.082.  And the hydrograph at RITT2N should
 308          ID    be exported and used as the input hydrograph for the Rittenhouse Main
 309          ID    Channel at Cross Section 820.00
 310          ID
 311          ID
 312          ID    ***********************************************************************
 313          ID    **** NOTE BY PRIMATECH ENGINEERS:                                    ****
 314          ID    **** DATE: 06/12/2001                                                ****
 315          ID    **** THE NEW FILE NAME IS: SEBTALT2.DAT                              ****
 316          ID    **** THE FILE WAS RENAMED AS <<RTBTALT2.DAT>> FOR THE EAST MARICOPA  ****
 317          ID    **** FLOODWAY CAPACITY MITIGATION PROJECT, BY FLOOD CONTROL DISTRICT OF ****
 318          ID    **** MARICOPA COUNTY.                                                ****
 319          ID    **** THE FILE WAS RENAMED <<RTBTALT3.DAT>> AND UPDATED USING GREEN AND ****
 320          ID    **** AMPT FUTURE CONDITIONS FOR BASINS 258 TO 268.                   ****
 321          ID    ***********************************************************************
 322          ID
 323          ID
 324          ID
 325          ID     THIS MODEL WAS ORIGINALLY MIDDOUT.DAT
 326          ID     IT HAS BEEN MODIFIED BY CPE (7/2000)
 327          ID     FOR ALTERNATIVE 2 FOR THE EAST MARICOPA FLOOWAY
 328          ID     CAPACITY MITIGATION AND MULTI-USE CORRIDOR STUDY
 329          ID     TO ROUTE BOTH THE POWERLINE FLOOWAY
 330          ID     AND THE SANTAN FREEWAY CHANNEL INTO THE RAY BASIN PRIOR THEIR OUTFALL
1                                          HEC-1 INPUT                                          PAGE  7

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

 331          ID     INTO THE EMF
 332          ID
 333          ID    ***********************************************************
 334          ID
 335          ID          Model files changed by Collins/Pina Engineering
 336          ID          to reflect multi-use design concepts (recreation
 337          ID          and environment) proposed throughout the entire
 338          ID          EMF Corridor.    July 2000
 339          ID
 340          ID
 341          ID     VERSION 8.06  CPE 7/31/00
 342          ID
 343          ID  ***********************************************************************
 344          ID
 345          ID
 346          ID  ***********************************************************************
 347          ID   FILENAME: MIDDOUT.DAT
 348          ID
 349          ID   ALL CIP INFRASTRUCTURE IS IN PLACE, FUTURE CONDITIONS LANDUSE IS IN PLACE
 350          ID   FLOW IS ROUTED UP ELLSWORTH ROAD IN A EARTH LINED CHANNEL
 351          ID
 352          ID  ***********************************************************************
 353          ID   PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
 354          ID   File Name: Final8.Dat
```

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 355          ID   Revised - Jan. 2000 by SZ (Wood/Patel) From Final7.dat - new Z-V & Sideweir
 356          ID   Revised - Jan. 2000 by SZ (Wood/Patel) from Final6.dat - 60% review comments
 357          ID   Revised - Dec. 1999 by SZ (Wood/Patel) from Final5.dat
 358          ID   Revised - Dec. 1999 by SZ (Wood/Patel) from Final4.dat
 359          ID   Revised - Nov. 1999 by SZ (Wood/Patel) from Final3.dat
 360          ID   Revised - June 1999 by SZ (Wood/Patel) for Final Model from Opt1.dat.
 361          ID   Revised - May 1999 by SZ (Wood/Patel) for Option 1, Based on Model SDIB.DAT
 362          ID   REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
 363          ID             REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
 364          ID   REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
 365          ID   REVISED - MAY, 1998 BY D&A
 366          ID
 367          ID   REVISED BY VALERIE SWICK, FEB. 26, 1998
 368          ID
 369          ID   FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS
 370          ID   IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY
 371          ID   WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO
 372          ID   SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL
 373          ID   BE COMBINED WITH FLOW IN SIPHON DRAW.
 374          ID
 375          ID   EAST MESA AREA DRAINAGE MASTER PLAN
 376          ID   AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
 377          ID   AUGUST 1997
 378          ID   SOUTHEAST MESA HIGH RESOLUTION MODEL
 379          ID
 380          ID   ***********FUTURE CONDITION MODEL OF THE WATERSHED************************
 381          ID
 382          ID  ************ATTENTION*************************************************************
 383          ID    SUBBASINS 75, 79A, 79B, 78E,  LANDUSES WERE NOT
 384          ID    CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
 385          ID    SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
1                                        HEC-1 INPUT                                          PAGE  8

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

 386          ID    RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
 387          ID    SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
 388          ID    BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
 389          ID    THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
 390          ID    WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
 391          ID    FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
 392          ID  ******************************************************************************
 393          ID   FILENAME:  SDIBB.DAT
 394          ID
 395          ID   THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
 396          ID   TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
 397          ID   THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
 398          ID   CONDITIONS.
 399          ID
 400          ID   100-YEAR 24-HOUR FREQUENCY
 401          ID   AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
 402          ID   THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
 403          ID   AND EAST OF THE CAP
 404          ID
 405          ID   DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
 406          ID   EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
 407          ID   RANGE.
 408          ID
 409          ID   METHODOLOGY
 410          ID   THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
 411          ID   SCS TYPE II RAINFALL DISTRIBUTION
 412          ID   S-GRAPH HYDROGRAPH
 413          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
 414          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
 415          ID   APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
 416          ID   EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
 417          ID   DATED 1994
 418          ID   THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS
 419          ID
 420          ID   ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
 421          ID   DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
 422          ID   AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
 423          ID   HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
 424          ID   DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.
 425          ID
 426          ID   ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
 427          ID   CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL
 428          ID
 429          ID   VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
 430          ID   SUGGESTED ALTERNATIVES (JULY 1, 1997)
 431          ID
 432          ID   ***********************************************************************
 433          ID   **** THE FOLLOWING NOTE WAS ADDED BY PRIMATECH ENGINEERS ON 06-12-2001 ****
 434          ID   ***********************************************************************
 435          ID   NOTE: MUST USE NEBUILD.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
 436          ID         SUPERSTITION FREEWAY.
 437          ID   ***********************************************************************
 438          ID
 439          ID
 440          ID   NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
1                                        HEC-1 INPUT                                          PAGE  9

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

 441          ID         SUPERSTITION FREEWAY.
 442          ID
 443          ID   DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS
              *DIAGRAM
 444          IT       5  1APR97    0000      600
 445          IO       5
 446          IN      15
 447          JD    3.60     0.01
 448          PC    .000     .002     .005     .008     .011     .014     .017     .020     .023     .026
 449          PC    .029     .032     .035     .038     .041     .044     .048     .052     .056     .060
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450          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
451          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
452          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
453          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
454          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
455          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
456          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
457          PC    .983    .986    .989    .992    .995    .998   1.000
458          JD   3.58     1.0
459          JD   3.49     5.0
460          JD   3.38    10.0
461          JD   3.24    30.0
462          JD   3.10    60.0
463          JD   3.05    90.0
464          JD   3.00   120.0
465          JD   2.97   150.0
             * ***********************************************************************
             *

466          KK    SOSS
467          KM   INFLOW FROM SOSSAMAN BASIN VIA SOSSAMAN CHANNEL
468          KM   QI CARDS ARE BASED ON THE PEAK OF 1800CFS TO SOSSAMAN CHANNEL
469          BA   12.50
470          ZR  =QI A=SOSSAMAN DRAIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             *

471          KK   RSOSS
472          KM   ROUTE FLOWS VIA SOSSAMAN CHANNEL TO BASELINE ROAD
473          RS       1    FLOW      -1
474          RC    .030    .025    .030    3500    .005
475          RX       0       5      10      35      75     110     115     120
476          RY      10      10      10       4       4      10      10      10
             *
             *

477          KK     59A
478          KM   BASIN 59A
479          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
480          KM    L=        .9  Lca=        .3   S=   34.9  Kn= .070  LAG=  29.7
481          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
482          BA     .26
483          LG     .23     .25    4.55     .42   33.00
484          UI     30.     77.    144.    186.    246.    364.    293.    226.    172.    123.
485          UI     64.     48.     30.     15.      9.      9.      9.      0.      0.      0.
1                                          HEC-1 INPUT                                          PAGE 10

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

486          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

487          KK    R59A
488          KM   RETAIN THE 100 YEAR 2 HOUR RUNOFF VOLUME
489          DT    D59A       2
490          DI       0   10000
491          DQ       0   10000
             *
             *

492          KK    C59A
493          KM    SOSSAMAN DRAIN AT BASELINE ROAD
494          HC       2
             *
             *

495          KK  59A59B
496          KM   ROUTE S59A TO 59B VIA SOSSAMAN CHANNEL
497          KM   BLOCK WALL ON LEFT BANK, SOSSAMAN ROAD ON RIGHT BANK
498          RS       2    FLOW      -1
499          RC    .025    .018    .013    6500   .0015
500          RX       0       3      13      38      78     103     128     203
501          RY      16      10      10       0       0      10       8      10
             *
             *

502          KK     59B
503          KM   BASIN 59B
504          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
505          KM    L=       1.2  Lca=        .7   S=   33.9  Kn= .087  LAG=  58.3
506          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
507          BA     .94
508          LG     .22     .24    4.65     .41   24.00
509          UI     54.     54.     93.    193.    244.    284.    318.    361.    415.    501.
510          UI    653.    666.    546.    473.    422.    364.    319.    273.    233.    172.
511          UI    110.     94.     89.     68.     54.     54.     19.     17.     17.     17.
512          UI     17.     17.     17.     17.      0.      0.      0.      0.      0.      0.
513          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

514          KK    R59B
515          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
516          DT    D59B      63
517          DI       0   10000
518          DQ       0   10000
             *
             *
1                                          HEC-1 INPUT                                          PAGE 11

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

```
519          KK    C59B
520          KM   SOSSAMAN CHANNEL AT GUADALUPE ROAD
521          HC       2
             *
             *

522          KK  59BT60
523          KM     ROUTE 59B TO 60 GUADALUPE CHANNEL.
524          RS       6    FLOW      -1
525          RC     .02    .013     .02    5500   .0005
526          RX       0     518     522     522     560     560     580    2580
527          RY     8.5     8.5     8.5       0       0       8       7       6
             *
             *

528          KK      60
529          KM   BASIN 60
530          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
531          KM    L=      2.4  Lca=      1.4   S=   31.8  Kn= .087  LAG= 102.0
532          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
533          BA    2.30
534          LG     .18     .24    4.65     .43   35.00
535          UI     76.     76.     76.     76.    130.    250.    286.    330.    364.    395.
536          UI    422.    452.    484.    522.    571.    607.    689.    820.    915.   1008.
537          UI    865.    793.    723.    669.    626.    591.    536.    496.    459.    424.
538          UI    387.    362.    324.    276.    219.    169.    134.    134.    126.    125.
539          UI    121.     76.     76.     76.     76.     56.     23.     23.     23.     23.
540          UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
541          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
542          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

543          KK     R60
544          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
545          DT     D60     170
546          DI       0   10000
547          DQ       0   10000
             *
             *

548          KK  EMFGUA
549          KM     COMBINE S59 AND S60 AT EMF, GUADALUPE ROAD
550          KO                                      21
551          HC       2
             *
             *

552          KK  GUATEL
553          KM   ROUTE EMF FLOW FROM GUADALUPE ROAD TO ELLIOT ROAD
554          RS       3    FLOW      -1
555          RC     .03    .022     .03    6000   .0003
556          RX       0     500     520     553     693     726     740     742
557          RY      14      12      11       0       0      11      11      12
             *
             *
```



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

558          KK      64
559          KM   BASIN 64
560          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
561          KM    L=      1.2  Lca=       .6   S=   25.4  Kn= .051  LAG=  34.4
562          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
563          BA     .81
564          LG     .18     .25    4.70     .41   54.00
565          UI     79.    155.    338.    438.    343.    709.    988.    778.    624.    493.
566          UI    388.    253.    139.    120.     79.     45.     24.     24.     24.     24.
567          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
568          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

569          KK     R64
570          KM   R64 IS WHAT REMAINS AFTER THE DIVERSION OF FLOW UP TO 67 AC-FT. THIS IS SENT
571          KM   TO TAPE 21 FOR RECALL INTO FCD'S EMF MODELS.  KK BLOCK THERE MUST BE UPDATED
572          KM   TO REFLECT THE CHANGE OF WHAT GETS SENT TO THE TAPE 21.
573          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
574          KO                                      21
575          DT     D64      67
576          DI       0   10000
577          DQ       0   10000
             *
             *

578          KK  EMFELL
579          KM     COMBINE EMF FLOW WITH FLOW FROM SUBBASIN 64 AT ELLIOT ROAD
580          HC       2
             *
             *

581          KK  ELTWAR
582          KM   ROUTE EMF FLOW AT ELLIOT ROAD TO WARNER ROAD VIA THE EMF
583          RS       4    FLOW      -1
584          RC     .03    .022     .03    5500   .0003
585          RX       0     500     520     553     693     726     740     742
586          RY      14      12      11       0       0      11      11      12
             *
             *

587          KK     62A
588          KM   BASIN 62A
```

```
589          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
590          KM    L=        .8  Lca=        .5   S=   30.0  Kn= .020  LAG=  10.2
591          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
592          BA     .38
593          LG     .10      .25     4.50      .52   80.00
594          UI    335.    1057.    1010.     367.     93.      38.       0.       0.       0.       0.
595          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             *
1                                                   HEC-1 INPUT                                                    PAGE 13

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

596          KK    R62A
597          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
598          DT    D62A      33
599          DI       0   10000
600          DQ       0   10000
             *
             *

601          KK   62ATB
602          KM   ROUTE 62A TO 62B BY A CHANNEL ALONG BASELINE ROAD THROUGH SANTAN FWY
603          RS       1    FLOW      -1
604          RC    .030    .030    .030    1200    .002
605          RX       0     200     250     275     295     320     370     570
606          RY      10       8       7       0       0       7       8      10
             *
             *

607          KK     62B
608          KM   BASIN 62B
609          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
610          KM    L=        .6  Lca=        .3   S=   47.5  Kn= .021  LAG=   8.0
611          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
612          BA     .23
613          LG     .11      .25     4.65      .46   78.00
614          UI    334.     940.     431.      83.      0.       0.       0.       0.       0.       0.
615          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             *

616          KK    R62B
617          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
618          DT    D62B      19
619          DI       0   10000
620          DQ       0   10000
             *
             *

621          KK    C62B
622          KM   COMBINE FLOW FROM BASIN 62A AND 62B
623          HC       2
             *
             *

624          KK   62BTD
625          KM   ROUTE 62B TO 62D VIA HAWES ROAD
626          RS       5    FLOW      -1
627          RC    .045     .04     .045    5280   .0041
628          RX       0     100     125     127     177     179     224     324
629          RY       3       2    1.50       0       0     1.5       2       3
             *
             *
1                                                   HEC-1 INPUT                                                    PAGE 14

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

630          KK     62D
631          KM   BASIN 62D
632          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
633          KM    L=        .9  Lca=        .3   S=   30.7  Kn= .045  LAG=  21.3
634          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
635          BA     .46
636          LG     .23      .25     4.65      .40   50.00
637          UI     76.     300.     519.     753.    475.     369.     286.     203.     163.     111.
638          UI     85.      63.      47.      36.     26.      14.      14.      14.      14.       0.
639          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
640          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             *

641          KK    R62D
642          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
643          DT    D62D      35
644          DI       0   10000
645          DQ       0   10000
             *
             *

646          KK   CP62D
647          KM   COMBINE FLOWS FROM SUBBASINS 62B AND 62D
648          HC       2
             *
             *

649          KK   62DTF
650          KM   ROUTE 62D TO 62F VIA HAWES ROAD
651          RS       9    FLOW      -1
652          RC    .045    .024     .045    3600   .0033
653          RX       0     500     750     753     793     796    1046    1546
654          RY       3     1.5    1.25       0       0    1.25     1.5       3
```

```
                 *
                 *
655              KK     62F
656              KM   BASIN 62F
657              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
658              KM    L=        .6  Lca=        .4   S=   31.9  Kn= .042  LAG=  18.1
659              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
660              BA     .26
661              LG     .21      .25     4.65      .41    54.00
662              UI     66.     224.     350.     546.     371.     235.      98.      56.      18.      15.
663              UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
664              UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *
                 *
1                                                HEC-1 INPUT                                                          PAGE 15

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

665              KK    R62F
666              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
667              DT    D62F       18
668              DI       0    10000
669              DQ       0    10000
                 *
                 -

670              KK   CP62F
671              KM   COMBINE FLOWS FROM 62D AND 62F
672              HC       2
                 *
                 *

673              KK   62T63
674              KM   ROUTE CP62F TO SUBBASIN 63 VIA WASH.
675              KM   WASH CROSSES HAWES, NORTH OF ELLIOT
676              RS       4     FLOW      -1
677              RC    .045      .04     .045     6000  0.0055
678              RX       0      500      750      770      780      800     1050     1550
679              RY       5        4        3        0        0        3        4        5
                 *
                 *

680              KK      63
681              KM   BASIN 63
682              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
683              KM    L=       1.4  Lca=        .7   S=   28.2  Kn= .035  LAG=  26.8
684              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
685              BA     .91
686              LG     .18      .25     4.65      .43    53.00
687              UI    114.     346.     595.     780.    1159.    1291.     930.     689.     485.     241.
688              UI    170.     113.      35.      35.      35.      35.       0.       0.       0.       0.
689              UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *
                 *

690              KK     R63
691              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
692              DT     D63       71
693              DI       0    10000
694              DQ       0    10000
                 *
                 -

695              KK    CP63
696              KM   COMBINE FLOWS FROM SUBBASIN 63 AND CP62F
697              HC       2
                 *
                 *
1                                                HEC-1 INPUT                                                          PAGE 16

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

698              KK   63T71
699              KM   ROUTE CP63 TO S71 VIA SHEET FLOW
700              KM   SOSSAMAN SOUTH OF ELLIOT
701              RS      11     FLOW      -1
702              RC    .055      .045     .055     5280    .0005
703              RX       0      1000     1005     1010     1013     1043     1543     2043
704              RY       6         5        0        0        3        5        2        5
                 *
                 *

705              KK    68B1    BASIN
706              KM   BASIN 68B1
707              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
708              KM    L=0.75  Lca=0.38  S=32.3  Kn=0.030  LAG=13.9
709              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
710              BA   0.146
711              LG    0.10     0.25     5.20     0.36       80
712              UI      68      206      374      269      135       48       27       11        0        0
713              UI       0        0        0        0        0        0        0        0        0        0
                 *

714              KK    68B2    BASIN
715              KM   BASIN 68B2
716              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
717              KM    L=0.55  Lca=0.28  S=32.4  Kn=0.030  LAG=11.0
718              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
719              BA   0.060
720              LG    0.10     0.25     5.20     0.36       80
721              UI      45      141      173       74       23        6        0        0        0        0
```

```
722        UI       0       0       0       0       0       0       0       0       0       0
           *

723        KK    68B3   BASIN
724        KM   BASIN 68B3
725        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
726        KM    L=0.36  Lca=0.18  S=32.2  Kn=0.030  LAG=7.9
727        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
728        BA   0.036
729        LG    0.10    0.25    5.20    0.36      80
730        UI      52     148      63      12       0       0       0       0       0       0
731        UI       0       0       0       0       0       0       0       0       0       0
           *
           *

732        KK    CP68
733        KM   COMBINE FLOWS FROM BASINS 68B1, 68B2, AND 68B3
734        HC       3
           *
           *
1                                          HEC-1 INPUT                                          PAGE 17

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

735        KK     R68
736        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
737        DT    D68B      24
738        DI       0   10000
739        DQ       0   10000
           *
           *

740        KK  68BT69
741        KM   ROUTE S68B TO S69 VIA WASH CROSSING HAWES
742        RS       4    FLOW      -1
743        RC    .045     .04    .045    2750   .0036
744        RX       0     500     950    1003    1007    1057    1511    2011
745        RY       4     3.5       3       0       0       2     2.5       3
           *
           *

746        KK      69
747        KM   BASIN 69
748        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
749        KM    L=       .7  Lca=       .3   S=   22.4  Kn= .020  LAG=   9.0
750        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
751        BA     .09
752        LG     .10     .25    4.70     .45   80.00
753        UI    104.    320.    213.     54.     11.      0.      0.      0.      0.      0.
754        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
           *
           *

755        KK     R69
756        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
757        DT     D69       9
758        DI       0   10000
759        DQ       0   10000
           *
           *

760        KK     C69
761        KM   COMBINE FLOWS FROM SUBBASIN 68B AND 69
762        HC       2
           *
           *

763        KK   69T71
764        KM   ROUTE S69 TO S71 VIA WASH AND SHEET FLOW, INCREASE OVERBANK N VALUES
765        RS      11    FLOW      -1
766        RC    .055    .045    .055    6000   .0033
767        RX       0     500    1000    1001    1002    1500    2000    2500
768        RY       4       3       2       0       0       2       3       4
           *
1                                          HEC-1 INPUT                                          PAGE 18

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

769        KK      25   BASIN
770        KM   BASIN 25
771        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
772        KM    L=0.90  Lca=0.41  S=16.7  Kn=0.035  LAG=20.2
773        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
774        BA   0.208
775        LG    0.10    0.25    5.00    0.39      80
776        UI      40     151     225     371     334     221     139      60      37      11
777        UI      11      10       0       0       0       0       0       0       0       0
778        UI       0       0       0       0       0       0       0       0       0       0
779        UI       0       0       0       0       0       0       0       0       0       0
780        UI       0       0       0       0       0       0       0       0       0       0
           *

781        KK   RET25  DIVERT
782        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
783        DT   25RET    21.9     0.0
784        DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
785        DQ     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
           *

786        KK   25T71   ROUTE
787        KM   ROUTE BASIN 25 TO BASIN 71 VIA WASH AND SHEET FLOW
788        RS      11    FLOW      -1
```

```
789          RC   0.045   0.040   0.045    5686  0.0050    0.00
790          RX    0.00  500.00 1000.00 1003.00 1007.00 1011.00 1511.00 2011.00
791          RY    3.00    2.50    2.00    0.00    0.00    2.00    2.50    3.00
             *

792          KK      71
793          KM   BASIN 71
794          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
795          KM    L=       1.6  Lca=        .8   S=   26.4  Kn= .020  LAG=  16.8
796          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
797          KM    BASIN AREA UPDATED FROM 1.09 TO 0.861 BECAUSE AREA FOR BASIN 25 WAS REMOVED
798          KM    FROM BASIN 71
799          BA   0.861
800          LG    .10     .25    4.65     .47   80.00
801          UI   331.   1085.   1805.   2349.   1459.    780.    329.    144.     67.     67.
802          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
803          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

804          KK     R71
805          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
806          KM   RETENTION VOLUME WAS REDUCED FROM 106 AC-FT TO 84.1 AC-FT BECAUSE 21.9 AC-FT
807          KM   WAS ACCOUNTED FOR IN RET25.
808          KM
809          DT     D71    84.1
810          DI       0   10000
811          DQ       0   10000
             *
             *
```



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

812          KK     C71
813          KM   COMBINE FLOWS FROM 63T71, 69T71, BASIN 71, AND BASIN 25
814          KM   CONCENTRATION POINT IS ALONG SOSSAMAN AT THE MESQUITE ST ALIGNMENT
815          HC       4
             *
             *

816          KK   71T72
817          KM   ROUTE C71 TO S72 VIA DIKE
818          KM    WASH WEST OF INTERSECTION OF SOSSAMAN & WARNER
819          RS       8    FLOW      -1
820          RC    .055    .045    .055    3750   .0037
821          RX       0     500    1000    1007    1017    1025    1530    2030
822          RY       9     8.5       8       0       0       8     8.5       9
             *
             *

823          KK      72
824          KM   BASIN 72
825          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
826          KM    L=       1.6  Lca=        .9   S=   13.1  Kn= .020  LAG=  20.3
827          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
828          BA     .84
829          LG     .10     .25    5.40     .33   80.00
830          UI    161.    600.    906.   1496.   1347.    912.    566.    247.    153.     50.
831          UI     43.     43.      0.      0.      0.      0.      0.      0.      0.      0.
832          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             *

833          KK     R72
834          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
835          DT     D72      83
836          DI       0   10000
837          DQ       0   10000
             *
             * CONCENTRATION POINT ADDED PRIOR TO EMF COMBINE SO THAT FLOWS CAN BE SENT TO
             * TAPE21.
             *

838          KK  CPKNOX
839          KO                                   21
840          HC       2
             *
             *

841          KK  EMFWAR
842          KM   COMBINE ROUTED FLOW FROM 71 WITH 72 WITH EMF (HYDROGRAPH ELTWAR)
843          HC       2
             *
             *
```



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

844          KK  WARTKN
845          KM   ROUTE EMF WARNER ROAD FLOW TO KNOX ROAD
846          RS       2    FLOW      -1
847          RC     .03    .022     .03    2500   .0003
848          RX       0     500     520     553     693     726     740     742
849          RY      14      12      11       0       0      11      11      12
             *
             *

850          KK      26   BASIN
851          KM   BASIN 26
852          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
853          KM    L=0.38  Lca=0.19  S=23.7  Kn=0.035  LAG=10.2
```

```
854          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
855          BA   0.045
856          LG    0.10     0.25     4.90     0.41       80
857          UI      40      127      122       44       11        4        0        0        0        0
858          UI       0        0        0        0        0        0        0        0        0        0
             *
             *

859          KK   RET26  DIVERT
860          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
861          DT   26RET      4.8      0.0
862          DI       0    10000
863          DQ       0    10000
             *
             *

864          KK  26T70B   ROUTE
865          KM   ROUTE BASIN 26 TO BASIN 70B VIA WASH AND SHEET FLOW
866          RS       6     FLOW       -1
867          RC   0.045    0.040    0.045     4688   0.0057     0.00
868          RX    0.00   500.00 1000.00 1003.00 1007.00 1011.00 1511.00 2011.00
869          RY    3.00     2.50     2.00     0.00     0.00     2.00     2.50     3.00
             *
             *

870          KK     70B
871          KM   BASIN 70B
872          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
873          KM    L=       1.6  Lca=       1.1   S=    29.9  Kn= .022  LAG=  20.7
874          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
875          KM    BASIN AREA UPDATED FROM 0.38 TO 0.335 BECAUSE AREA FOR BASIN 26 WAS REMOVED
876          KM    FROM BASIN 70B
877          BA    .335
878          LG     .11      .15     8.00      .12    76.00
879          UI     68.     259.     390.     636.     615.     418.     267.     119.      73.      30.
880          UI     19.      19.       0.       0.       0.       0.       0.       0.       0.       0.
881          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *
             *
```



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

882          KK    R70B
883          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
884          KM   RETENTION VOLUME WAS REDUCED FROM 38 AC-FT TO 33.2 AC-FT BECAUSE 4.8 AC-FT
885          KM   WAS ACCOUNTED FOR IN RET26.
886          DT    D70B     33.2
887          DI       0    10000
888          DQ       0    10000
             *
             *

889          KK   CP70B
890          KM   COMBINE ROUTED FLOW FROM 26 AND 70B
891          HC       2
             *
             *

892          KK  70BT76
893          KM   ROUTE 70B TO 76B VIA WASH CROSSING SOSSAMAN, SOUTH OF WARNER ROAD
894          RS      11     FLOW       -1
895          RC    .045      .04     .045     5500    .0041
896          RX       0      500     1000     1003     1007     1011     1511     2011
897          RY       4      3.5        3        0        0        2      2.5        3
             *

898          KK     76B
899          KM   BASIN 76B
900          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
901          KM    L=       1.8  Lca=        .9   S=    27.4  Kn= .021  LAG=  18.9
902          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
903          BA     .64
904          LG     .10      .15     8.80      .09    78.00
905          UI    148.     515.     789.    1294.     957.     629.     303.     157.      70.      35.
906          UI     35.       0.       0.       0.       0.       0.       0.       0.       0.       0.
907          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *

908          KK    R76B
909          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
910          DT    D76B       66
911          DI       0    10000
912          DQ       0    10000
             *

913          KK    KNOX
914          KM   COMBINE FLOWS AT KNOX ROAD
915          KO                                     21
916          HC       2
             *
```



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

917          KK  EMFKNX
918          KM   COMBINE FLOWS INTO THE EMF AT KNOX ROAD
919          KM   THIS COMBINES HYDROGRAPHS WARTKN, 70BT76 and R76B.
920          HC       2
             *
             *
```

```
921     KK  KNXTRY
922     KM   ROUTE EMP KNOX ROAD FLOW TO RAY ROAD
923     RS       2    FLOW      -1
924     RC     .03    .022     .03    3000   .0003
925     RX       0     500     520     553     693     726     740     742
926     RY      14      12      11       0       0      11      11      12
        *
        *

927     KK     65A
928     KM   BASIN 65A
929     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
930     KM    L=      1.6  Lca=      .9   S=   51.2  Kn= .053  LAG=  41.5
931     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
932     BA    2.54
933     LG     .15     .25    5.10     .35   59.00
934     UI    206.    248.    735.   1001.   1188.   1423.   1760.   2487.   2309.   1835.
935     UI   1546.   1269.   1035.    777.    457.    351.    292.    206.    143.     63.
936     UI     63.     63.     63.     63.      0.      0.      0.      0.      0.      0.
937     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

938     KK    R65A
939     KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
940     DT    D65A     174
941     DI       0   10000
942     DQ       0   10000
        *
        *

943     KK   CAP1A
944     KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
945     KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
946     KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
947     BA     6.4
948     ZR  =QI A=CAP1A B=OVERCHUTE C=FLOW E=5MIN F=100YEAR
        * IN    60
        * BA   .01
        * QI     0      65     217     217     217     217     217     217     217       2
        * QI   217     217     217     217     217     217     217     217     217       2
        * QI   217     217     217     217     217
        *
        *
```



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

949     KK  RCAP1A
950     KM   ROUTE FLOW FROM CAP OVERCHUTE TO A POINT ON THE MARICOPA/PINAL COUNTY LINE
951     KM   2000 FEET NORTH OF THE GUADALUPE ROAD COUNTY LINE INTERSECTION. ROUTING WIL
952     KM   BE BY A NATURAL CHANNEL.  THIS IS THEN ROUTED FOR 1200 FT
953     KM   IN A CHANNEL (DIBBLE ID MN3) TO THE POINT WERE THE ROUTED CAP1B FLOW
954     KM   INTERCEPTS THE CHANNEL. ORIGINAL SLOPE =.01
955     RS       3    FLOW      -1
956     RC    .045     .04    .045    4900    .010
957     RX       0     500    1000    1006    1026    1032    1511    2011
958     RY       4     3.5       3       0       0       3     3.5       4
        *
        *

959     KK  RRCP1A
960     KM   REACH MN-5 AND CULVERT MNC-1
961     KM   ROUTE FLOW FROM WHERE RCAP1A FLOWS INTO THE NEW CHANNEL ALONG MERIDIAN ROAD
962     KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-5 SHAPE
963     RS       1    FLOW      -1
964     RC   0.025   0.015   0.025    2350   .0017
965     RX       0       8      16      27      43      53      61      69
966     RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
        *
        *

967     KK   CAP1B
968     KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
969     KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
970     KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
971     BA     6.4
972     ZW  =QI  A=CAP1B  B=OVERCHUTE  C=FLOW  E=5MIN F=100YEAR
        * IN    60
        * BA   .01
        * QI     0      65     217     217     217     217     217     217     217       2
        * QI   217     217     217     217     217     217     217     217     217       2
        * QI   217     217     217     217     217
        *
        *

973     KK  RCAP1B
974     KM   ROUTE FLOW FROM CAP1B OVERCHUTE TO A POINT ALONG THE MARICOPA/PINAL COUNTY
975     KM   LINE 1000 FEET NORTH OF TEE INTERSECTION OF GUADALUPE ROAD AND THE COUNTY
976     KM   LINE. ROUTING WILL BE BY A NATURAL CHANNEL. ORIGINAL SLOPE=.01
977     RS       1    FLOW      -1
978     RC    .045     .04    .045    4900    .010
979     RX       0     500    1000    1006    1026    1032    1511    2011
980     RY       4     3.5       3       0       0       3     3.5       4
        *
        *
```



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

981     KK   C65A1
982     KM   COMBINE FLOWS FROM SUBBASIN 65A(EAST OF MERIDIAN RD) AND CAP1A AND CAP1B
983     HC       3
```

```
                *
                *

 984            KK  65ATB1
 985            KM   REACH MN-4, MN-3B AND MN-3A
 986            KM   ROUTE FLOW FROM BASIN 65A TO OFF-LINE DETENTION BASIN DIVERSION STRUCTURE
 987            KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-3A SHAPE.
 988            RS       1    FLOW      -1
 989            RC   0.025   0.015   0.025    3760   .0015
 990            RX     0.0     8.0    16.0      34      56      74      82      90
 991            RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
                *
                *

 992            KK  DIDB65
 993            KM   DETENTION BASIN DIVERSION STRUCTURE
 994            KM   DIVERT FLOW FROM CHANNEL TO OFF-LINE BASIN
                * KO     2       2
 995            DT   DB65A
 996            DI       0     100     434     582     854    1206    1624    2096    3188
 997            DQ       0       0       0     148     420     772    1190    1662    2754
                *
                *

 998            KK  65B1T2
 999            KM   REACH MN-2
1000            KM   ROUTE FLOW FROM BASIN DIVERSION STRUCTURE TO BASIN OUTLET
1001            RS       1    FLOW      -1       0
1002            RC    .025    .015    .025     700   .0019
1003            RX     0.0     8.0    16.0      25      35      44      52      60
1004            RY     8.7     8.8     4.5       0       0     4.5     8.8     8.7
                *
                *

1005            KK  DIB65P
1006            KM         RETURN DIVERT TO DETENTION BASIN
1007            DR   DB65A
                *
                *

1008            KK   DB65A
1009            KM   SIPHON DRAW BASIN
1010            KM   OFF-LINE DETENTION BASIN LOCATED AT ELLIOT AND MERIDIAN ROAD
1011            KM   WITH  36" OUTLET PIPE AND 235' WEIR
                * KO    2       2
1012            RS       1    STOR       0
1013            SA       0    4.67   15.05   27.12   37.88   42.12
1014            SE      90      91      93      95      97      98
1015            SL    91.5    7.07     .62      .5
1016            SS    97.0     235     2.5     1.5
                *
                *
1                                                HEC-1 INPUT                                                    PAGE 25

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

1017            KK   C65A2
1018            KM   RECOMBINE FLOWS FROM DETENTION BASIN AND SUNLAND SPRINGS CHANNEL.
1019            HC       2
                *
                *

1020            KK  65AT-1
1021            KM   REACH MN-1
1022            KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLIOT ROAD AND MERIDIAN ROAD
1023            KM   CONCRETE CHANNEL ON EAST SIDE OF MERIDIAN ROAD ALGN.
1024            RS       1    FLOW      -1
1025            RC    .025    .015    .025     630   .0014
1026            RX       0       8      16      26      38      48      56      64
1027            RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
                *
                *

1028            KK  65AT-2
1029            KM   REACH ET-10, ET-11, ET-12 plus culverts ETC-4 AND ETC-3.
1030            KM   ROUTE FROM ELLIOT AND MERIDIAN, ALONG ELLIOT ROAD IN ELLIOT CHANNEL
1031            KM   TO ABOUT 0.6 MILES EAST OF CRISMON ROAD.
1032            KM   EARTH CHANNEL PORTION ON NORTH SIDE OF ELLIOT
                * KO     1
1033            RS       4    FLOW      -1
1034            RC    .025    .025    .025    7680   .0005
1035            RX       0       8      22      58      71     107     115     123
1036            RY     6.1     6.0     5.9       0       0     5.9     6.0     6.1
                *
                *

1037            KK    65AW
1038            KM   BASIN 65AW
1039            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1040            KM    L=       .9  LCA=       .6   S=   54.7  Rn= .049  LAG=  26.1
1041            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1042            BA     .43
1043            LG     .24     .25    5.30     .29   32.00
1044            UI     56.    176.    295.    391.    603.    594.    432.    316.    210.    101.
1045            UI     73.     43.     17.     17.     17.      0.      0.      0.      0.      0.
1046            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

1047            KK   R65AW
1048            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1049            DT   D65AW      31
1050            DI       0   10000
```

```
1051        DQ       0   10000
            *
            *
1                                        HEC-1 INPUT                                                    PAGE 26

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

1052        KK  65AT65
1053        KM   ROUTE C65A TO BASIN 65B VIA A WASH,(THIS WASH IS NORTH OF SIPHON DRAW)
1054        KM   THIS IS THE PART OF 65A WHICH IS WEST OF THE MERIDIAN RD ALIGNMENT
            * KO     3
1055        RS      11    FLOW      -1
1056        RC    .045     .04    .045    9500    .007
1057        RX       0     500    1000    1003    1053    1056    1511    2011
1058        RY       4     3.5       3       0       0       2     2.5       3
            *
            *

1059        KK     65B
1060        KM   BASIN 65B
1061        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1062        KM    L=      2.0  Lca=       1.2   S=   37.5  Kn= .036  LAG=  36.6
1063        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1064        BA    1.37
1065        LG     .18     .25    6.00     .24   53.00
1066        UI    126.    218.    506.    669.    809.   1014.   1468.   1422.   1102.    901.
1067        UI    720.    562.    337.    218.    182.    126.     71.     39.     39.     39.
1068        UI     39.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1069        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1070        KK    R65B
1071        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1072        DT    D65B     120
1073        DI       0   10000
1074        DQ       0   10000
            *
            *

1075        KK   CP65B
            * KO     1
1076        KM   COMBINE FLOW FROM SUBBASIN 65AW (WEST OF MERIDIAN RD) WITH FLOW FROM
1077        KM   SUBBASIN 65B
1078        HC       2
            *
            *

1079        KK   DI65B
1080        KM        DIVERSION STRUCTURE TO ROUTE PEAK FLOW TO NEW
1081        KM        ELLIOT BASIN (EAST)
1082        KM        By-pass 30 cfs to Elliot Channel, and Divert Remaining to E Basin
            *       The Existing Model By-pass 51 cfs. SZ, 5-17-99
1083        DT  DIRS65
1084        DI       0    15.0      30   100.0     200   350.0     500     700     900   1500.
1085        DQ       0       0       0    70.0     170   320.0     470     670     870   1470.
            *
            *
1                                        HEC-1 INPUT                                                    PAGE 27

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

1086        KK   CP65A
1087        KM   COMBINE FLOWS FROM ELLIOT CHANNEL AT NON DIVERTED FLOWS (51CFS) FROM
1088        KM   SUBBASIN 65B
1089        HC       2
            *
            *

1090        KK  65AT-3
            * KM REACH ET-9 plus culvert ETC-2
            * KM ROUTE FROM ABOUT 0.6 MILES EAST OF CRISMON ROAD
            * KM   TO ABOUT 0.18 MILES EAST OF CRISMON ROAD (CP65)
            * KM CONCRETE CHANNEL PORTION ON SOUTH SIDE OF ELLIOT
            * RD  2340  0.0019   0.013            CIRC      7.5
1091        KM        E. 104th St to E. of EA (Sta. 83+10 to Sta. 90+50)
            *       RD card used for routing
1092        RD     740  0.0064   0.012            CIRC      6.5
            *
            *

1093        KK   DR65B
            * KO     1
1094        KM        RETURN DIVERT TO EAST DETENTION BASIN
1095        DR  DIRS65
            *
            *

1096        KK   RS65R
1097        KM   ELLIOT BASIN, EAST
1098        KM        Bleed-off Pipe Size = 12", SZ, 5-17-99
            *       Since the bleed-off pipe length is short, no routing is provided.
            *       The Existing Pipe Size = 24"
            * KO     1
1099        RS       1    STOR       0
1100        SV       0    5.40    9.30   13.90   18.80   24.00   29.50   35.30   41.40   48.00
1101        SE  1429.0  1433.0  1434.0  1435.0  1436.0  1437.0  1438.0  1439.0  1440.0  1441.0
1102        SL  1430.0  0.7854     .62      .5
1103        SS  1439.0     200     2.5     1.5
            *
            *
```

```
1104        KK    CP65
            *       "CP65B" changed to "CP65" -- S2, 5-14, 1999
1105        KM   COMBINE FLOWS FROM EAST ELLIOT BASIN AND ELLIOT CHANNEL
1106        KM   BEFORE COMBINING WITH FLOWS FROM THE BYPASS CRISMON CHANNEL
            * KO      1
1107        HC        2
            *
            *
```



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

1108        KK   65T66
            * KM REACH ET-8
            * KM ROUTING IN ELLIOT CHANNEL FROM ABOUT
            * KM   0.18 MILES EAST OF CRISMON ROAD (CP65) TO CRISMON ROAD (CP66).
            *        Moved from "65AT-3" to here
1109        KM         E. of EA to W. of EA (Sta. 76+06 to Sta. 83+10)
            *        RD card used for routing
            * RD   940  0.0060   0.013            CIRC      9.5
1110        RD    704  0.0064   0.012            CIRC      7.5
            *
            *

1111        KK  65T66A
1112        KM         W. of EA to E. of Crismon Rd. (Sta. 69+00 to Sta. 76+06)
            *        New additional routing operation
            *        RD card used for routing
1113        RD    706  0.0047   0.012            CIRC      7.5
            *
            *

1114        KK  65T66B
1115        KM         E. of Crismon Rd.to W. of Crismon Rd. (Sta. 61+25 to Sta. 69+00)
            *        New additional routing operation
            *        RD card used for routing
1116        RD    775  0.0048   0.012            CIRC      9.5
            *
            *

1117        KK  ADOT-E
1118        KM   INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY ENTERING 67A
1119        KM   FROM EAST ADOT DETENTION BASIN 4105.
            *    KO       1
1120        BA    0.01
1121        ZR  =QI A=ADOT EAST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
            *
            *

1122        KK  AZT67A
1123        KM    ROUTE SUPERSTITION FLOW THROUGH 67A TO BASELINE ROAD
1124        IN      15
1125        RS       3    FLOW      -1
1126        RC    .045    .040    .045    5500    .010
1127        RX       0     100     110     120     130     140     150     250
1128        RY       5       4       3       1       1       3       4       5
            *
            *

1129        KK     67A
1130        KM   BASIN 67A
1131        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1132        KM    L=      1.0  Lca=       .7   S=   42.9  Kn= .042  LAG=  25.7
1133        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1134        BA     .30
1135        LG     .21     .25    4.70     .39   43.00
```



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

1136        UI     39.    126.    208.    277.    433.    400.    292.    213.    134.     67.
1137        UI     47.     25.     12.     12.     12.      0.      0.      0.      0.      0.
1138        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1139        KK    R67A
1140        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1141        DT    D67A      21
1142        DI       0   10000
1143        DQ       0   10000
            *
            *

1144        KK    C67A
1145        KM    COMBINE FLOWS FROM ADOT-E AND SUBBASIN 67A
1146        HC       2
            *
            *

1147        KK   67ATC
1148        KM   ROUTE 67A TO 67C VIA WASH CROSSING BASELINE
1149        RS       4    FLOW      -1
1150        RC    .055    .045    .055    6300    .0071
1151        RX       0     500     980    1003    1007    1031    1511    2011
1152        RY       4     3.5       3       0       0       3     3.5       4
            *
            *

1153        KK    SUP2
1154        KM   INFLOW FROM NORTH OF SUPERSTITION FREEWAY, DISCHARGING INTO 67B
            *    KO       1
1155        BA    0.01
```

```
1156        ZR  -QI A-ADOT WEST BASIN B=AT SUPERSTITION C-FLOW E=5MIN F=100YR
            *
            *

1157        KK   RSUP2
1158        KM   ROUTE SUP2 THROUGH SUBBASIN 67B
            * KO                2
1159        IN      15
1160        RS      11    FLOW      -1
1161        RC    .045    .045    .045    4500   .0056
1162        RX       0     500    1000    1003    1007    1011    1511    2011
1163        RY       4     3.5       3       0       0       2     2.5       3
            *
            *

1164        KK     67B
1165        KM   BASIN 67B
1166        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1167        KM    L=       1.2  Lca=        .9   S=   28.0  Kn= .034  LAG=  26.4
1168        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1169        BA     .53
1170        LG     .17     .25    4.90     .38   56.00
1                                        HEC-1 INPUT                                                    PAGE 30

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

1171        UI     68.    210.    356.    470.    713.    741.    536.    395.    269.    131.
1172        UI     94.     59.     21.     21.     21.      0.      0.      0.      0.      0.
1173        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1174        KK    R67B
1175        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1176        DT    D67B      41
1177        DI       0   10000
1178        DQ       0   10000
            *
            *

1179        KK    C67B
1180        KM   COMBINE FLOWS FROM SUP2 AND SUBBASIN 67B
            * KO              2
1181        HC       2
            *
            *

1182        KK   67BTC
1183        KM   REACH CN-4, CN-5 plus culvert CNC-4.
1184        KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM BASELINE ROAD (C67B) TO
1185        KM      GUADALUPE ROAD (C67C)
1186        RS       2    FLOW      -1
1187        RC    .025    .015    .025    5180   .0019
1188        RX       0       8      16    24.4    36.4    44.8    52.8    60.8
1189        RY     4.0     4.1     4.2       0       0     4.2     4.1     4.0
            *
            *

1190        KK     67C
1191        KM   BASIN 67C
1192        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1193        KM    L=       1.2  Lca=        .7   S=   40.2  Kn= .049  LAG=  32.3
1194        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1195        BA     .93
1196        LG     .25     .25    5.10     .32   31.00
1197        UI     96.    213.    432.    557.    702.   1006.   1133.    842.    667.    518.
1198        UI    365.    193.    157.     96.     59.     30.     30.     30.     30.      0.
1199        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1200        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1201        KK    R67C
1202        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1203        DT    D67C      67
1204        DI       0   10000
1205        DQ       0   10000
            *
            *
1                                        HEC-1 INPUT                                                    PAGE 31

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

1206        KK    C67C
1207        KM   COMBINE SUBBASINS 67C AND 67A AND 67B
1208        HC       3
            *
            *

1209        KK  67CT67
1210        KM   REACH CN-3 plus culvert CNC-3
1211        KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM C67C (@ GUADALUPE ROAD & CRISMON ROAD)
1212        KM    TO C67D (AT APPROX. 1/2 MILE SOUTH OF GUADALUPE ROAD).
            *       Sta. 39+00 to Guadalupe Rd.
1213        RS       1    FLOW      -1
1214        RC    .025    .015    .025    2420   .0018
1215        RX       0       6      12      24      64      76      82      88
1216        RY       4       3       2       0       0       2       3       4
            *
            *

1217        KK     67D
1218        KM   BASIN 67D
```

```
1219        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1220        KM    L=      .6  Lca=      .4   S=   34.7  Kn= .050  LAG=  20.5
1221        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1222        BA     .13
1223        LG     .25      .25     5.20      .30   30.00
1224        UI     23.      87.     132.     216.    202.     137.     86.     38.     23.      9.
1225        UI      6.       6.       0.       0.      0.       0.      0.      0.      0.      0.
1226        UI      0.       0.       0.       0.      0.       0.      0.      0.      0.      0.
            *
            *

1227        KK    R67D
1228        KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
1229        DT    D67D       9
1230        DI       0   10000
1231        DO       0   10000
            *
            *

1232        KK    C67D
1233        KM    COMBINE HYDROGRAPHS AT CP67D
1234        HC       2
            *
            *

1235        KK  67DT66
1236        KM    REACH CN-2 plus culvert CNC-2
1237        KM    ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
1238        KM     OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
            *       Sta. 20+00 to Sta. 39+00
1239        RS       1    FLOW      -1
1240        RC    .032     .032    .032     1900  0.0035
1241        RX       0        6      12       24      64       76      82      88
1242        RY       4        3       2        0       0        2       3       4
            *
            *
```



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

1243        KK     66A
1244        KM    BASIN 66A
1245        KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1246        KM     L=       .7  Lca=       .3   S=   55.9  Kn= .047  LAG=  17.1
1247        KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1248        BA     .26
1249        LG     .24      .25     6.00      .22   35.00
1250        UI     78.     256.     417.     576.    363.     205.     84.     39.     16.     16.
1251        UI      0.       0.       0.       0.      0.       0.      0.      0.      0.      0.
1252        UI      0.       0.       0.       0.      0.       0.      0.      0.      0.      0.
            *
            *

1253        KK    R66A
1254        KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
1255        DT    D66A      21
1256        DI       0   10000
1257        DQ       0   10000
            *
            *

1258        KK    66ATB
1259        KM    ROUTE S66A TO 66B VIA WASH CROSSING BASELINE
1260        RS       9    FLOW      -1
1261        RC    .045      .04    .045     7500   .0077
1262        RX       0      500     980     1003    1007     1031    1511    2011
1263        RY       4      3.5       3        0       0        3     3.5       4
            *
            *

1264        KK     66B
1265        KM    BASIN 66B
1266        KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1267        KM     L=      1.6  Lca=      1.0   S=   43.3  Kn= .050  LAG=  42.8
1268        KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1269        BA     .67
1270        LG     .25      .25     5.00      .33   30.00
1271        UI     53.      56.     185.     248.    297.     352.    426.    590.    636.    496.
1272        UI    419.     346.     286.     232.    152.      93.     86.     58.     53.     21.
1273        UI     16.      16.      16.      16.     16.       0.      0.      0.      0.      0.
1274        UI      0.       0.       0.       0.      0.       0.      0.      0.      0.      0.
            *
            *

1275        KK    R66B
1276        KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
1277        DT    D66B      48
1278        DI       0   10000
1279        DQ       0   10000
            *
            *
```



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

1280        KK    CP66B
1281        KM    COMBINE S66A AND S66B
1282        HC       2
            *
            *

1283        KK    66BTC
```

```
1284        KM   ROUTE 66B TO 66C VIA WASH
1285        RS       4    FLOW      -1
1286        RC    .045     .04    .045    6000   .0150
1287        RX       0     500     995    1003    1007    1016    1511    2011
1288        RY       4     3.5       3       0       0       3     3.5       4
            *
            *

1289        KK     66C
1290        KM   BASIN 66C
1291        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1292        KM    L=      1.1  Lca=        .7   S=   46.5  Kn= .039  LAG=  24.3
1293        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1294        BA     .50
1295        LG     .19     .25    5.40     .29   48.00
1296        UI     69.    243.    385.    528.    817.    635.    463.    325.    159.    103.
1297        UI     63.     21.     21.     21.      0.      0.      0.      0.      0.      0.
1298        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1299        KK    R66C
1300        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1301        DT    D66C      42
1302        DI       0   10000
1303        DQ       0   10000
            *
            *

1304        KK  CP66C1
1305        KM   Split up hydrograph combination in order to separate flows.
1306        KM   Combine Hydrographs 66BTC (from Sub. 66A)and R66C (from Sub. 66C)
            * KO      2       2
1307        HC        2
            *
            *

1308        KK  CP66C2
1309        KM   Combine Hydrograph CP66C1 (from Subbasins 66A, 66B and 66C)
1310        KM     plus hydrograph 67DT66 ( C67D )
            * KO      1
1311        HC        2
            *
            *
```



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

1312        KK    DI66
1313        KM    DIVERT FLOW TO DETENTION BASIN WA
1314        KM    By-pass Flow Reduced to 410 cfs from 458, SZ, 5-17-99
            * KO      1       2
1315        DT    DB66
1316        DI       0     150     363   411.0   456.0     513     577     643     712    1000
1317        DQ       0       0       0    32.0     71.     122     179     239     302     590
            *
            *

1318        KK  66C1T2
1319        KM    ROUTE FLOW FROM DIVERSION STRUCTURE TO ELLIOT CHANNEL at ELLIOT ROAD.
1320        KM    REACH CN-1 plus culvert CNC-1
1321        KM        A single pipe size and an overall slope are used to represent this
1322        KM        1,070 ft long reach which has pipe sizes of 78", 84" and 90", and
1323        KM        about 250' long sideweir and transition open channel.
1324        KM        RD card used for routing (Sta. 9+30 to Sta. 20+00)
1325        RD    1070  0.0130   0.012            CIRC       7
            *
            *

1326        KK   CP66C
1327        KM   COMBINE FLOWS FROM ELLIOT CHANNEL AND CRISMON BYPASS CHANNEL
            * KO      1
1328        HC        2
            *
            *

1329        KK   66CTD
            * KM REACH ET-7
1330        KM   ROUTE FLOWS FROM INTERSECTION OF CRISMON AND ELLIOT CHANNELS
1331        KM      AT THE INTERSECTION OF ELLIOT ROAD and CRISMON ROAD TO THE ELLIOT BASIN
1332        KM      WA Bleed-off Outlet, WHICH IS ABOUT 390 ft WEST OF CRISMON ROAD.
            *       RD card used for routing (Sta. 57+35 to Sta. 61+25)
1333        RD     390  0.0052   0.012            CIRC     9.5
            *
            *

1334        KK    DR66
            * KO      1
1335        KM          RETURN DIVERT TO DETENTION BASIN FROM DIVERSION STRUCTURE
1336        DR    DB66
            *
            *

1337        KK  RS66D1
            * KO      1
1338        KM   ELLIOT BASIN, WEST A
1339        KM   TWO PONDS OPERATING IN SERIES.
1340        KM        Bottom Elevation lowered to 1415.0 ft from 1420, and 18" Bleed-off
1341        KM        Pipe Added from WA to Elliot Channel
            *       Since the bleed-off pipe length is short, no routing is provided.
            *       Existing SS = 1423   20   2.5   1.5, SZ, 5-18-99
1342        RS       1    STOR       0
```

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

1343          SV       0    1.60   10.00   25.50   34.70   44.20   54.10   64.40   75.10   86.00
1344          SE  1415.0    1417    1419    1421    1422    1423    1424    1425    1426    1427
1345          SL  1416.0  1.7672     .62      .5
1346          SS  1423.5      20     3.0     1.5
              *
              *

1347          KK    B-WA
1348          KM        Bleed-off Flow from WA to Elliot Channel = 18" Pipe, SZ, 6-15-99
1349          KM        Divert Flow to WB by Weir Spillover (SS card on RS66D1)
              *       RS66D1 is the total routed flow = SL + SS
              *       This operation is designed to separate weir flow from pipe flow
1350          DT    D-WB
1351          DI       0       5      10      15   17.59   40.87   80.62  131.76  192.12  260.43
1352          DQ       0       0       0       0       0    21.2    60.0   110.2   169.7   237.2
              *
              *

1353          KK    C-WA
1354          KM        Combine Bleed-off Flow from WA with Flow in Elliot Channel
              *       Added by SZ, 5-17-99
1355          HC       2
              *
              *

1356          KK   RC-WA
1357          KM        Route Flow from WA Outlet to WB Outlet in Elliot Channel
              *       Added by SZ, 5-17-99
              * RS     1    FLOW      -1
              * RC  .025    .015    .025     800   .0017
              * RX     0       8      16      28      44      56      64      72
              * RY   5.7     5.8     6.0       0       0     6.0     5.8     5.7
1358          KM      WA Bleed-off Outlet to WB Bleed-off Outlet.
              *       RD card used for routing (Sta. 48+80 to Sta. 57+35)
1359          RD     855  0.0052   0.012            CIRC     9.5
              *
              *

1360          KK   DR-WA
1361          KM        Return Diverted Flow (Spillway) to WB from WA, SZ 5-7-99
              * KO     1
1362          DR    D-WB
              *
              *

1363          KK  RS66D2
              * KO     1
1364          KM   ELLIOT BASIN, WEST B
1365          KM   TWO PONDS OPERATING IN SERIES.
1366          KM        Bottom Elevation Lowered to 1413.5 ft from 1414, and 36" Bleed-off
1367          KM        Pipe Reduced to 18" from WB to Elliot Channel
              *       Since the bleed-off pipe length is short, no routing is provided.
              *       Existing SS = 1420.5   80   2.5   1.5, SZ, 5-19-99
1368          RS       1    STOR       0
1369          SV       0    4.40    8.80   14.50   21.00   28.00   35.30   42.90   50.90   59.20
```



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

1370          SE  1412.0    1415    1416    1417    1418    1419    1420    1421    1422    1423
1371          SL  1413.0  1.7672     .62      .5
1372          SS  1422.6      50     2.5     1.5
              *
              *

1373          KK   CP66D
1374          KM       COMBINE FLOWS FROM WEST ELLIOT BASIN AND ELLIOT CHANNEL
1375          KM       AT THE OUTLET PIPE.
              * KO     1
1376          HC       2
              *
              *

1377          KK  66T66D
              * KM REACH ET-6
1378          KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
1379          KM        2350 -> 3200,  SZ, 5-17-99
              *       First portion
              *       RD card used for routing (Sta. 36+44 to 48+80)
1380          RD    1236  0.0052   0.012            CIRC     9.5
              *
              *

1381          KK  66-66D
              * KM REACH ET-6
1382          KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
1383          KM        2350 -> 3200,  SZ, 5-17-99
              *       Second portion
              *       RD card used for routing (Sta. 12+46 to Sta. 36+44)
1384          RD    2398  0.0040   0.012            CIRC     9.5
              *
              *

1385          KK     66D
1386          KM   BASIN 66D
1387          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1388          KM    L=      1.0  Lca=       .7   S=   28.6  Kn= .020  LAG=  13.2
1389          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1390          BA     .31
1391          LG     .10     .17    6.80     .19   80.00
1392          UI    162.    480.    845.    540.    232.     89.     24.      0.      0.      0.
```

```
1393        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1394        KK    R66D
1395        KM   RETENTION REDUCED BY 77% FROM 31 TO 7 AC-FT
1396        KM   DUE TO DEVELOPMENT USING DETENTION BASIN
            *   The developer does not participate in the basin so the retention volume
            *   increased to 31 A-F
1397        DT    D66D      31
1398        DI       0   10000
1399        DQ       0   10000
            *
            *
1                                        HEC-1 INPUT                                                PAGE 37

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

1400        KK     61A
1401        KM   BASIN 61A
1402        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1403        KM    L=       .9  Lca=       .4   S=   36.8  Kn= .037  LAG=  19.1
1404        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1405        BA     .52
1406        LG     .19     .25    4.20     .56   52.00
1407        UI    117.    412.    628.   1037.    786.    517.    261.    132.     62.     28.
1408        UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1409        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1410        KK    R61A
1411        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1412        DT    D61A      42
1413        DI       0   10000
1414        DQ       0   10000
            *
            *

1415        KK   61ATB
1416        KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
1417        RS      10    FLOW      -1
1418        RC    .035    .024    .035    5280    .005
1419        RX       0     500     750     752     802     852    1102    1602
1420        RY       3       2     1.5     1.2     1.2     1.5       2       3
            *
            *

1421        KK     61B
1422        KM   BASIN 61B
1423        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1424        KM    L=       1.4  Lca=       .7   S=   39.7  Kn= .047  LAG=  33.6
1425        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1426        BA    1.09
1427        LG     .24     .25    4.80     .37   35.00
1428        UI    109.    223.    475.    615.    765.   1049.   1335.   1025.    822.    643.
1429        UI    495.    288.    187.    143.    109.     36.     34.     34.     34.     34.
1430        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1431        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1432        KK    R61B
1433        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1434        DT    D61B      81
1435        DI       0   10000
1436        DQ       0   10000
            *
            *
1                                        HEC-1 INPUT                                                PAGE 38

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

1437        KK   CP61B
1438        KM   COMBINE FLOWS FROM S61A AND S61B
1439        HC       2
            *
            *

1440        KK  61T66D
1441        KM   ROUTE CP61B TO SUBBASIN 66D ALONG ELLSWORTH ROAD. ROUTING WILL BE
1442        KM   THE SAME AS WAS GIVEN FOR SUBBASIN 61A
1443        RS       9    FLOW      -1
1444        RC    .035    .024    .035    5280    .008
1445        RX       0     500     750     752     802     852    1102    1602
1446        RY       3       2     1.5     1.2     1.2     1.5       2       3
            *
            *

1447        KK     67E
1448        KM   BASIN 67E
1449        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1450        KM    L=       1.2  Lca=       .7   S=   32.3  Kn= .038  LAG=  26.9
1451        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1452        BA     .58
1453        LG     .19     .25    5.40     .30   50.00
1454        UI     73.    219.    378.    496.    732.    830.    597.    443.    315.    157.
1455        UI    110.     73.     24.     22.     22.     22.      0.      0.      0.      0.
1456        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *
```

```
1457        KK    R67E
1458        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1459        KM   DUE TO DEVELOPMENT USING DETENTION BASIN
1460        DT    D67E      50
1461        DI       0   10000
1462        DQ       0   10000
            *
            *

1463        KK    C67E
1464        KM   COMBINE FLOWS FROM ELLSWORTH ROAD JUST NORTH OF ELLIOT ROAD
1465        HC       2
            *
            *

1466        KK    C66D
1467        KM   COMBINE ELLIOT CHANNEL FLOW WITH HYDROGRAPH C67E @ ELLIOT RD & ELLSWORTH RD.
1468        HC       3
            *
            *
```



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

1469        KK  66T23A
1470        KM    NAME WAS CHANGED FROM 66T70A TO 66T23A
1471        KM        Pipe Routing, Reach ET-5
            *       SE corner curve of Elliot Rd. & Ellsworth Rd.
            *       RD card used for routing (Junction Structure to Sta. 12+46)
1472        RD     253  0.0015   0.012            CIRC      9.5
            *
            *

1473        KK  66T23B
1474        KM    NAME WAS CHANGED FROM 66T70B TO 66T23B
1475        KM        Pipe Routing, Reach ET-5
            *       Elliot Rd. to Culvert along Ellsworth Rd. 2-102" pipe = 144" pipe
            *       RD card used for routing (Sta. 85+65 to Sta. 97+51)
1476        RD    1186  0.0015   0.012            CIRC      12
            *
            *

1477        KK   CULVT
1478        KM        Pipe Routing, Culvert
            *       2-102" pipe culvert crossing Ellsworth Rd.
            *       RD card used for routing
1479        RD     196  0.0008   0.012            CIRC      12
            *
            *
            * KK66T70C
            * KM REACH ET-4, ET-5[ COMPRISED OF ET-5A AND ET-5B].
            * KM ROUTE FROM ELLSWORTH Culvert TO SANTAN FREEWAY.
            * RS      2    FLOW      -1
            * RC   .032     .032     .032     2490    .0008
            * RX      0       10       20       56       76      112      120      130
            * RY    6.2      6.1      6.0        0        0      6.0      6.1      6.2
            *
            *

1480        KK  66T23C
1481        KM   ROUTE ELLIOT STORM DRAIN FLOW SOUTH TO MESQUITE ROAD ALIGNMENT ALONG THE
1482        KM   WEST SIDE OF ELLSWORTH ROAD VIA ENGINEERED CHANNEL.
1483        RS       1    FLOW      -1
1484        RC    .032     .032     .032     1000    .0021
1485        RX       0        5       10       46       56       92       97      102
1486        RY      10      9.5        9        0        0        9      9.5       10
            *
            *

1487        KK      04   BASIN
1488        KM    BASIN 04
1489        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1490        KM    L=1.39  Lca=0.44  S=22.3  Kn=0.033  LAG=21.9
1491        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1492        BA   0.309
1493        LG    0.21     0.15     8.80     0.08       71
1494        UI       0       48      191      287      437      533      361      251      127       73
1495        UI      41       15       15       15        0        0        0        0        0        0
```



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

1496        UI       0        0        0        0        0        0        0        0        0        0
1497        UI       0        0        0        0        0        0        0        0        0        0
1498        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

1499        KK   RET04  DIVERT
1500        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
            * KO      2
1501        DT   04RET   31.70      0.0
1502        DI       0   10000
1503        DQ       0   10000
            *
            *

1504        KK    CP23
1505        KM   COMBINE FLOW FROM 66T23C AND BASIN 04.
            * KO      2
1506        HC       2
            *
            *
```

```
1507        KK  66T23D
1508        KM   ROUTE ELLIOT STORM DRAIN FLOW WEST TO LOOP 202 EAST CHANNEL ALONG THE NORTH
1509        KM   SIDE OF THE MESQUITE ROAD ALIGNMENT VIA ENGINEERED CHANNEL.
1510        RS       1    FLOW      -1
1511        RC    .032    .032    .032    2300   .0021
1512        RX       0       5      10      46      56      92      97     102
1513        RY      10     9.5       9       0       0       9     9.5      10
            *
            *

1514        KK     62C
1515        KM   BASIN 62C
1516        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1517        KM    L=        .6  Lca=        .3   S=   24.2  Kn= .049  LAG=  19.8
1518        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1519        BA     .55
1520        LG     .23     .25    4.65     .40   47.00
1521        UI    112.    406.    615.   1024.    853.    571.    330.    154.     83.     28.
1522        UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1523        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1524        KK    R62C
1525        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1526        DT    D62C      31
1527        DI       0   10000
1528        DQ       0   10000
            *
            *
```



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

1529        KK   62CTE
1530        KM   ROUTE BASIN 62C TO BASIN 62E BY CHANNEL ON EAST SIDE OF PROPOSED SANTAN
1531        KM   FREEWAY ALIGNMENT
1532        RS       3    FLOW      -1
1533        RC    .030    .030    .030    2000   .0003
1534        RX       0       5      10      25      45      55      60      65
1535        RY       8       7     6.5       0       0     6.5       7       8
            *
            *

1536        KK     62E
1537        KM   BASIN 62E
1538        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1539        KM    L=        .6  Lca=        .3   S=   31.9  Kn= .050  LAG=  20.4
1540        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1541        BA     .15
1542        LG     .25     .25    4.65     .39   45.00
1543        UI     29.    108.    163.    268.    246.    167.    104.     46.     28.     10.
1544        UI      8.      8.      0.      0.      0.      0.      0.      0.      0.      0.
1545        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1546        KK    R62E
1547        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1548        DT    D62E      12
1549        DI       0   10000
1550        DQ       0   10000
            *
            *

1551        KK   CP62E
1552        KM   COMBINE FLOWS FROM SUBBASIN 62C AND SUBBASIN 62E
1553        HC       2
            *
            *

1554        KK  62T68A
1555        KM   ROUTE FLOW FROM CP62E TO SUBBASIN 68A BY CHANNEL ALONG PROPOSED ALIGNMENT
1556        KM   OF THE SANTAN FREEWAY
            * ZW   A=62T68A   B=NORTH OF ELLIOT  C=FLOW    F=100YR FUTURE
1557        RS       5    FLOW      -1
1558        RC    .030    .030    .030    3280  .00015
1559        RX       0       5      10      20      30      40      45      50
1560        RY      20      15      15       0       0      15      15      20
            *
            *
            * BASIN 68A WAS SEPERATED INTO 2 BASINS TO CALCULATE OFFSITE FLOW IMPACTS
            * TO BASIN 23.
            *
            * KK   68A
            * KM BASIN 68A
            * KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
            * KM  L=        .7  Lca=        .4   S=   37.7  Kn= .032  LAG=  13.7
            * KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
            * BA   .35
            * LG   .16     .25    5.70     .27   66.00
            * UI  168.    506.    914.    635.    301.    114.     34.     26.      0.
            * UI    0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *
```



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

1561        KK    68A1   BASIN
1562        KM   BASIN 68A1
```

```
1563        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1564        KM    L=0.92  Lca=0.46  S=37.7  Kn=0.030  LAG=15.6
1565        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1566        BA   0.297
1567        LG    0.16     0.25     5.70     0.27        3
1568        UI     106      340      612      604      368      151       73       20       20        0
1569        UI       0        0        0        0        0        0        0        0        0        0
            *

1570        KK    68A2   BASIN
1571        KM   BASIN 68A2
1572        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1573        KM    L=0.50  Lca=0.25  S=37.8  Kn=0.030  LAG=9.8
1574        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1575        BA   0.048
1576        LG    0.16     0.25     5.70     0.27       80
1577        UI      46      147      124       41        9        0        0        0        0        0
1578        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

1579        KK  CP68A1
1580        KM   COMBINE FLOWS FROM BASINS 68A1 AND 68A2
1581        HC       2
            *
            *

1582        KK    R68A
1583        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1584        DT    D68A       31
1585        DI       0    10000
1586        DQ       0    10000
            *
            *

1587        KK  CP68A2
1588        KM   COMBINE FLOW FROM BASINS 68A1 AND 68A2 WITH THE ROUTED FLOW FROM CP62E
            * KO      3        2
            * 2W  A=COMBINED FLOW, CP68A  B=FROM BASIN AND ROUTE  C=FLOW   F=100YR FUTURE
1589        HC       2
            *
            *

1590        KK  68T70A
1591        KM   ROUTE FLOW FROM CP68A AT ELLIOT AND SANTAN FREEWAY ALIGNMENT TO SUBBASIN
1592        KM   70A, AT THE POINT WHERE SIPHON DRAW INTERSECTS THE FREEWAY ALIGNMENT
1593        KM   CHANNEL IS NATURAL AND ONLY APPROXIMATE IN ROUTING PARAMETERS
1594        RS       5     FLOW       -1
1595        RC    .030     .030     .030     3960    .0006
1596        RX       0        5       10       20       30       40       45       50
1597        RY      10        5        4        0        0        4        5       10
            *
            *
```



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

1598        KK    70A1   BASIN
1599        KM   BASIN 70A1
1600        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1601        KM    L=0.52  Lca=0.26  S=3.8  Kn=0.030  LAG=15.7
1602        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1603        BA   0.053
1604        LG    0.10     0.25     5.70     0.29       80
1605        UI      18       61      106      110       65       29       13        3        4        0
1606        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

1607        KK      23   BASIN
1608        KM   BASIN 23
1609        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1610        KM    L=0.78  Lca=0.36  S=17.9  Kn=0.036  LAG=18.5
1611        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1612        BA   0.218
1613        LG    0.10     0.21     6.40     0.22       76
1614        UI      53      183      283      450      325      206       93       51       19       12
1615        UI      12        0        0        0        0        0        0        0        0        0
1616        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

1617        KK   RET23  DIVERT
1618        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1619        DT   23RET     22.7      0.0
1620        DI       0    10000
1621        DQ       0    10000
            *
            *

1622        KK   C70A1
1623        KM   COMBINE FLOWS FROM 68T70A, 66T23D, BASIN 70A1, AND BASIN 23.
            * KO      2
1624        HC       4
            *
            *

1625        KK  70A1T2
1626        KM   ROUTE FLOW ALONG LOOP 202 WITHIN THE EAST CHANNEL FROM MESQUITE ROAD TO
1627        KM   WARNER ROAD.
1628        RS       2     FLOW       -1
1629        RC    .025     .025     .025     2675  0.0005
1630        RX       0        8       16       59       91      134      142      150
```

```
1631        RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
            *
            *
1                                          HEC-1 INPUT                                                          PAGE 44

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

1632        KK      24   BASIN
1633        KM   BASIN 24
1634        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1635        KM    L=0.83  Lca=0.38  S=24.1  Kn=0.035  LAG=17.8
1636        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1637        BA   0.252
1638        LG    0.10    0.15    8.80    0.09      79
1639        UI      67     229     357     538     359     221      91      51      14      15
1640        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1641        KK   RET24  DIVERT
1642        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1643        DT   24RET    26.5     0.0
1644        DI       0   10000
1645        DQ       0   10000
            *
            *

1646        KK    70A2   BASIN
1647        KM   BASIN 70A2
1648        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1649        KM    L=0.51  Lca=0.26  S=19.6  Kn=0.030  LAG=11.4
1650        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1651        BA   0.036
1652        LG    0.10    0.15    8.40    0.10      80
1653        UI      25      77     106      49      15       4       0       0       0       0
1654        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1655        KK  CP70A2
1656        KM   COMBINE FLOWS FROM 70A1T2 AND BASINS 24 AND 70A2
1657        KM
1658        HC       3
            *
            *

1659        KK  70T76A
1660        KM   DIBBLE DRAINAGE FACILITY
1661        KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT
1662        KM   REACH ET-3A, ET-3B
1663        RS       4    FLOW      -1
1664        RC    .025    .025    .025    4500  0.0005
1665        RX       0       8      16      59      91     134     142     150
1666        RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
            *
            *
1                                          HEC-1 INPUT                                                          PAGE 45

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

1667        KK     76A
1668        KM   BASIN 76A
1669        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1670        KM    L=      2.9  Lca=      1.7   S=   24.1  Kn= .030  LAG=  42.9
1671        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1672        BA   1.91
1673        LG     .15     .15    8.80     .08   56.00
1674        UI    150.    159.    528.    707.    847.   1004.   1213.   1673.   1826.   1424.
1675        UI   1201.    992.    822.    667.    444.    266.    247.    171.    150.     65.
1676        UI     46.     46.     46.     46.     46.      0.      0.      0.      0.      0.
1677        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

1678        KK    R76A
1679        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1680        DT    D76A     185
1681        DI       0   10000
1682        DQ       0   10000
            *
            *

1683        KK    C76A
1684        KM    COMBINE HYDROGRAPHS 70T76A (SANTAN FREEWAY CHANNEL FLOWS) WITH SUBBASIN 76A
            * KO      2
1685        HC       2
            *
            * KK*DBSAN
            * KM DIVERT FROM SANTAN CHANNEL INTO THE RAY DETENTION BASIN
            * KM ADDED BY CPE IN JUNE 2000.
            * KM USES A REALISTIC SIDE-WEIR EQUATION TO FORM POWER CURVE
            * KM WEIR CREST = 4.5 FT; WEIR LENGTH = 200FT; 4.0 FT DIV STRUCTURE.
            * KO      3
            * DT SANDB    1537
            * DI      0     750     772     819     892     999    1356    8138
            * DQ      0       0       7      31      78     154     439    6509
            *
            *

1686        KK  76ATPR
1687        KM   DIBBLE DRAINAGE FACILITY
1688        KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT TO NEW POWERLINE FLOODWAY ALGN.
```

```
1689        KM   REACH ET-2A, ET-2B
1690        RS       5     FLOW      -1
1691        RC    .025     .025     .025     5750  0.0005
1692        RX       0        8       16       61      93      138      146      154
1693        RY     7.7      7.6      7.5        0       0      7.5      7.4      7.3
            *
            *
```



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

1694        KK     73A
1695        KM   BASIN 73A
1696        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1697        KM    L=       2.3  Lca=       1.0   S=   34.9  Kn= .093  LAG=  94.5
1698        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1699        BA     .95
1700        LG     .35      .36     5.00      .27      .00
1701        UI     34.      34.      34.      34.      84.     117.     134.     158.     171.     185.
1702        UI    197.     214.     232.     254.     274.     317.     381.     429.     424.     369.
1703        UI    332.     303.     292.     263.     240.     220.     202.     185.     169.     157.
1704        UI    134.     107.      90.      60.      60.      57.      55.      54.      34.      34.
1705        UI     34.      34.      16.      10.      10.      10.      10.      10.      10.      10.
1706        UI     10.      10.      10.      10.      10.      10.       0.       0.       0.       0.
1707        UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
            *
            *

1708        KK   73ATB   ROUTE
1709        KM   ROUTE FLOW FROM BASIN 73A THROUGH THE MOUNTAIN HEIGHTS DEVELOPEMENT FROM
1710        KM   MERIDIAN ROAD TO MOUNTAIN ROAD.
1711        RS       2     FLOW      -1
1712        RC   0.045    0.040    0.045     2830  0.0050     0.00
1713        RX    0.00     5.00    10.00    20.00  120.00   130.00   135.00   140.00
1714        RY    4.00     3.00     2.50     0.00    0.00     2.50     3.00     4.00
            *
            *

1715        KK     73B   BASIN
1716        KM   BASIN 73B
1717        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1718        KM    L=0.56  Lca=0.28  S=30.4  Kn=0.040  LAG=14.9
1719        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1720        BA   0.425
1721        LG    0.25     0.25     5.40     0.27      30
1722        UI     169      530      973      829     481      180       73       30        0        0
1723        UI       0        0        0        0       0        0        0        0        0        0
            *
            *

1724        KK  RET73B  DIVERT
1725        KM   RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
1726        DT  73BRET    39.5      0.0
1727        DI       0   10000
1728        DQ       0   10000
            *
            *

1729        KK   CP73B COMBINE
1730        KM   COMBINE HYDROGRAPHS 73ATB AND BASIN 73B
1731        HC       2
            *
            *
```



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

1732        KK   73BTC   ROUTE
1733        KM   ROUTE FLOW THROUGH THE NOVA VISTA DEVELOPEMENT FROM MOUNTAIN ROAD TO
1734        KM   SIGNAL BUTTE ROAD.
1735        RS       4     FLOW      -1
1736        RC   0.045    0.040    0.045     4500  0.0050     0.00
1737        RX    0.00     5.00    10.00    22.00  122.00   134.00   139.00   144.00
1738        RY    4.00     3.50     3.00     0.00    0.00     3.00     3.50     4.00
            *
            *

1739        KK     73C   BASIN
1740        KM   BASIN 73C
1741        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1742        KM    L=1.33  Lca=0.30  S=22.6  Kn=0.040  LAG=22.5
1743        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1744        BA   0.585
1745        LG    0.25     0.25     5.40     0.27      30
1746        UI      88      344      512      764    1019      695      488      287      149       88
1747        UI      31       27       26        0       0        0        0        0        0        0
1748        UI       0        0        0        0       0        0        0        0        0        0
            *
            *

1749        KK  RET73C  DIVERT
1750        KM   RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
1751        DT  73CRET    37.2      0.0
1752        DI       0   10000
1753        DQ       0   10000
            *
            *

1754        KK   CP73C COMBINE
1755        KM   COMBINE HYDROGRAPHS 73BTC AND BASIN 73C
1756        HC       2
            *
```

```
                *
1757            KK  73T74C   ROUTE
1758            KM   ROUTE FLOW SOUTH ALONG THE WEST SIDE OF SIGNAL BUTTE ROAD IN AN
1759            KM   ENGINEERED CHANNEL FROM WARNER ROAD TO THE POWERLINE FLOODWAY.
1760            RS      20    FLOW      -1
1761            RC   0.032   0.032   0.032    4670   .0024
1762            RX       0       5      10      31      69    79.5    84.5    89.5
1763            RY     3.5     3.5     3.5       0       0     3.5     3.5     3.5
                *
                * ***********************************************************************
                *

1764            KK     74A
1765            KM   BASIN 74A
1766            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1767            KM    L=      2.4  Lca=      1.0   S=   42.2  Kn= .095  LAG=  92.9
1768            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
                * KO     2       2
```



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

1769            BA     .75
1770            LG     .35     .36    5.00     .27     .00
1771            UI     27.     27.     27.     27.     73.     96.    111.    129.    140.    151.
1772            UI    163.    175.    193.    208.    228.    268.    317.    362.    327.    287.
1773            UI    260.    239.    222.    206.    187.    171.    160.    142.    132.    118.
1774            UI     99.     79.     56.     48.     47.     45.     45.     32.     27.     27.
1775            UI     27.     19.      8.      8.      8.      8.      8.      8.      8.      8.
1776            UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
1777            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

1778            KK   74ATB   ROUTE
1779            KM   ROUTE FLOW FROM BASIN 74A VIA THE POWERLINE FLOODWAY FROM MERIDIAN ROAD TO
1780            KM   MOUNTAIN ROAD. FLOW ENTERS THE POWERLINE FLOODWAY VIA A 75FT WEIR ON THE
1781            KM   NORTHWEST CORNER OF THE MERIDIAN ROAD AND POWERLINE FLOODWAY INTERSECTION.
1782            RS       1    FLOW      -1
1783            RC   0.013   0.013   0.013    3200  0.0060    0.00
1784            RX    0.00    7.00   21.50   30.00   36.00   44.50   59.00   66.00
1785            RY    6.00    5.50    5.50    0.00    0.00    5.50    5.50    6.00
                *
                *

1786            KK     74B   BASIN
1787            KM   BASIN 74B
1788            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1789            KM    L=1.31  Lca=0.41  S=23.7  Kn=0.040  LAG=24.9
1790            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1791            BA   0.333
1792            LG    0.25    0.25    5.80    0.22      30
1793            UI      45     154     245     330     528     430     318     229     122      76
1794            UI      44      18      14      14       0       0       0       0       0       0
1795            UI       0       0       0       0       0       0       0       0       0       0
                *
                *

1796            KK  RET74B  DIVERT
1797            KM   RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
1798            DT  74BRET    17.8     0.0
1799            DI       0   10000
1800            DQ       0   10000
                *
                *

1801            KK   CP74B COMBINE
1802            KM   COMBINE HYDROGRAPHS 74ATB AND BASIN 74B
1803            HC       2
                *
                *
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1804            KK   74BTC   ROUTE
1805            KM   ROUTE FLOW VIA THE POWERLINE FLOODWAY FROM MOUNTAIN ROAD TO SIGNAL BUTTE
1806            KM   ROAD.
1807            RS       1    FLOW      -1
1808            RC   0.013   0.013   0.013    3100  0.0055    0.00
1809            RX    0.00    7.00   21.50   30.00   36.00   44.50   59.00   66.00
1810            RY    6.00    5.50    5.50    0.00    0.00    5.50    5.50    6.00
                *
                *

1811            KK     74C   BASIN
1812            KM   BASIN 74C
1813            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1814            KM    L=1.22  Lca=0.40  S=25.4  Kn=0.040  LAG=23.7
1815            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1816            BA   0.345
1817            LG    0.25    0.17    6.80    0.15      30
1818            UI      48     180     276     386     598     428     310     211      97      65
1819            UI      35      15      15      16       0       0       0       0       0       0
1820            UI       0       0       0       0       0       0       0       0       0       0
                *
                *

1821            KK  RET74C  DIVERT
1822            KM   RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
1823            DT  74CRET    22.6     0.0
1824            DI       0   10000
```

```
1825        DQ       0   10000
            *
            *

1826        KK   CP74C COMBINE
1827        KM   COMBINE HYDROGRAPHS 73T74C, 74BTC, AND BASIN 74C
            * KO      2
1828        HC       3
            *
            *

1829        KK  74CT75
1830        KM  ROUTE FLOW FROM IN THE POWERLINE FLOODWAY FROM CP74C TO CP75
1831        RS       3    FLOW      -1
1832        RC   0.030   0.013   0.030   10500   .0038
1833        RX       0      15    16.5      25      33    41.5      43      58
1834        RY     6.6     6.6     5.6       0       0     5.6     6.6     6.6
            *
            *

1835        KK    10   BASIN
1836        KM    BASIN 10
1837        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1838        KM    L=1.11  Lca=0.56  S=18.9  Kn=0.045  LAG=30.9
1839        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1840        BA   0.171
1841        LG    0.25    0.19    6.60    0.17      31
1                                        HEC-1 INPUT                                                    PAGE 50

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

1842        UI       0      19      45      87     111     143     216     198     151     117
1843        UI      88      52      32      23      16       6       6       6       6       0
1844        UI       0       0       0       0       0       0       0       0       0       0
1845        UI       0       0       0       0       0       0       0       0       0       0
1846        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1847        KK   RET10  DIVERT
1848        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1849        DT   10RET   18.32     0.0
1850        DI       0   10000
1851        DQ       0   10000
            *
            *

1852        KK   10T75
1853        KM  ROUTE FLOW FROM NORTH SIDE RAY FROM CP10 TO CP75 WITHIN RAY ROAD
1854        RS       1    FLOW      -1
1855        RC   0.030   0.015   0.030    6320   .0060
1856        RX       0    17.5      18      57      73     112   112.5     130
1857        RY     1.0    0.50     0.0     0.8     0.8     0.0     0.5     1.0
            *
            *

1858        KK    02B   BASIN
1859        KM    BASIN 02B
1860        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1861        KM    L=0.58  Lca=0.26  S=25.9  Kn=0.040  LAG=15.1
1862        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1863        BA   0.242
1864        LG    0.25    0.25    5.30    0.31      55
1865        UI       0      94     292     538     482     280     108      47      17      17
1866        UI       0       0       0       0       0       0       0       0       0       0
1867        UI       0       0       0       0       0       0       0       0       0       0
1868        UI       0       0       0       0       0       0       0       0       0       0
1869        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1870        KK  RET02B  DIVERT
1871        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
1872        DT  02BRET   25.40       0
1873        DI       0   10000
1874        DQ       0   10000
            *
            *

1875        KK    2BT1   ROUTE
1876        KM  ROUTE FLOW IN EXCESS OF THE 100-YEAR, 2-HR STORM OVERLAND TO
1877        KM  GOLF COURSE IN SUBBASIN 1
1878        RS      12    FLOW      -1
1879        RC   0.032   0.032   0.032    1700  0.0090
1880        RX    0.00       1       2       3    2003    2004    2005    2006
1881        RY    1.00    0.75    0.50    0.00    0.00    0.50    0.75    1.00
            *
            *
1                                        HEC-1 INPUT                                                    PAGE 51

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

1882        KK    01A   BASIN
1883        KM    BASIN 01A
1884        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1885        KM    L=0.48  Lca=0.16  S=22.9  Kn=0.039  LAG=11.7
1886        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1887        BA   0.137
1888        LG    0.25    0.15    7.30    0.14      57
1889        UI       0      93     273     403     200      62      18       0       0       0
1890        UI       0       0       0       0       0       0       0       0       0       0
1891        UI       0       0       0       0       0       0       0       0       0       0
1892        UI       0       0       0       0       0       0       0       0       0       0
```

```
1893        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
            *

1894        KK  RET01A  DIVERT
1895        KM   RETAIN 100 YR 24 HR RUNOFF VOLUME
1896        DT  01ARET    23.0     0.0
1897        DI       0   10000
1898        DQ       0   10000
            *
            *

1899        KK     CP1
1900        KM    COMBINE HYDROGRAPHS 2BT1 AND RET01A
1901        HC       2
            *
            *

1902        KK     1T3   ROUTE
1903        KM  ROUTE FLOW FROM BASIN 1 TO BASIN 6
1904        RS       2    FLOW      -1
1905        RC   0.030   0.015   0.003    1610   .0062
1906        RX       0     7.5       8      38      43      73    73.5      81
1907        RY     0.8     0.5       0     0.6     0.6       0     0.5     0.8
            *
            *

1908        KK     01B   BASIN
1909        KM    BASIN 01B
1910        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1911        KM    L=0.65  Lca=0.26  S=29.2  Kn=0.045  LAG=17.4
1912        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1913        BA   0.108
1914        LG    0.25    0.15    8.40    0.09      29
1915        UI       0      30     101     162     234     150      89      36      18       6
1916        UI       6       0       0       0       0       0       0       0       0       0
1917        UI       0       0       0       0       0       0       0       0       0       0
1918        UI       0       0       0       0       0       0       0       0       0       0
1919        UI       0       0       0       0       0       0       0       0       0       0
            *
            *
```



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

1920        KK  RET01B  DIVERT
1921        KM   RETAIN 100 YR 24 HR RUNOFF VOLUME
1922        DT  01BRET    13.5     0.0
1923        DI       0   10000
1924        DQ       0   10000
            *
            *

1925        KK      03   BASIN
1926        KM    BASIN 03
1927        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1928        KM    L=0.32  Lca=0.15  S=37.5  Kn=0.030  LAG=6.8
1929        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1930        BA   0.159
1931        LG    0.20    0.15    8.40    0.10      85
1932        UI       0     311     707     185      26       0       0       0       0       0
1933        UI       0       0       0       0       0       0       0       0       0       0
1934        UI       0       0       0       0       0       0       0       0       0       0
1935        UI       0       0       0       0       0       0       0       0       0       0
1936        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1937        KK   RET03  DIVERT
1938        KM   RETAIN 100 YR 24 HR RUNOFF VOLUME
1939        DT   03RET    26.9     0.0
1940        DI       0   10000
1941        DQ       0   10000
            *
            *

1942        KK     CP3
1943        KM    COMBINE HYDROGRAPHS 1T3, RET01B, AND RET03
1944        HC       3
            *
            *

1945        KK     3T6   ROUTE
1946        KM  ROUTE FLOW FROM BASIN 1 TO BASIN 6
1947        RS       3    FLOW      -1
1948        RC   0.030   0.015   0.003    1810   .0044
1949        RX       0     7.5       8      38      43      73    73.5      81
1950        RY     0.8     0.5       0     0.6     0.6       0     0.5     0.8
            *
            *

1951        KK     02A   BASIN
1952        KM    BASIN 02A
1953        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1954        KM    L=0.57  Lca=0.14  S=19.3  Kn=0.041  LAG=12.9
1955        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1956        BA   0.109
1957        LG    0.23    0.21    6.40    0.21      53
1958        UI       0      60     177     305     186      75      27       9       0       0
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
1959        UI       0       0       0       0       0       0       0       0       0       0
1960        UI       0       0       0       0       0       0       0       0       0       0
1961        UI       0       0       0       0       0       0       0       0       0       0
1962        UI       0       0       0       0       0       0       0       0       0       0
            *

1963        KK  RET02A  DIVERT
1964        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1965        DT  02ARET    10.1     0.0
1966        DI       0   10000
1967        DQ       0   10000
            *
            *

1968        KK     02C   BASIN
1969        KM    BASIN 02C
1970        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1971        KM    L=0.67  Lca=0.30  S=29.9  Kn=0.041  LAG=16.8
1972        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1973        BA   0.239
1974        LG    0.26    0.25    5.70    0.26      48
1975        UI       0      73     239     397     516     321     171      72      32      15
1976        UI      15       0       0       0       0       0       0       0       0       0
1977        UI       0       0       0       0       0       0       0       0       0       0
1978        UI       0       0       0       0       0       0       0       0       0       0
1979        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

1980        KK  RET02C  DIVERT
1981        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1982        DT  02CRET   23.70     0.0
1983        DI       0   10000
1984        DQ       0   10000
            *
            *

1985        KK    2CT2   ROUTE
1986        KM  ROUTE FLOW FROM BASIN 2C TO CP2
1987        RS       3    FLOW      -1
1988        RC   0.030   0.015   0.003    1750   .0057
1989        RX       0     7.5       8      38      43      73    73.5      81
1990        RY     0.8     0.5       0     0.6     0.6       0     0.5     0.8
            *
            *

1991        KK     CP2
1992        KM    COMBINE HYDROGRAPHS RET02A AND 2CT2
1993        HC       2
            *
            *
```



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

1994        KK   2AT6   ROUTE
1995        KM   ROUTE FLOW FROM COMBINE CP2 TO BASIN 6
1996        RS       4    FLOW      -1
1997        RC   0.030   0.015   0.003    3020   .0043
1998        RX       0     7.5       8      38      43      73    73.5      81
1999        RY     0.8     0.5       0     0.6     0.6       0     0.5     0.8
            *
            *

2000        KK      06   BASIN
2001        KM    BASIN 06
2002        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2003        KM    L=0.77  Lca=0.27  S=20.8  Kn=0.034  LAG=15.1
2004        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2005        BA   0.155
2006        LG    0.27    0.15    7.30    0.13      36
2007        UI       0      60     187     344     309     180      69      30      11      11
2008        UI       0       0       0       0       0       0       0       0       0       0
2009        UI       0       0       0       0       0       0       0       0       0       0
2010        UI       0       0       0       0       0       0       0       0       0       0
2011        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2012        KK   RET06  DIVERT
2013        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2014        DT   06RET   14.30     0.0
2015        DI       0   10000
2016        DQ       0   10000
            *
            *

2017        KK      6A   BASIN
2018        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2019        KM    L=0.94  Lca=0.34  S=33.0  Kn=0.038  LAG=18.3
2020        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2021        BA   0.258
2022        LG    0.24    0.10   11.20    0.03      47
2023        UI       0      65     221     342     543     376     241     104      58      21
2024        UI      15       0       0       0       0       0       0       0       0       0
2025        UI       0       0       0       0       0       0       0       0       0       0
2026        UI       0       0       0       0       0       0       0       0       0       0
2027        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2028        KK  RET06A  DIVERT
```

```
2029        KM    RETAIN 100 YR 24 HR RUNOFF VOLUME
2030        DT  06ARET    35.7      0.0
2031        DI       0   10000
2032        DQ       0   10000
            *
            *
```



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

2033        KK      7A   BASIN
2034        KM    BASIN 7A
2035        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2036        KM    L=0.59  Lca=0.27  S=20.3  Kn=0.041  LAG=16.6
2037        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2038        BA   0.120
2039        LG    0.25     0.15     8.80     0.08       39
2040        UI       0       38      122      205      259      159       82       35       15        7
2041        UI       0        0        0        0        0        0        0        0        0        0
2042        UI       0        0        0        0        0        0        0        0        0        0
2043        UI       0        0        0        0        0        0        0        0        0        0
2044        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

2045        KK     CP6
2046        KM    COMBINE HYDROGRAPHS 3T6, 2AT6, RET06A, RET06, AND BASIN 7A
2047        HC       5
            *
            *

2048        KK  RET07A  DIVERT
2049        KM  RETAIN 100 YR 24 HR RUNOFF VOLUME
2050        DT  07ARET    17.2       0.0
2051        DI       0   10000
2052        DQ       0   10000
            *
            *
            * KK   CP7
            * KM  COMBINE HYDROGRAPHS 6T7A AND RET07A
            * HC     2
            *
            *

2053        KK   7AT12
2054        KM   ROUTE FLOW FROM BASIN 7A TO BASIN 12
2055        RS       4    FLOW      -1
2056        RC   0.030   0.015   0.030    1920   .0042
2057        RX       0    17.5      18      57      73     112   112.5     130
2058        RY     1.0    0.50     0.0     0.8     0.8     0.0     0.5     1.0
            *
            *

2059        KK      07   BASIN
2060        KM    BASIN 07
2061        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2062        KM    L=0.46  Lca=0.21  S=30.4  Kn=0.040  LAG=12.4
2063        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2064        BA   0.116
2065        LG    0.24     0.19     6.60     0.20       47
2066        UI       0       69      203      334      189       68       22       10        0        0
2067        UI       0        0        0        0        0        0        0        0        0        0
2068        UI       0        0        0        0        0        0        0        0        0        0
2069        UI       0        0        0        0        0        0        0        0        0        0
```



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

2070        UI       0        0        0        0        0        0        0        0        0        0
            *
            *

2071        KK   RET07  DIVERT
2072        KM   RETAIN 100 YR 24 HR RUNOFF VOLUME
2073        DT   07RET    17.2      0.0
2074        DI       0   10000
2075        DQ       0   10000
            *
            *

2076        KK    7T12
2077        KM   ROUTE FLOW FROM BASIN 5 TO BASIN 12
2078        RS       1    FLOW      -1
2079        RC   0.030   0.015   0.003    3160   .0036
2080        RX       0     7.5       8      38      43      73    73.5      81
2081        RY     0.8     0.5       0     0.6     0.6       0     0.5     0.8
            *
            *

2082        KK      05   BASIN
2083        KM    BASIN 05
2084        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2085        KM    L=0.79  Lca=0.40  S=24.1  Kn=0.041  LAG=20.8
2086        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2087        BA   0.267
2088        LG    0.24     0.13    10.10     0.05       37
2089        UI       0       47      182      274      444      438      297      192       86       53
2090        UI      22       13       13        0        0        0        0        0        0        0
2091        UI       0        0        0        0        0        0        0        0        0        0
2092        UI       0        0        0        0        0        0        0        0        0        0
2093        UI       0        0        0        0        0        0        0        0        0        0
            *
            *
```

```
2094          KK   RET05  DIVERT
2095          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2096          DT   05RET   23.70     0.0
2097          DI       0   10000
2098          DQ       0   10000
              *
              *

2099          KK      12   BASIN
2100          KM    BASIN 12
2101          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2102          KM    L=0.63  Lca=0.21  S=25.4  Kn=0.042  LAG=15.2
2103          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2104          BA   0.157
2105          LG    0.26    0.25    6.00    0.25      57
2106          UI       0      60     187     344     315     184      72      32      11      11
2107          UI       0       0       0       0       0       0       0       0       0       0
2108          UI       0       0       0       0       0       0       0       0       0       0
2109          UI       0       0       0       0       0       0       0       0       0       0
```



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

2110          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2111          KK   RET12  DIVERT
2112          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2113          DT   12RET   14.20     0.0
2114          DI       0   10000
2115          DQ       0   10000
              *
              *

2116          KK    CP12
2117          KM    COMBINE HYDROGRAPHS 7AT12, 7T12, RET05 AND RET12
2118          HC       4
              *
              *

2119          KK   12T13
2120          KM  ROUTE FLOW FROM BASIN 12 TO BASIN 13
2121          RS       3    FLOW      -1
2122          RC   0.030   0.015   0.030    2600   .0014
2123          RX       0    17.5      18      57      73     112   112.5     130
2124          RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
              *
              *

2125          KK      08   BASIN
2126          KM    BASIN 08
2127          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2128          KM    L=1.51  Lca=0.94  S=19.2  Kn=0.042  LAG=39.4
2129          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2130          BA   0.717
2131          LG    0.25    0.23    6.20    0.21      35
2132          UI       0      61      88     230     308     368     448     597     761     612
2133          UI     503     411     334     265     157     106      93      61      45      19
2134          UI      19      19      19      19       0       0       0       0       0       0
2135          UI       0       0       0       0       0       0       0       0       0       0
2136          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2137          KK   RET08  DIVERT
2138          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2139          DT   08RET   55.69     0.0
2140          DI       0   10000
2141          DQ       0   10000
              *
              *
```



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

2142          KK     8T9
2143          KM  ROUTE FLOW FROM BASIN 8 TO BASIN 9
2144          RS       2    FLOW      -1
2145          RC   0.030   0.015   0.030    1410   .0053
2146          RX       0    17.5      18      57      73     112   112.5     130
2147          RY     1.0    0.50     0.0     0.8     0.8     0.0     0.5     1.0
              *
              *

2148          KK      09   BASIN
2149          KM    BASIN 09
2150          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2151          KM    L=0.73  Lca=0.35  S=21.9  Kn=0.042  LAG=20.0
2152          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2153          BA   0.126
2154          LG    0.26    0.25    5.60    0.30      38
2155          UI       0      25      92     139     231     198     134      80      36      21
2156          UI       7       7       0       0       0       0       0       0       0       0
2157          UI       0       0       0       0       0       0       0       0       0       0
2158          UI       0       0       0       0       0       0       0       0       0       0
2159          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2160          KK   RET09  DIVERT
2161          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
```

```
2162        DT   09RET    11.0      0.0
2163        DI       0   10000
2164        DQ       0   10000
            *
            *

2165        KK     CP9
2166        KM    COMBINE HYDROGRAPHS 8T9 AND RET09
2167        HC       2
            *
            *

2168        KK    9T13
2169        KM  ROUTE FLOW FROM BASIN 9 TO BASIN 13
2170        RS       4    FLOW      -1
2171        RC   0.030   0.015   0.030    4020   .0045
2172        RX       0    17.5      18      57      73     112   112.5     130
2173        RY     1.0    0.50     0.0     0.8     0.8     0.0     0.5     1.0
            *
            *

2174        KK    13   BASIN
2175        KM    BASIN 13
2176        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2177        KM    L=0.70  Lca=0.42  S=30.0  Kn=0.053  LAG=25.1
2178        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2179        BA   0.200
2180        LG    0.29    0.25    5.00    0.41      49
```



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

2181        UI       0      27      90     146     196     309     262     192     139      77
2182        UI      45      28      12       8       8       0       0       0       0       0
2183        UI       0       0       0       0       0       0       0       0       0       0
2184        UI       0       0       0       0       0       0       0       0       0       0
2185        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2186        KK   RET13  DIVERT
2187        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2188        DT   13RET   16.00      0.0
2189        DI       0   10000
2190        DQ       0   10000
            *
            *

2191        KK    11   BASIN
2192        KM    BASIN 11
2193        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2194        KM    L=1.27  Lca=0.63  S=22.0  Kn=0.026  LAG=19.1
2195        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2196        BA   0.308
2197        LG    0.24    0.25    5.70    0.25      57
2198        UI       0      69     244     372     615     466     307     155      78      37
2199        UI      17      17       0       0       0       0       0       0       0       0
2200        UI       0       0       0       0       0       0       0       0       0       0
2201        UI       0       0       0       0       0       0       0       0       0       0
2202        UI       0       0       0       0       0       0       0       0       0       0
            *
            *

2203        KK   RET11  DIVERT
2204        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2205        DT   11RET   32.92      0.0
2206        DI       0   10000
2207        DQ       0   10000
            *
            *

2208        KK   11T13
2209        KM  ROUTE FLOW FROM RET11 TO CP13
2210        RS       2    FLOW      -1
2211        RC   0.030   0.015   0.030    1410   .0050
2212        RX       0    17.5      18      57      73     112   112.5     130
2213        RY     1.0    0.50     0.0     0.8     0.8     0.0     0.5     1.0
            *
            *

2214        KK    CP13
2215        KM    COMBINE HYDROGRAPHS 12T13, 9T13, 11T13, AND RET13
2216        HC       4
            *
            *
```



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

2217        KK   13T75
2218        KM  ROUTE FLOW FROM BASIN 13 TO BASIN CP75
2219        RS       2    FLOW      -1
2220        RC   0.030   0.015   0.030    1230   .0016
2221        RX       0    17.5      18      57      73     112   112.5     130
2222        RY     2.0     1.0     0.5     0.0     0.0     0.5     1.0     2.0
            *
            *

2223        KK      14   BASIN
2224        KM    BASIN 14
2225        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2226        KM    L=0.35  Lca=0.12  S=25.7  Kn=0.034  LAG=07.9
2227        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
```

```
2228          BA   0.093
2229          LG    0.20    0.25    5.20    0.34      80
2230          UI       0     136     378     166      31       0       0       0       0       0
2231          UI       0       0       0       0       0       0       0       0       0       0
2232          UI       0       0       0       0       0       0       0       0       0       0
2233          UI       0       0       0       0       0       0       0       0       0       0
2234          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2235          KK   RET14  DIVERT
2236          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2237          DT   14RET    9.80     0.0
2238          DI       0   10000
2239          DQ       0   10000
              *
              *

2240          KK    CP75 COMBINE
2241          KM  COMBINE HYDROGRAPHS 10T75, 13T75, 11T13 AND RET14
              * KO      2
2242          HC       4
              *
              * ***********************************************************************
              *

2243          KK   75TPC
2244          KM  ROUTE 75 THROUGH POWERLINE FLOODWAY TO AIR FORCE CHANNEL
2245          RS       1    FLOW      -1
2246          RC     .03    .013     .03    3900   .0041
2247          RX       0    1005    1023  1030.5  1036.5    1044    1062    2067
2248          RY       6       5       5       0       0       5       5       6
              *
              *
```



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

2249          KK     77A
2250          KM  BASIN 77A
2251          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2252          KM  L=      2.9  Lca=      1.5   S=   31.1  Kn= .092  LAG= 119.0
2253          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2254          BA    1.74
2255          LG     .35     .36    5.00     .27     .00
2256          UI     49.     49.     49.     49.     49.    108.    162.    185.    205.    230.
2257          UI    244.    264.    278.    293.    311.    333.    358.    380.    406.    462.
2258          UI    537.    584.    659.    601.    541.    496.    461.    430.    407.    385.
2259          UI    362.    334.    311.    293.    273.    252.    238.    226.    189.    161.
2260          UI    141.    104.     87.     87.     83.     81.     81.     73.     49.     49.
2261          UI     49.     49.     49.     22.     15.     15.     15.     15.     15.     15.
2262          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
2263          UI     15.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2264          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              *

2265          KK   77ATB   ROUTE
2266          KM  ROUTE BASIN 77A THROUGH THE KEIGHLEY PLACE SUBDIVISION FROM MERIDIAN ROAD TO
2267          KM  TO MOUNTAIN ROAD.
2268          RS       1    FLOW      -1
2269          RC   0.045   0.040   0.045    3000  0.0050    0.00
2270          RX    0.00    5.00   10.00   37.00   47.00   74.00   79.00   84.00
2271          RY    5.50    5.00    4.50    0.00    0.00    4.50    5.00    5.50
              *
              *

2272          KK     77B   BASIN
2273          KM  BASIN 77B
2274          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2275          KM  L=0.56  Lca=0.26  S=28.6  Kn=0.047  LAG=17.2
2276          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2277          BA   0.349
2278          LG    0.19    0.25    5.40    0.30      18
2279          UI     100     337     536     757     486     273     113      54      20      21
2280          UI       0       0       0       0       0       0       0       0       0       0
              *
              *

2281          KK  RET77B  DIVERT
2282          KM  RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
2283          DT  77BRET    16.5     0.0
2284          DI       0   10000
2285          DQ       0   10000
              *
              *
```



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

2286          KK   CP77B COMBINE
2287          KM  COMBINE HYDROGRAPHS 77ATB AND 77B.
2288          HC       2
              *
              *

2289          KK   77BTC   ROUTE
2290          KM  ROUTE FLOW THROUGH THE MOUNTAIN HORIZONS (SOUTH) DEVELOPEMENT FROM MOUNTAIN
2291          KM  ROAD TO SIGNAL BUTTE ROAD.
2292          RS       3    FLOW      -1
2293          RC   0.045   0.040   0.045    4750  0.0042    0.00
2294          RX    0.00    5.00   10.00   20.00   85.00  105.00  110.00  115.00
```

```
2295        RY    5.00    4.00    3.00    0.00    0.00    3.00    4.00    5.00
            *
            *

2296        KK     77C   BASIN
2297        KM  BASIN 77C
2298        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2299        KM  L=0.76  Lca=0.51  S=23.7  Kn=0.040  LAG=22.0
2300        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2301        BA   0.279
2302        LG   0.25    0.25    6.00    0.21      30
2303        UI     42     172     257     388     485     324     228     119      66      38
2304        UI     14      13      13       0       0       0       0       0       0       0
            *
            *

2305        KK  RET77C  DIVERT
2306        KM  RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
2307        DT  77CRET    16.8     0.0
2308        DI      0   10000
2309        DQ      0   10000
            *
            *

2310        KK    C77C COMBINE
2311        KM  COMBINE HYDROGRAPHS 77BTC AND 77C
2312        HC       2
            *
            *

2313        KK  77CT78   ROUTE
2314        KM  ROUTE FLOW SOUTH ALONG THE WEST SIDE OF SIGNAL BUTTE ROAD IN AN ENGINEERED
2315        KM  CHANNEL FROM RAY ROAD TO WILLIAMS FIELD ROAD.
2316        RS       4    FLOW      -1
2317        RC   0.032   0.032   0.032    4435  0.0020    0.00
2318        RX    0.00    5.00   10.00   24.00  124.00  138.00  143.00  148.00
2319        RY    4.50    4.00    3.50    0.00    0.00    3.50    4.00    4.50
            *
            *
```



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

2320        KK     78A
2321        KM  BASIN 78A
2322        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2323        KM  L=      3.3  Lca=      1.3   S=    30.2  Kn= .090  LAG= 118.0
2324        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2325        BA    1.88
2326        LG     .35     .36    5.00     .27     .00
2327        UI     54.     54.     54.     54.     54.    124.    176.    203.    227.    252.
2328        UI    268.    290.    305.    322.    342.    366.    396.    417.    451.    515.
2329        UI    612.    641.    716.    643.    579.    531.    494.    464.    437.    417.
2330        UI    385.    356.    334.    315.    290.    270.    255.    233.    206.    159.
2331        UI    153.     95.     95.     95.     88.     88.     88.     65.     54.     54.
2332        UI     54.     54.     45.     16.     16.     16.     16.     16.     16.     16.
2333        UI     16.     16.     16.     16.     16.     16.     16.     16.     16.     16.
2334        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2335        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2336        KK   78ATB   ROUTE
2337        KM  ROUTE FLOW FROM 78A TO 78B VIA WASH CROSSING COUNTY LINE
2338        RS       7    FLOW      -1
2339        RC   0.045   0.040   0.045    3500  0.0042    0.00
2340        RX    0.00  500.00  980.00 1003.00 1007.00 1031.00 1511.00 2011.00
2341        RY    4.50    3.50    3.00    0.00    0.00    3.00    3.50    4.50
            *
            *

2342        KK     78B   BASIN
2343        KM  BASIN 78B
2344        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2345        KM  L=0.60  Lca=0.40  S=31.7  Kn=0.050  LAG=21.7
2346        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2347        BA   0.396
2348        LG   0.30    0.17    6.80    0.15      15
2349        UI     61     254     371     576     682     457     315     156      90      48
2350        UI     20      19       0       0       0       0       0       0       0       0
            *
            * CURRENTLY THERE IS NO EXISTING RETENTION OR PLANNED RETENTION FOR BASIN 78B
            * DUE TO THE CURRENT LAND USE OF LARGE LOT RESIDENTIAL.
            *

2351        KK    C78B COMBINE
2352        KM  COMBINE HYDROGRAPHS 78ATB AND 78B
2353        HC       2
            *
            *

2354        KK   78BTC   ROUTE
2355        KM  ROUTE 78B TO 78C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
2356        KM  WESTERN EDGE OF 78C.
2357        RS       3    FLOW      -1
2358        RC   0.035   0.022   0.035    4500  0.0033    0.00
2359        RX    0.00  100.00  110.00  115.00  120.00  125.00  130.00  135.00
```



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

2360        RY    5.00    4.00    3.50    0.00    0.00    3.50    8.00    9.00
            *
```

```
                *
2361            KK     78C   BASIN
2362            KM  BASIN 78C
2363            KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2364            KM  L=0.50  Lca=0.30  S=31.8  Kn=0.048  LAG=17.4
2365            KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2366            BA   0.288
2367            LG    0.18     0.15     7.60     0.14        6
2368            UI      80      273      428      624      405      236       96       48       17       16
2369            UI       0        0        0        0        0        0        0        0        0        0
                *
                *

2370            KK  RET78C  DIVERT
2371            KM  RETAIN 80% OF THE 100 YR 2 HR RUNOFF VOLUME
2372            DT  78CRET     2.2      0.0
2373            DI       0    10000
2374            DQ       0    10000
                *
                *

2375            KK    C78C COMBINE
2376            KM  COMBINE HYDROGRAPHS 78BTC AND 78C.
2377            HC       2
                *
                *

2378            KK   C78C2 COMBINE
2379            KM  COMBINE HYDROGRAPHS 77CT78 AND C78C.
                * KO      2
2380            HC       2
                *
                *

2381            KK  78CT79   ROUTE
2382            KM  ROUTE 78C TO 79A FROM SIGNAL BUTTE ROAD TO THE PROPERTY BOUNDARY APPROXIMATEL
2383            KM  1/4 MILE TO THE WEST OF SIGNAL BUTTE ROAD VIA ENGINEERED CHANNEL.
2384            RS       2    FLOW       -1
2385            RC   0.032    0.032    0.032     4215   0.0033     0.00
2386            RX    0.00     5.00    10.00    26.00    81.00    97.00   102.00   107.00
2387            RY    5.00     4.50     4.00     0.00     0.00     4.00     4.50     5.00
                *
                * ***********************************************************************
                *

2388            KK      20   BASIN
2389            KM    BASIN 20
2390            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2391            KM    L=1.02  Lca=0.45  S=17.6  Kn=0.044  LAG=27.3
2392            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2393            BA   0.306
2394            LG    0.25     0.15     8.00     0.10       32
```



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

2395            UI       0       38      110      194      253      365      440      317      238      173
2396            UI      88       62       38       17       12       12       12        0        0        0
2397            UI       0        0        0        0        0        0        0        0        0        0
2398            UI       0        0        0        0        0        0        0        0        0        0
2399            UI       0        0        0        0        0        0        0        0        0        0
                *
                *

2400            KK   RET20  DIVERT
2401            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2402            DT   20RET   23.90      0.0
2403            DI       0    10000
2404            DQ       0    10000
                *
                *

2405            KK   CP22B COMBINE
2406            KM  COMBINE HYDROGRAPHS 78CT79 AND RET20
                * KO      2
2407            HC       2
                *
                *

2408            KK      16   BASIN
2409            KM    BASIN 16
2410            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2411            KM    L=0.44  Lca=0.21  S=34.1  Kn=0.044  LAG=13.4
2412            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2413            BA   0.106
2414            LG    0.25     0.17     6.80     0.16       31
2415            UI       0       54      160      285      188       84       33        8        8        0
2416            UI       0        0        0        0        0        0        0        0        0        0
2417            UI       0        0        0        0        0        0        0        0        0        0
2418            UI       0        0        0        0        0        0        0        0        0        0
2419            UI       0        0        0        0        0        0        0        0        0        0
                *
                *

2420            KK   RET16  DIVERT
2421            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2422            DT   16RET    8.20      0.0
2423            DI       0    10000
2424            DQ       0    10000
                *
                *

2425            KK      18   BASIN
```

```
2426          KM    BASIN 18
2427          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2428          KM    L=0.72  Lca=0.33  S=25.0  Kn=0.045  LAG=20.4
2429          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2430          BA   0.320
2431          LG    0.25     0.25     5.80     0.24      27
2432          UI       0       60      226      341      561      514      348      218       96       59
2433          UI      21       16       16        0        0        0        0        0        0        0
1                                                HEC-1 INPUT                                                    PAGE 66

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

2434          UI       0        0        0        0        0        0        0        0        0        0
2435          UI       0        0        0        0        0        0        0        0        0        0
2436          UI       0        0        0        0        0        0        0        0        0        0
              *
              *

2437          KK   RET18  DIVERT
2438          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2439          DT   18RET   24.70      0.0
2440          DI       0   10000
2441          DQ       0   10000
              *
              *

2442          KK   18T19   ROUTE
2443          KM  ROUTE FLOW FROM BASIN 18 TO BASIN 19
2444          RS       1    FLOW       -1
2445          RC   0.030   0.015    0.003     1040    .0040
2446          RX       0     7.5        8       38       43       73     73.5       81
2447          RY     0.8     0.5        0      0.6      0.6        0      0.5      0.8
              *
              *

2448          KK   CP19A COMBINE
2449          KM  COMBINE HYDROGRAPHS RET16 AND 18T19
              * KO      2
2450          HC       2
              *
              *

2451          KK      19   BASIN
2452          KM    BASIN 19
2453          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2454          KM    L=0.50  Lca=0.20  S=20.0  Kn=0.044  LAG=14.9
2455          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2456          BA   0.102
2457          LG    0.24     0.15     8.40     0.09      40
2458          UI       0       41      126      233      201      114       44       18        7        0
2459          UI       0        0        0        0        0        0        0        0        0        0
2460          UI       0        0        0        0        0        0        0        0        0        0
2461          UI       0        0        0        0        0        0        0        0        0        0
2462          UI       0        0        0        0        0        0        0        0        0        0
              *
              *

2463          KK   RET19  DIVERT
2464          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
              * KO      2
2465          DT   19RET    8.40      0.0
2466          DI       0   10000
2467          DQ       0   10000
              *
              *
1                                                HEC-1 INPUT                                                    PAGE 67

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

2468          KK   CP19B COMBINE
2469          KM  COMBINE HYDROGRAPHS CP19A AND RET20.
2470          HC       2
              *
              *

2471          KK      17   BASIN
2472          KM    BASIN 17
2473          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2474          KM    L=0.92  Lca=0.47  S=19.6  Kn=0.045  LAG=26.8
2475          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2476          BA   0.135
2477          LG    0.25     0.25     4.10     0.55      30
2478          UI       0       17       51       88      116      172      191      138      102       72
2479          UI      36       25       17        5        5        5        5        0        0        0
2480          UI       0        0        0        0        0        0        0        0        0        0
2481          UI       0        0        0        0        0        0        0        0        0        0
2482          UI       0        0        0        0        0        0        0        0        0        0
              *
              *

2483          KK   RET17  DIVERT
2484          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
              * KO      2
2485          DT   17RET   12.47      0.0
2486          DI       0   10000
2487          DQ       0   10000
              *
              *  ************************************************************************
              *

2488          KK      79A   BASIN
2489          KM  BASIN 79A
2490          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
```

```
2491        KM  L=1.43  Lca=0.82  S=14.7  Kn=0.090  LAG=82.6
2492        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2493        BA   1.067
2494        LG    0.10    0.15    7.60    0.14       0
2495        UI       0      43      44      43      63     146     167     203     224     240
2496        UI     262     288     316     346     408     489     565     524     446     400
2497        UI     372     340     305     278     255     223     209     178     140     110
2498        UI      76      76      72      71      47      44      44      42      13      13
2499        UI      14      13      13      14      13      13      14      13      13      14
            *
            *

2500        KK  CP79A1 COMBINE
2501        KM  COMBINE HYDROGRAPHS RET17, 79A, CP22B, AND CP19B.
            * KO      2
2502        HC        4
            *
            *
```



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

2503        KK     78F
2504        KM  BASIN 78F
2505        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2506        KM  L=      3.7  Lca=      2.1   S=   29.8  Kn= .090  LAG= 147.0
2507        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2508        BA    4.19
2509        LG     .35     .36    5.00     .27     .00
2510        UI     96.     96.     96.     96.     96.     96.    148.    315.    325.    368.
2511        UI    399.    442.    468.    495.    521.    541.    566.    595.    626.    663.
2512        UI    706.    737.    774.    845.    936.   1085.   1119.   1276.   1239.   1127.
2513        UI   1033.    968.    907.    862.    820.    782.    751.    712.    667.    629.
2514        UI    597.    570.    541.    502.    472.    454.    436.    368.    339.    276.
2515        UI    276.    174.    170.    170.    168.    158.    158.    158.    156.     96.
2516        UI     96.     96.     96.     96.     96.     79.     29.     29.     29.     29.
2517        UI     29.     29.     29.     29.     29.     29.     29.     29.     29.     29.
2518        UI     29.     29.     29.     29.     29.     29.     29.      0.      0.      0.
2519        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2520        KK    82A1
2521        KM  BASIN 82A1
2522        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2523        KM  L=      3.6  Lca=       .9   S=   33.9  Kn= .090  LAG= 103.0
2524        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2525        BA    3.12
2526        LG     .35     .36    5.00     .27     .00
2527        UI    102.    102.    102.    102.    163.    335.    381.    436.    485.    526.
2528        UI    564.    599.    644.    693.    757.    801.    901.   1048.   1222.   1356.
2529        UI   1223.   1084.    987.    913.    852.    800.    742.    675.    629.    569.
2530        UI    529.    494.    459.    391.    304.    266.    180.    180.    173.    167.
2531        UI    167.    123.    102.    102.    102.    102.     36.     31.     31.     31.
2532        UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
2533        UI     31.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2534        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2535        KK   C82A1
2536        KM  COMBINE FLOWS FROM SUBBASINS 78F AND 82A1 NORTH OF PECOS ROAD AT
2537        KM  NEW DETENTION BASIN
2538        HC        2
            *
            *

2539        KK  DB82A1
2540        KM  PECOS NORTH BASIN
2541        KM  NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' NORTH OF PECOS RD.
2542        KM  WITH 1-42" RCP OUTLET & 86' SPILLWAY AT ELEV=44
            * KO      2       2
2543        RS        1    STOR       0
2544        SV        0       8      34      73     113     153     195     237     280     346
2545        SE       36      37      38      39      40      41      42      43      44    46.1
2546        SL     33.5     9.6     .62      .5
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2547        SS       44     195       3     1.5
            *
            *

2548        KK    PS-9
2549        KM  REACH PS-9
2550        KM  OUTFLOW CHANNEL FROM NEW DETENTION BASIN 82A TO MAIN CHANNEL @ PECOS
2551        RS        1    FLOW      -1
2552        RC     .025    .025    .025     500   .0005
2553        RX        0       8      16      42      46      72      80      88
2554        RY      4.1     4.2     4.3       0       0     4.3     4.2     4.1
            *
            *

2555        KK    CAP2
2556        KM  INFLOW FROM EAST OF THE CAP THROUGH 1 - 36" PIPE OVERCHUTE
2557        KM  STATION #536+00 SALT-GILA AQUEDUCT REACH 2
2558        KM  QI CARDS BASED ON OVERCHUTE CAPACITY OF 64 CFS
2559        IN       60
2560        BA      .01
2561        QI        0      20      64      64      64      64      64      64      64      64
2562        QI       64      64      64      64      64      64      64      64      64      64
2563        QI       64      64      64      64      64
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                *
                *

2564            KK   RCAP2
2565            KM  ROUTE CAP2 THROUGH 82A2 VIA WASH TO SUBBASIN 82A2
2566            IN      15
2567            RS      11     FLOW      -1
2568            RC    .045     .04     .045   24000     .05
2569            RX       0     500     1000    1010    1020    1030    1530    2030
2570            RY       8       5        3       0       0       3       5       8
                *
                *

2571            KK    82A2
2572            KM  BASIN 82A2
2573            KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2574            KM  L=       4.6  Lca=       2.9   S=    27.2  Kn= .089  LAG= 183.0
2575            KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2576            BA    4.13
2577            LG     .35     .36    5.00     .27    1.00
2578            UI     76.     76.     76.     76.     76.     76.     76.     76.    177.    249.
2579            UI    250.    291.    291.    339.    349.    371.    381.    406.    420.    430.
2580            UI    448.    466.    483.    503.    529.    561.    578.    596.    631.    680.
2581            UI    743.    805.    911.    923.   1027.    979.    901.    845.    794.    751.
2582            UI    717.    686.    659.    635.    613.    594.    570.    540.    514.    487.
2583            UI    470.    455.    437.    407.    393.    372.    362.    349.    315.    291.
2584            UI    263.    219.    218.    179.    134.    134.    134.    134.    128.    125.
2585            UI    125.    125.    125.     96.     76.     76.     76.     76.     76.     76.
2586            UI     76.     67.     23.     23.     23.     23.     23.     23.     23.     23.
2587            UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
2588            UI     23.     23.     23.     23.     23.     23.     23.     23.     23.      0.
2589            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1                                          HEC-1 INPUT                                                    PAGE 70

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

2590            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

2591            KK  CP82A2
2592            KM  COMBINE FLOW FROM ROUTED CAP2 AND SUBBASIN 82A2
2593            HC       2
                *
                *

2594            KK    82A4
2595            KM  BASIN 82A4
2596            KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2597            KM  L=       3.5  Lca=       1.5   S=    29.1  Kn= .090  LAG= 128.0
2598            KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2599            BA    2.13
2600            LG     .35     .36    5.00     .27     .00
2601            UI     56.     56.     56.     56.     56.     70.    184.    193.    214.    248.
2602            UI    265.    281.    302.    316.    332.    352.    374.    401.    424.    447.
2603            UI    494.    557.    650.    691.    742.    667.    606.    560.    523.    490.
2604            UI    466.    443.    419.    389.    364.    343.    325.    299.    281.    267.
2605            UI    251.    214.    182.    161.    126.     99.     99.     97.     92.     92.
2606            UI     92.     69.     56.     56.     56.     56.     56.     27.     17.     17.
2607            UI     17.     17.     17.     17.     17.     17.     17.     17.     17.     17.
2608            UI     17.     17.     17.     17.     17.     17.      0.      0.      0.      0.
2609            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

2610            KK  82A4T3
2611            KM  REACH MN-2
2612            KM  ROUTE FLOW FROM SUBBASIN 82A4 TO DETENTION BASIN 82A3
2613            RS       2     FLOW      -1
2614            RC    .025    .025     .025    1050   .0005
2615            RX       0       8       16      47     107     138     146     154
2616            RY     5.0     5.1      5.2       0       0     5.2     5.1     5.0
                *
                *

2617            KK    82A3
2618            KM  BASIN 82A3
2619            KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2620            KM  L=       3.6  Lca=       2.0   S=    28.3  Kn= .090  LAG= 145.0
2621            KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2622            BA    2.02
2623            LG     .35     .36    5.00     .27     .00
2624            UI     47.     47.     47.     47.     47.     47.     82.    154.    162.    180.
2625            UI    200.    218.    230.    246.    257.    268.    280.    294.    310.    330.
2626            UI    351.    365.    387.    425.    477.    553.    566.    633.    583.    529.
2627            UI    492.    460.    434.    410.    392.    376.    361.    336.    316.    299.
2628            UI    284.    271.    250.    237.    228.    216.    190.    180.    136.    135.
2629            UI    101.     83.     83.     83.     78.     77.     77.     77.     52.     47.
2630            UI     47.     47.     47.     47.     42.     14.     14.     14.     14.     14.
2631            UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
2632            UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
1                                          HEC-1 INPUT                                                    PAGE 71

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

2633            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

2634            KK  CP82A3
2635            KM  COMBINE FLOW FROM SUBBASIN 82A4 AND SUBBASIN 82A3 BEFORE DETENTION BASIN
2636            HC       2
                *
                *
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2637          KK  CP82A5
2638          KM  COMBINE FLOWS FROM CAP OVERCHUTE AND SUBBASIN 82A
2639          HC       2
              *
              *

2640          KK   DBB2B
2641          KM  PECOS SOUTH BASIN
2642          KM  NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 66D' SOUTH OF PECOS RD.
2643          KM  WITH 1-66" RCP OUTLET & 80' SPILLWAY AT ELEV 41
              * KO     2       2
2644          RS       1    STOR       0
2645          SV       0     3.5     9.6    25.7    62.7   110.5   158.7   207.5   257.3     320
2646          SE    31.5      33      34      35      36      37      38      39      40    42.1
2647          SL      33    23.7     .62      .5
2648          SS      41      80       3     1.5
              *
              *

2649          KK    MN-1
2650          KM  REACH MN-1  plus culvert PSC-7
2651          KM  ROUTE FLOW FROM NEW DETENTION BASIN 82B TO MAIN LINE CHANNEL @ PECOS
2652          RS       2    FLOW      -1
2653          RC    .025    .025    .025    1030   .0005
2654          RX       0       8      16      47      55      87      95     103
2655          RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
              *
              *

2656          KK  CP82A6
2657          KM  COMBINE FLOWS AFTER DETENTION BASINS.
2658          HC       2
              *
              *

2659          KK  82TBOX
2660          KM  REACH PS-8
2661          KM  ROUTE FLOW FROM DETENTION BASIN DBB2B TO 1000' FOOT LONG BOX CULVERT (PSC-6).
2662          RS       1    FLOW      -1
2663          RC    .025    .025    .025     750   .0005
2664          RX       0       8      16    47.2      67      98     106     114
2665          RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
              *
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2666          KK  BOXCLV
2667          KM  REACH PSC-6
2668          KM  ROUTE FLOW THROUGH BOX CULVERT
2669          RS       1    FLOW      -1
2670          RC    .015    .012    .015    1000   .0020
2671          RX       0       8      16   16.01   28.01   28.02      36      44
2672          RY     4.8     4.9       5       0       0       5     4.9     4.8
              *
              *

2673          KK  BOXT78
2674          KM  REACH PS-5, PS-6, PS-7 plus culverts PSC-5 & PSC-4
2675          KM  ROUTE FLOW FROM 1000' BOX CULVERT TO C78D  (SIGNAL BUTTE ROAD)
2676          RS       3    FLOW      -1
2677          RC    .025    .025    .025    3400   .0005
2678          RX       0       8      16      47      67      98     106     114
2679          RY     5.4     5.3     5.2       0       0     5.2     5.3     5.4
              *
              *

2680          KK     78D
2681          KM  BASIN 78D
2682          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2683          KM  L=      1.2  Lca=      .5   S=    21.7  Kn= .030  LAG=  19.5
2684          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2685          BA     .89
2686          LG     .15     .15    8.00     .11   55.00
2687          UI    189.    678.   1029.   1713.   1367.    909.    496.    240.    123.     47.
2688          UI     47.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2689          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              *

2690          KK    R78D
2691          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2692          DT    D78D      84
2693          DI       0   10000
2694          DQ       0   10000
              *
              *

2695          KK     82B
2696          KM  BASIN 82B
2697          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2698          KM  L=       .9  Lca=      .4   S=    21.2  Kn= .030  LAG=  17.2
2699          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2700          BA     .92
2701          LG     .15     .25    5.00     .36   55.00
2702          UI    266.    879.   1420.   2004.   1268.    727.    294.    142.     55.     55.
2703          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2704          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2705          KK     R82
2706          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2707          DT     D82       1
2708          DI       0   10000
2709          DQ       0   10000
              *
              *

2710          KK   DTTRW
2711          KM  DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
2712          KM  VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
2713          DT     TRW   110.7
2714          DI       0   10000
2715          DQ       0   10000
              *
              *

2716          KK    C78D
2717          KM  COMBINE FLOWS FROM 78D, 82B AND ROUTED FLOW 82T78D
2718          KM  @ PECOS ROAD AND SIGNAL BUTTE ROAD.
2719          HC       3
              *
              *

2720          KK   78DTE
2721          KM  REACH PS-2, PS-3, PS-4 plus culverts PSC-3 AND PSC-2.
2722          KM  ROUTE FLOWS FROM 78D (PECOS RD AND SIGNAL BUTTE RD) TO 78E (PECOS AND CRISMON
2723          RS      11    FLOW      -1
2724          RC    .025   0.025   0.025    5100   .0005
2725          RX       0       8      16    53.2    93.2   130.4   138.4   146.4
2726          RY     6.0     6.1     6.2       0       0     6.3     6.1     6.0
              *
              *

2727          KK     78E
2728          KM  BASIN 78E
2729          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2730          KM  L=      1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
2731          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2732          BA    1.01
2733          LG     .35     .26    8.80     .06    1.00
2734          UI     59.     59.    108.    212.    271.    313.    351.    402.    460.    565.
2735          UI    741.    698.    577.    502.    447.    382.    335.    289.    241.    166.
2736          UI    104.    100.     97.     60.     59.     45.     18.     18.     18.     18.
2737          UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
2738          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2739          KK     83
2740          KM  BASIN 83
2741          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2742          KM  L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
2743          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2744          BA    1.01
2745          LG     .15     .25    5.00     .36   55.00
2746          UI    131.    423.    700.    931.   1454.   1362.    993.    726.    464.    226.
2747          UI    161.     89.     40.     40.     40.      0.      0.      0.      0.      0.
2748          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              *

2749          KK     R83
2750          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2751          DT     D83      83
2752          DI       0   10000
2753          DQ       0   10000
              *
              *

2754          KK    C78E
2755          KM  COMBINE FLOWS FROM 78D AND 78E (CRISMON ROAD)
2756          HC       3
              *
              *

2757          KK  78ET84
2758          KM  REACH PS-1
2759          KM  ROUTE FLOWS WEST ALONG PECOS IN A PROPOSED CHANNEL
2760          KM  ROUTE FLOWS FROM CRISMON ROAD TO ELLSWORTH ROAD.
2761          RS       4    FLOW      -1
2762          RC    .025   0.025   0.025    4840   .0005
2763          RX       0       8      16    53.2    93.2   130.4   138.4   146.4
2764          RY     6.0     6.1     6.2       0       0     6.2     6.1     6.0
              *
              *

2765          KK     84
2766          KM  BASIN 84
2767          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2768          KM  L=      2.0  Lca=       .5   S=   12.5  Kn= .030  LAG=  26.7
2769          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2770          BA     .99
2771          LG     .15     .25    4.70     .40   55.00
2772          UI    125.    380.    651.    855.   1278.   1399.   1008.    747.    520.    258.
2773          UI    182.    120.     38.     38.     38.      0.      0.      0.      0.      0.
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2774        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *
1                                          HEC-1 INPUT                                                PAGE 75

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

2775        KK     R84
2776        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2777        DT     D84      85
2778        DI       0   10000
2779        DQ       0   10000
            *
            *

2780        KK     C84
2781        KM  COMBINE FLOWS FROM 78E AND 84  AT ELLSWORTH AND PECOS ROAD
2782        KM  CHANNEL EAST SIDE OF GATEWAY WILLIAMS FLOWING TO THE NORTH
2783        HC       2
            *
            *

2784        KK  84T79B
2785        KM  REACH EH-3B
2786        KM  ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
2787        KM  THE SOUTH OF WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
2788        KM  (THIS IS THE COMBINE POINT FROM BASIN 79B)
2789        RS       1    FLOW      -1
2790        RC    .015    .015    .015    3383   .0010
2791        RX       0       8      16      30      55      69      77      85
2792        RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
            *
            *

2793        KK     79B
2794        KM  BASIN 79B
2795        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2796        KM  L=      1.4  Lca=       .6   S=     9.0  Kn= .090  LAG=  77.7
2797        KM  PHOENYX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2798        BA    1.00
2799        LG     .35     .25    9.70     .05     .00
2800        UI     43.     43.     43.     85.    150.    179.    207.    232.    250.    275.
2801        UI    306.    335.    388.    479.    557.    515.    444.    396.    360.    331.
2802        UI    295.    267.    240.    216.    192.    155.    123.     76.     76.     71.
2803        UI     71.     48.     43.     43.     36.     13.     13.     13.     13.     13.
2804        UI     13.     13.     13.     13.     13.     13.      0.      0.      0.      0.
2805        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2806        KK   C79B1
2807        KM  FLOWS FROM SOUTH CHANNEL ALONG ELLSWORTH ROAD.
2808        HC       2
            *
            *
1                                          HEC-1 INPUT                                                PAGE 76

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

2809        KK  79BTB2
2810        KM  REACH SH-3A
2811        KM  ROUTE FLOWS FROM THE COMBINE POINT OF SUB-BASIN 79B TO
2812        KM  WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
2813        RS       1    FLOW      -1
2814        RC    .025    .015    .025    5000   .0010
2815        RX       0       8      16      30      55      69      77      85
2816        RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
            *
            *

2817        KK   C79B2
2818        KM  COMBINE 79A AND ROUTED 79B (WHICH IS HYDROGRAPH C79B1)
2819        HC       2
            *
            *

2820        KK  79TPC2
2821        KM  REACH EH-1, EH-2, plus culvert EHC-1
2822        KM  ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
2823        KM  PERIMETER CHANNEL ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
2824        RS       2    FLOW      -1
2825        RC    .025    .015    .025    4760   .0014
2826        RX       0       8      16      33      61      78      86      94
2827        RY     8.4     8.5     8.4       0       0     8.4     8.5     8.4
            *
            *

2828        KK   CPPWR
2829        KM  COMBINE FLOWS FROM 75 AND 79 IN THE POWERLINE FLOODWAY ALONG RAY ROAD
2830        KM  AT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
            * KO     2
2831        HC       2
            *
            *
            * KK*DBPWR
            * KM DIVERT FROM POWERLINE CHANNEL INTO THE RAY DETENTION BASIN
            * KM USES A REALISTIC SIDE-WEIR EQUATION TO FORM POWER CURVE
            * KM WEIR CREST = 3.25FT; WEIR LENGTH =  750; 4.0FT DIV STRUCTURE.
            * KO     3
            * DT PWRDB    1537
            * DI     0     528     544     576     628     704     955    5730
            * DQ     0       0      11      40      89     162     410    5174
```

```
                *
2832            KK  PWRT80
2833            KM  REACH PR-3, PR-4, plus culvert PRC-2
2834            KM  ROUTE FLOWS FROM PLF COMBINE TO CATCH POINT AT 80A VIA PLF IMPROVEMENT
2835            RS      1    FLOW      -1
2836            RC    .025    .015    .025    3680   .0014
2837            RX       0       8      16      34      62      79      87      95
2838            RY     8.5     8.6     8.7       0       0     8.7     8.6     8.5
                *
                *
1                                          HEC-1 INPUT                                                    PAGE 77

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


2839            KK     80A
2840            KM  BASIN 80A
2841            KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2842            KM  L=       3.8  Lca=       2.2   S=   14.2  Kn= .030  LAG=  58.2
2843            KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2844            BA    2.64
2845            LG     .15     .15    9.70     .06   55.00
2846            UI    153.    153.    265.    544.    690.    802.    899.   1020.   1171.   1421.
2847            UI   1851.   1871.   1534.   1330.   1185.   1024.    896.    770.    653.    479.
2848            UI    305.    265.    251.    187.    153.    153.     50.     47.     47.     47.
2849            UI     47.     47.     47.     47.      0.      0.      0.      0.      0.      0.
2850            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                *

2851            KK    R80A
2852            KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2853            DT    D80A      33
2854            DI       0   10000
2855            DQ       0   10000
                *
                * THE SECTION BELOW COMBINES THE ROUTED FLOW FROM SANTAN AND POWER
                * THEN ROUTES THRU THE RAY DB
                * KKDRSNDB
                * KM RETURNS THE DIVERSION FROM THE SANTAN CHANNEL
                * DR SANDB
                *
                * KKDRPWDB
                * KM RETURNS THE DIVERSION FROM THE POWERLINE CHANNEL
                * DR PWRDB
                *
                * KK CPRAY
                * KM COMBINES THE TWO ROUTED FLOWS IN THE RAY DETENTION BASIN
                * HC      2       1
                *
                * KK*RTRAY
                * KM ROUTES THE HYDROGRAPH OUT OF THE RAY BASIN
                * KM Currently incorporates a dummy set of outflow data
                * KO      1
                * RS      1    STOR      -1
                * SV      0     244     493     747    1005    1269    1537
                * SE      0    1.54    3.08    4.63    6.17    7.71    9.25
                * SQ      0       1       2       3       4       5       6
                *
                *

2856            KK   CP80A
2857            KM  COMBINE FLOW IN THE POWERLINE FLOODWAY WITH FLOW COMING FROM SUBBASIN 80A
2858            KM  THE LOCATION FOR THIS COMBINATION AT THE NW CORNER OF SUBBASIN 80A
                * KO      2
2859            HC       2
                * HC      3
                *
                *
1                                          HEC-1 INPUT                                                    PAGE 78

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


2860            KK  PWRSAN
2861            KM  REACH PR-1, PR-2 plus culvert PRC-1
2862            KM  ROUTE FLOWS FROM COMBINE POINT AT 80A VIA PLF RE-ALIGNMENT.
2863            RS      1    FLOW      -1
2864            RC    .015    .015    .015    3500   .0014
2865            RX       0       8      16      74     154     212     220     228
2866            RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
                *
                *

2867            KK   CPSAN
2868            KM  COMBINE FLOWS FROM THE POWERLINE FLOODWAY AND THE PROPOSED SANTAN FREEWAY
2869            KM  DRAINAGE CHANNEL
                * KO      2
2870            HC       2
                *
                *
                * ****REMOVED BY CPE IN JUNE 2000 IN FAVOR OF SANDB AND PWRDB
                * ****DIVERSIONS LOCATED UPSTREAM.
                * KK*DBRAY
                * KM       BASIN TO WITHDRAW FLOW FROM POWERLINE FLOODWAY
                * KO      3
                * DT RAYDB     1200
                * DI      0    1000    1001    1500    4500   14500
                * DQ      0       0       1     500    3500   13500
                *
                *

2871            KK  PWREMF
```

```
2872        KM  ROUTE FLOW FROM RE-ALIGNED POWERLINE FLOODWAY TO EMF VIA
2873        KM  NEW CHANNEL ALONG SANTAN FREEWAY ALIGNMENT
2874        KM  REACH ET-1
            * KO                                    21
2875        RS       3    FLOW      -1
2876        RC    .025    .025    .025    3850   .0005
2877        RX       0       8      16      74     154     212     220     228
2878        RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
            *
            *

2879        KK  EMFPOW
2880        KM  COMBINE FLOW FROM THE POWERLINE FLOODWAY WITH FLOW IN THE EMF
            * KO      2
2881        HC       2
            *
            *

2882        KK  POWTWI
2883        KM  ROUTE EMF FLOW TO WILLIAMS FIELD ROAD VIA THE EMF
2884        KM  THIS SECTION IS CONCRETE LINED TO PAST POWER ROAD BRIDGE
2885        RS       2    FLOW      -1
2886        RC     .03    .012     .03    4750   .0003
2887        RX       0     500     520     553     693     726     740     742
2888        RY      14      12      11       0       0      11      11      12
            *
            *
```



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

2889        KK     80B
2890        KM  BASIN 80B
2891        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2892        KM  L=      1.5  Lca=       .9   S=   18.4  Kn= .044  LAG=  41.9
2893        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
            * KO                                    21
2894        BA    1.12
2895        LG     .13     .17    6.80     .18   48.00
2896        UI     90.    105.    319.    433.    515.    614.    754.   1063.   1032.    814.
2897        UI    687.    563.    464.    359.    213.    155.    136.     90.     73.     28.
2898        UI     28.     28.     28.     28.     28.      0.      0.      0.      0.      0.
2899        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2900        KK    R80B
2901        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
            * KO                                    21
2902        DT    D80B       4
2903        DI       0   10000
2904        DQ       0   10000
            *
            *
            * Subbasin 81B routed to EMFWIL per discussions with the FCDMC as part of the
            * Chandler Heights/Rittenhouse Basin Design Project.          QAZ
            *
            *

2905        KK     81B
2906        KM  BASIN 81B
2907        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2908        KM  L=      1.1  Lca=       .4   S=    6.9  Kn= .033  LAG=  24.7
2909        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2910        BA     .84
2911        LG     .10     .25    4.70     .45   67.00
2912        UI    115.    393.    631.    857.   1343.   1088.    796.    566.    296.    185.
2913        UI    115.     39.     35.     35.      0.      0.      0.      0.      0.      0.
2914        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2915        KK    R81B
2916        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
2917        KO       3                              21
2918        DT    D81B      35
2919        DI       0   10000
2920        DQ       0   10000
            *
            * 81B to be combined with 80B and exported to EMF routing model by 80B81B
            * EMFWIL to combine 80B81B with flow from POWTWI for this model
            *     qaz
            *
            *
```



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

2921        KK  80B81B
2922        KM  COMBINE FLOWS FROM 80B & 81B AND EXPORT TO ROUTING MODEL
2923        KO                                      21
2924        HC       2
            *
            *

2925        KK  EMFWIL
2926        KM  COMBINE FLOWS INTO THE EMF WEST OF WILLIAMS AFB FROM 80B, 81B, EMF POWERLINE
            * KO      2
2927        HC       2
            *
            *
```

```
2928        KK  WILTSP
2929        KM  ROUTE BMF FLOW FROM WILLIAMS FIELD ROAD TO THE SOUTHERN PACIFIC RAILROAD
2930        KM  (AT RITTENHOUSE ROAD)
2931        RS       3    FLOW      -1
2932        RC     .03    .022     .03    5000   .0003
2933        RX       0     500     520     553     693     726     740     742
2934        RY      14      12      11       0       0      11      11      12
            *
            *
            * KKEMFRT1       Hydrograph name changed by Dibble & Associates to avoid two
            * KM              different hydrographs with the same name.
            * KM COMBINE 81A & 81B AND RITTENHOUSE(HYDROGRAPH WILTSP, FROM EMFWIL)
            * HC      2
            *
            *
            * THE NEXT KK BLOCKS COME FROM THE QUEEN CREEK ADMS
            *
            * ***********  UPDATED TO GREEN-AMPT  ***********
            *

2935        KK  SUB258
2936        KM  PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2937        KM  TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2938        KM  BASIN 258
2939        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2940        KM  L=      4.6  Lca=      2.5   S=   24.8  Kn= .062  LAG= 122.0
2941        KM  AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2942        BA    3.65
2943        LG     .34     .17    4.70     .42   18.00
2944        UI    110.    110.    110.    110.    110.    217.    232.    299.    386.    574.
2945        UI    583.    717.    579.    644.    772.    918.    802.    927.    927.    927.
2946        UI    927.    927.    927.    927.    834.    772.    772.    772.    866.    865.
2947        UI    583.    579.    583.    650.    605.    458.    421.    421.    381.    331.
2948        UI    315.    309.    352.    309.    211.    211.    190.    178.    178.    159.
2949        UI    136.    136.    136.    125.    101.    101.    101.    101.    101.     74.
2950        UI     63.     63.     63.     63.     63.     63.     63.     63.     29.     14.
2951        UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
2952        UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
2953        UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
2954        UI     14.     14.     14.     14.     14.     14.     14.     14.     14.      0.
1                                          HEC-1 INPUT                                          PAGE 81

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

2955        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2956        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2957        KK   RO259
2958        KM  ROUTE SUB258 TO CO262
2959        RM      11    1.57    0.20
            *
            *

2960        KK  SUB260
2961        KM  MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2962        KM  BASIN 260
2963        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2964        KM  L=      1.0  Lca=      .5   S=   23.2  Kn= .045  LAG=  27.3
2965        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2966        BA     .98
2967        LG     .27     .25    4.80     .36   24.00
2968        UI    121.    355.    623.    813.   1175.   1413.   1018.    764.    555.    284.
2969        UI    199.    121.     55.     37.     37.     37.      0.      0.      0.      0.
2970        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * KKRETAIN

2971        KK    R260
2972        KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2973        DT  RETDIV      69
2974        DI       0   10000
2975        DQ       0   10000
            *
            *

2976        KK   CO262
2977        KM  COMBINE SUB260 AND RO259
2978        HC       2
            *
            *

2979        KK   RO263
2980        KM  ROUTE CO262 TO CO266
2981        RM      11    1.56    0.20
            *
            * ***********  UPDATED TO GREEN-AMPT  ***********
            *

2982        KK  SUB264
2983        KM  MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2984        KM  BASIN 264
2985        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2986        KM  L=      1.0  Lca=      .6   S=   20.0  Kn= .050  LAG=  32.9
2987        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2988        BA    1.00
2989        LG     .25     .25    4.70     .38   31.00
2990        UI    102.    217.    450.    584.    730.   1015.   1235.    921.    734.    572.
1                                          HEC-1 INPUT                                          PAGE 82

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

2991        UI    426.    228.    171.    115.     82.     31.     31.     31.     31.      0.
```

```
2992        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2993        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

2994        KK    R264
2995        KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2996        DT  RETDIV      73
2997        DI       0   10000
2998        DQ       0   10000
            *
            *

2999        KK   CO266
3000        KM  COMBINE SUB264 AND RO263
3001        HC       2
            *
            *

3002        KK   RO267
3003        KM  ROUTE CO266 TO CO270
3004        RM      11    3.31    0.20
            *
            *

3005        KK  SUB268
3006        KM  MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
3007        KM  BASIN 268
3008        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3009        KM  L=      2.0  Lca=       1.1   S=   13.4  Kn= .046  LAG=  55.1
3010        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3011        BA     .97
3012        LG     .23     .25    4.65     .39   34.00
3013        UI     59.     59.    122.    219.    281.    324.    365.    422.    489.    637.
3014        UI    762.    634.    536.    474.    408.    355.    301.    255.    185.    113.
3015        UI    102.     97.     63.     59.     45.     18.     18.     18.     18.     18.
3016        UI     18.     18.      0.      0.      0.      0.      0.      0.      0.      0.
3017        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3018        KK    R268
3019        KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
3020        DT  RETDIV      68
3021        DI       0   10000
3022        DQ       0   10000
            *
            *
```



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

3023        KK   CO270
3024        KM  COMBINE RUNOFF FROM RO267 AND SUB268
3025        HC       2
            *
            *

3026        KK   RO283
3027        KM  ROUTE CO282 TO CONCENTRATION POINT AT QUEEN CREEK ROAD
3028        RM      11    2.78    0.20
            *
            * THIS IS THE END OF THE QUEEN CREEK ADMS INSERT
            *
            *

3029        KK     88A
3030        KM  BASIN 88A
3031        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3032        KM  L=       .8  Lca=       .2   S=   13.2  Kn= .020  LAG=   9.2
3033        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3034        BA     .50
3035        LG     .10     .25    5.00     .40   80.00
3036        UI    549.   1709.   1208.    323.     71.      0.      0.      0.      0.      0.
3037        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3038        KK    R88A
3039        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3040        DT    D88A      50
3041        DI       0   10000
3042        DQ       0   10000
            *
            *

3043        KK  88AT89
3044        KM  REACH RH-2b,RH-2a,RH-1,EXISTING CHANNEL (FCD 97-34), plus culvert RHC-1
3045        KM  ROUTE 88A TO 89A VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
3046        KM  FROM CRISMON ROAD TO ELLSWORTH ROAD
3047        RS       5    FLOW      -1
3048        RC    .025    .025    .025    5135   .0010
3049        RX       0       8      16      45      55      85      93     101
3050        RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
            *
            *

3051        KK     89A
3052        KM  BASIN 89A
3053        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3054        KM  L=      1.0  Lca=       .6   S=   19.0  Kn= .020  LAG=  13.5
3055        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3056        BA     .50
```

```
3057        LG     .10     .25    4.65     .47   80.00
3058        UI    247.    742.   1328.    891.    408.    158.     41.     38.      0.      0.
3059        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *
1                                          HEC-1 INPUT                                                    PAGE 84

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

3060        KK    R89A
3061        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3062        DT    D89A      50
3063        DI       0   10000
3064        DQ       0   10000
            *
            *

3065        KK    C89A
3066        KM  COMBINE FLOWS FROM 88A AND 89A AT QUEEN CREEK ROAD AND ELLSWORTH ROAD
3067        HC       2
            *
            *

3068        KK  89ATRI
3069        KM  ROUTE 89A TO RITTENHOUSE ROAD VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
3070        KM  FROM ELLSWORTH ROAD TO RITTENHOUSE ROAD
3071        KM  REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN.
3072        RS       5    FLOW      -1
3073        RC    .025    .025    .025    3145   .0005
3074        RX       0      10      26      39      49      72      78     100
3075        RY    12.2     9.7     5.7       0       0     5.7     9.7    12.2
            *
            *

3076        KK    C283
3077        KM  COMBINE FLOWS FROM QUEEN CREEK ADMS AND EC ADMP AT QUEEN CREEK ROAD AND
3078        KM  RITTENHOUSE ROAD.
            * KO              2
3079        HC       2
            *
            *

3080        KK  283T90
3081        KM  ROUTE FLOWS FROM CONCENTRATION POINT 283 AT QUEEN CREAK ROAD NORTH IN
3082        KM  RITTENHOUSE CHANNEL TO THE HALF MILE STREET BETWEEN QUEEN CREEK ROAD AND
3083        KM  GERMANN ROAD (RYAN STREET)
3084        KM
3085        KM  REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #5).
3086        KM
            * KO              2
3087        RS       3    FLOW      -1
3088        RC    .025    .025    .025    4400   .0005
3089        RX       0      22      28      51      61      83      90     108
3090        RY    11.2     9.7     5.7       0       0     5.7     9.7    11.2
            *
            *

3091        KK     90A
3092        KM  BASIN 90A
3093        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3094        KM  L=       .6  Lca=       .2   S=   24.2  Kn= .038  LAG=  12.8
3095        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3096        BA     .48
1                                          HEC-1 INPUT                                                    PAGE 85

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

3097        LG     .10     .25    4.60     .49   62.00
3098        UI    269.    789.   1351.    812.    319.    113.     39.      0.      0.      0.
3099        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3100        KK    R90A
3101        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3102        DT    D90A      42
3103        DI       0   10000
3104        DQ       0   10000
            *
            *

3105        KK    C90A
3106        KM  COMBINE FLOWS FLOW C283 AND SUBBASIN 90 AT RYAN STREET ALIGNMENT
            * KO              2
3107        HC       2
            *
            *

3108        KK   90ATB
3109        KM  ROUTE FLOWS FROM SUBBASIN 90A TO 90B VIA CHANNEL
3110        KM  REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #4).
3111        KM
            * KO              2
3112        RS       2    FLOW      -1
3113        RC    .025    .025    .025    4400   .0005
3114        RX       0      22      28      51      61      83      90     108
3115        RY    11.2     9.7     5.7       0       0     5.7     9.7    11.2
            *
            *

3116        KK     87A
3117        KM  BASIN 87A
3118        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
```

```
3119        KM  L=      1.0  Lca=       .5   S=   24.8  Kn= .020  LAG=  11.7
3120        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3121        BA     .49
3122        LG     .10      .25     5.00      .40   80.00
3123        UI    333.     979.    1448.     720.    221.     66.      0.      0.      0.      0.
3124        UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
            *
            *

3125        KK    R87A
3126        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3127        DT    D87A      49
3128        DI       0   10000
3129        DQ       0   10000
            *
1                                          HEC-1 INPUT                                          PAGE 86

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

3130        KK   87ATB
3131        KM  ROUTE 87A TO 87B VIA SHEET FLOW
3132        RS       6    FLOW      -1
3133        RC    .040    .040    .040    2640   .0056
3134        RX       0     500    1000    1005    1006    1011    1511    2011
3135        RY       1      .5       0       0       0      .5       1     1.5
            *
            *

3136        KK     87B
3137        KM  BASIN 87B
3138        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3139        KM  L=        .9  Lca=       .5   S=   11.6  Kn= .020  LAG=  12.8
3140        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3141        BA     .49
3142        LG     .10      .25     5.00      .40   80.00
3143        UI    275.     809.    1385.     833.    327.    116.     40.      0.      0.      0.
3144        UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
            *
            *

3145        KK    R87B
3146        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3147        DT    D87B      49
3148        DI       0   10000
3149        DQ       0   10000
            *
            *

3150        KK     C87
3151        KM  COMBINE FLOW FROM SUBBASINS 87A AND 87B
3152        HC       2
            *
            *

3153        KK  87T88B
3154        KM  ROUTE S87 TO S88 VIA GERMANN ROAD
3155        RS       8    FLOW      -1
3156        RC    .045    .025    .045    5280    .002
3157        RX       0    1000    1005    1010    1050    1060    1560    2060
3158        RY      14      13      18      12      11      14    14.5      15
            *
            *

3159        KK     88B
3160        KM  BASIN 88B
3161        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3162        KM  L=        .9  Lca=       .6   S=   21.2  Kn= .020  LAG=  12.8
3163        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3164        BA     .50
3165        LG     .10      .25     5.00      .40   80.00
3166        UI    279.     819.    1402.     843.    331.    117.     40.      0.      0.      0.
3167        UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
            *
            *
1                                          HEC-1 INPUT                                          PAGE 87

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

3168        KK    R88B
3169        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3170        DT    D88B      50
3171        DI       0   10000
3172        DQ       0   10000
            *
            *

3173        KK    C88B
3174        KM  COMBINE FLOWS FROM SUBBASINS 88A AND 88B
3175        HC       2
            *
            *

3176        KK  88T89B
3177        KM  ROUTE S88 (CRISMON ROAD) TO S89B (ELLSWORTH ROAD) VIA GERMANN ROAD
3178        RS      11    FLOW      -1
3179        RC    .045    .025    .045    5280    .004
3180        RX       0    1000    1005    1010    1050    1060    1560    2060
3181        RY      14      13      18      12      11      14    14.5      15
            *
            *

3182        KK     89B
```

```
3183          KM  BASIN 89B
3184          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3185          KM  L=        .9  Lca=        .5   S=   23.2  Kn= .020  LAG=  11.7
3186          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3187          BA     .50
3188          LG     .10      .25     4.80      .43   80.00
3189          UI    336.     987.    1460.     726.    223.      67.       0.       0.       0.       0.
3190          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
              *
              *

3191          KK    R89B
3192          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3193          DT    D89B      49
3194          DI       0   10000
3195          DQ       0   10000
              *
              *

3196          KK    C89B
3197          KM  COMBINE FLOWS FROM SUBBASINS 89A AND 89B
3198          HC       2
              *
              *
```



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

3199          KK  89TB90
3200          KM  ROUTE S89B (ELLSWORTH ROAD) TO S90B (AT RITTENHOUSE ROAD) VIA GERMANN ROAD
3201          RS      11     FLOW      -1
3202          RC    .045     .025     .045     8818    .0045
3203          RX       0     1000     1005     1010     1050     1060     1560     2060
3204          RY      14       13       18       12       12       14     14.5       15
              *
              *

3205          KK     90B
3206          KM  BASIN 90B
3207          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3208          KM  L=       2.0  Lca=       1.2   S=   15.3  Kn= .042  LAG=  49.8
3209          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3210          BA     .82
3211          LG     .22      .25     4.65      .38   31.00
3212          UI     56.      56.     147.     232.     283.     327.     379.     444.     588.     709.
3213          UI    583.     490.     427.     359.     306.     259.     187.     117.      96.      91.
3214          UI     56.      56.      28.      17.      17.      17.      17.      17.      17.       0.
3215          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
3216          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *
              *

3217          KK    R90B
3218          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3219          DT    D90B      23
3220          DI       0   10000
3221          DQ       0   10000
              *
              *

3222          KK     C90
3223          KM  COMBINE FLOWS FROM 90A AND 90B
3224          HC       3
              *
              *

3225          KK   90T91
3226          KM  REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #3).
3227          KM
3228          RS       5     FLOW      -1
3229          RC    .025     .025     .025     6400    .0005
3230          RX       0       30       36       60       88      108      114      132
3231          RY     9.7      7.5        6        0        0        6      7.5      9.7
              *
              *

3232          KK     85
3233          KM  BASIN 85
3234          KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3235          KM  L=       2.0  Lca=        .5   S=   15.0  Kn= .030  LAG=  25.8
3236          KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3237          BA    1.00
```



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

3238          LG     .15      .25     4.35      .51   55.00
3239          UI    131.     422.     698.     929.    1452.    1359.     991.     725.     463.     226.
3240          UI    161.      89.      40.      40.      40.       0.       0.       0.       0.       0.
3241          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *
              *

3242          KK     R85
3243          KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3244          DT     D85      84
3245          DI       0   10000
3246          DQ       0   10000
              *
              *

3247          KK   85T86
3248          KM  ROUTE S85 TO S86 VIA WAFB SOUTH PERIMETER CHANNEL
```

```
3249        RS       4    FLOW      -1
3250        RC   0.055   0.035   0.055    5280    .0039
3251        RX       0     500    1000    1013    1028    1041    1541    2041
3252        RY     5.5       5     4.5       0       0     4.5       5     5.5
            *
            *

3253        KK      86
3254        KM  BASIN 86
3255        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3256        KM  L=       2.0  Lca=        .5   S=   15.0  Kn= .030  LAG=  25.8
3257        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3258        BA    1.00
3259        LG     .15     .25    4.55     .45   55.00
3260        UI    131.    420.    695.    925.   1446.   1354.    987.    722.    461.    225.
3261        UI    160.     89.     40.     40.     40.      0.      0.      0.      0.      0.
3262        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3263        KK     R86
3264        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3265        DT     D86      85
3266        DI       0   10000
3267        DQ       0   10000
            *
            *

3268        KK     C86
3269        KM  COMBINE 85 AND 86 AT PECOS ROAD AND SOSSAMAN ROAD
3270        HC       2
            *
            *
```



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

3271        KK   86T91
3272        KM  ROUTE S86 TO S91 VIA WAFB SOUTH PERIMETER CHANNEL. Grassy v=3ft/sec
3273        RS       7    FLOW      -1
3274        RC    0.05   0.035    0.05    5500    .0025
3275        RX       0     500    1000    1013    1028    1041    1541    2041
3276        RY     5.5       5     4.5       0       0     4.5       5     5.5
            *
            *

3277        KK      91
3278        KM  BASIN 91
3279        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3280        KM  L=       1.4  Lca=        .6   S=   18.4  Kn= .030  LAG=  22.7
3281        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3282        BA     .46
3283        LG     .15     .25    4.65     .42   55.00
3284        UI     68.    262.    399.    586.    792.    554.    390.    234.    116.     73.
3285        UI     28.     21.     21.      0.      0.      0.      0.      0.      0.      0.
3286        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3287        KK   RET91
3288        KM  RETAIN 100YR 2HR VOLUME
3289        DT     D91      38
3290        DI       0   10000
3291        DQ       0   10000
            *
            *

3292        KK     81A
3293        KM  BASIN 81A
3294        KM  THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3295        KM  L=       3.3  Lca=       1.9   S=   16.4  Kn= .029  LAG=  49.0
3296        KM  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3297        BA    1.81
3298        LG     .14     .25    4.70     .41   58.00
3299        UI    125.    125.    341.    523.    642.    737.    863.   1019.   1359.   1576.
3300        UI   1258.   1066.    922.    777.    656.    545.    386.    222.    209.    177.
3301        UI    125.    117.     38.     38.     38.     38.     38.     38.     38.      0.
3302        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
3303        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            *

3304        KK    R81A
3305        KM  RETAIN 100 YR 2 HR RUNOFF VOLUME
3306        DT    D81A       5
3307        DI       0   10000
3308        DQ       0   10000
            *
            *
```



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

3309        KK    CP91
3310        KM  COMBINE 91, 90, 86 81A AT RITTENHOUSE CHANNEL
3311        HC       4
            *
            *

3312        KK  91TEMF
3313        KM  ROUTE 91 TO EMF
3314        KO                                      21
```

```
3315        RS       1    FLOW      -1
3316        RC   0.035   0.022   0.035    4000    0.003
3317        RX       0     200     230     240     270     280     310     410
3318        RY       9       7       6       0       0       6       7       9
            *
            *

3319        KK  EMFRITRevised by Dibble & Associates to remove combination at "RITTEN"
3320        KM  COMBINE HYDROGRAPHS EMFRT1 AND 91TEMF
            * KO     2
3321        HC       2
            *
            * THIS PORTION OF THE MODEL IS USED TO DEVELOPE HYDROGRAPHS FOR THE CAP1A AND
            * CAP1B OVERCHUTES. ALL PARAMETERS ARE FROM THE SEMESA ADMS DATED 1997
            *
            *
3322        KM  *******  \/ \/ \/ modifications by Dibble & Associates \/ \/ \/ **********
3323        KM
3324        KM  On 12.16.97 - made changes to sub-basins 62C & 62D per County
3325        KM  On 12.17.97 - revised detention Basin DB82A1
3326        KM  On 12.18.97 - Siphon Draw basin to be on-line facility, rearranged sequence
3327        KM  On 12.19.97 - Basin MN4B near Powerline Floodway, data based on grading plan
3328        KM  - Revised Channel Routing parameters for Area 1
3329        KM  On 01.05.98 - Revised Detention Basin DB82A1 & DB82B.
3330        KM  - Coordinated file with FB.
3331        KM  On 01.12.98 - Revised Hydrology per County '97 Land Use Parameters
3332        KM  - File Updated by DDMS
3333        KM  - Retention revised per County '97 Land Use Parameters
3334        KM  On 01.14.98 - Revised routing along the Santan Alignment
3335        KM  On 01.19.98 - Revised channel routing parameters, Area 2 for channel design.
3336        KM  On 01.26.98 - Revised channel routing slopes in non-ADMP design areas to
3337        KM  match the MAG97 values found in file FUTSOUTH.DAT from FCDMC
3338        KM  On 01.26.98 - Revised wording at CAP1A and CAP1B to reflect 217 cfs per
3339        KM  overchute location, not per pipe.  This per Valerie Swick.
3340        KM  On 01.27.98 - Copied the KK 91 to KK EMFRIT sequence from FUTSOUTH.DAT
3341        KM  and revised diagram sequence to add in Santan Fwy channel.
3342        KM  On 01.27.98 - Slope and NSTEPS values for some natural channels input from
3343        KM  the District-supplied file "FUTSOUTH.DAT".
3344        KM  On 01.28.98 - Revised hydrograph names near EMF at Rittenhouse area.
3345        KM  On 02.12.98 - Revised minor station error in channel route 65AT66, RX record
3346        KM  On 02.23.98 - Revised per
3347        KM  FCDMC comments:  Reworded KM record for route 65AT66.
3348        KM  Length for route 65T66 revised to 2400 feet.
3349        KM  KM added to 78B to explain why no retention.
3350        KM  Added channel route for CP82A4 to CP82A5.
```



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

3351        KM  Added 0.25 ratio @ Basin 75, removed retention
3352        KM  On 02.24.98 - Revised Rittenhouse Channel routing to reflect plans
3353        KM  per FCD Contract No. 97-34 (Phase 2)
3354        KM
3355        KM  On 03.03.98 - Received This file as FINAL HYDROLOGY from the FCDMC
3356        KM  On 03.04.98 - Revised flow routing to show the PLF connecting to
3357        KM  the Santan Channel.  Also re-ordered subbasin 80a
3358        KM  to enter the system at the proper location.
3359        KM  On 03.06.98 - Revised KM record for EMFKNX to delete reference to C76A.
3360        KM  On 03.10.98 - Revised preliminary channel sizes from design data.
3361        KM  Added routing reaches represented in design. (Area 1).
3362        KM  On 03.12.98 - Regraded Crismon Basin to avoid ADWR jurisdictional dam.
3363        KM  On 03.13.98 - Revised Siphon Draw Basin to avoid ADWR jurisdictional dam.
3364        KM  On 03.24.98 - Revised normal depth channel routing per Area 2 channel design.
3365        KM  On 04.22.98 - Submitted Hydrology to County.
3366        KM  On 05.20.98 - Revised Hydrology per County Comments
3367        KM  On 06.11.98 - Revised channel properties to reflect earth channels
3368        KM  On 06.12.98 - Submitted file to County (This is a pre-final submittal)
3369        KM
3370        KM  On 06.18.98 - Added combine at Knox Road for better flowrate resolution.
3371        KM
3372        KM  On 07.17.98 - Revised per FCD review comments.  Channel routings revised to
3373        KM  follow the ADMP Preliminary Design Plans.  More verbal
3374        KM  descriptions for channel routings added.
3375        KM
3376        KM  On 07.24.98 - This is the final submittal HEC-1 input file.
3377        KM
3378        KM  On 08.06.98 -Back checked entire file against FCDMC review comments printout.
3379        KM
3380        KM  On 10.21.98 -Revised routing at Elliot basin for prelim. 30% design.
3381        KM
3382        KM  On 10.27.98 -Revised divert for retention at Elliot Basin.
3383        KM
3384        KM  On 01.15.99 -File submitted as part of Elliot Basin Addendum to the ADMP.
3385        KM
3386        KM  *******  ^^^^^ modifications by Dibble & Associates ^^^^^   **************
            *
3387        ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  466        5OSS
                V
                V
  471       RSOSS
                .
                .
  477           .         59A
                .           .
                .           .
  489           .           .-------->    D59A
  487           .        R59A
                .           .
                .           .
  492        C59A............
                V
                V
  495      59A59B
                .
                .
  502           .         59B
                .           .
                .           .
  516           .           .-------->    D59B
  514           .        R59B
                .           .
                .           .
  519        C59B............
                V
                V
  522      59BT60
                .
                .
  528           .          60
                .           .
                .           .
  545           .           .-------->     D60
  543           .         R60
                .           .
                .           .
  548      EMPGUA............
                V
                V
  552      GUATEL
                .
                .
  558           .          64
                .           .
                .           .
  575           .           .-------->     D64
  569           .         R64
                .           .
                .           .
  578      EMPELL............
                V
                V
  581      ELTWAR
                .
                .
  587           .         62A
                .           .
                .           .
  598           .           .-------->    D62A
  596           .        R62A
                .           V
                .           V
  601           .       62ATB
                .           .
                .           .
  607           .           .         62B
                .           .           .
                .           .           .
  618           .           .           .-------->    D62B
  616           .           .        R62B
                .           .           .
                .           .           .
  621           .        C62B............
                .           V
                .           V
  624           .       62BTD
                .           .
                .           .
  630           .           .         62D
                .           .           .
                .           .           .
  643           .           .           .-------->    D62D
  641           .           .        R62D
                .           .           .
                .           .           .
  646           .       CP62D............
                .           V
                .           V
  649           .       62DTF
                .           .
                .           .
  655           .           .         62F
                .           .           .
                .           .           .
```

```
667                                  .------->   D62F
665                            R62F
                                 .
                                 .
670                      CP62F............
                                 V
                                 V
673                      62T63
                                 .
                                 .
680                                63
                                 .
                                 .
692                                 .------->    D63
690                            R63
                                 .
                                 .
695                       CP63............
                                 V
                                 V
698                      63T71
                                 .
                                 .
705                            68B1
                                 .
                                 .
714                                 .       68B2
                                 .          .
                                 .          .
723                                 .          .       68B3
                                 .          .          .
                                 .          .          .
732                            CP68......................
                                 .
                                 .
737                                 .------->   D68B
735                             R68
                                 V
                                 V
740                          68BT69
                                 .
                                 .
746                                 .          69
                                 .          .
                                 .          .
757                                 .          .------->    D69
755                                 .        R69
                                 .          .
                                 .          .
760                             C69............
                                 V
                                 V
763                           69T71
                                 .
                                 .
769                                 .          25
                                 .          .
                                 .          .
783                                 .          .------->  25RET
781                                 .      RET25
                                 .          V
                                 .          V
786                                 .      25T71
                                 .          .
                                 .          .
792                                 .          .          71
                                 .          .          .
                                 .          .          .
809                                 .          .          .------->    D71
804                                 .          .        R71
                                 .          .          .
                                 .          .          .
812                             C71......................................
                                 V
                                 V
816                      71T72
                                 .
                                 .
823                                 .          72
                                 .          .
                                 .          .
835                                 .          .------->    D72
833                            R72
                                 .
                                 .
838                     CPKNOX............
                                 .
                                 .
841     EMPWAR............
             V
             V
844     WARTKN
             .
             .
850                          26
                                 .
                                 .
861                                 .------->  26RET
859                      RET26
                                 V
                                 V
864                      26T70B
                                 .
                                 .
```

```
870                                  70B
                                      .
886                                   .-------> D70B
882                                R70B
                                      .
889                          CP70B............
                                 V
                                 V
892                          70BT76
                                 .
                                 .
898                                  76B
                                      .
                                      .
910                                   .-------> D76B
908                                R76B
                                      .
                                      .
913                          KNOX............
                                 .
                                 .
917                     EMFKNX............
                            V
                            V
921                     KNXTAY
                                 .
                                 .
927                              65A
                                 .
                                 .
940                              .-------> D65A
938                          R65A
                                 .
                                 .
943                                 CAP1A
                                      V
                                      V
949                                RCAP1A
                                      V
                                      V
959                                RRCP1A
                                      .
                                      .
967                                   .       CAP1B
                                      .           V
                                      .           V
973                                   .      RCAP1B
                                      .           .
                                      .           .
981                          C65A1......................
                                 V
                                 V
984                          65ATB1
                                 .
                                 .
995                              .-------> DB65A
992                          DIDB65
                                 V
                                 V
998                          65B1T2
                                 .
                                 .
1007                                  .<-------  DB65A
1005                               DIB65P
                                      V
                                      V
1008                                DB65A
                                      .
                                      .
1017                         C65A2............
                                 V
                                 V
1020                         65AT-1
                                 V
                                 V
1028                         65AT-2
                                 .
                                 .
1037                                 65AW
                                      .
                                      .
1049                                  .-------> D65AW
1047                                R65AW
                                      V
                                      V
1052                               65AT65
                                      .
                                      .
1059                                  .         65B
                                      .           .
                                      .           .
1072                                  .           .-------> D65B
1070                                  .       R65B
                                      .           .
                                      .           .
1075                                RP65B............
                                      .
                                      .
1083                                  .-------> DIR$65
1079                                DI65B
                                      .
                                      .
```

```
1086          .      CP65A............
              .          V
              .          V
1090          .     65AT-3
              .          .
              .          .
1095          .          .          .<-------  DIRS65
1093          .          .      DR65B
              .          .          V
              .          .          V
1096          .          .      RS65A
              .          .          .
              .          .          .
1104          .      CP65............
              .          V
              .          V
1108          .     65T66
              .          V
              .          V
1111          .     65T66A
              .          V
              .          V
1114          .     65T66B
              .          .
              .          .
1117          .          .     ADOT-E
              .          .          V
              .          .          V
1122          .          .     AET67A
              .          .          .
              .          .          .
1129          .          .          .        67A
              .          .          .          .
              .          .          .          .
1141          .          .          .          .-------->    D67A
1139          .          .          .       R67A
              .          .          .          .
              .          .          .          .
1144          .          .      C67A............
              .          .          V
              .          .          V
1147          .          .     67ATC
              .          .          .
              .          .          .
1153          .          .          .       SUP2
              .          .          .          V
              .          .          .          V
1157          .          .          .      RSUP2
              .          .          .          .
              .          .          .          .
1164          .          .          .          .         67B
              .          .          .          .           .
              .          .          .          .           .
1176          .          .          .          .           .-------->    D67B
1174          .          .          .          .       R67B
              .          .          .          .           .
              .          .          .          .           .
1179          .          .          .       C67B............
              .          .          .          V
              .          .          .          V
1182          .          .          .      67BTC
              .          .          .          .
              .          .          .          .
1190          .          .          .          .         67C
              .          .          .          .           .
              .          .          .          .           .
1203          .          .          .          .           .-------->    D67C
1201          .          .          .          .       R67C
              .          .          .          .           .
              .          .          .          .           .
1206          .          .      C67C........................
              .          .          V
              .          .          V
1209          .          .     67CT67
              .          .          .
              .          .          .
1217          .          .          .        67D
              .          .          .          .
              .          .          .          .
1229          .          .          .          .-------->    D67D
1227          .          .          .       R67D
              .          .          .          .
              .          .          .          .
1232          .          .      C67D............
              .          .          V
              .          .          V
1235          .          .     67DT66
              .          .          .
              .          .          .
1243          .          .          .        66A
              .          .          .          .
              .          .          .          .
1255          .          .          .          .-------->    D66A
1253          .          .          .       R66A
              .          .          .          V
              .          .          .          V
1258          .          .          .      66ATB
              .          .          .          .
              .          .          .          .
1264          .          .          .          .         66B
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              .          .          .          .           .
1277          .          .          .          .           .-------->    D66B
1275          .          .          .          .       R66B
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1280             .          .          .     CP66B...........
                 .          .          .          V
                 .          .          .          V
1283             .          .          .     66BTC
                 .          .          .          .
                 .          .          .          .
1289             .          .          .          .       66C
                 .          .          .          .         .
                 .          .          .          .         .
1301             .          .          .          .         .-------->   D66C
1299             .          .          .          .     R66C
                 .          .          .          .         .
                 .          .          .          .         .
1304             .          .          .     CP66C1...........
                 .          .          .          .
                 .          .          .          .
1308             .          .     CP66C2...........
                 .          .          .
                 .          .          .
1315             .          .          .-------->   DB66
1312             .          .     DI66
                 .          .          V
                 .          .          V
1318             .          .     66C1TZ
                 .          .          .
                 .          .          .
1326             .     CP66C...........
                 .          V
                 .          V
1329             .     66CTD
                 .          .
                 .          .
1336             .          .          .<--------   DB66
1334             .          .     DR66
                 .          .          V
                 .          .          V
1337             .          .     RS66D1
                 .          .          .
                 .          .          .
1350             .          .          .-------->   D-WB
1347             .          .     B-WA
                 .          .          .
                 .          .          .
1353             .      C-WA...........
                 .          V
                 .          V
1356             .     RC-WA
                 .          .
                 .          .
1362             .          .          .<--------   D-WB
1360             .          .    DR-WA
                 .          .          V
                 .          .          V
1363             .          .     RS66D2
                 .          .          .
                 .          .          .
1373             .     CP66D...........
                 .          V
                 .          V
1377             .    66T66D
                 .          V
                 .          V
1381             .    66-66D
                 .          .
                 .          .
1385             .          .       66D
                 .          .          .
                 .          .          .
1397             .          .          .-------->   D66D
1394             .          .     R66D
                 .          .          .
                 .          .          .
1400             .          .          .      61A
                 .          .          .          .
                 .          .          .          .
1412             .          .          .          .-------->   D61A
1410             .          .          .     R61A
                 .          .          .          V
                 .          .          .          V
1415             .          .          .    61ATB
                 .          .          .          .
                 .          .          .          .
1421             .          .          .          .       61B
                 .          .          .          .         .
                 .          .          .          .         .
1434             .          .          .          .         .-------->   D61B
1432             .          .          .          .     R61B
                 .          .          .          .         .
                 .          .          .          .         .
1437             .          .          .    CP61B...........
                 .          .          .          V
                 .          .          .          V
1440             .          .          .    61T66D
                 .          .          .          .
                 .          .          .          .
1447             .          .          .          .       67E
                 .          .          .          .         .
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1460             .          .          .          .         .-------->   D67E
1457             .          .          .          .     R67E
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1463          .          .          .        C67E............
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1466          .       C66D........................
              .          V
              .          V
1469          .      66T23A
              .          V
              .          V
1473          .      66T23B
              .          V
              .          V
1477          .       CULVT
              .          V
              .          V
1480          .      66T23C
              .          .
              .          .
1487          .          .          04
              .          .          .
              .          .          .
1501          .          .          .-------->   04RET
1499          .          .       RET04
              .          .          .
              .          .          .
1504          .       CP23............
              .          V
              .          V
1507          .      66T23D
              .          .
              .          .
1514          .          .         62C
              .          .          .
              .          .          .
1526          .          .          .-------->    D62C
1524          .          .        R62C
              .          .          V
              .          .          V
1529          .          .       62CTE
              .          .          .
              .          .          .
1536          .          .          .         62E
              .          .          .          .
              .          .          .          .
1548          .          .          .          .-------->    D62E
1546          .          .          .        R62E
              .          .          .          .
              .          .          .          .
1551          .          .       CP62E............
              .          .          V
              .          .          V
1554          .          .      62T68A
              .          .          .
              .          .          .
1561          .          .          .        68A1
              .          .          .          .
              .          .          .          .
1570          .          .          .          .        68A2
              .          .          .          .          .
              .          .          .          .          .
1579          .          .          .      CP68A1............
              .          .          .          .
              .          .          .          .
1584          .          .          .          .-------->    D68A
1582          .          .          .        R68A
              .          .          .          .
              .          .          .          .
1587          .          .      CP68A2............
              .          .          V
              .          .          V
1590          .          .      68T70A
              .          .          .
              .          .          .
1598          .          .          .        70A1
              .          .          .          .
              .          .          .          .
1607          .          .          .          .          23
              .          .          .          .          .
              .          .          .          .          .
1619          .          .          .          .          .-------->   23RET
1617          .          .          .          .       RET23
              .          .          .          .          .
              .          .          .          .          .
1622          .       C70A1.................................
              .          V
              .          V
1625          .      70A1T2
              .          .
              .          .
1632          .          .          24
              .          .          .
              .          .          .
1643          .          .          .-------->   24RET
1641          .          .       RET24
              .          .          .
              .          .          .
1646          .          .          .        70A2
              .          .          .          .
              .          .          .          .
1655          .      CP70A2........................
              .          V
              .          V
1659          .      70T76A
              .          .
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1667                76A
                     .
                     .
1680                 .-------->   D76A
1678            R76A
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1683        C76A............
                V
                V
1686       76ATPR
                .
                .
1694                73A
                     V
                     V
1708            73ATB
                     .
                     .
1715                     73B
                         .
                         +
1726                     .-------->  73BRET
1724                 RET73B
                         .
                         +
1729            CP73B............
                     V
                     V
1732            73BTC
                     .
                     +
1739                     73C
                         .
                         .
1751                     .-------->  73CRET
1749                 RET73C
                         .
                         .
1754            CP73C............
                     V
                     V
1757            73T74C
                     .
                     .
1764                     74A
                         V
                         V
1778                 74ATB
                         .
                         +
1786                         74B
                             .
                             .
1798                         .-------->  74BRET
1796                     RET74B
                             +
                             .
1801                 CP74B............
                         V
                         V
1804                 74BTC
                         .
                         .
1811                         74C
                             .
                             .
1823                         .-------->  74CRET
1821                     RET74C
                             .
                             .
1826            CP74C........................
                     V
                     V
1829            74CT75
                     +
                     .
1835                 10
                         .
                         .
1849                     .-------->   10RET
1847                 RET10
                         V
                         V
1852                 10T75
                         .
                         .
1858                         02B
                             .
                             .
1872                         .-------->  02BRET
1870                     RET02B
                             V
                             V
1875                       2BT1
                             .
                             .
1882                             01A
                                 .
                                 .
1896                             .-------->  01ARET
1894                         RET01A
                                 .
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1899                    CP1............
                         V
                         V
1902                    1T3
                         .
1908                     .        01B
                         .         .
1922                     .         .-------> 01BRET
1920                     .     RET01B
                         .         .
1925                     .         .          03
                         .         .           .
1939                     .         .           .-------> 03RET
1937                     .         .       RET03
                         .         .           .
1942                    CP3........................
                         V
                         V
1945                    3T6
                         .
1951                     .        02A
                         .         .
1965                     .         .-------> 02ARET
1963                     .     RET02A
                         .         .
1968                     .         .         02C
                         .         .           .
1982                     .         .           .-------> 02CRET
1980                     .         .       RET02C
                         .         .          V
                         .         .          V
1985                     .         .        2CT2
                         .         .           .
1991                     .        CP2...........
                         .         V
                         .         V
1994                     .      2AT6
                         .         .
2000                     .         .          06
                         .         .           .
2014                     .         .           .-------> 06RET
2012                     .         .       RET06
                         .         .           .
2017                     .         .           .          6A
                         .         .           .           .
2030                     .         .           .           .-------> 06ARET
2028                     .         .           .     RET06A
                         .         .           .           .
2033                     .         .           .           .          7A
                         .         .           .           .           .
2045                    CP6.............................................
                         .
2050                     .-------> 07ARET
2048                RET07A
                         V
                         V
2053                 7AT12
                         .
2059                     .        07
                         .         .
2073                     .         .-------> 07RET
2071                     .     RET07
                         .         V
                         .         V
2076                     .      7T12
                         .         .
2082                     .         .          05
                         .         .           .
2096                     .         .           .-------> 05RET
2094                     .         .       RET05
                         .         .           .
2099                     .         .           .          12
                         .         .           .           .
2113                     .         .           .           .-------> 12RET
2111                     .         .           .     RET12
                         .         .           .           .
2116                CP12...................................
                         V
                         V
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2119                                  12T13
                                        .
2125                                      08
                                          .
2139                                      .-------> 08RET
2137                                  RET08
                                          V
                                          V
2142                                    8T9
                                          .
2148                                      .          09
                                          .          .
2162                                      .          .-------> 09RET
2160                                      .       RET09
                                          .          .
2165                                    CP9............
                                          V
                                          V
2168                                   9T13
                                          .
2174                                      .        13
                                          .          .
2188                                      .          .-------> 13RET
2186                                      .       RET13
                                          .          .
2191                                      .          .        11
                                          .          .          .
2205                                      .          .          .-------> 11RET
2203                                      .          .       RET11
                                          .          .          V
                                          .          .          V
2208                                      .          .       11T13
                                          .          .          .
2214                                  CP13.................................
                                        V
                                        V
2217                                  13T75
                                        .
2223                                      .          14
                                          .          .
2237                                      .          .-------> 14RET
2235                                      .       RET14
                                          .          .
2240                            CP75.................................
                                  V
                                  V
2243                            75TPC
                                  .
2249                                 77A
                                      V
                                      V
2265                                77ATB
                                      .
2272                                      .       77B
                                          .        .
2283                                      .        .-------> 77BRET
2281                                      .     RET77B
                                          .        .
2286                                CP77B............
                                      V
                                      V
2289                                77BTC
                                      .
2296                                      .       77C
                                          .        .
2307                                      .        .-------> 77CRET
2305                                      .     RET77C
                                          .        .
2310                                 C77C............
                                      V
                                      V
2313                                77CT78
                                      .
2320                                      .       78A
                                          .        V
                                          .        V
2336                                      .     78ATB
                                          .        .
2342                                      .        .          78B
                                          .        .           .
2351                                      .     C78B............
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                                                  V
                                                  V
2354                                         78BTC
                                                  .
                                                  .
2361                                                   78C
                                                       .
                                                       .
2372                                                   .-------> 78CRET
2370                                              RET78C
                                                       .
                                                       .
2375                                         C78C............
                                                  .
                                                  .
2378                                     C78C2............
                                             V
                                             V
2381                                     78CT79
                                             .
                                             .
2388                                            20
                                                  .
                                                  .
2402                                              .-------> 20RET
2400                                         RET20
                                                  .
                                                  .
2405                                     CP22B............
                                             .
                                             .
2408                                            16
                                                  .
                                                  .
2422                                              .-------> 16RET
2420                                         RET16
                                                  .
                                                  .
2425                                              .      18
                                                  .       .
                                                  .       .
2439                                              .       .-------> 18RET
2437                                              .   RET18
                                                  .       V
                                                  .       V
2442                                              .   18T19
                                                  .       .
                                                  .       .
2448                                         CP19A............
                                                  .
                                                  .
2451                                              .      19
                                                  .       .
                                                  .       .
2465                                              .       .-------> 19RET
2463                                              .   RET19
                                                  .       .
                                                  .       .
2468                                         CP19B............
                                                  .
                                                  .
2471                                              .      17
                                                  .       .
                                                  .       .
2485                                              .       .-------> 17RET
2483                                              .   RET17
                                                  .       .
                                                  .       .
2488                                              .       .       79A
                                                  .       .        .
                                                  .       .        .
2500                                     CP79A1...................................
                                             .
                                             .
2503                                         .   78F
                                                  .
                                                  .
2520                                              .   82A1
                                                  .       .
                                                  .       .
2535                                         .  C82A1............
                                                 V
                                                 V
2539                                         . DB82A1
                                                 V
                                                 V
2548                                         .  PS-9
                                                  .
                                                  .
2555                                              .   CAP2
                                                  .      V
                                                  .      V
2564                                              .  RCAP2
                                                  .       .
                                                  .       .
2571                                              .       .       82A2
                                                  .       .        .
                                                  .       .        .
2591                                              .  CP82A2............
                                                  .       .
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2594                                              .       .       82A4
                                                  .       .         V
                                                  .       .         V
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2610                                                  82A4T3
                                                        .
2617                                                    .        82A3
                                                        .          .
2634                                                  CP82A3.........
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2637                                            CP82A5.........
                                                      V
                                                      V
2640                                             DB82B
                                                      V
                                                      V
2649                                              MN-1
                                                        .
2656                                      CP82A6.........
                                                  V
                                                  V
2659                                      82TBOX
                                                  V
                                                  V
2666                                      BOXCLV
                                                  V
                                                  V
2673                                      BOXT78
                                                  .
2680                                                 78D
                                                        .
2692                                                    .------->    D78D
2690                                                 R78D
                                                        .
2695                                                       82B
                                                           .
2707                                                       .------->     D82
2705                                                       R82
                                                           .
2713                                                       .------->     TRW
2710                                                    DTTRW
                                                           .
2716                                        C78D.........................
                                                  V
                                                  V
2720                                       78DTE
                                                  .
2727                                                 78E
                                                        .
2739                                                       83
                                                           .
2751                                                       .------->     D83
2749                                                       R83
                                                           .
2754                                        C78E.........................
                                                  V
                                                  V
2757                                      78ET84
                                                  .
2765                                                  84
                                                        .
2777                                                    .------->     D84
2775                                                 R84
                                                        .
2780                                          C84............
                                                  V
                                                  V
2784                                      84T79B
                                                  .
2793                                                 79B
                                                        .
2806                                       C79B1............
                                                  V
                                                  V
2809                                      79BTB2
                                                  .
2817                                 C79B2............
                                           V
                                           V
2820                                 79TPC2
                                           .
2828                            CPPWR............
                                      V
                                      V
2832                            PWRT80
                                      .
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2839          .           .           .        80A
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              .           .           .          .
2853          .           .           .          .-------->    D80A
2851          .           .           .       R80A
              .           .           .          .
              .           .           .          .
2856          .           .       CP80A...........
              .           .           V
              .           .           V
2860          .           .      PWRSAN
              .           .           .
              .           .           .
2867          .       CPSAN...........
              .           V
              .           V
2871          .      PWREMF
              .           .
              .           .
2879     EMFPOW...........
              V
              V
2882     POWTWI
              .
              .
2889          .         80B
              .           .
              .           .
2902          .           .-------->    D80B
2900          .        R80B
              .           .
              .           .
2905          .           .         81B
              .           .           .
              .           .           .
2918          .           .           .-------->    D81B
2915          .           .       R81B
              .           .           .
              .           .           .
2921          .      80B81B...........
              .           .
              .           .
2925     EMFWIL...........
              V
              V
2928     WILTSP
              .
              .
2935          .      SUB258
              .           V
              .           V
2957          .       R0259
              .           .
              .           .
2960          .           .      SUB260
              .           .           .
              .           .           .
2973          .           .           .-------->  RETDIV
2971          .           .       R260
              .           .           .
              .           .           .
2976          .      C0262...........
              .           V
              .           V
2979          .      R0263
              .           .
              .           .
2982          .           .      SUB264
              .           .           .
              .           .           .
2996          .           .           .-------->  RETDIV
2994          .           .       R264
              .           .           .
              .           .           .
2999          .      C0266...........
              .           V
              .           V
3002          .      R0267
              .           .
              .           .
3005          .           .      SUB268
              .           .           .
              .           .           .
3020          .           .           .-------->  RETDIV
3018          .           .       R268
              .           .           .
              .           .           .
3023          .      C0270...........
              .           V
              .           V
3026          .      R0283
              .           .
              .           .
3029          .           .         88A
              .           .           .
              .           .           .
3040          .           .           .-------->    D88A
3038          .           .       R88A
              .           .           V
              .           .           V
3043          .           .     88AT89
              .           .           .
              .           .           .
3051          .           .           .        89A
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3062                                  .------->    D89A
3060                                R89A
                                      .
                                      .
3065                        C89A............
                                 V
                                 V
3068                      89ATRI
                                 .
                                 .
3076          C283............
                 V
                 V
3080        283T90
                 .
                 .
3091                         90A
                                 .
                                 .
3102                                  .------->    D90A
3100                        R90A
                                 .
                                 .
3105          C90A............
                 V
                 V
3108         90ATB
                 .
                 .
3116                         87A
                                 .
                                 .
3127                                  .------->    D87A
3125                        R87A
                                 V
                                 V
3130                      87ATB
                                 .
                                 .
3136                                        87B
                                                .
                                                .
3147                                                  .------->    D87B
3145                                      R87B
                                                .
                                                .
3150                        C87............
                                 V
                                 V
3153                      87T88B
                                 .
                                 .
3159                                        88B
                                                .
                                                .
3170                                                  .------->    D88B
3168                                      R88B
                                                .
                                                .
3173                        C88B............
                                 V
                                 V
3176                      88T89B
                                 .
                                 .
3182                                        89B
                                                .
                                                .
3193                                                  .------->    D89B
3191                                      R89B
                                                .
                                                .
3196                        C89B............
                                 V
                                 V
3199                      89TB90
                                 .
                                 .
3205                                        90B
                                                .
                                                .
3219                                                  .------->    D90B
3217                                      R90B
                                                .
                                                .
3222          C90........................
                 V
                 V
3225         90T91
                 .
                 .
3232                         85
                                 .
                                 .
3244                                  .------->     D85
3242                        R85
                                 V
                                 V
3247                      85T86
                                 .
                                 .
3253                                        86
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                .          .          .          .
                .          .          .          .
3265            .          .          .          .-------->     D86
3263            .          .          .        R86
                .          .          .          .
                .          .          .          .
3268            .          .        C86...........
                .          .          V
                .          .          V
3271            .          .      86T91
                .          .          .
                .          .          .
3277            .          .          .         91
                .          .          .          .
                .          .          .          .
3289            .          .          .          .-------->     D91
3287            .          .          .      RET91
                .          .          .          .
                .          .          .          .
3292            .          .          .          .        81A
                .          .          .          .          .
                .          .          .          .          .
3306            .          .          .          .          .-------->    D81A
3304            .          .          .          .       R81A
                .          .          .          .          .
                .          .          .          .          .
3309            .       CP91...................................
                .          V
                .          V
3312            .     91TEMP
                .          .
                .          .
3319      EMFRIT............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************                    *****************************************
*                                         *                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                    *    U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998                 *                    *    HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1                  *                    *          609 SECOND STREET            *
*                                         *                    *       DAVIS, CALIFORNIA 95616         *
*  RUN DATE   18APR14  TIME  09:56:21     *                    *           (916) 756-1104              *
*                                         *                    *                                       *
*****************************************                    *****************************************
```

FILE: EMDU5E.DAT

MODEL REVISED: 04-18-2014

PROJECT: EASTMARK MASTER DRAINAGE UPDATE (FOR DEVELOPMENT UNIT 5 EAST)

THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES FOR DEVELOPMENT UNIT 5 EAST (DU 5E).

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USE FOR DU 5E HAS CHANGED FROM GOLF TO INDUSTRIAL. AREAS THAT PREVIOUSLY DRAINED TO GOLF WHERE 100-YEAR, 24-HOUR RETENTION WAS PROVIDED WILL NOW BE REQUIRED TO SELF RETAIN RETENTION VOLUME FROM THEIR SITE FOR THE 100-YEAR, 24-HOUR STORM PEAK FLOWS HAVE REMAINED THE SAME. THE REMAINING PORTION OF LAND THAT WAS ASSOCIATED WITH GOLF HAS BEEN REVISED TO RESIDENTIAL USE.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL MATTHEWS, P.E.

FILE PATH:
R:\MESA PROVING GROUNDS\2014\144173\PROJECT SUPPORT\REPORTS\DRAINAGE\
EASTMARK OVERALL MASTER DRAINAGE UPDATE\HYDROLOGY\PROPOSED\EMDU5E.DAT

****

FILE: EMDU34.DAT

MODEL REVISED: 04-14-2014

PROJECT: EASTMARK MASTER DRAINAGE UPDATE FOR DEVELOPMENT UNIT 3/4

THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES FOR DEVELOPMENT UNIT 3/4 (DU 3/4).

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USE FOR DU 3/4 HAS BEEN REVISED TO REFLECT MORE DETAILED PLANNING. MINOR ADJUSTMENTS TO LAND USES OUTSIDE OF DU 3/4 HAVE BEEN MADE. ADDITIONALLY WATERSHED BOUNDARIES HAVE BEEN REVISED TO REFLECT A CONCEPTUAL MASS GRADE PLAN PROVIDED TO WOOD/PATEL BY A CONSULTANT OF THE DEVELOPER DMB MESA PROVING GROUNDS LLC.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL MATTHEWS, P.E.

FILE PATH:
R:\MESA PROVING GROUNDS\2011\113697.09\PROJECT SUPPORT\REPORTS\
EASTMARK OVERALL DRAINAGE MASTER UPDATE\HYDROLOGY\PROPOSED\EMDU34.DAT

****

FILE: EMDU3S.DAT

MODEL REVISED: 12-11-2013

PROJECT: EASTMARK MASTER DRAINAGE UPDATE FOR DEVELOPMENT UNIT 3 SOUTH

THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT PLANNED LAND USES FOR DEVELOPMENT UNIT 3 SOUTH (DU-3S).

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). LAND USES FOR DU-3S ARE CONSISTENT WITH THE PREVIOUS MODEL (EMDU89.DAT) THEREFORE RESULTING PEAK FLOWS HAVE REMAINED THE SAME.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL MATTHEWS, P.E.

FILE PATH:
R:\MESA PROVING GROUNDS\2011\113697.08\PROJECT SUPPORT\REPORTS\
EASTMARK OVERALL DRAINAGE MASTER UPDATE\HYDROLOGY\PROPOSED\EMDU3S.DAT

****

FILE: EMDU89.DAT

MODEL REVISED: 1-22-2013

PROJECT: EASTMARK 646

THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT UPDATED PLANNING
FOR DEVELOPMENT UNITS 8&9 (DU 8&9).

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). ONSITE WATERSHEDS WERE
UPDATED TO REFLECT CURRENT PLAN FOR DEVELOPMENT UNITS 8 & 9.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DARREN E. SMITH, P.E.

FILE PATH:
R:\MESA PROVING GROUNDS\2012\123835\PROJECT SUPPORT\REPORTS\
DRAINAGE\HYDROLOGY\PROPOSED\EMDU89.DAT

****

FILE: MPGDU7.DAT

MODEL REVISED: 09-07-2011

PROJECT: MESA PROVING GROUNDS

THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
BELOW. REFERENCING WS2-NEM.DSS IS STILL REQUIRED.

THIS IS A POST DEVELOPED MODEL REVISION TO REFLECT UPDATED PLANNING
FOR DEVELOPMENT UNIT 7 (DU7)PROVIDED BY ARIZONA LAND DESIGN ON 09/02/201
09/02/2011.

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). ONSITE WATERSHEDS WERE
UPDATED TO REFLECT A GRADING PLAN PROVIDED BY LD TEAM ON 8/30/2011.
MODELING OF THE POWERLINE FLOODWAY HAS BEEN UPDATED TO REFLECT THE
EXISTING SECTIONS AND SLOPE PER AS-BUILT DRAWINGS ACROSS THE MPG
SITE.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL W. MATTHEWS, E.I.T.

FILE PATH:
R:\MESA PROVING GROUNDS\2011\113697\PROJECT SUPPORT\REPORTS\
DRAINAGE\HYDROLOGY\MPGDU7.DAT

****

FILE: MPG20RT2.DAT

MODEL REVISED: 04-25-2011

PROJECT: MESA PROVING GROUNDS

THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
BELOW. REFERENCING WS2-NEM.DSS IS STILL REQUIRED.

THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
BY SWABACK PARTNERS ON 12/12/07.

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). ONSITE WATERSHEDS 01 AND
20 WERE UPDATED TO REFLECT THE INCORPORATION OF THE FIRST SOLAR SITE
IN THE NORTHEAST CORNER OF DU-6. WATERSHED 02 WAS SPLIT INTO 02A AND
02B. LAND USE WAS CHANGED TO INDUSTRIAL FOR 02B AND ENTIRELEY
RESIDENTIAL FOR 02A.
THE FIRST SOLAR SITE RUNOFF WILL NOW BE RETAINED ENTIRELY ONSITE.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
STEPHEN M. SCINTO, P.E.

FILE PATH:
R:\MESA PROVING GROUNDS\2010\103564.04\PROJECT SUPPORT\REPORTS\
DRAINAGE\HYDROLOGY\POST-DEVELOPED 100YR2HR RETENTION MODEL\
MPG20RT2.DAT

****

FILE: MPG20RT2.DAT

MODEL REVISED: 09-16-08

PROJECT: MESA PROVING GROUNDS

THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE
BELOW. REFERENCING WS2-NEM.DSS IS STILL REQUIRED.

THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING
THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED
BY SWABACK PARTNERS ON 12/12/07.

MODEL REVISION DESCRIPTION:

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). ONSITE WATERSHEDS 01, 02,
03, AND 06 WERE UPDATED TO REFLECT THE CURRENT GOLF COURSE

CONFIGURATION.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL W. MATTHEWS, E.I.T.

FILE PATH:
R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND PLAN\2ND SUBMITTAL(COM)\HYDROLOGY\MPG20RT2.DAT

****

FILE: MPG20RT2.DAT

MODEL REVISED: 05-15-08

PROJECT: MESA PROVING GROUNDS

MODEL REVISION DESCRIPTION:

THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE BELOW. REFERENCING WS2-NEM.DSS IS STILL REQUIRED.

THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED BY SWABACK PARTNERS ON 12/12/07.

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). WATERSHED 79A WAS UPDATED AS REQUESTED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY TO REDUCE THE PERCENT IMPERVIOUS VALUE FROM 80% TO 0% TO MATCH THE LAND USE AS MODELED WITHIN THE EAST MESA ADMP.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL W. MATTHEWS, E.I.T.

FILE PATH:
R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND PLAN\2ND SUBMITTAL\POST-DEVELOPED 100YR2HR RETENTION MODEL (MPG20RT2)\MPG20RT2.DAT

****

FILE: MPG20RT2.DAT

MODEL REVISED: 01-08-08

PROJECT: MESA PROVING GROUNDS

MODEL REVISION DESCRIPTION:

THIS MODEL SHOULD REPLACE WS4-SEM.DAT IN THE HEC-1 RUN SEQUENCE SPECIFIE BELOW. REFERENCING WS2-NEM.DSS IS STILL REQUIRED.

THIS IS A 100-YEAR, 2-HOUR RETENTION SCENARIO MODEL USING THE 20MSF COMMERCIAL SPACE AND 15K DU LAND PLAN PROVIDED BY SWABACK PARTNERS ON 12/12/07.

THIS MODEL IS AN EXERPT OF THE MODEL PROVIDED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (WS4-SEM.DAT). WATERSHEDS 68A, 68B, 70A, 70B, 71, 73B, 73C, 74B, 74C, 75, 77B, 77C, 78B, 78C, AND 79A HAVE ALL BEEN UPDATED TO REFLECT CURRENT WATERSHED DELINEATIONS, NEW DEVELOPMENT, CURRENT RETENTION,AND FLOOD ROUTING. BASIN 75 HAS BEEN UPDATED TO REFLECT PLANNED DEVELOPEMENT FOR THE MESA PROVING GROUNDS SITE.

MODEL REVISED BY:
WOOD, PATEL & ASSOCIATES, INC.
DANIEL W. MATTHEWS, E.I.T.

FILE PATH:
R:\MESA PROVING GROUNDS\2006\062753\PROJECT SUPPORT\HYDRO\MDR-20-15 LAND PLAN\HYDROLOGY\POST-DEVELOPED 100YR2HR RETENTION MODEL (MPG20RT2)\MPG20RT2.DAT

****

ID Kirkham Michael:
Last Revised Date: 1/22/03
Filename: WS4-SEM.DAT

Comments Dated 1/22/03 (CJ)

This model should be used ONLY for the Rittenhouse and Chandler Heights Basin Design Project - Final Design Analyses.

This model is one of several models that represent the EMF watershed. This model covers the Southeast Mesa Area and should reference as a DSS the watershed model for the Northeast Mesa Area (Filename WS2-NEM.DAT).

This model is necessary to determine the input hydrographs for the Rittenhouse Basin Design HEC-RAS Unsteady State analysis. To develop the necessary input hydrographs the following models should be run in order. Because the files utilize a TAPE21 file to export import hydrographs between models, prior to running the FIRST model (WS1-NWM.DAT) any existing TAPE21 file in the directory should be deleted. The run procedure order is:

1) WS1-NWM.DAT

2) WS2-NEM.DAT
3) WS3-QCSW.DAT
4) WS4-SEM.DAT (referencing WS2-NEM.DSS for the DSS file)
5) RT1-BASE.DAT

The necessary input hydrographs for the Rittenhouse Basin analysis are determined in RT1-BASE. In that output file, the hydrograph at RWFLD1 should be exported and used as the input hydrograph at the EMF Reach 4 Cross Section 17.082. And the hydrograph at RITTEN should be exported and used as the input hydrograph for the Rittenhouse Main Channel at Cross Section 820.00

```
*****************************************************************************
**** NOTE BY PRIMATECH ENGINEERS:                                        ****
**** DATE: 06/12/2001                                                    ****
**** THE NEW FILE NAME IS: SEBTALT2.DAT                                  ****
**** THE FILE WAS RENAMED AS <<RTBTALT2.DAT>> FOR THE EAST MARICOPA      ****
**** FLOODWAY CAPACITY MITIGATION PROJECT, BY FLOOD CONTROL DISTRICT OF ****
**** MARICOPA COUNTY.                                                    ****
**** THE FILE WAS RENAMED <<RTBTALT3.DAT>> AND UPDATED USING GREEN AND  ****
**** AMPT FUTURE CONDITIONS FOR BASINS 258 TO 268.                       ****
*****************************************************************************
```

THIS MODEL WAS ORIGINALLY MIDDOUT.DAT
IT HAS BEEN MODIFIED BY CPE (7/2000)
FOR ALTERNATIVE 2 FOR THE EAST MARICOPA FLOOWAY
CAPACITY MITIGATION AND MULTI-USE CORRIDOR STUDY
TO ROUTE BOTH THE POWERLINE FLOOWAY
AND THE SANTAN FREEWAY CHANNEL INTO THE RAY BASIN PRIOR THEIR OUTFALL
INTO THE EMF

****

Model files changed by Collins/Pina Engineering
to reflect multi-use design concepts (recreation
and environment) proposed throughout the entire
EMF Corridor. July 2000

VERSION 8.06 CPE 7/31/00

****

****

FILENAME: MIDDOUT.DAT

ALL CIP INFRASTRUCTURE IS IN PLACE, FUTURE CONDITIONS LANDUSE IS IN PLACE
FLOW IS ROUTED UP ELLSWORTH ROAD IN A EARTH LINED CHANNEL

****

PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
File Name: Final8.Dat
Revised - Jan. 2000 by SZ (Wood/Patel) From Final7.dat - new Z-V & Sideweir
Revised - Jan. 2000 by SZ (Wood/Patel) from Final6.dat - 60% review comments
Revised - Dec. 1999 by SZ (Wood/Patel) from Final5.dat
Revised - Dec. 1999 by SZ (Wood/Patel) from Final4.dat
Revised - Nov. 1999 by SZ (Wood/Patel) from Final3.dat
Revised - June 1999 by SZ (Wood/Patel) for Final Model from Opt1.dat.
Revised - May 1999 by SZ (Wood/Patel) for Option 1, Based on Model SDIB.DAT
REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
REVISED - MAY, 1998 BY D&A

REVISED BY VALERIE SWICK, FEB. 26, 1998

FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL BE COMBINED WITH FLOW IN SIPHON DRAW.

EAST MESA AREA DRAINAGE MASTER PLAN
AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
AUGUST 1997
SOUTHEAST MESA HIGH RESOLUTION MODEL

**********FUTURE CONDITION MODEL OF THE WATERSHED**********

**********ATTENTION**********
SUBBASINS 75, 79A, 79B, 78E, LANDUSES WERE NOT
CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
****

FILENAME: SDIBB.DAT

THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
CONDITIONS.

100-YEAR 24-HOUR FREQUENCY
AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY

```
                    AND EAST OF THE CAP

                    DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
                    EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
                    RANGE.

                    METHODOLOGY
                    THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
                    SCS TYPE II RAINFALL DISTRIBUTION
                    S-GRAPH HYDROGRAPH
                    GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
                    NORMAL DEPTH STORAGE CHANNEL ROUTING
                    APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
                    EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
                    DATED 1994
                    THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS

                    ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
                    DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
                    AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
                    HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
                    DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.

                    ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
                    CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL

                    VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
                    SUGGESTED ALTERNATIVES (JULY 1, 1997)

                    ***********************************************************************
                    **** THE FOLLOWING NOTE WAS ADDED BY PRIMATECH ENGINEERS ON 06-12-2001 ****
                    ***********************************************************************
                    NOTE: MUST USE NEBUILD.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
                          SUPERSTITION FREEWAY.
                    ***********************************************************************


                    NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
                          SUPERSTITION FREEWAY.

                    DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS

445 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     1APR97  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        600  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     3APR97  ENDING DATE
                     NDTIME       0155  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   49.92 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

447 JD          INDEX STORM NO. 1
                      STRM        3.60  PRECIPITATION DEPTH
                      TRDA         .01  TRANSPOSITION DRAINAGE AREA

448 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
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                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00

458 JD          INDEX STORM NO. 2
```

STRM 3.58 PRECIPITATION DEPTH
TRDA 1.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

459 JD INDEX STORM NO. 3
STRM 3.49 PRECIPITATION DEPTH
TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

460 JD INDEX STORM NO. 4
STRM 3.38 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

461 JD INDEX STORM NO. 5

STRM 3.24 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

462 JD INDEX STORM NO. 6

STRM 3.10 PRECIPITATION DEPTH

TRDA 60.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

463 JD INDEX STORM NO. 7

STRM 3.05 PRECIPITATION DEPTH

TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

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464 JD          INDEX STORM NO. 8
                      STRM        3.00  PRECIPITATION DEPTH
                      TRDA      120.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00

465 JD          INDEX STORM NO. 9
                      STRM        2.97  PRECIPITATION DEPTH
                      TRDA      150.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00
  -----DSS---ZOPEN:  Existing File Opened,  File: WS2-NEM.DSS
                     Unit:  71;  DSS Version: 6-JG
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
       Time Window set.  Interval:     5  Number of data values:      1
       Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
       Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
       Input time offset:      0
       After ZRDINF, Record found: T
       Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
       NDDATA:  288   JULSD:   35519
       JULS: 31MAR97        JULSD: 31MAR97
       Quality Read: F,  Quality Requested: F
       ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
     ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
       Offset:        0,  Units: CFS      ,  Type:INST-VAL
       ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
       Time Window set.  Interval:     5  Number of data values:    601
       Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
       Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
       Input time offset:      0
       After ZRDINF, Record found: T
       Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
       Number of actual data:  288  Header length:   0
       Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
       NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
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        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97        JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97        JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97        JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97        JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:        0,  Units: CFS     ,  Type:INST-VAL


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


            **************
            *            *
 548 KK     *    EMPGUA  *
            *            *
            **************

 550 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


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


            **************
            *            *
 569 KK     *       R64  *
            *            *
            **************

 574 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


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


            **************
            *            *
 838 KK     *    CPKNOX  *
            *            *
            **************

 839 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

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


            **************
            *            *
 913 KK     *      KNOX  *
            *            *
            **************

 915 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /CAP1A/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /CAP1A/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /CAP1A/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /CAP1A/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   48:  /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
-----DSS---ZWRITE Unit  71; Vers.  229:  /CAP1B/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
-----DSS---ZWRITE Unit  71; Vers.  229:  /CAP1B/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
-----DSS---ZWRITE Unit  71; Vers.  229:  /CAP1B/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
-----DSS---ZWRITE Unit  71; Vers.  229:  /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
```

```
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
```

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        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.   24:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
         WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

WARNING --- ROUTED OUTFLOW (    292.) IS GREATER THAN MAXIMUM OUTFLOW (    251.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    257.) IS GREATER THAN MAXIMUM OUTFLOW (    251.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    253.) IS GREATER THAN MAXIMUM OUTFLOW (    251.) IN STORAGE-OUTFLOW TABLE
         WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

WARNING --- ROUTED OUTFLOW (    316.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    342.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    369.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    371.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    367.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    347.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    332.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    317.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    302.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    306.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    327.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    340.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    345.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    344.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    338.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    328.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    316.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    302.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    771.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    797.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    816.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    826.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    830.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    828.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    823.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    815.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    807.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    798.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    788.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    775.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (    768.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    781.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    788.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    789.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    786.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    781.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    775.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    769.) IS GREATER THAN MAXIMUM OUTFLOW (    766.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    684.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    722.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    757.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    786.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    808.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    822.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    829.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    829.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    825.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    819.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    810.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    802.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    792.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    781.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    767.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    750.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    731.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    709.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    687.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    665.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    675.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    708.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    737.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    760.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    776.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    785.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    789.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    787.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    783.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    778.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    771.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    764.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    755.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    743.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    728.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    710.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    691.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    671.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

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            *            *
2915 KK     *      R81B  *
            *            *
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2917 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        500  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


      DT          DIVERSION
                      ISTAD       D81B  DIVERSION HYDROGRAPH IDENTIFICATION
                     DSTRMX      35.00  MAXIMUM VOLUME TO BE DIVERTED

      DI             INFLOW        .00  10000.00

      DQ       DIVERTED FLOW       .00  10000.00
                                                                  ***

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

                        DIVERSION HYDROGRAPH     D81B
                     TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                            (CFS)
+     419.      11.92                 55.         18.          8.          8.
                          (INCHES)   .605        .781        .781        .781
                           (AC-FT)    27.         35.         35.         35.

                        CUMULATIVE AREA =     .84 SQ MI

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

                        HYDROGRAPH AT STATION     R81B
                     TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                            (CFS)
+    1223.      12.25                155.         44.         21.         21.
                          (INCHES)  1.713       1.927       1.927       1.927
                           (AC-FT)    77.         86.         86.         86.

                        CUMULATIVE AREA =     .84 SQ MI

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

                        DIVERSION HYDROGRAPH     D81B
                     TRANSPOSITION AREA      1.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                            (CFS)
+     445.      11.92                 55.         18.          8.          8.
                          (INCHES)   .606        .781        .781        .781
                           (AC-FT)    27.         35.         35.         35.

                        CUMULATIVE AREA =     .84 SQ MI

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

                        HYDROGRAPH AT STATION     R81B
                     TRANSPOSITION AREA      1.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                            (CFS)
+    1215.      12.25                153.         43.         21.         21.
                          (INCHES)  1.698       1.911       1.911       1.911
                           (AC-FT)    76.         86.         86.         86.

                        CUMULATIVE AREA =     .84 SQ MI

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

                        DIVERSION HYDROGRAPH     D81B
                     TRANSPOSITION AREA      5.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                            (CFS)
+     477.      11.92                 55.         18.          8.          8.
                          (INCHES)   .607        .781        .781        .781
                           (AC-FT)    27.         35.         35.         35.

                        CUMULATIVE AREA =     .84 SQ MI

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

                        HYDROGRAPH AT STATION     R81B
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TRANSPOSITION AREA 5.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 1180.	12.25		148.	42.	20.	20.
		(INCHES)	1.634	1.838	1.838	1.838
		(AC-FT)	73.	82.	82.	82.

CUMULATIVE AREA = .84 SQ MI

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

DIVERSION HYDROGRAPH D81B
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 458.	11.92		55.	18.	8.	8.
		(INCHES)	.613	.781	.781	.781
		(AC-FT)	27.	35.	35.	35.

CUMULATIVE AREA = .84 SQ MI

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

HYDROGRAPH AT STATION R81B
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 1138.	12.25		140.	39.	19.	19.
		(INCHES)	1.551	1.748	1.748	1.748
		(AC-FT)	69.	78.	78.	78.

CUMULATIVE AREA = .84 SQ MI

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

DIVERSION HYDROGRAPH D81B
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 467.	12.00		56.	18.	8.	8.
		(INCHES)	.620	.781	.781	.781
		(AC-FT)	28.	35.	35.	35.

CUMULATIVE AREA = .84 SQ MI

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

HYDROGRAPH AT STATION R81B
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 1083.	12.25		131.	37.	18.	18.
		(INCHES)	1.445	1.634	1.634	1.634
		(AC-FT)	65.	73.	73.	73.

CUMULATIVE AREA = .84 SQ MI

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

DIVERSION HYDROGRAPH D81B
TRANSPOSITION AREA 60.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 591.	12.00		56.	18.	8.	8.
		(INCHES)	.624	.781	.781	.781
		(AC-FT)	28.	35.	35.	35.

CUMULATIVE AREA = .84 SQ MI

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

HYDROGRAPH AT STATION R81B
TRANSPOSITION AREA 60.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.92-HR
+		(CFS)				
+ 1029.	12.25		121.	34.	17.	17.
		(INCHES)	1.342	1.520	1.520	1.520

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                    (AC-FT)        60.         68.         68.         68.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    DIVERSION HYDROGRAPH      D81B
                  TRANSPOSITION AREA      90.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+     579.      12.00                57.         18.          8.          8.
                        (INCHES)     .627        .781        .781        .781
                         (AC-FT)      28.         35.         35.         35.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    HYDROGRAPH AT STATION      R81B
                  TRANSPOSITION AREA      90.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+    1009.      12.25               118.         33.         16.         16.
                        (INCHES)    1.305       1.479       1.479       1.479
                         (AC-FT)      58.         66.         66.         66.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    DIVERSION HYDROGRAPH      D81B
                  TRANSPOSITION AREA     120.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+     566.      12.00                57.         18.          8.          8.
                        (INCHES)     .629        .781        .781        .791
                         (AC-FT)      28.         35.         35.         35.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    HYDROGRAPH AT STATION      R81B
                  TRANSPOSITION AREA     120.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+     990.      12.25               114.         32.         16.         16.
                        (INCHES)    1.267       1.438       1.438       1.438
                         (AC-FT)      57.         64.         64.         64.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    DIVERSION HYDROGRAPH      D81B
                  TRANSPOSITION AREA     150.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+     559.      12.00                57.         18.          8.          8.
                        (INCHES)     .631        .781        .781        .781
                         (AC-FT)      28.         35.         35.         35.

                    CUMULATIVE AREA =      .84 SQ MI

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

                    HYDROGRAPH AT STATION      R81B
                  TRANSPOSITION AREA     150.0 SQ MI

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                          (CFS)
+     978.      12.25               112.         32.         15.         15.
                        (INCHES)    1.244       1.414       1.414       1.414
                         (AC-FT)      56.         63.         63.         63.

                    CUMULATIVE AREA =      .84 SQ MI

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                    INTERPOLATED DIVERSION HYDROGRAPH AT     D81B

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                                 (CFS)
+     444.     11.92                   55.         18.          8.           8.
                             (INCHES)     .606        .781        .781         .781
                              (AC-FT)      27.         35.         35.          35.

                            CUMULATIVE AREA =     .84 SQ MI

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


                            INTERPOLATED HYDROGRAPH AT     R81B

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.92-HR
+   (CFS)       (HR)
                                 (CFS)
+    1215.     12.25                  153.         43.         21.          21.
                             (INCHES)    1.698       1.911       1.911        1.911
                              (AC-FT)      76.         86.         86.          86.

                            CUMULATIVE AREA =     .84 SQ MI


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             *            *
2921 KK      *    80B81B  *
             *            *
             **************

2923 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO267.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).
***** WARNING *****  POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH   RO283.
      ADJUST NSTPS AND/OR COMPUTATION INTERVAL TO MEET CRITERIA IN USER MANUAL).


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             *            *
3312 KK      *    91TEMF  *
             *            *
             **************

3314 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
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ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	600	LAST ORDINATE PUNCHED OR SAVED
TIMINT	.083	TIME INTERVAL IN HOURS

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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	SOSS	1649.	12.67	579.	204.	107.	12.50		
+	ROUTED TO	RSOSS	1626.	12.75	577.	204.	107.	12.50		
+	HYDROGRAPH AT	S9A	302.	12.33	41.	13.	6.	.26		
+	DIVERSION TO	D59A	4.	8.42	3.	1.	0.	.26		
+	HYDROGRAPH AT	R59A	302.	12.33	41.	12.	6.	.26		
+	2 COMBINED AT	C59A	1744.	12.67	611.	215.	112.	12.76		
+	ROUTED TO	59A59B	1708.	12.83	606.	215.	112.	12.76		
+	HYDROGRAPH AT	59B	637.	12.83	132.	39.	19.	.94		
+	DIVERSION TO	D59B	637.	12.83	119.	32.	15.	.94		
+	HYDROGRAPH AT	R59B	137.	13.67	24.	8.	4.	.94		
+	2 COMBINED AT	C59B	1708.	12.83	615.	219.	114.	13.70		
+	ROUTED TO	59BT60	1616.	13.33	613.	219.	113.	13.70		
+	HYDROGRAPH AT	60	1069.	13.50	359.	112.	54.	2.30		
+	DIVERSION TO	D60	1069.	13.50	313.	86.	41.	2.30		
+	HYDROGRAPH AT	R60	355.	14.67	86.	27.	13.	2.30		
+	2 COMBINED AT	EMFGUA	1616.	13.33	658.	238.	123.	16.00		
+	ROUTED TO	GUATEL	1524.	13.58	629.	236.	121.	16.00		
+	HYDROGRAPH AT	64	924.	12.42	156.	51.	25.	.81		
+	DIVERSION TO	D64	924.	12.42	121.	34.	16.	.81		
+	HYDROGRAPH AT	R64	477.	12.75	57.	18.	8.	.81		
+	2 COMBINED AT	EMFELL	1595.	13.58	668.	249.	127.	16.81		
+	ROUTED TO	ELTWAR	1491.	14.00	646.	249.	127.	16.81		
+	HYDROGRAPH AT	62A	806.	12.00	89.	31.	15.	.38		
+	DIVERSION TO	D62A	806.	12.00	57.	17.	8.	.38		
+	HYDROGRAPH AT	R62A	554.	12.08	46.	14.	7.	.38		
+	ROUTED TO	62ATB	448.	12.17	46.	14.	7.	.38		
+	HYDROGRAPH AT	62B	544.	12.00	54.	19.	9.	.23		
+	DIVERSION TO	D62B	454.	11.92	33.	10.	5.	.23		
+	HYDROGRAPH AT	R62B	470.	12.08	30.	9.	4.	.23		
+	2 COMBINED AT	C62B	659.	12.17	76.	23.	11.	.61		
+	ROUTED TO	62BTD	394.	12.58	72.	23.	11.	.61		
+	HYDROGRAPH AT	62D	609.	12.17	86.	28.	13.	.46		

+	DIVERSION TO	D62D	609.	12.17	63.	18.	8.	.46
+	HYDROGRAPH AT	R62D	275.	12.50	34.	10.	5.	.46
+	2 COMBINED AT	CP62D	646.	12.50	106.	33.	16.	1.07
+	ROUTED TO	62DTF	445.	13.25	105.	33.	16.	1.07
+	HYDROGRAPH AT	62F	421.	12.17	49.	16.	8.	.26
+	DIVERSION TO	D62F	421.	12.17	32.	9.	4.	.26
+	HYDROGRAPH AT	R62F	365.	12.25	24.	7.	3.	.26
+	2 COMBINED AT	CP62F	461.	13.25	126.	40.	19.	1.33
+	ROUTED TO	62T63	415.	13.58	123.	40.	19.	1.33
+	HYDROGRAPH AT	63	1190.	12.33	177.	58.	28.	.91
+	DIVERSION TO	D63	1190.	12.33	128.	36.	17.	.91
+	HYDROGRAPH AT	R63	787.	12.50	74.	22.	11.	.91
+	2 COMBINED AT	CP63	720.	12.50	190.	61.	29.	2.24
+	ROUTED TO	63T71	354.	15.33	172.	61.	29.	2.24
+	HYDROGRAPH AT	68B1	295.	12.08	35.	12.	6.	.15
+	HYDROGRAPH AT	68B2	129.	12.08	14.	5.	2.	.06
+	HYDROGRAPH AT	68B3	85.	12.00	9.	3.	1.	.04
+	3 COMBINED AT	CP68	496.	12.08	58.	20.	10.	.24
+	DIVERSION TO	D68B	496.	12.08	42.	12.	6.	.24
+	HYDROGRAPH AT	R68	237.	12.25	25.	8.	4.	.24
+	ROUTED TO	68BT69	118.	12.58	24.	8.	4.	.24
+	HYDROGRAPH AT	69	208.	12.00	22.	7.	4.	.09
+	DIVERSION TO	D69	208.	12.00	16.	5.	2.	.09
+	HYDROGRAPH AT	R69	106.	12.17	9.	3.	1.	.09
+	2 COMBINED AT	C69	136.	12.58	33.	11.	5.	.33
+	ROUTED TO	69T71	76.	14.00	30.	11.	5.	.33
+	HYDROGRAPH AT	25	351.	12.17	50.	17.	8.	.21
+	DIVERSION TO	25RET	351.	12.17	39.	11.	5.	.21
+	HYDROGRAPH AT	RET25	138.	12.42	19.	6.	3.	.21
+	ROUTED TO	25T71	53.	13.92	19.	6.	3.	.21
+	HYDROGRAPH AT	71	1963.	12.17	258.	89.	43.	.86
+	DIVERSION TO	D71	1647.	12.08	143.	42.	20.	.86
+	HYDROGRAPH AT	R71	1963.	12.17	158.	46.	22.	.86
+	4 COMBINED AT	C71	1889.	12.17	332.	120.	58.	3.64
	ROUTED TO							

+		71T72	869.	12.83	328.	120.	58.	3.64
+	HYDROGRAPH AT	72	1422.	12.17	202.	69.	33.	.84
+	DIVERSION TO	D72	1422.	12.17	146.	42.	20.	.84
+	HYDROGRAPH AT	R72	755.	12.42	89.	28.	13.	.84
+	2 COMBINED AT	CPKNOX	1514.	12.42	407.	144.	69.	4.48
+	2 COMBINED AT	EMFWAR	1690.	14.00	911.	369.	184.	21.29
+	ROUTED TO	WARTKN	1657.	14.17	898.	368.	184.	21.29
+	HYDROGRAPH AT	26	98.	12.00	11.	4.	2.	.05
+	DIVERSION TO	26RET	98.	12.00	9.	2.	1.	.05
+	HYDROGRAPH AT	RET26	31.	12.25	4.	1.	1.	.05
+	ROUTED TO	26T70B	13.	12.75	4.	1.	1.	.05
+	HYDROGRAPH AT	70B	647.	12.17	92.	31.	15.	.34
+	DIVERSION TO	D70B	647.	12.17	58.	17.	8.	.34
+	HYDROGRAPH AT	R70B	512.	12.33	48.	14.	7.	.34
+	2 COMBINED AT	CP70B	512.	12.33	52.	15.	7.	.38
+	ROUTED TO	70BT76	160.	13.75	51.	15.	7.	.38
+	HYDROGRAPH AT	76B	1157.	12.17	158.	53.	26.	.64
+	DIVERSION TO	D76B	1157.	12.17	117.	33.	16.	.64
+	HYDROGRAPH AT	R76B	539.	12.42	66.	20.	10.	.64
+	2 COMBINED AT	KNOX	539.	12.42	116.	36.	17.	1.02
+	2 COMBINED AT	EMFKNX	1800.	14.17	975.	395.	197.	22.31
+	ROUTED TO	KNXTRY	1744.	14.33	962.	395.	196.	22.31
+	HYDROGRAPH AT	65A	2593.	12.50	507.	168.	81.	2.54
+	DIVERSION TO	D65A	2593.	12.50	306.	88.	42.	2.54
+	HYDROGRAPH AT	R65A	2261.	12.67	275.	80.	39.	2.54
+	HYDROGRAPH AT	CAP1A	629.	12.83	106.	31.	15.	6.40
+	ROUTED TO	RCAP1A	517.	13.08	104.	31.	15.	6.40
+	ROUTED TO	RRCP1A	511.	13.17	103.	31.	15.	6.40
+	HYDROGRAPH AT	CAP1B	511.	13.17	103.	31.	15.	6.40
+	ROUTED TO	RCAP1B	474.	13.25	102.	31.	15.	6.40
+	3 COMBINED AT	C65A1	2252.	12.75	440.	132.	63.	15.34
+	ROUTED TO	65ATB1	2052.	12.92	437.	132.	63.	15.34
+	DIVERSION TO	DB65A	1618.	12.92	196.	49.	24.	15.34
+	HYDROGRAPH AT	DIDB65	434.	12.75	241.	82.	40.	15.34
+	ROUTED TO	65B1T2	467.	12.75	240.	82.	40.	15.34

+	HYDROGRAPH AT	DIB65P	1618.	12.92	196.	49.	24.	15.34
+	ROUTED TO	DB65A	74.	14.00	70.	46.	23.	15.34
+	2 COMBINED AT	C65A2	508.	14.00	307.	128.	62.	15.34
+	ROUTED TO	65AT-1	508.	14.00	307.	128.	62.	15.34
+	ROUTED TO	65AT-2	499.	14.42	294.	127.	62.	15.34
+	HYDROGRAPH AT	65AW	555.	12.25	70.	21.	10.	.43
+	DIVERSION TO	D65AW	555.	12.25	58.	16.	8.	.43
+	HYDROGRAPH AT	R65AW	187.	12.58	19.	6.	3.	.43
+	ROUTED TO	65AT65	58.	13.67	17.	6.	3.	.43
+	HYDROGRAPH AT	65B	1552.	12.42	271.	88.	42.	1.37
+	DIVERSION TO	D65B	1552.	12.42	218.	60.	29.	1.37
+	HYDROGRAPH AT	R65B	669.	12.83	99.	28.	13.	1.37
+	2 COMBINED AT	CP65B	607.	12.83	102.	33.	16.	1.80
+	DIVERSION TO	DIRS65	577.	12.83	73.	18.	9.	1.80
+	HYDROGRAPH AT	DI65B	30.	12.83	30.	14.	7.	1.80
+	2 COMBINED AT	CP65A	529.	14.42	323.	140.	68.	17.14
+	ROUTED TO	65AT-3	529.	14.42	323.	140.	68.	17.14
+	HYDROGRAPH AT	DR65B	577.	12.83	73.	18.	9.	1.80
+	ROUTED TO	RS65A	11.	17.92	11.	10.	7.	1.80
+	2 COMBINED AT	CP65	537.	14.42	332.	148.	73.	17.14
+	ROUTED TO	65T66	537.	14.42	332.	148.	73.	17.14
+	ROUTED TO	65T66A	537.	14.42	332.	148.	73.	17.14
+	ROUTED TO	65T66B	537.	14.42	332.	148.	73.	17.14
+	HYDROGRAPH AT	ADOT-E	246.	14.42	175.	64.	31.	.01
+	ROUTED TO	AET67A	245.	14.67	174.	64.	31.	.01
+	HYDROGRAPH AT	67A	387.	12.25	52.	17.	8.	.30
+	DIVERSION TO	D67A	387.	12.25	38.	11.	5.	.30
+	HYDROGRAPH AT	R67A	229.	12.50	20.	6.	3.	.30
+	2 COMBINED AT	C67A	255.	14.67	185.	70.	34.	.31
+	ROUTED TO	67ATC	253.	15.08	183.	70.	34.	.31
+	HYDROGRAPH AT	SUP2	422.	13.00	381.	215.	104.	.01
+	ROUTED TO	RSUP2	395.	16.25	379.	215.	104.	.01
+	HYDROGRAPH AT	67B	714.	12.25	105.	35.	17.	.53
+	DIVERSION TO	D67B	714.	12.25	73.	21.	10.	.53
+	HYDROGRAPH AT	R67B	457.	12.50	46.	14.	7.	.53

+	2 COMBINED AT	C67B	494.	12.50	396.	229.	111.	.54
+	ROUTED TO	67BTC	412.	16.33	396.	229.	111.	.54
+	HYDROGRAPH AT	67C	1019.	12.42	146.	44.	21.	.93
+	DIVERSION TO	D67C	1019.	12.42	126.	34.	16.	.93
+	HYDROGRAPH AT	R67C	295.	12.83	34.	11.	5.	.93
+	3 COMBINED AT	C67C	669.	15.25	595.	307.	149.	1.78
+	ROUTED TO	67CT67	669.	15.33	595.	307.	149.	1.78
+	HYDROGRAPH AT	67D	183.	12.17	20.	6.	3.	.13
+	DIVERSION TO	D67D	183.	12.17	17.	5.	2.	.13
+	HYDROGRAPH AT	R67D	52.	12.50	5.	1.	1.	.13
+	2 COMBINED AT	C67D	671.	15.33	597.	309.	150.	1.91
+	ROUTED TO	67DT66	671.	15.42	596.	309.	150.	1.91
+	HYDROGRAPH AT	66A	446.	12.17	46.	14.	7.	.26
+	DIVERSION TO	D66A	446.	12.17	39.	11.	5.	.26
+	HYDROGRAPH AT	R66A	105.	12.42	11.	3.	2.	.26
+	ROUTED TO	66ATB	39.	13.17	10.	3.	2.	.26
+	HYDROGRAPH AT	66B	605.	12.58	104.	32.	15.	.67
+	DIVERSION TO	D66B	605.	12.58	90.	24.	12.	.67
+	HYDROGRAPH AT	R66B	168.	13.08	24.	7.	4.	.67
+	2 COMBINED AT	CP66B	198.	13.08	34.	11.	5.	.93
+	ROUTED TO	66BTC	150.	13.42	33.	11.	5.	.93
+	HYDROGRAPH AT	66C	707.	12.25	94.	30.	14.	.50
+	DIVERSION TO	D66C	707.	12.25	77.	21.	10.	.50
+	HYDROGRAPH AT	R66C	257.	12.58	29.	9.	4.	.50
+	2 COMBINED AT	CP66C1	232.	12.58	58.	19.	9.	1.43
+	2 COMBINED AT	CP66C2	712.	15.08	633.	326.	158.	3.34
+	DIVERSION TO	DB66	302.	15.08	230.	70.	34.	3.34
+	HYDROGRAPH AT	DI66	410.	15.08	403.	255.	124.	3.34
+	ROUTED TO	66C1T2	410.	15.08	403.	255.	124.	3.34
+	2 COMBINED AT	CP66C	942.	14.42	730.	393.	193.	20.48
+	ROUTED TO	66CTD	942.	14.42	730.	393.	193.	20.48
+	HYDROGRAPH AT	DR66	302.	15.08	230.	70.	34.	3.34
+	ROUTED TO	RS66D1	194.	17.92	145.	56.	31.	3.34
+	DIVERSION TO	D-WB	171.	17.92	124.	37.	18.	3.34
	HYDROGRAPH AT							

+	B-WA	22.	17.92	22.	19.	13.	3.34
+ 2 COMBINED AT	C-WA	956.	14.50	747.	408.	205.	23.82
+ ROUTED TO	RC-WA	956.	14.50	747.	408.	205.	23.82
+ HYDROGRAPH AT	DR-WA	171.	17.92	124.	37.	18.	3.34
+ ROUTED TO	RS66D2	29.	23.08	27.	24.	15.	3.34
+ 2 COMBINED AT	CP66D	956.	14.50	754.	427.	219.	23.82
+ ROUTED TO	66T66D	956.	14.50	754.	427.	219.	23.82
+ ROUTED TO	66-66D	955.	14.50	754.	427.	219.	23.82
+ HYDROGRAPH AT	66D	651.	12.08	75.	26.	12.	.31
+ DIVERSION TO	D66D	651.	12.08	55.	16.	8.	.31
+ HYDROGRAPH AT	R66D	350.	12.25	32.	10.	5.	.31
+ HYDROGRAPH AT	61A	794.	12.17	95.	31.	15.	.52
+ DIVERSION TO	D61A	794.	12.17	76.	21.	10.	.52
+ HYDROGRAPH AT	R61A	333.	12.42	33.	10.	5.	.52
+ ROUTED TO	61ATB	122.	13.25	31.	10.	5.	.52
+ HYDROGRAPH AT	61B	1175.	12.42	176.	55.	26.	1.09
+ DIVERSION TO	D61B	1175.	12.42	151.	41.	20.	1.09
+ HYDROGRAPH AT	R61B	339.	12.83	45.	14.	7.	1.09
+ 2 COMBINED AT	CP61B	312.	12.92	73.	23.	11.	1.61
+ ROUTED TO	61T66D	238.	13.67	71.	23.	11.	1.61
+ HYDROGRAPH AT	67E	771.	12.25	111.	36.	17.	.58
+ DIVERSION TO	D67E	771.	12.25	91.	25.	12.	.58
+ HYDROGRAPH AT	R67E	268.	12.67	34.	11.	5.	.58
+ 2 COMBINED AT	C67E	267.	13.67	98.	33.	16.	2.19
+ 3 COMBINED AT	C66D	1078.	14.42	821.	455.	232.	26.32
+ ROUTED TO	66T23A	1078.	14.42	821.	455.	232.	26.32
+ ROUTED TO	66T23B	1077.	14.50	821.	454.	232.	26.32
+ ROUTED TO	CULVT	1076.	14.50	821.	454.	232.	26.32
+ ROUTED TO	66T23C	1076.	14.50	820.	454.	232.	26.32
+ HYDROGRAPH AT	04	513.	12.33	75.	25.	12.	.31
+ DIVERSION TO	04RET	513.	12.33	57.	16.	8.	.31
+ HYDROGRAPH AT	RET04	234.	12.58	29.	9.	4.	.31
+ 2 COMBINED AT	CP23	1093.	14.50	832.	461.	235.	26.63
+ ROUTED TO	66T23D	1088.	14.58	831.	460.	235.	26.63
+ HYDROGRAPH AT	62C	835.	12.17	98.	32.	15.	.55

+	DIVERSION TO	D62C	754.	12.08	55.	16.	8.	.55
+	HYDROGRAPH AT	R62C	796.	12.25	56.	16.	8.	.55
+	ROUTED TO	62CTE	501.	12.50	55.	16.	8.	.55
+	HYDROGRAPH AT	62E	229.	12.17	27.	9.	4.	.15
+	DIVERSION TO	D62E	229.	12.17	22.	6.	3.	.15
+	HYDROGRAPH AT	R62E	75.	12.50	9.	3.	1.	.15
+	2 COMBINED AT	CP62E	576.	12.50	64.	19.	9.	.70
+	ROUTED TO	62T68A	348.	12.92	61.	19.	9.	.70
+	HYDROGRAPH AT	68A1	477.	12.08	35.	9.	4.	.30
+	HYDROGRAPH AT	68A2	107.	12.00	11.	4.	2.	.05
+	2 COMBINED AT	CP68A1	580.	12.08	46.	13.	6.	.34
+	DIVERSION TO	D68A	580.	12.08	46.	13.	6.	.34
+	HYDROGRAPH AT	R68A	0.	.00	0.	0.	0.	.34
+	2 COMBINED AT	CP68A2	348.	12.92	61.	19.	9.	1.05
+	ROUTED TO	68T70A	285.	13.33	60.	19.	9.	1.05
+	HYDROGRAPH AT	70A1	102.	12.08	13.	4.	2.	.05
+	HYDROGRAPH AT	23	390.	12.17	52.	18.	8.	.22
+	DIVERSION TO	23RET	390.	12.17	41.	11.	6.	.22
+	HYDROGRAPH AT	RET23	169.	12.42	20.	6.	3.	.22
+	4 COMBINED AT	C70A1	1157.	14.58	873.	480.	245.	27.94
+	ROUTED TO	70A1T2	1150.	14.75	872.	480.	245.	27.94
+	HYDROGRAPH AT	24	468.	12.17	63.	21.	10.	.25
+	DIVERSION TO	24RET	468.	12.17	47.	13.	6.	.25
+	HYDROGRAPH AT	RET24	223.	12.33	26.	8.	4.	.25
+	HYDROGRAPH AT	70A2	79.	12.08	9.	3.	1.	.04
+	3 COMBINED AT	CP70A2	1164.	14.75	883.	487.	249.	28.23
+	ROUTED TO	70T76A	1155.	15.08	881.	487.	248.	28.23
+	HYDROGRAPH AT	76A	2137.	12.58	427.	136.	66.	1.91
+	DIVERSION TO	D76A	2137.	12.58	338.	93.	45.	1.91
+	HYDROGRAPH AT	R76A	987.	13.00	141.	43.	21.	1.91
+	2 COMBINED AT	C76A	1227.	15.00	934.	515.	261.	30.14
+	ROUTED TO	76ATPR	1216.	15.42	932.	515.	260.	30.14
+	HYDROGRAPH AT	73A	378.	13.33	96.	24.	12.	.95
+	ROUTED TO	73ATE	355.	13.50	96.	24.	12.	.95
+	HYDROGRAPH AT	73B	748.	12.08	68.	20.	10.	.43

+	DIVERSION TO	73BRET	748.	12.08	68.	20.	10.	.43
+	HYDROGRAPH AT	RET73B	4.	20.75	2.	1.	0.	.43
+	2 COMBINED AT	CP73B	355.	13.50	96.	25.	12.	1.38
+	ROUTED TO	73BTC	332.	13.83	95.	24.	12.	1.38
+	HYDROGRAPH AT	73C	822.	12.25	94.	28.	14.	.58
+	DIVERSION TO	73CRET	822.	12.25	70.	19.	9.	.58
+	HYDROGRAPH AT	RET73C	501.	12.42	33.	10.	5.	.58
+	2 COMBINED AT	CP73C	441.	12.42	124.	33.	16.	1.96
+	ROUTED TO	73T74C	347.	14.08	122.	33.	16.	1.96
+	HYDROGRAPH AT	74A	306.	13.33	77.	19.	9.	.75
+	ROUTED TO	74ATB	300.	13.42	77.	19.	9.	.75
+	HYDROGRAPH AT	74B	455.	12.25	55.	16.	8.	.33
+	DIVERSION TO	74BRET	455.	12.25	33.	9.	4.	.33
+	HYDROGRAPH AT	RET74B	382.	12.33	27.	8.	4.	.33
+	2 COMBINED AT	CP74B	445.	12.33	103.	27.	13.	1.08
+	ROUTED TO	74BTC	410.	12.42	103.	27.	13.	1.08
+	HYDROGRAPH AT	74C	516.	12.25	62.	18.	9.	.34
+	DIVERSION TO	74CRET	516.	12.25	42.	11.	5.	.34
+	HYDROGRAPH AT	RET74C	360.	12.42	25.	7.	3.	.34
+	3 COMBINED AT	CP74C	713.	12.42	239.	64.	31.	3.39
+	ROUTED TO	74CT75	523.	14.17	238.	64.	31.	3.39
+	HYDROGRAPH AT	10	216.	12.42	30.	9.	4.	.17
+	DIVERSION TO	10RET	216.	12.42	30.	9.	4.	.17
+	HYDROGRAPH AT	RET10	0.	.00	0.	0.	0.	.17
+	ROUTED TO	10T75	0.	.00	0.	0.	0.	.17
+	HYDROGRAPH AT	02B	443.	12.17	48.	16.	8.	.24
+	DIVERSION TO	02BRET	443.	12.17	46.	13.	6.	.24
+	HYDROGRAPH AT	RET02B	19.	13.42	8.	3.	1.	.24
+	ROUTED TO	2BT1	16.	14.42	8.	3.	1.	.24
+	HYDROGRAPH AT	01A	292.	12.17	29.	10.	5.	.14
+	DIVERSION TO	01ARET	292.	12.17	29.	10.	5.	.14
+	HYDROGRAPH AT	RET01A	0.	.00	0.	0.	0.	.14
+	2 COMBINED AT	CP1	16.	14.42	8.	3.	1.	.38
+	ROUTED TO	1T3	15.	14.58	8.	3.	1.	.38
	HYDROGRAPH AT							

+		01B	194.	12.25	21.	6.	3.	.11
+	DIVERSION TO	01BRET	194.	12.25	21.	6.	3.	.11
+	HYDROGRAPH AT	RET01B	0.	.00	0.	0.	0.	.11
+	HYDROGRAPH AT	03	397.	12.08	41.	14.	7.	.16
+	DIVERSION TO	03RET	397.	12.08	41.	14.	7.	.16
+	HYDROGRAPH AT	RET03	4.	21.92	2.	0.	0.	.16
+	3 COMBINED AT	CP3	15.	14.58	8.	3.	2.	.65
+	ROUTED TO	3T6	15.	14.83	8.	3.	2.	.65
+	HYDROGRAPH AT	02A	221.	12.17	22.	7.	3.	.11
+	DIVERSION TO	02ARET	221.	12.17	19.	5.	2.	.11
+	HYDROGRAPH AT	RET02A	59.	12.42	6.	2.	1.	.11
+	HYDROGRAPH AT	02C	409.	12.25	45.	15.	7.	.24
+	DIVERSION TO	02CRET	409.	12.25	43.	12.	6.	.24
+	HYDROGRAPH AT	RET02C	18.	13.33	7.	3.	1.	.24
+	ROUTED TO	2CT2	16.	13.58	7.	3.	1.	.24
+	2 COMBINED AT	CP2	59.	12.42	13.	5.	2.	.35
+	ROUTED TO	2AT6	26.	12.75	13.	5.	2.	.35
+	HYDROGRAPH AT	06	297.	12.17	30.	9.	4.	.16
+	DIVERSION TO	06RET	297.	12.17	27.	7.	3.	.16
+	HYDROGRAPH AT	RET06	34.	12.67	6.	2.	1.	.16
+	HYDROGRAPH AT	6A	475.	12.25	62.	19.	9.	.26
+	DIVERSION TO	06ARET	475.	12.25	62.	18.	9.	.26
+	HYDROGRAPH AT	RET06A	6.	17.92	4.	1.	1.	.26
+	HYDROGRAPH AT	7A	221.	12.25	25.	7.	4.	.12
+	5 COMBINED AT	CP6	219.	12.25	44.	17.	8.	1.53
+	DIVERSION TO	07ARET	219.	12.25	32.	9.	4.	1.53
+	HYDROGRAPH AT	RET07A	31.	15.25	23.	9.	4.	1.53
+	ROUTED TO	7AT12	30.	15.58	22.	9.	4.	1.53
+	HYDROGRAPH AT	07	237.	12.17	23.	7.	3.	.12
+	DIVERSION TO	07RET	237.	12.17	23.	7.	3.	.12
+	HYDROGRAPH AT	RET07	0.	.00	0.	0.	0.	.12
+	ROUTED TO	7T12	0.	.00	0.	0.	0.	.12
+	HYDROGRAPH AT	05	452.	12.25	58.	17.	8.	.27
+	DIVERSION TO	05RET	452.	12.25	45.	12.	6.	.27
+	HYDROGRAPH AT	RET05	179.	12.58	19.	5.	3.	.27

+	HYDROGRAPH AT	12	291.	12.17	32.	11.	5.	.16
+	DIVERSION TO	12RET	291.	12.17	26.	7.	3.	.16
+	HYDROGRAPH AT	RET12	117.	12.42	11.	3.	2.	.16
+	4 COMBINED AT	CP12	222.	12.58	42.	17.	8.	2.07
+	ROUTED TO	12T13	142.	12.83	41.	17.	8.	2.07
+	HYDROGRAPH AT	08	753.	12.58	125.	38.	18.	.72
+	DIVERSION TO	08RET	753.	12.58	104.	28.	13.	.72
+	HYDROGRAPH AT	RET08	254.	13.00	33.	10.	5.	.72
+	ROUTED TO	8T9	242.	13.17	33.	10.	5.	.72
+	HYDROGRAPH AT	09	191.	12.25	21.	7.	3.	.13
+	DIVERSION TO	09RET	191.	12.25	20.	6.	3.	.13
+	HYDROGRAPH AT	RET09	8.	13.33	3.	1.	1.	.13
+	2 COMBINED AT	CP9	242.	13.17	36.	11.	5.	.84
+	ROUTED TO	9T13	164.	13.50	35.	11.	5.	.84
+	HYDROGRAPH AT	13	266.	12.33	36.	12.	6.	.20
+	DIVERSION TO	13RET	266.	12.33	29.	8.	4.	.20
+	HYDROGRAPH AT	RET13	108.	12.67	12.	4.	2.	.20
+	HYDROGRAPH AT	11	514.	12.25	63.	21.	10.	.31
+	DIVERSION TO	11RET	514.	12.25	60.	17.	8.	.31
+	HYDROGRAPH AT	RET11	29.	13.33	12.	4.	2.	.31
+	ROUTED TO	11T13	26.	13.50	12.	4.	2.	.31
+	4 COMBINED AT	CP13	193.	13.50	88.	33.	16.	3.42
+	ROUTED TO	13T75	191.	13.67	87.	33.	16.	3.42
+	HYDROGRAPH AT	14	220.	12.08	22.	8.	4.	.09
+	DIVERSION TO	14RET	220.	12.08	17.	5.	2.	.09
+	HYDROGRAPH AT	RET14	84.	12.25	8.	3.	1.	.09
+	4 COMBINED AT	CP75	626.	14.00	301.	91.	44.	7.07
+	ROUTED TO	75TPC	625.	14.08	301.	91.	44.	7.07
+	HYDROGRAPH AT	77A	556.	13.75	174.	43.	21.	1.74
+	ROUTED TO	77ATB	525.	13.83	173.	43.	21.	1.74
+	HYDROGRAPH AT	77B	542.	12.17	48.	14.	7.	.35
+	DIVERSION TO	77BRET	529.	12.08	31.	8.	4.	.35
+	HYDROGRAPH AT	RET77B	455.	12.25	20.	5.	3.	.35
+	2 COMBINED AT	CP77B	529.	13.83	191.	49.	23.	2.09
+	ROUTED TO	77BTC	503.	14.08	188.	49.	23.	2.09

+	HYDROGRAPH AT	77C	407.	12.25	46.	14.	7.	.28
+	DIVERSION TO	77CRET	407.	12.25	31.	8.	4.	.28
+	HYDROGRAPH AT	RET77C	280.	12.33	19.	5.	3.	.28
+	2 COMBINED AT	C77C	510.	14.08	206.	54.	26.	2.37
+	ROUTED TO	77CT78	493.	14.42	202.	54.	26.	2.37
+	HYDROGRAPH AT	78A	601.	13.75	188.	47.	23.	1.88
+	ROUTED TO	78ATB	520.	14.42	187.	47.	23.	1.88
+	HYDROGRAPH AT	78B	598.	12.25	62.	17.	8.	.40
+	2 COMBINED AT	C78B	608.	12.25	245.	64.	31.	2.28
+	ROUTED TO	78BTC	501.	14.75	245.	64.	31.	2.28
+	HYDROGRAPH AT	78C	494.	12.17	44.	11.	5.	.29
+	DIVERSION TO	78CRET	83.	11.75	4.	1.	1.	.29
+	HYDROGRAPH AT	RET78C	494.	12.17	40.	10.	5.	.29
+	2 COMBINED AT	C78C	821.	12.17	283.	73.	35.	2.56
+	2 COMBINED AT	C78C2	946.	14.58	470.	124.	60.	4.93
+	ROUTED TO	78CT79	935.	14.75	466.	124.	60.	4.93
+	HYDROGRAPH AT	20	434.	12.42	59.	18.	8.	.31
+	DIVERSION TO	20RET	434.	12.42	45.	12.	6.	.31
+	HYDROGRAPH AT	RET20	227.	12.67	19.	5.	3.	.31
+	2 COMBINED AT	CP22B	939.	14.75	480.	128.	62.	5.24
+	HYDROGRAPH AT	16	210.	12.17	19.	6.	3.	.11
+	DIVERSION TO	16RET	210.	12.17	15.	4.	2.	.11
+	HYDROGRAPH AT	RET16	61.	12.42	5.	2.	1.	.11
+	HYDROGRAPH AT	18	479.	12.25	51.	15.	7.	.32
+	DIVERSION TO	18RET	479.	12.25	47.	12.	6.	.32
+	HYDROGRAPH AT	RET18	40.	12.83	8.	3.	1.	.32
+	ROUTED TO	18T19	32.	12.92	8.	3.	1.	.32
+	2 COMBINED AT	CP19A	61.	12.42	13.	4.	2.	.43
+	HYDROGRAPH AT	19	200.	12.17	21.	6.	3.	.10
+	DIVERSION TO	19RET	200.	12.17	16.	4.	2.	.10
+	HYDROGRAPH AT	RET19	81.	12.42	7.	2.	1.	.10
+	2 COMBINED AT	CP19B	142.	12.42	20.	6.	3.	.53
+	HYDROGRAPH AT	17	152.	12.42	19.	6.	3.	.14
+	DIVERSION TO	17RET	152.	12.42	19.	6.	3.	.14
	HYDROGRAPH AT							

+		RET17	0.	.00	0.	0.	0.	.14
+	HYDROGRAPH AT	79A	645.	13.25	155.	39.	19.	1.07
+	4 COMBINED AT	CP79A1	1100.	13.25	627.	167.	80.	6.97
+	HYDROGRAPH AT	78F	1077.	14.17	403.	102.	49.	4.19
+	HYDROGRAPH AT	82A1	1123.	13.50	307.	77.	37.	3.12
+	2 COMBINED AT	C82A1	1672.	13.50	681.	172.	83.	7.31
+	ROUTED TO	DB82A1	183.	16.17	157.	135.	108.	7.31
+	ROUTED TO	PS-9	183.	16.17	157.	135.	108.	7.31
+	HYDROGRAPH AT	CAP2	64.	2.00	64.	64.	62.	.01
+	ROUTED TO	RCAP2	64.	4.00	64.	64.	61.	.01
+	HYDROGRAPH AT	82A2	879.	14.75	392.	104.	50.	4.13
+	2 COMBINED AT	CP82A2	943.	14.75	456.	168.	111.	4.14
+	HYDROGRAPH AT	82A4	631.	13.83	210.	53.	25.	2.13
+	ROUTED TO	82A4T3	623.	14.00	210.	53.	25.	2.13
+	HYDROGRAPH AT	82A3	536.	14.17	199.	50.	24.	2.02
+	2 COMBINED AT	CP82A3	1108.	14.08	400.	101.	49.	4.15
+	2 COMBINED AT	CP82A5	1643.	14.08	819.	259.	155.	8.29
+	ROUTED TO	DB82B	357.	16.83	324.	252.	153.	8.29
+	ROUTED TO	MN-1	357.	16.92	324.	252.	153.	8.29
+	2 COMBINED AT	CP82A6	477.	17.00	460.	376.	254.	15.60
+	ROUTED TO	82TBOX	477.	17.08	460.	376.	254.	15.60
+	ROUTED TO	BOXCLV	477.	17.08	460.	376.	254.	15.60
+	ROUTED TO	BOXT78	477.	17.33	460.	375.	253.	15.60
+	HYDROGRAPH AT	78D	1545.	12.17	194.	62.	30.	.89
+	DIVERSION TO	D78D	1545.	12.17	154.	42.	20.	.89
+	HYDROGRAPH AT	R78D	550.	12.42	64.	20.	9.	.89
+	HYDROGRAPH AT	82B	1558.	12.17	181.	59.	29.	.92
+	DIVERSION TO	D82	14.	1.08	2.	1.	0.	.92
+	HYDROGRAPH AT	R82	1558.	12.17	181.	59.	28.	.92
+	DIVERSION TO	TRW	1558.	12.17	181.	56.	27.	.92
+	HYDROGRAPH AT	DTTRW	19.	19.33	12.	3.	1.	.92
+	3 COMBINED AT	C78D	1111.	12.58	521.	430.	287.	17.41
+	ROUTED TO	78DTE	495.	17.75	477.	387.	258.	17.41
+	HYDROGRAPH AT	78E	838.	12.75	158.	40.	19.	1.01
+	HYDROGRAPH AT	83	1378.	12.25	198.	65.	31.	1.01

+	DIVERSION TO	D83	1378.	12.25	150.	42.	20.	1.01
+	HYDROGRAPH AT	R83	731.	12.50	76.	23.	11.	1.01
+	3 COMBINED AT	C78E	1184.	12.75	571.	432.	282.	19.43
+	ROUTED TO	78ET84	1055.	13.17	568.	431.	282.	19.43
+	HYDROGRAPH AT	84	1309.	12.25	193.	63.	30.	.99
+	DIVERSION TO	D84	1309.	12.25	154.	43.	21.	.99
+	HYDROGRAPH AT	R84	599.	12.58	66.	21.	10.	.99
+	2 COMBINED AT	C84	1174.	13.08	610.	445.	288.	20.42
+	ROUTED TO	84T79B	1142.	13.17	609.	445.	288.	20.42
+	HYDROGRAPH AT	79B	674.	13.08	161.	40.	19.	1.00
+	2 COMBINED AT	C79B1	1721.	13.17	723.	477.	304.	21.42
+	ROUTED TO	79BTB2	1635.	13.33	721.	476.	304.	21.42
+	2 COMBINED AT	C79B2	2516.	13.33	1243.	616.	371.	28.39
+	ROUTED TO	79TPC2	2496.	13.42	1241.	615.	370.	28.39
+	2 COMBINED AT	CPPWR	2742.	13.42	1434.	673.	397.	35.46
+	ROUTED TO	PWRT80	2719.	13.50	1431.	672.	397.	35.46
+	HYDROGRAPH AT	80A	2421.	12.83	595.	189.	91.	2.64
+	DIVERSION TO	D80A	73.	8.83	53.	17.	8.	2.64
+	HYDROGRAPH AT	R80A	2421.	12.83	595.	172.	83.	2.64
+	2 COMBINED AT	CP80A	3775.	12.92	1887.	807.	467.	38.10
+	ROUTED TO	PWRSAN	3729.	13.00	1885.	807.	466.	38.10
+	2 COMBINED AT	CPSAN	3509.	13.00	2390.	1237.	682.	68.24
+	ROUTED TO	PWREMF	3461.	13.25	2384.	1237.	681.	68.24
+	2 COMBINED AT	EMFPOW	4235.	14.33	3121.	1561.	842.	90.55
+	ROUTED TO	POWTWI	4206.	14.50	3112.	1561.	841.	90.55
+	HYDROGRAPH AT	80B	1198.	12.50	223.	71.	34.	1.12
+	DIVERSION TO	D80B	15.	4.00	8.	2.	1.	1.12
+	HYDROGRAPH AT	R80B	1198.	12.50	223.	69.	33.	1.12
+	HYDROGRAPH AT	81B	1215.	12.25	180.	61.	29.	.84
+	DIVERSION TO	D81B	444.	11.92	55.	18.	8.	.84
+	HYDROGRAPH AT	R81B	1215.	12.25	153.	43.	21.	.84
+	2 COMBINED AT	80B81B	2107.	12.33	365.	111.	53.	1.96
+	2 COMBINED AT	EMFWIL	4271.	14.50	3210.	1639.	883.	92.51
+	ROUTED TO	WILTSP	4233.	14.75	3208.	1638.	881.	92.51
+	HYDROGRAPH AT	SUB258	1024.	13.50	462.	136.	66.	3.65

+	ROUTED TO	R0259	952.	15.17	459.	136.	66.	3.65
+	HYDROGRAPH AT	SUB260	1151.	12.33	141.	42.	20.	.98
+	DIVERSION TO	RETDIV	1151.	12.33	131.	35.	17.	.98
+	HYDROGRAPH AT	R260	123.	12.92	21.	7.	3.	.98
+	2 COMBINED AT	CO262	962.	15.17	473.	141.	68.	4.63
+	ROUTED TO	R0263	913.	16.75	471.	141.	68.	4.63
+	HYDROGRAPH AT	SUB264	1066.	12.42	154.	47.	23.	1.00
+	DIVERSION TO	RETDIV	1066.	12.42	137.	37.	18.	1.00
+	HYDROGRAPH AT	R264	235.	12.92	32.	10.	5.	1.00
+	2 COMBINED AT	CO266	920.	16.75	480.	148.	71.	5.63
+	ROUTED TO	R0267	771.	20.08	471.	147.	71.	5.63
+	HYDROGRAPH AT	SUB268	736.	12.75	154.	48.	23.	.97
+	DIVERSION TO	RETDIV	736.	12.75	126.	34.	16.	.97
+	HYDROGRAPH AT	R268	306.	13.33	44.	13.	6.	.97
+	2 COMBINED AT	CO270	774.	20.08	475.	157.	76.	6.60
+	ROUTED TO	R0283	708.	22.92	467.	156.	76.	6.60
+	HYDROGRAPH AT	88A	1139.	12.00	119.	41.	20.	.50
+	DIVERSION TO	D88A	1139.	12.00	88.	25.	12.	.50
+	HYDROGRAPH AT	R88A	602.	12.17	51.	16.	8.	.50
+	ROUTED TO	88AT89	198.	12.58	48.	16.	8.	.50
+	HYDROGRAPH AT	89A	1009.	12.08	118.	41.	20.	.50
+	DIVERSION TO	D89A	1009.	12.08	88.	25.	12.	.50
+	HYDROGRAPH AT	R89A	565.	12.25	50.	16.	7.	.50
+	2 COMBINED AT	CB9A	566.	12.25	98.	31.	15.	1.00
+	ROUTED TO	89ATRI	319.	12.67	95.	31.	15.	1.00
+	2 COMBINED AT	C283	722.	22.92	480.	182.	88.	7.60
+	ROUTED TO	283T90	719.	23.17	479.	182.	88.	7.60
+	HYDROGRAPH AT	90A	939.	12.08	98.	33.	16.	.48
+	DIVERSION TO	D90A	939.	12.08	76.	21.	10.	.48
+	HYDROGRAPH AT	R90A	456.	12.25	37.	12.	6.	.48
+	2 COMBINED AT	C90A	724.	23.17	481.	190.	92.	8.08
+	ROUTED TO	90ATB	720.	23.33	480.	190.	92.	8.08
+	HYDROGRAPH AT	87A	1041.	12.08	116.	40.	19.	.49
+	DIVERSION TO	D87A	1041.	12.08	87.	25.	12.	.49
	HYDROGRAPH AT							

+		R87A	435.	12.25	49.	15.	7.	.49
+	ROUTED TO	87ATB	182.	12.75	47.	15.	7.	.49
+	HYDROGRAPH AT	87B	1022.	12.08	117.	40.	19.	.49
+	DIVERSION TO	D87B	1022.	12.08	87.	25.	12.	.49
+	HYDROGRAPH AT	R87B	512.	12.25	50.	15.	7.	.49
+	2 COMBINED AT	C87	512.	12.25	95.	31.	15.	.98
+	ROUTED TO	87T88B	248.	12.92	92.	31.	15.	.98
+	HYDROGRAPH AT	88B	1034.	12.08	118.	41.	20.	.50
+	DIVERSION TO	D88B	1034.	12.08	89.	25.	12.	.50
+	HYDROGRAPH AT	R88B	518.	12.25	49.	15.	7.	.50
+	2 COMBINED AT	C88B	505.	12.25	137.	45.	22.	1.48
+	ROUTED TO	88T89B	314.	13.33	134.	45.	22.	1.48
+	HYDROGRAPH AT	89B	1047.	12.08	117.	40.	19.	.50
+	DIVERSION TO	D89B	1047.	12.08	87.	25.	12.	.50
+	HYDROGRAPH AT	R89B	438.	12.17	50.	16.	7.	.50
+	2 COMBINED AT	C89B	433.	12.25	177.	60.	29.	1.98
+	ROUTED TO	89TB90	355.	13.92	172.	60.	29.	1.98
+	HYDROGRAPH AT	90B	668.	12.67	128.	39.	19.	.82
+	DIVERSION TO	D90B	379.	12.25	39.	12.	6.	.82
+	HYDROGRAPH AT	R90B	668.	12.67	101.	27.	13.	.82
+	3 COMBINED AT	C90	752.	23.33	509.	260.	126.	10.88
+	ROUTED TO	90T91	748.	23.75	508.	259.	126.	10.88
+	HYDROGRAPH AT	85	1328.	12.25	192.	63.	31.	1.00
+	DIVERSION TO	D85	1328.	12.25	152.	42.	20.	1.00
+	HYDROGRAPH AT	R85	591.	12.58	68.	21.	10.	1.00
+	ROUTED TO	85T86	334.	12.92	66.	21.	10.	1.00
+	HYDROGRAPH AT	86	1342.	12.25	193.	64.	31.	1.00
+	DIVERSION TO	D86	1342.	12.25	154.	43.	21.	1.00
+	HYDROGRAPH AT	R86	594.	12.58	67.	21.	10.	1.00
+	2 COMBINED AT	C86	495.	12.58	126.	40.	19.	2.00
+	ROUTED TO	86T91	454.	13.17	123.	40.	19.	2.00
+	HYDROGRAPH AT	91	667.	12.25	89.	29.	14.	.46
+	DIVERSION TO	D91	667.	12.25	69.	19.	9.	.46
+	HYDROGRAPH AT	RET91	302.	12.50	33.	10.	5.	.46
+	HYDROGRAPH AT	81A	1656.	12.67	359.	119.	57.	1.81

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          DIVERSION TO
+                         D81A        29.    2.67          10.          3.          1.        1.81

          HYDROGRAPH AT
+                         R81A      1656.   12.67         359.        117.         56.        1.81

          4 COMBINED AT
+                         CP91      1667.   12.67         718.        387.        193.       15.15

          ROUTED TO
+                       91TEMF      1591.   12.75         717.        387.        193.       15.15

          2 COMBINED AT
+                       EMFRIT      4511.   13.58        3614.       1911.       1020.      107.66
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)

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65AT-3  MANE          .66    536.60    864.90        .34      5.00    536.59    865.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3128E+03 EXCESS= .0000E+00 OUTFLOW= .3128E+03 BASIN STORAGE= .4892E-02 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =       1.00
            65AT-3  MANE          .66    536.11    865.06        .34      5.00    536.11    865.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3107E+03 EXCESS= .0000E+00 OUTFLOW= .3107E+03 BASIN STORAGE= .4697E-02 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
            65AT-3  MANE          .66    533.76    865.17        .33      5.00    533.76    865.00         .33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3011E+03 EXCESS= .0000E+00 OUTFLOW= .3011E+03 BASIN STORAGE= .3984E-02 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
            65AT-3  MANE          .66    530.80    864.82        .32      5.00    530.79    865.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2893E+03 EXCESS= .0000E+00 OUTFLOW= .2893E+03 BASIN STORAGE= .3200E-02 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
            65AT-3  MANE          .66    526.93    864.77        .30      5.00    526.90    865.00         .30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2740E+03 EXCESS= .0000E+00 OUTFLOW= .2740E+03 BASIN STORAGE= .2309E-02 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
            65AT-3  MANE          .66    522.15    865.02        .28      5.00    522.15    865.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2580E+03 EXCESS= .0000E+00 OUTFLOW= .2580E+03 BASIN STORAGE= .1674E-02 PERCENT ERROR=    .0

          FOR STORM = 7  STORM AREA (SQ MI) =      90.00
            65AT-3  MANE          .66    520.51    864.89        .28      5.00    520.49    865.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2522E+03 EXCESS= .0000E+00 OUTFLOW= .2522E+03 BASIN STORAGE= .1465E-02 PERCENT ERROR=    .0

          FOR STORM = 8  STORM AREA (SQ MI) =     120.00
            65AT-3  MANE          .66    518.36    864.97        .27      5.00    518.35    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2458E+03 EXCESS= .0000E+00 OUTFLOW= .2458E+03 BASIN STORAGE= .1312E-02 PERCENT ERROR=    .0

          FOR STORM = 9  STORM AREA (SQ MI) =     150.00
            65AT-3  MANE          .66    517.00    864.74        .26      5.00    516.98    865.00         .26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2415E+03 EXCESS= .0000E+00 OUTFLOW= .2415E+03 BASIN STORAGE= .1222E-02 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65T66   MANE          .61    547.56    864.97        .38      5.00    547.56    865.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3435E+03 EXCESS= .0000E+00 OUTFLOW= .3435E+03 BASIN STORAGE= .1930E-01 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =       1.00
            65T66   MANE          .61    546.92    865.16        .37      5.00    546.91    865.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3409E+03 EXCESS= .0000E+00 OUTFLOW= .3409E+03 BASIN STORAGE= .1880E-01 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
            65T66   MANE          .61    543.87    864.90        .36      5.00    543.87    865.00         .36
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .3288E+03 EXCESS= .0000E+00 OUTFLOW= .3288E+03 BASIN STORAGE= .1629E-01 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
             65T66  MANE          .61    539.92    864.94       .34      5.00    539.92    865.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3128E+03 EXCESS= .0000E+00 OUTFLOW= .3128E+03 BASIN STORAGE= .8965E-02 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
             65T66  MANE          .61    534.69    864.79       .32      5.00    534.69    865.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2892E+03 EXCESS= .0000E+00 OUTFLOW= .2892E+03 BASIN STORAGE= .2374E-02 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
             65T66  MANE          .61    527.81    865.19       .29      5.00    527.79    865.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2651E+03 EXCESS= .0000E+00 OUTFLOW= .2651E+03 BASIN STORAGE= .1573E-02 PERCENT ERROR=    .0

          FOR STORM = 7  STORM AREA (SQ MI) =      90.00
             65T66  MANE          .61    524.12    865.18       .28      5.00    524.10    865.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2565E+03 EXCESS= .0000E+00 OUTFLOW= .2565E+03 BASIN STORAGE= .1374E-02 PERCENT ERROR=    .0

          FOR STORM = 8  STORM AREA (SQ MI) =     120.00
             65T66  MANE          .62    518.25    865.26       .27      5.00    518.23    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2478E+03 EXCESS= .0000E+00 OUTFLOW= .2478E+03 BASIN STORAGE= .1230E-02 PERCENT ERROR=    .0

          FOR STORM = 9  STORM AREA (SQ MI) =     150.00
             65T66  MANE          .62    516.88    865.11       .27      5.00    516.87    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2427E+03 EXCESS= .0000E+00 OUTFLOW= .2426E+03 BASIN STORAGE= .1144E-02 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65T66A  MANE          .69    547.45    865.27       .38      5.00    547.43    865.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3435E+03 EXCESS= .0000E+00 OUTFLOW= .3435E+03 BASIN STORAGE= .2191E-01 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =       1.00
            65T66A  MANE          .69    546.80    865.46       .37      5.00    546.79    865.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3409E+03 EXCESS= .0000E+00 OUTFLOW= .3409E+03 BASIN STORAGE= .2134E-01 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
            65T66A  MANE          .69    543.78    865.04       .36      5.00    543.77    865.00         .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3288E+03 EXCESS= .0000E+00 OUTFLOW= .3288E+03 BASIN STORAGE= .1851E-01 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
            65T66A  MANE          .69    539.80    864.92       .34      5.00    539.80    865.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3128E+03 EXCESS= .0000E+00 OUTFLOW= .3128E+03 BASIN STORAGE= .1021E-01 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
            65T66A  MANE          .69    534.57    865.20       .32      5.00    534.55    865.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2892E+03 EXCESS= .0000E+00 OUTFLOW= .2892E+03 BASIN STORAGE= .2703E-02 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
            65T66A  MANE          .70    527.63    865.36       .29      5.00    527.60    865.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2651E+03 EXCESS= .0000E+00 OUTFLOW= .2651E+03 BASIN STORAGE= .1791E-02 PERCENT ERROR=    .0

          FOR STORM = 7  STORM AREA (SQ MI) =      90.00
            65T66A  MANE          .70    523.94    865.19       .28      5.00    523.91    865.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2565E+03 EXCESS= .0000E+00 OUTFLOW= .2565E+03 BASIN STORAGE= .1565E-02 PERCENT ERROR=    .0

          FOR STORM = 8  STORM AREA (SQ MI) =     120.00
            65T66A  MANE          .70    518.09    865.04       .27      5.00    518.08    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2478E+03 EXCESS= .0000E+00 OUTFLOW= .2478E+03 BASIN STORAGE= .1401E-02 PERCENT ERROR=    .0

          FOR STORM = 9  STORM AREA (SQ MI) =     150.00
            65T66A  MANE          .70    516.67    865.50       .27      5.00    516.62    865.00         .27
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .2426E+03 EXCESS= .0000E+00 OUTFLOW= .2426E+03 BASIN STORAGE= .1302E-02 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65T66B  MANE          .73    547.32    865.26       .38      5.00    547.28    865.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3435E+03 EXCESS= .0000E+00 OUTFLOW= .3435E+03 BASIN STORAGE= .2312E-01 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =       1.00
            65T66B  MANE          .73    546.69    865.47       .37      5.00    546.64    865.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3409E+03 EXCESS= .0000E+00 OUTFLOW= .3409E+03 BASIN STORAGE= .2253E-01 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
            65T66B  MANE          .73    543.67    865.68       .36      5.00    543.63    865.00         .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3288E+03 EXCESS= .0000E+00 OUTFLOW= .3288E+03 BASIN STORAGE= .1955E-01 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
            65T66B  MANE          .73    539.68    865.51       .34      5.00    539.62    865.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3128E+03 EXCESS= .0000E+00 OUTFLOW= .3127E+03 BASIN STORAGE= .1083E-01 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
            65T66B  MANE          .73    534.43    865.73       .32      5.00    534.41    865.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2892E+03 EXCESS= .0000E+00 OUTFLOW= .2892E+03 BASIN STORAGE= .2862E-02 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
            65T66B  MANE          .73    527.45    865.78       .29      5.00    527.39    865.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2651E+03 EXCESS= .0000E+00 OUTFLOW= .2651E+03 BASIN STORAGE= .1894E-02 PERCENT ERROR=    .0

          FOR STORM = 7  STORM AREA (SQ MI) =      90.00
            65T66B  MANE          .74    523.75    865.54       .28      5.00    523.66    865.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2565E+03 EXCESS= .0000E+00 OUTFLOW= .2565E+03 BASIN STORAGE= .1657E-02 PERCENT ERROR=    .0

          FOR STORM = 8  STORM AREA (SQ MI) =     120.00
            65T66B  MANE          .74    517.89    865.25       .27      5.00    517.83    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2479E+03 EXCESS= .0000E+00 OUTFLOW= .2479E+03 BASIN STORAGE= .1482E-02 PERCENT ERROR=    .0

          FOR STORM = 9  STORM AREA (SQ MI) =     150.00
            65T66B  MANE          .74    516.44    865.75       .27      5.00    516.26    865.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2427E+03 EXCESS= .0000E+00 OUTFLOW= .2426E+03 BASIN STORAGE= .1379E-02 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            66C1T2  MANE          .75    410.00    891.72      2.90      5.00    410.00    895.00        2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5167E+03 EXCESS= .0000E+00 OUTFLOW= .5167E+03 BASIN STORAGE= .1175E-02 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =       1.00
            66C1T2  MANE          .75    410.00    891.72      2.90      5.00    410.00    895.00        2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5159E+03 EXCESS= .0000E+00 OUTFLOW= .5159E+03 BASIN STORAGE= .1175E-02 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
            66C1T2  MANE          .75    409.93    905.92      2.88      5.00    409.93    905.00        2.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5122E+03 EXCESS= .0000E+00 OUTFLOW= .5122E+03 BASIN STORAGE= .1174E-02 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
            66C1T2  MANE          .75    409.67    906.02      2.84      5.00    409.67    905.00        2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5058E+03 EXCESS= .0000E+00 OUTFLOW= .5058E+03 BASIN STORAGE= .1173E-02 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
            66C1T2  MANE          .75    409.24    915.93      2.78      5.00    409.24    915.00        2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4959E+03 EXCESS= .0000E+00 OUTFLOW= .4959E+03 BASIN STORAGE= .1174E-02 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
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66C1T2  MANE          .75    405.86    960.82      2.74      5.00    405.85    960.00        2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4889E+03 EXCESS= .0000E+00 OUTFLOW= .4889E+03 BASIN STORAGE= .1175E-02 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =      90.00
66C1T2  MANE          .75    405.37    930.39      2.73      5.00    405.37    930.00        2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4866E+03 EXCESS= .0000E+00 OUTFLOW= .4866E+03 BASIN STORAGE= .1174E-02 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =     120.00
66C1T2  MANE          .75    405.32    930.41      2.72      5.00    405.32    930.00        2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4849E+03 EXCESS= .0000E+00 OUTFLOW= .4849E+03 BASIN STORAGE= .1174E-02 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =     150.00
66C1T2  MANE          .75    405.29    930.41      2.72      5.00    405.29    930.00        2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4838E+03 EXCESS= .0000E+00 OUTFLOW= .4838E+03 BASIN STORAGE= .1174E-02 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
66CTD  MANE          .32    956.20    865.37       .79      5.00    956.17    865.00         .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8602E+03 EXCESS= .0000E+00 OUTFLOW= .8602E+03 BASIN STORAGE= .1150E-01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =       1.00
66CTD  MANE          .32    955.49    865.18       .78      5.00    955.46    865.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8568E+03 EXCESS= .0000E+00 OUTFLOW= .8568E+03 BASIN STORAGE= .1121E-01 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =       5.00
66CTD  MANE          .32    952.15    865.44       .77      5.00    952.11    865.00         .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8410E+03 EXCESS= .0000E+00 OUTFLOW= .8410E+03 BASIN STORAGE= .9771E-02 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      10.00
66CTD  MANE          .32    947.73    865.33       .75      5.00    947.71    865.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8185E+03 EXCESS= .0000E+00 OUTFLOW= .8185E+03 BASIN STORAGE= .5567E-02 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      30.00
66CTD  MANE          .32    939.08    865.64       .72      5.00    939.02    865.00         .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7852E+03 EXCESS= .0000E+00 OUTFLOW= .7852E+03 BASIN STORAGE= .1770E-02 PERCENT ERROR=    .0

FOR STORM = 6  STORM AREA (SQ MI) =      60.00
66CTD  MANE          .32    928.75    865.59       .69      5.00    928.67    865.00         .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7540E+03 EXCESS= .0000E+00 OUTFLOW= .7540E+03 BASIN STORAGE= .1332E-02 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =      90.00
66CTD  MANE          .32    924.93    865.40       .68      5.00    924.86    865.00         .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7430E+03 EXCESS= .0000E+00 OUTFLOW= .7430E+03 BASIN STORAGE= .1226E-02 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =     120.00
66CTD  MANE          .32    918.36    865.99       .67      5.00    918.22    865.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7327E+03 EXCESS= .0000E+00 OUTFLOW= .7327E+03 BASIN STORAGE= .1149E-02 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =     150.00
66CTD  MANE          .32    915.74    865.80       .67      5.00    915.51    865.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7264E+03 EXCESS= .0000E+00 OUTFLOW= .7264E+03 BASIN STORAGE= .1104E-02 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
RC-WA  MANE          .69    973.81    866.25       .72      5.00    973.69    865.00         .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9162E+03 EXCESS= .0000E+00 OUTFLOW= .9162E+03 BASIN STORAGE= .5332E-01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =       1.00
RC-WA  MANE          .69    973.09    865.71       .72      5.00    972.97    865.00         .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9126E+03 EXCESS= .0000E+00 OUTFLOW= .9126E+03 BASIN STORAGE= .5280E-01 PERCENT ERROR=    .0
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FOR STORM = 3  STORM AREA (SQ MI) =      5.00
  RC-WA  MANE          .70    969.48    866.34       .71      5.00    969.30    865.00         .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8963E+03 EXCESS= .0000E+00 OUTFLOW= .8962E+03 BASIN STORAGE= .5016E-01 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =     10.00
  RC-WA  MANE          .70    963.76    866.66       .69      5.00    963.54    870.00         .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8731E+03 EXCESS= .0000E+00 OUTFLOW= .8730E+03 BASIN STORAGE= .4299E-01 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =     30.00
  RC-WA  MANE          .70    953.93    869.84       .66      5.00    953.92    870.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8393E+03 EXCESS= .0000E+00 OUTFLOW= .8393E+03 BASIN STORAGE= .3736E-01 PERCENT ERROR=    .0

FOR STORM = 6  STORM AREA (SQ MI) =     60.00
  RC-WA  MANE          .70    942.31    869.89       .64      5.00    942.30    870.00         .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8078E+03 EXCESS= .0000E+00 OUTFLOW= .8077E+03 BASIN STORAGE= .3674E-01 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =     90.00
  RC-WA  MANE          .70    938.31    869.94       .63      5.00    938.30    870.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7967E+03 EXCESS= .0000E+00 OUTFLOW= .7967E+03 BASIN STORAGE= .3658E-01 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =    120.00
  RC-WA  MANE          .70    931.44    869.81       .62      5.00    931.43    870.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7862E+03 EXCESS= .0000E+00 OUTFLOW= .7862E+03 BASIN STORAGE= .3642E-01 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =    150.00
  RC-WA  MANE          .70    928.44    869.67       .61      5.00    928.42    870.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7798E+03 EXCESS= .0000E+00 OUTFLOW= .7798E+03 BASIN STORAGE= .3625E-01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =       .01
  66T66D  MANE         1.00    973.60    866.70       .77      5.00    973.39    870.00         .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9828E+03 EXCESS= .0000E+00 OUTFLOW= .9827E+03 BASIN STORAGE= .1183E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      1.00
  66T66D  MANE         1.00    972.87    866.82       .77      5.00    972.65    870.00         .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9778E+03 EXCESS= .0000E+00 OUTFLOW= .9777E+03 BASIN STORAGE= .1175E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      5.00
  66T66D  MANE         1.01    969.21    866.48       .75      5.00    969.04    870.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9577E+03 EXCESS= .0000E+00 OUTFLOW= .9576E+03 BASIN STORAGE= .1118E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =     10.00
  66T66D  MANE         1.01    963.53    869.51       .73      5.00    963.49    870.00         .73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9316E+03 EXCESS= .0000E+00 OUTFLOW= .9316E+03 BASIN STORAGE= .9988E-01 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =     30.00
  66T66D  MANE         1.01    953.76    870.25       .70      5.00    953.73    870.00         .70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8946E+03 EXCESS= .0000E+00 OUTFLOW= .8946E+03 BASIN STORAGE= .8857E-01 PERCENT ERROR=    .0

FOR STORM = 6  STORM AREA (SQ MI) =     60.00
  66T66D  MANE         1.01    942.14    870.36       .67      5.00    942.11    870.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8573E+03 EXCESS= .0000E+00 OUTFLOW= .8573E+03 BASIN STORAGE= .7385E-01 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =     90.00
  66T66D  MANE         1.01    938.15    870.09       .66      5.00    938.13    870.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8435E+03 EXCESS= .0000E+00 OUTFLOW= .8435E+03 BASIN STORAGE= .6248E-01 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =    120.00
  66T66D  MANE         1.01    931.21    870.37       .65      5.00    931.15    870.00         .65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8294E+03 EXCESS= .0000E+00 OUTFLOW= .8294E+03 BASIN STORAGE= .5638E-01 PERCENT ERROR=    .0
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FOR STORM = 9  STORM AREA (SQ MI) =      150.00
  66T66D  MANE          1.01     928.18     870.93        .65       5.00     928.16     870.00          .65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8208E+03 EXCESS= .0000E+00 OUTFLOW= .8208E+03 BASIN STORAGE= .5451E-01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =         .01
  66-66D  MANE          2.16     973.38     869.99        .77       5.00     973.38     870.00          .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9827E+03 EXCESS= .0000E+00 OUTFLOW= .9824E+03 BASIN STORAGE= .2556E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =        1.00
  66-66D  MANE          2.16     972.63     870.13        .77       5.00     972.62     870.00          .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9778E+03 EXCESS= .0000E+00 OUTFLOW= .9775E+03 BASIN STORAGE= .2538E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =        5.00
  66-66D  MANE          2.17     968.86     870.77        .75       5.00     968.85     870.00          .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9576E+03 EXCESS= .0000E+00 OUTFLOW= .9574E+03 BASIN STORAGE= .2416E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =       10.00
  66-66D  MANE          2.17     963.26     869.61        .73       5.00     963.24     870.00          .73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9316E+03 EXCESS= .0000E+00 OUTFLOW= .9314E+03 BASIN STORAGE= .2158E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =       30.00
  66-66D  MANE          2.17     953.30     871.37        .70       5.00     953.12     870.00          .70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8946E+03 EXCESS= .0000E+00 OUTFLOW= .8944E+03 BASIN STORAGE= .1914E+00 PERCENT ERROR=    .0

FOR STORM = 6  STORM AREA (SQ MI) =       60.00
  66-66D  MANE          2.18     941.66     871.34        .67       5.00     941.45     870.00          .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8573E+03 EXCESS= .0000E+00 OUTFLOW= .8571E+03 BASIN STORAGE= .1604E+00 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =       90.00
  66-66D  MANE          2.18     937.72     872.08        .66       5.00     937.58     870.00          .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8434E+03 EXCESS= .0000E+00 OUTFLOW= .8433E+03 BASIN STORAGE= .1359E+00 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =      120.00
  66-66D  MANE          2.18     930.59     871.20        .65       5.00     930.25     870.00          .65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8294E+03 EXCESS= .0000E+00 OUTFLOW= .8292E+03 BASIN STORAGE= .1222E+00 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =      150.00
  66-66D  MANE          2.18     927.56     871.75        .65       5.00     927.12     870.00          .65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8208E+03 EXCESS= .0000E+00 OUTFLOW= .8207E+03 BASIN STORAGE= .1180E+00 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =         .01
  66T23A  MANE           .32    1184.49     835.24        .76       5.00    1184.42     835.00          .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1073E+04 EXCESS= .0000E+00 OUTFLOW= .1073E+04 BASIN STORAGE= .3994E-01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =        1.00
  66T23A  MANE           .33    1179.02     839.95        .76       5.00    1178.97     840.00          .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1067E+04 EXCESS= .0000E+00 OUTFLOW= .1067E+04 BASIN STORAGE= .3967E-01 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =        5.00
  66T23A  MANE           .33    1149.35     844.86        .74       5.00    1149.31     845.00          .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1038E+04 EXCESS= .0000E+00 OUTFLOW= .1038E+04 BASIN STORAGE= .3776E-01 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =       10.00
  66T23A  MANE           .33    1115.98     850.18        .71       5.00    1115.92     850.00          .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1001E+04 EXCESS= .0000E+00 OUTFLOW= .1001E+04 BASIN STORAGE= .3374E-01 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =       30.00
  66T23A  MANE           .33    1074.42     865.24        .68       5.00    1074.35     865.00          .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9512E+03 EXCESS= .0000E+00 OUTFLOW= .9512E+03 BASIN STORAGE= .2992E-01 PERCENT ERROR=    .0
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FOR STORM = 6  STORM AREA (SQ MI) =      60.00
  66T23A  MANE          .34    979.88    869.91       .64      5.00    979.87    870.00         .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9009E+03 EXCESS= .0000E+00 OUTFLOW= .9008E+03 BASIN STORAGE= .2512E-01 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =      90.00
  66T23A  MANE          .34    975.13    870.07       .63      5.00    975.12    870.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8822E+03 EXCESS= .0000E+00 OUTFLOW= .8822E+03 BASIN STORAGE= .2129E-01 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =     120.00
  66T23A  MANE          .34    966.61    870.17       .62      5.00    966.46    870.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8635E+03 EXCESS= .0000E+00 OUTFLOW= .8634E+03 BASIN STORAGE= .1912E-01 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =     150.00
  66T23A  MANE          .34    942.44    870.17       .61      5.00    942.35    870.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8520E+03 EXCESS= .0000E+00 OUTFLOW= .8520E+03 BASIN STORAGE= .1846E-01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  66T23B  MANE         1.48   1183.52    838.86       .76      5.00   1183.43    840.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1073E+04 EXCESS= .0000E+00 OUTFLOW= .1073E+04 BASIN STORAGE= .1817E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =       1.00
  66T23B  MANE         1.48   1178.14    839.64       .76      5.00   1178.05    840.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1067E+04 EXCESS= .0000E+00 OUTFLOW= .1066E+04 BASIN STORAGE= .1804E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =       5.00
  66T23B  MANE         1.49   1148.32    845.41       .74      5.00   1148.20    845.00         .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1038E+04 EXCESS= .0000E+00 OUTFLOW= .1038E+04 BASIN STORAGE= .1718E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      10.00
  66T23B  MANE         1.49   1114.96    854.90       .71      5.00   1114.92    855.00         .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1001E+04 EXCESS= .0000E+00 OUTFLOW= .1001E+04 BASIN STORAGE= .1537E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      30.00
  66T23B  MANE         1.51   1073.66    868.94       .68      5.00   1073.53    870.00         .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9512E+03 EXCESS= .0000E+00 OUTFLOW= .9510E+03 BASIN STORAGE= .1362E+00 PERCENT ERROR=    .0

FOR STORM = 6  STORM AREA (SQ MI) =      60.00
  66T23B  MANE         1.53    979.22    871.28       .64      5.00    979.17    870.00         .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9008E+03 EXCESS= .0000E+00 OUTFLOW= .9007E+03 BASIN STORAGE= .1145E+00 PERCENT ERROR=    .0

FOR STORM = 7  STORM AREA (SQ MI) =      90.00
  66T23B  MANE         1.54    974.42    870.58       .63      5.00    974.28    870.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8822E+03 EXCESS= .0000E+00 OUTFLOW= .8821E+03 BASIN STORAGE= .9712E-01 PERCENT ERROR=    .0

FOR STORM = 8  STORM AREA (SQ MI) =     120.00
  66T23B  MANE         1.54    965.08    873.68       .62      5.00    965.07    875.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8635E+03 EXCESS= .0000E+00 OUTFLOW= .8633E+03 BASIN STORAGE= .8705E-01 PERCENT ERROR=    .0

FOR STORM = 9  STORM AREA (SQ MI) =     150.00
  66T23B  MANE         1.55    941.50    875.02       .61      5.00    941.50    875.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8520E+03 EXCESS= .0000E+00 OUTFLOW= .8519E+03 BASIN STORAGE= .8405E-01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
    CULVT  MANE          .31   1182.75    839.96       .76      5.00   1182.74    840.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1073E+04 EXCESS= .0000E+00 OUTFLOW= .1073E+04 BASIN STORAGE= .3863E-01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =       1.00
    CULVT  MANE          .31   1177.21    840.14       .76      5.00   1177.19    840.00         .76
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .1066E+04 EXCESS= .0000E+00 OUTFLOW= .1066E+04 BASIN STORAGE= .3836E-01 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =       5.00
             CULVT  MANE          .32   1147.35    845.09       .74      5.00   1147.31    845.00         .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1038E+04 EXCESS= .0000E+00 OUTFLOW= .1038E+04 BASIN STORAGE= .3654E-01 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      10.00
             CULVT  MANE          .32   1114.31    854.82       .71      5.00   1114.30    855.00         .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1001E+04 EXCESS= .0000E+00 OUTFLOW= .1001E+04 BASIN STORAGE= .3269E-01 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      30.00
             CULVT  MANE          .32   1073.02    869.95       .68      5.00   1073.01    870.00         .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9511E+03 EXCESS= .0000E+00 OUTFLOW= .9511E+03 BASIN STORAGE= .2896E-01 PERCENT ERROR=    .0

          FOR STORM = 6  STORM AREA (SQ MI) =      60.00
             CULVT  MANE          .33    978.76    870.16       .64      5.00    978.73    870.00         .64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9007E+03 EXCESS= .0000E+00 OUTFLOW= .9006E+03 BASIN STORAGE= .2436E-01 PERCENT ERROR=    .0

          FOR STORM = 7  STORM AREA (SQ MI) =      90.00
             CULVT  MANE          .33    973.84    870.05       .63      5.00    973.82    870.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8821E+03 EXCESS= .0000E+00 OUTFLOW= .8821E+03 BASIN STORAGE= .2068E-01 PERCENT ERROR=    .0

          FOR STORM = 8  STORM AREA (SQ MI) =     120.00
             CULVT  MANE          .33    964.53    874.94       .62      5.00    964.51    875.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8634E+03 EXCESS= .0000E+00 OUTFLOW= .8633E+03 BASIN STORAGE= .1852E-01 PERCENT ERROR=    .0

          FOR STORM = 9  STORM AREA (SQ MI) =     150.00
             CULVT  MANE          .33    941.07    875.01       .61      5.00    941.06    875.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8518E+03 EXCESS= .0000E+00 OUTFLOW= .8517E+03 BASIN STORAGE= .1787E-01 PERCENT ERROR=    .0


*** NORMAL END OF HEC-1 ***


  -----DSS---ZCLOSE Unit:  71,   File: WS2-NEM.DSS
            Pointer Utilization:    .30
            Number of Records:      70
            File Size:    131.5  Kbytes
            Percent Inactive:     .0
```

Post Developed HEC-1 Sub-Basin Data

Table 6 - Post Developed HEC-1 Sub-Basin Data

Description: Sub-basin data based on aerial photo and proposed topography

Location Eastmark - East Mesa, Arizona

Reference: DDMSW Version 4.6.0

ONSITE BASINS

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Length (ft)	Length (mi)	Length +10% (mi)[1]	USGE (ft)	DSGE (ft)	Lca (ft)	Lca (mi)
1A	3,813,413	87.54	0.137	2340	0.44	0.48	1443.0	1432.0	820	0.16
1B	3,010,422	69.11	0.108	3140	0.59	0.65	1434.0	1415.0	1390	0.26
2A	3,051,090	70.04	0.109	2760	0.52	0.57	1434.0	1423.0	730	0.14
2B	6,733,596	154.58	0.242	2780	0.53	0.58	1460.0	1445.0	1390	0.26
2C	6,665,022	153.01	0.239	3220	0.61	0.67	1454.0	1434.0	1445	0.27
3	4,423,892	101.56	0.159	1705	0.32	0.35	1422.0	1410.0	180	0.15
4	8,602,115	197.48	0.309	6640	1.26	1.39	1430.0	1399.0	2345	0.44
5	7,445,402	170.92	0.267	3900	0.72	0.79	1414.0	1395.0	2135	0.40
6	4,333,174	99.48	0.155	3692	0.70	0.77	1429.0	1413.0	1422	0.27
6a	7,194,291	165.16	0.258	4480	0.85	0.94	1441.0	1410.0	1770	0.34
7	3,242,052	74.43	0.116	2230	0.42	0.46	1418.0	1404.0	1129	0.21
7a	3,345,060	76.79	0.120	2870	0.54	0.59	1415.0	1403.0	1450	0.27
8	19,984,667	458.78	0.717	7230	1.37	1.51	1444.0	1415.0	4980	0.94
9	3,508,834	80.55	0.126	3470	0.66	0.73	1424.0	1408.0	1848	0.35
10	4,769,777	109.50	0.171	5320	1.01	1.11	1444.0	1423.0	2970	0.56
11	8,574,374	196.84	0.308	6080	1.15	1.27	1425.0	1397.0	3352	0.63
12	4,362,893	100.16	0.157	3002	0.57	0.63	1409.0	1393.0	1087	0.21
13	5,584,406	128.20	0.200	3701	0.70	0.77	1411.0	1390.0	2218	0.42
14	2,596,893	59.62	0.093	1670	0.32	0.35	1397.0	1386.0	634	0.12
16	2,949,384	67.71	0.106	2134	0.40	0.44	1425.0	1410.0	1100	0.21
17	3,772,296	86.60	0.135	4430	0.84	0.92	1412.0	1394.0	2485	0.47
18	8,921,616	204.81	0.320	3445	0.65	0.72	1435.0	1420.0	1761	0.33
19	2,856,235	65.57	0.102	2394	0.45	0.50	1420.0	1410.0	1082	0.20
20	8,518,170	195.55	0.306	4890	0.93	1.02	1430.0	1412.0	2361	0.45
Totals	**138,259,074**	**3173.99**	**4.960**							

OFFSITE BASINS (EAST OF SIGNAL BUTTE ROAD)

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Length (ft)	Length (mi)	USGE (ft)	DSGE (ft)	Lca (mi)
73A	26,400,845	606.08	0.947	12144	2.30	1567.3	1487.0	1.00
73B	11,854,970	272.15	0.425	2957	0.56	1487.0	1470.0	0.28
73C	16,310,497	374.44	0.585	7022	1.33	1480.0	1450.0	0.30
74A	21,020,314	482.56	0.754	12672	2.40	1563.0	1461.7	1.00
74B	9,278,312	213.00	0.333	6917	1.31	1490.0	1459.0	0.41
74C	9,606,165	220.53	0.345	6442	1.22	1471.0	1440.0	0.40
77A	48,480,538	1,112.96	1.739	15312	2.90	1559.0	1468.8	1.50
77B	9,740,171	223.60	0.349	2957	0.56	1469.0	1453.0	0.26
77C	7,769,721	178.37	0.279	4013	0.76	1457.0	1439.0	0.51
78A	52,467,149	1,204.48	1.882	19536	3.70	1558.0	1452.6	2.10
78B	11,047,090	253.61	0.396	3168	0.60	1460.0	1441.0	0.40
78C	8,018,731	184.08	0.288	2640	0.50	1448.0	1432.1	0.30
79A	29,746,253	682.88	1.067	7524	1.43	1411.0	1390.0	0.82
Totals	**261,740,756**	**6008.74**	**9.389**					

OFFSITE BASINS (WEST OF ELLSWORTH ROAD)

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	Length (ft)	Length (mi)	USGE (ft)	DSGE (ft)	Lca (mi)
23	6,088,253	139.77	0.218	3767	0.78	1405.0	1391.0	0.36
24	7,031,535	161.42	0.252	3967	0.83	1400.0	1380.0	0.38
25	5,794,910	133.03	0.208	4355	0.91	1390.0	1375.0	0.41
26	1,264,710	29.03	0.045	2028	0.42	1389.0	1380.0	0.19
68A1	8,293,239	190.39	0.297	4843	0.92	1425.7	1391.0	0.46
68A2	1,336,285	30.68	0.048	2634	0.50	1410.9	1392.0	0.25
68B1	4,078,185	93.62	0.146	3951	0.75	1402.2	1378.0	0.38
68B2	1,681,764	38.61	0.060	2916	0.55	1395.8	1378.0	0.28
68B3	989,689	22.72	0.036	1916	0.36	1392.6	1381.0	0.18
70A1	1,491,048	34.23	0.053	2750	0.52	1392.0	1390.0	0.26
70A2	994,745	22.84	0.036	2700	0.51	1390.0	1380.0	0.26
70B	9,099,867	208.90	0.326	8448	1.60	1390.0	1342.0	1.10
71	23,991,985	550.78	0.861	8448	1.60	1378.0	1335.8	0.80
Totals	**72,136,215**	**1,656.02**	**2.586**					

Notes:
1) 10% was added to onsite watercourse lengths to account for future roadway curvature.

Post Developed HEC-1 Soil Data

Table 7 - Post Developed HEC-1 - Soils Data

Description: Post Developed Soil Data

Location: Eastmark - East Mesa, Arizona

Reference: NRCS Web Soil Survey
Aguila-Carefree Area Soil Survey

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
1A	50	Estrella Loams	20.29	0.032
	76	Mohall Loam	13.49	0.021
	77	Mohall Clay Loam	53.76	0.084
		TOTAL	87.54	0.137
1B	50	Estrella Loams	1.98	0.003
	76	Mohall Loam	8.96	0.014
	77	Mohall Clay Loam	58.15	0.091
		TOTAL	69.11	0.108
2a	75	Mohall Loam	42.52	0.066
	77	Mohall Clay Loam	27.52	0.043
		TOTAL	70.04	0.109
2b	1	Antho Sandy Loams	12.59	0.020
	50	Estrella Loams	3.35	0.005
	76	Mohall Loam	118.44	0.185
	77	Mohall Clay Loam	20.21	0.032
		TOTAL	154.59	0.242
2c	1	Antho Sandy Loams	2.27	0.004
	50	Estrella Loams	18.89	0.030
	75	Mohall Loam	96.89	0.151
	77	Mohall Clay Loam	34.96	0.055
		TOTAL	153.01	0.240
3	50	Estrella Loams	4.84	0.008
	75	Mohall Loam	18.57	0.029
	77	Mohall Clay Loam	55.71	0.087
	79	Mohall Clay	22.44	0.035
		TOTAL	101.56	0.159
4	50	Estrella Loams	18.91	0.030
	75	Mohall Loam	2.19	0.003
	77	Mohall Clay Loam	154.15	0.241
	79	Mohall Clay	22.23	0.035
		TOTAL	197.48	0.309
5	77	Mohall Clay Loam	38.04	0.059
	79	Mohall Clay	114.51	0.179
	112	Tremant Gravelly Sandy Loams	18.36	0.029
		TOTAL	170.91	0.267
6	75	Mohall Loam	37.83	0.059
	77	Mohall Clay Loam	27.70	0.043
	78	Mohall Clay Loam, Calcareous Solum	34.16	0.053
		TOTAL	99.48	0.155
6a	75	Mohall Loam	2.22	0.003
	77	Mohall Clay Loam	9.50	0.015
	79	Mohall Clay	153.44	0.240
		TOTAL	165.16	0.258
7	50	Estrella Loams	13.80	0.021
	75	Mohall Loam	25.70	0.040
	77	Mohall Clay Loam	22.20	0.035
	78	Mohall Clay Loam, Calcareous Solum	12.93	0.020
		TOTAL	74.43	0.116
7a	50	Estrella Loams	0.57	0.001
	77	Mohall Clay Loam	76.22	0.119
		TOTAL	76.79	0.120
8	1	Antho Sandy Loams	10.69	0.017
	50	Estrella Loams	45.04	0.070
	75	Mohall Loam	187.24	0.293
	77	Mohall Clay Loam	145.94	0.228
	78	Mohall Clay Loam, Calcareous Solum	21.21	0.033
	112	Tremant Gravelly Sandy Loams	48.66	0.076
		TOTAL	458.78	0.717
9	75	Mohall Loam	44.57	0.070
	78	Mohall Clay Loam, Calcareous Solum	19.95	0.031
	112	Tremant Gravelly Sandy Loams	16.03	0.025
		TOTAL	80.55	0.126
10	1	Antho Sandy Loams	6.50	0.010
	2	Antho Gravelly Sandy Loams	11.32	0.018
	50	Estrella Loams	27.71	0.043
	77	Mohall Clay Loam	59.78	0.093
	112	Tremant Gravelly Sandy Loams	3.99	0.006
	115	Tremant Gravelly Sandy Loams	0.20	0.000
		TOTAL	109.50	0.170

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
11	65	Gilman Loams	2.04	0.003
	77	Mohall Clay Loam	77.25	0.121
	112	Tremant Gravelly Sandy Loams	117.55	0.184
		TOTAL	196.84	0.308
12	50	Estrella Loams	51.61	0.081
	76	Mohall Loam	17.90	0.028
	77	Mohall Clay Loam	25.98	0.041
	79	Mohall Clay	4.67	0.007
		TOTAL	100.16	0.157
13	50	Estrella Loams	1.01	0.002
	76	Mohall Loam	127.18	0.199
		TOTAL	128.19	0.201
14	50	Estrella Loams	10.93	0.017
	75	Mohall Loam	19.99	0.031
	77	Mohall Clay Loam	10.25	0.016
	112	Tremant Gravelly Sandy Loams	18.43	0.029
		TOTAL	59.60	0.093
73A	N/A	No Data Available	606.08	0.947
		TOTAL	606.06	0.947
73B	1	Antho Sandy Loams	73.75	0.115
	50	Estrella Loams	10.81	0.017
	55	Gilman Loams	15.78	0.025
	75	Mohall Loam	62.59	0.098
	77	Mohall Clay Loam	80.28	0.125
	112	Tremant Gravelly Sandy Loams	29.14	0.046
		TOTAL	272.15	0.426
73C	1	Antho Sandy Loams	76.01	0.119
	50	Estrella Loams	85.37	0.133
	75	Mohall Loam	128.81	0.201
	77	Mohall Clay Loam	84.25	0.132
		TOTAL	374.44	0.585
74A	N/A	No Data Available	482.56	0.754
		TOTAL	482.56	0.754
74B	1	Antho Sandy Loams	112.04	0.175
	77	Mohall Clay Loam	97.34	0.152
	112	Tremant Gravelly Sandy Loams	3.62	0.006
		TOTAL	213.00	0.333
74C	1	Antho Sandy Loams	55.57	0.087
	50	Estrella Loams	11.47	0.018
	77	Mohall Clay Loam	136.29	0.213
	112	Tremant Gravelly Sandy Loams	16.76	0.026
	115	Tremant-Antho Complex, 1-5 %Slopes	0.44	0.001
		TOTAL	220.53	0.345
16	2	Antho Gravelly Sandy Loams	11.70	0.018
	78	Mohall Clay Loam, Calcareous Solum	40.70	0.064
	112	Tremant Gravelly Sandy Loams	15.31	0.024
		TOTAL	67.71	0.106
17	2	Antho Gravelly Sandy Loams	1.48	0.002
	55	Gilman Loams	7.33	0.011
	112	Tremant Gravelly Sandy Loams	77.81	0.122
		TOTAL	86.60	0.135
18	1	Antho Sandy Loams	4.61	0.006
	2	Antho Gravelly Sandy Loams	20.60	0.032
	50	Estrella Loams	79.40	0.124
	77	Mohall Clay Loam	28.50	0.045
	78	Mohall Clay Loam, Calcareous Solum	47.25	0.074
	112	Tremant Gravelly Sandy Loams	13.37	0.021
	115	Tremant-Antho Complex, 1-5 %Slopes	10.66	0.017
		TOTAL	204.81	0.321
19	50	Estrella Loams	4.37	0.007
	77	Mohall Clay Loam	22.72	0.036
	78	Mohall Clay Loam, Calcareous Solum	38.48	0.060
		TOTAL	65.57	0.103
20	22	Contine Clay Loam	118.34	0.185
	77	Mohall Clay Loam	27.87	0.044
	112	Tremant Gravelly Sandy Loams	49.34	0.077
		TOTAL	195.55	0.306

Sub-Basin ID	Soil Id	Soil Type	Area (acres)	Area (sq. mi.)
23	50	Estrella Loams	40.58	0.063
	55	Gilman Loams	9.09	0.014
	77	Mohall Clay Loam	66.96	0.105
	112	Tremant Gravelly Sandy Loams	23.20	0.036
		TOTAL	139.82	0.218
24	77	Mohall Clay Loam	103.31	0.161
	79	Mohall Clay	37.93	0.059
	112	Tremant Gravelly Sandy Loams	20.18	0.032
		TOTAL	161.42	0.252
25	50	Estrella Loams	87.80	0.137
	55	Gilman Loams	2.13	0.003
	76	Mohall Loam, Calcareous Solum	4.52	0.007
	77	Mohall Clay Loam	14.50	0.023
	112	Tremant Gravelly Sandy Loams	24.08	0.038
		TOTAL	133.03	0.208
26	50	Estrella Loams	2.87	0.004
	77	Mohall Clay Loam	8.53	0.013
	112	Tremant Gravelly Sandy Loams	19.63	0.031
		TOTAL	29.03	0.045
77A	N/A	No Data Available	1112.96	1.739
		TOTAL	1112.96	1.739
77B	1	Antho Sandy Loams	76.92	0.120
	77	Mohall Clay Loam	81.39	0.127
	112	Tremant Gravelly Sandy Loams	65.29	0.102
		TOTAL	223.60	0.349
77C	1	Antho Sandy Loams	4.82	0.008
	77	Mohall Clay Loam	74.56	0.117
	78	Mohall Clay Loam, Calcareous Solum	9.10	0.014
	112	Tremant Gravelly Sandy Loams	89.54	0.140
	115	Tremant-Antho Complex, 1-5 %Slopes	0.35	0.001
		TOTAL	178.37	0.280
78A	N/A	No Data Available	1204.48	1.882
		TOTAL	1204.48	1.882
78B	22	Contine Clay Loam	66.95	0.105
	77	Mohall Clay Loam	79.63	0.124
	112	Tremant Gravelly Sandy Loams	107.03	0.167
		TOTAL	253.61	0.396
78C	22	Contine Clay Loam	128.67	0.201
	77	Mohall Clay Loam	2.76	0.004
	112	Tremant Gravelly Sandy Loams	52.65	0.082
		TOTAL	184.08	0.287
68A1	50	Estrella Loams	55.97	0.087
	55	Gilman Loams	57.12	0.089
	77	Mohall Clay Loam	60.54	0.095
	112	Tremant Gravelly Sandy Loams	16.74	0.026
		TOTAL	190.37	0.297
68A2	50	Estrella Loams	16.01	0.025
	55	Gilman Loams	12.43	0.019
	77	Mohall Clay Loam	0.24	0.000
		TOTAL	30.68	0.047
68B1	50	Estrella Loams	20.68	0.033
	55	Gilman Loams	1.93	0.002
	77	Mohall Clay Loam	15.92	0.025
	112	Tremant Gravelly Sandy Loams	55.79	0.087
		TOTAL	93.62	0.147
68B2	50	Estrella Loams	23.20	0.036
	77	Mohall Clay Loam	15.41	0.024
		TOTAL	38.61	0.060
68B3	50	Estrella Loams	20.18	0.032
	77	Mohall Clay Loam	2.54	0.004
		TOTAL	22.72	0.036
70A1	50	Estrella Loams	17.94	0.028
	77	Mohall Clay Loam	10.54	0.016
	112	Tremant Gravelly Sandy Loams	5.75	0.009
		TOTAL	34.23	0.053
70A2	77	Mohall Clay Loam	20.26	0.032
	112	Tremant Gravelly Sandy Loams	2.58	0.004
		TOTAL	22.84	0.036

Post Developed HEC-1 Land Use Data

Table 6 - Post Developed HEC-1 Land Use Data

Description: Land use data based on proposed development

Location: Eastmark - East Mesa, Arizona

Reference: DDMSW Version 4.6.0

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	DU	DU Area (ac)	Land Use	Land Use Area (sq. ft.)	Land Use Area (acres)	Land Use Area (sq. mi.)	Km
1A	3813413	87.5	0.1367	DU5E	82.0	Industrial	3571920	82.0	0.128	0.040
				---	5.5	General Transportation	239580	5.5	0.009	0.030
1B	3010422	69.1	0.1080	DU5	65.2	Medium Lot Residential (2-4 DU/Acre)	2221560	51.0	0.080	0.045
						Active Open Space	566280	13.0	0.020	0.050
						General Transportation	52272	1.2	0.002	0.030
				---	3.9	General Transportation	169884	3.9	0.006	0.030
2A	3051090	70.0	0.1094	DU6S	70.0	Large Lot Residential (1-2 DU/Acre)	500940	11.5	0.018	0.045
						Educational	217800	5.0	0.008	0.055
						General Commercial	1742400	40.0	0.063	0.035
						Active Open Space	588060	13.5	0.021	0.050
2B	6733596	154.6	0.2416	DU6N	154.6	Industrial	6733596	154.6	0.242	0.040
2C	6665022	153.0	0.2391	DU6N	117.9	Industrial	5135724	117.9	0.184	0.040
				DU6S	35.1	General Transportation	222156	5.1	0.008	0.030
						Large Lot Residential (1-2 DU/Acre)	1306800	30.0	0.047	0.045
3	4423892	101.6	0.1588	DU5	100.5	Tourist and Vistor Accomodations	4377780	100.5	0.157	0.030
				---	1.1	General Transportation	47916	1.1	0.002	0.030
4	8602115	197.5	0.3086	DU1	129.7	Very High Density Residential (>15 Du/Acre)	1380852	31.7	0.050	0.025
						Tourist and Vistor Accomodations	348480	8.0	0.013	0.030
						General Commercial	1089000	25.0	0.039	0.035
						Office General	2138796	49.1	0.077	0.035
						Active Open Space	435600	10.0	0.016	0.050
						General Transportation	257004	5.9	0.009	0.030
				DU2	11.0	General Commercial	392040	9.0	0.014	0.035
						General Transportation	87120	2.0	0.003	0.030
				DU5	53.7	General Commercial	423280	9.7	0.015	0.035
						Office General	1138623	26.1	0.041	0.035
						Very High Density Residential (>15 Du/Acre)	535788	12.3	0.019	0.025
						General Transportation	243936	5.6	0.009	0.030
				---	3.1	General Transportation	135036	3.1	0.005	0.030
5	7445402	170.9	0.2670	DU2	170.9	Educational	239580	5.5	0.009	0.055
						Very High Density Residential (>15 Du/Acre)	788436	18.1	0.028	0.025
						General Commercial	217800	5.0	0.008	0.035
						Office General	1258884	28.9	0.045	0.035
						Small Lot Residential (4-10 DU/Acre)	2678940	61.5	0.096	0.040
						Active Open Space	2260764	51.9	0.081	0.050
6	4333174	99.5	0.1555	DU6S	99.5	Large Lot Residential (1-2 DU/Acre)	1589940	36.5	0.057	0.045
						Very High Density Residential (>15 Du/Acre)	2395800	55.0	0.086	0.025
						Active Open Space	348480	8.0	0.013	0.050
6A	7,194,291	165.2	0.2581	DU5	165.2	Medium Lot Residential (2-4 DU/Acre)	3049200	70.0	0.109	0.045
						High Density Residential (10-15 DU/Acre)	653400	15.0	0.023	0.030
						Very High Density Residential (>15 Du/Acre)	649044	14.9	0.023	0.025
						General Commercial	405108	9.3	0.015	0.035
						Tourist and Vistor Accomodations	1415700	32.5	0.051	0.030
						Active Open Space	740520	17.0	0.027	0.050
						General Transportation	283140	6.5	0.010	0.030
7	3242052	74.4	0.1163	DU3/4	74.4	Very High Density Residential (>15 DU/Acre)	940896	21.6	0.034	0.030
						Educational	217800	5.0	0.008	0.055
						Institutional	1058508	24.3	0.038	0.040
						Active Open Space	1023660	23.5	0.037	0.050
7A	3345060	76.8	0.1200	DU2	22.6	Very High Density Residential (>15 Du/Acre)	984456	22.6	0.035	0.025
				DU3/4	54.2	Educational	435600	10.0	0.016	0.055
						Institutional	291852	6.7	0.010	0.040
						Active Open Space	1285020	29.5	0.046	0.050
						General Transportation	348480	8.0	0.013	0.030
8	19964667	458.8	0.7169	DU6S	63.6	Very High Density Residential (>15 Du/Acre)	871200	20.0	0.031	0.025
						General Commercial	135036	3.1	0.005	0.035
						Institutional	544500	12.5	0.020	0.040
						Active Open Space	1089000	25.0	0.039	0.050
						General Transportation	130680	3.0	0.005	0.030
				DU7	387.9	Medium Lot Residential (2-4 DU/Acre)	9243432	212.2	0.332	0.045
						Small Lot Residential (4-10 DU/Acre)	7217892	165.7	0.259	0.040
						Institutional	304920	7.0	0.011	0.040
						Active Open Space	130680	3.0	0.005	0.050
				---	7.3	General Transportation	317988	7.3	0.011	0.030
9	3508834	80.6	0.1259	DU3/4	10.4	Very High Density Residential (>15 DU/Acre)	453024	10.4	0.016	0.030
				DU7	70.2	High Density Residential (10-15 DU/Acre)	871200	20.0	0.031	0.030
						Educational	871200	20.0	0.031	0.055
						Institutional	283140	6.5	0.010	0.040
						Active Open Space	1032372	23.7	0.037	0.050
10	4769777	109.5	0.1711	DU7	106.8	Medium Lot Residential (2-4 DU/Acre)	4652208	106.8	0.167	0.045
				---	2.7	General Transportation	119210	2.7	0.004	0.030
11	8574374	196.8	0.3075	DU7	10.6	Active Open Space	113256	2.6	0.004	0.050
						General Commercial	239580	5.5	0.009	0.035
						Institutional	108900	2.5	0.004	0.040
				DU3/4	173.0	Very High Density Residential (>15 Du/Acre)	7535880	173.0	0.270	0.025
				---	13.2	General Transportation	574992	13.2	0.021	0.030
12	4362693	100.2	0.1566	DU3/4	99.3	Educational	2090880	48.0	0.075	0.055
						Office General	1232748	28.3	0.044	0.035
						Very High Density Residential (>15 Du/Acre)	1001880	23.0	0.036	0.025
				---	0.9	General Transportation	39204	0.9	0.001	0.035

Table 8 - Post Developed HEC-1 Land Use Data

Description: Land use data based on proposed development

Location Eastmark - East Mesa, Arizona

Reference: DDMSW Version 4.6.0

Sub-Basin ID	Basin Area (sq. ft.)	Basin Area (acres)	Basin Area (sq. mi)	DU	DU Area (ac)	Land Use	Land Use Area (sq. ft.)	Land Use Area (acres)	Land Use Area (sq. mi.)	Kn
13	5584406	128.2	0.2003	DU3/4	126.2	Educational	4922280	113.0	0.177	0.055
						Office General	574992	13.2	0.021	0.035
				---	2.0	General Transportation	87120	2.0	0.003	0.035
14	2596893	59.6	0.0931	DU3/4	59.6	Office General	326700	7.5	0.012	0.035
						General Commercial	1742400	40.0	0.063	0.035
						Tourist and Vistor Accomodations	108900	2.5	0.004	0.030
						General Transportation	418176	9.6	0.015	0.030
73A	26400845	606.1	0.9470	---	---	Passive Open Space	26400845	606.1	0.947	0.093
73B	11854970	272.2	0.4253	---	---	Small Lot Residential (4-10 DU/Acre)	11854970	272.2	0.425	0.040
73C	16310497	374.4	0.5850	---	---	Small Lot Residential (4-10 DU/Acre)	16310497	374.4	0.585	0.040
74A	21020314	482.6	0.7541	---	---	Passive Open Space	21020314	482.6	0.754	0.095
74B	9278312	213.0	0.3328	---	---	Small Lot Residential (4-10 DU/Acre)	9278312	213.0	0.333	0.040
74C	9606165	220.5	0.3445	---	---	Small Lot Residential (4-10 DU/Acre)	9606165	220.5	0.345	0.040
16	2949384	67.7	0.1058	DU3S	5.7	Medium Lot Residential (2-4 DU/Acre)	248292	5.7	0.009	0.045
				DU9	62.0	Medium Lot Residential (2-4 DU/Acre)	2456784	56.4	0.088	0.045
						Active Open Space	121968	2.8	0.004	0.050
						General Transportation	121968	2.8	0.004	0.030
17	3772296	86.6	0.1353	DU3S	86.6	Medium Lot Residential (2-4 DU/Acre)	3737448	85.8	0.134	0.045
						Active Open Space	34848	0.8	0.001	0.050
18	8921616	204.8	0.3200	DU8	204.8	Medium Lot Residential (2-4 DU/Acre)	6904260	158.5	0.248	0.045
						Large Lot Residential (1-2 DU/Acre)	871200	20.0	0.031	0.045
						Active Open Space	927828	21.3	0.033	0.050
						General Transportation	217800	5.0	0.008	0.030
19	2856235	65.6	0.1025	DU9	65.6	Medium Lot Residential (2-4 DU/Acre)	2121372	48.7	0.076	0.045
						Institutional	540144	12.4	0.019	0.040
						Active Open Space	100188	2.3	0.004	0.050
						General Transportation	95832	2.2	0.003	0.030
20	8518170	195.6	0.3056	DU8	18.5	Medium Lot Residential (2-4 DU/Acre)	588060	13.5	0.021	0.045
						Active Open Space	108900	2.5	0.004	0.050
						General Transportation	108900	2.5	0.004	0.030
				DU9	164.2	Medium Lot Residential (2-4 DU/Acre)	6664680	153.0	0.239	0.045
						Active Open Space	487872	11.2	0.018	0.050
				—	12.9	General Transportation	561924	12.9	0.020	0.030
23	6088253	139.8	0.2184	---	—	Office General	5754650	132.1	0.206	0.035
						Active Open Space	333603	7.7	0.012	0.050
24	7031536	161.4	0.2522	—	—	Office General	6892233	158.2	0.247	0.035
						Active Open Space	139302	3.2	0.005	0.050
25	5794910	133.0	0.2078	---	---	Business Park	5794910	133.0	0.208	0.035
26	1264710	29.0	0.0453	---	---	Business Park	1264710	29.0	0.045	0.035
70A1	1491048	34.2	0.0534	---	---	General Transportation	1491048	34.2	0.053	0.030
70A2	994745	22.8	0.0356	—	—	General Transportation	994745	22.8	0.036	0.030
77A	48480538	1113.0	1.7391	—	—	Passive Open Space	48480538	1113.0	1.739	0.092
77B	9740171	223.6	0.3494	---	---	Passive Open Space	3985740	91.5	0.143	0.050
						Medium Lot Residential (2-4 DU/Acre)	5771700	132.5	0.207	0.045
77C	7769721	178.4	0.2788	---	---	Small Lot Residential (4-10 DU/Acre)	7779816	178.6	0.279	0.040
78A	52467149	1204.5	1.8820	---	---	Passive Open Space	52467149	1204.5	1.882	0.090
78B	11047090	253.6	0.3963	---	—	Large Lot Residential (1-2 DU/Acre)	11038104	253.4	0.396	0.050
78C	8018731	184.1	0.2877	---	---	Passive Open Space	4991976	114.6	0.179	0.050
						Large Lot Residential (1-2 DU/Acre)	3009996	69.1	0.108	0.045
79A	29746253	682.9	1.0670	—	---	Other Employment - Low	29746253	682.9	1.067	0.090
68A1	8293239	190.4	0.2975	---	---	Regional Commercial	8293239	190.4	0.298	0.087
68A2	1336285	30.7	0.0480	---	—	Regional Commercial	1336285	30.7	0.048	0.087
68B1	4078185	93.6	0.1463	---	---	Regional Commercial	4078185	93.6	0.146	0.090
68B2	1681764	38.6	0.0603	---	---	Regional Commercial	1681764	38.6	0.060	0.090
68B3	989689	22.7	0.0355	---	---	Regional Commercial	989689	22.7	0.035	0.090

Post Developed HEC-1 Routing Data

Table 9 - Post Developed HEC-1 Routing Data

Description: Routing parameters based on proposed channels and drainage corridors

Location Eastmark - East Mesa, Arizona

Reference: DDMSW Version 4.6.0

Routing ID	N-Steps	Routing Method	LOB N	CHAN N	ROB N	Length (ft)	Slope (ft/ft)	RX1	RX2	LB	RX4	RX5	RB	RX7	RX8	RY1	RY2	LB	RY4	RY5	RB	RY7	RY8
74CT75	3	Normal Depth	0.030	0.013	0.030	10500	0.0038	0.0	15.0	16.5	25.0	33.0	41.5	43.0	58.0	6.60	6.60	5.60	0.00	0.00	5.60	6.60	6.60
10T75	1	Normal Depth	0.030	0.015	0.030	6320	0.0060	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	1.00	0.50	0.00	0.80	0.80	0.00	0.50	1.00
2BT1	12	Normal Depth	0.032	0.032	0.032	1700	0.0090	0.0	1.0	2.0	3.0	2003.0	2004.0	2005.0	2006.0	1.00	0.75	0.50	0.00	0.00	0.50	0.75	1.00
1T3	2	Normal Depth	0.030	0.015	0.030	1610	0.0052	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
3T6	3	Normal Depth	0.030	0.015	0.030	1810	0.0044	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
2CT2	3	Normal Depth	0.030	0.015	0.030	1750	0.0057	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
2AT6	4	Normal Depth	0.030	0.015	0.030	3020	0.0043	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
7AT12	4	Normal Depth	0.030	0.015	0.030	1920	0.0042	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	1.00	0.50	0.00	0.80	0.80	0.00	0.50	1.00
7T12	1	Normal Depth	0.030	0.015	0.030	3160	0.0036	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
12T13	3	Normal Depth	0.030	0.015	0.030	2600	0.0014	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	2.00	1.00	0.50	0.00	0.00	0.50	1.00	2.00
8T9	2	Normal Depth	0.030	0.015	0.030	1410	0.0053	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	1.00	0.50	0.00	0.80	0.80	0.00	0.50	1.00
9T13	4	Normal Depth	0.030	0.015	0.030	4020	0.0045	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	1.00	0.50	0.00	0.80	0.80	0.00	0.50	1.00
11T13	2	Normal Depth	0.030	0.015	0.030	1410	0.0050	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	1.00	0.50	0.00	0.80	0.80	0.00	0.50	1.00
13T75	2	Normal Depth	0.030	0.015	0.030	1230	0.0016	0.0	17.5	18.0	57.0	73.0	112.0	112.5	130.0	2.00	1.00	0.50	0.00	0.00	0.50	1.00	2.00
18T19	1	Normal Depth	0.030	0.015	0.030	1040	0.0040	0.0	7.5	8.0	38.0	43.0	73.0	73.5	81.0	0.80	0.50	0.00	0.60	0.60	0.00	0.50	0.80
77CT78	4	Normal Depth	0.032	0.032	0.032	4435	0.0020	0.0	5.0	10.0	24.0	124.0	138.0	143.0	148.0	4.50	4.00	3.50	0.00	0.00	3.50	4.00	4.50
78CT79	2	Normal Depth	0.032	0.032	0.032	4215	0.0033	0.0	5.0	10.0	26.0	81.0	97.0	102.0	107.0	5.00	4.50	4.00	0.00	0.00	4.00	4.50	5.00

Onsite Retention Volume Summary

Table 10 - Onsite Retention Volume Summary

Description: Calculation of Required Retention Volume Using the Rational Method

Location Eastmark

Reference: Drainage Design Manual for Maricopa County, Vol. I, Hydrology

Known Values: Design storm: 100-yr, 2-hr 100-yr, 24-hr
Rainfall, D: 2.19 inches 3.51 inches

Calc. Values: V = DAC
Where: V = Retention Volume Required
D = Depth of Rainfall (ft)
A = Area of Watershed Contributing
C = Runoff Coefficient

Retention - 100YR, 2HR Volumes (North of the Powerline Floodway)

Retention Basin	Retention Location	Sub-basin: Contributing Sub-basin	Sub-basin: Contributing Sub-basin Area (acres)	Development Unit: Contributing DUs	Development Unit: DU Area Within Sub-basin (acres)	Weighted "C_{100}"	Required Storm Event Retention	Volume Required (acre-feet)	Total Volume Required (acre-feet)	Volume Provided (acre-feet)	Total Volume Provided (acre-feet)	Modeled HEC-1 Retention Volume (acre-feet)
RET01A[1]	DU 5E	1A	67.5	DU5E	62.0	0.90	100-Year, 24-Hour	23.0	23.0	--	--	23.00
				---	5.5					--		
RET01B[1]	DU 5	1B	69.1	DU5	65.2	0.67	100-Year, 24-Hour	13.5	13.5	--	--	13.50
				---	3.9					--		
RET02A	DU 6S	2A	70.0	DU6S	70.0	0.79	100-Year, 2-Hour	10.1	10.1	--	--	10.10
RET02B[2]	DU 6N	2B	154.6	DU6N	154.6	0.90	100-Year, 2-Hour	25.4	25.4	14.50	14.50	25.40
RET02C	DU 6N	02C	153.0	DU6N	117.9	0.85	100-Year, 2-Hour	23.7	23.7	--	--	23.70
	DU 6S			DU6S	35.1					--		
RET03	DU 5	3	101.6	DU5	100.5	0.91	100-Year, 24-Hour	26.9	26.9	--	--	26.90
				---	1.1					--		
RET04	DU 1	4	197.5	DU1	129.7	0.87	100-Year, 2-Hour	20.6	31.7	--	--	31.70
	DU 2			DU2	11.0	0.90		1.8		--		
	DU 5			DU5	53.7	0.90		8.8		--		
				---	3.1	0.90		0.5		--		
RET05	DU 2	5	170.9	DU2	170.9	0.76	100-Year, 2-Hour	23.7	23.7	--	--	23.70
RET06	DU 6S	6	99.5	DU6S	99.5	0.79	100-Year, 2-Hour	14.3	14.3	--	--	14.30
RET06A	DU 5	6A	165.2	DU5	165.2	0.74	100-Year, 24-Hour	35.7	35.7	--	--	35.70
RET07[1]	DU 3/4	7	74.4	DU3/4	74.4	0.79	100-Year, 24-Hour	17.2	17.2	--	--	17.20
RET07A[1]	DU 2	7A	76.8	DU2	22.6	0.90	100-Year, 24-Hour	5.9	17.2	--	--	17.20
	DU 3/4			DU3/4	54.2	0.71		11.3		--		
RET08[3]	DU 6S	8	458.8	DU6S	63.6	0.79	100-Year, 2-Hour	9.2	59.9	--	45.29	55.69
	DU 7			DU7	387.9	0.70		49.5		45.29		
				---	7.3	0.90		1.2		--		
RET09	DU 3/4	9	80.6	DU3/4	10.4	0.90	100-Year, 2-Hour	1.7	11.0	--	.59	11.00
	DU 7			DU7	70.2	0.73		9.3		.59		
RET10[3]	DU 7	10	109.5	DU7	106.8	0.66	100-Year, 2-Hour	13.2	13.2	10.55	18.32	18.32
				---	2.7					7.77		
RET11	DU 3/4	11	196.8	DU7	10.6	0.83	100-Year, 2-Hour	1.6	32.2	2.32	2.32	32.92
	DU 7			DU3/4	173.0	0.90		28.4		--		
				---	13.2	0.90		2.2		--		
RET12	DU 3/4	12	100.2	DU3/4	99.3	0.78	100-Year, 2-Hour	14.1	14.2	--	--	14.20
				---	0.9	0.90		0.1		--		
RET13	DU 3/4	13	128.2	DU3/4	126.2	0.68	100-Year, 2-Hour	15.7	16.0	--	--	16.00
				---	2.0	0.90		0.3		--		
RET14	DU 3/4	14	59.6	DU3/4	59.6	0.90	100-Year, 2-Hour	9.8	9.8	--	--	9.80
							Total	418.7	418.7	81.02	81.02	420.33 ac-ft

1. Sub-basin self retains 100-year, 24-hour to reduce the total Site runoff volume to the pre-developed level.
2. Retention provided volume for RET02B was taken from the First Solar Final Drainage Report, where only approximately half of 2B is developed.
3. Retention provided volumes for RET08 and RET10 were taken from DU7 and Ray Road Final Drainage Reports and Improvement plans.

Retention 100YR, 2HR Volumes (South of the Powerline Floodway)

Retention Basin	Retention Location	Sub-basin: Contributing Sub-basin	Sub-basin: Contributing Sub-basin Area (acres)	Development Unit: Contributing DUs	Development Unit: DU Area Within Sub-basin (acres)	Weighted "C_{100}"	Required Storm Event Retention	Volume Required (acre-feet)	Total Volume Required (acre-feet)	Volume Provided (acre-feet)	Total Volume Provided (acre-feet)	Modeled HEC-1 Retention Volume (acre-feet)
RET16	DU 3S	16	67.7	DU3S	5.7	0.65	100-Year, 2-Hour	0.7	8.2	--	--	8.20
	DU 9			DU9	62.0	0.66		7.5		--		
RET17	DU 3S	17	86.6	DU3S	86.6	0.65	100-Year, 2-Hour	10.3	10.3	12.47	12.47	12.47
RET18	DU 8	18	204.8	DU8	204.8	0.66	100-Year, 2-Hour	24.7	24.7	--	--	24.70
RET19	DU 9	19	65.6	DU9	65.6	0.70	100-Year, 2-Hour	8.4	8.4	--	--	8.40
RET20	DU 8	20	195.6	DU8	18.5	0.68	100-Year, 2-Hour	2.3	23.9	--	--	23.90
	DU 9			DU9	164.2	0.65		19.5		--		
				---	12.9	0.90		2.1		--		
							Total	75.5	75.5	12.47	12.47	77.67 ac-ft

Eastmark Requred Retention Total =	494.2	ac-ft
Current Eastmark Provided Retention Total =	93.5	ac-ft
Current Eastmark Modeled Retention Total =	498.0	ac-ft

Offsite Retention Updates for HEC-1

Table 11 - Post Developed Condition HEC-1 - Offsite Retention Updates

Description: Retention provided by existing developments

Location: Eastmark - East Mesa, Arizona

Reference: Final Drainage Report for Mountain Horizons (North of the Powerline Floodway)
Final Drainage Report for Mountain Horizons (South of the Powerline Floodway)
Drainage Report for Mass Grading of Nova Vista (Signal Butte Rd & Elliot Rd)
Final Drainage Report for Gila River Ranches (Warner and Meridian)
Drainage Report for Mountain Heights
Final Drainage Report for Keighley Place

Watershed	Development	Basin ID	Retention Required (acre-ft)	Total Retention Required (acre-ft)	Account for 80% in HEC-1 (acre-ft)	Total Volume To HEC-1 (acre-ft)	Total Volume From EMF Model (WS4-SEM.DAT) (acre-ft)
73B	Mountain Ranch	A2	7.11	32.0	25.6	39.5	29.0
		A1	2.87				
		OS1	2.07				
		C1	4.06				
		C2	3.15				
		C3	0.53				
		D1	4.49				
		D2	2.44				
		OS2	1.68				
		OS3	1.62				
		OS4	1.96				
	Mountain Heights	A	2.90	9.6	7.7		
		B	1.18				
		C	0.59				
		D	0.61				
		E	3.56				
		F	0.76				
	Stratford Estates	A	4.67	7.7	6.2		
		1/2 B AND C	2.99				
73C	Nova Vista	B1	4.68	31.6	25.4	37.2	55.0
		B2	1.51				
		B3	5.29				
		B4	0.49				
		B5	7.16				
		B6	1.77				
		B7	0.73				
		B8	5.14				
		B9	3.58				
		B10	0.54				
		B11	0.86				
		B12	0.06				
		B13	0.14				
		B14	0.11				
		B15	0.07				
		B16	0.04				
	Mountain Horizons (North)	A1	4.89	14.7	11.8		
		B1	4.83				
		C1	5.07				
74B	Gila River Ranches	A, B, C	10.29	19.2	15.4	17.8	22.0
		D1, D2	2.26				
		E	2.49				
		F1, F2, F3, F4	2.22				
		K1	0.28				
		K2	0.91				
		M1	0.15				
		M2	0.23				
		N	0.34				
	Stratford Estates	1/2 B AND C	2.99	3.0	2.4		
74C	Mountain Horizons (North)	D1	5.98	28.3	22.6	22.6	35.0
		E1	3.88				
		F1, F2, F3, F4, F5	6.46				
		G1	4.67				
		H1, H2	4.24				
		J1	2.13				
		X1	0.98				
77B	Gila River Ranches	G, H3	3.64	8.0	6.4	18.5	16.0
		H1, H2	2.02				
		J1a, J1b, J1c	2.00				
		P	0.22				
		Q	0.11				
	Keighley Place[1]	A-1	6.85	12.6	10.1		
		A-2	2.87				
		G-1	1.46				
		G-2	0.39				
		G-3	0.67				
		G-4	0.19				
		G-5	0.11				
		J	0.02				
77C	Mountain Horizons (South)	A1	3.61	21.0	16.8	16.8	28.0
		A2	0.98				
		B1	2.07				
		B2	0.80				
		B3	0.36				
		B4	0.73				
		C1	2.99				
		D1	2.06				
		D2	2.54				
		F2	1.88				
		F3A, F3B	2.95				
78C	Mountain Horizons (South)	E1	0.42	2.7	2.2	2.2	24.0
		E2	2.28				
					Total	152.6	212.0

Notes:
1) Currently a final plat has been approved for Keighley Place but no construction has begun. Retention from the approved final drainage report was NOT applied to the existing condition HEC-1 model (MPGEX.DAT).

APPENDIX C

Hydraulics

Preliminary Channel Designs

SIGNAL BUTTE CHANNEL - WARNER TO RAY

Worksheet for 73T74C

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00240	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	6.00	ft/ft (H:V)
Bottom Width	38.00	ft
Discharge	441.00	ft^3/s

Results

Normal Depth	2.48	ft
Flow Area	122.04	ft^2
Wetted Perimeter	60.95	ft
Hydraulic Radius	2.00	ft
Top Width	60.34	ft
Critical Depth	1.51	ft
Critical Slope	0.01375	ft/ft
Velocity	3.61	ft/s
Velocity Head	0.20	ft
Specific Energy	2.69	ft
Froude Number	0.45	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.48	ft
Critical Depth	1.51	ft
Channel Slope	0.00240	ft/ft

Worksheet for 73T74C

GVF Output Data

Critical Slope	0.01375	ft/ft

Messages

Notes

From existing box culvert beneath Signal Butte Road near Warner Road to the Powerline Floodway

Cross Section for 73T74C

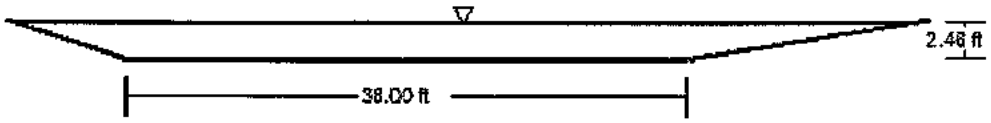
Project Description

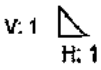
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00240	ft/ft
Normal Depth	2.48	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	6.00	ft/ft (H:V)
Bottom Width	38.00	ft
Discharge	441.00	ft^3/s

Cross Section Image





POWERLINE FLOODWAY EXISTING CHANNEL
SIGNAL BUTTE TO SPINE EAST

Worksheet for 74CT10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00355	ft/ft
Left Side Slope	1.50	ft/ft (H:V)
Right Side Slope	1.50	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	1100.00	ft³/s

Results

Normal Depth	5.02	ft
Flow Area	77.90	ft²
Wetted Perimeter	26.09	ft
Hydraulic Radius	2.99	ft
Top Width	23.05	ft
Critical Depth	5.88	ft
Critical Slope	0.00187	ft/ft
Velocity	14.12	ft/s
Velocity Head	3.10	ft
Specific Energy	8.12	ft
Froude Number	1.35	
Flow Type	Supercritical	

CHANNEL DEPTH = 5.75 ft
FREEBOARD = 0.73 ft

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.02	ft
Critical Depth	5.88	ft
Channel Slope	0.00355	ft/ft

Worksheet for 74CT10

CVF Output Data

Critical Slope	0.00187	ft/ft

Cross Section for 74CT10

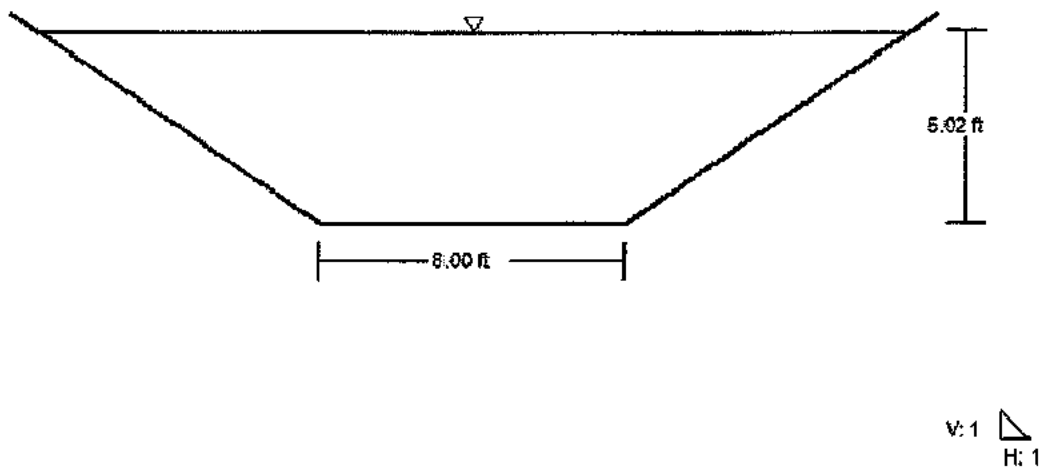
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00355	ft/ft
Normal Depth	5.02	ft
Left Side Slope	1.50	ft/ft (H:V)
Right Side Slope	1.50	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	1100.00	ft^3/s

Cross Section Image



POWERLINE FLOODWAY EXISTING CHANNEL
SPINE EAST TO ELLSWORTH ROAD

Worksheet for 10T11 & 11T75

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00376	ft/ft
Left Side Slope	1.50	ft/ft (H:V)
Right Side Slope	1.50	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	1100.00	ft^3/s

Results

Normal Depth	4.95	ft
Flow Area	76.30	ft^2
Wetted Perimeter	25.84	ft
Hydraulic Radius	2.95	ft
Top Width	22.84	ft
Critical Depth	5.88	ft
Critical Slope	0.00187	ft/ft
Velocity	14.42	ft/s
Velocity Head	3.23	ft
Specific Energy	8.18	ft
Froude Number	1.39	
Flow Type	Supercritical	

CHANNEL DEPTH = 6.25 ft
FREEBOARD = 1.3 ft

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	4.95	ft
Critical Depth	5.88	ft
Channel Slope	0.00376	ft/ft

Worksheet for 10T11 & 11T75

GVF Output Data

Critical Slope	0.00187	ft/ft

Cross Section for 10T11 & 11T75

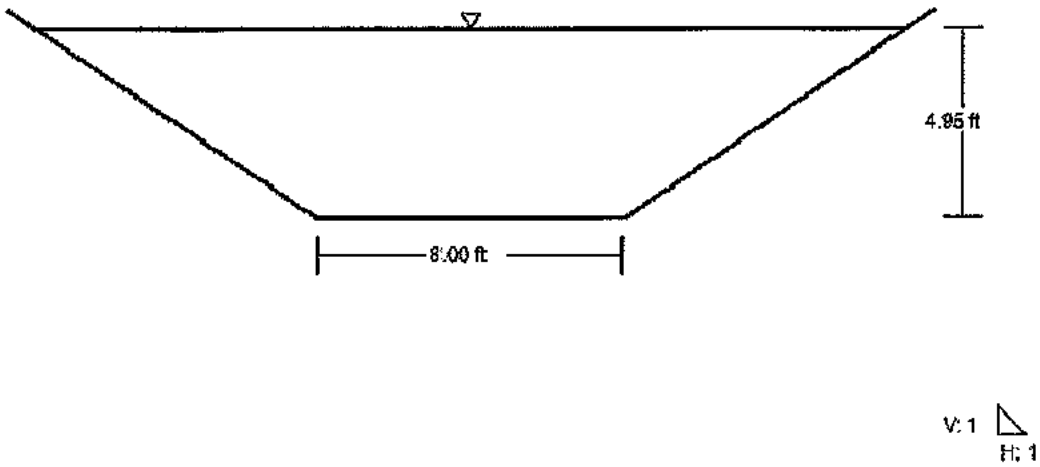
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00376	ft/ft
Normal Depth	4.95	ft
Left Side Slope	1.50	ft/ft (H:V)
Right Side Slope	1.50	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	1100.00	ft^3/s

Cross Section Image



Worksheet for 77CT78B - Ray to Galveston

CVF Output Data

Critical Slope	0.01316	ft/ft

Messages

Notes

From Galveston Street to Williams Field Road

Worksheet for 77CT78B - Ray to Galveston

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00240	ft/ft
Left Side Slope	6.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	32.00	ft
Discharge	510.00	ft³/s

Results

Normal Depth	2.91	ft	PROPOSED CHANNEL
Flow Area	131.37	ft²	DEPTH = 4 ft
Wetted Perimeter	58.93	ft	
Hydraulic Radius	2.23	ft	FREEBOARD = 1 ft
Top Width	58.21	ft	
Critical Depth	1.82	ft	
Critical Slope	0.01316	ft/ft	
Velocity	3.88	ft/s	
Velocity Head	0.23	ft	
Specific Energy	3.15	ft	
Froude Number	0.46		
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.91	ft
Critical Depth	1.82	ft
Channel Slope	0.00240	ft/ft

Cross Section for 77CT78B - Ray to Galveston

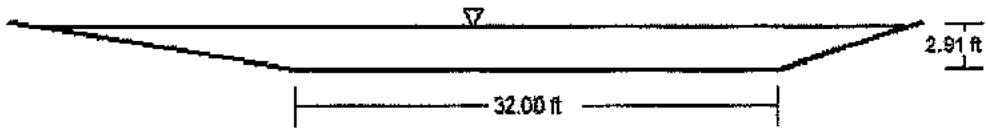
Project Description

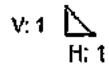
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00240	ft/ft
Normal Depth	2.91	ft
Left Side Slope	6.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	32.00	ft
Discharge	510.00	ft^3/s

Cross Section Image





Worksheet for 77CT78B - Galveston to Williamsfield

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00190	ft/ft
Left Side Slope	6.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	70.00	ft
Discharge	946.00	ft³/s

Results

Normal Depth	2.99	ft
Flow Area	249.87	ft²
Wetted Perimeter	97.68	ft
Hydraulic Radius	2.56	ft
Top Width	96.94	ft
Critical Depth	1.72	ft
Critical Slope	0.01295	ft/ft
Velocity	3.79	ft/s
Velocity Head	0.22	ft
Specific Energy	3.22	ft
Froude Number	0.42	
Flow Type	Subcritical	

PROPOSED CHANNEL DEPTH = 4 ft

FREEBOARD = 1 ft

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.99	ft
Critical Depth	1.72	ft
Channel Slope	0.00190	ft/ft

Worksheet for 77CT78B - Galveston to Williamsfield

GVF Output Data

Critical Slope	0.01295	ft/ft

Messages

Notes

From Galveston Street to Williams Field Road

Cross Section for 77CT78B - Galveston to Williamsfield

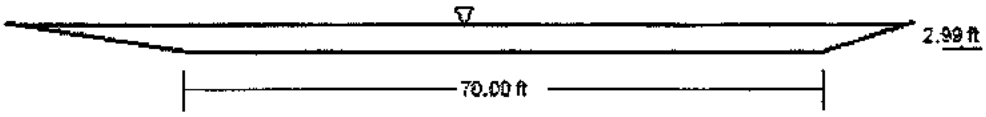
Project Description

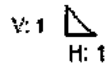
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00190	ft/ft
Normal Depth	2.99	ft
Left Side Slope	6.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	70.00	ft
Discharge	946.00	ft^3/s

Cross Section Image





WILLIAMSFIELD CHANNEL
SIGNAL BUTTE TO PACIFIC PROVING GROUNDS

Worksheet for 78CT79

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.032	
Channel Slope	0.00330	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	6.00	ft/ft (H:V)
Bottom Width	51.00	ft
Discharge	946.00	ft³/s

Results

Normal Depth	3.01	ft
Flow Area	194.33	ft²
Wetted Perimeter	78.83	ft
Hydraulic Radius	2.47	ft
Top Width	78.10	ft
Critical Depth	2.07	ft
Critical Slope	0.01241	ft/ft
Velocity	4.87	ft/s
Velocity Head	0.37	ft
Specific Energy	3.38	ft
Froude Number	0.54	
Flow Type	Subcritical	

PROPOSED CHANNEL
DEPTH = 4 ft
FREEBOARD = 1 ft

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.01	ft
Critical Depth	2.07	ft
Channel Slope	0.00330	ft/ft

Worksheet for 78CT79

GVF Output Data

Critical Slope	0.01241	ft/ft

Cross Section for 78CT79

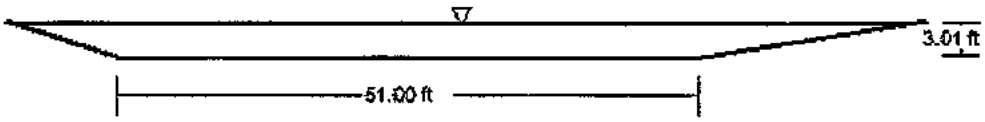
Project Description

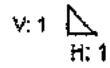
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

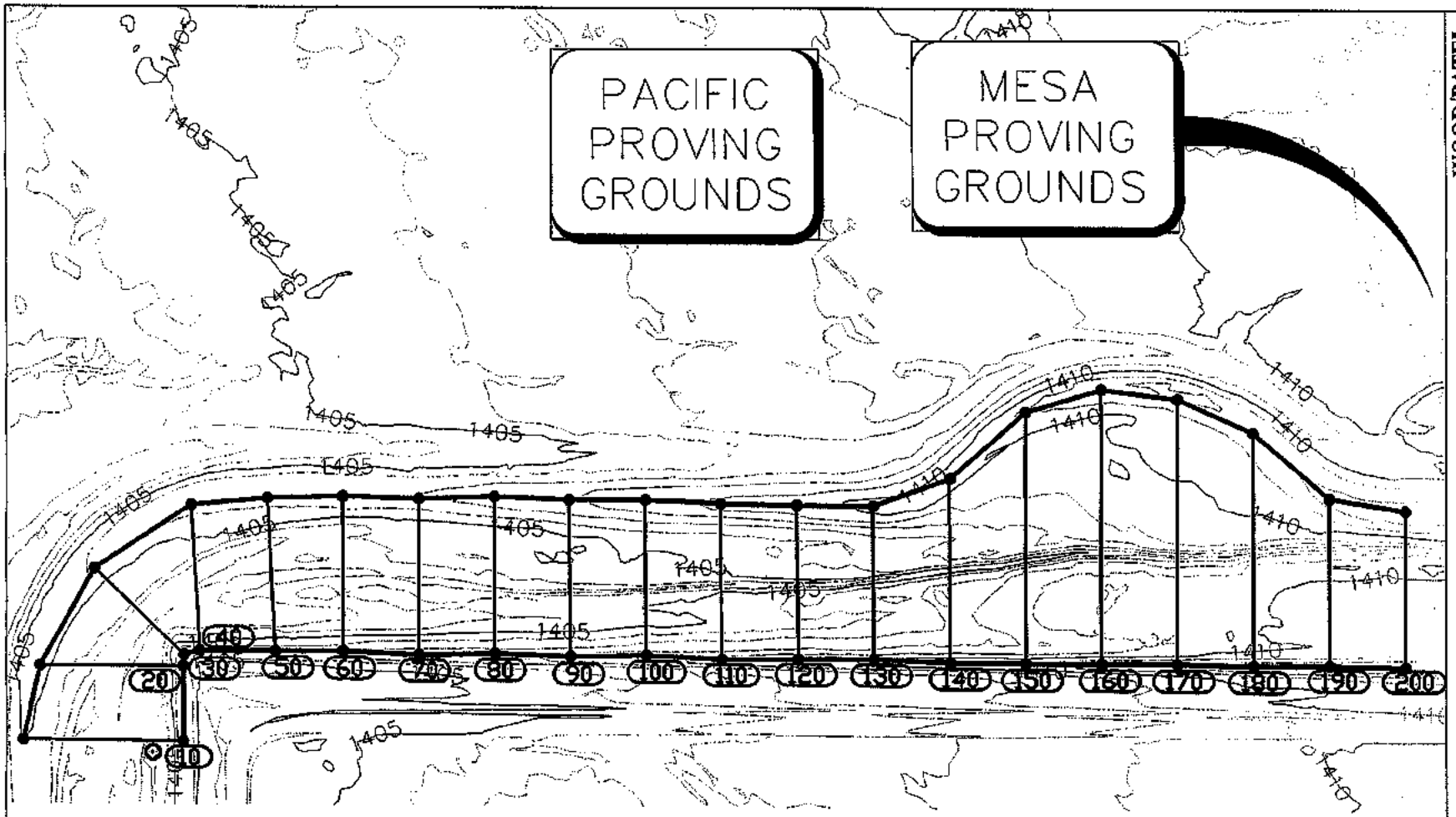
Roughness Coefficient	0.032	
Channel Slope	0.00330	ft/ft
Normal Depth	3.01	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	6.00	ft/ft (H:V)
Bottom Width	51.00	ft
Discharge	946.00	ft^3/s

Cross Section Image





Existing Pacific Proving Grounds
Channel Analysis



200 0 100 200

Horz. 1 in. = 200 ft.

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PACIFIC PROVING GROUNDS CHANNEL

MESA, ARIZONA
SEPTEMBER, 2011

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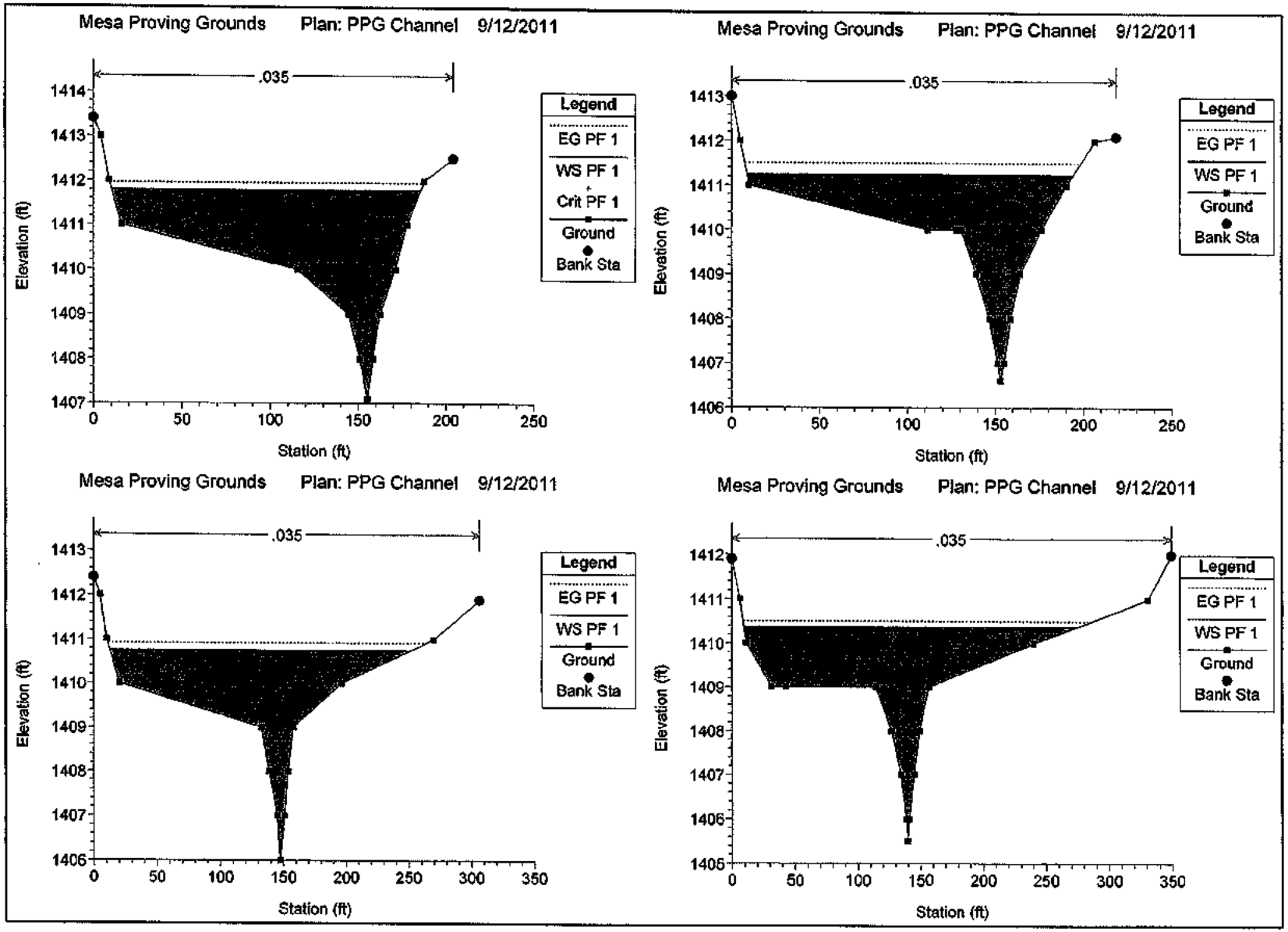
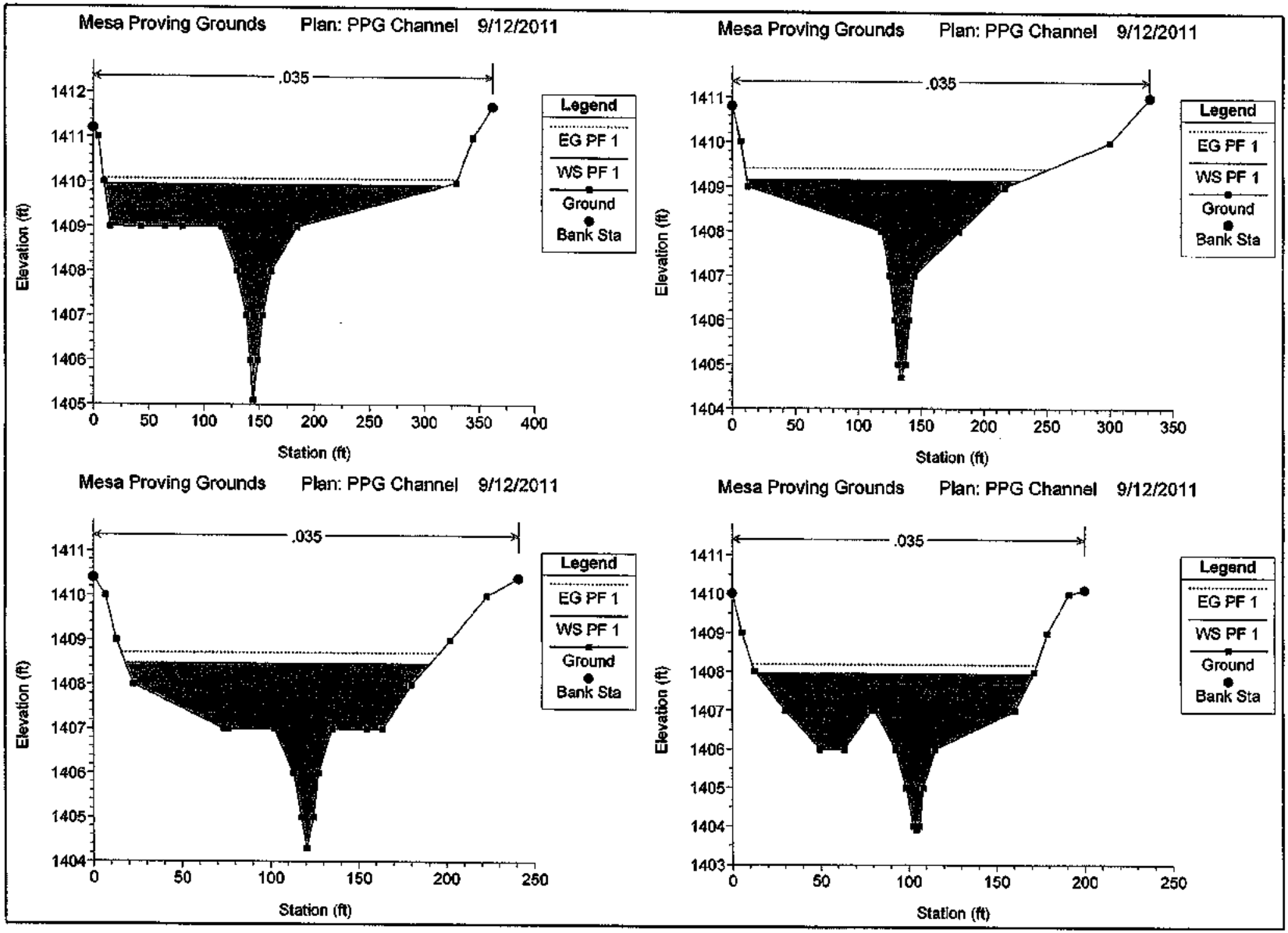
HEC-RAS Plan: 062753 River: Reach #2 Reach: PPG Channel Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
PPG Channel	200	PF 1	946.00	1407.10	1411.79	1411.00	1411.95	0.002881	3.21	294.56	175.39	0.44
PPG Channel	190	PF 1	946.00	1406.60	1411.25		1411.51	0.007131	4.12	229.43	185.36	0.65
PPG Channel	180	PF 1	946.00	1406.00	1410.75		1410.92	0.004555	3.26	290.60	239.11	0.52
PPG Channel	170	PF 1	946.00	1405.50	1410.37		1410.51	0.003571	2.91	325.55	264.78	0.46
PPG Channel	160	PF 1	946.00	1405.10	1409.94		1410.08	0.005057	3.03	312.28	309.97	0.53
PPG Channel	150	PF 1	946.00	1404.70	1409.16		1409.42	0.008566	4.08	231.79	218.23	0.70
PPG Channel	140	PF 1	946.00	1404.30	1408.47		1408.72	0.005710	3.97	238.47	172.79	0.60
PPG Channel	130	PF 1	946.00	1403.90	1407.95		1408.19	0.004731	3.89	243.39	157.84	0.55
PPG Channel	120	PF 1	946.00	1403.40	1407.51		1407.73	0.004365	3.83	246.95	154.19	0.53
PPG Channel	110	PF 1	946.00	1403.00	1407.11		1407.32	0.003640	3.68	256.77	154.39	0.50
PPG Channel	100	PF 1	946.00	1403.00	1406.79		1406.98	0.002928	3.41	277.32	152.84	0.45
PPG Channel	90	PF 1	946.00	1403.00	1406.47		1406.66	0.003334	3.47	272.58	161.45	0.47
PPG Channel	80	PF 1	946.00	1403.00	1406.23		1406.37	0.002342	3.06	306.65	166.46	0.40
PPG Channel	70	PF 1	946.00	1403.00	1405.97		1406.12	0.002624	3.15	300.27	171.99	0.42
PPG Channel	60	PF 1	946.00	1402.90	1405.81		1405.92	0.001435	2.61	362.22	174.75	0.32
PPG Channel	50	PF 1	946.00	1402.50	1405.67		1405.78	0.001487	2.66	355.85	171.59	0.33
PPG Channel	40	PF 1	946.00	1402.20	1405.47		1405.61	0.001878	2.99	316.12	152.06	0.37
PPG Channel	30	PF 1	946.00	1402.00	1404.78		1405.31	0.011458	5.84	161.96	110.91	0.85
PPG Channel	20	PF 1	946.00	1402.00	1404.41	1403.92	1404.73	0.006302	4.49	210.91	137.20	0.64
PPG Channel	10	PF 1	946.00	1402.00	1403.89	1403.33	1404.14	0.005002	4.04	234.14	149.85	0.57


Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Mesa Proving Grounds Plan: PPG Channel 9/12/2011
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
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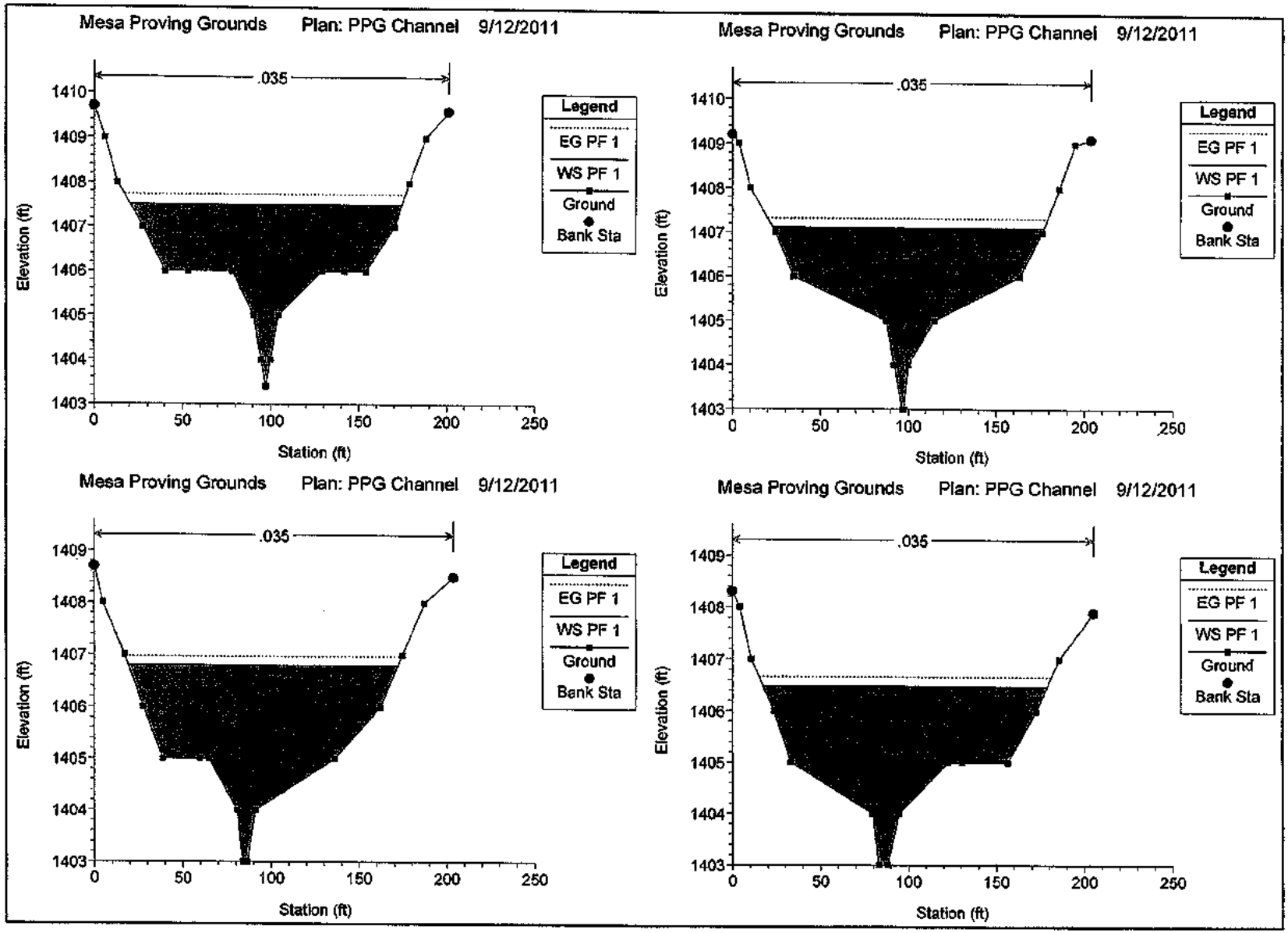
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Mesa Proving Grounds Plan: PPG Channel 9/12/2011
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
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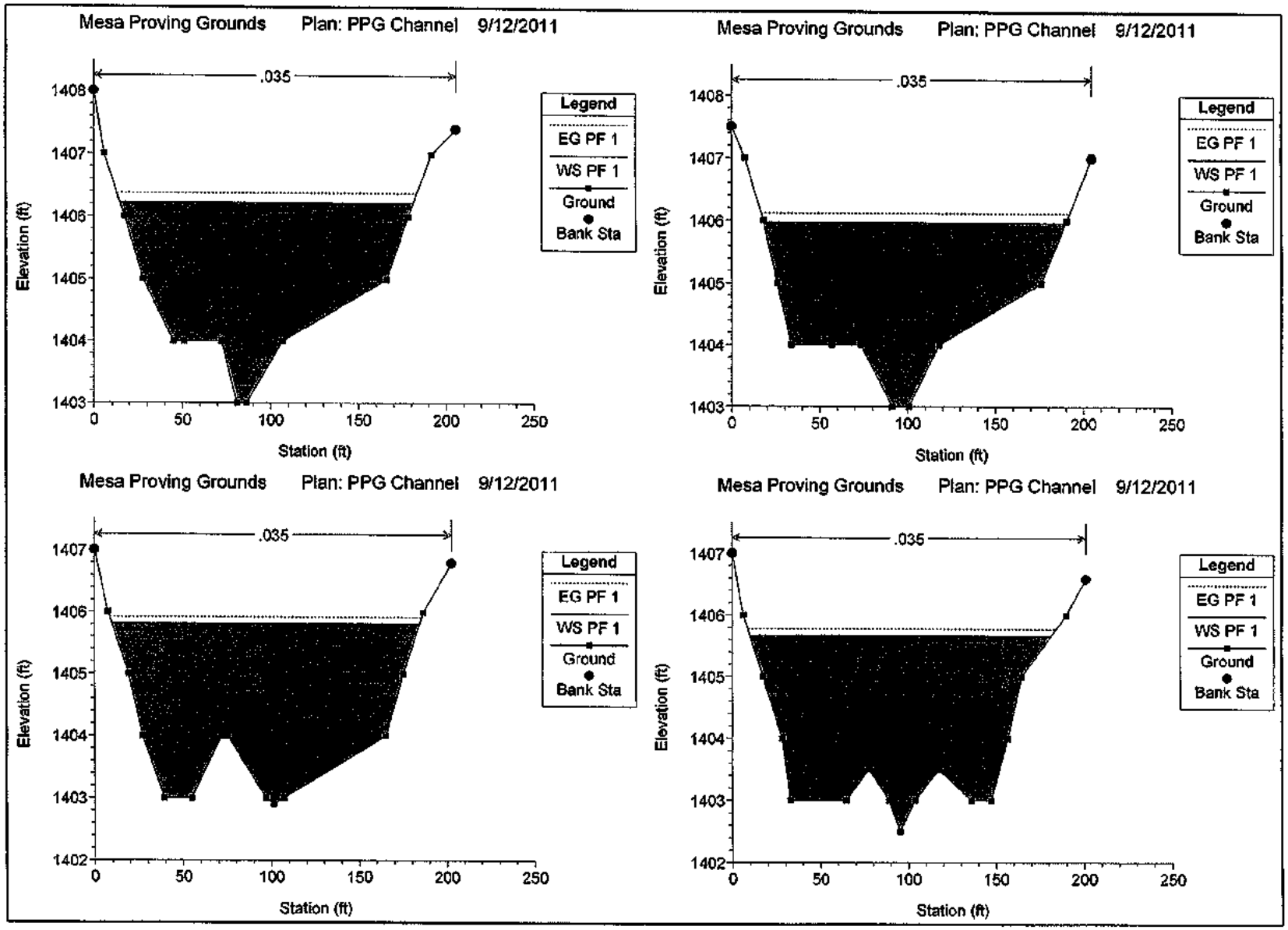
1409
1408
1407
1406
1405
1404
1403
0
50
100
150
200
250


Mesa Proving Grounds Plan: PPG Channel 9/12/2011
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
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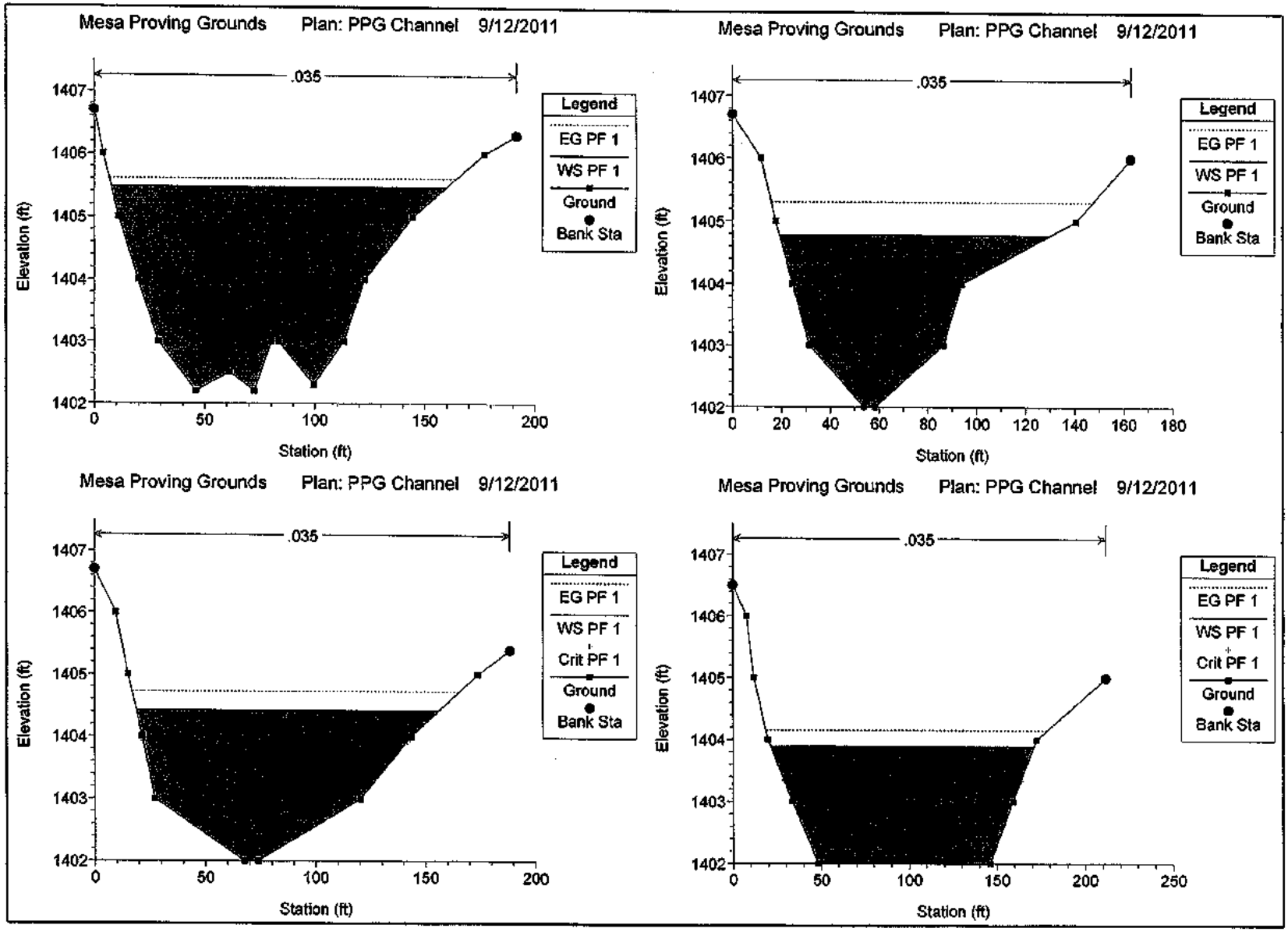
1404
1403
1402
0
50
100
150
200
250


Mesa Proving Grounds Plan: PPG Channel 9/12/2011
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
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WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Mesa Proving Grounds Plan: PPG Channel 9/12/2011
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

APPENDIX D

Miscellaneous

Flood Control District of Maricopa County Letter

Flood Control District
of Maricopa County

Board of Directors
Fulton Brock, District 1
Don Stapley, District 2
Andrew Kunasek, District 3
Max Wilson, District 4
Mary Rose Wilcox, District 5

www.fcd.maricopa.gov

2801 West Durango Street
Phoenix, Arizona 85009
Phone: 602-506-1501
Fax: 602-506-4601
TT: 602-505-5897

Received

JAN 17 2012

Wood / Patel

January 11, 2012

Darrell Smith, PE, Associate
Wood/Patel & Associates, Inc.
2051 W. Northern Avenue, Suite 100
Phoenix, AZ 85021

SUBJECT: District Permit Request 2011P061
Master Drainage Report for Mesa Proving Grounds dated December 20, 2011

Dear Mr. Smith:

The Flood Control District of Maricopa County (District) has completed the review of the revised Master Drainage Report for Mesa Proving Grounds dated December 20, 2011 and the revised Page 8 submitted on January 9, 2012. These specific documents are hereby approved. Please note, however, that the District must review any future updates to the *Master Drainage Report* as well as drainage reports for the individual development units and/or impacts to the District's Powerline Floodway.

Please note that this correspondence is not a permit and does not authorize any activities within the District's right-of-way. Before construction may commence within District right-of-way, the contractor must obtain a right-of-way permit. The contractor must apply for the permit and meet all bonding and insurance requirements as determined during the review process. Furthermore, the contractor must abide by all conditions established within the District's permit, including, but not limited to, site restoration.

Thank you for the opportunity to review the referenced plans. If you should have any questions concerning the above, please call the undersigned at 602-506-4583.

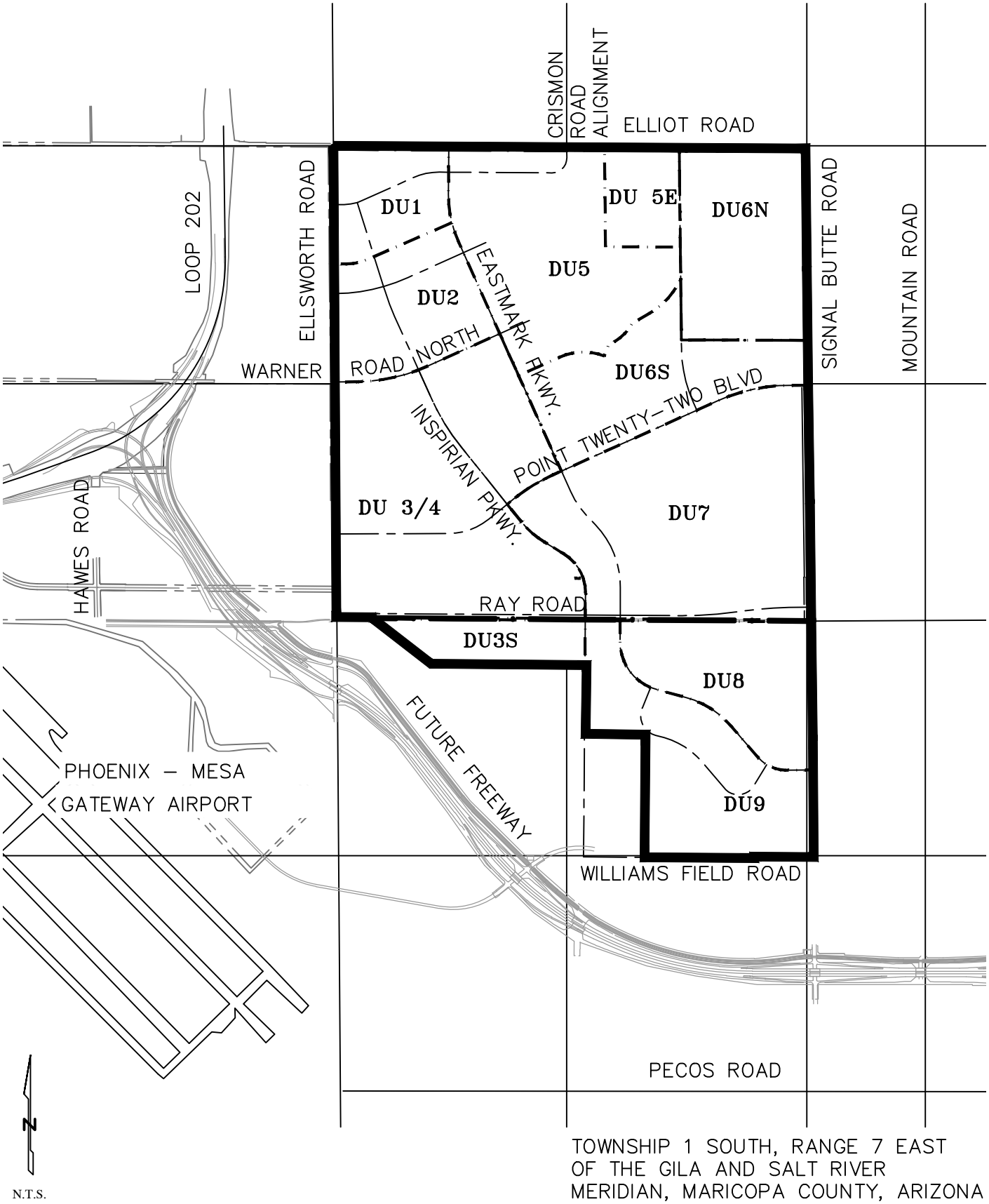
Sincerely,

Shelby Brown

Shelby Brown, CFM
Right-of-Way Permit Specialist

PLATE 1

Vicinity Map



TOWNSHIP 1 SOUTH, RANGE 7 EAST
OF THE GILA AND SALT RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA

R:\Mesa Proving Grounds\2014\144179\Project Support\Reports\Drainage\Eastmark Overall Master Drainage Update\Exhibits\ 4179-Plate 1 - Vicinity Map.dwg - Apr 16,2014 5:04pm

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PLATE 1: VICINITY MAP

EASTMARK
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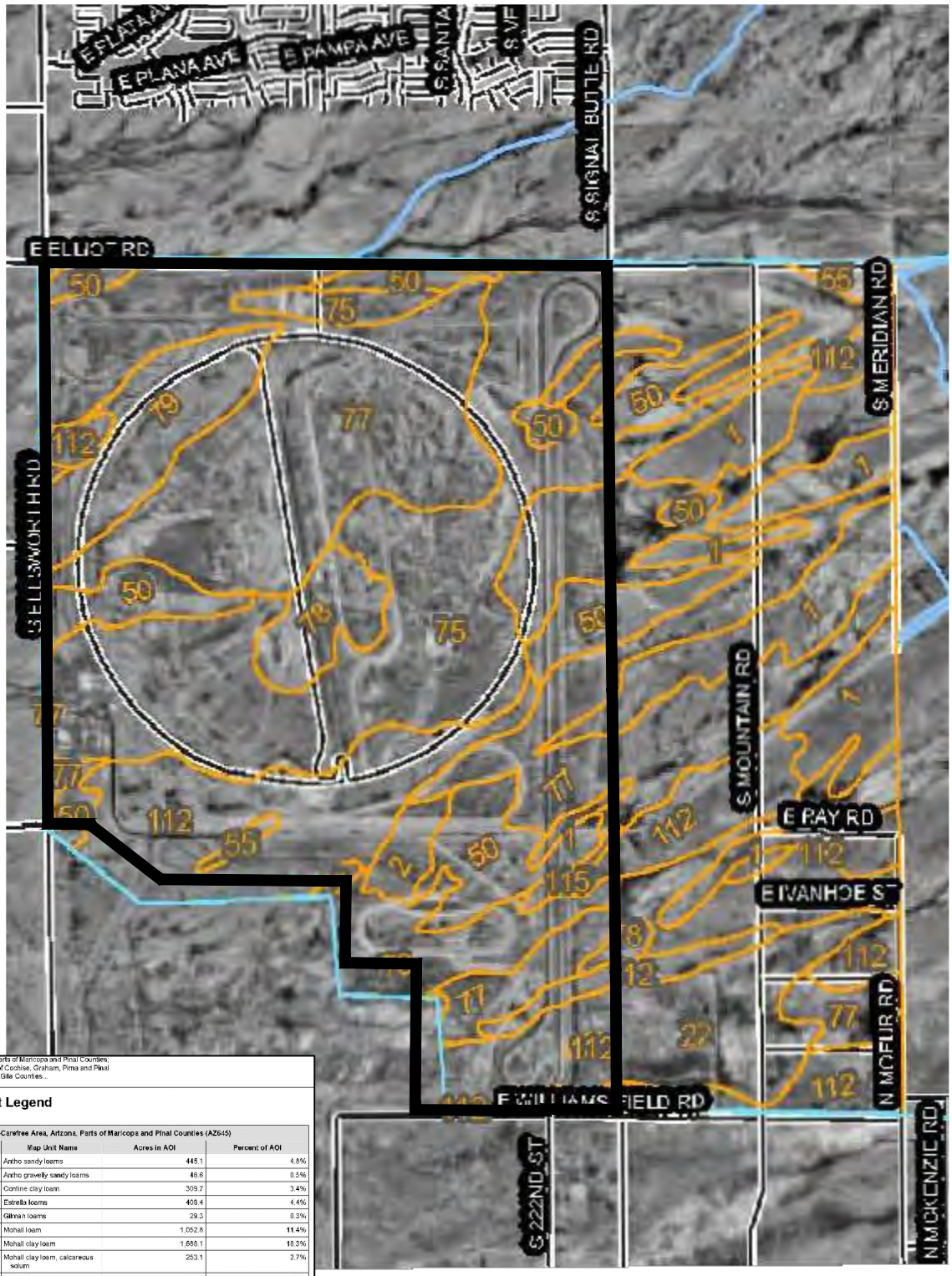
PLATE 2

Soils Map



Soil Map--Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties; Coronado National Forest, Arizona, Parts of Cochise, Graham, Pima and Pinal Counties; and Eastern Pinal and Southern Gila Counties...

Map Unit Legend

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties (AZ645)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Antho sandy loams	445.1	4.8%
2	Antho gravelly sandy loams	46.6	0.5%
22	Contine clay loam	309.7	3.4%
50	Estrella loams	409.4	4.4%
55	Gilman loams	29.3	0.3%
75	Mohall loam	1,052.8	11.4%
77	Mohall clay loam	1,688.1	18.3%
78	Mohall clay loam, calcareous solum	253.1	2.7%
79	Mohall clay	179.4	1.9%
112	Tremant gravelly sandy loams	771.5	8.4%
115	Tremant-Antho complex, 1 to 5 percent slopes	13.2	0.1%
Coronado National Forest, Arizona, Parts of Cochise, Graham, Pima and Pinal Counties (AZ723)			
No soil data available for this soil survey area.			
Eastern Pinal and Southern Gila Counties, Arizona (AZ661)			
No map units selected for this soil survey area.			
Totals for Area of Interest (AOI)		9,214.9	100.0%

3000 0 1500 3000

1 inch = 3000 ft.

N

R:\Mesa Proving Grounds\2014\4417B\Project Support\Reports\Drainage\Eastmark Overall Master Drainage Update\Exhibits\ 417B-Plate 2-Soils Mapping - Apr 16,2014 5:12pm

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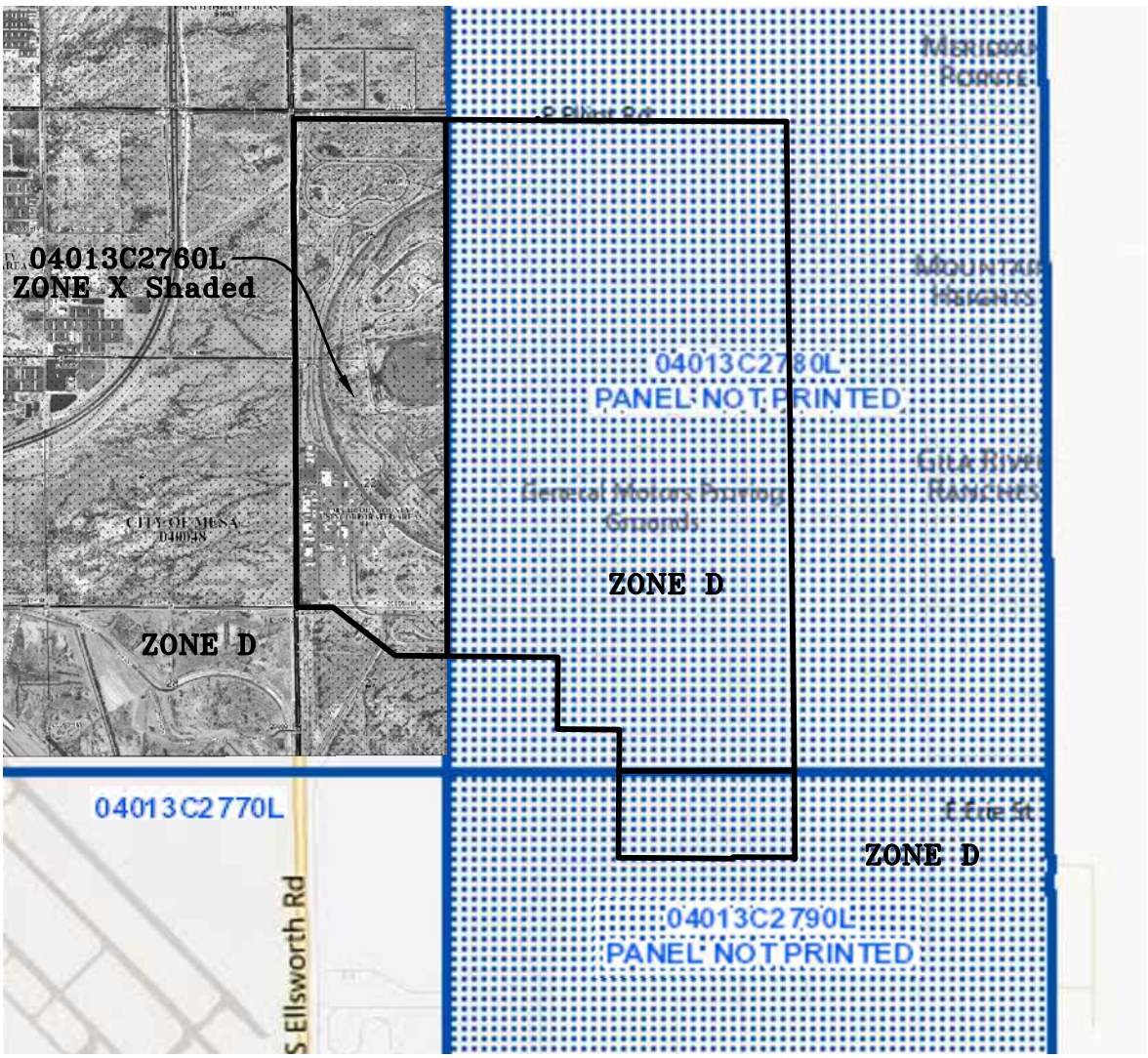
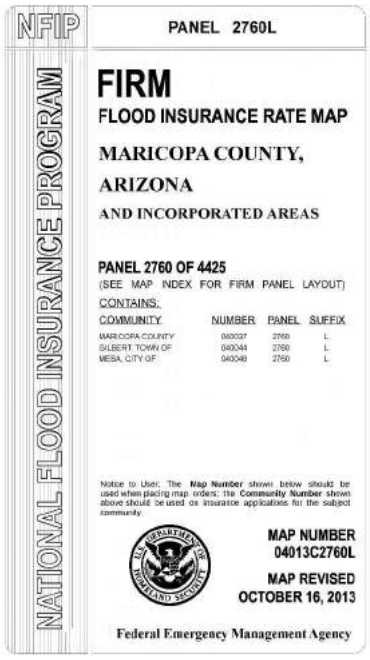
PLATE 2: SOILS MAP

EASTMARK
MESA, ARIZONA

PLATE 3

Flood Insurance Rate Map





Zone "X" Shaded is defined by FEMA as follows:
Areas of 0.2% annual chance flood: areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Zone "D" is defined by FEMA as follows:
Areas in which flood hazards are undetermined.

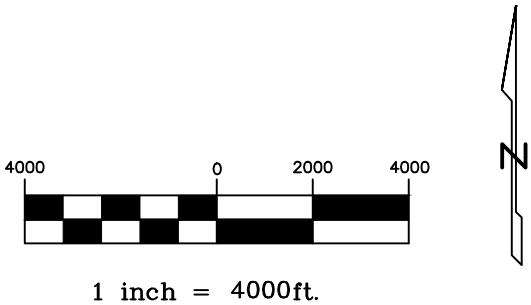


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PLATE 3: FEMA FIRM MAP

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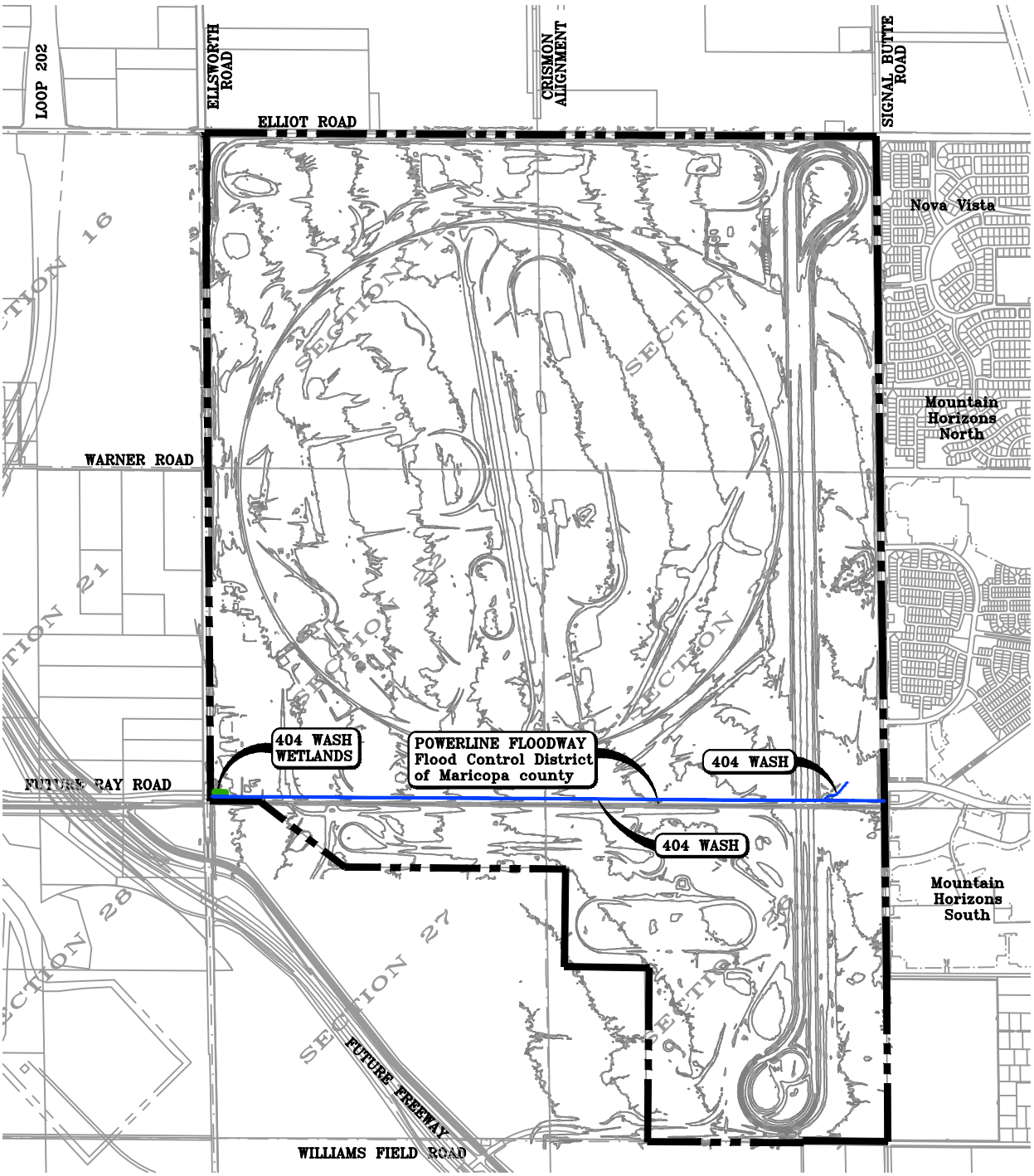
PLATE 4

Section 404 Jurisdictional Delineation Map



LEGEND

404 WASH	
404 WASH WETLANDS	
PROPERTY BOUNDARY	
5 FT. CONTOUR	1430

N.T.S.

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PLATE 4: 404 JURISDICTIONAL DELINEATION MAP

EASTMARK
MESA, ARIZONA

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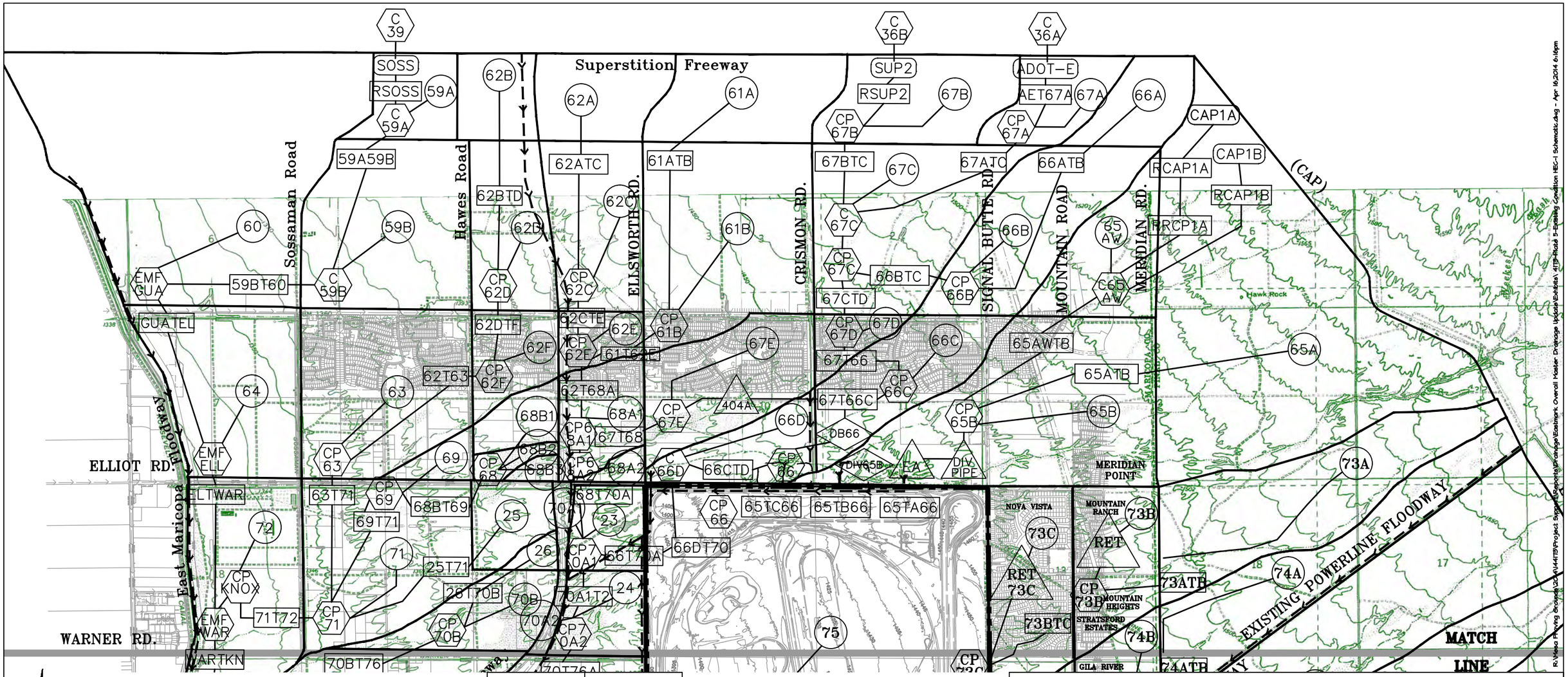
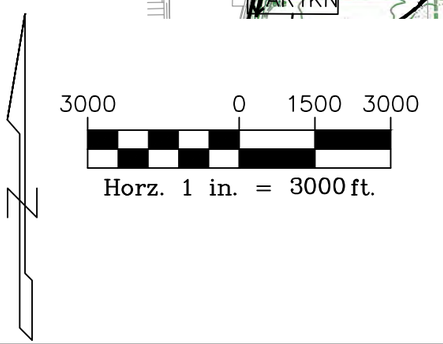
PLATE 5

Existing Condition HEC-1 Schematic





LOCATION ID	DISCHARGE (CFS)
CP73C	419
CP74C	697
C77C	694
C78C	775
79A1	90
79A2	225
79A3	156
C79B1	1,090
CP66	1,323
CP75	661

LEGEND

- EASTMARK BOUNDARY
- SUB-BASIN BOUNDARY
- EXISTING CHANNEL OR STORM DRAIN
- ROUTING
- 5 FT. CONTOUR
- 77C — WATERSHED ID
- 77BTC — ROUTING ID
- C 77C — CONCENTRATION POINT ID
- RET 73B — RETENTION ID

PLATE 5: EXISTING CONDITION HEC-1 SCHEMATIC - SHEET 1

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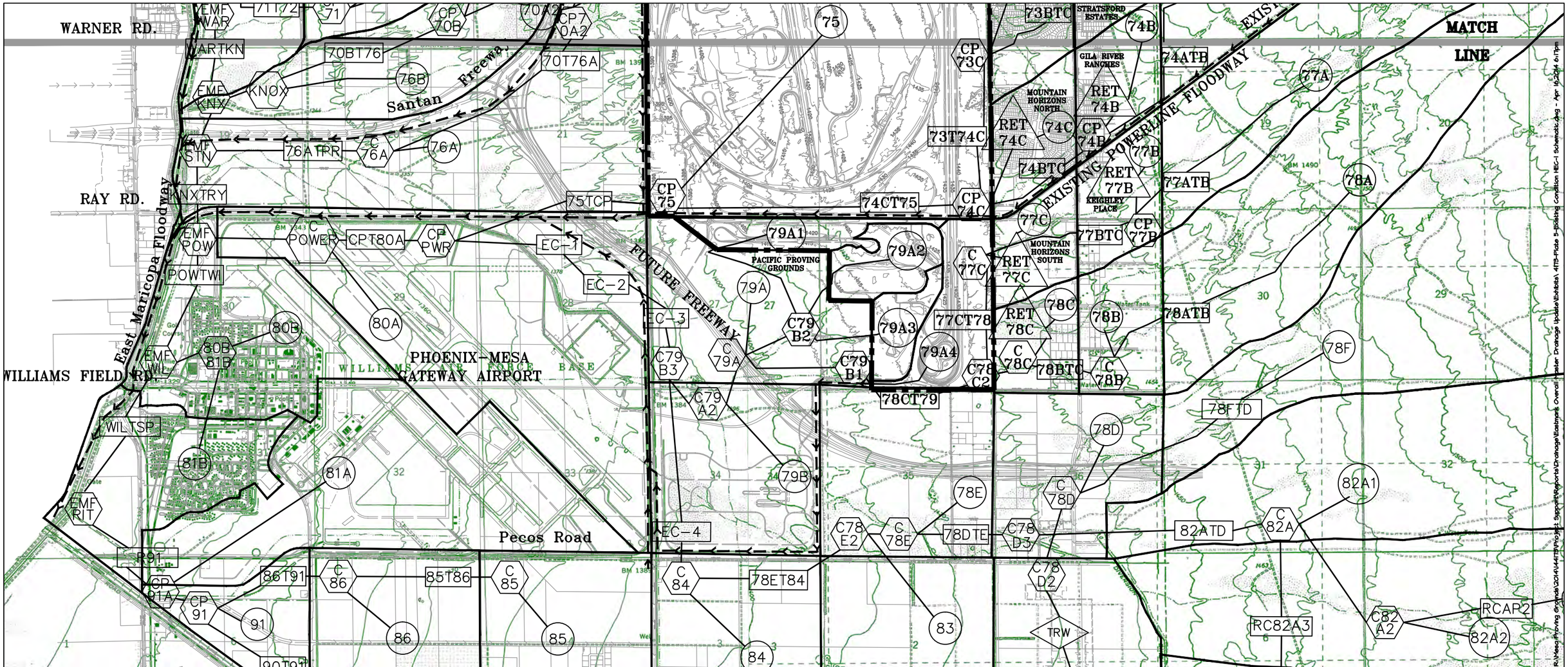

3000 0 1500 3000

Horz. 1 in. = 3000 ft.

LOCATION ID	DISCHARGE (CFS)
CP73C	419
CP74C	697
C77C	694
C78C	775
79A1	90
79A2	225
79A3	156
C79B1	1,090
CP66	1,323
CP75	661

LEGEND

- EASTMARK BOUNDARY
- SUB-BASIN BOUNDARY
- EXISTING CHANNEL OR STORM DRAIN
- ROUTING
- 5 FT. CONTOUR
- 77C — WATERSHED ID
- 77BTC — ROUTING ID
- C 77C — CONCENTRATION POINT ID
- RET 73B — RETENTION ID

PLATE 5: EXISTING CONDITION HEC-1 SCHEMATIC - SHEET 2

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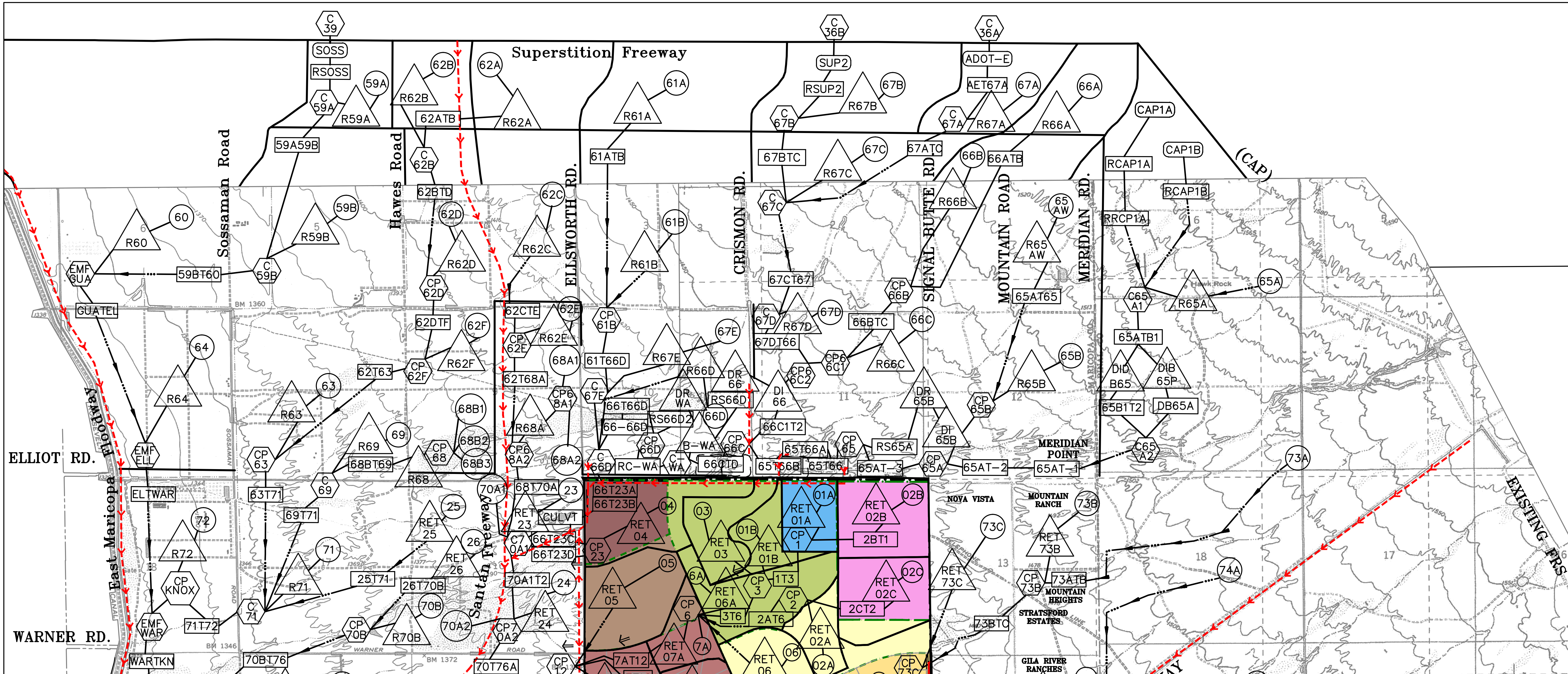
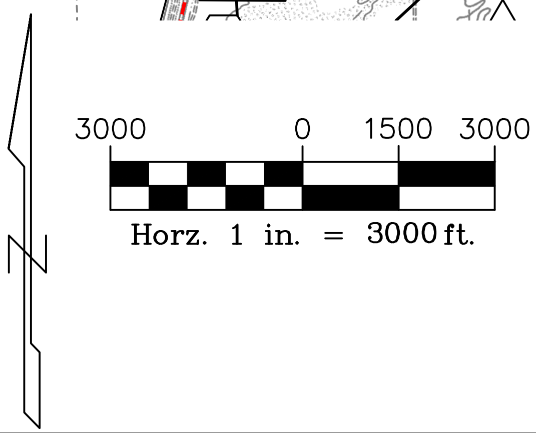
PLATE 6

Post-Developed HEC-1 Schematic





LOCATION ID	DISCHARGE (CFS)
CP73C	441
CP74C	713
C77C	510
C78C	821
RET17	5
CP19A	16
RET20	70
CP22B	941
C66D	1078
CP75	626

LEGEND

Legend item	Description
DU 1	DU 1
DU 2	DU 2
DU 3S	DU 3S
DU 3/4	DU 3/4
DU 5	DU 5
DU 5E	DU 5E
DU 6N	DU 6N
DU 6S	DU 6S
DU 7	DU 7
DU 8	DU 8
DU-9	DU-9
(solid line)	SUB-BASIN BOUNDARY
(blue dashed line)	EXISTING STORM DRAIN
(red arrow)	PROPOSED CHANNEL AND/OR STORM DRAIN SYSTEM
(red dashed arrow)	EXISTING CHANNEL OR STORM DRAIN
(dotted arrow)	ROUTING
1430	5 FT. CONTOUR
(arrow)	FLOW DIRECTION ARROW
77C	WATERSHED ID
77BTC	ROUTING ID
C 77C	CONCENTRATION POINT ID
RET 73B	RETENTION ID

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PLATE 6: POST DEVELOPED HEC-1 SCHEMATIC - SHEET 1

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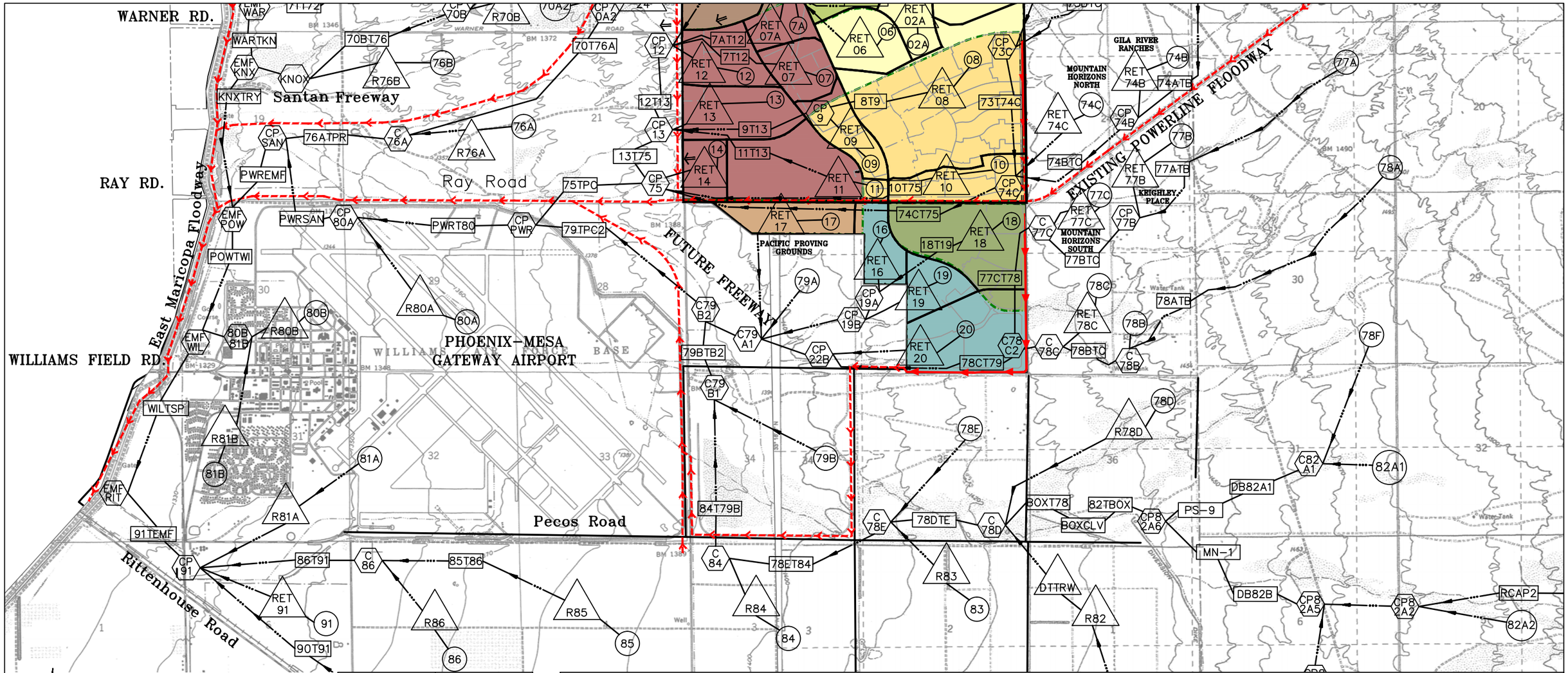

3000 0 1500 3000

Horz. 1 in. = 3000 ft.

LOCATION ID	DISCHARGE (CFS)
CP73C	441
CP74C	713
C77C	510
C78C	821
RET17	5
CP19A	58
RET19	69
CP22B	939
C66D	1078
CP75	626

LEGEND

DU 1
DU 2
DU 3S
DU 3/4
DU 5
DU 5E
DU 6N
DU 6S
DU 7
DU 8
DU-9

SUB-BASIN BOUNDARY
EXISTING STORM DRAIN
PROPOSED CHANNEL AND/OR STORM DRAIN SYSTEM
EXISTING CHANNEL OR STORM DRAIN
ROUTING
5 FT. CONTOUR
FLOW DIRECTION ARROW

77C WATERSHED ID
77BTC ROUTING ID
C 77C CONCENTRATION POINT ID
RET 73B RETENTION ID

PLATE 6: POST DEVELOPED HEC-1 SCHEMATIC - SHEET 2

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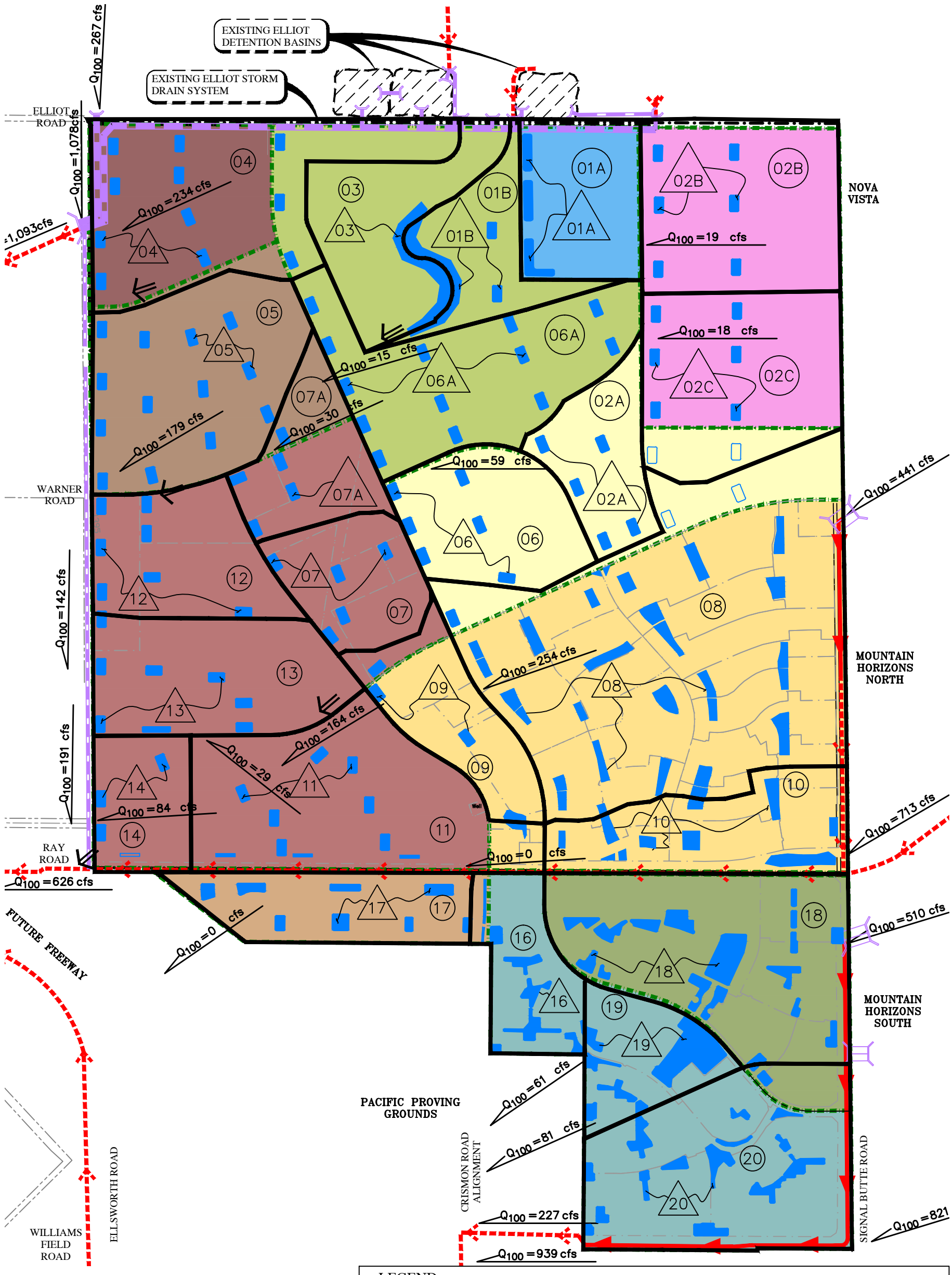
PLATE 7

Post-Developed Drainage Map



NOTE: THE CUMULATIVE REQUIRED RETENTION VOLUME FOR EACH RETENTION BASIN HAS BEEN IDENTIFIED. RETENTION BASIN SIZES AND LOCATIONS ARE ARE SHOWN SCHEMATICALLY AND ARE SUBJECT TO CHANGE.

N

1400 0 700 1400

Horz. 1 in. = 1400 ft.

LEGEND

DU 1	DU 5E	DU 9
DU 2	DU 6N	
DU 3/4	DU 6S	
DU 3S	DU 7	
DU 5	DU 8	

Q_{100} =177 cfs — SUB-BASIN 100YR, 24HR PEAK FLOW

- SUB-BASIN BOUNDARY
- PROPOSED CHANNEL AND/OR STORM DRAIN SYSTEM
- EXISTING CHANNEL
- EXISTING STORM DRAIN
- EXISTING BOX CULVERT
- PRELIMINARY RETENTION LOCATION
- 01 SUB-BASIN LABEL
- 01 RETENTION LABEL

R:\Mesa Proving Grounds\2014\144173\Project Support\Reports\Drainage\Eastmark Overall Master Drainage Update\Exhibits\ 4173-Plate 7 - Post Developed Drainage Map.dwg - Apr 18,2014 4:35am

PLATE 7 - POST DEVELOPED DRAINAGE MAP

EASTMARK

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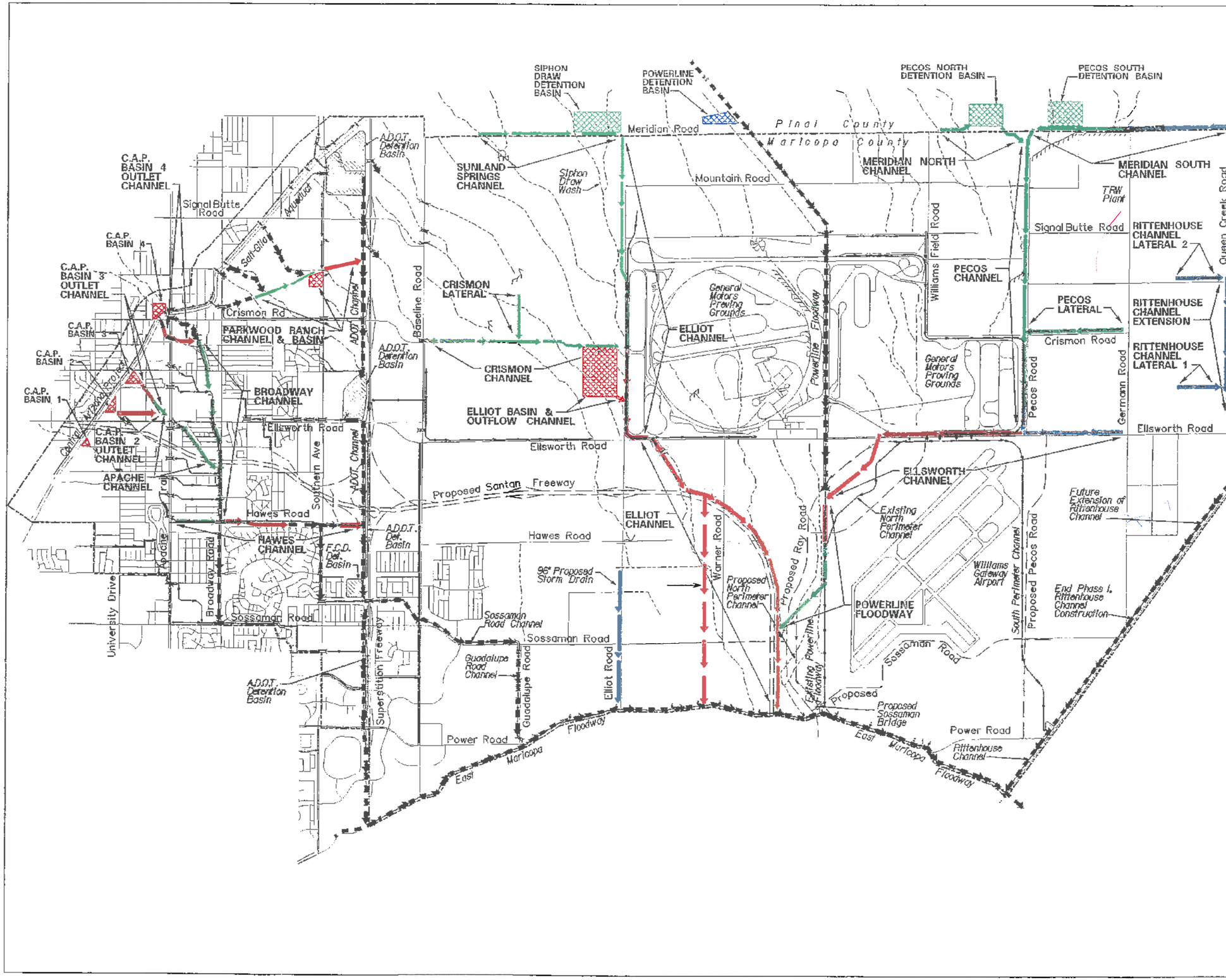
PLATE 8

East Mesa Area Drainage Master Plan Map



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

East Mesa Area Drainage Master Plan

F.C.D. CONTRACT NO. 95-32

LEGEND

- STUDY BOUNDARY
- EXISTING CHANNEL/DITCH
- EXISTING BRIDGE/CULVERT
- EXISTING STORM DRAIN
- EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE
- EXISTING DIVERSION DIKE
- EXISTING WASH
- PROPOSED ROAD ALIGNMENT
- PROPOSED CHANNEL/STORM DRAIN PRIORITY 1
- PRIORITY 2
- PRIORITY 3
- EXISTING/PLANNED MAJOR CHANNEL
- PROPOSED DETENTION BASIN PRIORITY 1
- PRIORITY 2
- PRIORITY 3

N

2500 0' 2500 5000

SCALE: 1" = 5000'

DIBBLE & ASSOCIATES
CONSULTING ENGINEERS

Hoskin Engineering Consultants

PROJECT PHASING

FIGURE 9