Queen Creek Wash

Hawes Road to Power Road

Revised Hydrology

Technical Memorandum #1

Prepared for:

Town of Queen Creek
22350 S. Ellsworth Road
Queen Creek, AZ 85242-9311

Prepared by:

DIBBLE & ASSOCIATES, CONSULTING ENGINEERS
2633 East Indian School Road, #401
Phoenix, Arizona 85016
(602) 957-1155

Registered Professional Engineer (Civil) CERTIFICATE NO. 34600 KEVIN W. ROBERTS Date Signed 9/10/01 ARIZONA, U.S.A.

DIBBLE & ASSOCIATES CONSULTING ENGINEERS Since 1962

Registered Professional Engineer (Civil) CERTIFICATE NO. 21684 BRIAN J. FRY Date Signed 9-10-01 ARIZONA, U.S.A.

September 2001

Queen Creek Wash
Hawes Road to Power Road
Town of Queen Creek, Arizona

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

Hydrology Narrative

TABLE OF CONTENTS

I. INTRODUCTION 3

II. EXISTING HYDROLOGY 3

III. METHODOLOGY 4

A. Calibration Model 5

B. Model Conversion 6

IV. RESULTS 7

A. Calibration Model 7

B. Model Conversion 8

V. APPENDICES 9

- Existing HEC-1 (Future Model from HMP)
- USBR Hydrology Model Information
- Calibration HEC-1 Models
- Sanokai FRS Outlet Photos & HY-8 Model
- Relevant Excerpts of Revised HEC-1 Models for all Frequencies
- CD containing all of the Calibration & Revised HEC-1 Models

LIST OF TABLES

Table 1 - HEC-1 Model Calibration Peak Discharge Comparison 7
Table 2 – HEC-1 Model Calibration Volume Comparison 8
Table 3 - 100-year Peak Flows: HMP Model vs. Revised Model 8
Table 4 - Peak Flows: All Frequencies of Revised Models 8

Registered Professional Engineer (Civil)
CERTIFICATE NO.
34600
KEVIN W.
ROBERTS
Date Signed 9/10/01
ARIZONA, U.S.A.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
21684
BRIAN J.
FRY
Date Signed 9.10.01
ARIZONA, U.S.A.

Queen Creek Wash
Hawes Road to Power Road
Town of Queen Creek, Arizona

Hydrology Narrative

I. INTRODUCTION

This study has been conducted as part of the Queen Creek Wash improvements for the Town of Queen Creek. The town has an inter-governmental agreement (IGA) with the Flood Control District of Maricopa County (FCDMC) to participate in sharing the cost for design and construction of this project. The scope of the project is to improve the capacity of Queen Creek Wash between Hawes Road and Power Road so that the 100-year runoff is fully contained in the wash. The project is necessitated by development of the area surrounding Queen Creek Wash.

II. EXISTING HYDROLOGY

A HEC-1 hydrology model of the Queen Creek area was assembled for FCDMC as part of the Queen Creek Area Drainage Master Study (ADMS). Hydrology was performed for Sanokai Wash as part of the Sanokai Wash Flood Insurance Study (FIS). Although each of these models employed different unit hydrograph methods, they were combined, with slight modifications, for the Queen Creek/Sanokai Wash Hydraulic Master Plan (HMP). The resulting model may be thought of as 1 model with 2 distinct "sides"- the Queen Creek side and the Sanokai Wash side. Each "side" in the combined model maintains its own unit hydrograph method.

Subbasins contributing to the Sanokai Wash watershed in the HEC-1 model employ Time-Area data (UA records) in conjunction with the Clark Unit Hydrograph Method to generate runoff hydrographs. The Clark Unit Hydrograph Method uses 2 variables in the hydrograph transformation process; T_c (time of concentration) & R (a storage coefficient). The variable T_c is unique to a specific subbasin and storm frequency.

Subbasins contributing to the Queen Creek Wash watershed in the HEC-1 model use unit hydrograph data (UI records) to generate runoff hydrographs. This unit hydrograph information is unique to a specific subbasin, but not specific to storm duration or frequency. In other words, different frequency storm models may be run using the same UI records, by simply varying the precipitation depth in the model.

The most upstream point of the Queen Creek Wash side of the model is at the Sanokai Flood Retarding Structure (FRS). The FRS has a 4-barrel, 72-inch reinforced concrete pipe outlet. The runoff passed through this outlet is the inflow to the Queen Creek Wash side of the HEC-1 hydrology model. For the Queen Creek ADMS, and thus the Queen Creek/Sanokai Wash HMP, this hydrograph was not "generated" by the model, but rather hard-coded in the model (using QI records) with no documentation to support the numbers.

To quote the Queen Creek/Sanokai Wash HMP, "*The input hydrograph used in the Queen Creek ADMS for outflow from the Sanokai Detention Dike was used without modification. Research revealed that no background information on the development of the outflow hydrograph (exists) and an analysis necessary to reevaluate the input hydrograph was outside the scope of this study. The input hydrograph, however, has a significant impact on peak flows within Queen Creek and should be reevaluated in future hydrologic studies.*" The purpose of this technical memorandum, in part, is to report on this "reevaluated hydrograph".

Information provided by the United States Bureau of Reclamation (USBR) indicates that there was a hydrology model created when the FRS was constructed in 1980. This USBR model uses the 100-year, 6-hour storm. There are 3 subbasins in the USBR model upstream of the FRS that drain to the 4-barrel 72" outlet at Queen Creek Wash. These 3 subbasins in the USBR hydrology model are named "Whitlow Ranch Dam", "Sanokai", and "Queen Creek". The hydrographs from these 3 basins are combined in the USBR model, and routed through the FRS outlet structure. The resulting hydrograph is the hydrograph that the Queen Creek ADMS model attempts to approximate with the hard coded "QI" records discussed above.

Other than the information provided in the USBR model, not much is known regarding these 3 basins. No subbasin delineation maps were provided by USBR, and though it was requested, the drainage report could not be produced either.

Some investigation was conducted to discover more about these subbasins. Nothing was found on the Sanokai subbasin or the Queen Creek subbasin. However, information was discovered on the web site of the Army Corps of Engineers (COE) regarding Whitlow Ranch Dam. Whitlow Ranch Dam is a structure constructed by the COE in 1960 to provide flood protection to farmland and developed areas downstream. It is located just east of the community of Queen Valley, approximately 50 miles southeast of Phoenix, and 7 miles northeast of Florence Junction. The Whitlow Ranch Dam subbasin from the USBR hydrology model appears to be the area that drains to this flood control basin. According to the COE, the dam crest is 110' above the invert of the 66" outlet pipe. When the water surface elevation in the basin is at the crest of the dam, 1007 cfs exits the basin through the outlet pipe. Outflow from the Whitlow Dam usually percolates into the alluvial plain below the dam, and rarely travels more than a few miles downstream. Only runoff from very large and infrequent storms will actually make its way from Whitlow Dam to the FRS and eventually to the East Maricopa Floodway (EMF) and the Gila River.

III. METHODOLOGY

Two issues needed to be addressed in the hydrology model- (1) the hard coded hydrograph at the FRS outlet needs to be confirmed or revised, and (2) the model needs to be converted from the 100-year precipitation to run several storm frequencies for the sediment transport analysis. These 2 issues are hereafter referred to as ***calibration*** and ***conversion***, respectively.

A. Calibration Model

The USBR was contacted to obtain information on the FRS outlet structure and its associated hydrology. The USBR provided photocopies of some excerpts from their original hydrology model. The software used for the original USBR model is unknown, however, the provided excerpts list the information necessary to recreate these subbasins using the COE's HEC-1 software package. The pertinent information includes subbasin area, Soil Conservation Service (SCS) curve number, precipitation depth, and basin lag time. Using this information, a HEC-1 "calibration model" was assembled for each of the 3 contributing subbasins. The HEC-1 model employs the SCS dimensionless unit graph method (UD record) to generate runoff, and the SCS curve number loss rate method (LS record) to calculate runoff losses.

Three iterations were made in route to the final calibration model. First, the rainfall depths and SCS curve numbers reported in the USBR hydrology model were used in conjunction with the standard 6-hour SCS dimensionless distribution for spillway and freeboard hydrographs to reproduce the peak discharges and volumes from the USBR model. When compared with the isopluvial maps shown in the NOAA Atlas II, however, the USBR rainfall depths seemed low. Rainfall depth values were read directly from the isopluvial in the NOAA Atlas II, and then spatially reduced based on the ratios described in the FCDMC hydrology manual. These rainfall values were used in the 2nd calibration model, along with the same SCS curve numbers and 6-hour dimensionless rainfall distribution. Finally, the 3rd calibration model was modified to use the standard SCS 24-hour Type II rainfall distribution to be consistent with the Queen Creek ADMS model.

The logic of the HEC-1 model is as follows:
Hydrographs from subbasins "Sanokai" and "Queen Creek" are first generated, and then combined together upstream from the FRS. This combined hydrograph is then hydrologically routed through the FRS 4-72" outlet structure using a stage-storage-discharge relationship for the FRS. The result is the "inflow" hydrograph to Queen Creek Wash at the FRS.

The "Whitlow Ranch" subbasin from the USBR model has been excluded from contributing to the hydrograph entering Queen Creek Wash through the FRS in the calibration HEC-1 model. The Whitlow Dam basin outlet pipe has a maximum discharge of 1007 cfs. This only occurs when the basin is absolutely full. Because this runoff is controlled through the Dam, the peak from the Whitlow Ranch hydrograph does not coincide in time with the peak from the Sanokai or the Queen Creek subbasins. As discussed above, most of the flow that comes through the Whitlow Dam percolates into the surrounding alluvial plain, and never reaches the FRS. For these reasons, the Whitlow Ranch subbasin was excluded from the hydrograph combination that occurs just upstream from the FRS in the HEC-1 model.

The combined hydrograph was routed through the FRS by way of a storage routing step in the HEC-1 model. A stage-storage-discharge relationship for the FRS and its outlet was developed for this routing. Utilizing construction plans provided by USBR, and data collected on a site visit, an HY-8 model was developed to model the 4 barrel 72" outlet. Output from this HY-8 model was used for the stage-discharge relationship in the HEC-1 storage routing step. Stage-storage data was found on the documentation provided by the USBR.

Results from each iteration of the HEC-1 calibration model for peak discharge (Q) were compared with the reported values from the USBR model. The results of this comparison may be observed in **Table 1**, under the "results" section of this memorandum.

Once the calibration model was complete, the hydrograph at Queen Creek Wash and the FRS was written out from the model using the "tape 21" method in HEC-1. The hard-coded hydrograph in the Queen Creek/Sanokai Wash HMP model (HY337) was replaced with this hydrograph generated by the calibration HEC-1 model. The result is a hydrology model that accurately models the hydrograph entering Queen Creek Wash through the FRS.

These steps were repeated for each frequency storm. The point rainfall values were read from the NOAA Atlas II isopluvial maps, those values were then reduced based on the recommended ratios in the FCDMC Hydrology Manual, and the calibration HEC-1 model was run using the reduced point rainfall depths. The hydrograph entering Queen Creek Wash through the FRS was written out to "tape 21". This hydrograph was then inserted in the HMP HEC-1 model in place of the undocumented hydrograph "HY337".

B. Model Conversion

The Queen Creek/Sanokai Wash HMP model uses the 100-year, 24-hour storm. As discussed above, the sediment transport study being conducted as part of this project requires the 2-year, 5-year, 10-year, 25-year, 50-year, and the 100-year storm hydrographs. Recall that the HMP model has 2 distinct "sides", each of which employs a different method to calculate runoff. Also recall that the Queen Creek side uses unit hydrograph input that is not unique to storm duration or frequency. This means that different frequency storms can be modeled for the Queen Creek side of the model, by simply varying the value of the point rainfall depth.

The point rainfall depth of each required frequency storm was estimated from the isopluvial maps in the FCDMC hydrology manual. These rainfall depths were reduced based on the drainage area and input into the modified HMP HEC-1 model on the JD records. In addition to the watershed point rainfall depth modification, the hard coded hydrograph entering Queen Creek Wash at the FRS was modified per storm frequency.

Because the Sanokai Wash side of the HMP model uses the Clark Unit Hydrograph Method, and therefore T_c, which is specific to storm frequency, varying the rainfall depths is not a valid method to model the Sanokai Wash watershed for storms of different frequencies. The work required to update all of the subbasins contributing to the Sanokai Wash watershed for valid modeling of different frequency storms is beyond the scope of this project and study. It is important to note that the revised HEC-1 models generated for this study are valid for analysis of Queen Creek Wash only.

IV. RESULTS

A. Calibration Model

Table 1 shows the 100-year peak discharges at key points in the calibration models. The 1st calibration is an attempt to reproduce the 6-hour storm USBR hydrology using the same parameters used in the USBR model. The resulting Queen Creek and Sanokai subbasin peak discharges are within 5% of the USBR values and the 100-year peak discharge out of the FRS is within 12% of the USBR value. The 2nd and 3rd Calibration runs were intended to investigate the effect of modeling the FRS watershed using methods and storms employed in the HMP model for consistency with the modeling downstream of the FRS. The 2nd Calibration utilized published rainfall data from NOAA Atlas II and the 3rd Calibration utilized the same 24-hour rainfall distribution used in the HMP model. The changed rainfall resulted in higher peak runoff rates within each subbasin, but produced peak discharges into and out of the FRS within 4% of the USBR reported values.

Table 1 - HEC-1 Model Calibration Peak Discharge Comparison

Model Description:	*USBR Model*	*1st Calibration*	*2nd Calibration*	*3rd Calibration*
Model Name:	n/a	1calibr8.dat	2calibr8.dat	3calibr8.dat
Point of Interest	Q_{peak}	Q_{peak}	Q_{peak}	Q_{peak}
Whitlow Dam Subbasin	28,781 cfs	25,000 cfs	27,814 cfs	38,241 cfs
Queen Creek Subbasin	8,852 cfs	8,380 cfs	8,336 cfs	10,712 cfs
Sanokai Subbasin	5,575 cfs	5,704 cfs	5,166 cfs	6,722 cfs
Into FRS	17,000 cfs	13,954 cfs	13,386 cfs	17,138 cfs
Out of FRS	1,113 cfs	977 cfs	969 cfs	1,063 cfs

Table 2 shows the 100-year volume of runoff at key points in the calibration models. Recall that calibration models 1 and 2 use the 100-year, 6-hour storm, as does the original USBR hydrology model. The volume of runoff impounded by the FRS as predicted by calibration model 1 is within 5% of the USBR model. The volume predicted by calibration model 2 is within 8% of the USBR model. As expected, calibration model 3, which uses the 24-hour storm, predicts volumes much higher than the USBR model. The runoff predicted by calibration model 3 to be impounded behind the FRS is 44% higher than the USBR model value.

Based on these comparisons of peak discharge and volume, calibration model 3 is judged to be acceptable for use in this project.

Table 2 – HEC-1 Model Calibration Volume Comparison

Model Description:	*USBR Model*	*1st Calibration*	*2nd Calibration*	*3rd Calibration*
Model Name:	n/a	1calibr8.dat	2calibr8.dat	3calibr8.dat
Point of Interest	**Volume**	**Volume**	**Volume**	**Volume**
Whitlow Dam Subbasin	10,989 ac-ft	10,990 ac-ft	12,214 ac-ft	19,198 ac-ft
Queen Creek Subbasin	5,147 ac-ft	5,148 ac-ft	5,121 ac-ft	7,853 ac-ft
Sanokai Subbasin	2,916 ac-ft	2,916 ac-ft	2,639 ac-ft	4,269 ac-ft
Impounded by FRS	8,424 ac-ft	8,064 ac-ft	7,760 ac-ft	12,122 ac-ft

B. Model Conversion

Once the calibration model was deemed acceptable, the hydrograph entering Queen Creek Wash through the FRS was inserted into the HMP model in place of the undocumented hydrograph "HY337". **Table 3** shows a comparison of 100-year peak flows as predicted by each of the models at points along Queen Creek relevant to this project. Note that the flows near the project area predicted by the revised model are approximately 400 cfs lower than those predicted by the HMP model.

Table 3 - 100-year Peak Flows: HMP Model vs. Revised Model

Location: Queen Creek @	**HMP Model**	**Revised 100-Year Model**
Sanokai FRS Outlet:	1695 cfs	1380 cfs
Hawes Road:	3242 cfs	2831 cfs
Sossaman Road:	3242 cfs	2839 cfs
Power Road:	3254 cfs	2856 cfs

Table 4 shows peak flows in the project area predicted by each of the frequency storm models developed for this study.

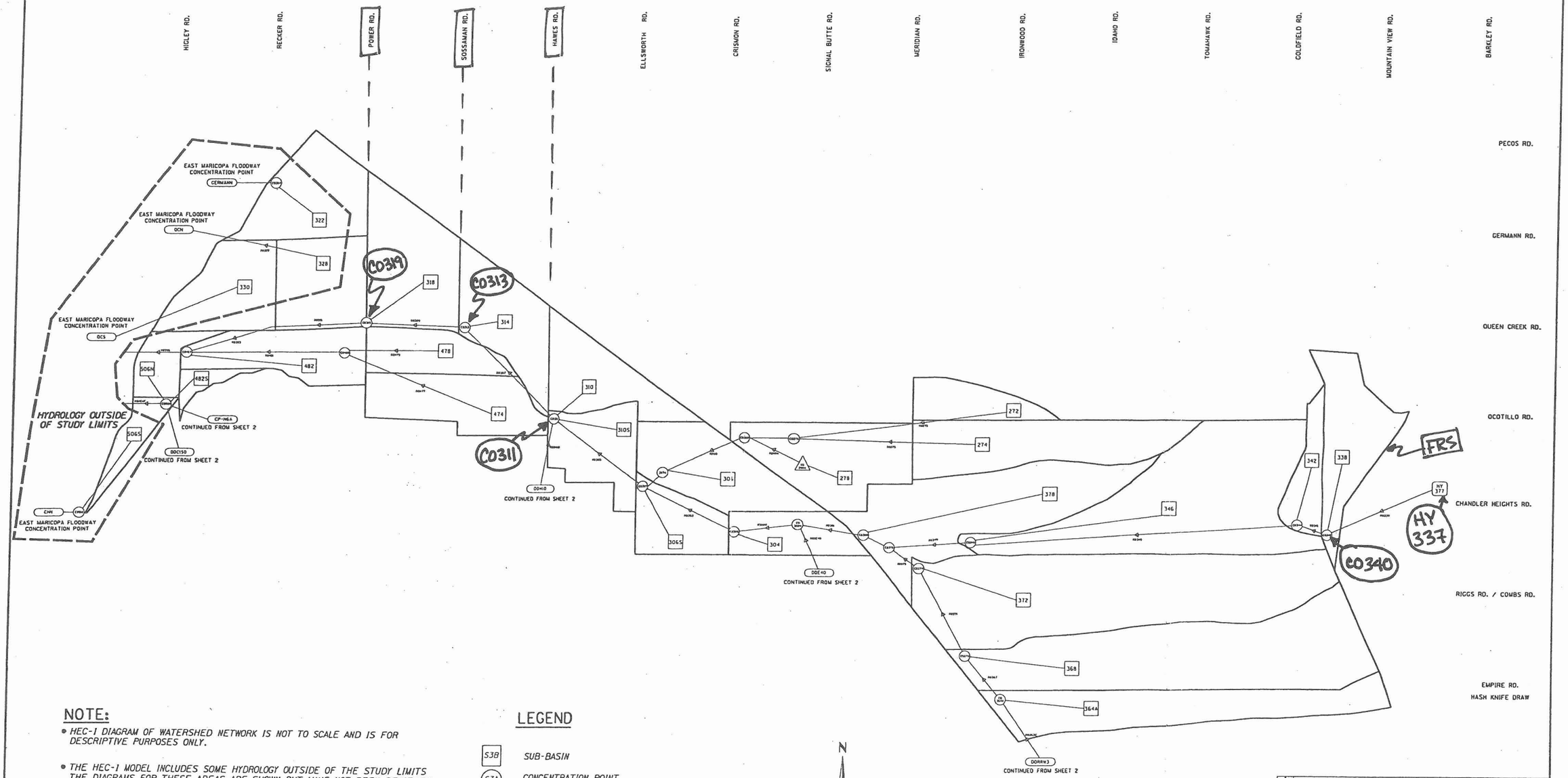
Table 4 - Peak Flows: All Frequencies of Revised Models

Queen Creek @	**Frequency: 100-year**	**50-year**	**25-year**	**10-year**	**5-year**	**2-year**
Sanokai FRS Outlet:	1380 cfs	1337 cfs	1274 cfs	1197 cfs	1115 cfs	1036 cfs
Hawes Road:	2831 cfs	2460 cfs	2086 cfs	1769 cfs	1381 cfs	1039 cfs
Sossaman Road:	2839 cfs	2456 cfs	2075 cfs	1762 cfs	1374 cfs	1039 cfs
Power Road:	2856 cfs	2449 cfs	2069 cfs	1757 cfs	1370 cfs	1039 cfs

V. APPENDICES

- Existing HEC-1 (Future Model from HMP)
- USBR Hydrology Model Information
- Calibration HEC-1 Models
- Sanokai FRS Outlet Photos & HY-8 Model
- Relevant Excerpts of Revised HEC-1 Models for all Frequencies
- CD containing all of the Calibration & Revised HEC-1 Models

Existing HEC-1 Model



NOTE:

- HEC-1 DIAGRAM OF WATERSHED NETWORK IS NOT TO SCALE AND IS FOR DESCRIPTIVE PURPOSES ONLY.
- THE HEC-1 MODEL INCLUDES SOME HYDROLOGY OUTSIDE OF THE STUDY LIMITS THE DIAGRAMS FOR THESE AREAS ARE SHOWN BUT HAVE NOT BEEN REVIEWED IN DETAIL AND MAY NOT BE COMPLETE.
- HEC-1 DIAGRAMS ARE DERIVED FROM DIFFERENT STUDIES. SYMBOLOGY AND FORMAT MAY THEREFORE DIFFER BETWEEN SHEETS.

LEGEND

S3B	SUB-BASIN
S3A	CONCENTRATION POINT
S12	DIVERSION
RS14 △	ROUTING DIRECTION & LABEL
DDE40	FLOW CONTINUED TO/FROM ANOTHER SHEET
HY 377	UPSTREAM HYDROGRAPH OBTAINED FROM OTHER SOURCES
S10 DB	DETENTION BASIN

N

NOT TO SCALE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

QUEEN CREEK/SANOKAI WASH
HYDRAULIC MASTER PLAN
FCD 98-26

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 12250 FRED K. DUREN, JR. Date Signed ARIZONA, U.S.A.

	BY	DATE
DESIGNED	CHARLES JOY	09/08/00
DRAWN	RON WIETZEMA	09/08/00
CHECKED	FRED DUREN	09/08/00

HUITT-ZOLLARS
Engineering
Huitt-Zollars, Inc.
4742 N. 24TH Street, Suite 100, Phoenix, AZ 85016
Phone (602) 952-9123 Fax (602) 952-0124

HEC-1 DIAGRAM FOR PRFERRED ALTERNATIVE

SHEET 1 OF 2

c:\dgn\hec-1_sht3.dgn Sep. 05, 2000 12:38:26

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUL   1997               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   30JUL01  TIME  16:40:23   *
 *                                       *
 *****************************************
```

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

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

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

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


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

   1          ID
   2          ID
   3          ID  ******************************************************************************
   4          ID   FILENAME: QCSWBLT.DAT
   5          ID
   6          ID   THIS MODEL IS OF THE QUEEN CREEK AND SANOKAI WASH WATERSHEDS IN THE FUTURE
   7          ID   LANDUSE CONDITION.
   8          ID   THERE IS NO CIP IN PLACE BECAUSE AT THIS TIME (2/29/2000) WE DO NOT HAVE ANY
   9          ID   WE EXPECT THE CIP TO BE PRIMARILY CHANNEL EXCAVATION
  10          ID
  11          ID  ******************************************************************************
  12          ID    ***************************************************************************
  13          ID         PROJECT:  Queen Creek/Sanokai Wash Hydraulic Master Plan &
  14          ID                   East Maricopa Floodway Capacity Mitigation Study
  15          ID   PREPARED FOR:  Flood Control District of Maricopa County
  16          ID    PREPARED BY:  Huitt-Zollars, Inc
  17          ID       FILENAME:  F-QCSW.DAT
  18          ID           DATE:  OCT 1999
  19          ID
  20          ID   This model is for the 100-year, 24 hr future conditions event
  21          ID   for the watershed areas tributary to Queen Creek and Sanokai
  22          ID   Wash and for the watershed areas tributary to the East
  23          ID   Maricopa Floodway south of Rittenhouse Rd. and approximately
  24          ID   north of Hunt Hwy (County Line).
  25          ID
  26          ID   This model was constructed from previous study models and updated
  27          ID   for new future hydrologic conditions as part of the Queen Creek/
  28          ID   Sanokai Wash HMP & EMF Capacity Mitigation Study.  Previous
  29          ID   studies include the Queen Creek ADMS and the Sanokai Wash FIS.
  30          ID
  31          ID   For this future conditions hydrology, future land-uses for sub-
  32          ID   basins were estimated from Maricopa County, Pinal County and
  33          ID   local municipality General Plans.
  34          ID
  35          ID   For sub-basins located within Maricopa County, the 100-yr, 2-hr
  36          ID   retention volume was estimated for each sub-basin under future
  37          ID   land-use conditions.  The "ultimate" retention volume for a sub-
  38          ID   basin was determined by running the future conditions model for
  39          ID   the 100-yr 2-hr rainfall and obtaining the total volume of runoff
  40          ID   for each sub-basin.  The "ultimate" retention volume was then
  41          ID   reduced by estimates of the percent of "effective".  The effective
  42          ID   retention was used as the estimate of the sub-basin retention and
  43          ID   diverted from the sub-basin hydrographs.  For details on how the
  44          ID   determination of the effective retention for Maricopa County sub-
  45          ID   basins refer to the QC/SW HMP report.
  46          ID
  47          ID   For sub-basins located in Pinal County, a different method was
  48          ID   used to simulate Pinal County's pre vs. post development drainage
  49          ID   criteria.  Pinal County requires that post-development flows
  50          ID   should not exceed pre-development flows for any new development.
  51          ID   To simulate this requirement, the existing land use (along with
  52          ID   the existing land-use sub-basin parameters) was used for all
  53          ID   sub-basins located in Pinal County to model the future development
  54          ID   conditions.
  55          ID
```

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

  56          ID    This model is one of four supporting hydrologic models used to
  57          ID    evaluate flow in the East Maricopa Floodway (EMF).  Each model
  58          ID    evaluates the hydrology for a specific area that is ultimately
  59          ID    tributary to the EMF. The four supporting models are:
  60          ID
  61          ID       *  F-NWMESA.DAT - Future conditions hydrology for NE Mesa
  62          ID                        (-east of the EMF to the CAP(at Hawes Rd.)
  63          ID                        & -south of McKellips Rd. to US60)
  64          ID
  65          ID       *  F-NEMESA.DAT - Future conditions hydrology for NW Mesa
  66          ID                        (-area northeast of Hawes Rd./US60)
  67          ID
  68          ID       *  F-SEMESA.DAT - Future conditions hydrology for SE Mesa
  69          ID                        (-area east of the EMF from US60 south to
  70          ID                         Rittenhouse Rd. {excluding areas
  71          ID                         tributary to Queen Creek})
  72          ID                         F-SEMESA.DAT imports hydrographs from
  73          ID                         F-NEMESA.DAT via DSS files.  Therefore,
  74          ID                         F-NEMESA.DAT must be run first and then
  75          ID                         when running F-SEMESA.DAT, F-NEMESA.DSS
  76          ID                         must be specified as the DSS file
  77          ID                         (the default would be F-SEMESA.DSS)
  78          ID
  79          ID       *  F-QCSW.DAT   - Future conditions hydrology for Queen
  80          ID                        Creek/Sanokai Wash area (all areas
  81          ID                        tributary to Queen Creek & Sanokai Wash
  82          ID                        and areas tributary to the EMF south of
  83          ID                        Rittenhouse Rd.)
  84          ID
  85          ID    IT IS IMPORTANT TO NOTE THAT THE SUPPORTING MODELS DO NOT
  86          ID    CORRECTLY ROUTE FLOWS ALONG THE EMF NOR DO THEY IMPORT ALL
  87          ID    THE NECESSARY FLOWS TO CORRECTLY EVALUATE FLOWS WITHIN THE
  88          ID    EMF.  TO EVALUATE FLOWS WITHIN THE EMF, ALL THE SUPPORTING
  89          ID    MODELS SHOULD BE RUN (TO DEVELOP THE TAPE21 FILE) AND THEN
  90          ID    THE EMF ROUTING MODEL (F-EMF-RT.DAT).  ONLY THE EMF ROUTING
  91          ID    MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.
  92          ID
  93          ID    The model F-EMF-RT.Dat is the "routing" model used to evaluate
  94          ID    flows in the EMF for the future conditions.  The model imports
  95          ID    hydrographs via TAPE21 files from the supporting hydrologic
  96          ID    models and then routes them along the EMF from approximately
  97          ID    Brown Rd. and south to Hunt Hwy (the County Line).
  98          ID
              *
              *  ******************************************************************************
              *
  99          IT       5 01APR97    0000    1500
 100          IO       5
              *
              *DIAGRAM
              * /////////////////////////// Rainfall Distribution ////////////////////////////
              *
 101          IN      15
 102          JD    3.60    0.01
 103          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
```



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

 104          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 105          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 106          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 107          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 108          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 109          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 110          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 111          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 112          PC    .983    .986    .989    .992    .995    .998   1.000
 113          JD    3.58    1.00
 114          JD    3.49    5.00
 115          JD    3.38   10.00
 116          JD    3.24   30.00
 117          JD    3.10   60.00
 118          JD    3.05   90.00
 119          JD    3.00  120.00
 120          JD    2.97  150.00
              *
              * /////////////////////////// End Distribution ////////////////////////////////
              *
              *  ******************************************************************************
              *  **    BEGIN HYDROLOGY FROM THE SANOKAI WASH FLOODPLAIN DELINEATION STUDY   **
              *  ******************************************************************************
              *
              * **********************   Basin S9     ****************************************
              *

 121          KK      S9
 122          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 123          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 124          KM   SUB-BASIN S9
 125          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 126          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .980
 127          KM     L = 4.51  Kb = .052  Adj. Slope =  195.0
```

```
 128          BA   3.403
 129          LG    .240    .350   4.450    .360  27.000
 130          UC    .900    .547
 131          UA       0       3       5       8      12      20      43      75      90      96
 132          UA     100
              *
              * ////////////////////  Diversion *DS9   ////////////////////////////////////
              * ///   1 Main Dip section - 2 Small Dip to Empire Channel                ////
              * ///   At the crossing of Hunt Hwy between Ellsworth and Crismon Rds.     ////
              * ////////////////////////////////////////////////////////////////////////////
              *

 133          KK    *DS9
 134          KM    DIVERSION FLOW FROM CP-S9
 135          DT    DDS9
 136          DI       0     250     500     750    1000    1250    1500    1750    2000    2500
 137          DQ       0      50     100     150     200     250     300     350     400     500
              *
              * **********************   Basin S10     ****************************************
              *
```



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

 138          KK     S10
 139          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 140          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 141          KM   SUB-BASIN S10
 142          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 143          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
 144          KM     L = 1.45  Kb = .067  Adj. Slope =  283.2
 145          BA    .711
 146          LG    .230    .350   3.950    .470  27.000
 147          UC    .408    .224
 148          UA       0       3       5       8      12      20      43      75      90      96
 149          UA     100
              *
              * +++++++++++++++++++++ Conc. Point CP-S10     ++++++++++++++++++++++++++++++
              * +++  Combines basins S9 & S10                                            +++
              * +++  Hunt Hwy near Ellsworth Rd.                                         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 150          KK  CP-S10
 151          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S10        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-S10 to CP-E8 Through Basin E8                                rrr
              * rrr  Mountain typical cross section - natural channel                      rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 152          KK    RS10
 153          RS       3    FLOW
 154          RC     .07     .06     .07    1859   .0102
 155          RX       0     400     800    1200    1600    2000    2400    2800
 156          RY       3       1      .5       0       0      .5       1       3
              *
              * **********************   Basin E8      ****************************************
              *

 157          KK      E8
 158          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 159          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 160          KM   SUB-BASIN E8
 161          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 162          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 163          KM     L = 1.19  Kb = .090  Adj. Slope =   42.0
 164          BA    .389
 165          LG    .500    .000   4.300    .620    .000
 166          UC   1.046    .766
 167          UA       0       3       5       8      12      20      43      75      90      96
 168          UA     100
              *
              * ////////////////////  Diversion Recover DS9   ////////////////////////////
              * ///   Through small dip section on Hunt Hwy and into Empire Rd. channel   ////
              * ////////////////////////////////////////////////////////////////////////////
              *
```



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

 169          KK     DS9
 170          KM    Return flow from CP-S9
 171          DR    DDS9
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S9E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route S-9 to Empire Rd. Channel                                      rrrr
              * rrr  mountain typical cross-section - natural channel                     rrrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 172          KK    RS9E
```

```
173          RS        9    FLOW
174          RC      .07     .06     .07    2550   .0039
175          RX        0     400     800    1200    1600    2000    2400    2800
176          RY        3       1      .5       0       0      .5       1       3
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S9C        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route S-9 to CP-E8 thruogh Empire Rd. Channel                          rrr
             * rrr  Cross-section RS9C  -  channel flow                                     rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

177          KK    RS9C
178          RS        3    FLOW
179          RC      .07    .045     .07    2550   .0035
180          RX        0       5      10    32.5    52.5      75      80      85
181          RY        6       5       4       0       0       4       5       6
             *
             * +++++++++++++++++++++ Conc. Point *CP-E8     +++++++++++++++++++++++++++++++
             * +++  Combines basin E8 and S9 (Empire Rd. channel flow)                    +++
             * +++  At intersection of Empire Rd. and Ellsworth Rd.                        +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *

182          KK  *CP-E8
183          HC        2
             *
             * +++++++++++++++++++++ Conc. Point CP-E8     +++++++++++++++++++++++++++++++
             * +++  Combines basin E8 & Conc. Point CP-S10 (Hunt Hwy and Ellsworth)      ++++
             * +++  At intersection of Empire Rd. and Ellsworth Rd.                        +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *

184          KK   CP-E8
185          HC        2
             *
             * ////////////////////// Diversion *DE8   ////////////////////////////////////
             * ///   1 North west along Sanokai - 2 North along Ellsworth Road            ///
             * ///   At intersection of Empire Rd. and Ellsworth Rd.                      ///
             * ////////////////////////////////////////////////////////////////////////////
             *
```



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

186          KK    *DE8
187          KM    DIVERSION FLOW FROM CP-E8
188          DT    DDE8
189          DI        0     250     500     750    1000    1500    2000    2250    2500
190          DQ        0     .01      40     167     237     335     446     502     558
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-E8        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E8 to CP-C1 Through Basin C1 (Sanokai Wash)                   rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

191          KK     RE8
192          RS        6    FLOW
193          RC     0.07    0.06    0.07    3675   .0097
194          RX     1000    1760    2400    2480    2500    2550    2690    2750
195          RY   1398.9  1396.5    1396  1395.7  1395.7  1396.2  1396.8  1397.3
             *
             * **********************   Basin C1     ****************************************
             *

196          KK      C1
197          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
198          KM   SUB-BASIN C1
199          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
200          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
201          KM     L =  .70  Kb = .046  Adj. Slope =   51.0
202          BA    .355
203          LG    .280    .260   3.950    .480   5.000
204          UC    .400    .182
205          UA       0       5      16      30      65      77      84      90      94      97
206          UA     100
             *

207          KK  RETAIN
208          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
209          DT  RETDIV      18
210          DI        0   10000
211          DQ        0   10000
             *
             *
             * **********************   Basin S11    ****************************************
             *

212          KK     S11
213          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
214          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
215          KM   SUB-BASIN S11
216          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
217          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
218          KM     L = 2.19  Kb = .072  Adj. Slope =  297.5
```

```
 219          BA    .993
 220          LG    .190    .350   4.550    .340  38.000
 221          UC    .521    .337
 222          UA       0       3       5       8      12      20      43      75      90      96
1                                          HEC-1 INPUT                                                    PAGE  7

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

 223          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S11 to CP-C1 Through Basin C1                          rrr
              * rrr  Field typical Section  -  Sheet flow                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 224          KK    RS11
 225          RS       8    FLOW
 226          RC     .07     .07     .07    3100   .0095
 227          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 228          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin S12     ****************************************
              *

 229          KK     S12
 230          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 231          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 232          KM   SUB-BASIN S12
 233          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 234          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 235          KM     L = 1.06  Kb = .070  Adj. Slope =  315.0
 236          BA    .408
 237          LG    .240    .350   4.450    .360  31.000
 238          UC    .317    .180
 239          UA       0       3       5       8      12      20      43      75      90      96
 240          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S12        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S12 to CP-C1 Through Basin C4                          rrr
              * rrr  Field typical Section  -  Sheet flow                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 241          KK    RS12
 242          RS      15    FLOW
 243          RC     .07     .07     .07    4300   .0050
 244          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 245          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++ Conc. Point CP-C1     +++++++++++++++++++++++++++++++
              * +++  Combines basin C1, S11 & Conc. Point CP-E8 (Santan Blvd)              +++
              * +++  At intersection of Sanokai Wash with Santan Blvd                      +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 246          KK   CP-C1
 247          HC       4
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-C1N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C1 to CP-C2 Through Basin C2  (Sanokai Wash)                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                                    PAGE  8

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

 248          KK    RC1N
 249          RS       5    FLOW
 250          RC     .05     .05     .05    2800   .0073
 251          RX       0     500    2815    2820    2845    2860    3700    4010
 252          RY  1391.5  1390.2    1389  1387.8  1387.8    1394  1394.4  1396.9
              *
              * **********************   Basin S1     ****************************************
              *

 253          KK      S1
 254          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 255          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 256          KM   SUB-BASIN S1
 257          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 258          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .989
 259          KM     L = 1.59  Kb = .042  Adj. Slope =  102.0
 260          BA   1.760
 261          LG    .330    .350   4.250    .410  15.000
 262          UC    .488    .175
 263          UA       0       3       5       8      12      20      43      75      90      96
 264          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S1         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S1 to CP-E1 Through Basin E1                           rrr
              * rrr  Railroad typical section  -  sheet flow across fields               rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
```

```
 265          KK     RS1
 266          RS     120    FLOW
 267          RC     .08     .08     .08   24000   .0013
 268          RX       0     800    2975    2990    3010    3025    5200    6000
 269          RY      10       8       2       0       0       2       8      10
              *
              * **********************   Basin S2    ****************************************
              *

 270          KK      S2
 271          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 272          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 273          KM   SUB-BASIN S2
 274          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 275          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
 276          KM     L = 2.92  Kb = .040  Adj. Slope =   60.0
 277          BA   3.074
 278          LG    .320    .350   4.600    .330   6.000
 279          UC    .979    .449
 280          UA       0       3       5       8      12      20      43      75      90      96
 281          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S2       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S2 to CP-E1 Through Basin E1                                rrr
              * rrr  Railroad typical section  -  sheet flow across field                    rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                                PAGE  9

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


 282          KK     RS2
 283          RS      61    FLOW
 284          RC     .08     .08     .08   15964   .0018
 285          RX       0     800    2975    2990    3010    3025    5200    6000
 286          RY      10       8       2       0       0       2       8      10
              *
              * **********************   Basin S3B    ****************************************
              *

 287          KK     S3B
 288          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 289          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 290          KM   SUB-BASIN S3B
 291          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 292          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 293          KM     L = 1.59  Kb = .060  Adj. Slope =  261.2
 294          BA   1.725
 295          LG    .230    .350   4.650    .310  54.000
 296          UC    .387    .137
 297          UA       0       3       5       8      12      20      43      75      90      96
 298          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S3B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S3B to CP-S3A Through Basin S3A                              rrr
              * rrr  Mountain typical section  -                                               rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 299          KK    RS3B
 300          RS      32    FLOW
 301          RC    0.07    0.06    0.07   17915   .0076
 302          RX       0     400     800    1200    1600    2000    2400    2800
 303          RY       3       1      .5       0       0      .5       1       3
              *
              * **********************   Basin S3A    ****************************************
              *

 304          KK     S3A
 305          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 306          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 307          KM   SUB-BASIN S3A
 308          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 309          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 310          KM     L = 3.39  Kb = .040  Adj. Slope =   40.0
 311          BA   1.703
 312          LG    .340    .350   4.500    .350   1.000
 313          UC   1.392   1.047
 314          UA       0       3       5       8      12      20      43      75      90      96
 315          UA     100
              *
              * +++++++++++++++++++++ Conc. Point CP-S3A     ++++++++++++++++++++++++++++++++
              * +++  Combines basins S3B & S3A (Hunt Hwy)                                    +++
              * +++  Hunt Hwy near intersection of aligments of Kenworthy & Judd Rds.         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
1                                          HEC-1 INPUT                                                PAGE 10

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


 316          KK  CP-S3A
 317          HC       2
```

```
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S3A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-S3A to CP-E1 Through Basin E1                                  rr
                 * rrr  Field typical section  -  sheet flow across fields                      rr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 318             KK    RS3A
 319             RS      45    FLOW
 320             RC    0.08    0.08    0.08   11731   .0029
 321             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 322             RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin E1     ****************************************
                 *

 323             KK      E1
 324             KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 325             KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 326             KM   SUB-BASIN E1
 327             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 328             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .953
 329             KM     L = 6.42  Kb = .057  Adj. Slope =    8.0
 330             BA   7.909
 331             LG    .500    .090   6.600    .220    .000
 332             UC   1.000    .504
 333             UA       0       3       5       8      12      20      43      75      90      96
 334             UA     100
                 *

 335             KK  SUB354
 336             KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 337             KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 338             KM   BASIN 354
 339             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 340             KM    L=      2.9  Lca=      1.9   S=   17.2  Kn= .086  LAG= 138.0
 341             KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
 342             BA    1.50
 343             LG     .47     .07    6.80     .19     .00
 344             UI     40.     40.     40.     40.     40.     49.     84.     84.    109.    141.
 345             UI    196.    211.    252.    229.    211.    249.    282.    346.    277.    338.
 346             UI    338.    338.    338.    338.    338.    338.    338.    315.    282.    282.
 347             UI    282.    296.    306.    317.    211.    211.    211.    228.    245.    184.
 348             UI    162.    154.    154.    141.    121.    117.    113.    119.    130.     98.
 349             UI     77.     77.     70.     65.     65.     65.     50.     50.     50.     50.
 350             UI     46.     37.     37.     37.     37.     37.     37.     24.     23.     23.
 351             UI     23.     23.     23.     23.     23.     23.     23.     10.      5.      5.
 352             UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 353             UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 354             UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 355             UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 356             UI      5.      5.      5.      0.      0.      0.      0.      0.      0.      0.
1                                                HEC-1 INPUT                                          PAGE 11

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

 357             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *

 358             KK   RO355
 359             KM        ROUTE FLOW FROM SB354 TO CO358
 360             RM      42    8.60    0.20
                 *

 361             KK  SUB356
 362             KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 363             KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 364             KM   BASIN 356
 365             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 366             KM    L=      5.1  Lca=      3.5   S=   12.7  Kn= .093  LAG= 246.0
 367             KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
 368             BA    4.24
 369             LG     .48     .04    5.30     .35     .00
 370             UI     64.     64.     64.     64.     64.     64.     64.     64.     64.     64.
 371             UI    110.    134.    134.    134.    134.    200.    223.    223.    311.    334.
 372             UI    334.    334.    430.    403.    334.    334.    334.    384.    445.    445.
 373             UI    556.    521.    382.    502.    534.    534.    534.    534.    534.    534.
 374             UI    534.    534.    534.    534.    534.    534.    534.    534.    534.    463.
 375             UI    445.    445.    445.    445.    445.    445.    483.    517.    445.    509.
 376             UI    437.    334.    334.    334.    334.    334.    356.    371.    389.    376.
 377             UI    267.    267.    251.    243.    243.    243.    243.    229.    191.    191.
 378             UI    191.    180.    178.    178.    182.    206.    206.    206.    127.    121.
 379             UI    121.    121.    121.    112.    103.    103.    103.    103.    103.    100.
 380             UI     79.     79.     79.     79.     79.     79.     79.     79.     63.     58.
 381             UI     58.     58.     58.     58.     58.     58.     58.     58.     58.     48.
 382             UI     36.     36.     36.     36.     36.     36.     36.     36.     36.     36.
 383             UI     36.     36.     36.     36.     36.     36.     36.     29.      8.      8.
 384             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 385             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 386             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 387             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 388             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 389             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 390             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 391             UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
```

```
392          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
393          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

394          KK   CO358
395          KM        COMBINE RO355 AND SUB256
396          HC       2
             *

397          KK   RO359
398          KM        ROUTE FLOW FROM CO358 TO CO362
399          RM      14    2.89    0.20
             *
```



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

400          KK  SUB360
401          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
402          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
403          KM   BASIN 360
404          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
405          KM    L=      4.6  Lca=      2.7   S=   16.4  Kn= .083  LAG= 183.0
406          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
407          BA    4.79
408          LG     .46     .09    6.60     .20     .00
409          UI     97.     97.     97.     97.     97.     97.     97.    130.    203.    203.
410          UI    203.    291.    338.    415.    507.    507.    596.    603.    507.    507.
411          UI    592.    676.    780.    763.    648.    811.    811.    811.    811.    811.
412          UI    811.    811.    811.    811.    811.    811.    757.    676.    676.    676.
413          UI    676.    676.    799.    676.    797.    512.    507.    507.    507.    540.
414          UI    572.    591.    405.    398.    369.    369.    369.    355.    290.    290.
415          UI    278.    270.    270.    306.    312.    250.    184.    184.    184.    171.
416          UI    156.    156.    156.    156.    130.    119.    119.    119.    119.    119.
417          UI    104.     88.     88.     88.     88.     88.     88.     88.     86.     55.
418          UI     55.     55.     55.     55.     55.     55.     55.     55.     55.     55.
419          UI     55.     55.     33.     12.     12.     12.     12.     12.     12.     12.
420          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
421          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
422          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
423          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
424          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
425          UI     12.     12.     12.      0.      0.      0.      0.      0.      0.      0.
426          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

427          KK   CO362
428          KM        COMBINE RO359 AND SUB360
429          HC       2
             *

430          KK   *RRW1
431          KM    DIVERSION FLOW FROM CO362 DUE TO A 4-3'x4' WOOD BOX CULVERT
432          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
433          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
434          DT  DDRRW1
435          DI       0      59     145     244     428     546     682     837    1013    1320
436          DQ       0      19      61     119     242     327     430     553     697     955
             *
             * rrrrrrrrrrrrrrrrrrrrrr   Routing RRW1       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Culvert *RRW1 to CP-E1 Through Basin E2                          rrr
             * rrr  Field typical section  -  Sheet flow across fields                      rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

437          KK    RRW1
438          RS      10    FLOW
439          RC     .08     .08     .08    2700   .0026
440          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
441          RY       5     3.5       3       2       0       2       3       5
             *
             * +++++++++++++++++++++ Conc. Point CP-E1     ++++++++++++++++++++++++++++++++
             * +++  Combines basins S1, S2, E3 and CP-S3A & Railroad Culvert *RRW1        +++
             * +++  Between Railroad and Hunt Hwy near Roberts Rd. Alignment               +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *
```



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

442          KK   CP-E1
443          HC       5
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-E1       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E1 to CP-D5 (midway ofE2) Through Basin E2                    rrr
             * rrr  Railroad typical section - channel flow                                 rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

444          KK     RE1
445          RS      24    FLOW
446          RC    0.08    0.06    0.08    8256   .0012
447          RX       0     800    2975    2990    3010    3025    5200    6000
```

```
 448          RY      10       8       2       0       0       2       8      10
              *
              * **********************   Basin S4B    ****************************************
              *

 449          KK     S4B
 450          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 451          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 452          KM   SUB-BASIN S4B
 453          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 454          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
 455          KM     L = 2.64  Kb = .054  Adj. Slope =  200.9
 456          BA   1.277
 457          LG    .270    .350   4.350    .380  23.000
 458          UC    .608    .403
 459          UA       0       3       5       8      12      20      43      75      90      96
 460          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S4B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S4B to CP-S4A Through Basin S4A                          rrr
              * rrr  Mountain typical section  - natural channel flow                      rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 461          KK    RS4B
 462          RS      16    FLOW
 463          RC     .07     .06     .07    8090   .0091
 464          RX       0     400     800    1200    1600    2000    2400    2800
 465          RY       3       1      .5       0       0      .5       1       3
              *
              * **********************   Basin S4A    ****************************************
              *

 466          KK     S4A
 467          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 468          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 469          KM   SUB-BASIN S4A
 470          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 471          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 472          KM     L = 1.53  Kb = .040  Adj. Slope =   48.0
 473          BA   1.600
```



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

 474          LG    .340    .350   4.250    .410   7.000
 475          UC    .675    .257
 476          UA       0       3       5       8      12      20      43      75      90      96
 477          UA     100
              *
              * +++++++++++++++++++++ Conc. Point CP-S4A     +++++++++++++++++++++++++++++++
              * +++  Combines basins S4B & S4A (Hunt Hwy)                                  +++
              * +++  Hunt Hwy near intersection of aligments of Bella Vista and Vinyard    +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 478          KK  CP-S4A
 479          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S4A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-S4A to CP-D5 (midway of E2) Through Basin E2                 rrr
              * rrr  Field typical Section  -  Sheet flow across fields                    rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 480          KK    RS4A
 481          RS      21    FLOW
 482          RC     .08     .08     .08    7390   .0065
 483          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 484          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin S5     ****************************************
              *

 485          KK      S5
 486          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 487          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 488          KM   SUB-BASIN S5
 489          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 490          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 491          KM     L =  .86  Kb = .068  Adj. Slope =  298.4
 492          BA    .338
 493          LG    .250    .350   4.500    .350  25.000
 494          UC    .279    .148
 495          UA       0       3       5       8      12      20      43      75      90      96
 496          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-S5 to CP-D5 (midway of E2) Through Basin E2                 rrr
              * rrr  Field typical section  -  sheet flow across fields                   rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 497          KK     RS5
 498          RS      23    FLOW
```

```
 499          RC     .08     .08     .08    5790   .0067
 500          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 501          RY       5     3.5       3       2       0       2       3       5
              *
1                                          HEC-1 INPUT                                                    PAGE 15

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


 502          KK  *DDRW1
 503          KM    RETRIEVE DIVERSION FLOW FROM DDRRW1
 504          DR  DDRRW1
              *

 505          KK  RO363A
 506          KM        ROUTE FLOW *DRRW1 TO *RRW2
 507          RM       8    1.49    0.20
              *

 508          KK    364C
 509          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 510          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 511          KM   BASIN 364C
 512          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 513          KM    L=      3.4  Lca=      1.9   S=   24.3  Kn= .070  LAG= 111.0
 514          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 515          BA    1.27
 516          LG     .43     .15    4.50     .46     .00
 517          UI     39.     39.     39.     39.     39.    104.    116.    151.    179.    205.
 518          UI    230.    258.    274.    305.    324.    341.    350.    360.    371.    371.
 519          UI    371.    365.    352.    348.    329.    303.    277.    266.    237.    221.
 520          UI    205.    190.    176.    164.    151.    138.    128.    119.    108.    106.
 521          UI     87.     86.     77.     73.     73.     60.     59.     59.     48.     41.
 522          UI     41.     41.     41.     29.     26.     26.     26.     26.     26.     26.
 523          UI     21.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 524          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 525          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 526          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 527          KK  CO364C
 528          KM    COMBINE FLOWS COMING ALONG THE RAILROAD TRACK WITH FLOWS GENERATED FROM
 529          KM    SUBBASIN 364C
 530          HC       2
              *

 531          KK   *RRW2
 532          KM    DIVERSION FLOW FROM CO364C DUE TO A  1-5'x3.5' CMPA CULVERT
 533          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
 534          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
 535          DT  DDRRW2
 536          DI       0      59     145     244     428     546     682     837    1013    1320
 537          DQ       0      31      92     171     331     438     562     706     871    1162
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RRW2       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Culvert *RRW2 to CP-D5 Through Basin E2                          rrr
              * rrr  Field typical section  -   sheet flow across fields                    rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                                    PAGE 16

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


 538          KK    RRW2
 539          RS      45    FLOW
 540          RC     .08     .08     .08    7800   .0019
 541          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 542          RY       5     3.5       3       2       0       2       3       5
              *

 543          KK  *DDRW2
 544          KM    RETRIEVE DIVERSION FLOW FROM DDRRW2
 545          DR  DDRRW2
              *

 546          KK  RO363B
 547          KM        ROUTE FLOW *DRRW2 TO *RRW3
 548          RM       8    1.49    0.20
              *

 549          KK    364B
 550          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 551          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 552          KM   BASIN 364B
 553          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 554          KM    L=      3.7  Lca=      1.8   S=   23.0  Kn= .070  LAG= 113.0
 555          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
 556          BA    2.21
 557          LG     .43     .15    4.60     .43     .00
 558          UI     72.     72.     72.     72.     92.    151.    151.    251.    332.    378.
 559          UI    464.    378.    421.    504.    579.    561.    605.    605.    605.    605.
 560          UI    605.    605.    565.    504.    504.    505.    560.    536.    378.    378.
 561          UI    399.    437.    316.    281.    275.    258.    216.    206.    202.    233.
 562          UI    181.    137.    136.    116.    116.    113.     89.     89.     89.     82.
```

```
 563          UI     66.     66.     66.     66.     64.     41.     41.     41.     41.     41.
 564          UI     41.     41.     41.     18.      9.      9.      9.      9.      9.      9.
 565          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 566          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 567          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 568          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 569          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 570          KK  CO364B
 571          KM    COMBINE FLOWS FROM ALONG RAILROAD TRACK WITH THOSE GENERATED FROM BASIN 364B
 572          HC       2
              *

 573          KK   *RRW3
 574          KM    DIVERSION FLOW FROM RO363C DUE TO A  6-5'x3.5' CMPA CULVERT
 575          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
 576          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
 577          KM    DIVERTED FLOW IS RETRIEVED AND COMBINED AT SUBBASIN 364C.
 578          DT  DDRRW3
 579          DI       0      59     145     244     428     546     682     837    1013    1320
 580          DQ       0       9      32      69     156     220     300     396     512     726
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing RRW3       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Culvert *RRW3 to CP-D5 Through Basin E2                          rrr
              * rrr  Field typical section  -   sheet flow across fields                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                          PAGE 17

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

 581          KK    RRW3
 582          RS      18    FLOW
 583          RC     .08     .08     .08    4950    .005
 584          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 585          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++ Conc. Point CP-D5     +++++++++++++++++++++++++++++++++
              * +++  Combines basins S5; Conc. points CP-S4A, CP-E1; RR Culverts RW2, RW3  +++
              * +++  between railroad and Hunt Hwy near Skyline Rd.                         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 586          KK   CP-D5
 587          HC       5
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-D5       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-D5 to CP-D6 (middway of E2) Through Basin E2                  rrr
              * rrr  Railroad typical section  -  tail water ditch flow                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 588          KK     RD5
 589          RS      15    FLOW
 590          RC     .08     .06     .08    6430   .0017
 591          RX       0     800    2975    2990    3010    3025    5200    6000
 592          RY      10       8       2       0       0       2       8      10
              *
              * **********************   Basin S6     ****************************************
              *

 593          KK      S6
 594          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 595          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 596          KM   SUB-BASIN S6
 597          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 598          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
 599          KM     L = 2.29  Kb = .050  Adj. Slope =  140.0
 600          BA    .819
 601          LG    .310    .360   5.000    .270   5.000
 602          UC    .617    .470
 603          UA       0       3       5       8      12      20      43      75      90      96
 604          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S6       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-S6 to CP-D6 (middway of E2) Through Basin E2                  rrr
              * rrr  Field typical section  -  Sheet flow across fields                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                          PAGE 18

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

 605          KK     RS6
 606          RS      38    FLOW
 607          RC     .08     .08     .08    8910   .0049
 608          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 609          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin S7B    ****************************************
              *
```

```
610          KK     S7B
611          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
612          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
613          KM   SUB-BASIN S7B
614          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
615          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
616          KM     L =  .95  Kb = .076  Adj. Slope =  299.2
617          BA    .773
618          LG    .180    .350   4.500    .350  29.000
619          UC    .321    .116
620          UA       0       3       5       8      12      20      43      75      90      96
621          UA     100
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S7B           rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S7B to CP-S7A Through Basin S7A                          rrr
             * rrr  Mountain typical section                                              rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

622          KK    RS7B
623          RS      15    FLOW
624          RC     .07     .06     .07    7714   .0106
625          RX       0     400     800    1200    1600    2000    2400    2800
626          RY       3       1      .5       0       0      .5       1       3
             *
             * **********************   Basin S7A     ****************************************
             *

627          KK     S7A
628          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
629          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
630          KM   SUB-BASIN S7A
631          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
632          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
633          KM     L = 1.47  Kb = .043  Adj. Slope =   56.0
634          BA   1.191
635          LG    .340    .350   4.400    .370    .000
636          UC    .642    .279
637          UA       0       3       5       8      12      20      43      75      90      96
638          UA     100
             *
             * +++++++++++++++++++++ Conc. Point CP-S7A     +++++++++++++++++++++++++++++++
             * +++  Combines basins S7B & S7A  (Hunt Hwy)                                 +++
             * +++  Hunt Hwy 1.5 miles south of Empire Rd.                                +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *
```



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

639          KK  CP-S7A
640          HC       2
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S7A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-S7 to CP-D6 (midway of E2) Through Basin E2                  rrr
             * rrr  Field typical section  -  Sheet flow across fields                    rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

641          KK    RS7A
642          RS      24    FLOW
643          RC     .08     .08     .08    6900   .0059
644          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
645          RY       5     3.5       3       2       0       2       3       5
             *
             * +++++++++++++++++++++ Conc. Point CP-D6     +++++++++++++++++++++++++++++++
             * +++  Combines basins S6 & Conc. points CP-S7A & CP-D5 (mid-E2)             +++
             * +++  Between rairoad and Hunt Hwy near Moeur Rd. (Meridian)                +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *

646          KK   CP-D6
647          HC       3
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-D6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-D6 to CP-E2 Through Basin E2                                 rrr
             * rrr  Railroad typical section - tail water ditch                           rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

648          KK     RD6
649          RS       8    FLOW
650          RC     .08     .06     .08    5161   .0052
651          RX       0     800    2975    2990    3010    3025    5200    6000
652          RY      10       8       2       0       0       2       8      10
             *
             * **********************   Basin E5     ****************************************
             *

653          KK      E5
654          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
655          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
656          KM   SUB-BASIN E5
657          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
```

```
 658          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
 659          KM     L =  .87  Kb = .086  Adj. Slope =   54.0
 660          BA    .571
 661          LG    .500    .000   3.950    .730    .000
 662          UC    .712    .313
 663          UA       0       3       5       8      12      20      43      75      90      96
 664          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E5 to CP-E2 Through Basin E2  (Signal Rd.)                    rrr
              * rrr  Street typical section  -  along Signal Butte Rd.                      rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                                PAGE 20

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

 665          KK     RE5
 666          RS       5    FLOW
 667          RC     .08     .02     .08    2150   .0065
 668          RX       0    1000    2470    2488    2512    2515    2520    5000
 669          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * **********************   Basin E2     ****************************************
              *

 670          KK      E2
 671          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 672          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 673          KM   SUB-BASIN E2
 674          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 675          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .956
 676          KM     L = 5.99  Kb = .057  Adj. Slope =   14.0
 677          BA   7.328
 678          LG    .480    .130   4.900    .430   3.000
 679          UC   1.000    .498
 680          UA       0       3       5       8      12      20      43      75      90      96
 681          UA     100
              *
              * **********************   Basin S8B    ****************************************
              *

 682          KK     S8B
 683          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 684          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 685          KM   SUB-BASIN S8B
 686          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 687          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 688          KM     L = 2.07  Kb = .059  Adj. Slope =  277.2
 689          BA   1.696
 690          LG    .240    .350   4.500    .350  40.000
 691          UC    .454    .204
 692          UA       0       3       5       8      12      20      43      75      90      96
 693          UA     100
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S8B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin S8B to CP-S8A Through Basin S8A                            rrr
              * rrr  Mountain typical section                                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 694          KK    RS8B
 695          RS      18    FLOW
 696          RC     .07     .06     .07   11791   .0115
 697          RX       0     400     800    1200    1600    2000    2400    2800
 698          RY       3       1      .5       0       0      .5       1       3
              *
              * **********************   Basin S8A    ****************************************
              *
1                                          HEC-1 INPUT                                                PAGE 21

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

 699          KK     S8A
 700          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 701          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 702          KM   SUB-BASIN S8A
 703          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 704          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 705          KM     L = 2.26  Kb = .038  Adj. Slope =   60.0
 706          BA   1.740
 707          LG    .350    .350   4.100    .440    .000
 708          UC    .825    .418
 709          UA       0       3       5       8      12      20      43      75      90      96
 710          UA     100
              *
              * +++++++++++++++++++++ Conc. Point CP-S8A     ++++++++++++++++++++++++++++++++
              * +++  Combines basins S8B & S8A                                                +++
              * +++  Hunt Hwy near Signal Butte Rd. Alignment                                 +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 711          KK  CP-S8A
```

```
 712          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S8A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-S8A to CP-E2 Through Basin E2                                  rr
              * rrr  Field typical section  -  sheet flow across fields                      rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 713          KK    RS8A
 714          RS      24    FLOW
 715          RC     .08     .08     .08    9191    .007
 716          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 717          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++ Conc. Point CP-E2     +++++++++++++++++++++++++++++++++
              * +++  Combines E2, E5, CP-S8A & CP-D6 (Signal Rd. north of Empire road)     +++
              * +++  Signal Butte Rd. 0.5 miles north of Empire Rd.                        +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 718          KK   CP-E2
 719          HC       4
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E2 to CP-E6 Through Basin E6 (field)                          rrr
              * rrr  Railroad typical section - tailwater ditch flow                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
```



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

 720          KK     RE2
 721          RS      12     .08
 722          RC     .08     .06     .08    6025   .0033
 723          RX       0     800    2975    2990    3010    3025    5200    6000
 724          RY      10       8       2       0       0       2       8      10
              *
              * **********************   Basin E6     ****************************************
              *

 725          KK      E6
 726          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 727          KM   SUB-BASIN E6
 728          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 729          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
 730          KM     L = 1.76  Kb = .039  Adj. Slope =   22.0
 731          BA   1.167
 732          LG    .280    .260   4.600    .350   6.000
 733          UC   1.017    .542
 734          UA       0       5      16      30      65      77      84      90      94      97
 735          UA     100
              *

 736          KK  RETAIN
 737          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 738          DT  RETDIV      61
 739          DI       0   10000
 740          DQ       0   10000
              *
              * **********************   Basin E11    ****************************************
              *

 741          KK     E11
 742          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 743          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 744          KM   SUB-BASIN E11
 745          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 746          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 747          KM     L = 1.13  Kb = .092  Adj. Slope =   16.0
 748          BA    .338
 749          LG    .500    .000   4.800    .460    .000
 750          UC   1.500   1.188
 751          UA       0       3       5       8      12      20      43      75      90      96
 752          UA     100
              *
              * ////////////////////// Diversion *DE11   ////////////////////////////////////
              * ///   1 along Meridian and Riggs - 2 Sheet flow across field              ////
              * ///   Intersection of Meridian Rd. and Santan Blvd                        ////
              * ////////////////////////////////////////////////////////////////////////////
              *
```



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

 753          KK   *DE11
 754          KM    DIVERSION FLOW FROM CP-E11, THROUGH BASIN E3, THEN ALONG RIGGS RD.
 755          DT   DDE11
 756          DI       0      40      80     100     120     160     180     200
 757          DQ       0      37      74      93     112     150     168     187
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E11N       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin E11 to CP-E3 Through Basin E3                                rrr
```

```
                 * rrr  Channel flow                                                          rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 758             KK   RE11N
 759             RS      26    FLOW
 760             RC     .08     .04     .08    6950   .0031
 761             RX       0       5      10      35      55      70      75      80
 762             RY       7       6       5       0       0       5       6       7
                 *
                 * **********************   Basin E3     ****************************************
                 *

 763             KK      E3
 764             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 765             KM   SUB-BASIN E3
 766             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 767             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
 768             KM     L = 1.25  Kb = .035  Adj. Slope =   18.0
 769             BA    .430
 770             LG    .220    .250   4.800    .340  31.000
 771             UC    .721    .498
 772             UA       0       5      16      30      65      77      84      90      94      97
 773             UA     100
                 *

 774             KK  RETAIN
 775             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 776             DT  RETDIV      32
 777             DI       0   10000
 778             DQ       0   10000
                 *
                 * ////////////////////  Diversion Recover DE11   ////////////////////////////
                 * ///   from South East through field                                      ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

 779             KK    DE11
 780             KM    DIVERSION FLOW FROM CP-E11
 781             DR   DDE11
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RE11S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Diversion Flow from CP-E11 to CP-E3 Through Basin E3                  rrr
                 * rrr  Field typical section  -  sheet flow across fields                    rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
```



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

 782             KK   RE11S
 783             RS      45    FLOW
 784             RC     .08     .07     .08    6600   .0033
 785             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 786             RY       5     3.5       3       2       0       2       3       5
                 *
                 * +++++++++++++++++++++ Conc. Point CP-E3     +++++++++++++++++++++++++++++++++
                 * +++  Combines basin E3, E11, & DE11                                        +++
                 * +++  Intersection of Signal Butte and Riggs Rds.                           +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

 787             KK   CP-E3
 788             HC       3
                 *
                 * ////////////////////  Diversion *DE3   ////////////////////////////////////
                 * ///   1 west along Riggs Road - 2 North along Signal Rd.                  ///
                 * ///   Intersection of Signal Butte Rd and Riggs Rd.                       ///
                 * ////////////////////////////////////////////////////////////////////////////
                 *

 789             KK    *DE3
 790             KM    DIVERSION FLOW FROM CP-E3
 791             DT    DDE3
 792             DI       0      40      80     120     160     200     280     400
 793             DQ       0       8      15      17      22      25      35      50
                 *
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Diversion Flow from CP-E3 to CP-E6 (Riggs Rd.)                        rrr
                 * rrr  Street typical section  -  along Riggs rd.                             rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 794             KK    RE3W
 795             RS      23    FLOW
 796             RC     .08     .02     .08    5200   .0036
 797             RX       0    1000    2470    2488    2512    2515    2520    5000
 798             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * +++++++++++++++++++++ Conc. Point CP-E6     +++++++++++++++++++++++++++++++++
                 * +++  Combines basin E6 & Conc. point CP-E2                                  +++
                 * +++  Intersection of Crismon and Riggs Rds.                                 +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *
```

```
 799          KK   CP-E6
 800          HC       3
              *
              * ////////////////////// Diversion *DE6   ////////////////////////////////////
              * ///   1 West Along Riggs - 2 North Along Crismon Rd.                     ////
              * ///  Intersection of Crismon and Riggs Rds.                              ////
              * ////////////////////////////////////////////////////////////////////////////
              *
1                                          HEC-1 INPUT                                          PAGE 25

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


 801          KK    *DE6
 802          KM    DIVERSION FLOW FROM CP-E6
 803          DT    DDE6
 804          DI       0      30      90     150     210     270     300
 805          DQ       0      10      31      51      72      92     103
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E6S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E6 to CP-E9 Through Riggs road                                rrr
              * rrr  Street typical section  -  along Riggs Rd.                             rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 806          KK    RE6S
 807          RS      12    FLOW
 808          RC     .08     .02     .08    5200   .0035
 809          RX       0    1000    2470    2488    2512    2515    2520    5000
 810          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * **********************   Basin E9     ****************************************
              *

 811          KK      E9
 812          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 813          KM   SUB-BASIN E9
 814          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 815          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
 816          KM     L = 1.86  Kb = .040  Adj. Slope =   30.0
 817          BA    .954
 818          LG    .290    .260   4.200    .510  14.000
 819          UC    .962    .598
 820          UA       0       5      16      30      65      77      84      90      94      97
 821          UA     100
              *

 822          KK  RETAIN
 823          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 824          DT  RETDIV      52
 825          DI       0   10000
 826          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DE8   ////////////////////////////
              * ///   from south along Ellsworth Rd. North of County boundary             ////
              * ////////////////////////////////////////////////////////////////////////////
              *

 827          KK     DE8
 828          KM    Return flow from CP-E8
 829          DR    DDE8
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E8E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route DE8 to CP-E9 Along Ellsworth Road                               rrrr
              * rrr  Street typical section  -  Ellsworth Rd.                               rrrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                          PAGE 26

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


 830          KK    RE8E
 831          RS      13    FLOW
 832          RC     .08     .02     .08    5300   .0072
 833          RX       0    1000    2470    2488    2512    2515    2520    5000
 834          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * +++++++++++++++++++++ Conc. Point CP-E9     +++++++++++++++++++++++++++++++
              * +++  Combines basin E9 & DE8 (Riggs and Ellsworth Road)                    +++
              * +++  Intersection of Ellsworth and Riggs Rds.                               +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

 835          KK   CP-E9
 836          HC       3
              *
              * ////////////////////// Diversion *DE9   ////////////////////////////////////
              * ///   1 West Riggs Road to Sanokai - 2 North along Ellsworth Road          ///
              * ///   Inttersecttion of Ellsworth and Riggs Rds.                           ///
              * ////////////////////////////////////////////////////////////////////////////
              *

 837          KK    *DE9
```

```
 838          KM    DIVERTED FLOW FROM CP-E9
 839          DT    DDE9
 840          DI       0     200     600    1000    1400    1800    2000
 841          DQ       0      67      87     144     202     259     288
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E9W         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Diverted flow from CP-E9 to CP-C2 (Riggs Rd.)                    rrr
              * rrr  Channel/sheet flow along Riggs Rd. near the landfield                  rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

 842          KK    RE9W
 843          RS       5    FLOW
 844          RC     .08    .035     .08    4000   .0045
 845          RX       0     305     310   322.5   347.5     360     365     670
 846          RY       8       6       5       0       0       5       6       8
              *
              * **********************   Basin C4     ****************************************
              *

 847          KK      C4
 848          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 849          KM   SUB-BASIN C4
 850          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 851          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 852          KM     L = 1.18  Kb = .048  Adj. Slope =   37.0
 853          BA    .311
 854          LG    .300    .250   4.200    .440   5.000
 855          UC    .700    .553
 856          UA       0       5      16      30      65      77      84      90      94      97
 857          UA     100
              *
```



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

 858          KK  RETAIN
 859          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 860          DT  RETDIV      18
 861          DI       0   10000
 862          DQ       0   10000
              *
              * **********************   Basin C2     ****************************************
              *

 863          KK      C2
 864          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 865          KM   SUB-BASIN C2
 866          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 867          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 868          KM     L = 1.21  Kb = .043  Adj. Slope =   28.0
 869          BA    .322
 870          LG    .250    .270   4.300    .400   4.000
 871          UC    .738    .586
 872          UA       0       5      16      30      65      77      84      90      94      97
 873          UA     100
              *

 874          KK  RETAIN
 875          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 876          DT  RETDIV      14
 877          DI       0   10000
 878          DQ       0   10000
              *
              * **********************   Basin C3     ****************************************
              *

 879          KK      C3
 880          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 881          KM   SUB-BASIN C3
 882          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 883          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
 884          KM     L =  .38  Kb = .050  Adj. Slope =   10.0
 885          BA    .112
 886          LG    .270    .260   4.800    .300   4.000
 887          UC    .529    .293
 888          UA       0       5      16      30      65      77      84      90      94      97
 889          UA     100
              *

 890          KK  RETAIN
 891          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 892          DT  RETDIV       6
 893          DI       0   10000
 894          DQ       0   10000
              *
              * ////////////////////// Diversion *DC3   ////////////////////////////////////
              * ///   1 South of landfild - 2 North of landfild to Hawes Rd.              ///
              * ///   At east end of lanfield                                             ///
              * ////////////////////////////////////////////////////////////////////////////
              *
```



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

```
895          KK    *DC3
896          KM     FLOW FROM DIVERSION AT CP-C3
897          DT    DDC3
898          DI       0      20      40     100     140     180     200
899          DQ       0      10      20      42      47      61      68
             *
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-C3SW        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin C3 to CP-C2 Around Landfill in Channel                    rrr
             * rrr  Channel by landfill                                                    rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *

900          KK   RC3SW
901          RS       4    FLOW
902          RC     .08    .045     .08    3060    .004
903          RX       0       5      10    22.5    47.5      60      65      70
904          RY       7       6       5       0       0       5       6       7
             *
             * +++++++++++++++++++++++ Conc. Point *CP-C2     +++++++++++++++++++++++++++++++
             * +++  Combines basin C2, C3 & C4                                            +++
             * +++  Sanokai Wash at Riggs Rd (south of landfill)                          +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *

905          KK  *CP-C2
906          HC       3
             *
             * +++++++++++++++++++++++ Conc. Point CP-C2     +++++++++++++++++++++++++++++++
             * +++  Combines basin (C2, C3, C4), E9 & CP-C1                                +++
             * +++  Sanokai Wash at Riggs Rd (south of landfill)                          +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             *

907          KK   CP-C2
908          HC       3
             *
             * ///////////////////////  Diversion *DC2   ////////////////////////////////////
             * ///   1 North west along Sanokai - 2 west along Riggs R. (by landfill )   ////
             * ///   Sanokai Wash south of Riggs road                                    ////
             * ////////////////////////////////////////////////////////////////////////////
             *

909          KK    *DC2
910          KM    DIVERSION FLOW FROM CP-C2
911          DT    DDC2
912          DI       0    1500    1600    1900    2000    2500    3000    3500    4000
913          DQ       0       1      10     220     250     420     560     700     830
             *
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C2 to CP-C16 Through Basin C16                                rrr
             * rrr  Sanokai wash from Riggs Rd to Hawes Rd.                                rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             *
```



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

914          KK     RC2
915          RS       1    FLOW
916          RC     .07     .06     .07    1650   .0061
917          RX    9600    9900    9980    9990   10010   10050   10150   10400
918          RY    1387  1385.7  1386.5  1380.8  1380.3  1386.2  1384.4  1388.8
             *
             * *********************   Basin C16     ***************************************
             *

919          KK     C16
920          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
921          KM   SUB-BASIN C16
922          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
923          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
924          KM     L =  .31  Kb = .063  Adj. Slope =   32.0
925          BA    .027
926          LG    .300    .250   4.800    .310   5.000
927          UC    .338    .340
928          UA       0       5      16      30      65      77      84      90      94      97
929          UA     100
             *

930          KK  RETAIN
931          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
932          DT  RETDIV       2
933          DI       0   10000
934          DQ       0   10000
             *
             * ***************************************************************************
             *       Basin LF is not in the existing conditions models but has
             *       been included in this future conditions model.  It is assumed that
             *       currently the landfill is self contained contributing no runoff to the
             *       watershed under existing conditions.  However, upon closing, the Town
             *       of Queen Creek has expressed an interest in developing the site into
             *       a recreation area and will no longer be self contained.  While the
```

```
                 *       landfill is no longer self-contained, it is assumed that no on-site
                 *       retention will be allowed within the landfill area due to concerns
                 *       over possible leakage into the landfill and subsequent groundwater
                 *       contamination.
                 * ******************************************************************************
                 *
                 * **********************   Basin LF      ***************************************
                 *

 935             KK      LF
 936             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 937             KM   SUB-BASIN LF
 938             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 939             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
 940             KM     L =  .68  Kb = .027  Adj. Slope =   22.0
 941             BA    .194
 942             LG    .100    .350   4.800    .250    .000
 943             UC    .367    .227
 944             UA       0       5      16      30      65      77      84      90      94      97
1                                              HEC-1 INPUT                                          PAGE 30

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

 945             UA     100
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C16     +++++++++++++++++++++++++++++++
                 * +++  Combines basin C16, LF & Conc. Point CP-C2                            +++
                 * +++  Sanokai Wash at Hawes Rd.                                             +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

 946             KK  CP-C16
 947             HC       3
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C16        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C16 to CP-C7 Through Basin C7                                rrr
                 * rrr  Sanokai Wash from Hawes to Sossoman                                   rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 948             KK    RC16
 949             RS       3    FLOW
 950             RC     .08     .04     .08    5465   .0012
 951             RX     500    1300    2220    2250    2340    2460    3000    3470
 952             RY    1376  1374.5  1377.2  1368.8  1366.2    1378  1379.4  1379.8
                 *
                 * ////////////////////  Diversion Recover DE3   ////////////////////////////
                 * ///   From south along Signal Rd. north of Riggs                         ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

 953             KK     DE3
 954             KM    Return flow from CP-E3
 955             DR    DDE3
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-E3        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-E3 to CP-E4 Through Basin E4 (Signal Rd.)                    rrr
                 * rrr  Street typical section  -  along Signal Butte Rd.                     rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 956             KK     RE3
 957             RS      54    FLOW
 958             RC     .08     .02     .08    2700   .0002
 959             RX       0    1000    2470    2488    2512    2515    2520    5000
 960             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * **********************   Basin E4      ***************************************
                 *

 961             KK      E4
 962             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 963             KM   SUB-BASIN E4
 964             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 965             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 966             KM     L = 1.23  Kb = .040  Adj. Slope =   14.0
 967             BA    .371
 968             LG    .250    .250   4.650    .350  23.000
1                                              HEC-1 INPUT                                          PAGE 31

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

 969             UC    .917    .698
 970             UA       0       5      16      30      65      77      84      90      94      97
 971             UA     100
                 *

 972             KK  RETAIN
 973             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 974             DT  RETDIV      24
 975             DI       0   10000
 976             DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-E4     +++++++++++++++++++++++++++++++
                 * +++  Combines basin E4 & CP-E3                                             +++
```

```
            * +++  Intersection of Signal Butte Rd and Cloud Rd.                          +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            *

 977        KK   CP-E4
 978        HC       2
            *
            * ////////////////////// Diversion *DE4   ////////////////////////////////////
            * ///   1 West through field - 2 along Signal Butte off-site to north       ////
            * ///   Intersection of Signal Butte Rd and Cloud Rd.                       ////
            * ////////////////////////////////////////////////////////////////////////////
            *

 979        KK    *DE4
 980        KM     DIVERSION OF FLOW AT CP-E4 OFFSITE
 981        DT   DDE4O
 982        DI       0      30      60      90     120     180     240     300
 983        DQ       0      11      23      34      46      69      92     115
            *
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-E4        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-E4 to CP-E7 Through Basin E7 (Cloud Rd.)                      rrr
            * rrr  Field typical section  -  sheet flow across field                      rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            *

 984        KK     RE4
 985        RS      49    FLOW
 986        RC     .08     .07     .08    6400   .0031
 987        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 988        RY       5     3.5       3       2       0       2       3       5
            *
            * **********************   Basin E7     ****************************************
            *

 989        KK      E7
 990        KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 991        KM   SUB-BASIN E7
 992        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 993        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 994        KM     L = 1.03  Kb = .048  Adj. Slope =   19.0
 995        BA    .356
 996        LG    .300    .250   4.800    .360  15.000
```



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

 997        UC    .825    .551
 998        UA       0       5      16      30      65      77      84      90      94      97
 999        UA     100
            *

1000        KK  RETAIN
1001        KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1002        DT  RETDIV      18
1003        DI       0   10000
1004        DQ       0   10000
            *
            * ////////////////////// Diversion Recover DE6   ////////////////////////////
            * ///   From south along Crismon Road north of Riggs                        ////
            * ////////////////////////////////////////////////////////////////////////////
            *

1005        KK     DE6
1006        KM    Return flow from CP-E6
1007        DR    DDE6
            *
            * rrrrrrrrrrrrrrrrrrrrr   Routing RE6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route DE6 to CP-E7 Along Crismon Road                                  rrr
            * rrr  Stret typical section  -  Along Riggs Rd.                              rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            *

1008        KK     RE6
1009        RS       6    FLOW
1010        RC     .08     .02     .08    1465   .0012
1011        RX       0    1000    2470    2488    2512    2515    2520    5000
1012        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            * ++++++++++++++++++++++ Conc. Point CP-E7     ++++++++++++++++++++++++++++++++
            * +++  Combines basin E7 & Conc. Points CP-E4 & CP-E6                         +++
            * +++  Crismon Rd north of Riggs Rd.                                           +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            *

1013        KK   CP-E7
1014        HC       3
            *
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-E7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-E7 to CP-E10 Through Basin E10                                 rr
            * rrr  Field typical section  -  Sheet flow across fields                     rr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            *

1015        KK     RE7
1016        RS      15    FLOW
```

```
1017          RC     .08     .07     .08    5200   .0035
1018          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1019          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin E10     ****************************************
              *
1                                                HEC-1 INPUT                                                          PAGE 33

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


1020          KK     E10
1021          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1022          KM   SUB-BASIN E10
1023          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1024          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1025          KM     L = 1.02  Kb = .044  Adj. Slope =   20.0
1026          BA    .509
1027          LG    .260    .260   4.650    .380  21.000
1028          UC    .738    .394
1029          UA       0       5      16      30      65      77      84      90      94      97
1030          UA     100
              *

1031          KK  RETAIN
1032          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1033          DT  RETDIV      32
1034          DI       0   10000
1035          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DE9   ////////////////////////////
              * ///   From South along Ellsworth Road north of Riggs                    ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1036          KK     DE9
1037          KM     DIVERSION FLOW FROM CP-E9
1038          DR    DDE9
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RE9N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Diverted Flow from CP-E9 to CP-E10 Along Ellsworth Rd.                rrr
              * rrr  Stret typical section  -  Along Ellsworth Rd.                          rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1039          KK    RE9N
1040          RS       6    FLOW
1041          RC     .08     .02     .08    1300   .0015
1042          RX       0    1000    2470    2488    2512    2515    2520    5000
1043          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * +++++++++++++++++++++ Conc. Point CP-E10     ++++++++++++++++++++++++++++++
              * +++  Combines basin E10, Conc. Point CP-E7, & Divert. Flow from CP-E9      +++
              * +++  Ellsworth Rd. North of Riggs Rd.                                       +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1044          KK  CP-E10
1045          HC       3
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E10        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E10 to CP-N2 Through Basin N2                                 rrr
              * rrr  Field typical section  -  Sheet flow across fields                      rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                                HEC-1 INPUT                                                          PAGE 34

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


1046          KK    RE10
1047          RS      18    FLOW
1048          RC     .08     .07     .08    6000   .0023
1049          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1050          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin N2      ****************************************
              *

1051          KK      N2
1052          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1053          KM   SUB-BASIN N2
1054          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1055          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1056          KM     L = 1.16  Kb = .045  Adj. Slope =   14.0
1057          BA    .540
1058          LG    .300    .250   4.800    .310   7.000
1059          UC   1.000    .592
1060          UA       0       5      16      30      65      77      84      90      94      97
1061          UA     100
              *

1062          KK  RETAIN
1063          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1064          DT  RETDIV      32
```

```
1065          DI       0   10000
1066          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DC3   ////////////////////////////
              * ///   From south east, North side of landfield                          ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1067          KK     DC3
1068          KM     DIVERSION FLOW FROM CP-C3
1069          DR    DDC3
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RC3NW        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Diversion Flow from CP-C3 to CP-N2 Through Basin N2                  rrr
              * rrr  Field typical section  -  Sheet flow across fields                    rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1070          KK   RC3NW
1071          RS      57    FLOW
1072          RC   0.080   0.070   0.080    5350   .0024
1073          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1074          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++++ Conc. Point CP-N2     ++++++++++++++++++++++++++++++++
              * +++  Combines Basin N2, E10 & Diverted Flow from CP-C3                    +++
              * +++  Hawes Rd. south of Chandler Heights Rd                                +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
```



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

1075          KK   CP-N2
1076          HC       3
              *
              * ////////////////////// Diversion *DN2   ////////////////////////////////////
              * ///   1 north west to Sanokai - 2 north along Hawes Rd.                  ////
              * ///   Hawes Rd. south of Chandler Heights Rd.                            ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1077          KK    *DN2
1078          KM     DIVERSION FLOW FROM BASIN N2
1079          DT    DDN2
1080          DI       0     140     280     420     700     980    1120    1260    1400
1081          DQ       0     140     162     171     180     197     206     207     208
              *
              * rrrrrrrrrrrrrrrrrrrr   Routing RN2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-N2 to CP-C7 Through Basin C7 & Sanokai Wash                  rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1082          KK    RN2S
1083          RS       3    FLOW
1084          RC     .08    .055     .08    4850   .0039
1085          RX     500    1300    2220    2250    2340    2460    3000    3470
1086          RY    1376  1374.5  1377.2  1368.8  1366.2    1378  1379.4  1376.8
              *
              * ////////////////////// Diversion Recover DN2   ////////////////////////////
              * ///   From south along Hawes                                             ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1087          KK     DN2
1088          KM     DIVERSION FLOW FROM CP-N2
1089          DR    DDN2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-N2N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Basin N2 to CP-D3 Through Basin N2 (Hawes Rd.)                  rrr
              * rrr  Street typical section  -  along Hawes Rd.                            rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1090          KK    RN2N
1091          RS      11    FLOW
1092          RC     .08     .02     .08    2000   .0013
1093          RX       0    1000    2470    2488    2512    2515    2520    5000
1094          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * ////////////////////// Diversion *DD3   ////////////////////////////////////
              * ///   1 West to Sanokai - 2 North along Hawes Rd.                        ////
              * ///   Intersection of Chandler Heights Rd. and Hawes Rd                  ////
              * ////////////////////////////////////////////////////////////////////////////
              *
```



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

1095          KK    *DD3
1096          KM     DIVERSION FLOW FROM CP-D3
1097          DT    DDD3
1098          DI       0      50     150     250     350     400     500
```

```
1099    DQ       0      17      33      38      39      41      51
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-D3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route CP-D3 to CP-C7 Through Basin C7                                 rrr
        * rrr  Field typical section  -  Sheet flow fields/development               rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

1100    KK    RD3W
1101    RS      26    FLOW
1102    RC     .09     .09     .09    5575    .004
1103    RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1104    RY       5     3.5       3       2       0       2       3       5
        *
        * **********************   Basin C7     ****************************************
        *

1105    KK      C7
1106    KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1107    KM   SUB-BASIN C7
1108    KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1109    KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1110    KM     L = 1.16  Kb = .046  Adj. Slope =   17.0
1111    BA    .475
1112    LG    .290    .250   4.650    .350  12.000
1113    UC    .925    .584
1114    UA       0       5      16      30      65      77      84      90      94      97
1115    UA     100
        *

1116    KK  RETAIN
1117    KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1118    DT  RETDIV      19
1119    DI       0   10000
1120    DQ       0   10000
        *
        * +++++++++++++++++++++ Conc. Point CP-C7     +++++++++++++++++++++++++++++++
        * +++  Combines basin N2, C7 & Conc. Point CP-D3, CP-C16                    +++
        * +++  Sanokai Wash At Sossaman Rd.                                          +++
        * +++  Some flow may break away from the wash and flow west along Chandler   +++
        * +++  Heights Road. However, this flow diversion was not modeled here       +++
        * +++  and the entire flow was assumed to stay in the wash                  +++
        * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        *
```



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

1121    KK   CP-C7
1122    HC       4
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-C7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route CP-C7 to CP-C7A Through Basin C7A                               rrr
        * rrr  Sanokai Wash routing                                                  rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

1123    KK     RC7
1124    RS       4    FLOW
1125    RC     .08   0.045     .08    3200   .0006
1126    RX       0     320     360     400     420     510     600    1060
1127    RY  1361.7  1361.2  1357.2  1349.5    1350  1356.5    1360  1362.2
        *
        * **********************   Basin N1     ****************************************
        *

1128    KK      N1
1129    KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1130    KM   SUB-BASIN N1
1131    KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1132    KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1133    KM     L = 1.24  Kb = .046  Adj. Slope =   15.0
1134    BA    .391
1135    LG    .260    .250   4.800    .360  27.000
1136    UC    .992    .744
1137    UA       0       5      16      30      65      77      84      90      94      97
1138    UA     100
        *

1139    KK  RETAIN
1140    KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1141    DT  RETDIV      24
1142    DI       0   10000
1143    DQ       0   10000
        *
        * ////////////////////// Diversion Recover DD3   ////////////////////////////
        * ///   From South along Hawes Rd.                                         ///
        * ////////////////////////////////////////////////////////////////////////////
        *

1144    KK     DD3
1145    KM     DIVERSION FLOW FROM CP-D3
1146    DR    DDD3
        *
```

```
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RD3N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Diversion Flow from CP-D3 to CP-N1 along Hawes Rd.
                 * rrr  Street typical section  -  along Hawes Rd.
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 38

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


1147             KK    RD3N
1148             RS      27    FLOW
1149             RC     .08     .02     .08    3025   .0008
1150             RX       0    1000    2470    2488    2512    2515    2520    5000
1151             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * +++++++++++++++++++++ Conc. Point CP-N1     +++++++++++++++++++++++++++++++++
                 * +++  Combines basins N1 and RD3N                                          +++
                 * +++  Hawes Rd. north of Chandler Heights Rd.                              +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1152             KK   CP-N1
1153             HC       2
                 *
                 * ////////////////////// Diversion *DN1   ////////////////////////////////////
                 * ///   1 West to Sossaman - 2 North along Hawes Rd. out of Watershed       ////
                 * ///   Hawes Rd. north of Chabdler Heights                                 ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1154             KK    *DN1
1155             KM     DIVERSION OFFSITE
1156             DT   DDN1O
1157             DI       0     120     240     360     480     600
1158             DQ       0       3       6       8      11      14
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-N1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-N1 to CP-N3 Through Basin N3                                 rrr
                 * rrr  Field Typical section  -  Sheet flow across field                     rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1159             KK     RN1
1160             RS      36    FLOW
1161             RC     .08     .08     .08    5200   .0029
1162             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1163             RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin N3     ****************************************
                 *

1164             KK      N3
1165             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1166             KM   SUB-BASIN N3
1167             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1168             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
1169             KM     L = 1.09  Kb = .044  Adj. Slope =   15.0
1170             BA    .654
1171             LG    .290    .250   4.650    .390  19.000
1172             UC    .900    .449
1173             UA       0       5      16      30      65      77      84      90      94      97
1174             UA     100
                 *
1                                          HEC-1 INPUT                                          PAGE 39

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


1175             KK  RETAIN
1176             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1177             DT  RETDIV      33
1178             DI       0   10000
1179             DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-N3     +++++++++++++++++++++++++++++++++
                 * +++  Combines basins N1 and N3                                            +++
                 * +++  Sossaman Rd. south of Ocotollo Rd.                                   +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1180             KK   CP-N3
1181             HC       2
                 *
                 * ////////////////////// Diversion *DN3   ////////////////////////////////////
                 * ///   1 South to Sanokai - 2 West to Sanokai                              ////
                 * ///   Sossaman north of Chandler Heights                                  ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1182             KK    *DN3
1183             KM     DIVERSION FLOW FROM CP-N3
1184             DT    DDN3
1185             DI       0      80     240     400     640     800
1186             DQ       0      77     232     387     618     773
```

```
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-N3S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-N3 to CP-C7A Through Basin N3 (Sossaman Rd.)                 rrr
                 * rrr  Street typical section  -  along Sossaman Rd.                         rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1187             KK    RN3S
1188             RS      13    FLOW
1189             RC     .08     .02     .08    1600   .0031
1190             RX       0    1000    2470    2488    2512    2515    2520    5000
1191             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * **********************   Basin C7A    ****************************************
                 *

1192             KK     C7A
1193             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1194             KM   SUB-BASIN C7A
1195             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1196             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1197             KM     L = 1.20  Kb = .051  Adj. Slope =   20.0
1198             BA    .219
1199             LG    .280    .250   4.800    .320  15.000
1200             UC    .933    .942
1201             UA       0       5      16      30      65      77      84      90      94      97
1202             UA     100
                 *
1                                          HEC-1 INPUT                                          PAGE 40

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


1203             KK  RETAIN
1204             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1205             DT  RETDIV       8
1206             DI       0   10000
1207             DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C7A     ++++++++++++++++++++++++++++++
                 * +++  Combines basin C7A & Conc. Point CP-N3, CP-C7A                        +++
                 * +++  Sanokai Wash At Sossaman Rd.                                          +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1208             KK  CP-C7A
1209             HC       3
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C7A        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C7A to CP-D2 Through Basin C10                               rrr
                 * rrr  Sanokai Wash routing                                                  rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1210             KK    RC7A
1211             RS       4    FLOW
1212             RC     .08   0.045     .08    3200   .0006
1213             RX       0     320     360     400     420     510     600    1060
1214             RY  1361.7  1361.2  1357.2  1349.5    1350  1356.5    1360  1362.2
                 *
                 * **********************   Basin C8     ****************************************
                 *

1215             KK      C8
1216             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1217             KM   SUB-BASIN C8
1218             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1219             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1220             KM     L =  .87  Kb = .053  Adj. Slope =   22.0
1221             BA    .152
1222             LG    .300    .250   4.400    .390   5.000
1223             UC    .754    .708
1224             UA       0       5      16      30      65      77      84      90      94      97
1225             UA     100
                 *
                 * This basin was considered "fully" developed prior to 1987.
                 * Areas developed prior to 1987 are assumed to have no on-site
                 * retention, therefore the volume of retained runoff (diversion)
                 * is zero and the records have been removed from the analysis.
                 *
                 * KKRETAIN
                 * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
                 * DTRETDIV       0
                 * DI     0   10000
                 * DQ     0   10000
                 *
                 * ////////////////////// Diversion *DC8   ////////////////////////////////////
                 * ///   1 North west to Sanokai - 2 West to Power Rd.                      ////
                 * ///   At intersection of Sossoman and Chandler Heights                   ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *
1                                          HEC-1 INPUT                                          PAGE 41

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

```
1226          KK    *DC8
1227          KM     DIVERSION FLOW FROM CP-C8
1228          DT    DDC8
1229          DI       0      40     160     240     320     400
1230          DQ       0      20      80     119     159     199
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-C8N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C8 to CP-D2 Through Basin C10 & Sanokai Wash                 rrr
              * rrr  Sanokai Wash                                                           rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1231          KK    RC8N
1232          RS       9    FLOW
1233          RC     .08    .045     .08    4100   .0021
1234          RX      20     320     360     400     420     445     530     950
1235          RY  1361.7  1361.2  1357.2  1349.5    1350  1357.2  1360.8    1362
              *
              * ////////////////////// Diversion Recover DN3   ////////////////////////////
              * ///   Sheet flow from east                                                ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1236          KK     DN3
1237          KM     DIVERSION FLOW FROM CP-N3
1238          DR    DDN3
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RN3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Diversion Flow from CP-N3 to CP-D2 Through Basin C10                  rrr
              * rrr  Field typical section  -  sheet flow along development                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1239          KK    RN3W
1240          RS      19    FLOW
1241          RC    0.09    0.08    0.09    2850   .0025
1242          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1243          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++ Conc. Point CP-D2     +++++++++++++++++++++++++++++++++
              * +++  Combines Conc. Points CP-C7, CP-C8 & Diversion Flow RN3W              +++
              * +++  Sanokai Wash at Villa del Jardin                                       +++
              * +++  Capacity analysis shows split flow to the southwest between CP-D2     +++
              * +++  and CP-C10. However flow returns to the wash at CP-C10. Therefore,    +++
              * +++  the split was not modeled here                                         +++
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1244          KK   CP-D2
1245          HC       3
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-D2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-D2 to CP-C10 Through Sanokai Wash                            rr
              * rrr  Sanokai Wash east of Power Rd.                                         rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
```



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

1246          KK     RD2
1247          RS       4    FLOW
1248          RC     .08     .06     .08    3475   .0035
1249          RX     630    1000    1390    1400    1450    1460    1700    2035
1250          RY    1354  1352.1    1352    1349  1348.2    1354  1354.4    1356
              *
              * ********************** Basin C10     ****************************************
              *

1251          KK     C10
1252          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1253          KM   SUB-BASIN C10
1254          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1255          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1256          KM     L = 1.40  Kb = .040  Adj. Slope =   15.0
1257          BA    .501
1258          LG    .230    .280   4.600    .340  12.000
1259          UC   1.017    .731
1260          UA       0       5      16      30      65      77      84      90      94      97
1261          UA     100
              *

1262          KK  RETAIN
1263          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1264          DT  RETDIV      12
1265          DI       0   10000
1266          DQ       0   10000
              *
              * ********************** Basin N4      ****************************************
              *

1267          KK      N4
1268          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
```

```
1269          KM   SUB-BASIN N4
1270          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1271          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1272          KM     L = 1.12  Kb = .046  Adj. Slope =   19.0
1273          BA    .277
1274          LG    .230    .280   3.380    .810  26.000
1275          UC    .921    .768
1276          UA       0       5      16      30      65      77      84      90      94      97
1277          UA     100
              *

1278          KK  RETAIN
1279          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1280          DT  RETDIV      14
1281          DI       0   10000
1282          DQ       0   10000
              *
              * +++++++++++++++++++++ Conc. Point CP-C10     +++++++++++++++++++++++++++++++++
              * +++  Combines Basins C10, N4 &Conc. Points CP-D2                            +++
              * +++  Sanokai Wash At Power Rd.                                              +++
              * +++  Capacity analysis shows split flow to the southwest between CP-D2      +++
              * +++  and CP-C10. However flow returns to the wash at CP-C10. Therefore,     +++
              * +++  the split was not modeled here                                         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
1                                          HEC-1 INPUT                                                    PAGE 43

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

1283          KK  CP-C10
1284          HC       3
              *
              * /////////////////////  Diversion *DC10   ////////////////////////////////////
              * ///   1 No Flow - 2 Sanokai flow                                            ///
              * ///   Diversion *DC10 was placed here to temporary store the hydrograph     ///
              * ///   at Conc. Point C-10.  This Hydrograph is later retrived and routed    ///
              * ///   to Conc. Point N-5                                                    ///
              * ////////////////////////////////////////////////////////////////////////////
              *

1285          KK   *DC10
1286          KM    STORE HYDROGRAPH FOR LATER USE
1287          DT   DDC10
1288          DI       0     500    1000    2000    3000    4000
1289          DQ       0     500    1000    2000    3000    4000
              *
              * **********************   Basin C5     ****************************************
              *

1290          KK      C5
1291          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1292          KM   SUB-BASIN C5
1293          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1294          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
1295          KM     L = 1.14  Kb = .044  Adj. Slope =   82.0
1296          BA    .646
1297          LG    .300    .250   4.200    .440   5.000
1298          UC    .438    .211
1299          UA       0       5      16      30      65      77      84      90      94      97
1300          UA     100
              *

1301          KK  RETAIN
1302          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1303          DT  RETDIV      36
1304          DI       0   10000
1305          DQ       0   10000
              *
              * /////////////////////  Diversion Recover DC2   ////////////////////////////
              * ///   From east along Riggs Rd.
              * ////////////////////////////////////////////////////////////////////////////
              *

1306          KK     DC2
1307          KM    Return flow from CP-C2
1308          DR    DDC2
              *
              * rrrrrrrrrrrrrrrrrrrrrr   Routing RC2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route DC2 to CP-C5 Along Riggs Road                                   rrr
              * rrr  Street typical section  -  Along Riggs Road
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
1                                          HEC-1 INPUT                                                    PAGE 44

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

1309          KK    RC2S
1310          RS      18    FLOW
1311          RC     .08     .02     .08    1800   .0001
1312          RX       0    1000    2470    2488    2512    2515    2520    5000
1313          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * +++++++++++++++++++++ Conc. Point CP-C5     +++++++++++++++++++++++++++++++
```

```
                 * +++  Combines basin C5, S12                                          +++
                 * +++  Riggs Rd. West of Hawes Rd.                                     +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

 1314            KK   CP-C5
 1315            HC       2
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C5 to CP-C6 Through Basin C6                            rrr
                 * rrr  Field typical section - sheet flow across natural desert         rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

 1316            KK     RC5
 1317            RS      20    FLOW
 1318            RC    0.07    0.06    0.07    5560   .0025
 1319            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 1320            RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin S13     ***************************************
                 *

 1321            KK     S13
 1322            KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
 1323            KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
 1324            KM   SUB-BASIN S13
 1325            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 1326            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .987
 1327            KM     L = 2.64  Kb = .054  Adj. Slope =  223.6
 1328            BA   2.109
 1329            LG    .250    .350   4.000    .450  23.000
 1330            UC    .596    .296
 1331            UA       0       3       5       8      12      20      43      75      90      96
 1332            UA     100
                 *
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S13       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S13 to CP-W1 Through Basin W1                        rrr
                 * rrr  Field typical section  -  sheet flow along fields                 rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 45

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

 1333            KK    RS13
 1334            RS      11    FLOW
 1335            RC     .07     .07     .07    5600   .0088
 1336            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 1337            RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin W1      ***************************************
                 *

 1338            KK      W1
 1339            KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
 1340            KM   SUB-BASIN W1
 1341            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 1342            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 1343            KM     L = 1.03  Kb = .049  Adj. Slope =   63.0
 1344            BA    .280
 1345            LG    .300    .250   4.000    .480   5.000
 1346            UC    .500    .363
 1347            UA       0       5      16      30      65      77      84      90      94      97
 1348            UA     100
                 *

 1349            KK  RETAIN
 1350            KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
 1351            DT  RETDIV      15
 1352            DI       0   10000
 1353            DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point  CP-W1     +++++++++++++++++++++++++++++++
                 * +++  Combines basin W1, S13                                           +++
                 * +++  Riggs Rd. east of Sossaman                                       +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

 1354            KK   CP-W1
 1355            HC       2
                 *
                 * ///////////////////////  Diversion *DW1     ////////////////////////////////
                 * ///   1 north to CP-6 - 2 West along Riggs Rd. to CP-W2                 ///
                 * ///   Riggs Rd. east of Sossaman Rd.                                    ///
                 * ////////////////////////////////////////////////////////////////////////////
                 *

 1356            KK    *DW1
 1357            KM     DIVERSION FLOW FROM CP-W1
 1358            DT    DDW1
 1359            DI       0     100     200     300     400     600     800    1000    1400
 1360            DQ       0      50     100     150     200     300     400     500     700
                 *
```

```
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-W1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-W1 to CP-C6 Through Basin W3                                  rrr
                 * rrr  Field typical section  -  Sheet flow across fields                     rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                                PAGE 46

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

1361             KK     RW1
1362             RS      12    FLOW
1363             RC     .08     .07     .08    3375   .0049
1364             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1365             RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin S14     ***************************************
                 *

1366             KK     S14
1367             KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
1368             KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
1369             KM   SUB-BASIN S14
1370             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1371             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
1372             KM     L = 2.02  Kb = .038  Adj. Slope =   81.0
1373             BA   1.608
1374             LG    .350    .350   4.150    .430   1.000
1375             UC    .642    .303
1376             UA       0       3       5       8      12      20      43      75      90      96
1377             UA     100
                 *
                 * **********************   Basin S15     ***************************************
                 *

1378             KK     S15
1379             KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
1380             KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
1381             KM   SUB-BASIN S15
1382             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1383             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .988
1384             KM     L = 2.89  Kb = .061  Adj. Slope =  191.0
1385             BA   1.950
1386             LG    .220    .350   4.550    .340  44.000
1387             UC    .692    .393
1388             UA       0       3       5       8      12      20      43      75      90      96
1389             UA     100
                 *
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S15        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S15 to CP-S14 Through Basin S14                             rrr
                 * rrr  Mountain typical section  -  natural mountain channel and sheet flow  rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1390             KK    RS15
1391             RS      18    FLOW
1392             RC    0.08    0.08    0.08   10135   .0150
1393             RX       0     400     800    1200    1600    2000    2400    2800
1394             RY       3       1      .5       0       0      .5       1       3
                 *
                 * +++++++++++++++++++++ Conc. Point CP-S14     ++++++++++++++++++++++++++++++++
                 * +++  Combines Basins S15 & S14                                              +++
                 * +++  Empire road between Power and Sossan Rds.                              +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *
1                                          HEC-1 INPUT                                                PAGE 47

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

1395             KK  CP-S14
1396             HC       2
                 *
                 * ////////////////////// Diversion *DS14A   ////////////////////////////////
                 * ///   1 East channel - 2 West channel out of watershed                   ///
                 * ///   at the upstream end of triangular configured channels               ///
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1397             KK  *DS14A
1398             KM     DIVERSION FLOW FROM CP-S14
1399             DT  DDS14O
1400             DI       0     100     200     300     400     600     800    1000    1400
1401             DQ       0      50     100     150     200     300     400     500     700
                 *
                 * ////////////////////// Diversion *DS14B   ////////////////////////////////
                 * ///   1 East channel to Basin W2 - 2 basin W4                            ///
                 * ///   East channel south of Hunt Hwy near sossaman Rd.                   ///
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1402             KK  *DS14B
1403             KM     DIVERSION FLOW FROM CP-S14
1404             DT  DDS14B
1405             DI       0     225     300     375     450     525     600     750
```

```
1406    DQ       0     .01      47      94     141     188     234     328
        *
        * ////////////////////// Diversion *DS14C  ////////////////////////////////////
        * ///   1 Basin W2 - 2 basin W5                                            ////
        * ///   Hunt Hwy between Power and Sossaman Rds.                           ////
        * ////////////////////////////////////////////////////////////////////////////
        *

1407    KK  *DS14C
1408    KM     DIVERSION FLOW FROM CP-S14
1409    DT  DDS14C
1410    DI       0     225     253     282     309     338     366     422
1411    DQ       0     .01      19      38      56      75      94     131
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route Basin S14 to CP-W2 Through Basin W2                            rrr
        * rrr  Field typical section  -  sheetflow along fields                     rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

1412    KK   RS14E
1413    RS      59    FLOW
1414    RC     .07     .07     .07   10850   .0053
1415    RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1416    RY       5     3.5       3       2       0       2       3       5
        *
        * **********************   Basin W2     ****************************************
        *
```



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

1417    KK      W2
1418    KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1419    KM   SUB-BASIN W2
1420    KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1421    KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1422    KM     L = 1.09  Kb = .050  Adj. Slope =   56.0
1423    BA    .253
1424    LG    .300    .250   4.100    .460   5.000
1425    UC    .554    .451
1426    UA       0       5      16      30      65      77      84      90      94      97
1427    UA     100
        *

1428    KK  RETAIN
1429    KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1430    DT  RETDIV      14
1431    DI       0   10000
1432    DQ       0   10000
        *
        * ////////////////////// Diversion Recover DW1     ////////////////////////////
        * ///   Flow from CP-W1 along Riggs                                        ////
        * ////////////////////////////////////////////////////////////////////////////
        *

1433    KK     DW1
1434    KM     DIVERSION FLOW FROM CP-W1
1435    DR    DDW1
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-W1W         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route Basin diverted flow from CP-W1 to CP-W2 Through Basin W2        rrr
        * rrr  Field typical section  -  sheetflow along Riggs road                  rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

1436    KK    RW1W
1437    RS       8    FLOW
1438    RC    0.08    0.02    0.08    1100  0.0005
1439    RX       0    1000    2470    2488    2512    2515    2520    5000
1440    RY     4.5     3.5     1.5       1      .5       0      .5     4.5
        *
        * +++++++++++++++++++++++ Conc. Point CP-W2     ++++++++++++++++++++++++++++++++
        * +++  Combines basin W2, S14 & DW1                                         +++
        * +++  Riggs Rd. and Sossaman Rd.                                           +++
        * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        *

1441    KK   CP-W2
1442    HC       3
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-W2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route CP-W2 to CP-C6 Through Basin W3                                rrr
        * rrr  Street typical section  -  Sheet flow along Sossaman Rd.             rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *
```



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

1443    KK     RW2
1444    RS       6    FLOW
1445    RC    0.08    0.02    0.08    2600   .0062
```

```
1446          RX       0    1000    2470    2488    2512    2515    2520    5000
1447          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * **********************   Basin W3     ****************************************
              *

1448          KK      W3
1449          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1450          KM   SUB-BASIN W3
1451          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1452          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1453          KM     L =  .53  Kb = .058  Adj. Slope =   27.0
1454          BA    .061
1455          LG    .300    .250   4.800    .310   5.000
1456          UC    .483    .489
1457          UA       0       5      16      30      65      77      84      90      94      97
1458          UA     100
              *

1459          KK  RETAIN
1460          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1461          DT  RETDIV       4
1462          DI       0   10000
1463          DQ       0   10000
              *
              * **********************   Basin C6     ****************************************
              *

1464          KK      C6
1465          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1466          KM   SUB-BASIN C6
1467          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1468          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1469          KM     L = 1.16  Kb = .049  Adj. Slope =   12.0
1470          BA    .301
1471          LG    .300    .250   4.700    .320   5.000
1472          UC   1.171    .984
1473          UA       0       5      16      30      65      77      84      90      94      97
1474          UA     100
              *

1475          KK  RETAIN
1476          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1477          DT  RETDIV      18
1478          DI       0   10000
1479          DQ       0   10000
              *
              * +++++++++++++++++++++++ Conc. Point CP-C6     +++++++++++++++++++++++++++++++++
              * +++  Combines basin W2, W3, C6 & Conc. Points CP-W1, CP-C5                  +++
              * +++  At intersection of Sossaman and cloud Rds.                             +++
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
1                                          HEC-1 INPUT                                          PAGE 50

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

1480          KK   CP-C6
1481          HC       5
              *
              * ///////////////////////  Diversion *DC6   ////////////////////////////////////
              * ///   1 Cloud Rd. Channel - 2 Overflow N-W to Power Rd.                    ////
              * ///   At intersection of Cloud Rd and Sossaman Rd                          ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1482          KK    *DC6
1483          KM     DIVERSION FLOW FROM CP-C6
1484          DT    DDC6
1485          DI       0     450     560     640     720     800    1000
1486          DQ       0      .1      80     160     240     320     520
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-C6S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C6 to CP-W6 Along Cloud Rd. Channel                            rrr
              * rrr  Channel flow                                                             rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1487          KK    RC6S
1488          RS       6    FLOW
1489          RC     .08    .035     .08    5200   .0024
1490          RX       0       5      10    22.5    32.5      45      50      55
1491          RY       7       6       5       0       0       5       6       7
              *
              * **********************   Basin W5     ****************************************
              *

1492          KK      W5
1493          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1494          KM   SUB-BASIN W5
1495          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1496          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1497          KM     L = 1.35  Kb = .046  Adj. Slope =   47.0
1498          BA    .489
1499          LG    .300    .250   4.350    .400   5.000
```

```
1500          UC    .658    .445
1501          UA       0       5      16      30      65      77      84      90      94      97
1502          UA     100
              *

1503          KK  RETAIN
1504          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1505          DT  RETDIV      20
1506          DI       0   10000
1507          DQ       0   10000
              *
              * ////////////////////  Diversion Recover DS14C   ////////////////////////////
              * ///   Flow fron south of Hunt hwy                                       ////
              * ////////////////////////////////////////////////////////////////////////////
              *
1                                          HEC-1 INPUT                                          PAGE 51

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


1508          KK   DS14C
1509          KM     DIVERSION FLOW FROM CP-S14
1510          DR  DDS14C
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Conc. Pt. CP-S14 to CP-W5 Through Basin W5                     rrr
              * rrr  Field typical section  -  Sheet flow along fields                    rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1511          KK   RS14W
1512          RS      50    FLOW
1513          RC     .07     .07     .07    6625   .0092
1514          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1515          RY       5     3.5       3       2       0       2       3       5
              *
              * +++++++++++++++++++++++ Conc. Point CP-W5     ++++++++++++++++++++++++++++++++
              * +++  Combines Basins W5 & S14                                              +++
              * +++  Riggs Rd. Near Power Rd.                                              +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1516          KK   CP-W5
1517          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-W5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W5 to CP-W5 Through Basin W6 (Power Rd.)                     rrr
              * rrr  Street typical section                                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1518          KK     RW5
1519          RS       6    FLOW
1520          RC     .08     .02     .08    2725   .0099
1521          RX       0    1000    2470    2488    2512    2515    2520    5000
1522          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * **********************   Basin W6     ****************************************
              *

1523          KK      W6
1524          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1525          KM   SUB-BASIN W6
1526          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1527          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1528          KM     L = 1.38  Kb = .045  Adj. Slope =   22.0
1529          BA    .517
1530          LG    .300    .250   4.650    .330   5.000
1531          UC    .933    .646
1532          UA       0       5      16      30      65      77      84      90      94      97
1533          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 52

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


1534          KK  RETAIN
1535          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1536          DT  RETDIV      31
1537          DI       0   10000
1538          DQ       0   10000
              *
              * **********************   Basin W4     ****************************************
              *

1539          KK      W4
1540          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1541          KM   SUB-BASIN W4
1542          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1543          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1544          KM     L = 1.49  Kb = .046  Adj. Slope =   41.0
1545          BA    .490
1546          LG    .300    .250   4.450    .380   5.000
1547          UC    .754    .559
```

```
1548          UA       0       5      16      30      65      77      84      90      94      97
1549          UA     100
              *

1550          KK  RETAIN
1551          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1552          DT  RETDIV      28
1553          DI       0   10000
1554          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DS14B   ////////////////////////////
              * ///   Flow fron south of Hunt hwy                                        ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1555          KK   DS14B
1556          KM     DIVERSION FLOW FROM CP-S14
1557          DR  DDS14B
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14C        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Diverted flow from S14 to CP-W4 through Basin W5                rrr
              * rrr  fiels typical section - sheet flow along fields                       rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1558          KK   RS14C
1559          RS      49    FLOW
1560          RC     .08     .07     .08    7325   .0078
1561          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1562          RY       5     3.5       3       2       0       2       3       5
              *
              * ++++++++++++++++++++++ Conc. Point CP-W4      +++++++++++++++++++++++++++++++
              * +++  Combines Basins W4 and S14                                            +++
              * +++  Riggs Rd. between Power and Sossaman Rds.                             +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
```



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

1563          KK   CP-W4
1564          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW4N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W4 to CP-W6 Through Basin W6                    rrr
              * rrr Field typical section  -  sheet flow across field                      rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1565          KK    RW4N
1566          RS      15    FLOW
1567          RC     .08     .07     .08    4250   .0073
1568          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1569          RY       5     3.5       3       2       0       2       3       5
              *
              * ++++++++++++++++++++++ Conc. Point CP-W6     +++++++++++++++++++++++++++++++
              * +++  Combines Basins W6, Conc. Point CP-W5, PC-W4 & Diversion DC6           +++
              * +++  Cloud Rd. eaast of Power Rd.                                            +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1570          KK   CP-W6
1571          HC       4
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-W6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W6 to CP-W7 Through Basin W7(Power Rd.)                       rr
              * rrr  Channel/sheet flow                                                     rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1572          KK     RW6
1573          RS       3    FLOW
1574          RC     .08    .045     .08    1425   .0025
1575          RX       0     750    1110  1122.5  1132.5    1145    1505    2000
1576          RY     6.5     5.5       5       0       0       5     5.5     6.5
              *
              * **********************   Basin W7     ****************************************
              *

1577          KK      W7
1578          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1579          KM   SUB-BASIN W7
1580          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1581          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1582          KM     L = 1.17  Kb = .050  Adj. Slope =   15.0
1583          BA    .228
1584          LG    .300    .250   4.800    .310   5.000
1585          UC   1.067   1.047
1586          UA       0       5      16      30      65      77      84      90      94      97
1587          UA     100
              *
              * This basin was considered "fully" developed prior to 1987.
              * Areas developed prior to 1987 are assumed to have no on-site
              * retention, therefore the volume of retained runoff (diversion)
```

```
                 * is zero and the records have been removed from the analysis.
                 *
                 * KKRETAIN
                 * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
                 * DTRETDIV       0
                 * DI     0   10000
                 * DQ     0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-W7     +++++++++++++++++++++++++++++++++
                 * +++  Combines Basins W7, Conc. Point CP-W6                                  +++
                 * +++  Power Rd. between Cloud and Chandler Heigths Rds.                      +++
                 * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *
1                                          HEC-1 INPUT                                          PAGE 54

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


     1588        KK   CP-W7
     1589        HC       2
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-W7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-W7 to CP-W8 Through Basin W8 (Power Rd.)                      rrr
                 * rrr  Channel/sheet flow                                                      rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

     1590        KK     RW7
     1591        RS       1    FLOW
     1592        RC     .08    .045     .08    1400   .0046
     1593        RX       0       5      10    22.5    32.5      45      50     100
     1594        RY       7       6       5       0       0       5       6     7.1
                 *
                 * **********************   Basin W8     ****************************************
                 *

     1595        KK      W8
     1596        KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
     1597        KM   SUB-BASIN W8
     1598        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
     1599        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
     1600        KM     L = 1.14  Kb = .050  Adj. Slope =   18.0
     1601        BA    .256
     1602        LG    .300    .250   4.700    .320   5.000
     1603        UC    .958    .852
     1604        UA       0       5      16      30      65      77      84      90      94      97
     1605        UA     100
                 *
                 * This basin was considered "fully" developed prior to 1987.
                 * Areas developed prior to 1987 are assumed to have no on-site
                 * retention, therefore the volume of retained runoff (diversion)
                 * is zero and the records have been removed from the analysis.
                 *
                 *
                 * KKRETAIN
                 * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
                 * DTRETDIV       0
                 * DI     0   10000
                 * DQ     0   10000
                 *
                 * ////////////////////  Diversion Recover DC6   ////////////////////////////
                 * ///   from overflow of Cloud Rd Channel                                  ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

     1606        KK     DC6
     1607        KM     DIVERSION FLOW FROM CP-C6
     1608        DR    DDC6
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RC6N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Diversion Flow from CP-C6 to CP-W8 through Basin W7 & W8               rrr
                 * rrr  Sheet flow across development                                           rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 55

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


     1609        KK    RC6N
     1610        RS      27    FLOW
     1611        RC     .09     .09     .09    5850   .0038
     1612        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
     1613        RY       5     3.5       3       2       0       2       3       5
                 *
                 * ////////////////////  Diversion Recover DC8   ////////////////////////////
                 * ///   From East                                                          ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

     1614        KK     DC8
     1615        KM     DIVERSION FLOW FROM CP-C8
     1616        DR    DDC8
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RC8W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
                 * rrr   Route CP-C8 to CP-W8 along Chandler Heights Rd.                    rrr
                 * rrr   Street typical section                                             rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1617             KK    RC8W
1618             RS      33    FLOW
1619             RC     .08     .02     .08    5280   .0034
1620             RX       0    1000    2470    2488    2512    2515    2520    5000
1621             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * +++++++++++++++++++++ Conc. Point CP-W8     ++++++++++++++++++++++++++++++++
                 * +++  Combines Basins W8, Conc. Point CP-W7, CP-W6 & Diversion Flow DC8     +++
                 * +++  Power Rd. south of Chandler Heights Rd.                               +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1622             KK   CP-W8
1623             HC       4
                 *
                 * ////////////////////  Diversion *DW8   ////////////////////////////////////
                 * ///   1 North West Across field - 2 West in Chandler Heights Channel      ////
                 * ///   Chandler Heights channel betweeen Recker and Power Rds.             ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1624             KK    *DW8
1625             KM     Diversion flow from W8
1626             DT    DDW8
1627             DI       0     200     400     600     800     840     900    1000
1628             DQ       0     200     400     600     800     840     840     840
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-W8N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-W8 to CP-C11 Through Basin C11                               rrr
                 * rrr  Field typical section  -  Sheet flow across development               rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
```



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

1629             KK    RW8N
1630             RS      42    FLOW
1631             RC     .10     .10     .10    4075   .0018
1632             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1633             RY       5     3.5       3       2       0       2       3       5
                 *
                 * **********************   Basin C11     ****************************************
                 *

1634             KK     C11
1635             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1636             KM   SUB-BASIN C11
1637             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1638             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1639             KM     L =  .77  Kb = .049  Adj. Slope =   13.0
1640             BA    .269
1641             LG    .300    .250   4.800    .310   6.000
1642             UC    .804    .498
1643             UA       0       5      16      30      65      77      84      90      94      97
1644             UA     100
                 *
                 * This basin was considered "fully" developed prior to 1987.
                 * Areas developed prior to 1987 are assumed to have no on-site
                 * retention, therefore the volume of retained runoff (diversion)
                 * is zero and the records have been removed from the analysis.
                 *
                 * KKRETAIN
                 * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
                 * DTRETDIV       0
                 * DI      0   10000
                 * DQ      0   10000
                 *
                 * **********************   Basin C9      ****************************************
                 *

1645             KK      C9
1646             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1647             KM   SUB-BASIN C9
1648             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1649             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1650             KM     L =  .86  Kb = .051  Adj. Slope =   16.0
1651             BA    .206
1652             LG    .300    .250   4.700    .320   5.000
1653             UC    .825    .652
1654             UA       0       5      16      30      65      77      84      90      94      97
1655             UA     100
                 *
                 * This basin was considered "fully" developed prior to 1987.
                 * Areas developed prior to 1987 are assumed to have no on-site
                 * retention, therefore the volume of retained runoff (diversion)
                 * is zero and the records have been removed from the analysis.
                 *
                 * KKRETAIN
```

```
                 * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
                 * DTRETDIV       0
                 * DI     0   10000
                 * DQ     0   10000
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C9W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin C9 to CP-C11 Through Basin C11
                 * rrr  Field typical section  -  Sheet flow across development                rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 57

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


1656             KK    RC9W
1657             RS      36    FLOW
1658             RC     .10     .10     .10    3875   .0026
1659             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1660             RY       5     3.5       3       2       0       2       3       5
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C11     +++++++++++++++++++++++++++++++
                 * +++  Combines Basins C11, Conc. Point CP-W8 & Diversion Flow RC9W          +++
                 * +++  180th Street south of Brooks Farm Rd.                                 +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1661             KK  CP-C11
1662             HC       3
                 *
                 * ////////////////////// Diversion *DC11   ////////////////////////////////////
                 * ///   1 West to CP-C12 - 2 North west to Sanokai                          ////
                 * ///   Brooks Farm Rd. East of Recker Rd.                                  ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1663             KK   *DC11
1664             KM    DIVERSION FLOW FROM CP-C11
1665             DT   DDC11
1666             DI       0      60     180     300     480     600
1667             DQ       0      35     105     175     280     350
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C11S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C11 to CP-C12 Through Basin C12                               rrr
                 * rrr  Street typical section  -  dirt road/sheet flow                        rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *

1668             KK   RC11S
1669             RS      15    FLOW
1670             RC     .08    .035     .08    2625   .0039
1671             RX       0    1000    2470    2488    2512    2515    2520    5000
1672             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * **********************   Basin C12     ****************************************
                 *

1673             KK     C12
1674             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1675             KM   SUB-BASIN C12
1676             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1677             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1678             KM     L =  .87  Kb = .049  Adj. Slope =   12.0
1679             BA    .264
1680             LG    .300    .250   4.800    .310   5.000
1681             UC    .925    .649
1682             UA       0       5      16      30      65      77      84      90      94      97
1683             UA     100
                 *
1                                          HEC-1 INPUT                                          PAGE 58

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


1684             KK  RETAIN
1685             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1686             DT  RETDIV      14
1687             DI       0   10000
1688             DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C12     +++++++++++++++++++++++++++++++
                 * +++  Combines Basins C12 & Conc. Point CP-C11                              +++
                 * +++  Recker Rd. south of Brooks Farm Rd.                                   +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1689             KK  CP-C12
1690             HC       2
                 *
                 * ////////////////////// Diversion *DC12   ////////////////////////////////////
                 * ///   1 North west to Sanokai - 2 West to Higley                          ////
                 * ///   Brooks Farm Rd. Between Recker and Higley Rds.                      ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *
```

```
1691          KK   *DC12
1692          KM    DIVERSION FLOW FROM CP-C12
1693          DT   DDC12
1694          DI       0      80     200     280     360     400
1695          DQ       0      27      68      95     122     135
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-C12N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C12 to CP-N6 Through Basin C15                                rrr
              * rrr  Field typical section  - Sheet flow cross fields                       rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1696          KK   RC12N
1697          RS      47    FLOW
1698          RC     .08     .08     .08    6475   .0029
1699          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1700          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W9     ****************************************
              *

1701          KK      W9
1702          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1703          KM   SUB-BASIN W9
1704          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1705          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1706          KM     L = 1.49  Kb = .045  Adj. Slope =   45.0
1707          BA    .516
1708          LG    .300    .250   3.950    .490   5.000
1709          UC    .738    .529
1710          UA       0       5      16      30      65      77      84      90      94      97
1711          UA     100
              *
```



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

1712          KK  RETAIN
1713          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1714          DT  RETDIV      25
1715          DI       0   10000
1716          DQ       0   10000
              *
              * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-W9        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route W9 to CP-W11 Through basin W11                                   rrr
              * rrr  Field typical section - sheet flow across field                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1717          KK     RW9
1718          RS      11    FLOW
1719          RC     .08     .07     .08    3100   .0082
1720          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1721          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W11    ****************************************
              *

1722          KK     W11
1723          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1724          KM   SUB-BASIN W11
1725          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1726          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1727          KM     L = 1.23  Kb = .045  Adj. Slope =   23.0
1728          BA    .510
1729          LG    .300    .250   3.950    .490   5.000
1730          UC    .883    .558
1731          UA       0       5      16      30      65      77      84      90      94      97
1732          UA     100
              *

1733          KK  RETAIN
1734          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1735          DT  RETDIV      28
1736          DI       0   10000
1737          DQ       0   10000
              *
              * +++++++++++++++++++++ Conc. Point CP-W11     ++++++++++++++++++++++++++++++
              * +++  Combines Basins W9 & W11                                               +++
              * +++  Cloud Rd. Between Power and Recker Rds.                                +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1738          KK  CP-W11
1739          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-W11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W11 to CP-W12 through basin W12                               rrr
              * rrr  Field typical section - sheet flow across field                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *
```



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

```
1740          KK    RW11
1741          RS       9    FLOW
1742          RC     .08     .07     .08    2925   .0068
1743          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1744          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W12     ****************************************
              *

1745          KK     W12
1746          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1747          KM   SUB-BASIN W12
1748          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1749          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1750          KM     L = 1.49  Kb = .045  Adj. Slope =   17.0
1751          BA    .527
1752          LG    .300    .250   4.500    .370   5.000
1753          UC   1.146    .853
1754          UA       0       5      16      30      65      77      84      90      94      97
1755          UA     100
              *

1756          KK  RETAIN
1757          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1758          DT  RETDIV      30
1759          DI       0   10000
1760          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DW8   ////////////////////////////
              * ///  From east                                                          ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1761          KK     DW8
1762          KM    DIVERSION FLOW FROM CP-W8
1763          DR    DDW8
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW8S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W8 to CP-W12 along Chandler Heights             rrr
              * rrr Chandler Heights Channel                                               rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1764          KK    RW8S
1765          RS       5    FLOW
1766          RC     .08    .045     .08    5175    .003
1767          RX       0      50     100     130     145     175     225     275
1768          RY       6     5.5       5       0       0       5     5.5       6
              *
              * +++++++++++++++++++++++ Conc. Point CP-W12     ++++++++++++++++++++++++++++++
              * +++  Combines Basins C12, CP-W11 & Viverted flow DW8                      +++
              * +++  intersection of Chandler Heights Rd. and Recker Rd.                   +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
```



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

1769          KK  CP-W12
1770          HC       3
              *
              * ////////////////////// Diversion *DW12   ////////////////////////////////////
              * ///   1 North west to C14 - 2 west to W18 (Chandler Heights Rd.)          ////
              * ///   Chandler Heights Channel West of Recker Rd.                         ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1771          KK   *DW12
1772          KM    DIVERSION FLOW FROM CP-W12
1773          DT   DDW12
1774          DI       0     200     400     600     680     700     800    1000
1775          DQ       0     200     400     600     680     680     680     680
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW12N       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Flow from CP-W12 to CP-C14 through basin C14                           rrr
              * rrr Field typical section  -  sheet flow across fields                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1776          KK   RW12N
1777          RS      52    FLOW
1778          RC     .08     .08     .08    7300   .0024
1779          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1780          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W18     ****************************************
              *

1781          KK     W18
1782          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1783          KM   SUB-BASIN W18
1784          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
```

```
1785          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1786          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1787          KM     L =  .74  Kb = .050  Adj. Slope =   28.0
1788          BA    .254
1789          LG    .300    .250   4.500    .370   5.000
1790          UC    .554    .330
1791          UA       0       5      16      30      65      77      84      90      94      97
1792          UA     100
              *

1793          KK  RETAIN
1794          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1795          DT  RETDIV      14
1796          DI       0   10000
1797          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DW12   ////////////////////////////
              * ///   From East (CP-W12)                                                ////
              * ////////////////////////////////////////////////////////////////////////////
              *
1                                          HEC-1 INPUT                                          PAGE 62

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

1798          KK    DW12
1799          KM    DIVERSION FLOW FROM CP-W12
1800          DR   DDW12
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW12S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W12 to CP-C14                                  rrr
              * rrr Chandler Height channel                                               rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1801          KK   RW12S
1802          RS       4    FLOW
1803          RC     .08    .045     .08    2625   .0039
1804          RX       0      50     100     125     145     170     220     270
1805          RY       5     4.5       4       0       0       4     4.5       5
              *
              * +++++++++++++++++++++ Conc. Point CP-W18     ++++++++++++++++++++++++++++++++
              * +++  Combines Basins W18 & Conc. Point CP-W12                              +++
              * +++  Chandler Heights Rd. west of Recker Rd.                                +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *

1806          KK  CP-W18
1807          HC       2
              *
              * ////////////////////// Diversion *DW18   ////////////////////////////////////
              * ///   1 North west to C14 - 2 west to W17 (Chandler Heights Rd.)          ////
              * ///   Chandler Heights Channel east of Higley Rd.                         ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1808          KK   *DW18
1809          KM    DIVERSION FLOW FROM CP-W18
1810          DT   DDW18
1811          DI       0     300     360     400     600     800    1000
1812          DQ       0     300     360     360     360     360     360
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW18N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Flow from CP-W18 to CP-C14                                            rrr
              * rrr Field typical section  -  sheet flow across field                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1813          KK   RW18N
1814          RS      48    FLOW
1815          RC     .08     .07     .08    5075   .0016
1816          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1817          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W10     ***************************************
              *
1                                          HEC-1 INPUT                                          PAGE 63

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

1818          KK     W10
1819          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1820          KM   SUB-BASIN W10
1821          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1822          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1823          KM     L = 1.14  Kb = .045  Adj. Slope =   62.0
1824          BA    .513
1825          LG    .300    .250   3.950    .490   5.000
1826          UC    .508    .284
1827          UA       0       5      16      30      65      77      84      90      94      97
1828          UA     100
              *

1829          KK  RETAIN
```

```
1830          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1831          DT  RETDIV      23
1832          DI       0   10000
1833          DQ       0   10000
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW10         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Route Flow from CP-W10 to CP-W16 through basin W16                    rrr
              * rrr Field typical section  -- sheet flow across field                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1834          KK    RW10
1835          RS      21    FLOW
1836          RC     .08     .07     .08    4800   .0069
1837          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1838          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W16     ***************************************
              *

1839          KK     W16
1840          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1841          KM   SUB-BASIN W16
1842          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1843          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1844          KM     L =  .74  Kb = .050  Adj. Slope =   30.0
1845          BA    .245
1846          LG    .300    .250   3.950    .490   5.000
1847          UC    .563    .342
1848          UA       0       5      16      30      65      77      84      90      94      97
1849          UA     100
              *

1850          KK  RETAIN
1851          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1852          DT  RETDIV      14
1853          DI       0   10000
1854          DQ       0   10000
              *
              * +++++++++++++++++++++++ Conc. Point CP-W16     +++++++++++++++++++++++++++++++
              * +++  Combines Basins W16 , W10                                            +++
              * +++  Cloud Rd. east of Higley Rd.                                          +++
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              *
1                                          HEC-1 INPUT                                          PAGE 64

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

1855          KK  CP-W16
1856          HC       2
              *
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW16N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Route Flow from CP-W16 to CP-W17 through basin W17                    rrr
              * rrr Field typical section  -- sheet flow across field                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              *

1857          KK   RW16N
1858          RS      25    FLOW
1859          RC     .08     .07     .08    3750   .0053
1860          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1861          RY       5     3.5       3       2       0       2       3       5
              *
              * **********************   Basin W17     ***************************************
              *

1862          KK     W17
1863          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1864          KM   SUB-BASIN W17
1865          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1866          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1867          KM     L =  .74  Kb = .050  Adj. Slope =   29.0
1868          BA    .256
1869          LG    .300    .250   4.550    .350   5.000
1870          UC    .542    .320
1871          UA       0       5      16      30      65      77      84      90      94      97
1872          UA     100
              *

1873          KK  RETAIN
1874          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1875          DT  RETDIV      15
1876          DI       0   10000
1877          DQ       0   10000
              *
              * ////////////////////// Diversion Recover DW18   ////////////////////////////
              * ///  From east (CP-W18)                                                  ////
              * ////////////////////////////////////////////////////////////////////////////
              *

1878          KK    DW18
1879          KM    DIVERSION FLOW FROM CP-W18
1880          DR   DDW18
              *
```

```
                    * rrrrrrrrrrrrrrrrrrrrr   Routing RW18S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr Diversion Flow from CP-W16 to CP-W17  along Chandler Heights           rrr
                    * rrr Chandler Heights channel flow                                          rrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    *
1                                                HEC-1 INPUT                                                PAGE 65

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


          1881      KK   RW18S
          1882      RS       4    FLOW
          1883      RC     .08    .045     .08    2725   .0027
          1884      RX       0      50     100   107.5   127.5     135     185     235
          1885      RY       5     4.5       4       0       0       4     4.5       5
                    *
                    * +++++++++++++++++++++ Conc. Point CP-W17     +++++++++++++++++++++++++++++++
                    * +++  Combines Basins W17, Divr. flow CP-W16 & CP-W16                       +++
                    * +++  Higley Rd and Chandler Heights                                         +++
                    * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    *

          1886      KK  CP-W17
          1887      HC       3
                    *
                    * //////////////////////  Diversion *DW17   ////////////////////////////////////
                    * ///   1 North along Higley to C14 - 2 West Out of Watershed                ////
                    * ///   Higley Rd between Chandler Heights and Brooks Farm Rds.              ////
                    * ////////////////////////////////////////////////////////////////////////////
                    *

          1888      KK   *DW17
          1889      KM    DIVERSION FLOW FROM CP-W17
          1890      DT  DDW17O
          1891      DI       0      17     100     200     400     600     800    1000
          1892      DQ       0       0      83     183     383     583     783     983
                    *
                    * rrrrrrrrrrrrrrrrrrrrr   Routing RW17        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr Flow from CP-W17 to CP-C14 along Higley Rd.                            rrr
                    * rrr Street typical section  --  flow along Higley Rd.                      rrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    *

          1893      KK    RW17
          1894      RS      69    FLOW
          1895      RC     .08     .02     .08    2700   .0001
          1896      RX       0    1000    2470    2488    2512    2515    2520    5000
          1897      RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                    *
                    * **********************   Basin C14     ****************************************
                    *

          1898      KK     C14
          1899      KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
          1900      KM   SUB-BASIN C14
          1901      KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
          1902      KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
          1903      KM     L = 1.38  Kb = .045  Adj. Slope =   11.0
          1904      BA    .512
          1905      LG    .300    .250   4.800    .360  15.000
          1906      UC   1.283    .925
          1907      UA       0       5      16      30      65      77      84      90      94      97
          1908      UA     100
                    *
1                                                HEC-1 INPUT                                                PAGE 66

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


          1909      KK  RETAIN
          1910      KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
          1911      DT  RETDIV      29
          1912      DI       0   10000
          1913      DQ       0   10000
                    *
                    * //////////////////////  Diversion Recover DC12   ////////////////////////////
                    * ///   From east                                                             ////
                    * ////////////////////////////////////////////////////////////////////////////
                    *

          1914      KK    DC12
          1915      KM    DIVERSION FLOW FROM CP-C12
          1916      DR   DDC12
                    *
                    * rrrrrrrrrrrrrrrrrrrrr   Routing RC12W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr Diversion Flow from CP-C12 to CP-C14                                    rrr
                    * rrr Street typical section  -                                               rrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    *

          1917      KK   RC12W
          1918      RS      33    FLOW
          1919      RC     .08     .02     .08    5300   .0029
          1920      RX       0    1000    2470    2488    2512    2515    2520    5000
          1921      RY     4.5     3.5     1.5       1      .5       0      .5     4.5
```

```
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C14     +++++++++++++++++++++++++++++++
                 * +++  Combines Basins C14 & Conc. Point CP-C12, CP-W12, CP-W16 & CP-E17     +++
                 * +++  Higley Rd and Brooks Farm Rd.                                          +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1922             KK  CP-C14
1923             HC       5
                 *
                 * ////////////////////  Diversion *DC14   ////////////////////////////////////
                 * ///   1 North along Higley - 2 Off-site west                              ///
                 * ///   Higley Rd. north of Brooks Farm Rd.                                 ///
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1924             KK   *DC14
1925             KM    DIVERSION FLOW OFFSITE
1926             DT  DDC14O
1927             DI       0      60     180     300     420     600
1928             DQ       0      40     147   244.4     342     489
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C14N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C14 to CP-C15 Through Basin C15 (Hingley Rd.)                rrr
                 * rrr Street typical section  -                                              rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 67

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

1929             KK   RC14N
1930             RS      13    FLOW
1931             RC     .08    .035     .08    1775    .001
1932             RX       0    1000    2470    2488    2512    2515    2520    5000
1933             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 * **********************   Basin C15     ****************************************
                 *

1934             KK     C15
1935             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1936             KM   SUB-BASIN C15
1937             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1938             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1939             KM     L = 1.26  Kb = .045  Adj. Slope =   13.0
1940             BA    .511
1941             LG    .300    .250   4.800    .360  15.000
1942             UC   1.104    .729
1943             UA       0       5      16      30      65      77      84      90      94      97
1944             UA     100
                 *

1945             KK  RETAIN
1946             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1947             DT  RETDIV      28
1948             DI       0   10000
1949             DQ       0   10000
                 *
                 * +++++++++++++++++++++ Conc. Point CP-C15     +++++++++++++++++++++++++++++++
                 * +++  Combines Basins C15 & Conc. Point CP-C14                              +++
                 * +++  Higley Rd. between Brook Farm and Ocotillo Rds.                       +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

1950             KK  CP-C15
1951             HC       2
                 *
                 * ////////////////////  Diversion *DC15   ////////////////////////////////////
                 * ///   1 Hingley Rd. To Sanokai - 2 Off-site                               ////
                 * ///   Higley Rd. South of Ocotillo Rd.                                    ////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

1952             KK   *DC15
1953             KM    DIVERSION FLOW OFFSITE
1954             DT  DDC15O
1955             DI       0      42     126     210     294     336     420
1956             DQ       0      28      69     115     161     184     230
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C15N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C15 to CP-N6 Through Basin N6 (Higley Rd.)                   rrr
                 * rrr Street typical section  -                                              rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                          HEC-1 INPUT                                          PAGE 68

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

1957             KK   RC15N
1958             RS       6    FLOW
1959             RC     .08     .02     .08     825   .0018
1960             RX       0    1000    2470    2488    2512    2515    2520    5000
```

```
1961    RY     4.5     3.5     1.5       1      .5       0      .5     4.5
        *
        * ////////////////////// Diversion Recover DC11   ////////////////////////////
        * ///   Field towars Recker                                                ////
        * ////////////////////////////////////////////////////////////////////////////
        *

1962    KK    DC11
1963    KM    DIVERSION FLOW FROM CP-C11
1964    DR   DDC11
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing RC11N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Diversion Flow from CP-C11 to CP-D1 Through Basin C13                rrr
        * rrr  Field typical section  -  sheet flow across fields                   rrr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

1965    KK   RC11N
1966    RS      27    FLOW
1967    RC     .08     .08     .08    3550   .0030
1968    RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1969    RY       5     3.5       3       2       0       2       3       5
        *
        * **********************   Basin C13     ****************************************
        *

1970    KK     C13
1971    KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1972    KM   SUB-BASIN C13
1973    KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1974    KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1975    KM     L = 1.14  Kb = .045  Adj. Slope =   21.0
1976    BA    .509
1977    LG    .270    .250   4.700    .370  21.000
1978    UC    .792    .466
1979    UA       0       5      16      30      65      77      84      90      94      97
1980    UA     100
        *

1981    KK  RETAIN
1982    KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1983    DT  RETDIV      30
1984    DI       0   10000
1985    DQ       0   10000
        *
        * **********************   Basin N5      ****************************************
        *
```



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

1986    KK      N5
1987    KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
1988    KM   SUB-BASIN N5
1989    KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1990    KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1991    KM     L = 1.05  Kb = .043  Adj. Slope =   17.0
1992    BA    .426
1993    LG    .230    .270   4.700    .350  25.000
1994    UC    .783    .477
1995    UA       0       5      16      30      65      77      84      90      94      97
1996    UA     100
        *

1997    KK  RETAIN
1998    KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
1999    DT  RETDIV      26
2000    DI       0   10000
2001    DQ       0   10000
        *
        * ////////////////////// Diversion Recover DC10   ////////////////////////////
        * ///   Sanokai Wash                                                       ///
        * ///   Recovered stored hydrograph for Conc. Point C-10                   ///
        * ////////////////////////////////////////////////////////////////////////////
        *

2002    KK    DC10
2003    KM    ACTUAL FLOW FROM CP-C10
2004    DR   DDC10
        *
        * rrrrrrrrrrrrrrrrrrrrr   Routing R-C10W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        * rrr  Route CP-C10 to CP-N5 Through Basin N5 (Ocotillo Rd.)                rr
        * rrr  Sanokai Wash                                                         rr
        * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
        *

2005    KK   RC10W
2006    RS      12    FLOW
2007    RC     .08    .045     .08    5410   .0029
2008    RX     232    1550    2850    2900    2920    2925    2930    3600
2009    RY  1343.5  1341.7  1341.5  1338.9    1340  1341.7  1342.8    1343
        *
        * +++++++++++++++++++++ Conc. Point CP-N5     ++++++++++++++++++++++++++++++++
        * +++  Combines Basins N5 & Conc. Points CP-C10, CP-C11 & CP-13              +++
```

```
                 * +++  Sanokai Wash at Recker Rd.                                          +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

2010             KK   CP-N5
2011             HC       4   50.60
                 *
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-N5W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-N5 to CP-N6 Through Basin N6 (Sanokai/Ocotillo)              rrr
                 * rrr  Sanokai Wash                                                           rr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 *
1                                              HEC-1 INPUT                                          PAGE 70

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


2012             KK    RN5W
2013             RS      12    FLOW
2014             RC     .08    .045     .08    5275   .0035
2015             RX     233    1550    2850    2900    2920    2925    2930    5000
2016             RY  1343.5  1341.7  1341.5  1338.9    1340  1341.7  1342.8  1343.5
                 *
                 * **********************   Basin N6     ****************************************
                 *

2017             KK      N6
2018             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2019             KM   SUB-BASIN N6
2020             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2021             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
2022             KM     L = 1.26  Kb = .043  Adj. Slope =   14.0
2023             BA    .431
2024             LG    .230    .270   4.700    .350  25.000
2025             UC    .988    .709
2026             UA       0       5      16      30      65      77      84      90      94      97
2027             UA     100
                 *

2028             KK  RETAIN
2029             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2030             DT  RETDIV      26
2031             DI       0   10000
2032             DQ       0   10000
                 *
                 * +++++++++++++++++++++++ Conc. Point CP-N6     +++++++++++++++++++++++++++++++
                 * +++  Combines Basins N6; Conc. Points CP-C13, CP-15; Diversion Flow RC13W  +++
                 * +++  Sanokai Wash at Higley Rd.                                            +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 *

2033             KK   CP-N6
2034             HC       4
                 *

2035             KK  DIVSAN
2036             KM    DIVERT THE MAIN STEM FLOW OF SANOKAI WASH WHICH WILL BE PICKED UP LATER
2037             DT  CP-N6A
2038             DI       0   10000
2039             DQ       0   10000
                 *
                 *  ***********************************************************************
                 *  **    END HYDROLOGY FROM THE SANOKAI WASH FLOODPLAIN DELINEATION STUDY     **
                 *  ***********************************************************************
                 *
1                                              HEC-1 INPUT                                          PAGE 71

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


2040             KK  SUB322
2041             KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2042             KM   BASIN 322
2043             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2044             KM    L=      2.3  Lca=       .8   S=   10.4  Kn= .046  LAG=  54.3
2045             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2046             BA    1.13
2047             LG     .23     .25    4.65     .39   36.00
2048             UI     70.     70.    151.    264.    336.    389.    438.    509.    595.    785.
2049             UI    896.    728.    620.    548.    469.    405.    346.    286.    191.    124.
2050             UI    118.    106.     70.     70.     35.     22.     22.     22.     22.     22.
2051             UI     22.     22.      0.      0.      0.      0.      0.      0.      0.      0.
2052             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *

2053             KK  RET322
2054             KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2055             KO                                      21
2056             DT  RETDIV      86
2057             DI       0   10000
2058             DQ       0   10000
                 *

2059             KK   RO327
2060             KM        ROUTE FLOW ALONG THE EMF
```

```
2061          KM        ROUTE FLOWS FROM 1/4 MILE NORTH OF GERMANN ROAD TO 1/2 MILE NORTH OF
2062          KM           QUEEN CREEK ROAD.
2063          RM       1    0.10    0.30
              *

2064          KK  SUB328
2065          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2066          KM   BASIN 328
2067          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2068          KM    L=      1.4  Lca=       .7   S=   15.9  Kn= .050  LAG=  41.8
2069          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2070          BA    1.00
2071          LG     .25     .25    4.45     .45   31.00
2072          UI     80.     94.    286.    389.    462.    551.    678.    957.    918.    726.
2073          UI    613.    502.    412.    317.    188.    138.    120.     80.     63.     25.
2074          UI     25.     25.     25.     25.      0.      0.      0.      0.      0.      0.
2075          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2076          KK  RET328
2077          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2078          DT  RETDIV      71
2079          DI       0   10000
2080          DQ       0   10000
              *
```



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

2081          KK   RO329
2082          KM        ROUTE FLOW FROM SUB328 TO THE EMF
2083          KM        FLOWS AT 1/2 MILE NORTH OF QUEEN CREEK ROAD.
2084          KO                                      21
2085          RM       5    0.95    0.20
              *

2086          KK  EMFQCN
2087          KM        COMBINE RO329 AND RO327
2088          KM        CONCENTRATION OF FLOWS AT 1/2 MILE NORTH OF QUEEN CREEK ROAD
2089          HC       2
              *

2090          KK   RO333
2091          KM        ROUTE FLOW ALONG EMF
2092          KM        ROUTE FLOWS FLOW 1/2 MILE NORTH OF QUEEN CREEK ROAD TO 1/4 MILE SOUTH OF
2093          KM           QUEEN CREEK ROAD
2094          RM       5    0.57    0.30
              *

2095          KK  SUB330
2096          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2097          KM   BASIN 330
2098          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2099          KM    L=      1.8  Lca=       .7   S=    9.2  Kn= .046  LAG=  48.1
2100          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2101          BA     .97
2102          LG     .23     .26    4.50     .41   27.00
2103          UI     68.     68.    194.    288.    353.    405.    478.    570.    776.    829.
2104          UI    658.    562.    480.    407.    338.    273.    172.    119.    111.     81.
2105          UI     68.     45.     21.     21.     21.     21.     21.     21.      0.      0.
2106          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2107          KK  RET330
2108          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2109          KM    IN FUTURE CONDITIONS EMF ROUTING MODEL IT WILL BE NECESSARY TO
2110          KM    CHANGE THE "BI" RECORD TO RET330 TO RETRIEVE SUB330 HYDROGRAPH DATA
2111          KM    FROM THE TAPE 21 FILE.
2112          KO                                      21
2113          DT  RETDIV      59
2114          DI       0   10000
2115          DQ       0   10000
              *

2116          KK  EMFQCS
2117          KM        COMBINE RO333 AND SUB330   KNOWN AS CO334 IN THE QUEEN CREEK MODEL
2118          HC       2
              *
```



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

2119          KK   RO335
2120          KM        ROUTE FLOW ALONG EMF
2121          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2122          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2123          RM       4    0.42    0.30
              *

2124          KK   HY337
2125          KM        HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
2126          KM        HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
2127          KM        HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
```

```
2128          BA    .001
2129          IN      60                    35
2130          QI       0       0       0       1       3      11      33      81     208     389
2131          QI     605     831    1032    1209    1347    1453    1532    1593    1636    1666
2132          QI    1685    1694    1695    1689    1679    1666    1650    1634    1617    1600
2133          QI    1583    1565    1547    1529    1511
              *

2134          KK   RO339
2135          KM        ROUTE FLOW FROM HY337 TO CO340
2136          RM       1    0.08    0.25
              *

2137          KK  SUB338
2138          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2139          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2140          KM    BASIN 338
2141          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2142          KM    L=      1.5  Lca=       .5   S=   24.1  Kn= .030  LAG=  20.6
2143          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2144          BA    1.10
2145          LG     .35     .35    4.80     .29     .00
2146          UI    227.    821.   1365.   1659.   1454.   1090.    671.    456.    271.    184.
2147          UI    113.     72.     25.     25.     25.     25.     25.     25.      0.      0.
2148          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2149          KK   CO340
2150          KM        COMBINE RUNOFF RO339 AND SUB338
2151          KM        FLOWS AT THE START OF QUEEN CREEK FROM CAP
2152          HC       2
              *

2153          KK   RO341
2154          KM        ROUTE FLOW FROM CO340 TO CO344
2155          RM       1    0.14    0.25
              *
```



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

2156          KK  SUB342
2157          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2158          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2159          KM    BASIN 342
2160          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2161          KM    L=      1.4  Lca=       .4   S=   18.1  Kn= .030  LAG=  20.6
2162          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2163          BA     .46
2164          LG     .35     .35    4.80     .29     .00
2165          UI     94.    342.    568.    690.    605.    454.    279.    190.    113.     77.
2166          UI     47.     30.     10.     10.     10.     10.     10.     10.      0.      0.
2167          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2168          KK   CO344
2169          KM        COMBINE RO341 AND SUB342
2170          HC       2
              *

2171          KK   RO345
2172          KM        ROUTE FLOW FROM CO344 TO CO348
2173          RM      10    1.59    0.25
              *

2174          KK  SUB346
2175          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2176          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2177          KM   BASIN 346
2178          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2179          KM    L=      4.1  Lca=      2.8   S=   22.0  Kn= .083  LAG= 166.0
2180          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2181          BA    3.15
2182          LG     .46     .09    4.30     .57     .00
2183          UI     70.     70.     70.     70.     70.     70.     72.    147.    147.    147.
2184          UI    216.    245.    333.    367.    375.    482.    367.    367.    417.    490.
2185          UI    592.    498.    519.    588.    588.    588.    588.    588.    588.    588.
2186          UI    588.    588.    588.    509.    490.    490.    490.    490.    570.    491.
2187          UI    551.    367.    367.    367.    375.    408.    432.    314.    289.    267.
2188          UI    267.    267.    236.    210.    207.    196.    196.    218.    226.    173.
2189          UI    134.    134.    134.    115.    113.    113.    113.     97.     86.     86.
2190          UI     86.     86.     86.     65.     64.     64.     64.     64.     64.     64.
2191          UI     56.     40.     40.     40.     40.     40.     40.     40.     40.     40.
2192          UI     40.     40.     38.      9.      9.      9.      9.      9.      9.      9.
2193          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2194          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2195          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2196          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2197          UI      9.      9.      9.      9.      9.      9.      9.      9.      0.      0.
2198          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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

```
2199          KK   CO348
2200          KM        COMBINE SUB346 AND RO345
2201          HC       2
              *

2202          KK   RO349
2203          KM        ROUTE FLOW FROM CO348 TO CO376
2204          RM       2    0.33    0.25
              *

2205          KK  RDDRR3
2206          KM    RETURN THE DIVERSION HYDROGRAPH FROM THE SPRR CULVERT IN SUBBASIN 364B
2207          DR  DDRRW3
              *

2208          KK  RO363C
2209          KM    ROUTE THE FLOW TO SUBBASIN 364A
2210          RM      14    2.78    0.20
              *

2211          KK    364A
2212          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2213          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2214          KM   BASIN 364A
2215          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2216          KM    L=      4.3  Lca=      2.2   S=   20.9  Kn= .070  LAG= 131.0
2217          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2218          BA    1.99
2219          LG     .43     .15    4.50     .46     .00
2220          UI     56.     56.     56.     56.     56.     87.    118.    118.    187.    226.
2221          UI    295.    315.    351.    295.    327.    393.    483.    379.    471.    471.
2222          UI    471.    471.    471.    471.    471.    471.    408.    393.    393.    393.
2223          UI    444.    426.    334.    295.    295.    315.    340.    258.    225.    214.
2224          UI    214.    186.    168.    160.    157.    177.    174.    107.    107.    103.
2225          UI     91.     91.     91.     73.     69.     69.     69.     63.     51.     51.
2226          UI     51.     51.     51.     45.     32.     32.     32.     32.     32.     32.
2227          UI     32.     32.     32.     16.      7.      7.      7.      7.      7.      7.
2228          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2229          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2230          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2231          UI      7.      7.      7.      7.      7.      7.      7.      0.      0.      0.
2232          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2233          KK  CO364A
2234          KM    COMBINE FLOW FROM THE SOUTHEAST WITH FLOW FROM SUBBASIN 364A
2235          HC       2
              *
```



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

2236          KK   RO367
2237          KM        ROUTE FLOW FROM CO366 TO CO370
2238          RM       7    1.26    0.20
              *

2239          KK  SUB368
2240          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2241          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2242          KM   BASIN 368
2243          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2244          KM    L=      4.9  Lca=      2.4   S=   19.4  Kn= .093  LAG= 193.0
2245          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2246          BA    3.13
2247          LG     .47     .04    4.65     .48    2.00
2248          UI     60.     60.     60.     60.     60.     60.     60.     60.    119.    126.
2249          UI    126.    128.    209.    209.    284.    314.    314.    380.    369.    314.
2250          UI    314.    354.    419.    433.    548.    359.    494.    502.    502.    502.
2251          UI    502.    502.    502.    502.    502.    502.    502.    502.    469.    419.
2252          UI    419.    419.    419.    419.    470.    448.    459.    404.    314.    314.
2253          UI    314.    314.    345.    359.    347.    251.    245.    228.    228.    228.
2254          UI    228.    179.    179.    176.    167.    167.    178.    193.    193.    122.
2255          UI    114.    114.    114.    103.     97.     97.     97.     97.     82.     74.
2256          UI     74.     74.     74.     74.     72.     55.     55.     55.     55.     55.
2257          UI     55.     55.     55.     50.     34.     34.     34.     34.     34.     34.
2258          UI     34.     34.     34.     34.     34.     34.     34.     34.     10.      7.
2259          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2260          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2261          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2262          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2263          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2264          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2265          UI      7.      7.      0.      0.      0.      0.      0.      0.      0.      0.
2266          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2267          KK   CO370
2268          KM        COMBINE RO367 AND SUB368
2269          HC       2
              *
```

```
2270          KK   RO371
2271          KM        ROUTE FLOW FROM CO370 TO CO374
2272          RM      10    2.01    0.20
              *

2273          KK  SUB372
2274          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2275          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2276          KM   BASIN 372
2277          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2278          KM    L=      4.7  Lca=      2.1   S=   22.5  Kn= .097  LAG= 184.0
2279          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2280          BA    3.72
2281          LG     .49     .01    4.80     .45     .00
```



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

2282          UI     74.     74.     74.     74.     74.     74.     74.     97.    156.    156.
2283          UI    156.    218.    261.    311.    391.    391.    448.    478.    391.    391.
2284          UI    442.    521.    569.    632.    475.    626.    626.    626.    626.    626.
2285          UI    626.    626.    626.    626.    626.    626.    605.    521.    521.    521.
2286          UI    521.    521.    592.    546.    590.    453.    391.    391.    391.    405.
2287          UI    434.    460.    350.    313.    287.    284.    284.    284.    232.    223.
2288          UI    219.    209.    209.    225.    241.    228.    142.    142.    142.    140.
2289          UI    120.    120.    120.    120.    112.     92.     92.     92.     92.     92.
2290          UI     91.     68.     68.     68.     68.     68.     68.     68.     68.     53.
2291          UI     42.     42.     42.     42.     42.     42.     42.     42.     42.     42.
2292          UI     42.     42.     42.     11.      9.      9.      9.      9.      9.      9.
2293          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2294          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2295          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2296          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2297          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
2298          UI      9.      9.      9.      9.      0.      0.      0.      0.      0.      0.
2299          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2300          KK   CO374
2301          KM        COMBINE RO371 AND SUB372
2302          HC       2
              *

2303          KK   RO375
2304          KM        ROUTE FLOW FROM CO374 TO CO376
2305          RM       4    0.71    0.20
              *

2306          KK   CO376
2307          KM        COMBINE RO375 AND RO349
2308          HC       2
              *

2309          KK  SUB378
2310          KM   MAJORITY OF SUBBASIN IS LOCATED WITHIN PINAL COUNTY THEREFORE
2311          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2312          KM    BASIN 378
2313          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2314          KM    L=      3.5  Lca=      1.4   S=   19.4  Kn= .083  LAG= 124.0
2315          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2316          BA    2.25
2317          LG     .46     .09    4.50     .50     .00
2318          UI     67.     67.     67.     67.     67.    125.    141.    170.    234.    331.
2319          UI    351.    438.    351.    364.    468.    576.    443.    562.    562.    562.
2320          UI    562.    562.    562.    562.    543.    468.    468.    468.    513.    492.
2321          UI    458.    351.    351.    372.    405.    310.    267.    255.    255.    211.
2322          UI    200.    187.    194.    216.    162.    128.    128.    110.    108.    108.
2323          UI     91.     83.     83.     83.     73.     61.     61.     61.     61.     61.
2324          UI     44.     38.     38.     38.     38.     38.     38.     38.     38.     21.
2325          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
2326          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
2327          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
2328          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
```



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

2329          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2330          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2331          KK   CO380
2332          KM        COMBINE CO376 AND SUB378
2333          KM        FLOWS IN THE QUEEN CREEK AT RITTENHOUSE ROAD
2334          HC       2
              *

2335          KK   RO381
2336          KM        ROUTE FLOW FROM CO380 TO RO383
2337          KM        ROUTE FLOWS IN THE QUEEN CREEK FROM SOUTHERN PACIFIC RAILROAD TO
2338          KM            SIGNAL BUTTE ROAD
2339          RM       1    0.07    0.30
              *

2340          KK   DDE4O
```

```
2341          KM    RETRIEVE DIVERSION HYDROGRAPH DDE40
2342          DR   DDE40
              *

2343          KK  RDDE40
2344          KM   ROUTE THE RECALLED FLOW FROM 1/2 MILE NORTH OF RIGGS TO QUEEN CREEK
2345          RM       3    0.30    0.30
              *

2346          KK  CO380W
2347          KM    COMBINE FLOW IN QUEEN CREEK WASH AT INTERSECTION OF SIGNAL BUTTE ROAD
2348          HC       2
              *

2349          KK   R380W
2350          KM    ROUTE FLOW AT CO380W TO INTERSECTION OF QUEEN CREEK WASH AND CRISMAN ROAD
2351          RM       2    0.22    0.30
              *

2352          KK  SUB304
2353          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2354          KM   BASIN 304
2355          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2356          KM    L=       1.6  Lca=        .8   S=   18.8  Kn= .047  LAG=  42.0
2357          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2358          BA     .64
2359          LG     .24     .26    4.65     .38   27.00
2360          UI     52.     60.    183.    249.    296.    352.    432.    608.    598.    471.
2361          UI    398.    326.    269.    210.    125.     89.     80.     52.     44.     16.
2362          UI     16.     16.     16.     16.     16.      0.      0.      0.      0.      0.
2363          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
1                                          HEC-1 INPUT                                          PAGE 79

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

2364          KK  RETAIN
2365          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2366          DT  RETDIV      41
2367          DI       0   10000
2368          DQ       0   10000
              *

2369          KK   CO305
2370          KM         COMBINE RO381, SUB304 AND DDE40
2371          KM         FLOWS IN THE QUEEN CREEK AT CRISMON ROAD
2372          HC       2
              *

2373          KK   RO383
2374          KM         ROUTE FLOW FROM CO305 TO CO307
2375          KM         ROUTE FLOWS IN THE QUEEN CREEK FROM CRISMON ROAD TO ELLSWORTH ROAD
2376          RM       2    0.23    0.30
              *

2377          KK  SUB272
2378          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2379          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2380          KM   BASIN 272
2381          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2382          KM    L=       1.8  Lca=        .6   S=   20.9  Kn= .097  LAG=  82.7
2383          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2384          BA     .53
2385          LG     .49     .01    4.70     .47    1.00
2386          UI     24.     24.     24.     38.     50.     79.    120.    145.    125.    155.
2387          UI    184.    190.    200.    200.    200.    200.    184.    166.    166.    182.
2388          UI    151.    125.    135.    123.     94.     91.     74.     68.     71.     64.
2389          UI     45.     41.     38.     35.     29.     29.     25.     22.     22.     22.
2390          UI     15.     13.     13.     13.     13.     13.      6.      3.      3.      3.
2391          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2392          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2393          UI      3.      3.      3.      3.      0.      0.      0.      0.      0.      0.
2394          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2395          KK   RO273
2396          KM         ROUTE SUB272 TO CO276
2397          RM      14    2.91    0.20
              *

2398          KK  SUB274
2399          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2400          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2401          KM   BASIN 274
2402          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2403          KM    L=       3.3  Lca=       1.4   S=   21.5  Kn= .073  LAG= 103.0
2404          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2405          BA    1.50
2406          LG     .39     .14    4.80     .41    9.00
2407          UI     54.     54.     54.     54.     94.    113.    159.    224.    283.    341.
1                                          HEC-1 INPUT                                          PAGE 80

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

```
2408          UI    283.    326.    420.    380.    452.    452.    452.    452.    452.    452.
2409          UI    422.    377.    377.    400.    405.    340.    283.    288.    322.    253.
2410          UI    211.    205.    186.    161.    151.    161.    165.    103.    103.     89.
2411          UI     87.     83.     66.     66.     66.     55.     49.     49.     49.     49.
2412          UI     32.     31.     31.     31.     31.     31.     31.     23.      7.      7.
2413          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2414          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2415          UI      7.      7.      7.      7.      7.      7.      7.      7.      7.      7.
2416          UI      7.      7.      0.      0.      0.      0.      0.      0.      0.      0.
2417          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2418          KK   RO275
2419          KM        ROUTE SUB274 TO CO276
2420          RM      15    2.94    0.20
              *

2421          KK   CO276
2422          KM        COMBINE RUNOFF FROM RO275 AND RO273
2423          HC       2
              *

2424          KK  SUB278
2425          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2426          KM   BASIN 278
2427          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2428          KM    L=      2.1  Lca=      1.1   S=   19.8  Kn= .048  LAG=  54.6
2429          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2430          BA    1.39
2431          LG     .27     .25    4.80     .36   23.00
2432          UI     86.     86.    182.    321.    409.    475.    534.    619.    720.    946.
2433          UI   1102.    901.    767.    677.    580.    502.    429.    358.    250.    152.
2434          UI    145.    136.     86.     86.     51.     26.     26.     26.     26.     26.
2435          UI     26.     26.      0.      0.      0.      0.      0.      0.      0.      0.
2436          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2437          KK  RETAIN
2438          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2439          DT  RETDIV      91
2440          DI       0   10000
2441          DQ       0   10000
              *

2442          KK   CO280
2443          KM        COMBINE R280A AND CO276
2444          HC       2
              *

2445          KK    R280
2446          KM    ROUTE FLOW FROM CO280 TO QUEEN CREEK THROUGH SUBBASIN 306
2447          RM       4    0.25    0.27
              *
```



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

2448          KK  SUB306
2449          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2450          KM   BASIN 306
2451          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2452          KM    L=      2.2  Lca=       .8   S=   19.9  Kn= .042  LAG=  41.6
2453          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2454          BA    1.21
2455          LG     .21     .26    4.55     .40   33.00
2456          UI     98.    117.    349.    475.    564.    675.    833.   1177.   1104.    876.
2457          UI    739.    606.    495.    375.    221.    167.    141.     98.     71.     30.
2458          UI     30.     30.     30.     30.      0.      0.      0.      0.      0.      0.
2459          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2460          KK  RETAIN
2461          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2462          DT  RETDIV      73
2463          DI       0   10000
2464          DQ       0   10000
              *

2465          KK  CO307A
2466          KM    ADDED A CONCENTRATION POINT TO REFLECT THE CHANGE IN ROUTING OF 3 SUBBASINS
2467          KM    NORTH OF RITTENHOUSE THROUGH THE CULVERTS AT THE CRISMON ALIGNMENT
2468          HC       2
              *

2469          KK    306S
2470          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2471          KM   BASIN 306S
2472          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2473          KM    L=      1.4  Lca=       .8   S=   20.8  Kn= .050  LAG=  43.1
2474          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2475          BA     .67
2476          LG     .25     .25    4.80     .36   30.00
2477          UI     53.     55.    185.    246.    296.    350.    422.    578.    645.    503.
2478          UI    424.    351.    291.    237.    163.     93.     87.     62.     53.     26.
```

```
2479          UI     16.     16.     16.     16.     16.      0.      0.      0.      0.      0.
2480          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2481          KK  RETAIN
2482          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2483          DT  RETDIV      50
2484          DI       0   10000
2485          DQ       0   10000
              *

2486          KK   CO307
2487          KM        COMBINE RO383, 306S AND FLOWS FROM NORTH OF RITTENHOUSE ROAD COMING
2488          KM        THROUGH THE CULVERT AT THE CRISMON ALIGNMENT
2489          KM        FLOWS IN THE QUEEN CREEK AT ELLSWORTH ROAD
2490          HC       3
              *
```



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

2491          KK   RO385
2492          KM        ROUTE FLOW FROM CO307 TO CO311
2493          KM        ROUTE FLOWS IN THE QUEEN CREEK FROM ELLSWORTH ROAD TO HAWES ROAD
2494          RM       2    0.26    0.30
              *

2495          KK    310S
2496          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2497          KM   BASIN 310S
2498          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2499          KM    L=      1.5  Lca=       .7   S=   18.2  Kn= .037  LAG=  30.8
2500          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2501          BA     .86
2502          LG     .19     .25    4.30     .49   48.00
2503          UI     94.    228.    440.    566.    731.   1101.    996.    761.    588.    444.
2504          UI    258.    161.    116.     80.     29.     29.     29.     29.      0.      0.
2505          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2506          KK  RETAIN
2507          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2508          DT  RETDIV      64
2509          DI       0   10000
2510          DQ       0   10000
              *

2511          KK   DDN10
2512          KM    RETRIEVE DIVERSION HYDROGRAPH DDN10
2513          DR   DDN10
              *

2514          KK  RDDN10
2515          KM    ROUTE FLOWS FROM APPROXIMATELY 1/2 MILE SOUTH OF OCOTILLO RD TO QUEEN CREEK
2516          KM    WASH WHERE IT INTESECTS WITH HAWES ROAD
2517          RM       6    0.83    0.30
              *
              * ******************************************************************************
              *  For sub-basins located north of Queen Creek between Ellsworth Rd.
              *  and Power Rd. (sub-basins 310, 314 and 318), it is assumed that upon
              *  development, these sub-basins will discharge into Queen Creek.  Under
              *  existing conditions these basins are routed northwesterly and discharge
              *  into the EMF.
              * ******************************************************************************
              *

2518          KK  SUB310
2519          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2520          KM   BASIN 310
2521          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2522          KM    L=      2.1  Lca=      1.2   S=   16.6  Kn= .043  LAG=  51.0
2523          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2524          BA     .97
2525          LG     .21     .25    4.80     .37   42.00
2526          UI     64.     64.    160.    260.    320.    369.    424.    497.    637.    812.
```



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

2527          UI    708.    587.    513.    435.    373.    316.    253.    164.    114.    106.
2528          UI     83.     64.     56.     20.     20.     20.     20.     20.     20.     20.
2529          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2530          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2531          KK  RETAIN
2532          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2533          DT  RETDIV      73
2534          DI       0   10000
2535          DQ       0   10000
              *

2536          KK   CO311
2537          KM        COMBINE RO385, 310, 310S AND DDN10 (SANOKAI WASH)
```

```
2538          KM        FLOWS IN THE QUEEN CREEK AT HAWES ROAD
2539          HC       4
              *

2540          KK   RO387
2541          KM        ROUTE FLOW FROM CO311 TO CO313
2542          KM        ROUTE FLOWS IN THE QUEEN CREEK FROM HAWES ROAD TO SOSSAMAN ROAD
2543          RM       4    0.43    0.30
              *

2544          KK  SUB314
2545          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2546          KM   BASIN 314
2547          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2548          KM    L=      2.3  Lca=      1.3   S=   10.8  Kn= .050  LAG=  69.9
2549          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2550          BA    1.05
2551          LG     .25     .25    4.55     .42   30.00
2552          UI     51.     51.     51.    142.    189.    236.    262.    291.    320.    361.
2553          UI    401.    479.    598.    655.    548.    478.    429.    390.    344.    308.
2554          UI    273.    242.    206.    153.    105.     90.     84.     83.     52.     51.
2555          UI     51.     25.     16.     16.     16.     16.     16.     16.     16.     16.
2556          UI     16.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2557          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2558          KK  RETAIN
2559          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2560          DT  RETDIV      74
2561          DI       0   10000
2562          DQ       0   10000
              *

2563          KK   CO313
2564          KM        COMBINE RO387 AND SUB314
2565          KM        FLOWS IN THE QUEEN CREEK AT SOSSAMAN ROAD
2566          HC       2
              *
```



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

2567          KK   RO389
2568          KM        ROUTE FLOW FROM CO313 TO CO319
2569          KM        ROUTE FLOWS IN THE QUEEN CREEK FROM SOSSAMAN ROAD TO POWER ROAD
2570          RM       2    0.24    0.30
              *

2571          KK  SUB318
2572          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2573          KM   BASIN 318
2574          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2575          KM    L=      2.3  Lca=      1.1   S=   13.2  Kn= .044  LAG=  55.3
2576          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2577          BA    1.32
2578          LG     .22     .25    4.40     .47   37.00
2579          UI     81.     81.    165.    296.    382.    439.    495.    572.    661.    862.
2580          UI   1033.    869.    733.    648.    559.    485.    414.    351.    256.    160.
2581          UI    139.    132.     90.     81.     65.     25.     25.     25.     25.     25.
2582          UI     25.     25.     25.      0.      0.      0.      0.      0.      0.      0.
2583          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2584          KK  RETAIN
2585          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2586          DT  RETDIV      98
2587          DI       0   10000
2588          DQ       0   10000
              *

2589          KK   CO319
2590          KM        COMBINE RO389 AND SUB318
2591          KM        FLOWS IN THE QUEEN CREEK AT POWER ROAD
2592          HC       2
              *

2593          KK   RO391
2594          KM        ROUTE FLOW FROM CO319 TO RO393
2595          KM        ROUTE FLOWS IN THE QUEEN CREEK FROM POWER ROAD TO RECKER ROAD ALIGNMENT
2596          RM       3    0.35    0.30
              *

2597          KK   RO393
2598          KM        ROUTE FLOW FROM RO391 TO CO486
2599          KM        ROUTE FLOWS IN QUEEN CREEK FROM RECKER ROAD ALIGNMENT TO HIGLEY ROAD AND
2600          KM           1/2 MILE SOUTH OF QUEEN CREEK ROAD
2601          RM       4    0.45    0.30
              *

2602          KK  SUB474
2603          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2604          KM   BASIN 474
2605          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2606          KM    L=      2.1  Lca=      1.4   S=   15.4  Kn= .049  LAG=  64.0
```

```
2607          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2608          BA    1.07
```



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

2609          LG     .25     .25    4.70     .36   25.00
2610          UI     56.     56.     63.    189.    232.    274.    310.    343.    389.    437.
2611          UI    528.    673.    708.    585.    509.    457.    406.    355.    314.    275.
2612          UI    234.    172.    113.     98.     92.     81.     56.     56.     41.     17.
2613          UI     17.     17.     17.     17.     17.     17.     17.     17.      0.      0.
2614          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2615          KK  RETAIN
2616          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2617          DT  RETDIV      68
2618          DI       0   10000
2619          DQ       0   10000
              *
              *

2620          KK   RO477
2621          KM        ROUTE FLOW FROM SUB474 TO CO480
2622          RM       6    1.08    0.20
              *

2623          KK  SUB478
2624          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2625          KM   BASIN 478
2626          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2627          KM    L=      1.7  Lca=       .6   S=   18.4  Kn= .047  LAG=  40.8
2628          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2629          BA     .67
2630          LG     .23     .26    4.80     .34   27.00
2631          UI     55.     70.    200.    270.    321.    388.    486.    682.    592.    477.
2632          UI    399.    326.    267.    186.    107.     92.     68.     55.     26.     17.
2633          UI     17.     17.     17.     17.      0.      0.      0.      0.      0.      0.
2634          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2635          KK  RETAIN
2636          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2637          DT  RETDIV      43
2638          DI       0   10000
2639          DQ       0   10000
              *

2640          KK   RO479
2641          KM        ROUTE FLOW FROM SUB478 TO CO480
2642          RM      10    1.94    0.20
              *

2643          KK   CO480
2644          KM        COMBINE RO477 AND RO479
2645          HC       2
              *
```



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

2646          KK   RO481
2647          KM        ROUTE FLOW FROM CO480 TO CO484
2648          RM      14    2.89    0.20
              *

2649          KK  SUB482
2650          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2651          KM   BASIN 482
2652          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2653          KM    L=      2.2  Lca=      1.5   S=   13.0  Kn= .047  LAG=  65.1
2654          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2655          BA     .98
2656          LG     .24     .26    4.60     .39   27.00
2657          UI     51.     51.     51.    169.    206.    243.    277.    305.    344.    387.
2658          UI    456.    577.    655.    547.    473.    422.    381.    331.    296.    256.
2659          UI    226.    172.    123.     89.     85.     83.     54.     51.     51.     19.
2660          UI     15.     15.     15.     15.     15.     15.     15.     15.      0.      0.
2661          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2662          KK  RETAIN
2663          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2664          DT  RETDIV      42
2665          DI       0   10000
2666          DQ       0   10000
              *

2667          KK   CO484
2668          KM        COMBINE SUB482, RO481 AND RO393
2669          HC       3
              *

2670          KK  RO487
```

```
2671          KM     ROUTE FLOW FROM CO484 TO CO508
2672          KM     ROUTE FLOWS IN QUEEN CREEK FROM 1/2 MILE SOUTH OF QUEEN CREEK ROAD TO
2673          KM     CONFLUENCE WITH SANOKAI WASH AT OCOTILLO ROAD.
2674          RM       2    0.19    0.30
              *

2675          KK  CP-N6A
2676          KM    RETRIEVE DIVERSION HYDROGRAPH AT CP-N6.
2677          KM    FLOW NOT ROUTED TO CONFLUENCE OF QUEEN CREEK BECAUSE THE ROUTING
2678          KM    OVER THE SHORT DISTANCE WILL NOT SIGNIFICANTLY EFFECT RESULTS.
2679          DR  CP-N6A
              *

2680          KK  482S
2681          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2682          KM   BASIN 482S
2683          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2684          KM    L=       .9  Lca=       .2   S=   14.0  Kn= .050  LAG=  23.0
2685          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2686          BA     .16
2687          LG     .25     .25    4.55     .42   30.00
1                                          HEC-1 INPUT                                                    PAGE 87

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

2688          UI     23.     86.    132.    189.    268.    189.    134.     85.     39.     26.
2689          UI     11.      7.      7.      0.      0.      0.      0.      0.      0.      0.
2690          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2691          KK  RETAIN
2692          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2693          DT  RETDIV      11
2694          DI       0   10000
2695          DQ       0   10000
              *

2696          KK  DDC15O
2697          KM    IMPORT DIVERSION HYDROGRAPH DDC15O FROM THE SANOKAI WASH F.I.S. MODEL
2698          KM    FLOW WILL NOT BE ROUTED BECAUSE ITS ROUTING DISTANCE IS NOT VERY LONG
2699          DR  DDC15O
              *

2700          KK  CO508
2701          KM         COMBINE 482S & RO487 (QUEEN CRK) AND CP-N6A & DD15O (SANOKAI WASH)
2702          HC       4
              *

2703          KK  RO509
2704          KM          ROUTE FLOW FROM CO508 TO CO510
2705          KM          ROUTE FLOWS IN QUEEN CREEK FROM OCOTILLO ROAD
2706          KM          TO EMF AT CHANDLER HEIGHTS ROAD
2707          RM       7    0.91   0.30
              *

2708          KK  506N
2709          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2710          KM   BASIN 506N
2711          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2712          KM    L=      1.4  Lca=       .4   S=   11.2  Kn= .020  LAG=  14.1
2713          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2714          BA     .39
2715          LG     .10     .35    4.70     .26     .00
2716          UI    174.    532.    974.    722.    372.    134.     48.     28.      0.      0.
2717          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * ***********************************************************************
              *  Sub-basins 506N and 506S will likely be the sites of a large regional
              *  detention basin for the EMF, Queen Creek and Sanokai Wash.  However,
              *  for this analysis, it is assumed that no on-site retention is provided.
              *  Upon the design/construction of the basin, the area hydrology should be
              *  revised accordingly to account for the impact of the detention basin.
              * ***********************************************************************
              *
              * KKRETAIN
              * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
              * DTRETDIV       0
              * DI      0   10000
              * DQ      0   10000
              *
1                                          HEC-1 INPUT                                                    PAGE 88

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

2718          KK   RO507
2719          KM         ROUTE FLOW FROM 506N TO CO510
2720          RM       9    1.67   0.20
              *

2721          KK  506S
2722          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2723          KM   BASIN 506S
2724          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2725          KM    L=      1.6  Lca=       .8   S=    8.1  Kn= .020  LAG=  21.3
```

```
2726          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2727          BA     .32
2728          LG     .10     .35    4.70     .26     .00
2729          UI     54.    213.    319.    502.    548.    370.    250.    116.     69.     34.
2730          UI     16.     16.      0.      0.      0.      0.      0.      0.      0.      0.
2731          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * KKRETAIN
              * KM  100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
              * DTRETDIV
              * DI     0   10000
              * DQ     0   10000
              *

2732          KK   CO510
2733          KM        COMBINE 506S, RO507, AND RO509
2734          KM        COMBINE FLOWS FROM QUEEN CREEK AND SANOQUI WASH BEFORE EMF
2735          KM        FLOWS NOT ROUTED BUT IMPACT SHOULD BE MINIMAL
2736          KO                                      21
2737          HC       3
              *

2738          KK  EMFCHN
2739          KM        COMBINE CO510 AND STO335   KNOWN AS CO564 IN THE QUEEN CREEK MODEL
2740          KM        FLOWS IN THE EMF AT THE CONFLUENCE OF QUEEN CREEK AND EMF, NORTH OF
2741          KM        CHANDLER HEIGHTS ROAD
2742          HC       2
              *

2743          KK  SUB556
2744          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2745          KM   BASIN 556
2746          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2747          KM    L=      1.6  Lca=       .7   S=    6.2  Kn= .050  LAG=  53.1
2748          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2749          BA     .63
2750          LG     .30     .25    4.80     .36   15.00
2751          UI     40.     40.     91.    154.    193.    223.    253.    295.    354.    472.
2752          UI    487.    394.    339.    297.    253.    217.    187.    137.     90.     70.
2753          UI     65.     48.     40.     33.     12.     12.     12.     12.     12.     12.
2754          UI     12.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2755          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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

2756          KK  RETAIN
2757          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2758          DT  RETDIV      40
2759          DI       0   10000
2760          DQ       0   10000
              *

2761          KK  DDC14O
2762          KM    RETRIEVE DIVERSION HYDROGRAPH DD14O
2763          DR  DDC14O
              *

2764          KK  RDDC14
2765          KM    ROUTE THE IMPORTED FLOW FROM HIGLEY ROAD TO A POINT PRIOR TO THE EMF
2766          RM       8    1.09    0.30
              *

2767          KK  DDW17O
2768          KM    RETRIEVE DIVERSION HYDROGRAPH DDW17O
2769          DR  DDW17O
              *

2770          KK  RDDW17
2771          KM   ROUTE THE IMPORTED FLOW FROM CHANDLER HEIGHTS RD AND HIGLEY ROAD ALONG THE
2772          KM   CHANDLER HEIGHTS ROAD ALIGNMENT TO THE EMF
2773          RM       8    0.98    0.30
              *

2774          KK     574
2775          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2776          KM   BASIN 574
2777          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2778          KM    L=      1.6  Lca=       .3   S=   21.8  Kn= .050  LAG=  31.5
2779          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2780          BA    1.04
2781          LG     .30     .25    4.45     .45   15.00
2782          UI    111.    258.    509.    656.    836.   1240.   1238.    933.    728.    563.
2783          UI    363.    194.    157.    111.     41.     34.     34.     34.      0.      0.
2784          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2785          KK  RETAIN
2786          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2787          DT  RETDIV      64
2788          DI       0   10000
2789          DQ       0   10000
              *
```

```
2790          KK  SUBW15
2791          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2792          KM   BASIN W15
2793          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2794          KM    L=       .7  Lca=       .3   S=   40.0  Kn= .050  LAG=  20.9
2795          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
```



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

2796          BA     .25
2797          LG     .30     .25    3.95     .58   15.00
2798          UI     44.    169.    254.    410.    412.    279.    183.     82.     50.     22.
2799          UI     12.     12.      0.      0.      0.      0.      0.      0.      0.      0.
2800          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2801          KK  RETAIN
2802          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2803          DT  RETDIV      14
2804          DI       0   10000
2805          DQ       0   10000
              *

2806          KK   RO569
2807          KM        ROUTE FLOW FROM W15 (SUB568) TO CO572
2808          RM      11    2.11    0.20
              *

2809          KK   CO558
2810          KM        COMBINE DD140 AND SUB556, SUB574 AND SUB15 AT CHANDLER HEIGHTS JUST
2811          KM        PRIOR TO EMF CONFLUENCE
2812          KO                                        21
2813          HC       5
              *

2814          KK  EMFCHS
2815          KM        COMBINE CO558 AND EMFCHN
2816          KM        COMBINE FLOWS IN THE EMF SOUTH OF QUEEN CREEK AND EMF CONFLUENCE
2817          KM        THIS IS AT CHANDLER HEIGHTS ROAD AND THE EMF
2818          HC       2
              *

2819          KK   RO567
2820          KM        ROUTE FLOW FROM CO566 TO CO578
2821          KM        ROUTE FLOWS IN THE EMF FROM CHANDLER HEIGHTS ROAD TO RIGGS ROAD
2822          RM       6    0.75   0.30
              *

2823          KK  SUBW14
2824          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2825          KM   BASIN W14
2826          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2827          KM    L=      1.1  Lca=       .7   S=   48.6  Kn= .050  LAG=  30.6
2828          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2829          BA     .37
2830          LG     .30     .25    3.95     .57   14.00
2831          UI     41.     99.    191.    245.    318.    479.    422.    325.    249.    188.
2832          UI    105.     69.     48.     32.     12.     12.     12.     12.      0.      0.
2833          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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

2834          KK  RETAIN
2835          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2836          DT  RETDIV      21
2837          DI       0   10000
2838          DQ       0   10000
              *

2839          KK  SUBW13
2840          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2841          KM   BASIN W13
2842          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2843          KM    L=      1.4  Lca=       .7   S=   54.6  Kn= .050  LAG=  33.3
2844          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2845          BA     .63
2846          LG     .30     .25    3.95     .56   13.00
2847          UI     63.    131.    276.    358.    446.    615.    768.    582.    466.    365.
2848          UI    278.    153.    107.     78.     58.     19.     19.     19.     19.      0.
2849          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2850          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2851          KK  RETAIN
2852          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2853          DT  RETDIV      32
2854          DI       0   10000
2855          DQ       0   10000
              *
```

```
2856          KK  C0570
2857          KM         COMBINE FLOW FROM SUBW13 AND SUBW14
2858          KM         COMBINE FLOWS AT HIGLEY ROAD
2859          HC       2
              *

2860          KK   RO571
2861          KM        ROUTE FLOW FROM CO570 TO CO578A.  FLOW IS ROUTED IN GABION CHANNEL ON
2862          KM     SOUTH SIDE OF RIGGS ROAD TAKING FLOWS IN A WESTERLY DIRECTION TO THE EMF
2863          RM       2     .30    0.20
              *

2864          KK     580
2865          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2866          KM   BASIN 580
2867          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2868          KM    L=      1.5  Lca=       .8   S=   38.9  Kn= .050  LAG=  38.4
2869          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2870          BA     .53
2871          LG     .30     .25    3.95     .58   15.00
2872          UI     46.     71.    178.    236.    283.    348.    473.    572.    439.    363.
2873          UI    293.    237.    174.     99.     78.     58.     46.     20.     14.     14.
2874          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
2875          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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

2876          KK  RETAIN
2877          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2878          DT  RETDIV      30
2879          DI       0   10000
2880          DQ       0   10000
              *

2881          KK   CO580
2882          KM    COMBINE FLOWS OF SUBBASIN 580, SUBBASIN W13 AND SUBBASIN W14
2883          KM    JUST BEFORE THE EMF
2884          KO                                      21
2885          HC       2
              *

2886          KK  EMFNRG
2887          KM     KNOWN AS CO578 IN THE QUEEN CREEK MODEL
2888          KM     COMBINE FLOWS IN THE EMF AT RIGGS ROAD
2889          HC       2
              *

2890          KK   RO583
2891          KM        ROUTE FLOW FROM CO582 TO CO586
2892          KM        ROUTE FLOWS WITHIN THE EMF FROM RIGGS ROAD TO HUNT HIGHWAY (COUNTY LINE)
2893          RM      11    1.51    0.30
              *

2894          KK     584
2895          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2896          KM   BASIN 584
2897          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2898          KM    L=      2.6  Lca=      1.3   S=   40.9  Kn= .050  LAG=  56.6
2899          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2900          BA     .97
2901          LG     .30     .25    4.00     .55   14.00
2902          UI     58.     58.    110.    209.    269.    310.    348.    401.    458.    586.
2903          UI    731.    660.    550.    482.    424.    366.    317.    275.    211.    144.
2904          UI    102.     96.     84.     58.     58.     30.     18.     18.     18.     18.
2905          UI     18.     18.     18.      0.      0.      0.      0.      0.      0.      0.
2906          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2907          KK  RET584
2908          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2909          KO                                      21
2910          DT  RETDIV      55
2911          DI       0   10000
2912          DQ       0   10000
              *
```



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

2913          KK  EMFHNT
2914          KM        COMBINE SUB584 AND RO583     KNOWN AS CO586 IN THE QUEEN CREEK MODEL
2915          KM      FLOWS WITHIN THE EMF AT HUNT HIGHWAY
2916          HC       2
              *

2917          KK  DDS14O
2918          KM    RETRIEVE DIVERSION HYDROGRAPH DDS14O
2919          DR  DDS14O
              *

2920          KK  RO549
```

```
2921          KM        ROUTE FLOW FROM RO549 TO RO589
2922          RM       4    0.76    0.20
              *

2923          KK  RO589
2924          KM        ROUTE FLOW FROM RO549 TO CO592
2925          RM       2    0.27    0.20
              *

2926          KK  SUBS16
2927          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2928          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2929          KM   BASIN S16 (KNOWN AS SUBBASINS 544, 546, 588, AND 590 IN QUEEN CREEK ADMS)
2930          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2931          KM    L=      4.4  Lca=      1.9   S=  231.2  Kn= .067  LAG=  77.0
2932          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
2933          BA    4.35
2934          LG     .20     .35    4.40     .37   33.00
2935          UI    190.    190.    190.    353.    588.    773.    991.   1167.   1290.   1413.
2936          UI   1519.   1764.   2122.   2234.   1501.   1313.   1181.   1113.   1052.    976.
2937          UI    923.    865.    795.    749.    687.    621.    558.    501.    465.    449.
2938          UI    435.    397.    367.    312.    299.    243.    243.    228.    208.    208.
2939          UI    196.    146.    146.    146.    146.    116.     93.     93.     93.     93.
2940          UI     93.     93.     74.     36.     36.     36.     36.     36.     36.     36.
2941          UI     36.     36.     36.     36.     36.     36.     36.     36.     36.     36.
2942          UI     36.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2943          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2944          KK   CO592
2945          KM        COMBINE SUBS16 AND ROS14A
2946          HC       2
              *

2947          KK   RO593
2948          KM        ROUTE FLOW FROM CO592 TO CO596
2949          RM       4    0.78    0.20
              *
```



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

2950          KK  SUBS17
2951          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2952          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2953          KM   BASIN S17 OR KNOWN AS BASIN 594 IN QUEEN CREEK ADMS
2954          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2955          KM    L=      2.6  Lca=      1.3   S=  486.6  Kn= .050  LAG=  35.8
2956          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
2957          BA     .77
2958          LG     .27     .35    4.40     .37   33.00
2959          UI     72.    120.    280.    444.    542.    714.    710.    467.    403.    351.
2960          UI    302.    254.    203.    173.    157.    124.     97.     85.     78.     55.
2961          UI     55.     38.     35.     35.     24.     14.     14.     14.     14.     14.
2962          UI     14.     14.     14.      0.      0.      0.      0.      0.      0.      0.
2963          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2964          KK   CO596
2965          KM        COMBINE SUBS17 (SUB594) AND RO593
2966          HC       2
              *

2967          KK   RO597
2968          KM        ROUTE FLOW FROM CO596 TO CO600
2969          RM       2    0.24    0.20
              *

2970          KK  SUB598
2971          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2972          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2973          KM   BASIN 598
2974          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2975          KM    L=      1.7  Lca=       .8   S=  705.3  Kn= .055  LAG=  25.3
2976          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
2977          BA     .35
2978          LG     .25     .35    4.40     .37   33.00
2979          UI     47.    144.    287.    393.    472.    291.    238.    194.    146.    114.
2980          UI     94.     67.     54.     42.     35.     23.     23.     13.      9.      9.
2981          UI      9.      9.      9.      0.      0.      0.      0.      0.      0.      0.
2982          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2983          KK   CO600
2984          KM        COMBINE SUB598 AND RO597
2985          HC       2
              *

2986          KK   RO601
2987          KM        ROUTE FLOW FROM CO600 TO CO604
2988          RM       4    0.69    0.20
              *
```

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

2989          KK  SUB602
2990          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2991          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2992          KM   BASIN 602
2993          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2994          KM    L=      2.0  Lca=       .9   S=  612.9  Kn= .050  LAG=  26.4
2995          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
2996          BA     .73
2997          LG     .27     .35    4.40     .37   33.00
2998          UI     93.    265.    544.    739.    983.    611.    497.    409.    326.    243.
2999          UI    207.    158.    116.    101.     71.     60.     45.     45.     19.     18.
3000          UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
3001          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

3002          KK   CO604
3003          KM        COMBINE SUB602 AND RO601
3004          HC       2
              *

3005          KK   RO605
3006          KM        ROUTE FLOW FROM CO604 TO CO608
3007          RM       3    0.44    0.20
              *

3008          KK  SUB606
3009          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
3010          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
3011          KM   BASIN 606
3012          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3013          KM    L=      2.4  Lca=      1.1   S=  515.4  Kn= .058  LAG=  37.4
3014          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
3015          BA     .59
3016          LG     .24     .35    4.40     .37   33.00
3017          UI     53.     80.    196.    309.    384.    479.    580.    369.    309.    271.
3018          UI    238.    204.    169.    135.    124.    107.     85.     67.     60.     55.
3019          UI     40.     40.     27.     26.     26.     19.     10.     10.     10.     10.
3020          UI     10.     10.     10.     10.      0.      0.      0.      0.      0.      0.
3021          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

3022          KK   CO608
3023          KM        COMBINE SUB606 AND RO605
3024          HC       2
              *

3025          KK   RO609
3026          KM        ROUTE FLOW FROM CO608 TO CO612
3027          RM       5    1.04    0.20
              *
```



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

3028          KK  SUB610
3029          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
3030          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
3031          KM   BASIN 610
3032          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
3033          KM    L=      2.6  Lca=      1.4   S=  117.2  Kn= .035  LAG=  32.9
3034          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
3035          BA     .84
3036          LG     .33     .35    4.40     .37   33.00
3037          UI     86.    164.    386.    565.    701.    960.    617.    500.    432.    368.
3038          UI    307.    241.    204.    181.    137.    109.     95.     78.     66.     52.
3039          UI     42.     42.     29.     16.     16.     16.     16.     16.     16.     16.
3040          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
3041          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

3042          KK   CO612
3043          KM        COMBINE SUB610 AND RO609
3044          KM      FLOWS BEFORE ENTERING THE EMF SOUTH OF HUNT HIGHWAY, FLOWS GENERATED IN
3045          KM       THE SANTAN MOUNTAINS, PINAL COUNTY
3046          KO                                    21
3047          HC       2
              *

3048          KK  EMFHTS
3049          KM        COMBINE CO612 AND CO586      KNOWN AS CO614 IN THE QUEEN CREEK MODEL
3050          KM       FLOWS WITHIN THE EMF SOUTH OF HUNT HIGHWAY
3051          HC       2
3052          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  121          S9
```

```
                .
                .
135             .-------->    DDS9
133         *DS9
                .
                .
138             .         S10
                .           .
                .           .
150       CP-S10............
              V
              V
152         RS10
                .
                .
157             .          E8
                .           .
                .           .
171             .           .           .<-------    DDS9
169             .           .         DS9
                .           .           V
                .           .           V
172             .           .        RS9E
                .           .           V
                .           .           V
177             .           .        RS9C
                .           .           .
                .           .           .
182             .      *CP-E8............
                .           .
                .           .
184        CP-E8............
                .
                .
188             .-------->    DDE8
186         *DE8
              V
              V
191          RE8
                .
                .
196             .          C1
                .           .
                .           .
209             .           .-------->  RETDIV
207             .      RETAIN
                .           .
                .           .
212             .           .         S11
                .           .           V
                .           .           V
224             .           .        RS11
                .           .           .
                .           .           .
229             .           .           .         S12
                .           .           .           V
                .           .           .           V
241             .           .           .        RS12
                .           .           .           .
                .           .           .           .
246        CP-C1.................................
              V
              V
248         RC1N
                .
                .
253             .          S1
                .           V
                .           V
265             .         RS1
                .           .
                .           .
270             .           .          S2
                .           .           V
                .           .           V
282             .           .         RS2
                .           .           .
                .           .           .
287             .           .           .         S3B
                .           .           .           V
                .           .           .           V
299             .           .           .        RS3B
                .           .           .           .
                .           .           .           .
304             .           .           .           .         S3A
                .           .           .           .           .
                .           .           .           .           .
316             .           .           .      CP-S3A............
                .           .           .           V
                .           .           .           V
318             .           .           .        RS3A
                .           .           .           .
                .           .           .           .
323             .           .           .           .          E1
                .           .           .           .           .
```

```
335                                                  SUB354
                                                        V
                                                        V
358                                                   RO355
                                                        .
                                                        .
361                                                        .      SUB356
                                                        .           .
                                                        .           .
394                                                   CO358............
                                                        V
                                                        V
397                                                   RO359
                                                        .
                                                        .
400                                                        .      SUB360
                                                        .           .
                                                        .           .
427                                                   CO362............
                                                        .
                                                        .
434                                                        .-------> DDRRW1
430                                                   *RRW1
                                                        V
                                                        V
437                                                    RRW1
                                                        .
                                                        .
442                  CP-E1.............................................
                        V
                        V
444                   RE1
                        .
                        .
449                          S4B
                             V
                             V
461                        RS4B
                             .
                             .
466                                   S4A
                                        .
                                        .
478                      CP-S4A............
                             V
                             V
480                        RS4A
                             .
                             .
485                                     S5
                                         V
                                         V
497                                    RS5
                                         .
                                         .
504                                                .<-------  DDRRW1
502                                            *DDRW1
                                                   V
                                                   V
505                                            RO363A
                                                   .
                                                   .
508                                                .        364C
                                                   .           .
                                                   .           .
527                                            CO364C............
                                                   .
                                                   .
535                                                .-------> DDRRW2
531                                             *RRW2
                                                   V
                                                   V
538                                              RRW2
                                                   .
                                                   .
545                                                .           .<-------  DDRRW2
543                                                .      *DDRW2
                                                   .           V
                                                   .           V
546                                                .      RO363B
                                                   .           .
                                                   .           .
549                                                .           .        364B
                                                   .           .           .
                                                   .           .           .
570                                                .      CO364B............
                                                   .           .
                                                   .           .
578                                                .           .-------> DDRRW3
573                                                .       *RRW3
                                                   .           V
                                                   .           V
581                                                .        RRW3
                                                   .           .
```

```
586        CP-D5.............................................
              V
              V
588          RD5
               .
               .
593            .          S6
               .           V
               .           V
605            .         RS6
               .           .
               .           .
610            .           .         S7B
               .           .           V
               .           .           V
622            .           .        RS7B
               .           .           .
               .           .           .
627            .           .           .         S7A
               .           .           .           .
               .           .           .           .
639            .           .      CP-S7A............
               .           .           V
               .           .           V
641            .           .        RS7A
               .           .           .
               .           .           .
646        CP-D6........................
              V
              V
648          RD6
               .
               .
653            .          E5
               .           V
               .           V
665            .         RE5
               .           .
               .           .
670            .           .          E2
               .           .           .
               .           .           .
682            .           .           .         S8B
               .           .           .           V
               .           .           .           V
694            .           .           .        RS8B
               .           .           .           .
               .           .           .           .
699            .           .           .           .         S8A
               .           .           .           .           .
               .           .           .           .           .
711            .           .           .      CP-S8A............
               .           .           .           V
               .           .           .           V
713            .           .           .        RS8A
               .           .           .           .
               .           .           .           .
718        CP-E2.................................
              V
              V
720          RE2
               .
               .
725            .          E6
               .           .
               .           .
738            .           .-------> RETDIV
736            .      RETAIN
               .           .
               .           .
741            .           .         E11
               .           .           .
               .           .           .
755            .           .           .------->   DDE11
753            .           .       *DE11
               .           .           V
               .           .           V
758            .           .       RE11N
               .           .           .
               .           .           .
763            .           .           .          E3
               .           .           .           .
               .           .           .           .
776            .           .           .           .-------> RETDIV
774            .           .           .      RETAIN
               .           .           .           .
               .           .           .           .
781            .           .           .           .           .<-------   DDE11
779            .           .           .           .        DE11
               .           .           .           .           V
               .           .           .           .           V
782            .           .           .           .       RE11S
               .           .           .           .           .
               .           .           .           .           .
```

```
787          .           .           .       CP-E3.......................
             .           .           .           .
             .           .           .           .
791          .           .           .           .-------->    DDE3
789          .           .           .       *DE3
             .           .           .           V
             .           .           .           V
794          .           .           .       RE3W
             .           .           .           .
             .           .           .           .
799          .       CP-E6........................
             .           .
             .           .
803          .           .-------->    DDE6
801          .       *DE6
             .           V
             .           V
806          .       RE6S
             .           .
             .           .
811          .           .           E9
             .           .           .
             .           .           .
824          .           .           .-------->  RETDIV
822          .           .      RETAIN
             .           .           .
             .           .           .
829          .           .           .           .<--------    DDE8
827          .           .           .       DE8
             .           .           .           V
             .           .           .           V
830          .           .           .       RE8E
             .           .           .           .
             .           .           .           .
835          .       CP-E9........................
             .           .
             .           .
839          .           .-------->    DDE9
837          .       *DE9
             .           V
             .           V
842          .       RE9W
             .           .
             .           .
847          .           .           C4
             .           .           .
             .           .           .
860          .           .           .-------->  RETDIV
858          .           .      RETAIN
             .           .           .
             .           .           .
863          .           .           .           C2
             .           .           .           .
             .           .           .           .
876          .           .           .           .-------->  RETDIV
874          .           .           .      RETAIN
             .           .           .           .
             .           .           .           .
879          .           .           .           .           C3
             .           .           .           .           .
             .           .           .           .           .
892          .           .           .           .           .-------->  RETDIV
890          .           .           .           .      RETAIN
             .           .           .           .           .
             .           .           .           .           .
897          .           .           .           .           .-------->    DDC3
895          .           .           .           .        *DC3
             .           .           .           .           V
             .           .           .           .           V
900          .           .           .           .       RC3SW
             .           .           .           .           .
             .           .           .           .           .
905          .           .      *CP-C2........................
             .           .           .
             .           .           .
907       CP-C2........................
             .
             .
911          .-------->    DDC2
909       *DC2
             V
             V
914        RC2
             .
             .
919          .        C16
             .           .
             .           .
932          .           .-------->  RETDIV
930          .      RETAIN
             .           .
             .           .
935          .           .           LF
             .           .           .
             .           .           .
```

```
 946      CP-C16.......................
               V
               V
 948        RC16
               .
               .
 955           .           .<-------    DDE3
 953           .         DE3
               .           V
               .           V
 956           .         RE3
               .           .
               .           .
 961           .           .           E4
               .           .            .
               .           .            .
 974           .           .            .-------> RETDIV
 972           .           .      RETAIN
               .           .            .
               .           .            .
 977           .       CP-E4............
               .           .
               .           .
 981           .           .------->   DDE4O
 979           .        *DE4
               .           V
               .           V
 984           .         RE4
               .           .
               .           .
 989           .           .           E7
               .           .            .
               .           .            .
1002           .           .            .-------> RETDIV
1000           .           .      RETAIN
               .           .            .
               .           .            .
1007           .           .            .           .<-------    DDE6
1005           .           .            .         DE6
               .           .            .           V
               .           .            .           V
1008           .           .            .         RE6
               .           .            .           .
               .           .            .           .
1013           .       CP-E7........................
               .           V
               .           V
1015           .         RE7
               .           .
               .           .
1020           .           .          E10
               .           .            .
               .           .            .
1033           .           .            .-------> RETDIV
1031           .           .      RETAIN
               .           .            .
               .           .            .
1038           .           .            .           .<-------    DDE9
1036           .           .            .         DE9
               .           .            .           V
               .           .            .           V
1039           .           .            .        RE9N
               .           .            .           .
               .           .            .           .
1044           .      CP-E10........................
               .           V
               .           V
1046           .        RE10
               .           .
               .           .
1051           .           .           N2
               .           .            .
               .           .            .
1064           .           .            .-------> RETDIV
1062           .           .      RETAIN
               .           .            .
               .           .            .
1069           .           .            .           .<-------    DDC3
1067           .           .            .         DC3
               .           .            .           V
               .           .            .           V
1070           .           .            .       RC3NW
               .           .            .           .
               .           .            .           .
1075           .       CP-N2........................
               .           .
               .           .
1079           .           .------->    DDN2
1077           .        *DN2
               .           V
               .           V
1082           .        RN2S
               .           .
               .           .
1089           .           .           .<-------    DDN2
```

```
1087          .           .         DN2
              .           .           V
              .           .           V
1090          .           .        RN2N
              .           .           .
              .           .           .
1097          .           .           .-------->    DDD3
1095          .           .        *DD3
              .           .           V
              .           .           V
1100          .           .        RD3W
              .           .           .
              .           .           .
1105          .           .           .          C7
              .           .           .           .
              .           .           .           .
1118          .           .           .           .-------->  RETDIV
1116          .           .           .      RETAIN
              .           .           .           .
              .           .           .           .
1121      CP-C7.....................................
              V
              V
1123        RC7
              .
              .
1128          .          N1
              .           .
              .           .
1141          .           .-------->  RETDIV
1139          .      RETAIN
              .           .
              .           .
1146          .           .           .<--------    DDD3
1144          .           .         DD3
              .           .           V
              .           .           V
1147          .           .        RD3N
              .           .           .
              .           .           .
1152          .       CP-N1............
              .           .
              .           .
1156          .           .-------->   DDN1O
1154          .        *DN1
              .           V
              .           V
1159          .         RN1
              .           .
              .           .
1164          .           .          N3
              .           .           .
              .           .           .
1177          .           .           .-------->  RETDIV
1175          .           .      RETAIN
              .           .           .
              .           .           .
1180          .       CP-N3............
              .           .
              .           .
1184          .           .-------->    DDN3
1182          .        *DN3
              .           V
              .           V
1187          .        RN3S
              .           .
              .           .
1192          .           .         C7A
              .           .           .
              .           .           .
1205          .           .           .-------->  RETDIV
1203          .           .      RETAIN
              .           .           .
              .           .           .
1208      CP-C7A........................
              V
              V
1210        RC7A
              .
              .
1215          .          C8
              .           .
              .           .
1228          .           .-------->    DDC8
1226          .        *DC8
              .           V
              .           V
1231          .        RC8N
              .           .
              .           .
1238          .           .           .<--------    DDN3
1236          .           .         DN3
              .           .           V
              .           .           V
1239          .           .        RN3W
```

```
                .           .           .
                .           .           .
1244        CP-D2.......................
                V
                V
1246          RD2
                .
                .
1251            .         C10
                .           .
                .           .
1264            .           .-------> RETDIV
1262            .      RETAIN
                .           .
                .           .
1267            .           .          N4
                .           .           .
                .           .           .
1280            .           .           .-------> RETDIV
1278            .           .      RETAIN
                .           .           .
                .           .           .
1283       CP-C10......................
                .
                .
1287            .------->   DDC10
1285        *DC10
                .
                .
1290            .          C5
                .           .
                .           .
1303            .           .-------> RETDIV
1301            .      RETAIN
                .           .
                .           .
1308            .           .           .<-------    DDC2
1306            .           .        DC2
                .           .          V
                .           .          V
1309            .           .       RC2S
                .           .           .
                .           .           .
1314            .       CP-C5............
                .           V
                .           V
1316            .         RC5
                .           .
                .           .
1321            .           .        S13
                .           .          V
                .           .          V
1333            .           .       RS13
                .           .           .
                .           .           .
1338            .           .           .          W1
                .           .           .           .
                .           .           .           .
1351            .           .           .           .-------> RETDIV
1349            .           .           .      RETAIN
                .           .           .           .
                .           .           .           .
1354            .           .      CP-W1............
                .           .           .
                .           .           .
1358            .           .           .------->    DDW1
1356            .           .       *DW1
                .           .          V
                .           .          V
1361            .           .        RW1
                .           .           .
                .           .           .
1366            .           .           .         S14
                .           .           .           .
                .           .           .           .
1378            .           .           .           .         S15
                .           .           .           .           V
                .           .           .           .           V
1390            .           .           .           .        RS15
                .           .           .           .           .
                .           .           .           .           .
1395            .           .           .      CP-S14............
                .           .           .           .
                .           .           .           .
1399            .           .           .           .-------> DDS14O
1397            .           .           .      *DS14A
                .           .           .           .
                .           .           .           .
1404            .           .           .           .-------> DDS14B
1402            .           .           .      *DS14B
                .           .           .           .
                .           .           .           .
1409            .           .           .           .-------> DDS14C
1407            .           .           .      *DS14C
                .           .           .           V
```

```
                 .          .          .          V
1412             .          .          .      RS14E
                 .          .          .          .
                 .          .          .          .
1417             .          .          .          .          W2
                 .          .          .          .           .
                 .          .          .          .           .
1430             .          .          .          .           .-------> RETDIV
1428             .          .          .          .     RETAIN
                 .          .          .          .           .
                 .          .          .          .           .
1435             .          .          .          .           .          .<-------    DDW1
1433             .          .          .          .           .        DW1
                 .          .          .          .           .          V
                 .          .          .          .           .          V
1436             .          .          .          .           .       RW1W
                 .          .          .          .           .          .
                 .          .          .          .           .          .
1441             .          .          .      CP-W2.......................
                 .          .          .          V
                 .          .          .          V
1443             .          .          .        RW2
                 .          .          .          .
                 .          .          .          .
1448             .          .          .          .          W3
                 .          .          .          .           .
                 .          .          .          .           .
1461             .          .          .          .           .-------> RETDIV
1459             .          .          .          .     RETAIN
                 .          .          .          .           .
                 .          .          .          .           .
1464             .          .          .          .           .          C6
                 .          .          .          .           .           .
                 .          .          .          .           .           .
1477             .          .          .          .           .           .-------> RETDIV
1475             .          .          .          .           .     RETAIN
                 .          .          .          .           .           .
                 .          .          .          .           .           .
1480             .      CP-C6..............................................
                 .          .
                 .          .
1484             .          .------->    DDC6
1482             .       *DC6
                 .          V
                 .          V
1487             .       RC6S
                 .          .
                 .          .
1492             .          .          W5
                 .          .           .
                 .          .           .
1505             .          .           .-------> RETDIV
1503             .          .     RETAIN
                 .          .           .
                 .          .           .
1510             .          .           .          .<-------  DDS14C
1508             .          .           .      DS14C
                 .          .           .          V
                 .          .           .          V
1511             .          .           .      RS14W
                 .          .           .          .
                 .          .           .          .
1516             .          .      CP-W5............
                 .          .          V
                 .          .          V
1518             .          .       RW5
                 .          .           .
                 .          .           .
1523             .          .           .         W6
                 .          .           .          .
                 .          .           .          .
1536             .          .           .          .-------> RETDIV
1534             .          .           .     RETAIN
                 .          .           .          .
                 .          .           .          .
1539             .          .           .          .          W4
                 .          .           .          .           .
                 .          .           .          .           .
1552             .          .           .          .           .-------> RETDIV
1550             .          .           .          .     RETAIN
                 .          .           .          .           .
                 .          .           .          .           .
1557             .          .           .          .           .          .<-------  DDS14B
1555             .          .           .          .           .      DS14B
                 .          .           .          .           .          V
                 .          .           .          .           .          V
1558             .          .           .          .           .      RS14C
                 .          .           .          .           .          .
                 .          .           .          .           .          .
1563             .          .           .          .      CP-W4............
                 .          .           .          .          V
                 .          .           .          .          V
1565             .          .           .          .       RW4N
                 .          .           .          .           .
                 .          .           .          .           .
```

```
1570          .       CP-W6.................................
              .           V
              .           V
1572          .         RW6
              .           .
              .           .
1577          .           .          W7
              .           .           .
              .           .           .
1588          .       CP-W7............
              .           V
              .           V
1590          .         RW7
              .           .
              .           .
1595          .           .          W8
              .           .           .
              .           .           .
1608          .           .           .           .<-------    DDC6
1606          .           .           .         DC6
              .           .           .           V
              .           .           .           V
1609          .           .           .        RC6N
              .           .           .           .
              .           .           .           .
1616          .           .           .           .           .<-------    DDC8
1614          .           .           .           .         DC8
              .           .           .           .           V
              .           .           .           .           V
1617          .           .           .           .        RC8W
              .           .           .           .           .
              .           .           .           .           .
1622          .       CP-W8.................................
              .           .
              .           .
1626          .           .-------->    DDW8
1624          .        *DW8
              .           V
              .           V
1629          .        RW8N
              .           .
              .           .
1634          .           .         C11
              .           .           .
              .           .           .
1645          .           .           .          C9
              .           .           .           V
              .           .           .           V
1656          .           .           .        RC9W
              .           .           .           .
              .           .           .           .
1661          .      CP-C11......................
              .           .
              .           .
1665          .           .-------->   DDC11
1663          .       *DC11
              .           V
              .           V
1668          .       RC11S
              .           .
              .           .
1673          .           .         C12
              .           .           .
              .           .           .
1686          .           .           .-------->  RETDIV
1684          .           .      RETAIN
              .           .           .
              .           .           .
1689          .      CP-C12............
              .           .
              .           .
1693          .           .-------->   DDC12
1691          .       *DC12
              .           V
              .           V
1696          .       RC12N
              .           .
              .           .
1701          .           .          W9
              .           .           .
              .           .           .
1714          .           .           .-------->  RETDIV
1712          .           .      RETAIN
              .           .           V
              .           .           V
1717          .           .         RW9
              .           .           .
              .           .           .
1722          .           .           .         W11
              .           .           .           .
              .           .           .           .
1735          .           .           .           .-------->  RETDIV
1733          .           .           .      RETAIN
              .           .           .           .
              .           .           .           .
```

```
1738          .           .      CP-W11............
              .           .           V
              .           .           V
1740          .           .        RW11
              .           .           .
              .           .           .
1745          .           .           .         W12
              .           .           .           .
              .           .           .           .
1758          .           .           .           .-------> RETDIV
1756          .           .           .      RETAIN
              .           .           .           .
              .           .           .           .
1763          .           .           .           .           .<-------    DDW8
1761          .           .           .           .         DW8
              .           .           .           .           V
              .           .           .           .           V
1764          .           .           .           .        RW8S
              .           .           .           .           .
              .           .           .           .           .
1769          .           .      CP-W12........................
              .           .           .
              .           .           .
1773          .           .           .------->   DDW12
1771          .           .       *DW12
              .           .           V
              .           .           V
1776          .           .      RW12N
              .           .           .
              .           .           .
1781          .           .           .         W18
              .           .           .           .
              .           .           .           .
1795          .           .           .           .-------> RETDIV
1793          .           .           .      RETAIN
              .           .           .           .
              .           .           .           .
1800          .           .           .           .           .<-------   DDW12
1798          .           .           .           .        DW12
              .           .           .           .           V
              .           .           .           .           V
1801          .           .           .           .       RW12S
              .           .           .           .           .
              .           .           .           .           .
1806          .           .           .      CP-W18............
              .           .           .           .
              .           .           .           .
1810          .           .           .           .------->   DDW18
1808          .           .           .       *DW18
              .           .           .           V
              .           .           .           V
1813          .           .           .       RW18N
              .           .           .           .
              .           .           .           .
1818          .           .           .           .         W10
              .           .           .           .           .
              .           .           .           .           .
1831          .           .           .           .           .-------> RETDIV
1829          .           .           .           .      RETAIN
              .           .           .           .           V
              .           .           .           .           V
1834          .           .           .           .        RW10
              .           .           .           .           .
              .           .           .           .           .
1839          .           .           .           .           .         W16
              .           .           .           .           .           .
              .           .           .           .           .           .
1852          .           .           .           .           .           .-------> RETDIV
1850          .           .           .           .           .      RETAIN
              .           .           .           .           .           .
              .           .           .           .           .           .
1855          .           .           .           .      CP-W16............
              .           .           .           .           V
              .           .           .           .           V
1857          .           .           .           .       RW16N
              .           .           .           .           .
              .           .           .           .           .
1862          .           .           .           .           .         W17
              .           .           .           .           .           .
              .           .           .           .           .           .
1875          .           .           .           .           .           .-------> RETDIV
1873          .           .           .           .           .      RETAIN
              .           .           .           .           .           .
              .           .           .           .           .           .
1880          .           .           .           .           .           .           .<-------   DDW18
1878          .           .           .           .           .           .        DW18
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
1881          .           .           .           .           .           .       RW18S
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
1886          .           .           .           .      CP-W17........................
              .           .           .           .           .
              .           .           .           .           .
1890          .           .           .           .           .-------> DDW17O
```

```
1888          .           .           .           .       *DW17
              .           .           .           .           V
              .           .           .           .           V
1893          .           .           .           .       RW17
              .           .           .           .           .
              .           .           .           .           .
1898          .           .           .           .           .         C14
              .           .           .           .           .           .
              .           .           .           .           .           .
1911          .           .           .           .           .           .-------> RETDIV
1909          .           .           .           .           .      RETAIN
              .           .           .           .           .           .
              .           .           .           .           .           .
1916          .           .           .           .           .           .           .<-------   DDC12
1914          .           .           .           .           .           .        DC12
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
1917          .           .           .           .           .           .       RC12W
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
1922          .           .      CP-C14.............................................
              .           .           .
              .           .           .
1926          .           .           .-------> DDC14O
1924          .           .       *DC14
              .           .           V
              .           .           V
1929          .           .       RC14N
              .           .           .
              .           .           .
1934          .           .           .         C15
              .           .           .           .
              .           .           .           .
1947          .           .           .           .-------> RETDIV
1945          .           .           .      RETAIN
              .           .           .           .
              .           .           .           .
1950          .           .      CP-C15............
              .           .           .
              .           .           .
1954          .           .           .-------> DDC15O
1952          .           .       *DC15
              .           .           V
              .           .           V
1957          .           .       RC15N
              .           .           .
              .           .           .
1964          .           .           .           .<-------   DDC11
1962          .           .           .        DC11
              .           .           .           V
              .           .           .           V
1965          .           .           .      RC11N
              .           .           .           .
              .           .           .           .
1970          .           .           .           .         C13
              .           .           .           .           .
              .           .           .           .           .
1983          .           .           .           .           .-------> RETDIV
1981          .           .           .           .      RETAIN
              .           .           .           .           .
              .           .           .           .           .
1986          .           .           .           .           .          N5
              .           .           .           .           .           .
              .           .           .           .           .           .
1999          .           .           .           .           .           .-------> RETDIV
1997          .           .           .           .           .      RETAIN
              .           .           .           .           .           .
              .           .           .           .           .           .
2004          .           .           .           .           .           .           .<-------   DDC10
2002          .           .           .           .           .           .        DC10
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
2005          .           .           .           .           .           .       RC10W
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
2010          .           .           .      CP-N5...................................
              .           .           .           V
              .           .           .           V
2012          .           .           .        RN5W
              .           .           .           .
              .           .           .           .
2017          .           .           .           .         N6
              .           .           .           .           .
              .           .           .           .           .
2030          .           .           .           .           .-------> RETDIV
2028          .           .           .           .      RETAIN
              .           .           .           .           .
              .           .           .           .           .
2033          .       CP-N6...................................
              .           .
              .           .
2037          .           .-------> CP-N6A
2035          .      DIVSAN
              .           .
              .           .
```

```
2040          .          .      SUB322
              .          .           .
              .          .           .
2056          .          .           .-------> RETDIV
2053          .          .      RET322
              .          .           V
              .          .           V
2059          .          .       RO327
              .          .           .
              .          .           .
2064          .          .           .      SUB328
              .          .           .           .
              .          .           .           .
2078          .          .           .           .-------> RETDIV
2076          .          .           .      RET328
              .          .           .           V
              .          .           .           V
2081          .          .           .       RO329
              .          .           .           .
              .          .           .           .
2086          .          .      EMFQCN............
              .          .           V
              .          .           V
2090          .          .       RO333
              .          .           .
              .          .           .
2095          .          .           .      SUB330
              .          .           .           .
              .          .           .           .
2113          .          .           .           .-------> RETDIV
2107          .          .           .      RET330
              .          .           .           .
              .          .           .           .
2116          .          .      EMFQCS............
              .          .           V
              .          .           V
2119          .          .       RO335
              .          .           .
              .          .           .
2124          .          .           .       HY337
              .          .           .           V
              .          .           .           V
2134          .          .           .       RO339
              .          .           .           .
              .          .           .           .
2137          .          .           .           .      SUB338
              .          .           .           .           .
              .          .           .           .           .
2149          .          .           .      CO340............
              .          .           .           V
              .          .           .           V
2153          .          .           .       RO341
              .          .           .           .
              .          .           .           .
2156          .          .           .           .      SUB342
              .          .           .           .           .
              .          .           .           .           .
2168          .          .           .      CO344............
              .          .           .           V
              .          .           .           V
2171          .          .           .       RO345
              .          .           .           .
              .          .           .           .
2174          .          .           .           .      SUB346
              .          .           .           .           .
              .          .           .           .           .
2199          .          .           .      CO348............
              .          .           .           V
              .          .           .           V
2202          .          .           .       RO349
              .          .           .           .
              .          .           .           .
2207          .          .           .           .           .<-------  DDRRW3
2205          .          .           .           .      RDDRR3
              .          .           .           .           V
              .          .           .           .           V
2208          .          .           .           .      RO363C
              .          .           .           .           .
              .          .           .           .           .
2211          .          .           .           .           .        364A
              .          .           .           .           .           .
              .          .           .           .           .           .
2233          .          .           .           .      CO364A............
              .          .           .           .           V
              .          .           .           .           V
2236          .          .           .           .       RO367
              .          .           .           .           .
              .          .           .           .           .
2239          .          .           .           .           .      SUB368
              .          .           .           .           .           .
              .          .           .           .           .           .
2267          .          .           .           .       CO370............
              .          .           .           .           V
              .          .           .           .           V
2270          .          .           .           .       RO371
```

```
                .         .         .         .         .
                .         .         .         .         .
2273            .         .         .         .         .     SUB372
                .         .         .         .         .         .
                .         .         .         .         .         .
2300            .         .         .         .     CO374............
                .         .         .         .         V
                .         .         .         .         V
2303            .         .         .         .     RO375
                .         .         .         .         .
                .         .         .         .         .
2306            .         .         .     CO376............
                .         .         .         .
                .         .         .         .
2309            .         .         .         .     SUB378
                .         .         .         .         .
                .         .         .         .         .
2331            .         .         .     CO380............
                .         .         .         V
                .         .         .         V
2335            .         .         .     RO381
                .         .         .         .
                .         .         .         .
2342            .         .         .         .         .<-------   DDE4O
2340            .         .         .         .     DDE4O
                .         .         .         .         V
                .         .         .         .         V
2343            .         .         .         .     RDDE4O
                .         .         .         .         .
                .         .         .         .         .
2346            .         .         .   CO380W............
                .         .         .         V
                .         .         .         V
2349            .         .         .    R380W
                .         .         .         .
                .         .         .         .
2352            .         .         .         .     SUB304
                .         .         .         .         .
                .         .         .         .         .
2366            .         .         .         .         .------->  RETDIV
2364            .         .         .         .     RETAIN
                .         .         .         .         .
                .         .         .         .         .
2369            .         .         .     CO305............
                .         .         .         V
                .         .         .         V
2373            .         .         .     RO383
                .         .         .         .
                .         .         .         .
2377            .         .         .         .     SUB272
                .         .         .         .         V
                .         .         .         .         V
2395            .         .         .         .     RO273
                .         .         .         .         .
                .         .         .         .         .
2398            .         .         .         .         .     SUB274
                .         .         .         .         .         V
                .         .         .         .         .         V
2418            .         .         .         .         .     RO275
                .         .         .         .         .         .
                .         .         .         .         .         .
2421            .         .         .         .     CO276............
                .         .         .         .         .
                .         .         .         .         .
2424            .         .         .         .         .     SUB278
                .         .         .         .         .         .
                .         .         .         .         .         .
2439            .         .         .         .         .         .------->  RETDIV
2437            .         .         .         .         .     RETAIN
                .         .         .         .         .         .
                .         .         .         .         .         .
2442            .         .         .         .     CO280............
                .         .         .         .         V
                .         .         .         .         V
2445            .         .         .         .     R280
                .         .         .         .         .
                .         .         .         .         .
2448            .         .         .         .         .     SUB306
                .         .         .         .         .         .
                .         .         .         .         .         .
2462            .         .         .         .         .         .------->  RETDIV
2460            .         .         .         .         .     RETAIN
                .         .         .         .         .         .
                .         .         .         .         .         .
2465            .         .         .         .     CO307A............
                .         .         .         .         .
                .         .         .         .         .
2469            .         .         .         .         .       306S
                .         .         .         .         .         .
                .         .         .         .         .         .
2483            .         .         .         .         .         .------->  RETDIV
2481            .         .         .         .         .     RETAIN
                .         .         .         .         .         .
                .         .         .         .         .         .
2486            .         .         .     CO307........................
```

```
                 .         .         .         V
                 .         .         .         V
2491             .         .         .      RO385
                 .         .         .         .
                 .         .         .         .
2495             .         .         .         .        310S
                 .         .         .         .          .
                 .         .         .         .          .
2508             .         .         .         .          .-------> RETDIV
2506             .         .         .         .     RETAIN
                 .         .         .         .          .
                 .         .         .         .          .
2513             .         .         .         .          .          .<-------   DDN1O
2511             .         .         .         .          .      DDN1O
                 .         .         .         .          .          V
                 .         .         .         .          .          V
2514             .         .         .         .          .     RDDN1O
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2518             .         .         .         .          .          .      SUB310
                 .         .         .         .          .          .          .
                 .         .         .         .          .          .          .
2533             .         .         .         .          .          .          .-------> RETDIV
2531             .         .         .         .          .          .      RETAIN
                 .         .         .         .          .          .          .
                 .         .         .         .          .          .          .
2536             .         .         .      CO311.....................................
                 .         .         .         V
                 .         .         .         V
2540             .         .         .      RO387
                 .         .         .         .
                 .         .         .         .
2544             .         .         .         .     SUB314
                 .         .         .         .          .
                 .         .         .         .          .
2560             .         .         .         .          .-------> RETDIV
2558             .         .         .         .     RETAIN
                 .         .         .         .          .
                 .         .         .         .          .
2563             .         .         .      CO313............
                 .         .         .         V
                 .         .         .         V
2567             .         .         .      RO389
                 .         .         .         .
                 .         .         .         .
2571             .         .         .         .     SUB318
                 .         .         .         .          .
                 .         .         .         .          .
2586             .         .         .         .          .-------> RETDIV
2584             .         .         .         .     RETAIN
                 .         .         .         .          .
                 .         .         .         .          .
2589             .         .         .      CO319............
                 .         .         .         V
                 .         .         .         V
2593             .         .         .      RO391
                 .         .         .         V
                 .         .         .         V
2597             .         .         .      RO393
                 .         .         .         .
                 .         .         .         .
2602             .         .         .         .     SUB474
                 .         .         .         .          .
                 .         .         .         .          .
2617             .         .         .         .          .-------> RETDIV
2615             .         .         .         .     RETAIN
                 .         .         .         .          V
                 .         .         .         .          V
2620             .         .         .         .      RO477
                 .         .         .         .          .
                 .         .         .         .          .
2623             .         .         .         .          .     SUB478
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2637             .         .         .         .          .          .-------> RETDIV
2635             .         .         .         .          .     RETAIN
                 .         .         .         .          .          V
                 .         .         .         .          .          V
2640             .         .         .         .          .      RO479
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2643             .         .         .         .     CO480............
                 .         .         .         .          V
                 .         .         .         .          V
2646             .         .         .         .     RO481
                 .         .         .         .          .
                 .         .         .         .          .
2649             .         .         .         .          .     SUB482
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2664             .         .         .         .          .          .-------> RETDIV
2662             .         .         .         .          .     RETAIN
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2667             .         .         .      CO484........................
```

```
                 .         .         .         V
                 .         .         .         V
2670             .         .         .     RO487
                 .         .         .         .
                 .         .         .         .
2679             .         .         .         .          .<-------  CP-N6A
2675             .         .         .         .     CP-N6A
                 .         .         .         .          .
                 .         .         .         .          .
2680             .         .         .         .          .     482S
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2693             .         .         .         .          .          .-------> RETDIV
2691             .         .         .         .          .     RETAIN
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2699             .         .         .         .          .          .          .<-------  DDC15O
2696             .         .         .         .          .          .     DDC15O
                 .         .         .         .          .          .          .
                 .         .         .         .          .          .          .
2700             .         .         .     CO508 ..................................
                 .         .         .         V
                 .         .         .         V
2703             .         .         .     RO509
                 .         .         .         .
                 .         .         .         .
2708             .         .         .         .     506N
                 .         .         .         .          V
                 .         .         .         .          V
2718             .         .         .         .      RO507
                 .         .         .         .          .
                 .         .         .         .          .
2721             .         .         .         .          .     506S
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2732             .         .         .      CO510........................
                 .         .         .         .
                 .         .         .         .
2738             .         .     EMFCHN............
                 .         .         .
                 .         .         .
2743             .         .         .     SUB556
                 .         .         .         .
                 .         .         .         .
2758             .         .         .         .-------> RETDIV
2756             .         .         .     RETAIN
                 .         .         .         .
                 .         .         .         .
2763             .         .         .         .          .<-------  DDC14O
2761             .         .         .         .     DDC14O
                 .         .         .         .          V
                 .         .         .         .          V
2764             .         .         .         .     RDDC14
                 .         .         .         .          .
                 .         .         .         .          .
2769             .         .         .         .          .          .<-------  DDW17O
2767             .         .         .         .          .     DDW17O
                 .         .         .         .          .          V
                 .         .         .         .          .          V
2770             .         .         .         .          .     RDDW17
                 .         .         .         .          .          .
                 .         .         .         .          .          .
2774             .         .         .         .          .          .         574
                 .         .         .         .          .          .          .
                 .         .         .         .          .          .          .
2787             .         .         .         .          .          .          .-------> RETDIV
2785             .         .         .         .          .          .     RETAIN
                 .         .         .         .          .          .          .
                 .         .         .         .          .          .          .
2790             .         .         .         .          .          .          .     SUBW15
                 .         .         .         .          .          .          .          .
                 .         .         .         .          .          .          .          .
2803             .         .         .         .          .          .          .          .-------> RETDIV
2801             .         .         .         .          .          .          .     RETAIN
                 .         .         .         .          .          .          .          V
                 .         .         .         .          .          .          .          V
2806             .         .         .         .          .          .          .      RO569
                 .         .         .         .          .          .          .          .
                 .         .         .         .          .          .          .          .
2809             .         .         .      CO558.............................................
                 .         .         .         .
                 .         .         .         .
2814             .         .     EMFCHS............
                 .         .         V
                 .         .         V
2819             .         .      RO567
                 .         .         .
                 .         .         .
2823             .         .         .     SUBW14
                 .         .         .         .
                 .         .         .         .
2836             .         .         .         .-------> RETDIV
2834             .         .         .     RETAIN
                 .         .         .         .
                 .         .         .         .
```

```
2839          .           .           .           .      SUBW13
              .           .           .           .           .
              .           .           .           .           .
2853          .           .           .           .           .-------> RETDIV
2851          .           .           .           .      RETAIN
              .           .           .           .           .
              .           .           .           .           .
2856          .           .           .      C0570 ............
              .           .           .           V
              .           .           .           V
2860          .           .           .       RO571
              .           .           .           .
              .           .           .           .
2864          .           .           .           .         580
              .           .           .           .           .
              .           .           .           .           .
2878          .           .           .           .           .-------> RETDIV
2876          .           .           .           .      RETAIN
              .           .           .           .           .
              .           .           .           .           .
2881          .           .           .       CO580............
              .           .           .           .
              .           .           .           .
2886          .           .      EMFNRG............
              .           .           V
              .           .           V
2890          .           .       RO583
              .           .           .
              .           .           .
2894          .           .           .         584
              .           .           .           .
              .           .           .           .
2910          .           .           .           .-------> RETDIV
2907          .           .           .      RET584
              .           .           .           .
              .           .           .           .
2913          .           .      EMFHNT............
              .           .           .
              .           .           .
2919          .           .           .           .<-------  DDS14O
2917          .           .           .      DDS14O
              .           .           .           V
              .           .           .           V
2920          .           .           .      RO549
              .           .           .           V
              .           .           .           V
2923          .           .           .      RO589
              .           .           .           .
              .           .           .           .
2926          .           .           .           .      SUBS16
              .           .           .           .           .
              .           .           .           .           .
2944          .           .           .       CO592............
              .           .           .           V
              .           .           .           V
2947          .           .           .       RO593
              .           .           .           .
              .           .           .           .
2950          .           .           .           .      SUBS17
              .           .           .           .           .
              .           .           .           .           .
2964          .           .           .       CO596............
              .           .           .           V
              .           .           .           V
2967          .           .           .       RO597
              .           .           .           .
              .           .           .           .
2970          .           .           .           .      SUB598
              .           .           .           .           .
              .           .           .           .           .
2983          .           .           .       CO600............
              .           .           .           V
              .           .           .           V
2986          .           .           .       RO601
              .           .           .           .
              .           .           .           .
2989          .           .           .           .      SUB602
              .           .           .           .           .
              .           .           .           .           .
3002          .           .           .       CO604............
              .           .           .           V
              .           .           .           V
3005          .           .           .       RO605
              .           .           .           .
              .           .           .           .
3008          .           .           .           .      SUB606
              .           .           .           .           .
              .           .           .           .           .
3022          .           .           .       CO608............
              .           .           .           V
              .           .           .           V
3025          .           .           .       RO609
              .           .           .           .
              .           .           .           .
3028          .           .           .           .      SUB610
```

```
                .          .          .          .          .
                .          .          .          .          .
 3042           .          .          .       CO612.........
                .          .          .          .
                .          .          .          .
 3048           .          .       EMFHTS.........

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUL   1997              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   30JUL01  TIME  16:40:23  *
 *                                      *
 ****************************************
```

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

```
*******************************************************************************
 FILENAME: QCSWBLT.DAT

 THIS MODEL IS OF THE QUEEN CREEK AND SANOKAI WASH WATERSHEDS IN THE FUTURE
 LANDUSE CONDITION.
 THERE IS NO CIP IN PLACE BECAUSE AT THIS TIME (2/29/2000) WE DO NOT HAVE ANY
 WE EXPECT THE CIP TO BE PRIMARILY CHANNEL EXCAVATION

*******************************************************************************
  ***********************************************************************
       PROJECT:  Queen Creek/Sanokai Wash Hydraulic Master Plan &
                 East Maricopa Floodway Capacity Mitigation Study
  PREPARED FOR:  Flood Control District of Maricopa County
   PREPARED BY:  Huitt-Zollars, Inc
      FILENAME:  F-QCSW.DAT
          DATE:  OCT 1999

  This model is for the 100-year, 24 hr future conditions event
  for the watershed areas tributary to Queen Creek and Sanokai
  Wash and for the watershed areas tributary to the East
  Maricopa Floodway south of Rittenhouse Rd. and approximately
  north of Hunt Hwy (County Line).

  This model was constructed from previous study models and updated
  for new future hydrologic conditions as part of the Queen Creek/
  Sanokai Wash HMP & EMF Capacity Mitigation Study.  Previous
  studies include the Queen Creek ADMS and the Sanokai Wash FIS.

  For this future conditions hydrology, future land-uses for sub-
  basins were estimated from Maricopa County, Pinal County and
  local municipality General Plans.

  For sub-basins located within Maricopa County, the 100-yr, 2-hr
  retention volume was estimated for each sub-basin under future
  land-use conditions.  The "ultimate" retention volume for a sub-
  basin was determined by running the future conditions model for
  the 100-yr 2-hr rainfall and obtaining the total volume of runoff
  for each sub-basin.  The "ultimate" retention volume was then
  reduced by estimates of the percent of "effective".  The effective
  retention was used as the estimate of the sub-basin retention and
  diverted from the sub-basin hydrographs.  For details on how the
  determination of the effective retention for Maricopa County sub-
  basins refer to the QC/SW HMP report.

  For sub-basins located in Pinal County, a different method was
  used to simulate Pinal County's pre vs. post development drainage
  criteria.  Pinal County requires that post-development flows
  should not exceed pre-development flows for any new development.
  To simulate this requirement, the existing land use (along with
  the existing land-use sub-basin parameters) was used for all
  sub-basins located in Pinal County to model the future development
  conditions.

  This model is one of four supporting hydrologic models used to
  evaluate flow in the East Maricopa Floodway (EMF).  Each model
  evaluates the hydrology for a specific area that is ultimately
  tributary to the EMF. The four supporting models are:

     *  F-NWMESA.DAT - Future conditions hydrology for NE Mesa
                       (~east of the EMF to the CAP(at Hawes Rd.)
                       & ~south of McKellips Rd. to US60)

     *  F-NEMESA.DAT - Future conditions hydrology for NW Mesa
                       (~area northeast of Hawes Rd./US60)

     *  F-SEMESA.DAT - Future conditions hydrology for SE Mesa
                       (~area east of the EMF from US60 south to
                        Rittenhouse Rd. {excluding areas
                        tributary to Queen Creek})
                        F-SEMESA.DAT imports hydrographs from
                        F-NEMESA.DAT via DSS files.  Therefore,
```

F-NEMESA.DAT must be run first and then when running F-SEMESA.DAT, F-NEMESA.DSS must be specified as the DSS file (the default would be F-SEMESA.DSS)

* F-QCSW.DAT - Future conditions hydrology for Queen Creek/Sanokai Wash area (all areas tributary to Queen Creek & Sanokai Wash and areas tributary to the EMF south of Rittenhouse Rd.)

IT IS IMPORTANT TO NOTE THAT THE SUPPORTING MODELS DO NOT CORRECTLY ROUTE FLOWS ALONG THE EMF NOR DO THEY IMPORT ALL THE NECESSARY FLOWS TO CORRECTLY EVALUATE FLOWS WITHIN THE EMF. TO EVALUATE FLOWS WITHIN THE EMF, ALL THE SUPPORTING MODELS SHOULD BE RUN (TO DEVELOP THE TAPE21 FILE) AND THEN THE EMF ROUTING MODEL (F-EMF-RT.DAT). ONLY THE EMF ROUTING MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.

The model F-EMF-RT.Dat is the "routing" model used to evaluate flows in the EMF for the future conditions. The model imports hydrographs via TAPE21 files from the supporting hydrologic models and then routes them along the EMF from approximately Brown Rd. and south to Hunt Hwy (the County Line).

```
100 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        1500  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      6APR97  ENDING DATE
                     NDTIME        0455  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  124.92 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

102 JD          INDEX STORM NO. 1
                       STRM        3.60  PRECIPITATION DEPTH
                       TRDA         .01  TRANSPOSITION DRAINAGE AREA
```

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	S9	2359.	12.58	475.	144.	48.	3.40		
+	DIVERSION TO	DDS9	472.	12.58	95.	29.	10.	3.40		
+	HYDROGRAPH AT	*DS9	1887.	12.58	380.	115.	38.	3.40		
+	HYDROGRAPH AT	S10	883.	12.25	98.	30.	10.	.71		
+	2 COMBINED AT	CP-S10	2171.	12.58	473.	143.	48.	4.11		
+	ROUTED TO	RS10	2045.	12.75	472.	143.	48.	4.11		
+	HYDROGRAPH AT	E8	215.	12.75	44.	11.	4.	.39		
+	HYDROGRAPH AT	DS9	472.	12.58	95.	29.	10.	3.40		
+	ROUTED TO	RS9E	392.	13.25	95.	29.	10.	3.40		
+	ROUTED TO	RS9C	375.	13.50	95.	29.	10.	3.40		
+	2 COMBINED AT	*CP-E8	487.	13.42	141.	40.	14.	.39		
+	2 COMBINED AT	CP-E8	2264.	12.75	605.	182.	61.	4.50		
+	DIVERSION TO	DDE8	505.	12.75	110.	28.	9.	4.50		
+	HYDROGRAPH AT	*DE8	1759.	12.75	495.	154.	52.	4.50		
+	ROUTED TO	RE8	1629.	13.17	494.	154.	52.	4.50		
+	HYDROGRAPH AT	C1	426.	12.08	36.	10.	3.	.35		
+	DIVERSION TO	RETDIV	426.	12.08	36.	9.	3.	.35		
+	HYDROGRAPH AT	RETAIN	7.	13.00	1.	0.	0.	.35		
+	HYDROGRAPH AT	S11	1102.	12.33	164.	51.	17.	.99		
+	ROUTED TO	RS11	830.	12.92	164.	51.	17.	.99		
+	HYDROGRAPH AT	S12	611.	12.17	62.	19.	6.	.41		
+	ROUTED TO	RS12	280.	13.42	61.	19.	6.	.41		
+	4 COMBINED AT	CP-C1	2373.	13.17	700.	218.	73.	6.26		
+	ROUTED TO	RC1N	2234.	13.58	699.	218.	73.	6.26		
+	HYDROGRAPH AT	S1	2163.	12.25	202.	58.	19.	1.76		
+	ROUTED TO	RS1	391.	21.92	194.	57.	19.	1.76		
+	HYDROGRAPH AT	S2	2081.	12.67	320.	85.	28.	3.07		
+	ROUTED TO	RS2	841.	17.67	320.	85.	28.	3.07		
+	HYDROGRAPH AT	S3B	2888.	12.17	331.	108.	36.	1.73		

	ROUTED TO							
+		RS3B	1021.	14.83	326.	107.	36.	1.73
	HYDROGRAPH AT							
+		S3A	595.	13.00	160.	41.	14.	1.70
	2 COMBINED AT							
+		CP-S3A	1124.	14.83	454.	146.	49.	3.43
	ROUTED TO							
+		RS3A	784.	18.50	416.	144.	49.	3.43
	HYDROGRAPH AT							
+		E1	5901.	12.67	955.	239.	80.	7.91
	HYDROGRAPH AT							
+		SUB354	434.	13.75	203.	52.	17.	1.50
	ROUTED TO							
+		RO355	313.	22.50	193.	52.	17.	1.50
	HYDROGRAPH AT							
+		SUB356	608.	15.08	432.	130.	43.	4.24
	2 COMBINED AT							
+		CO358	600.	15.08	427.	179.	60.	5.74
	ROUTED TO							
+		RO359	570.	18.17	418.	179.	60.	5.74
	HYDROGRAPH AT							
+		SUB360	980.	14.50	571.	156.	52.	4.79
	2 COMBINED AT							
+		CO362	960.	14.58	783.	320.	107.	10.53
	DIVERSION TO							
+		DDRRW1	654.	14.58	511.	191.	64.	10.53
	HYDROGRAPH AT							
+		*RRW1	306.	14.58	272.	129.	43.	10.53
	ROUTED TO							
+		RRW1	301.	15.67	270.	129.	43.	10.53
	5 COMBINED AT							
+		CP-E1	5901.	12.67	1351.	635.	215.	26.70
	ROUTED TO							
+		RE1	3158.	14.83	1095.	592.	201.	26.70
	HYDROGRAPH AT							
+		S4B	1128.	12.42	171.	51.	17.	1.28
	ROUTED TO							
+		RS4B	665.	13.75	170.	51.	17.	1.28
	HYDROGRAPH AT							
+		S4A	1517.	12.42	160.	43.	14.	1.60
	2 COMBINED AT							
+		CP-S4A	1510.	12.42	318.	92.	31.	2.88
	ROUTED TO							
+		RS4A	696.	14.17	306.	91.	31.	2.88
	HYDROGRAPH AT							
+		S5	524.	12.17	48.	14.	5.	.34
	ROUTED TO							
+		RS5	193.	14.08	47.	14.	5.	.34
	HYDROGRAPH AT							
+		*DDRW1	654.	14.58	511.	191.	64.	10.53
	ROUTED TO							
+		RO363A	621.	16.00	505.	191.	64.	10.53
	HYDROGRAPH AT							
+		364C	342.	13.50	126.	32.	11.	1.27
	2 COMBINED AT							
+		CO364C	730.	15.83	588.	243.	81.	1.27
	DIVERSION TO							
+		DDRRW2	607.	15.83	477.	185.	62.	1.27
	HYDROGRAPH AT							
+		*RRW2	123.	15.83	111.	58.	19.	1.27
	ROUTED TO							
+		RRW2	119.	21.00	110.	57.	19.	1.27
	HYDROGRAPH AT							

+	*DDRW2	607.	15.83	477.	185.	62.	1.27
+ ROUTED TO	RO363B	587.	17.50	474.	185.	62.	1.27
+ HYDROGRAPH AT	364B	566.	13.33	218.	55.	18.	2.21
+ 2 COMBINED AT	CO364B	602.	14.08	532.	237.	79.	2.21
+ DIVERSION TO	DDRRW3	253.	14.08	213.	84.	28.	2.21
+ HYDROGRAPH AT	*RRW3	349.	14.08	319.	153.	51.	2.21
+ ROUTED TO	RRW3	340.	18.92	317.	153.	51.	2.21
+ 5 COMBINED AT	CP-D5	3840.	14.83	1629.	852.	290.	33.40
+ ROUTED TO	RD5	3158.	16.42	1565.	851.	290.	33.40
+ HYDROGRAPH AT	S6	647.	12.42	91.	24.	8.	.82
+ ROUTED TO	RS6	274.	15.50	89.	24.	8.	.82
+ HYDROGRAPH AT	S7B	1324.	12.17	115.	35.	12.	.77
+ ROUTED TO	RS7B	534.	13.33	115.	35.	12.	.77
+ HYDROGRAPH AT	S7A	1098.	12.42	110.	27.	9.	1.19
+ 2 COMBINED AT	CP-S7A	1098.	12.42	220.	61.	21.	1.96
+ ROUTED TO	RS7A	509.	14.33	212.	61.	21.	1.96
+ 3 COMBINED AT	CP-D6	3493.	16.42	1695.	913.	311.	36.18
+ ROUTED TO	RD6	3254.	17.25	1675.	912.	311.	36.18
+ HYDROGRAPH AT	E5	541.	12.42	61.	15.	5.	.57
+ ROUTED TO	RE5	423.	12.83	61.	15.	5.	.57
+ HYDROGRAPH AT	E2	4609.	12.67	734.	189.	63.	7.33
+ HYDROGRAPH AT	S8B	2342.	12.25	280.	89.	30.	1.70
+ ROUTED TO	RS8B	1130.	13.75	277.	88.	30.	1.70
+ HYDROGRAPH AT	S8A	1132.	12.58	147.	37.	12.	1.74
+ 2 COMBINED AT	CP-S8A	1192.	13.67	411.	123.	41.	3.44
+ ROUTED TO	RS8A	887.	15.58	396.	122.	41.	3.44
+ 4 COMBINED AT	CP-E2	4609.	12.67	2041.	1232.	425.	47.51
+ ROUTED TO	RE2	3313.	18.25	1832.	1145.	397.	47.51
+ HYDROGRAPH AT	E6	700.	12.42	131.	35.	12.	1.17
+ DIVERSION TO	RETDIV	700.	12.42	120.	31.	10.	1.17
+ HYDROGRAPH AT	RETAIN	100.	13.67	14.	4.	1.	1.17
+ HYDROGRAPH AT	E11	140.	13.08	42.	11.	4.	.34

+	DIVERSION TO HYDROGRAPH AT	DDE11	131.	13.08	39.	10.	3.	.34
+	ROUTED TO HYDROGRAPH AT	*DE11	9.	13.08	3.	1.	0.	.34
+	DIVERSION TO HYDROGRAPH AT	RE11N	8.	15.17	3.	1.	0.	.34
+	3 COMBINED AT	E3	342.	12.33	67.	21.	7.	.43
+	DIVERSION TO HYDROGRAPH AT	RETDIV	342.	12.33	60.	16.	5.	.43
+	HYDROGRAPH AT	RETAIN	72.	13.42	14.	4.	1.	.43
+	ROUTED TO HYDROGRAPH AT	DE11	131.	13.08	39.	10.	3.	.34
+	3 COMBINED AT	RE11S	87.	16.75	38.	10.	3.	.34
+	DIVERSION TO HYDROGRAPH AT	CP-E3	98.	16.75	48.	15.	5.	.77
+	ROUTED TO HYDROGRAPH AT	DDE3	16.	16.75	9.	3.	1.	.77
+	3 COMBINED AT	*DE3	82.	16.75	39.	12.	4.	.77
+	DIVERSION TO HYDROGRAPH AT	RE3W	66.	18.75	37.	12.	4.	.77
+	HYDROGRAPH AT	CP-E6	3314.	18.33	1851.	1149.	398.	49.45
+	ROUTED TO HYDROGRAPH AT	DDE6	1208.	18.33	672.	414.	143.	49.45
+	3 COMBINED AT	*DE6	2106.	18.33	1179.	734.	255.	49.45
+	DIVERSION TO HYDROGRAPH AT	RE6S	1990.	19.42	1176.	732.	255.	49.45
+	HYDROGRAPH AT	E9	515.	12.42	108.	31.	10.	.95
+	DIVERSION TO HYDROGRAPH AT	RETDIV	515.	12.42	100.	26.	9.	.95
+	HYDROGRAPH AT	RETAIN	79.	13.92	15.	5.	2.	.95
+	ROUTED TO HYDROGRAPH AT	DE8	505.	12.75	110.	28.	9.	4.50
+	3 COMBINED AT	RE8E	422.	13.83	110.	28.	9.	4.50
+	DIVERSION TO HYDROGRAPH AT	CP-E9	1990.	19.42	1176.	750.	262.	50.40
+	HYDROGRAPH AT	DDE9	286.	19.42	169.	117.	43.	50.40
+	ROUTED TO HYDROGRAPH AT	*DE9	1700.	19.42	1004.	631.	219.	50.40
+	HYDROGRAPH AT	RE9W	1699.	19.50	1004.	631.	219.	50.40
+	DIVERSION TO HYDROGRAPH AT	C4	191.	12.33	33.	9.	3.	.31
+	HYDROGRAPH AT	RETDIV	191.	12.33	33.	9.	3.	.31
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.31
+	DIVERSION TO HYDROGRAPH AT	C2	193.	12.33	34.	9.	3.	.32
+	HYDROGRAPH AT	RETDIV	193.	12.33	28.	7.	2.	.32
+	HYDROGRAPH AT	RETAIN	55.	13.25	7.	2.	1.	.32
+		C3	115.	12.17	13.	3.	1.	.11

+	DIVERSION TO HYDROGRAPH AT	RETDIV	115.	12.17	12.	3.	1.	.11
+	DIVERSION TO HYDROGRAPH AT	RETAIN	15.	12.92	1.	0.	0.	.11
+	DIVERSION TO HYDROGRAPH AT	DDC3	8.	12.92	1.	0.	0.	.11
+	ROUTED TO	*DC3	8.	12.92	1.	0.	0.	.11
+	3 COMBINED AT	RC3SW	3.	13.75	1.	0.	0.	.11
+	3 COMBINED AT	*CP-C2	55.	13.25	7.	2.	1.	.75
+	DIVERSION TO HYDROGRAPH AT	CP-C2	2228.	14.92	1305.	822.	292.	57.41
+	ROUTED TO	DDC2	294.	15.00	64.	19.	6.	57.41
+	HYDROGRAPH AT	*DC2	1836.	15.00	1165.	767.	273.	57.41
+	HYDROGRAPH AT	RC2	1792.	15.17	1162.	767.	273.	57.41
+	DIVERSION TO HYDROGRAPH AT	C16	28.	12.17	3.	1.	0.	.03
+	HYDROGRAPH AT	RETDIV	28.	12.17	3.	1.	0.	.03
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.03
+	3 COMBINED AT	LF	245.	12.08	22.	5.	2.	.19
+	ROUTED TO	CP-C16	1792.	15.17	1162.	770.	275.	57.63
+	HYDROGRAPH AT	RC16	1752.	15.50	1159.	768.	275.	57.63
+	ROUTED TO	DE3	16.	16.75	9.	3.	1.	.77
+	HYDROGRAPH AT	RE3	12.	21.25	9.	3.	1.	.77
+	DIVERSION TO HYDROGRAPH AT	E4	220.	12.42	53.	16.	5.	.37
+	HYDROGRAPH AT	RETDIV	220.	12.42	45.	12.	4.	.37
+	2 COMBINED AT	RETAIN	61.	13.67	12.	4.	1.	.37
+	DIVERSION TO HYDROGRAPH AT	CP-E4	61.	13.67	13.	6.	2.	.37
+	ROUTED TO	DDE4O	23.	13.67	5.	2.	1.	.37
+	HYDROGRAPH AT	*DE4	37.	13.67	8.	4.	1.	.37
+	HYDROGRAPH AT	RE4	15.	19.08	8.	4.	1.	.37
+	DIVERSION TO HYDROGRAPH AT	E7	236.	12.33	45.	13.	4.	.36
+	HYDROGRAPH AT	RETDIV	236.	12.33	35.	9.	3.	.36
+	HYDROGRAPH AT	RETAIN	95.	13.08	13.	4.	1.	.36
+	ROUTED TO	DE6	1208.	18.33	672.	414.	143.	49.45
+	3 COMBINED AT	RE6	1176.	18.83	671.	414.	143.	49.45
+	ROUTED TO	CP-E7	1500.	18.50	855.	515.	178.	.73

+		RE7	1396.	20.00	834.	512.	178.	.73
+	HYDROGRAPH AT	E10	419.	12.25	69.	20.	7.	.51
+	DIVERSION TO	RETDIV	419.	12.25	61.	16.	5.	.51
+	HYDROGRAPH AT	RETAIN	90.	13.17	14.	4.	1.	.51
+	HYDROGRAPH AT	DE9	286.	19.42	169.	117.	43.	50.40
+	ROUTED TO	RE9N	280.	19.92	169.	117.	43.	50.40
+	3 COMBINED AT	CP-E10	1721.	19.92	1039.	648.	230.	1.24
+	ROUTED TO	RE10	1612.	21.75	1032.	643.	230.	1.24
+	HYDROGRAPH AT	N2	323.	12.42	64.	17.	6.	.54
+	DIVERSION TO	RETDIV	323.	12.42	63.	16.	5.	.54
+	HYDROGRAPH AT	RETAIN	13.	14.75	3.	1.	0.	.54
+	HYDROGRAPH AT	DC3	8.	12.92	1.	0.	0.	.11
+	ROUTED TO	RC3NW	3.	14.75	1.	0.	0.	.11
+	3 COMBINED AT	CP-N2	1611.	21.75	1033.	643.	230.	1.78
+	DIVERSION TO	DDN2	209.	21.75	194.	178.	74.	1.78
+	HYDROGRAPH AT	*DN2	1386.	21.75	829.	460.	154.	1.78
+	ROUTED TO	RN2S	1372.	22.08	828.	459.	154.	1.78
+	HYDROGRAPH AT	DN2	209.	21.75	194.	178.	74.	1.78
+	ROUTED TO	RN2N	209.	22.58	194.	177.	74.	1.78
+	DIVERSION TO	DDD3	36.	22.58	35.	34.	16.	1.78
+	HYDROGRAPH AT	*DD3	173.	22.58	159.	143.	58.	1.78
+	ROUTED TO	RD3W	172.	25.00	159.	142.	58.	1.78
+	HYDROGRAPH AT	C7	291.	12.42	59.	16.	5.	.47
+	DIVERSION TO	RETDIV	291.	12.42	37.	10.	3.	.47
+	HYDROGRAPH AT	RETAIN	187.	12.83	25.	7.	2.	.47
+	4 COMBINED AT	CP-C7	2013.	22.42	1695.	1189.	443.	61.65
+	ROUTED TO	RC7	2006.	22.67	1694.	1188.	443.	61.65
+	HYDROGRAPH AT	N1	221.	12.42	58.	17.	6.	.39
+	DIVERSION TO	RETDIV	221.	12.42	45.	12.	4.	.39
+	HYDROGRAPH AT	RETAIN	89.	13.42	18.	5.	2.	.39
+	HYDROGRAPH AT	DD3	36.	22.58	35.	34.	16.	1.78
+	ROUTED TO	RD3N	36.	25.00	35.	34.	16.	1.78

+	2 COMBINED AT	CP-N1	89.	13.42	37.	35.	17.	.39
+	DIVERSION TO	DDN1O	2.	13.42	1.	1.	0.	.39
+	HYDROGRAPH AT	*DN1	87.	13.42	36.	34.	17.	.39
+	ROUTED TO	RN1	37.	28.00	36.	34.	17.	.39
+	HYDROGRAPH AT	N3	473.	12.33	86.	25.	8.	.65
+	DIVERSION TO	RETDIV	473.	12.33	63.	17.	6.	.65
+	HYDROGRAPH AT	RETAIN	239.	12.92	30.	8.	3.	.65
+	2 COMBINED AT	CP-N3	237.	12.92	41.	34.	20.	1.04
+	DIVERSION TO	DDN3	229.	12.92	39.	33.	19.	1.04
+	HYDROGRAPH AT	*DN3	8.	12.92	1.	1.	1.	1.04
+	ROUTED TO	RN3S	4.	14.33	1.	1.	1.	1.04
+	HYDROGRAPH AT	C7A	103.	12.42	29.	8.	3.	.22
+	DIVERSION TO	RETDIV	103.	12.42	15.	4.	1.	.22
+	HYDROGRAPH AT	RETAIN	75.	13.00	15.	4.	1.	.22
+	3 COMBINED AT	CP-C7A	2006.	22.67	1694.	1190.	444.	62.92
+	ROUTED TO	RC7A	1997.	23.00	1691.	1188.	444.	62.92
+	HYDROGRAPH AT	C8	82.	12.33	17.	4.	1.	.15
+	DIVERSION TO	DDC8	41.	12.33	8.	2.	1.	.15
+	HYDROGRAPH AT	*DC8	41.	12.33	8.	2.	1.	.15
+	ROUTED TO	RC8N	34.	13.08	8.	2.	1.	.15
+	HYDROGRAPH AT	DN3	229.	12.92	39.	33.	19.	1.04
+	ROUTED TO	RN3W	89.	15.00	34.	32.	19.	1.04
+	3 COMBINED AT	CP-D2	2008.	23.00	1701.	1208.	461.	63.07
+	ROUTED TO	RD2	1988.	23.42	1696.	1208.	461.	63.07
+	HYDROGRAPH AT	C10	262.	12.42	62.	17.	6.	.50
+	DIVERSION TO	RETDIV	262.	12.42	23.	6.	2.	.50
+	HYDROGRAPH AT	RETAIN	251.	12.58	42.	11.	4.	.50
+	HYDROGRAPH AT	N4	125.	12.42	34.	10.	3.	.28
+	DIVERSION TO	RETDIV	125.	12.42	26.	7.	2.	.28
+	HYDROGRAPH AT	RETAIN	55.	13.42	11.	3.	1.	.28
+	3 COMBINED AT	CP-C10	1990.	23.42	1697.	1210.	463.	63.85
+	DIVERSION TO	DDC10	1990.	23.42	1697.	1210.	463.	63.85

	HYDROGRAPH AT						
+		*DC10	0.	.00	0.	0.	0.	63.85
	HYDROGRAPH AT						
+		C5	731.	12.17	68.	18.	6.	.65
	DIVERSION TO						
+		RETDIV	731.	12.17	68.	18.	6.	.65
	HYDROGRAPH AT						
+		RETAIN	0.	.00	0.	0.	0.	.65
	HYDROGRAPH AT						
+		DC2	294.	15.00	64.	19.	6.	57.41
	ROUTED TO						
+		RC2S	162.	17.17	61.	19.	6.	57.41
	2 COMBINED AT						
+		CP-C5	388.	16.67	166.	55.	19.	.65
	ROUTED TO						
+		RC5	346.	18.75	155.	55.	19.	.65
	HYDROGRAPH AT						
+		S13	2051.	12.42	271.	81.	27.	2.11
	ROUTED TO						
+		RS13	1308.	13.33	270.	81.	27.	2.11
	HYDROGRAPH AT						
+		W1	231.	12.17	29.	8.	3.	.28
	DIVERSION TO						
+		RETDIV	231.	12.17	29.	8.	3.	.28
	HYDROGRAPH AT						
+		RETAIN	0.	22.83	0.	0.	0.	.28
	2 COMBINED AT						
+		CP-W1	1308.	13.33	270.	81.	27.	2.39
	DIVERSION TO						
+		DDW1	652.	13.33	135.	40.	13.	2.39
	HYDROGRAPH AT						
+		*DW1	652.	13.33	135.	40.	13.	2.39
	ROUTED TO						
+		RW1	484.	14.33	134.	40.	13.	2.39
	HYDROGRAPH AT						
+		S14	1352.	12.42	140.	35.	12.	1.61
	HYDROGRAPH AT						
+		S15	1894.	12.42	336.	108.	36.	1.95
	ROUTED TO						
+		RS15	1220.	13.92	335.	107.	36.	1.95
	2 COMBINED AT						
+		CP-S14	1363.	12.42	463.	140.	47.	3.56
	DIVERSION TO						
+		DDS14O	681.	12.42	232.	70.	24.	3.56
	HYDROGRAPH AT						
+		*DS14A	681.	12.42	232.	70.	24.	3.56
	DIVERSION TO						
+		DDS14B	285.	12.42	49.	12.	4.	3.56
	HYDROGRAPH AT						
+		*DS14B	396.	12.42	182.	58.	19.	3.56
	DIVERSION TO						
+		DDS14C	114.	12.42	20.	5.	2.	3.56
	HYDROGRAPH AT						
+		*DS14C	282.	12.42	163.	53.	18.	3.56
	ROUTED TO						
+		RS14E	240.	17.25	151.	52.	18.	3.56
	HYDROGRAPH AT						
+		W2	186.	12.25	26.	7.	2.	.25
	DIVERSION TO						
+		RETDIV	186.	12.25	26.	7.	2.	.25
	HYDROGRAPH AT						
+		RETAIN	0.	.00	0.	0.	0.	.25
	HYDROGRAPH AT						

+		DW1	652.	13.33	135.	40.	13.	2.39
+	ROUTED TO	RW1W	544.	14.00	135.	40.	13.	2.39
+	3 COMBINED AT	CP-W2	549.	14.00	257.	91.	31.	3.81
+	ROUTED TO	RW2	495.	14.50	253.	91.	31.	3.81
+	HYDROGRAPH AT	W3	48.	12.25	7.	2.	1.	.06
+	DIVERSION TO	RETDIV	48.	12.25	7.	2.	1.	.06
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.06
+	HYDROGRAPH AT	C6	122.	12.50	34.	9.	3.	.30
+	DIVERSION TO	RETDIV	122.	12.50	34.	9.	3.	.30
+	HYDROGRAPH AT	RETAIN	0.	24.25	0.	0.	0.	.30
+	5 COMBINED AT	CP-C6	926.	14.50	447.	170.	58.	7.21
+	DIVERSION TO	DDC6	446.	14.50	63.	16.	5.	7.21
+	HYDROGRAPH AT	*DC6	480.	14.17	384.	154.	53.	7.21
+	ROUTED TO	RC6S	480.	14.58	382.	154.	53.	7.21
+	HYDROGRAPH AT	W5	359.	12.25	53.	14.	5.	.49
+	DIVERSION TO	RETDIV	359.	12.25	40.	10.	3.	.49
+	HYDROGRAPH AT	RETAIN	144.	12.83	14.	4.	1.	.49
+	HYDROGRAPH AT	DS14C	114.	12.42	20.	5.	2.	3.56
+	ROUTED TO	RS14W	61.	16.58	20.	5.	2.	3.56
+	2 COMBINED AT	CP-W5	144.	12.83	36.	9.	3.	.49
+	ROUTED TO	RW5	70.	13.67	36.	9.	3.	.49
+	HYDROGRAPH AT	W6	290.	12.42	59.	15.	5.	.52
+	DIVERSION TO	RETDIV	290.	12.42	59.	15.	5.	.52
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.52
+	HYDROGRAPH AT	W4	307.	12.33	54.	14.	5.	.49
+	DIVERSION TO	RETDIV	307.	12.33	54.	14.	5.	.49
+	HYDROGRAPH AT	RETAIN	0.	22.58	0.	0.	0.	.49
+	HYDROGRAPH AT	DS14B	285.	12.42	49.	12.	4.	3.56
+	ROUTED TO	RS14C	149.	16.33	50.	12.	4.	3.56
+	2 COMBINED AT	CP-W4	161.	16.33	53.	13.	4.	.49
+	ROUTED TO	RW4N	129.	17.75	52.	13.	4.	.49
+	4 COMBINED AT	CP-W6	542.	18.83	441.	170.	58.	8.70

+	ROUTED TO RW6	529.	19.50	441.	170.	58.	8.70
+	HYDROGRAPH AT W7	91.	12.50	26.	7.	2.	.23
+	2 COMBINED AT CP-W7	529.	19.50	443.	176.	60.	8.93
+	ROUTED TO RW7	529.	19.58	443.	176.	60.	8.93
+	HYDROGRAPH AT W8	120.	12.42	29.	8.	3.	.26
+	HYDROGRAPH AT DC6	446.	14.50	63.	16.	5.	7.21
+	ROUTED TO RC6N	192.	17.08	56.	16.	5.	7.21
+	HYDROGRAPH AT DC8	41.	12.33	8.	2.	1.	.15
+	ROUTED TO RC8W	26.	15.08	8.	2.	1.	.15
+	4 COMBINED AT CP-W8	561.	19.50	502.	199.	68.	9.19
+	DIVERSION TO DDW8	561.	19.50	502.	199.	68.	9.19
+	HYDROGRAPH AT *DW8	0.	.00	0.	0.	0.	9.19
+	ROUTED TO RW8N	0.	.00	0.	0.	0.	9.19
+	HYDROGRAPH AT C11	189.	12.33	31.	8.	3.	.27
+	HYDROGRAPH AT C9	121.	12.33	24.	6.	2.	.21
+	ROUTED TO RC9W	71.	15.33	23.	6.	2.	.21
+	3 COMBINED AT CP-C11	189.	12.33	52.	14.	5.	9.66
+	DIVERSION TO DDC11	102.	12.33	28.	8.	3.	9.66
+	HYDROGRAPH AT *DC11	73.	12.33	20.	6.	2.	9.66
+	ROUTED TO RC11S	53.	13.50	19.	6.	2.	9.66
+	HYDROGRAPH AT C12	150.	12.42	30.	8.	3.	.26
+	DIVERSION TO RETDIV	150.	12.42	28.	7.	2.	.26
+	HYDROGRAPH AT RETAIN	22.	13.92	3.	1.	0.	.26
+	2 COMBINED AT CP-C12	53.	13.50	19.	6.	2.	9.93
+	DIVERSION TO DDC12	18.	13.50	6.	2.	1.	9.93
+	HYDROGRAPH AT *DC12	35.	13.50	13.	4.	1.	9.93
+	ROUTED TO RC12N	18.	19.00	11.	4.	1.	9.93
+	HYDROGRAPH AT W9	312.	12.33	52.	14.	5.	.52
+	DIVERSION TO RETDIV	312.	12.33	49.	13.	4.	.52
+	HYDROGRAPH AT RETAIN	28.	13.83	4.	1.	0.	.52
+	ROUTED TO RW9	13.	15.50	4.	1.	0.	.52
+	HYDROGRAPH AT W11	283.	12.33	52.	14.	5.	.51

+	DIVERSION TO	RETDIV	283.	12.33	52.	14.	5.	.51
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.51
+	2 COMBINED AT	CP-W11	13.	15.58	4.	1.	0.	1.03
+	ROUTED TO	RW11	9.	17.17	4.	1.	0.	1.03
+	HYDROGRAPH AT	W12	227.	12.50	58.	15.	5.	.53
+	DIVERSION TO	RETDIV	227.	12.50	58.	15.	5.	.53
+	HYDROGRAPH AT	RETAIN	1.	22.17	0.	0.	0.	.53
+	HYDROGRAPH AT	DW8	561.	19.50	502.	199.	68.	9.19
+	ROUTED TO	RW8S	559.	19.83	499.	199.	68.	9.19
+	3 COMBINED AT	CP-W12	621.	17.50	549.	224.	76.	1.55
+	DIVERSION TO	DDW12	621.	17.50	549.	224.	76.	1.55
+	HYDROGRAPH AT	*DW12	0.	.00	0.	0.	0.	1.55
+	ROUTED TO	RW12N	0.	.00	0.	0.	0.	1.55
+	HYDROGRAPH AT	W18	232.	12.25	28.	7.	2.	.25
+	DIVERSION TO	RETDIV	232.	12.25	28.	7.	2.	.25
+	HYDROGRAPH AT	RETAIN	3.	13.75	1.	0.	0.	.25
+	HYDROGRAPH AT	DW12	621.	17.50	549.	224.	76.	1.55
+	ROUTED TO	RW12S	619.	17.67	548.	224.	76.	1.55
+	2 COMBINED AT	CP-W18	637.	17.58	558.	229.	78.	.25
+	DIVERSION TO	DDW18	360.	15.00	360.	179.	61.	.25
+	HYDROGRAPH AT	*DW18	277.	17.58	198.	50.	17.	.25
+	ROUTED TO	RW18N	248.	20.58	185.	50.	17.	.25
+	HYDROGRAPH AT	W10	480.	12.17	52.	14.	5.	.51
+	DIVERSION TO	RETDIV	480.	12.17	46.	12.	4.	.51
+	HYDROGRAPH AT	RETAIN	106.	12.75	8.	2.	1.	.51
+	ROUTED TO	RW10	27.	15.33	8.	2.	1.	.51
+	HYDROGRAPH AT	W16	204.	12.25	25.	7.	2.	.25
+	DIVERSION TO	RETDIV	204.	12.25	25.	7.	2.	.25
+	HYDROGRAPH AT	RETAIN	0.	.00	0.	0.	0.	.25
+	2 COMBINED AT	CP-W16	27.	15.33	8.	2.	1.	.76
+	ROUTED TO	RW16N	21.	17.58	7.	2.	1.	.76
	HYDROGRAPH AT							

+		W17	241.	12.17	29.	8.	3.	.26
+	DIVERSION TO	RETDIV	241.	12.17	29.	8.	3.	.26
+	HYDROGRAPH AT	RETAIN	0.	23.42	0.	0.	0.	.26
+	HYDROGRAPH AT	DW18	360.	15.00	360.	179.	61.	.25
+	ROUTED TO	RW18S	360.	15.25	360.	179.	61.	.25
+	3 COMBINED AT	CP-W17	381.	17.58	367.	181.	62.	1.01
+	DIVERSION TO	DDW17O	364.	17.58	350.	164.	55.	1.01
+	HYDROGRAPH AT	*DW17	17.	10.75	17.	17.	7.	1.01
+	ROUTED TO	RW17	17.	18.42	17.	17.	7.	1.01
+	HYDROGRAPH AT	C14	217.	12.58	65.	18.	6.	.51
+	DIVERSION TO	RETDIV	217.	12.58	56.	15.	5.	.51
+	HYDROGRAPH AT	RETAIN	59.	14.25	13.	4.	1.	.51
+	HYDROGRAPH AT	DC12	18.	13.50	6	2.	1.	9.93
+	ROUTED TO	RC12W	9.	16.92	6.	2.	1.	9.93
+	5 COMBINED AT	CP-C14	246.	20.75	190.	67.	24.	3.33
+	DIVERSION TO	DDC14O	198.	20.75	152.	51.	18.	3.33
+	HYDROGRAPH AT	*DC14	45.	20.75	36.	15.	6.	3.33
+	ROUTED TO	RC14N	44.	23.42	35.	15.	6.	3.33
+	HYDROGRAPH AT	C15	262.	12.50	65.	18.	6.	.51
+	DIVERSION TO	RETDIV	262.	12.50	54.	14.	5.	.51
+	HYDROGRAPH AT	RETAIN	85.	13.67	15.	4.	1.	.51
+	2 COMBINED AT	CP-C15	68.	13.83	37.	18.	7.	3.84
+	DIVERSION TO	DDC15O	40.	13.83	24.	12.	5.	3.84
+	HYDROGRAPH AT	*DC15	27.	13.83	12.	6.	2.	3.84
+	ROUTED TO	RC15N	16.	14.58	12.	6.	2.	3.84
+	HYDROGRAPH AT	DC11	102.	12.33	28.	8.	3.	9.66
+	ROUTED TO	RC11N	57.	14.50	26.	8.	3.	9.66
+	HYDROGRAPH AT	C13	386.	12.33	70.	20.	7.	.51
+	DIVERSION TO	RETDIV	386.	12.33	57.	15.	5.	.51
+	HYDROGRAPH AT	RETAIN	130.	13.08	18.	5.	2.	.51
+	HYDROGRAPH AT	N5	329.	12.33	62.	18.	6.	.43
+	DIVERSION TO	RETDIV	329.	12.33	49.	13.	4.	.43

+	HYDROGRAPH AT	RETAIN	122.	13.00	18.	5.	2.	.43
+	HYDROGRAPH AT	DC10	1990.	23.42	1697.	1210.	463.	63.85
+	ROUTED TO	RC10W	1961.	24.50	1685.	1204.	463.	63.85
+	4 COMBINED AT	CP-N5	2016.	24.42	1729.	1236.	476.	50.60
+	ROUTED TO	RN5W	1989.	25.42	1718.	1231.	476.	50.60
+	HYDROGRAPH AT	N6	249.	12.42	62.	19.	6.	.43
+	DIVERSION TO	RETDIV	249.	12.42	49.	13.	4.	.43
+	HYDROGRAPH AT	RETAIN	101.	13.42	19.	6.	2.	.43
+	4 COMBINED AT	CP-N6	1990.	25.42	1722.	1233.	478.	64.80
+	DIVERSION TO	CP-N6A	1944.	25.50	1686.	1210.	469.	64.80
+	HYDROGRAPH AT	DIVSAN	0.	.00	0.	0.	0.	64.80
+	HYDROGRAPH AT	SUB322	876.	12.75	184.	57.	19.	1.13
+	DIVERSION TO	RETDIV	876.	12.75	159.	43.	14.	1.13
+	HYDROGRAPH AT	RET322	260.	13.42	45.	14.	5.	1.13
+	ROUTED TO	RO327	217.	13.58	44.	14.	5.	1.13
+	HYDROGRAPH AT	SUB328	871.	12.50	149.	46.	15.	1.00
+	DIVERSION TO	RETDIV	871.	12.50	133.	36.	12.	1.00
+	HYDROGRAPH AT	RET328	207.	13.17	32.	10.	3.	1.00
+	ROUTED TO	RO329	91.	14.25	31.	10.	3.	1.00
+	2 COMBINED AT	EMFQCN	207.	13.58	72.	23.	8.	2.13
+	ROUTED TO	RO333	174.	14.33	69.	23.	8.	2.13
+	HYDROGRAPH AT	SUB330	766.	12.67	140.	42.	14.	.97
+	DIVERSION TO	RETDIV	766.	12.67	110.	30.	10.	.97
+	HYDROGRAPH AT	RET330	369.	13.08	43.	13.	4.	.97
+	2 COMBINED AT	EMFQCS	319.	13.08	101.	34.	11.	3.10
+	ROUTED TO	RO335	221.	13.58	100.	34.	11.	3.10
+	HYDROGRAPH AT	HY337	1695.	22.00	1685.	1597.	1540.	.00
+	ROUTED TO	RO339	1695.	22.00	1685.	1597.	1540.	.00
+	HYDROGRAPH AT	SUB338	1288.	12.17	111.	28.	9.	1.10
+	2 COMBINED AT	CO340	2356.	12.17	1685.	1597.	1540.	1.10
+	ROUTED TO	RO341	2199.	12.33	1685.	1597.	1540.	1.10
+	HYDROGRAPH AT	SUB342	538.	12.17	46.	12.	4.	.46

	2 COMBINED AT						
+		CO344	2649.	12.25	1685.	1597.	1540.	1.56
	ROUTED TO						
+		RO345	1901.	13.83	1684.	1596.	1539.	1.56
	HYDROGRAPH AT						
+		SUB346	530.	13.92	286.	76.	25.	3.15
	2 COMBINED AT						
+		CO348	2387.	13.92	1745.	1653.	1558.	4.71
	ROUTED TO						
+		RO349	2321.	14.17	1742.	1652.	1558.	4.71
	HYDROGRAPH AT						
+		RDDRR3	253.	14.08	213.	84.	28.	2.21
	ROUTED TO						
+		RO363C	234.	20.25	208.	84.	28.	2.21
	HYDROGRAPH AT						
+		364A	431.	13.50	191.	49.	16.	1.99
	2 COMBINED AT						
+		CO364A	432.	13.67	295.	134.	45.	1.99
	ROUTED TO						
+		RO367	402.	15.00	291.	134.	45.	1.99
	HYDROGRAPH AT						
+		SUB368	533.	14.67	325.	91.	31.	3.13
	2 COMBINED AT						
+		CO370	908.	14.75	581.	218.	73.	5.12
	ROUTED TO						
+		RO371	844.	16.92	572.	218.	73.	5.12
	HYDROGRAPH AT						
+		SUB372	704.	14.33	411.	112.	37.	3.72
	2 COMBINED AT						
+		CO374	1134.	16.17	841.	315.	105.	8.84
	ROUTED TO						
+		RO375	1094.	16.92	838.	315.	105.	8.84
	2 COMBINED AT						
+		CO376	2766.	14.33	2523.	1945.	1656.	13.55
	HYDROGRAPH AT						
+		SUB378	536.	13.42	226.	58.	19.	2.25
	2 COMBINED AT						
+		CO380	3152.	14.33	2635.	1980.	1668.	15.80
	ROUTED TO						
+		RO381	3149.	14.33	2635.	1980.	1668.	15.80
	HYDROGRAPH AT						
+		DDE4O	23.	13.67	5.	2.	1.	.37
	ROUTED TO						
+		RDDE4O	18.	14.08	5.	2.	1.	.37
	2 COMBINED AT						
+		CO380W	3151.	14.33	2637.	1982.	1668.	15.80
	ROUTED TO						
+		R380W	3131.	14.58	2636.	1982.	1668.	15.80
	HYDROGRAPH AT						
+		SUB304	566.	12.58	95.	29.	10.	.64
	DIVERSION TO						
+		RETDIV	566.	12.58	77.	21.	7.	.64
	HYDROGRAPH AT						
+		RETAIN	227.	13.00	27.	8.	3.	.64
	2 COMBINED AT						
+		CO305	3141.	14.58	2643.	1985.	1669.	16.44
	ROUTED TO						
+		RO383	3118.	14.83	2641.	1985.	1669.	16.44
	HYDROGRAPH AT						
+		SUB272	225.	13.00	66.	17.	6.	.53
	ROUTED TO						
+		RO273	166.	16.00	66.	17.	6.	.53
	HYDROGRAPH AT						

+		SUB274	476.	13.17	177.	49.	16.	1.50
+	ROUTED TO	RO275	384.	16.33	176.	49.	16.	1.50
+	2 COMBINED AT	CO276	537.	16.17	239.	65.	22.	2.03
+	HYDROGRAPH AT	SUB278	1006.	12.75	196.	58.	19.	1.39
+	DIVERSION TO	RETDIV	1006.	12.75	172.	46.	15.	1.39
+	HYDROGRAPH AT	RETAIN	244.	13.42	39.	12.	4.	1.39
+	2 COMBINED AT	CO280	550.	16.17	269.	75.	25.	3.42
+	ROUTED TO	R280	548.	16.42	268.	75.	25.	3.42
+	HYDROGRAPH AT	SUB306	1093.	12.50	188.	58.	19.	1.21
+	DIVERSION TO	RETDIV	1093.	12.50	135.	37.	12.	1.21
+	HYDROGRAPH AT	RETAIN	667.	12.83	73.	21.	7.	1.21
+	2 COMBINED AT	CO307A	657.	12.83	321.	94.	31.	4.63
+	HYDROGRAPH AT	306S	600.	12.58	103.	31.	10.	.67
+	DIVERSION TO	RETDIV	600.	12.58	94.	25.	8.	.67
+	HYDROGRAPH AT	RETAIN	109.	13.25	20.	6.	2.	.67
+	3 COMBINED AT	CO307	3217.	14.83	2877.	2050.	1691.	21.74
+	ROUTED TO	RO385	3201.	15.17	2875.	2050.	1691.	21.74
+	HYDROGRAPH AT	310S	1002.	12.33	155.	50.	17.	.86
+	DIVERSION TO	RETDIV	1002.	12.33	116.	32.	11.	.86
+	HYDROGRAPH AT	RETAIN	508.	12.67	60.	18.	6.	.86
+	HYDROGRAPH AT	DDN10	2.	13.42	1.	1.	0.	.39
+	ROUTED TO	RDDN10	2.	14.50	1.	1.	0.	.39
+	HYDROGRAPH AT	SUB310	817.	12.67	169.	54.	18.	.97
+	DIVERSION TO	RETDIV	817.	12.67	134.	37.	12.	.97
+	HYDROGRAPH AT	RETAIN	398.	13.17	56.	17.	6.	.97
+	4 COMBINED AT	CO311	3242.	15.17	2908.	2066.	1696.	23.57
+	ROUTED TO	RO387	3228.	15.67	2905.	2066.	1696.	23.57
+	HYDROGRAPH AT	SUB314	642.	13.00	158.	48.	16.	1.05
+	DIVERSION TO	RETDIV	642.	13.00	138.	37.	12.	1.05
+	HYDROGRAPH AT	RETAIN	201.	13.83	35.	11.	4.	1.05
+	2 COMBINED AT	CO313	3242.	15.67	2916.	2069.	1697.	24.62
+	ROUTED TO	RO389	3235.	15.92	2914.	2069.	1697.	24.62

+	HYDROGRAPH AT	SUB318	982.	12.75	211.	66.	22.	1.32
+	DIVERSION TO	RETDIV	982.	12.75	181.	49.	16.	1.32
+	HYDROGRAPH AT	RETAIN	286.	13.42	54.	17.	6.	1.32
+	2 COMBINED AT	CO319	3254.	15.92	2931.	2076.	1700.	25.94
+	ROUTED TO	RO391	3244.	16.25	2929.	2076.	1700.	25.94
+	ROUTED TO	RO393	3232.	16.75	2926.	2075.	1700.	25.94
+	HYDROGRAPH AT	SUB474	694.	12.92	155.	46.	15.	1.07
+	DIVERSION TO	RETDIV	694.	12.92	128.	34.	11.	1.07
+	HYDROGRAPH AT	RETAIN	301.	13.50	40.	12.	4.	1.07
+	ROUTED TO	RO477	135.	14.75	39.	12.	4.	1.07
+	HYDROGRAPH AT	SUB478	615.	12.50	100.	30.	10.	.67
+	DIVERSION TO	RETDIV	615.	12.50	81.	22.	7.	.67
+	HYDROGRAPH AT	RETAIN	285.	12.92	28.	8.	3.	.67
+	ROUTED TO	RO479	82.	15.00	27.	8.	3.	.67
+	2 COMBINED AT	CO480	198.	14.83	63.	19.	6.	1.74
+	ROUTED TO	RO481	136.	17.83	61.	19.	6.	1.74
+	HYDROGRAPH AT	SUB482	627.	12.92	143.	43.	14.	.98
+	DIVERSION TO	RETDIV	611.	12.83	77.	21.	7.	.98
+	HYDROGRAPH AT	RETAIN	592.	13.00	79.	22.	7.	.98
+	3 COMBINED AT	CO484	3259.	18.17	2953.	2087.	1703.	28.66
+	ROUTED TO	RO487	3257.	18.42	2952.	2086.	1703.	28.66
+	HYDROGRAPH AT	CP-N6A	1944.	25.50	1686.	1210.	469.	64.80
+	HYDROGRAPH AT	482S	203.	12.25	23.	7.	2.	.16
+	DIVERSION TO	RETDIV	203.	12.25	21.	6.	2.	.16
+	HYDROGRAPH AT	RETAIN	36.	12.67	5.	2.	1.	.16
+	HYDROGRAPH AT	DDC15O	40.	13.83	24.	12.	5.	3.84
+	4 COMBINED AT	CO508	5089.	18.50	4178.	3384.	2205.	28.82
+	ROUTED TO	RO509	5059.	19.42	4171.	3383.	2204.	28.82
+	HYDROGRAPH AT	506N	656.	12.08	43.	11.	4.	.39
+	ROUTED TO	RO507	233.	13.58	43.	11.	4.	.39
+	HYDROGRAPH AT	506S	430.	12.17	36.	9.	3.	.32
+	3 COMBINED AT	CO510	5058.	19.42	4171.	3383.	2204.	29.53

	2 COMBINED AT						
+		EMFCHN	5047.	19.42	4161.	3374.	2201.	32.63
	HYDROGRAPH AT						
+		SUB556	441.	12.75	80.	23.	8.	.63
	DIVERSION TO						
+		RETDIV	441.	12.75	77.	20.	7.	.63
	HYDROGRAPH AT						
+		RETAIN	33.	13.92	7.	2.	1.	.63
	HYDROGRAPH AT						
+		DDC14O	198.	20.75	152.	51.	18.	3.33
	ROUTED TO						
+		RDDC14	194.	23.33	150.	51.	18.	3.33
	HYDROGRAPH AT						
+		DDW17O	364.	17.58	350.	164.	55.	1.01
	ROUTED TO						
+		RDDW17	363.	18.58	349.	164.	55.	1.01
	HYDROGRAPH AT						
+		574	1008.	12.42	125.	36.	12.	1.04
	DIVERSION TO						
+		RETDIV	1008.	12.42	123.	32.	11.	1.04
	HYDROGRAPH AT						
+		RETAIN	23.	13.58	10.	3.	1.	1.04
	HYDROGRAPH AT						
+		SUBW15	296.	12.25	28.	8.	3.	.25
	DIVERSION TO						
+		RETDIV	296.	12.25	27.	7.	2.	.25
	HYDROGRAPH AT						
+		RETAIN	12.	12.92	3.	1.	0.	.25
	ROUTED TO						
+		RO569	5.	15.33	3.	1.	0.	.25
	5 COMBINED AT						
+		CO558	556.	21.83	462.	218.	74.	1.92
	2 COMBINED AT						
+		EMFCHS	5383.	19.42	4485.	3511.	2248.	34.55
	ROUTED TO						
+		RO567	5359.	20.25	4481.	3509.	2248.	34.55
	HYDROGRAPH AT						
+		SUBW14	343.	12.33	41.	12.	4.	.37
	DIVERSION TO						
+		RETDIV	343.	12.33	40.	11.	4.	.37
	HYDROGRAPH AT						
+		RETAIN	8.	13.58	3.	1.	0.	.37
	HYDROGRAPH AT						
+		SUBW13	551.	12.42	69.	19.	6.	.63
	DIVERSION TO						
+		RETDIV	551.	12.42	62.	16.	5.	.63
	HYDROGRAPH AT						
+		RETAIN	110.	12.92	11.	3.	1.	.63
	2 COMBINED AT						
+		CO570	110.	12.92	14.	4.	1.	1.00
	ROUTED TO						
+		RO571	61.	13.25	14.	4.	1.	1.00
	HYDROGRAPH AT						
+		580	420.	12.50	59.	17.	6.	.53
	DIVERSION TO						
+		RETDIV	420.	12.50	57.	15.	5.	.53
	HYDROGRAPH AT						
+		RETAIN	20.	13.67	5.	2.	1.	.53
	2 COMBINED AT						
+		CO580	61.	13.25	19.	6.	2.	1.53
	2 COMBINED AT						
+		EMFNRG	5358.	20.25	4482.	3510.	2248.	36.08
	ROUTED TO						

+		RO583	5286.	21.83	4456.	3497.	2244.	36.08
	HYDROGRAPH AT							
+		584	582.	12.75	109.	31.	10.	.97
	DIVERSION TO							
+		RETDIV	582.	12.75	106.	28.	9.	.97
	HYDROGRAPH AT							
+		RET584	40.	14.08	10.	3.	1.	.97
	2 COMBINED AT							
+		EMFHNT	5286.	21.83	4456.	3497.	2244.	37.05
	HYDROGRAPH AT							
+		DDS14O	681.	12.42	232.	70.	24.	3.56
	ROUTED TO							
+		RO549	498.	14.67	231.	70.	24.	3.56
	ROUTED TO							
+		RO589	482.	15.00	230.	70.	24.	3.56
	HYDROGRAPH AT							
+		SUBS16	2146.	12.92	643.	201.	67.	4.35
	2 COMBINED AT							
+		CO592	2300.	12.92	863.	269.	91.	4.35
	ROUTED TO							
+		RO593	1905.	13.75	860.	269.	91.	4.35
	HYDROGRAPH AT							
+		SUBS17	663.	12.33	118.	36.	12.	.77
	2 COMBINED AT							
+		CO596	1970.	13.67	959.	303.	102.	5.12
	ROUTED TO							
+		RO597	1936.	13.92	958.	303.	102.	5.12
	HYDROGRAPH AT							
+		SUB598	382.	12.17	54.	17.	6.	.35
	2 COMBINED AT							
+		CO600	1941.	13.92	1000.	317.	107.	5.47
	ROUTED TO							
+		RO601	1841.	14.67	996.	317.	107.	5.47
	HYDROGRAPH AT							
+		SUB602	763.	12.25	112.	35.	12.	.73
	2 COMBINED AT							
+		CO604	1844.	14.67	1069.	347.	117.	6.20
	ROUTED TO							
+		RO605	1801.	15.08	1065.	347.	117.	6.20
	HYDROGRAPH AT							
+		SUB606	493.	12.33	90.	28.	9.	.59
	2 COMBINED AT							
+		CO608	1804.	15.08	1127.	371.	126.	6.79
	ROUTED TO							
+		RO609	1697.	16.17	1113.	371.	126.	6.79
	HYDROGRAPH AT							
+		SUB610	754.	12.33	127.	40.	13.	.84
	2 COMBINED AT							
+		CO612	1699.	16.17	1137.	405.	137.	7.63
	2 COMBINED AT							
+		EMFHTS	5322.	21.75	4481.	3527.	2277.	44.68

*** NORMAL END OF HEC-1 ***

USBR Hydrology Model Information

DESIGN SUMMARY

SALT-GILA AQUEDUCT
CENTRAL ARIZONA PROJECT
ARIZONA

SEPTEMBER 1985

prepared by:
UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Reclamation
Denver, Colorado

provide for continuity of both O&M roads even during peak storm runoff. Because these reaches of aqueduct are in areas of major subsidence with fissure potential, the ability to monitor the aqueduct system by vehicle patrol is considered essential at all times.

5. Sonoqui Dike and principal Sonoqui Dike Outlet. - The first 7.5 miles of Reach 3 canal are protected by the Sonoqui Dike. This dike is located adjacent to the canal with the principal outlet emptying into the Queen Creek Channel. A secondary gated outlet will drain the southern end of the pond, which cannot be drained by the principal outlet into a minor channel after the principal outlet water is depleted. The principal outlet is a four-barrel pipe outlet through the dike and the flow is carried across the canal in a four-barrel pipe overchute. The secondary outlet is a single-barrel outlet continuous with a pipe overchute across the canal.

The Sonoqui Dike has a minimum crest width of 16 feet, 2.5:1 side slopes, and side channels on the canal side of the dike. The top elevation of the dike is 1585.0. The dike has a cutoff trench a minimum of 5 feet deep below the stripped surface; a deeper cutoff trench was required where it crosses washes which contain clean sands and gravels. In the southern half of the dike, a chimney drain was installed in the embankment for two reasons. The chimney drain provides a path so that water ponded on top of the dike will drain into the dike and keep the core moist, and the chimney drain provides a safety feature to allow excess water seeping through the dike a path to drain out without damaging the dike.

The principal outlet to Sonoqui Dike is a four-barrel, 72-inch pipe outlet through the dike with a baffled apron drop energy dissipator at the downstream end. Four-barrel, 72-inch pipes were used to be consistent with the four-barrel, 72-inch pipe overchute downstream from the outlet that takes the flow across the canal and to provide the baffled outlet with a slower velocity of approach. Initially, the flood routing done by the field and checked by hydrology was used for design of the structure. During construction, a mistake was found in the hydrology and the inlet to the Sonoqui Dike outlet had to be constricted to reduce the flow through the pipe.

A baffled outlet energy dissipator was used downstream because it would be a free-draining structure. The baffled outlet energy dissipator was designed in accordance with Bureau of Reclamation Design Standards No. 3, 1967, and Bureau of Reclamation Engineering Monograph No. 25. The criteria are as follows:

a. The apron extends below the expected scour so that at least one row of baffles will be buried in the backfill.

b. The velocity of approach was determined from Bureau of Reclamation Engineering Monograph No. 25, and a transition from the pipes of at least three times the diameter was used so that the flow would smooth out before entering the baffles.

c. The width of the baffled apron drop was determined so that the flow per foot of width would be no greater than 35 ft^3/s.

d. Twenty-four-inch riprap on 12-inch sand and gravel bedding was used around the sides and at the outlet of the structure.

6. CMP (corrugated metal pipe) road culverts. - Major CMP road culverts were used to take floodflows directed along the canal under roads. CMP arches were used in several locations because they can take more flow with less head. Entrance losses and Manning's "n" value varied with the structure and location. The "Handbook of Steel Drainage and Highway Construction Products," American Iron and Steel Institute, 1971, was used to determine the hydraulic properties.

F. Drainage Inlets

1. General. - Drainage inlets were specified to take trapped drainage collected between the collective dikes and the canal under the O&M roads and into the canals. Also, drainage inlets were required for handling slope drainage where the canal is in thorough cut for considerable distance.

Two 17- by 13-inch or 18- by 11-inch pipe arches were used at each drainage inlet location. The use of this size of pipe arch required very little ramping of the O&M roads.

2. Hydraulic design. -

a. The rational method of runoff prediction was used to obtain a design peak runoff rate using the 50-year-frequency flood values.

b. The 50-year-frequency, 1-hour rainfall value was obtained from "Technical Paper No. 40," U.S. Chamber of Commerce, Weather Bureau, May 1961.

c. The runoff coefficient was selected for a watershed with "high" runoff characteristics in accordance with an SCS dissertation, "Determination of Runoff and Watershed Yields," November 15, 1944, revised January 10, 1945.

d. The calculated capacity of each pipe arch is about 5 ft^3/s. The drainage inlets are located at a maximum spacing which gives an estimated peak runoff rate at each inlet of about 5 ft^3/s. However, two pipe arches are specified at each inlet location, because it was considered desirable to reduce the probability of the entire drainage inlet being plugged with debris and overtopping the O&M road.

XV. HYDROLOGY

A. Floods

Fifty and 100-year frequency floods were determined for all cross-drainage structures except bathtub-type outlets, for which a 10-year flood was computed. For each crossing, a 6-hour general storm and a 3-hour thunderstorm were used. In those cases where volume of runoff was the primary consideration, the runoff from the 6-hour general storm usually controlled. In those cases where peak discharge was the primary consideration, the runoff from the 3-hour thunderstorm usually controlled.

Storm values were taken from NOAA (National Oceanic and Atmospheric Administration) Atlas II for Arizona. The 6-hour storm amounts were divided into 1-hour increments by figure 18 of "Design of Small Dams." The 3-hour storm amounts were divided into 1-hour increments by use of the methods presented in the NOAA Atlas II. The 1-hour increments from the 6-hour general storm were rearranged following the recommended sequence of 6, 4, 3, 1, 2, 5 given on page 76 of "Design of Small Dams." The 1-hour increments of the 3-hour storm were rearranged into an arbitrary sequence of 3, 1, 2. For those drainage areas larger than 10 square miles, the point rainfall values were reduced for drainage area size using the curves shown on figure 19 of "Design of Small Dams." For those areas less than 10 square miles, no reduction for drainage area size was made.

Rainfall excesses were determined by use of the SCS runoff curves shown on figure A-4 of "Design of Small Dams." The appropriate curve numbers were selected based on the type of soils, vegetation, and land use found along the upstream side of the Salt-Gila Aqueduct.

Due to the lack of rainfall-runoff events suitable for dimensionless unitgraph and lag time derivation, it was necessary to adopt a dimensionless unitgraph and a lag equation. For those drainage areas typified by mountainous or rather steep terrain, the Paradise Valley dimensionless unitgraph was employed. For those drainage areas which are characterized by relatively flat slopes, the SCS curvilinear dimensionless graph was used. The lag equation that was used is known as the southern California lag equation;

$$\text{lag} = 1.2 \left(\frac{L \cdot Lca}{\sqrt{S}}\right)^{0.38}$$

where: L = longest channel length in miles
Lca = length of longest channel from point of collection to a point opposite the centroid of the area in miles
S = slope of longest channel in feet per mile

Determination of the 50- and 100-year floods was accomplished by computing a 1-hour unitgraph for the area of interest using the

appropriate dimensionless unitgraph and lag time and applying this unitgraph to the previously established rainfall excess increments.

The normal procedure for computing a flood hydrograph is to use a time increment equal to one-fourth to one-sixth of the lag time. Mr. Lewis Erhlich of the Phoenix Office developed a short-cut method for estimating the peak discharge of a hydrograph from the maximum 1-hour discharge. This method was developed for those areas having lag times of 4 hours and less and was used for the numerous cross-drainage structures which fit this category. It was used to avoid having to compute the hydrographs at a time interval less than 1 hour and thus was a savings in the amount of computation time. The method is described in an unpublished paper dated July 1975. The method involves using the following:

$$Y = 1.96/(x + 1)^{0.4}$$

where: Y = ratio to apply to the maximum 1-hour discharge to give the hydrograph peak which would be computed if a time increment of 1/6 of lag time were used
x = lag time in hours

B. Sedimentation

For those cross-drainage structures that were to have upstream dikes where flood flows were to be detained, it was necessary to determine the amount of sediment that would be accumulated. The period of accumulation that was selected was 50 years. The southwestern United States generalized sediment yield curve was selected as a first trial for estimating the sediment inflow. This curve has the equation:

$$Qs = 2.4A^{-0.229}$$

where: Qs = sediment yield in acre-feet per square mile per year
A = area in square miles

An additional stipulation was made that the inflowing water could not carry more than 20 percent sediment.

The inflowing flood volumes for the 2-, 5-, 10-, 25-, and 50-year floods as a result of the 6-hour general storm were used in this sediment estimate. For the 50-year period of analysis, it was assumed there would be one 50-year flood, two floods equal to or greater than a 25-year flood, five floods equal to or greater than a 10-year flood, ten floods equal to or greater than a 5-year flood, and 25 floods equal to or greater than a 2-year flood. An example of this type of estimate is given in the following:

station 536+00
Area = 1.04 square miles

Routing through Sonoqui Dike

Routing 100-Year, 6-Hour Gen. Storms

Peak Q = 31,756 ft^3/s
Volume = 13,721 AF

Area above Whitlow Dam = 142.9 square miles

Routed through Whitlow Ranch Dam
Peak Outflow Q = 819 ft^3/s

This flow was then routed downstream and combined with flood out of lower Queen Creek watershed (113.8 square miles)

Peak Inflow = 16,236 ft^3/s with flow from Whitlow = 17,000 ft^3/s
Peak Outflow = 1,113 ft^3/s
WS Elevation = ± 1580
Storage = 8424 AF

Routing MPF

Peak Q = 68,714 ft^3/s
Volume = 27,562 AF

Area above Whitlow Dam = 142.9 square miles

As in 100-year routing, routed through Whitlow Dam and down to Queen Creek. Combining flood hydrographs.

Peak Outflow Q = 943 ft^3/s

Lower Queen Creek:

Peak Inflow = 37,016 ft^3/s
Peak Outflow = 2,296 ft^3/s
WS Elevation = ± 1585
Storage = 13,095 AF

INPUT DATA FOR UNIT HYGROGRAPHS
SALT-GILA AQUEDUCT - REACH 3

STATION	AREA Sq.Mi.	GRAPH SCS/PV	CHANNEL Miles	CENTROID Miles	SLOPE ft/mi.	CURVE No.	PRECIPITATION 100-yr	50-yr	3-hr
161+82.9		OUTLET FOR SONOQUI DETENTION DIKE							
Whitlow	142.89		16.81	7.46	113	86	Drainage area into		
Sonoqui	57.69		19.32	10.42	84	75	the Sonoqui Dike.		
Queen Ck	58.66		27.87	17.13	130	86			
470+00		OUTLET FOR LOW AREA OF SONOQUI DIKE							
500+00	0.93	PV	2.56	1.47	50	65	See PREFRE output for this data.		
1602+60		TAIL WATER DRAINAGE CROSSING							
1662+00	4.55	PV	4.41	2.56	33	65			
		OUTFLOW FROM MAGMA FRS DRAINS INTO THIS OUTLET							
1884+30	0.20	SCS	0.82	0.41	111.4	75			
1887+06	0.15	SCS	0.79	0.45	115.2	75			
915+45	1.55	SCS	2.73	1.36	59	75			
948+60	0.45	SCS	1.14	0.42	158	80			
970+40	2.83	SCS	3.48	1.89	62	80			
986+00	0.08	SCS	0.47	0.30	404	80			
991+00	0.10	SCS	0.61	0.32	279	80			
1009+00	0.04	SCS	0.38	0.15	324	80			
1012+00	0.17	SCS	0.72	0.57	243	80			
1036+00	1.58	SCS	2.89	1.29	74	80			
1052+35	0.06	SCS	0.44	0.22	454	80			
1059+00	0.07	SCS	*						

* Hydrograph data developed in the Denver office

INPUT DATA FOR FLOOD ROUTING
SALT-GILA AQUEDUCT REACH 3

STATION	STRUCT. TYPE	SIZE	INVERT ELEV.	CREST ELEV.	STORAGE CAPACITY DATA ELEV.	AC.FT	ELEV.	AC.FT.
161+82	Pipe OC	4-72"	1561.32	1573.5	1572	0	1574	23
470+00	Pipe OC	36"	1560.50	1585.0	1576	79	1578	1831
					1580	4964	1582	8718
					1584	12957	1586	17789
500+00	Pipe OC	2-42"	1555.40	1565.1	1559.6	0	1561.6	12
					1563.6	45		
1602+60	Pipe OC	42"	1557.81	1564.1				
1662+00	Wash Si	20'8"	1552.01	1558.7	1552	0	1554	1
					1556	5	1558	20
					1560	113		
1884+30	Pipe OC	54"	1554.43	1562.9				
1887+06	Pipe OC	54"	1559.50	1568.0				
915+45	Culvert	2-66"	1536.68	1555.5	*			
948+60	Culvert	54"	1525.83	1555.3	*			
970+40	Culvert	2-72"	1526.94	1554.8	1526	0	1528	0.6
					1530	2.8	1532	7.2
					1534	14.1	1536	22.4
					1538	39.2	1540	61.0
986+00	Culvert	48"	1531.52	1554.7				
991+00	Culvert	48"	1529.75	1555.1	*			
1009+00	Culvert	36"	1535.66	1554.9				
1012+00	Culvert	66"	1532.28	1554.9				
1036+00	Culvert	30"	1537.45	1556.4	1540	0	1542	2
					1544	8	1546	15
					1548	25		
1052+35	Culvert	42"	1534.43	1555.1	*			
1059+50	Culvert	42"	1534.53	1554.7				

* Original routing data not available.

CENTRAL ARIZONA PROJECT SALT-GILA REACH 1
6-HOUR 100-YEAR GENERAL STORM

NOTE: SCS CURVELINEAR WAS USED AS A REPRESENTATIVE DIMENSIONLESS GRAPH

STATION	AREA (SQ. MI.)	LENGTH (MI)	LENGTH TO CENTROID(MI.)	SLOPE (FT/MI)	CURVE NO.	PRECIP INCHES	FRICTION
whitflow 1+ 0.00	142.89	16.81	7.46	113.0	86.0	2.74	.050

LAG TIME	RUNOFF (AF/IN)	RUNOFF (DSF/IN)	DSF/IN LAG+D/2	MAX. POTENTIAL DIFF (S) INCHES	0.2S	0.8S	VOLUME AC-FT	PEAK Q CFS
3.07	7620.32	3841.94	1077.63	1.63	.33	1.30	10989.	28781.

HOUR	%(L+D/2)	Q(L+D/2) DSF	Q CFS/INCH	P INCHES	P-0.2S INCHES	P-0.2S SQUARED	P+0.8S INCHES	RUNOFF TOTAL	INCHES INCREMENT	Q CFS
1	28.	4.08	4396.	.33	.00	.00	1.63	.00	.00	0.
2	56.	14.91	16067.	.69	.36	.13	1.99	.07	.06	286.
3	84.	20.83	22443.	1.10	.77	.59	2.40	.25	.18	1847.
4	112.	17.35	18696.	1.92	1.59	2.54	3.22	.79	.54	6765.
5	140.	11.10	11964.	2.41	2.09	4.35	3.71	1.17	.38	15674.
6	168.	6.97	7513.	2.74	2.41	5.83	4.04	1.44	.27	23666.
7	196.	4.24	4565.	0.00	0.00	0.00	0.00	0.00	0.00	25733.
8	224.	2.50	2690.	0.00	0.00	0.00	0.00	0.00	0.00	21382.
9	252.	1.51	1625.	0.00	0.00	0.00	0.00	0.00	0.00	14720.
10	280.	.87	935.	0.00	0.00	0.00	0.00	0.00	0.00	9185.
11	309.	.50	541.	0.00	0.00	0.00	0.00	0.00	0.00	5597.
12	337.	.32	340.	0.00	0.00	0.00	0.00	0.00	0.00	3352.
13	365.	.20	215.	0.00	0.00	0.00	0.00	0.00	0.00	1978.
14	393.	.10	107.	0.00	0.00	0.00	0.00	0.00	0.00	1167.
15	421.	.10	107.	0.00	0.00	0.00	0.00	0.00	0.00	691.
16	449.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	420.
17	0.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	253
18	0.	0.00	0.	0.00	0.00	0.00	0.00			
19	0.	0.00	0							
20										

CENTRAL ARIZONA PROJECT SALT-GILA REACH 1
6-HOUR 100-YEAR GENERAL STORM

NOTE: SCS CURVELINEAR WAS USED AS A REPRESENTATIVE DIMENSIONLESS GRAPH

STATION	AREA (SQ. MI.)	LENGTH (MI)	LENGTH TO CENTROID(MI.)	SLOPE (FT/MI)	CURVE NO.	PRECIP. INCHES	FRICTION
Queenbeck 3+ 0.00	58.66	27.87	17.13	130.0	86.0	2.98	.050

LAG TIME	RUNOFF (AF/IN)	RUNOFF (DSF/IN)	DSF/IN LAG+D/2	MAX. POTENTIAL DIFF (S) INCHES	0.2S	0.8S	VOLUME AC-FT	PEAK Q CFS
4.96	3128.34	1577.21	288.85	1.63	.33	1.30	5147.	8852.

HOUR	%(L+D/2)	Q(L+D/2) DSF	Q CFS/INCH	P INCHES	P-0.2S INCHES	P-0.2S SQUARED	P+0.8S INCHES	RUNOFF TOTAL	INCHES INCREMENT	Q CFS
1	18.	1.50	433.	.36	.03	.00	1.66	.00	.00	0.
2	37.	6.76	1953.	.75	.42	.18	2.05	.09	.09	38.
3	55.	14.46	4177.	1.19	.87	.75	2.49	.30	.22	262.
4	73.	19.94	5760.	2.09	1.76	3.10	3.39	.91	.61	1045.
5	92.	20.70	5979.	2.62	2.30	5.28	3.92	1.34	.43	2778.
6	110.	17.93	5178.	2.98	2.65	7.05	4.28	1.65	.30	5284.
7	128.	13.61	3932.	0.00	0.00	0.00	0.00	0.00	0.00	7647.
8	147.	10.15	2933.	0.00	0.00	0.00	0.00	0.00	0.00	8852.
9	165.	7.43	2148.	0.00	0.00	0.00	0.00	0.00	0.00	8578.
10	183.	5.39	1557.	0.00	0.00	0.00	0.00	0.00	0.00	7253.
11	201.	3.87	1119.	0.00	0.00	0.00	0.00	0.00	0.00	5644.
12	220.	2.74	791.	0.00	0.00	0.00	0.00	0.00	0.00	4193.
13	238.	1.96	566.	0.00	0.00	0.00	0.00	0.00	0.00	3070.
14	256.	1.41	407.	0.00	0.00	0.00	0.00	0.00	0.00	2221.
15	275.	.98	284.	0.00	0.00	0.00	0.00	0.00	0.00	1592.
16	293.	.67	194.	0.00	0.00	0.00	0.00	0.00	0.00	1136.
17	311.	.48	139.	0.00	0.00	0.00	0.00	0.00	0.00	809.
18	330.	.35	102.	0.00	0.00	0.00	0.00	0.00	0.00	
19	348.	.20	58.	0.00	0.00	0.00	0.00	0.00		
20	366.	.20	58.	0.00						
21	385.	.10								
22	403									

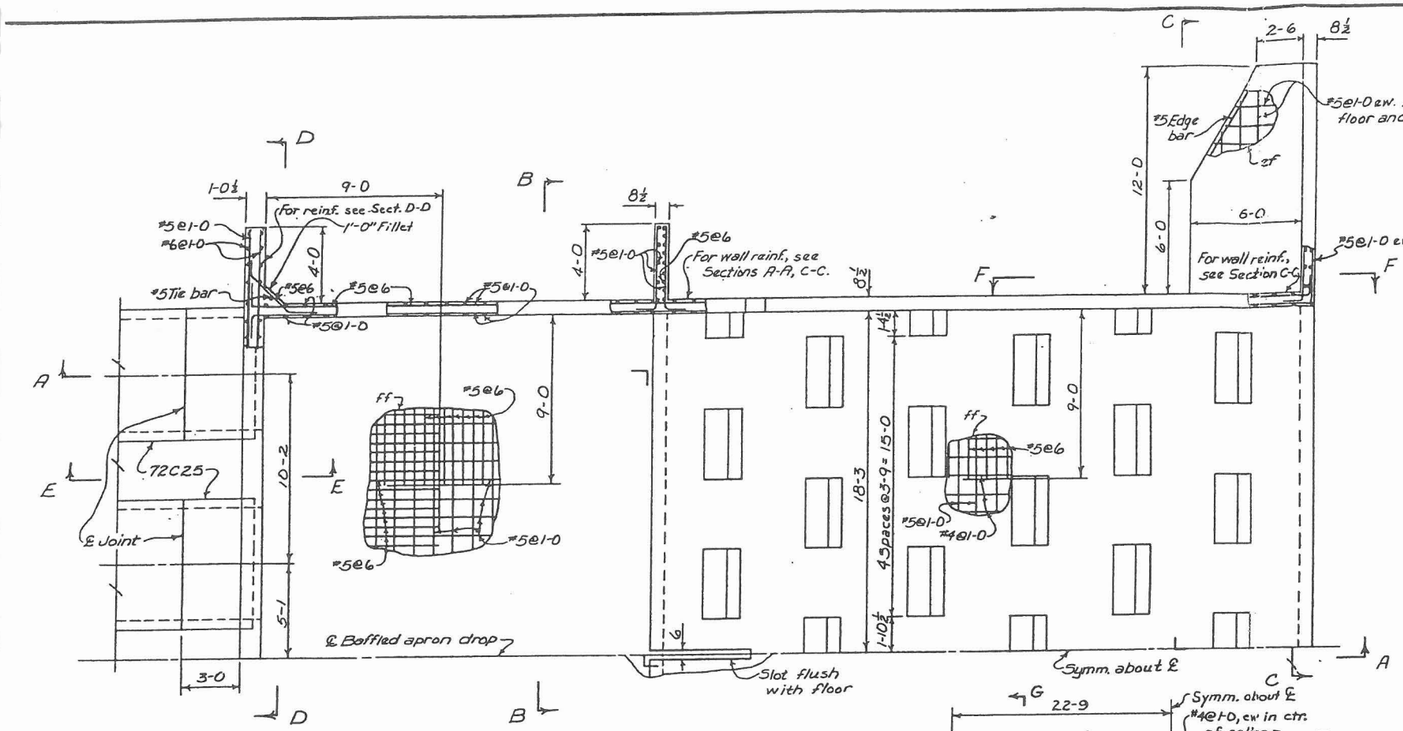
CENTRAL ARIZONA PROJECT SALT-GILA REACH 1
6-HOUR 100-YEAR GENERAL STORM

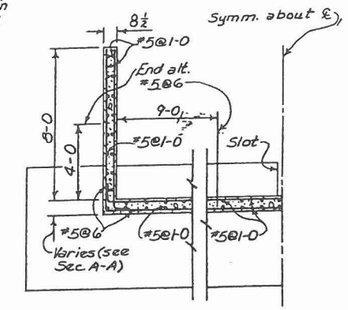
NOTE: PARADISE VALLEY WAS USED AS A REPRESENTATIVE DIMENSIONLESS GRAPH

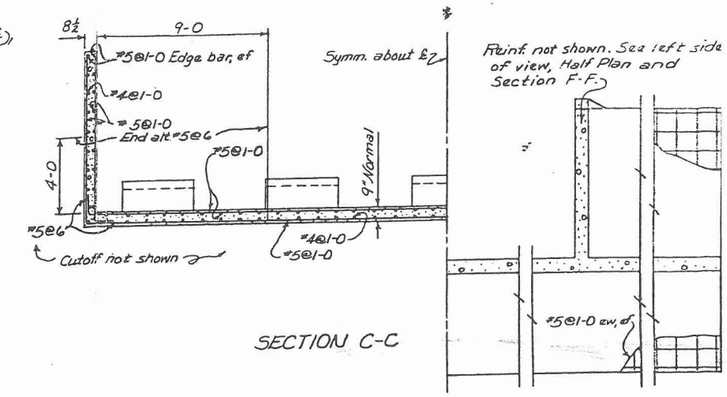
STATION	AREA (SQ. MI.)	LENGTH (MI)	LENGTH TO CENTROID(MI.)	SLOPE (FT/MI)	CURVE NO.	PRECIP INCHES	FRICTION
Sinoque 2+ 0.00	57.69	19.32	10.42	84.0	75.0	2.98	.050

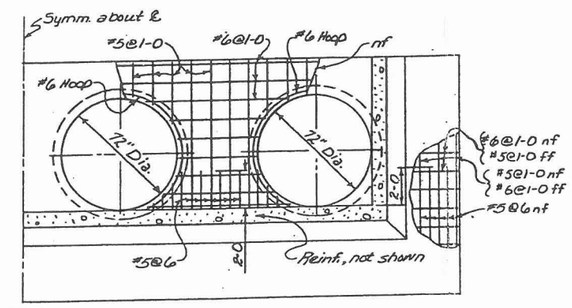
LAG TIME	RUNOFF (AF/IN)	RUNOFF (DSF/IN)	DSF/IN LAG+D/2	MAX. POTENTIAL DIFF (S) INCHES	0.2S	0.8S	VOLUME AC-FT	PEAK Q CFS
3.88	3076.61	1551.13	353.99	3.33	.67	2.67	2916.	5575.

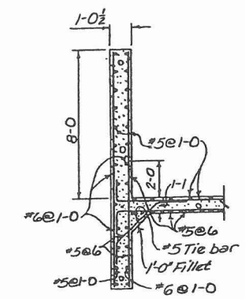
HOUR	%(L+D/2)	Q(L+D/2) DSF	Q CFS/INCH	P INCHES	P-0.2S INCHES	P-0.2S SQUARED	P+0.8S INCHES	RUNOFF TOTAL	INCHES INCREMENT	Q CFS
1	23.	5.93	2098.	.36	0.00	0.00	3.02	0.00	0.00	0.
2	46.	16.97	6006.	.75	.08	.01	3.41	.00	.00	4.
3	68.	18.08	6399.	1.19	.53	.28	3.86	.07	.07	157.
4	91.	14.49	5129.	2.09	1.42	2.01	4.75	.42	.35	1169.
5	114.	11.61	4111.	2.62	1.96	3.82	5.29	.72	.30	3199.
6	137.	9.30	3292.	2.98	2.31	5.35	5.65	.95	.22	4888.
7	160.	7.42	2627.	0.00	0.00	0.00	0.00	0.00	0.00	5364.
8	183.	5.81	2058.	0.00	0.00	0.00	0.00	0.00	0.00	4655.
9	205.	4.55	1611.	0.00	0.00	0.00	0.00	0.00	0.00	3729.
10	228.	3.57	1263.	0.00	0.00	0.00	0.00	0.00	0.00	2981.
11	251.	2.76	976.	0.00	0.00	0.00	0.00	0.00	0.00	2365.
12	274.	2.15	761.	0.00	0.00	0.00	0.00	0.00	0.00	1863.
13	297.	1.63	578.	0.00	0.00	0.00	0.00	0.00	0.00	1459.
14	319.	.64	228.	0.00	0.00	0.00	0.00	0.00	0.00	1137.
15	342.	.26	92.	0.00	0.00	0.00	0.00	0.00	0.00	884.
16	365.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	666.
17	0.	0.00	0.	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.	0.00	0.	0.00	0.00					
19	0.	0.00								

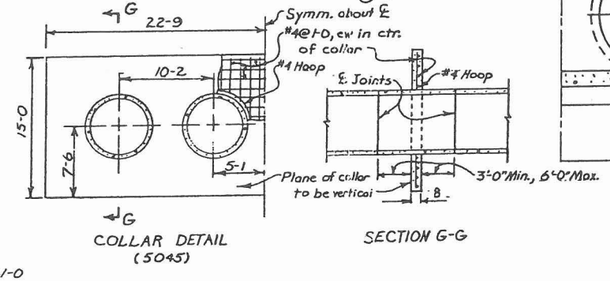


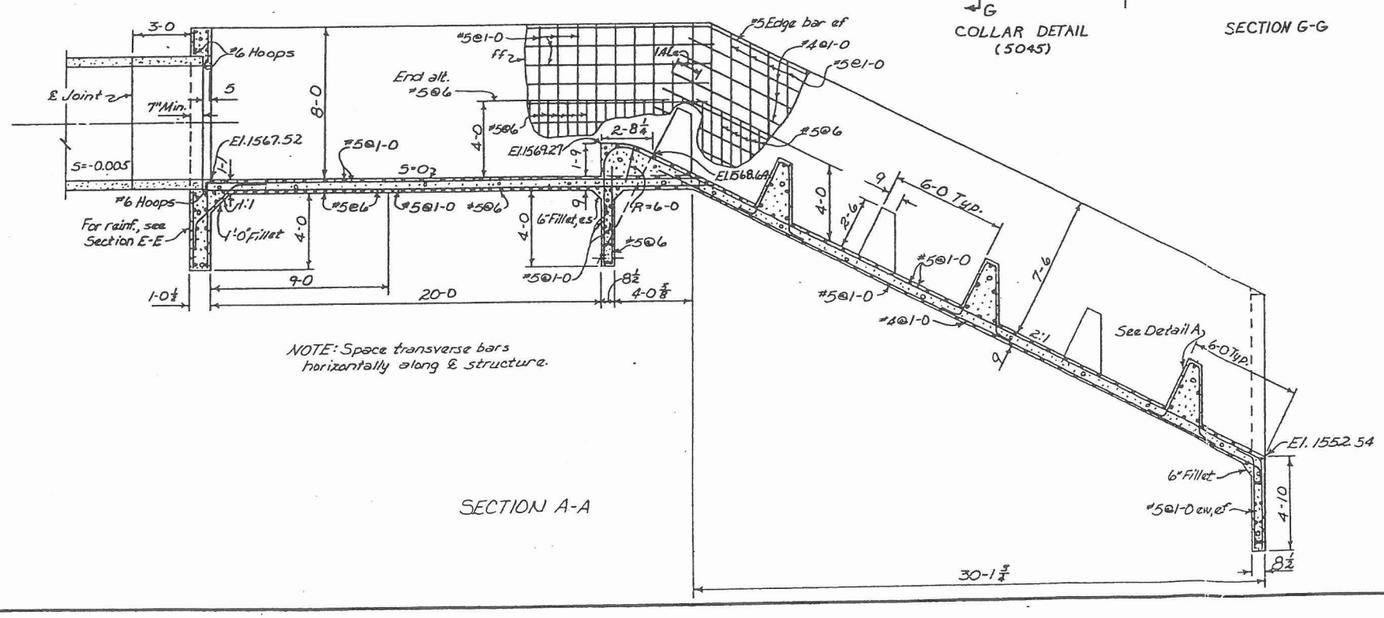


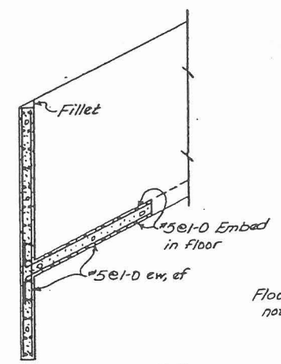


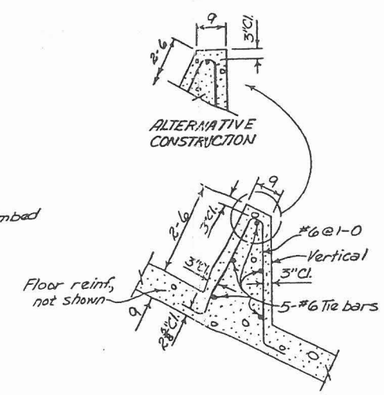












NOTES

For general notes, see 344-D-5013.
For general plan, see 344-D-5045.

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
WATER AND POWER RESOURCES SERVICE
CENTRAL ARIZONA PROJECT
SALT-GILA DIVISION-ARIZONA

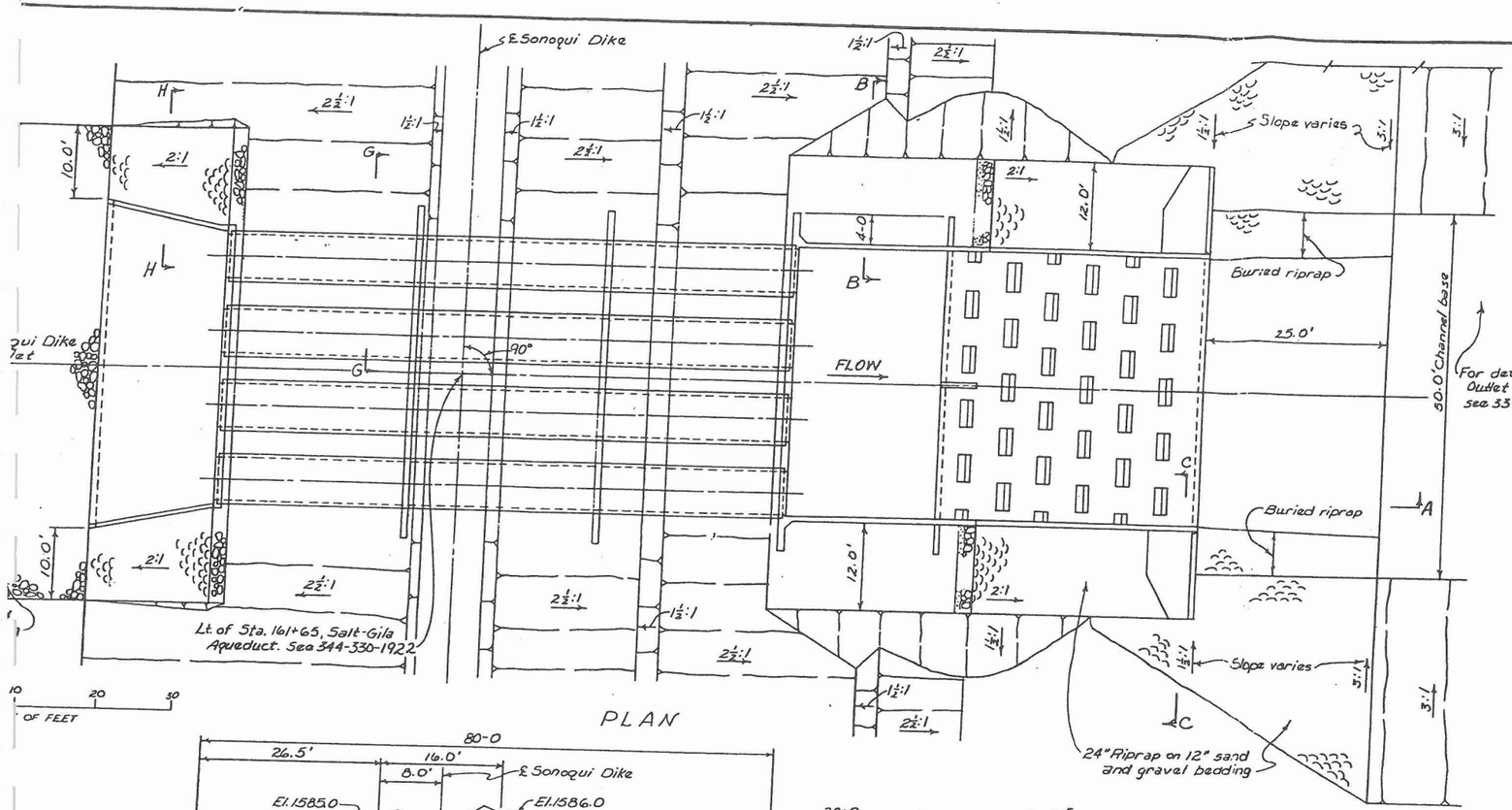
SALT-GILA AQUEDUCT
REACH 3

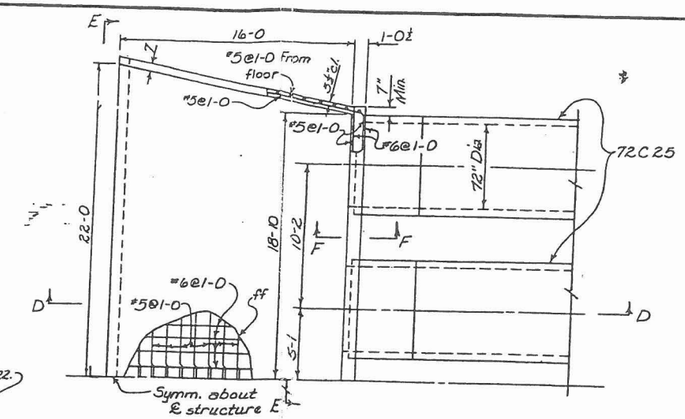
SONOQUI DIKE OUTLET
HALF PLAN, SECTIONS AND DETAIL

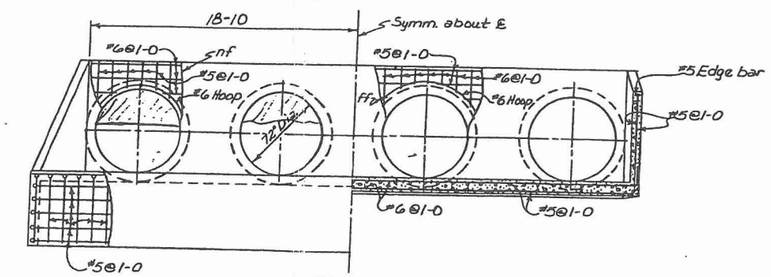
DESIGNED J. C. Mitchell TECHNICAL APPROVAL J. C. Johnson
DRAWN J. Lopez SUBMITTED W. L. Gray
CHECKED R. C. Hoppman APPROVED J. O. Ramsley
CHIEF, WATER CONVEYANCE BRANCH

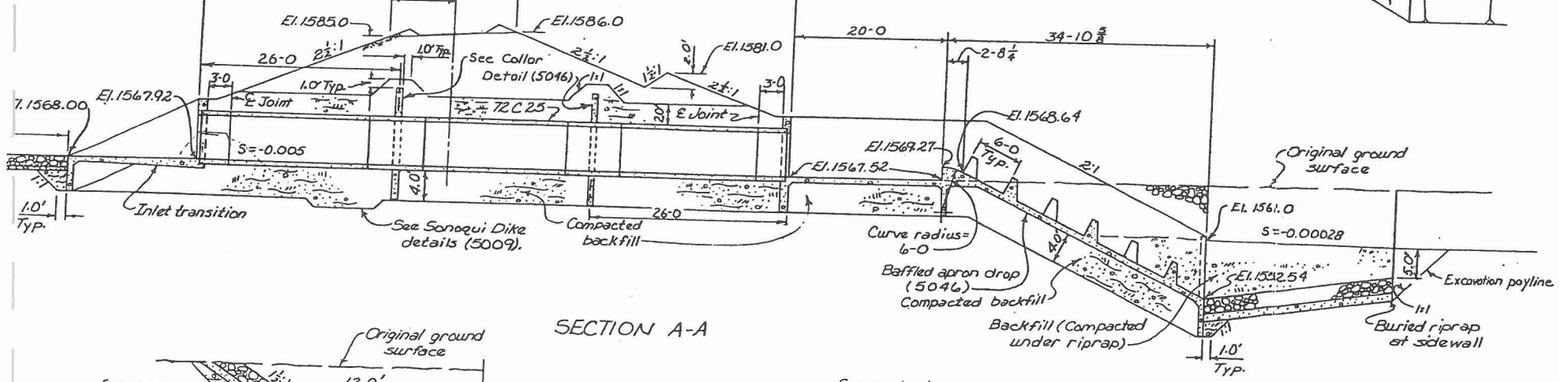
DENVER, COLORADO APRIL 7, 1980 SHEET 2 OF 2

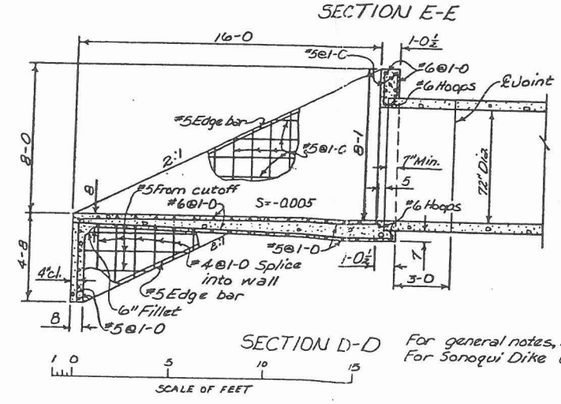
344-D-504

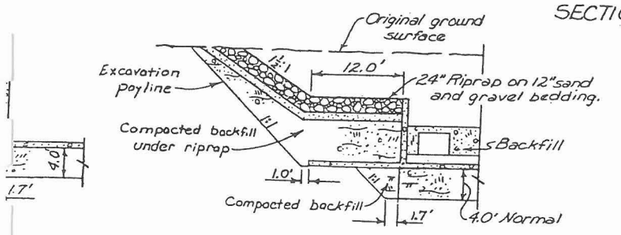


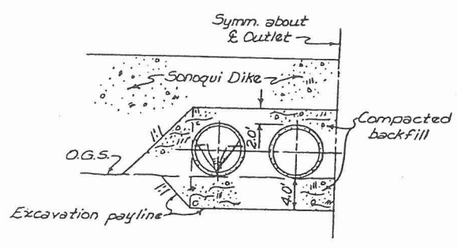


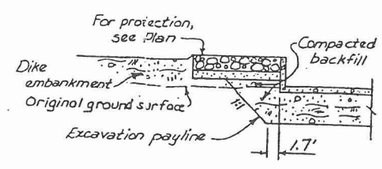


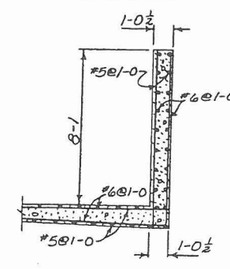












NOTES

For general notes, see 344-D-5013.
For Sonoqui Dike details, see 344-D-5009.

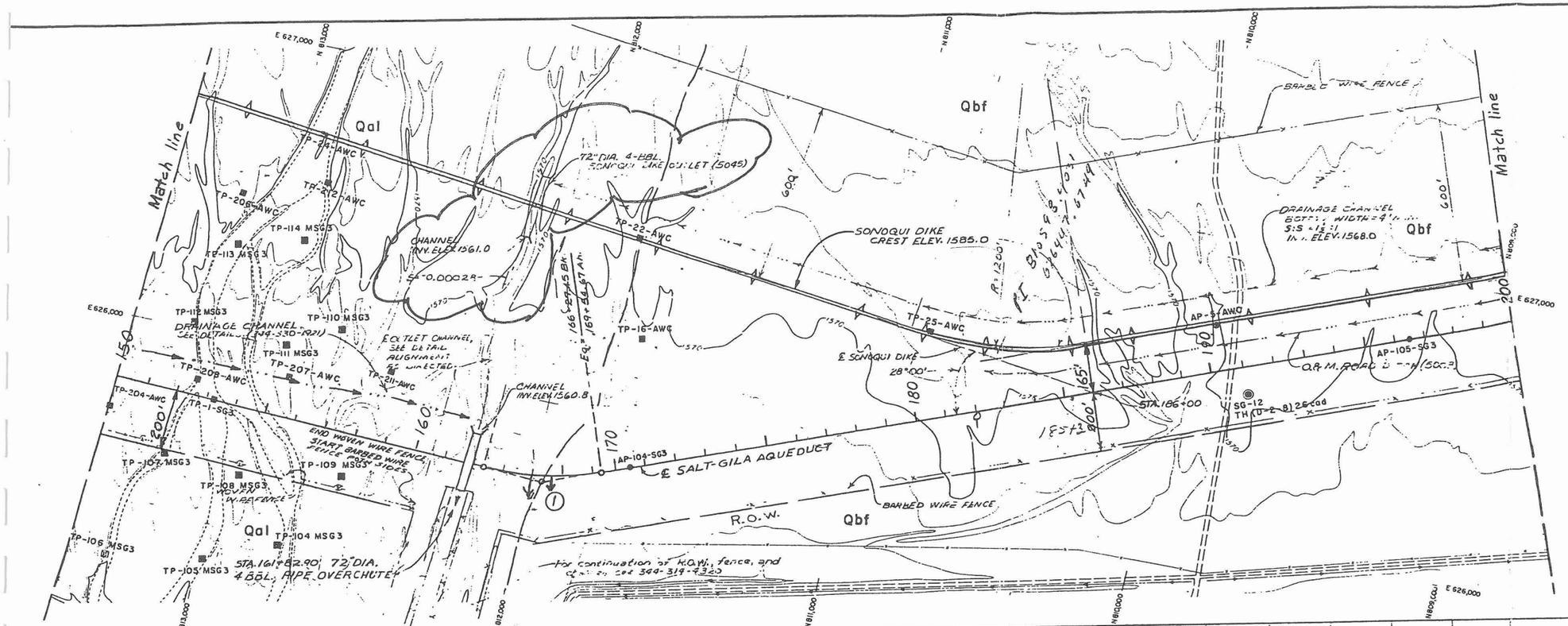
ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
WATER AND POWER RESOURCES SERVICE
CENTRAL ARIZONA PROJECT
SALT-GILA DIVISION-ARIZONA

SALT-GILA AQUEDUCT
REACH 3
SONOQUI DIKE OUTLET
PLANS AND SECTIONS

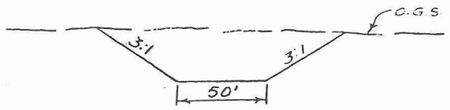
DESIGNED S.C. Mitchell TECHNICAL APPROVAL J. F. Johnson
DRAWN J. J. Miller SUBMITTED W. L. Stone
CHECKED C. E. Haggmann APPROVED C. O. Ramsley
CHIEF, WATER CONVEYANCE BRANCH

DENVER, COLORADO APRIL 1, 1980 SHEET 1 OF 2 344-D-5045



①

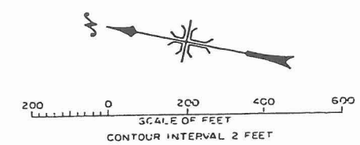
P.I. 164+32.90
Δ = 23°41'23" Lt
D = 6°
R = 954.93
T = 200.28
L = 394.83
P.C. 162+32.62
P.T. Eq = 166+27.45 Bk = 169+54.67 Ah

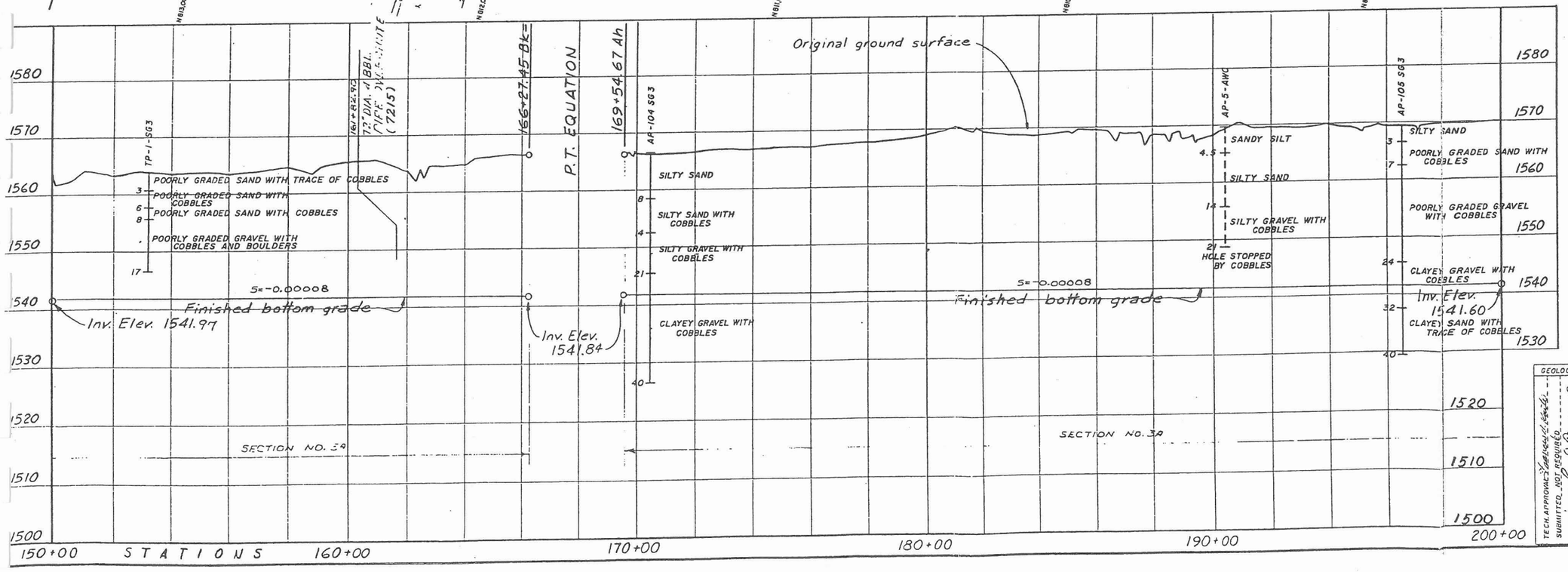


OUTLET CHANNEL DETAILS

GEOLOGIC NOTE

For General Geologic Legend, Explanation, and Notes see Dwg. 344-D-5068A.





NOTE

For notes, see 344-330-1921.

GEOLOGY

TECH. APPROVAL Sanford L. Fields
SUBMITTED NOT REQUIRED
APPROVED 10-31-80 Paul D. Pedersen CHIEF, WESTERN GEOLOGY BRANCH

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
CENTRAL ARIZONA PROJECT
SALT-GILA DIVISION-ARIZONA

SALT-GILA AQUEDUCT

REACH 3

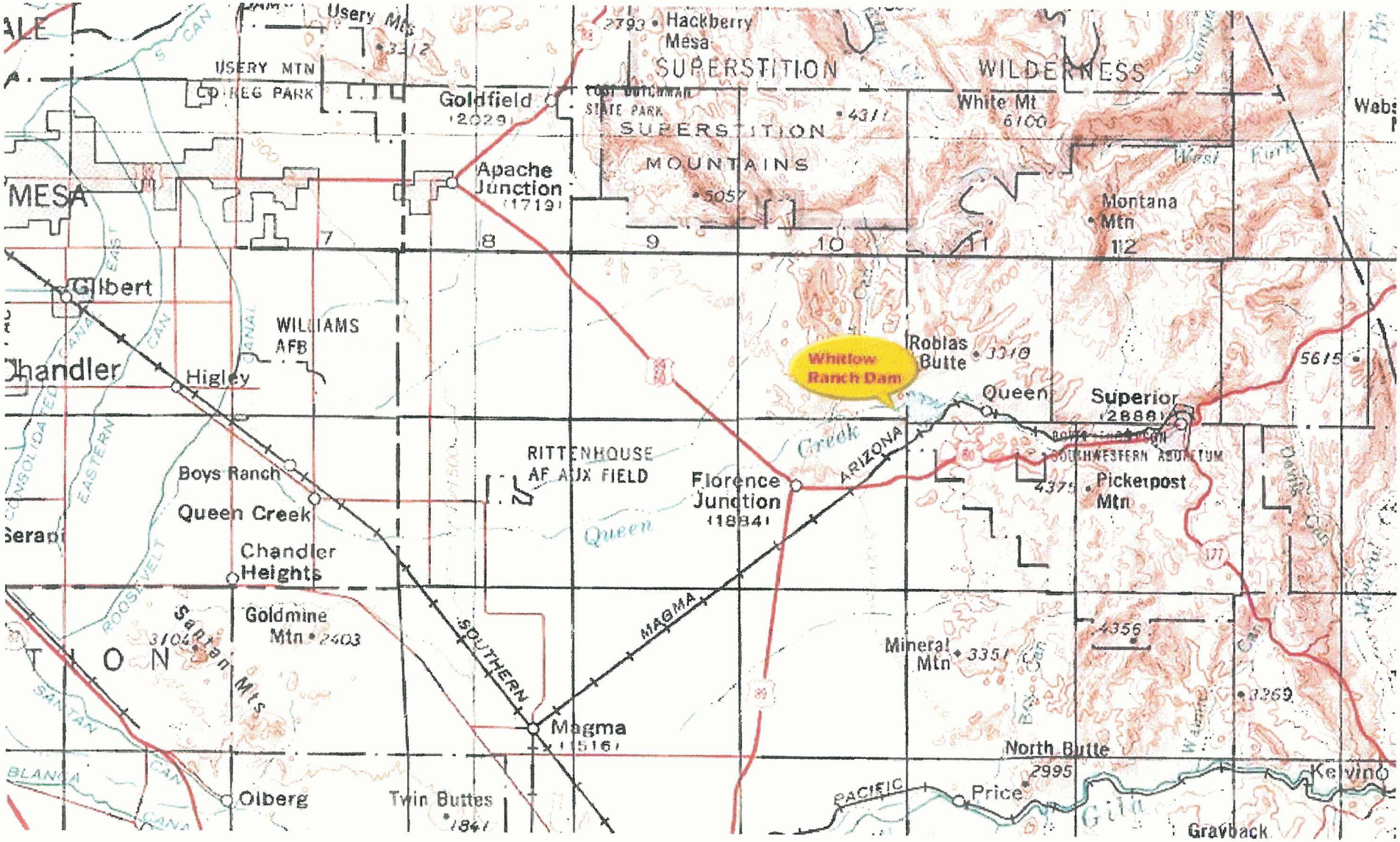
STA. 150+00 TO STA. 200+00

PLAN AND PROFILE

DESIGNED LHH - D.S. Nelson JCY
DRAWN MR Robbeloth
CHECKED JCB - E.J. Schuster
SUBMITTED J.E. Johnson
RECOMMENDED W.L. Long
APPROVED J.O. Bronschey CHIEF, WATER CONVEYANCE BRANCH

PHOENIX, ARIZONA FEBRUARY 28, 1979
SHEET 2 OF 22

344-330-1922 A


Usery Mtn
USERY MTN
COLLEGE PARK
Goldfield
(2029)
Hackberry Mesa
SUPERSTITION
WILDERNESS
SUPERSTITION
MOUNTAINS
White Mt
6100
Apache Junction
(1719)
MESA
Montana Mtn
Gilbert
WILLIAMS AFB
Chandler
Higley
Whitlow Ranch Dam
Roblas Butte
Queen
Superior
(2889)
RITTENHOUSE AF AUX FIELD
Boys Ranch
Queen Creek
Florence Junction
(1884)
ARIZONA
Pickerpost Mtn
Chandler Heights
Goldmine Mtn
Sacaton Mts
SOUTHERN
MAGMA
Mineral Mtn
Magma
(1516)
North Butte
2995
Olberg
Twin Buttes
PACIFIC
Price
Kelvin
Gila
Grayback

Whitlow Ranch Dam, Arizona
US Army Corps of Engineers
Embankment
FLOW
Outlet Works
FLOW

US Army Corps of Engineers
Los Angeles District
Reservoir Regulation Section

Whitlow Ranch Dam

Background

Whitlow Ranch Dam is an ungated flood control structure located on Queen Creek in Pinal County, Arizona. The dam is located (see: Map 1 & Map 2) about 50 miles southeast of the City of Phoenix and about 7 miles northeast of the town of Florence Junction. The drainage area tributary to Whitlow Ranch Dam comprises about143 square miles. This upstream area is bordered on the east by the Pinal Mountains and includes the town of Superior. The dam was built in 1960 to provide flood protection to farmland and developed areas including the communities of Chandler, Gilbert, Queen Creek, and Florence Junction and portions of Williams Air Force Base. The outlet works does not include any mechanical equipment that will permit significant adjustment to large outflows. Essentially the project operates for flood control automatically. Included in the project is a slide gate and a outlet-and-diversion structure designed to divert water and satisfy local water rights. Local interests, who have acquired these water rights, operate the slide gate to divert outflow from the reservoir into a irrigation ditch. Diverted flows have an negligible impact on outflows from the dam during a flood event.

Continuous low flows (less than 10 cfs) pass through Whitlow Ranch Dam's outlet works. Large discharges occur following heavy rains in the area above the dam. Outflow usually percolates into the alluvial plain below the dam and rarely travels more than a few miles downstream. Only flows from very large and infrequent storms will drain into the Gila River at a location about 40 miles downstream from the dam.

Photograph

Aerial View of Whitlow Ranch Dam

Physical Data

Embankment

Type	Earthfilll	
Year Built	1960	
Crest Elevation	2,199 feet NGVD	670 meters NGVD
Invert elevation	2,056 feet NGVD	627 meters NGVD
Height above original streambed	149 feet	45 meters
Crest Length	837 feet	255 meters
Top Width	20 feet	6.1 meters
PMF Freeboard	5 feet	1.5 meters

Spillway

Type	Detached, broadcrested	
Crest Elevation	2,166 feet NGVD	660 meters NGVD
Crest Length	355 feet	108 meters
Elevation of Maximum Water Surface	2,194 feet NGVD	669 meters NGVD
Discharge at Maximum Water Surface	147,000 cfs	4,163 cms

Outlet

Invert Elevation	2,056 NGVD	627 meters
Diameter	5.5 feet	1.7 meters
Length	700 feet	213 meters
Capacity at Spillway Crest	1,007 cfs	29 cms

Surface Area & Storage Capacity

Area at Spillway Crest	822 acres	3,326,516 sm
Area at Top of Dam	1,335 acres	5,402,553 sm
Storage Capacity at Spillway Crest	35,593 acre-feet	43.9 MCM
Storage at Spillway Design Surcharge Level	64,556 acre-feet	79.6 MCM
Storage Capacity at Top of Dam	71,032 acre-feet	87.6 MCM
Sedimentation Allocation	6,700 acre-feet	8.3 MCM

Reservoir Design Flood

Duration of Inflow	21 hours	21 hours
Total Volume	30,000 acre-feet	37.0 MCM
Peak Inflow	110,000 cfs	3,115 cms
Peak Outflow	1,004 cfs	28 cms

Spillway Design Flood

Duration of Inflow	19 hours	19 hours
Total Volume	74,000 acre-feet	91.3 MCM
Peak Inflow	230,000 cfs	6,513 cms
Peak Outflow	147,000 cfs	4,163 cms

Notes:

NGVD = National Geodetic Vertical Datum of 1929.
MCM = million cubic meters
cfs = cubic feet per second
cms = cubic meters per second
sm = square meters

View Current Whitlow Ranch Dam Gage Data

Return to Main Page

Last Updated on October 26, 1998 by Greg Peacock

Calibration HEC-1 Models

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUL   1997              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   09SEP01  TIME  15:44:11  *
 *                                      *
 ****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

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

   1          ID   QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
   2          ID   100YEAR 6HOUR STORM
   3          ID   FILE NAME: CALIBR8.DAT
   4          IT      10                    2000
   5          IO       3

   6          KK  QCREEK
   7          KM   QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
   8          BA   58.66
   9          PB    2.98
  10          KM    SCS DIMENSIONLESS DISTRIBUTION FOR SPILLWAY & FREEBOARD HYDROGRAPHS
  11          IN     7.2
  12          PC       0   .0080   .0162   .0246   .0333   .0425   .0524   .0630   .0743   .0863
  13          PC   .0990   .1124   .1265   .1420   .1595   .1800   .2050   .2550   .3450   .4370
  14          PC   .5300   .6030   .6330   .6600   .6840   .7050   .7240   .7420   .7590   .7750
  15          PC   .7900   .8043   .8180   .8312   .8439   .8561   .8678   .8790   .8898   .9002
  16          PC   .9103   .9201   .9297   .9391   .9483   .9573   .9661   .9747   .9832   .9916
  17          PC   1.000
```

```
 18          LS            86.
 19          UD    4.96

 20          KK   SANOK
 21          KM   SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL
 22          BA   57.69
 23          PB    2.98
 24          LS            75.
 25          UD    3.88

 26          KK  in2FRS
 27          KM   COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
 28          KM   UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.
 29          KO       3
 30          HC       2

 31          KK  FRSout
 32          KM   ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
 33          KM   LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
 34          KM   STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.
 35          KO       3
 36          RS       1    FLOW      -1
 37          SV       0       0      23      79    1831    4964    8718   12957   17789
 38          SE    1568    1572    1574    1576    1578    1580    1582    1584    1586
 39          SQ       0     210     420     630     840    1000    1209
 40          SE  1567.9 1571.03 1572.30 1575.29 1578.47 1581.40 1586.00

 41          KK  WHTLOW
 42          KM   WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
 43          KM   NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
 44          KM   LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
 45          KM   MAXIMUM OUTFLOW FROM WHITLOW DAM.., NEGLECTED!
 46          BA  142.89
 47          PB    2.74
 48          LS            86.
 49          UD    3.07
 50          ZZ
1*****************************************                    ****************************************
 *                                       *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUL   1997               *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                 *                    *          609 SECOND STREET           *
 *                                       *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   09SEP01  TIME  15:44:11   *                    *           (916) 756-1104             *
 *                                       *                    *                                      *
 *****************************************                    ****************************************


                         QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
                         100YEAR 6HOUR STORM
                         FILE NAME: CALIBR8.DAT

   5 IO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN         10  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     14    0  ENDING DATE
                   NDTIME       2110  ENDING TIME
                   ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .17 HOURS
                      TOTAL TIME BASE  333.17 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


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


          **************
          *            *
   6 KK   *    QCREEK  *
          *            *
          **************
                         QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
                          SCS DIMENSIONLESS DISTRIBUTION FOR SPILLWAY & FREEBOARD HYDROGRAPHS

  11 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          7  TIME INTERVAL IN MINUTES
                   JXDATE      1    0  STARTING DATE
                   JXTIME          0  STARTING TIME

             SUBBASIN RUNOFF DATA

   8 BA          SUBBASIN CHARACTERISTICS
                    TAREA      58.66  SUBBASIN AREA

                 PRECIPITATION DATA

  12 PB              STORM       2.98  BASIN TOTAL PRECIPITATION

  12 PI            INCREMENTAL PRECIPITATION PATTERN
                     .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                     .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
```

```
                    .01       .01       .01       .01       .01

 18 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       86.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 19 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        4.96  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                           151 END-OF-PERIOD ORDINATES
              56.      111.      167.      295.      425.      555.      720.      887.     1055.     1273.
            1496.     1719.     2008.     2305.     2602.     2948.     3301.     3653.     3959.     4256.
            4553.     4775.     4979.     5183.     5314.     5425.     5537.     5577.     5595.     5614.
            5605.     5587.     5568.     5483.     5372.     5260.     5136.     5006.     4876.     4734.
            4585.     4437.     4265.     4079.     3893.     3685.     3462.     3239.     3038.     2852.
            2667.     2512.     2382.     2252.     2132.     2021.     1909.     1807.     1714.     1622.
            1541.     1473.     1405.     1337.     1270.     1202.     1139.     1084.     1028.      972.
             916.      861.      812.      775.      738.      701.      663.      626.      592.      564.
             536.      509.      481.      453.      427.      407.      386.      366.      345.      325.
             306.      292.      278.      264.      250.      236.      223.      213.      203.      192.
             182.      172.      162.      155.      147.      140.      132.      125.      118.      112.
             106.      101.       95.       90.       84.       81.       77.       73.       69.       66.
              62.       60.       57.       55.       53.       51.       49.       46.       44.       42.
              40.       37.       35.       33.       31.       28.       27.       25.       23.       21.
              19.       17.       15.       14.       12.       10.        8.        6.        4.        2.
               1.

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

                      HYDROGRAPH AT STATION   QCREEK

    TOTAL RAINFALL =    2.98, TOTAL LOSS =    1.33, TOTAL EXCESS =    1.65

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                          (CFS)
+    8380.      8.17                7019.       2593.        865.        187.
                        (INCHES)    1.113       1.644       1.645       1.645
                         (AC-FT)    3481.       5143.       5148.       5148.

                       CUMULATIVE AREA =   58.66 SQ MI


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


            **************
            *            *
 20 KK      *     SANOK  *
```

```
*            *
**************
                SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL

            SUBBASIN RUNOFF DATA

22 BA         SUBBASIN CHARACTERISTICS
                   TAREA       57.69  SUBBASIN AREA

              PRECIPITATION DATA

23 PB              STORM        2.98  BASIN TOTAL PRECIPITATION

12 PI           INCREMENTAL PRECIPITATION PATTERN
                   .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                   .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                   .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                   .01       .01       .01       .01       .01

24 LS         SCS LOSS RATE
                   STRTL        .67  INITIAL ABSTRACTION
                  CRVNBR      75.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

25 UD         SCS DIMENSIONLESS UNITGRAPH
                    TLAG       3.88  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                         118 END-OF-PERIOD ORDINATES
             89.      177.      340.      547.      768.     1034.     1300.     1643.     1998.     2411.
           2884.     3367.     3928.     4490.     4987.     5460.     5881.     6206.     6531.     6712.
           6890.     6979.     7008.     7025.     6995.     6966.     6812.     6634.     6443.     6236.
           6027.     5790.     5554.     5275.     4979.     4664.     4309.     3955.     3656.     3360.
           3116.     2909.     2707.     2530.     2353.     2199.     2052.     1921.     1813.     1705.
           1598.     1490.     1395.     1306.     1217.     1129.     1040.      979.      920.      860.
            801.      745.      700.      656.      612.      567.      528.      495.      463.      430.
            398.      372.      350.      328.      306.      283.      267.      250.      234.      218.
            202.      190.      179.      167.      155.      144.      135.      126.      118.      109.
            102.       96.       90.       84.       78.       74.       71.       67.       64.       60.
             56.       53.       49.       46.       42.       39.       35.       32.       29.       26.
             23.       20.       17.       14.       12.        9.        6.        3.

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

                    HYDROGRAPH AT STATION    SANOK

     TOTAL RAINFALL =    2.98, TOTAL LOSS =    2.03, TOTAL EXCESS =     .95

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)        (HR)
                                   (CFS)
+    5704.       7.50              4475.       1470.        490.        106.
                            (INCHES)  .721        .948        .948        .948
```

```
                    (AC-FT)     2219.       2916.       2916.       2916.

                    CUMULATIVE AREA =   57.69 SQ MI


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


            **************
            *            *
  26 KK     *    in2FRS  *
            *            *
            **************
                            COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
                            UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.

  29 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

  30 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   in2FRS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                            (CFS)
+   13954.      7.83               11421.       4063.       1355.        293.
                       (INCHES)      .913       1.299       1.299       1.299
                        (AC-FT)     5663.       8059.       8064.       8064.

                        CUMULATIVE AREA =  116.35 SQ MI


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


            **************
            *            *
  31 KK     *    FRSout  *
            *            *
            **************
                            ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
                            LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
                            STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.
```

```
 35 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

 36 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 37 SV            STORAGE          .0        .0      23.0      79.0    1831.0    4964.0    8718.0   12957.0   17789.0

 38 SE          ELEVATION     1568.00   1572.00   1574.00   1576.00   1578.00   1580.00   1582.00   1584.00   1586.00

 39 SQ          DISCHARGE          0.      210.      420.      630.      840.     1000.     1209.

 40 SE          ELEVATION     1567.90   1571.03   1572.30   1575.29   1578.47   1581.40   1586.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .00       .00       .00      3.45     23.00     59.12     79.00   1831.00   2567.21
            OUTFLOW        .00      6.71    210.00    370.39    420.00    539.39    630.00    676.89    808.96    840.00
          ELEVATION    1567.90   1568.00   1571.03   1572.00   1572.30   1574.00   1575.29   1576.00   1578.00   1578.47

            STORAGE    4964.00   7591.85   8718.00  12957.00  17789.00
            OUTFLOW     923.55   1000.00   1027.26   1118.13   1209.00
          ELEVATION    1580.00   1581.40   1582.00   1584.00   1586.00

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

                        HYDROGRAPH AT STATION   FRSout

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                                    (CFS)
+     977.     17.17                 976.        964.        914.         293.
                              (INCHES)      .078        .308        .876        1.300
                               (AC-FT)      484.       1911.       5436.        8066.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    333.17-HR
+  (AC-FT)      (HR)
     6810.     17.17                 6770.       6342.       4761.        1168.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    333.17-HR
+   (FEET)      (HR)
   1580.98     17.17               1580.96     1580.73     1579.82      1571.67
```

```
                    CUMULATIVE AREA =  116.35 SQ MI


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


          **************
          *            *
 41 KK    *    WHTLOW  *
          *            *
          **************
                         WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
                         NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
                         LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
                         MAXIMUM OUTFLOW FROM WHITLOW DAM... NEGLECTED!

            SUBBASIN RUNOFF DATA

 46 BA        SUBBASIN CHARACTERISTICS
                    TAREA      142.89  SUBBASIN AREA

              PRECIPITATION DATA

 47 PB              STORM        2.74  BASIN TOTAL PRECIPITATION

 12 PI          INCREMENTAL PRECIPITATION PATTERN
                    .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                    .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                    .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                    .01       .01       .01       .01       .01

 48 LS        SCS LOSS RATE
                    STRTL         .33  INITIAL ABSTRACTION
                   CRVNBR       86.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

 49 UD        SCS DIMENSIONLESS UNITGRAPH
                     TLAG        3.07  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                          94 END-OF-PERIOD ORDINATES
            347.      744.     1554.     2414.     3455.     4609.     5997.     7585.     9436.    11475.
          13673.    15646.    17497.    18911.    20183.    20956.    21650.    21782.    21879.    21764.
          21539.    20845.    20117.    19307.    18450.    17525.    16481.    15324.    14023.    12635.
          11415.    10258.     9392.     8582.     7881.     7193.     6615.     6061.     5639.     5217.
           4794.     4400.     4053.     3706.     3359.     3081.     2849.     2618.     2386.     2202.
           2028.     1855.     1682.     1555.     1428.     1301.     1183.     1096.     1010.      923.
            847.      783.      719.      656.      604.      557.      511.      465.      429.      394.
            359.      326.      303.      280.      257.      236.      222.      209.      195.      181.
            167.      153.      139.      125.      111.       99.       88.       76.       65.       53.
             42.       30.       19.        7.
```

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

                        HYDROGRAPH AT STATION   WHTLOW

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    1.30, TOTAL EXCESS =    1.44

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                                   (CFS)
+   25000.      6.17                18495.       5541.       1847.        399.
                             (INCHES)   1.203       1.442       1.442       1.442
                              (AC-FT)   9171.      10990.      10990.      10990.

                        CUMULATIVE AREA =  142.89 SQ MI
```

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	QCREEK	8380.	8.17	7019.	2593.	865.	58.66		
+	HYDROGRAPH AT	SANOK	5704.	7.50	4475.	1470.	490.	57.69		
+	2 COMBINED AT	in2FRS	13954.	7.83	11421.	4063.	1355.	116.35		
+	ROUTED TO	FRSout	977.	17.17	976.	964.	914.	116.35		
+									1580.98	17.17
+	HYDROGRAPH AT	WHTLOW	25000.	6.17	18495.	5541.	1847.	142.89		

*** NORMAL END OF HEC-1 ***

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUL   1997              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   09SEP01  TIME  15:44:17  *
 *                                      *
 ****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

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

   1          ID   QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
   2          ID   100YEAR 6HOUR STORM
   3          ID   FILE NAME: 4CALIBR8.DAT
   4          IT      10                    2000
   5          IO       3

   6          KK  QCREEK
   7          KM   QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
   8          BA   58.66
   9          PB    2.97
  10          KM    SCS DIMENSIONLESS DISTRIBUTION FOR SPILLWAY & FREEBOARD HYDROGRAPHS
  11          IN     7.2
  12          PC       0   .0080   .0162   .0246   .0333   .0425   .0524   .0630   .0743   .0863
  13          PC   .0990   .1124   .1265   .1420   .1595   .1800   .2050   .2550   .3450   .4370
  14          PC   .5300   .6030   .6330   .6600   .6840   .7050   .7240   .7420   .7590   .7750
  15          PC   .7900   .8043   .8180   .8312   .8439   .8561   .8678   .8790   .8898   .9002
  16          PC   .9103   .9201   .9297   .9391   .9483   .9573   .9661   .9747   .9832   .9916
  17          PC   1.000
```

```
 18          LS            86.
 19          UD    4.96

 20          KK   SANOK
 21          KM   SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL
 22          BA   57.69
 23          PB    2.84
 24          LS            75.
 25          UD    3.88

 26          KK  in2FRS
 27          KM   COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
 28          KM   UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.
 29          KO       3
 30          HC       2

 31          KK  FRSout
 32          KM   ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
 33          KM   LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
 34          KM   STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.
 35          KO       3
 36          RS       1    FLOW      -1
 37          SV       0       0      23      79    1831    4964    8718   12957   17789
 38          SE    1568    1572    1574    1576    1578    1580    1582    1584    1586
 39          SQ       0     210     420     630     840    1000    1209
 40          SE  1567.9 1571.03 1572.30 1575.29 1578.47 1581.40 1586.00

 41          KK  WHTLOW
 42          KM   WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
 43          KM   NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
 44          KM   LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
 45          KM   MAXIMUM OUTFLOW FROM WHITLOW DAM... NEGLECTED!
 46          BA  142.89
 47          PB    2.93
 48          LS            86.
 49          UD    3.07
 50          ZZ
1*****************************************                    *****************************************
 *                                       *                    *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
 *              JUL   1997               *                    *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *                    *          609 SECOND STREET            *
 *                                       *                    *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   09SEP01  TIME  15:44:17   *                    *           (916) 756-1104              *
 *                                       *                    *                                       *
 *****************************************                    *****************************************

                         QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
                         100YEAR 6HOUR STORM
                         FILE NAME: 4CALIBR8.DAT

   5 IO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN         10  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     14    0  ENDING DATE
                   NDTIME       2110  ENDING TIME
                   ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .17 HOURS
                     TOTAL TIME BASE  333.17 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


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


           **************
           *            *
   6 KK    *    QCREEK  *
           *            *
           **************
                          QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
                           SCS DIMENSIONLESS DISTRIBUTION FOR SPILLWAY & FREEBOARD HYDROGRAPHS

  11 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN           7  TIME INTERVAL IN MINUTES
                     JXDATE      1    0  STARTING DATE
                     JXTIME           0  STARTING TIME

              SUBBASIN RUNOFF DATA

   8 BA          SUBBASIN CHARACTERISTICS
                      TAREA       58.66  SUBBASIN AREA

                 PRECIPITATION DATA

  12 PB                STORM        2.97  BASIN TOTAL PRECIPITATION

  12 PI            INCREMENTAL PRECIPITATION PATTERN
                     .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                     .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
```

```
                    .01       .01       .01       .01       .01

 18 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      86.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 19 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG       4.96  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                           151 END-OF-PERIOD ORDINATES
              56.      111.      167.      295.      425.      555.      720.      887.     1055.     1273.
            1496.     1719.     2008.     2305.     2602.     2948.     3301.     3653.     3959.     4256.
            4553.     4775.     4979.     5183.     5314.     5425.     5537.     5577.     5595.     5614.
            5605.     5587.     5568.     5483.     5372.     5260.     5136.     5006.     4876.     4734.
            4585.     4437.     4265.     4079.     3893.     3685.     3462.     3239.     3038.     2852.
            2667.     2512.     2382.     2252.     2132.     2021.     1909.     1807.     1714.     1622.
            1541.     1473.     1405.     1337.     1270.     1202.     1139.     1084.     1028.      972.
             916.      861.      812.      775.      738.      701.      663.      626.      592.      564.
             536.      509.      481.      453.      427.      407.      386.      366.      345.      325.
             306.      292.      278.      264.      250.      236.      223.      213.      203.      192.
             182.      172.      162.      155.      147.      140.      132.      125.      118.      112.
             106.      101.       95.       90.       84.       81.       77.       73.       69.       66.
              62.       60.       57.       55.       53.       51.       49.       46.       44.       42.
              40.       37.       35.       33.       31.       28.       27.       25.       23.       21.
              19.       17.       15.       14.       12.       10.        8.        6.        4.        2.
               1.

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

                      HYDROGRAPH AT STATION   QCREEK

    TOTAL RAINFALL =    2.97, TOTAL LOSS =    1.33, TOTAL EXCESS =    1.64

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                              (CFS)
+    8336.      8.17                6983.       2579.        861.        186.
                          (INCHES)  1.107       1.635       1.637       1.637
                           (AC-FT)  3462.       5116.       5121.       5121.

                      CUMULATIVE AREA =   58.66 SQ MI


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


            **************
            *            *
 20 KK      *     SANOK  *
```

```
*            *
**************
                SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL

            SUBBASIN RUNOFF DATA

 22 BA        SUBBASIN CHARACTERISTICS
                   TAREA       57.69  SUBBASIN AREA

              PRECIPITATION DATA

 23 PB             STORM        2.84  BASIN TOTAL PRECIPITATION

 12 PI          INCREMENTAL PRECIPITATION PATTERN
                  .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                  .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                  .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                  .01       .01       .01       .01       .01

 24 LS        SCS LOSS RATE
                   STRTL        .67  INITIAL ABSTRACTION
                  CRVNBR      75.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

 25 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG       3.88  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                         118 END-OF-PERIOD ORDINATES
            89.      177.      340.      547.      768.     1034.     1300.     1643.     1998.     2411.
          2884.     3367.     3928.     4490.     4987.     5460.     5881.     6206.     6531.     6712.
          6890.     6979.     7008.     7025.     6995.     6966.     6812.     6634.     6443.     6236.
          6027.     5790.     5554.     5275.     4979.     4664.     4309.     3955.     3656.     3360.
          3116.     2909.     2707.     2530.     2353.     2199.     2052.     1921.     1813.     1705.
          1598.     1490.     1395.     1306.     1217.     1129.     1040.      979.      920.      860.
           801.      745.      700.      656.      612.      567.      528.      495.      463.      430.
           398.      372.      350.      328.      306.      283.      267.      250.      234.      218.
           202.      190.      179.      167.      155.      144.      135.      126.      118.      109.
           102.       96.       90.       84.       78.       74.       71.       67.       64.       60.
            56.       53.       49.       46.       42.       39.       35.       32.       29.       26.
            23.       20.       17.       14.       12.        9.        6.        3.

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

                    HYDROGRAPH AT STATION    SANOK

     TOTAL RAINFALL =    2.84, TOTAL LOSS =    1.98, TOTAL EXCESS =     .86

   PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    333.17-HR
+    (CFS)        (HR)
                                     (CFS)
+    5166.        7.50                4050.       1331.        444.          96.
                                 (INCHES)        .653        .858        .858        .858
```

```
                    (AC-FT)     2009.       2639.       2639.       2639.

                    CUMULATIVE AREA =   57.69 SQ MI


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


            **************
            *            *
  26 KK     *    in2FRS  *
            *            *
            **************
                           COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
                           UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.

  29 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

  30 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION   in2FRS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                           (CFS)
+   13386.      7.83                10967.       3910.       1304.         282.
                       (INCHES)      .876       1.250       1.251        1.251
                        (AC-FT)     5438.       7755.       7760.        7760.

                       CUMULATIVE AREA =  116.35 SQ MI


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


            **************
            *            *
  31 KK     *    FRSout  *
            *            *
            **************
                           ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
                           LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
                           STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.
```

```
 35 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

 36 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 37 SV            STORAGE          .0        .0      23.0      79.0    1831.0    4964.0    8718.0   12957.0   17789.0

 38 SE          ELEVATION     1568.00   1572.00   1574.00   1576.00   1578.00   1580.00   1582.00   1584.00   1586.00

 39 SQ          DISCHARGE          0.      210.      420.      630.      840.     1000.     1209.

 40 SE          ELEVATION     1567.90   1571.03   1572.30   1575.29   1578.47   1581.40   1586.00

                                                                  ***

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .00       .00       .00      3.45     23.00     59.12     79.00   1831.00   2567.21
            OUTFLOW        .00      6.71    210.00    370.39    420.00    539.39    630.00    676.89    808.96    840.00
          ELEVATION    1567.90   1568.00   1571.03   1572.00   1572.30   1574.00   1575.29   1576.00   1578.00   1578.47

            STORAGE    4964.00   7591.85   8718.00  12957.00  17789.00
            OUTFLOW     923.55   1000.00   1027.26   1118.13   1209.00
          ELEVATION    1580.00   1581.40   1582.00   1584.00   1586.00

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

                          HYDROGRAPH AT STATION   FRSout

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR    333.17-HR
+   (CFS)       (HR)
                                 (CFS)
+     969.     17.00                   968.        955.        905.        282.
                            (INCHES)   .077        .305        .868       1.251
                             (AC-FT)   480.       1895.       5384.       7761.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR    333.17-HR
+  (AC-FT)      (HR)
     6519.     17.00                  6479.       6055.       4491.       1084.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR    333.17-HR
+   (FEET)      (HR)
   1580.83     17.00                1580.81     1580.58     1579.66     1571.52
```

```
                    CUMULATIVE AREA =  116.35 SQ MI


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


          **************
          *            *
 41 KK    *    WHTLOW  *
          *            *
          **************
                         WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
                         NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
                         LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
                         MAXIMUM OUTFLOW FROM WHITLOW DAM... NEGLECTED!

            SUBBASIN RUNOFF DATA

 46 BA        SUBBASIN CHARACTERISTICS
                    TAREA      142.89  SUBBASIN AREA

              PRECIPITATION DATA

 47 PB              STORM        2.93  BASIN TOTAL PRECIPITATION

 12 PI          INCREMENTAL PRECIPITATION PATTERN
                    .01       .01       .01       .01       .02       .02       .02       .02       .02       .03
                    .03       .07       .13       .13       .09       .04       .03       .03       .03       .02
                    .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                    .01       .01       .01       .01       .01

 48 LS        SCS LOSS RATE
                    STRTL         .33  INITIAL ABSTRACTION
                   CRVNBR       86.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

 49 UD        SCS DIMENSIONLESS UNITGRAPH
                     TLAG        3.07  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                         94 END-OF-PERIOD ORDINATES
            347.      744.     1554.     2414.     3455.     4609.     5997.     7585.     9436.    11475.
          13673.    15646.    17497.    18911.    20183.    20956.    21650.    21782.    21879.    21764.
          21539.    20845.    20117.    19307.    18450.    17525.    16481.    15324.    14023.    12635.
          11415.    10258.     9392.     8582.     7881.     7193.     6615.     6061.     5639.     5217.
           4794.     4400.     4053.     3706.     3359.     3081.     2849.     2618.     2386.     2202.
           2028.     1855.     1682.     1555.     1428.     1301.     1183.     1096.     1010.      923.
            847.      783.      719.      656.      604.      557.      511.      465.      429.      394.
            359.      326.      303.      280.      257.      236.      222.      209.      195.      181.
            167.      153.      139.      125.      111.       99.       88.       76.       65.       53.
             42.       30.       19.        7.
```

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

                        HYDROGRAPH AT STATION   WHTLOW

    TOTAL RAINFALL =    2.93, TOTAL LOSS =    1.33, TOTAL EXCESS =    1.60

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    333.17-HR
+   (CFS)        (HR)
                                   (CFS)
+   27814.       6.17                 20554.       6158.       2053.        444.
                                 (INCHES)      1.337       1.603       1.603       1.603
                                  (AC-FT)     10192.      12214.      12214.      12214.

                                 CUMULATIVE AREA =  142.89 SQ MI

1
                                                   RUNOFF SUMMARY
                                              FLOW IN CUBIC FEET PER SECOND
                                            TIME IN HOURS,  AREA IN SQUARE MILES

                                          PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION        STATION       FLOW    PEAK                                            AREA      STAGE     MAX STAGE
+                                                              6-HOUR      24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          QCREEK       8336.    8.17         6983.       2579.        861.      58.66

          HYDROGRAPH AT
+                           SANOK       5166.    7.50         4050.       1331.        444.      57.69

          2 COMBINED AT
+                          in2FRS      13386.    7.83        10967.       3910.       1304.     116.35

          ROUTED TO
+                          FRSout        969.   17.00         968.        955.        905.     116.35
+                                                                                                1580.83       17.00

          HYDROGRAPH AT
+                          WHTLOW      27814.    6.17        20554.       6158.       2053.     142.89


 *** NORMAL END OF HEC-1 ***
```

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUL   1997              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   09SEP01  TIME  15:44:29  *
 *                                      *
 ****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

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

   1          ID   QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
   2          ID   100-YEAR 24-HOUR STORM
   3          ID   FILE NAME: 3CALIBR8.DAT
   4          ID   PRECIPITATION = SCS TYPE II DISTRIBUTION, ESTIMATED POINT RAINFALL DEPTH
   5          ID   PRECIPTIATION VALUES DETERMINED FROM NOAA ATLAS II ISOPLUVIAL MAPS
   6          IT       5                    1500
   7          IO       3

   8          KK  QCREEK
   9          KM   QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
  10          BA   58.66
  11          PB    3.96
  12          KM    SCS TYPE II - 24 HOUR DISTRIBUTION
  13          IN      15
  14          PC       0    .002    .005    .008    .011    .014    .017     .02    .023    .026
  15          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056     .06
  16          PC    .064    .068    .072    .076     .08    .085     .09    .095      .1    .105
  17          PC     .11    .115     .12    .126    .133     .14    .147    .155    .163    .172
```

```
          18          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
          19          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
          20          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
          21          PC    .913    .918    .922    .926     .93    .934    .938    .942    .946     .95
          22          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
          23          PC    .983    .986    .989    .992    .995    .998    1.00
          24          LS             86.
          25          UD    4.96

          26          KK   SANOK
          27          KM   SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL
          28          BA   57.69
          29          PB    3.62
          30          LS             75.
          31          UD    3.88

          32          KK  in2FRS
          33          KM   COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
          34          KM   UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.
          35          KO       3
          36          HC       2

          37          KK  FRSout
          38          KM   ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
          39          KM   LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
          40          KM   STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.
          41          KO       3                                21
          42          RS       1    FLOW      -1
          43          SV       0       0      23      79    1831    4964    8718   12957   17789
          44          SE    1568    1572    1574    1576    1578    1580    1582    1584    1586
          45          SQ       0     210     420     630     840    1000    1209
          46          SE  1567.9 1571.03 1572.30 1575.29 1578.47 1581.40 1586.00
1                                                HEC-1 INPUT                                          PAGE  2

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


          47          KK  WHTLOW
          48          KM   WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
          49          KM   NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
          50          KM   LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
          51          KM   MAXIMUM OUTFLOW FROM WHITLOW DAM... NEGLECTED!
          52          BA  142.89
          53          PB    3.97
          54          LS             86.
          55          UD    3.07
          56          ZZ
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUL   1997              *                                    *   HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   09SEP01  TIME  15:44:29  *                                    *          (916) 756-1104              *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
```

```
                        QUEEN CREEK - SANOKAI DIKE HYDROGRAPH ROUTING
                        100-YEAR 24-HOUR STORM
                        FILE NAME: 3CALIBR8.DAT
                        PRECIPITATION = SCS TYPE II DISTRIBUTION, ESTIMATED POINT RAINFALL DEPTH
                        PRECIPTIATION VALUES DETERMINED FROM NOAA ATLAS II ISOPLUVIAL MAPS

  7 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ       1500  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      6   0  ENDING DATE
                     NDTIME       0455  ENDING TIME
                     ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE  124.92 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


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


          **************
          *            *
  8 KK    *    QCREEK  *
          *            *
          **************
                        QUEEN CREEK WATERSHED - REPRODUCED FROM UBR MODEL
                         SCS TYPE II - 24 HOUR DISTRIBUTION

 13 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         15  TIME INTERVAL IN MINUTES
                     JXDATE      1   0  STARTING DATE
                     JXTIME          0  STARTING TIME

            SUBBASIN RUNOFF DATA
```

```
10 BA          SUBBASIN CHARACTERISTICS
                    TAREA       58.66  SUBBASIN AREA

               PRECIPITATION DATA

14 PB               STORM        3.96  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL 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
24 LS          SCS LOSS RATE
                    STRTL        .33  INITIAL ABSTRACTION
                   CRVNBR      86.00  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

25 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG       4.96  LAG

                                          ***

                                     UNIT HYDROGRAPH
                                300 END-OF-PERIOD ORDINATES
                                      VOLUME = 1.00
          28.       57.       85.      113.      142.      170.      236.      302.      368.      434.
         500.      566.      651.      736.      821.      906.      991.     1076.     1189.     1302.
        1416.     1529.     1642.     1755.     1906.     2057.     2208.     2359.     2510.     2661.
        2840.     3020.     3199.     3378.     3558.     3737.     3888.     4039.     4190.     4341.
```

4492.	4643.	4748.	4852.	4956.	5059.	5163.	5267.	5324.	5381.
5438.	5494.	5551.	5608.	5618.	5627.	5637.	5646.	5656.	5665.
5656.	5647.	5637.	5628.	5618.	5609.	5553.	5497.	5440.	5383.
5327.	5270.	5204.	5138.	5072.	5006.	4940.	4874.	4799.	4723.
4648.	4572.	4497.	4421.	4327.	4233.	4138.	4044.	3950.	3855.
3743.	3629.	3516.	3403.	3289.	3176.	3081.	2987.	2892.	2798.
2704.	2609.	2542.	2476.	2410.	2344.	2278.	2212.	2155.	2098.
2042.	1985.	1928.	1872.	1824.	1777.	1730.	1683.	1635.	1588.
1553.	1519.	1484.	1450.	1415.	1381.	1346.	1312.	1278.	1243.
1209.	1174.	1146.	1117.	1089.	1061.	1032.	1004.	976.	947.
919.	891.	862.	834.	815.	796.	777.	758.	739.	720.
702.	683.	664.	645.	626.	607.	593.	579.	564.	550.
536.	522.	508.	494.	479.	465.	451.	437.	426.	416.
406.	395.	385.	375.	364.	354.	343.	333.	323.	312.
305.	298.	291.	284.	277.	270.	262.	255.	248.	241.
234.	227.	222.	217.	211.	206.	201.	196.	191.	185.
180.	175.	170.	165.	161.	157.	153.	149.	146.	142.
138.	134.	131.	127.	123.	119.	116.	114.	111.	108.
105.	102.	99.	97.	94.	91.	88.	85.	83.	81.
79.	78.	76.	74.	72.	70.	68.	66.	64.	62.
61.	60.	59.	58.	57.	56.	54.	53.	52.	51.
50.	49.	48.	47.	45.	44.	43.	42.	41.	40.
39.	37.	36.	35.	34.	33.	32.	31.	30.	28.
27.	27.	26.	25.	24.	23.	22.	21.	20.	19.
18.	17.	16.	15.	14.	13.	12.	11.	10.	10.
9.	8.	7.	6.	5.	4.	3.	2.	1.	0.

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

HYDROGRAPH AT STATION QCREEK

TOTAL RAINFALL = 3.96, TOTAL LOSS = 1.45, TOTAL EXCESS = 2.51

	PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW	6-HR	24-HR	72-HR	124.92-HR
+	10712.	17.25	(CFS)	9114.	3930.	1320.	761.
			(INCHES)	1.445	2.492	2.510	2.510
			(AC-FT)	4520.	7796.	7853.	7853.

CUMULATIVE AREA = 58.66 SQ MI

*** ***

26 KK

```
**************
*            *
*     SANOK  *
*            *
**************
```

SANOKAI WATERSHED - REPRODUCED FROM UBR MODEL

```
          SUBBASIN RUNOFF DATA

28 BA       SUBBASIN CHARACTERISTICS
                 TAREA       57.69  SUBBASIN AREA

            PRECIPITATION DATA

29 PB            STORM        3.62  BASIN TOTAL PRECIPITATION

14 PI         INCREMENTAL 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

30 LS       SCS LOSS RATE
                 STRTL         .67  INITIAL ABSTRACTION
                CRVNBR       75.00  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

31 UD       SCS DIMENSIONLESS UNITGRAPH
                  TLAG        3.88  LAG

                                          ***

                                     UNIT HYDROGRAPH
                                 235 END-OF-PERIOD ORDINATES
      45.       91.      136.      181.      244.      350.      456.      561.      667.      791.
     926.     1062.     1198.     1334.     1510.     1691.     1872.     2054.     2245.     2487.
    2729.     2970.     3212.     3475.     3762.     4048.     4335.     4622.     4875.     5116.
    5358.     5599.     5837.     6003.     6169.     6335.     6501.     6641.     6731.     6822.
```

6912.	7003.	7045.	7060.	7075.	7090.	7105.	7092.	7077.	7062.
7047.	7014.	6923.	6833.	6742.	6651.	6553.	6447.	6341.	6236.
6130.	6012.	5891.	5770.	5650.	5525.	5374.	5223.	5072.	4921.
4758.	4577.	4395.	4214.	4033.	3873.	3722.	3571.	3420.	3269.
3163.	3058.	2952.	2846.	2745.	2654.	2564.	2473.	2383.	2301.
2225.	2150.	2074.	1999.	1941.	1886.	1831.	1776.	1721.	1666.
1611.	1555.	1500.	1450.	1404.	1359.	1314.	1269.	1223.	1178.
1133.	1087.	1043.	1013.	982.	952.	922.	892.	862.	831.
801.	771.	746.	723.	700.	678.	655.	633.	610.	587.
565.	543.	527.	510.	493.	477.	460.	444.	427.	410.
394.	382.	370.	359.	348.	336.	325.	314.	302.	291.
281.	273.	264.	256.	248.	239.	231.	223.	214.	206.
200.	194.	188.	182.	176.	170.	164.	158.	152.	147.
142.	138.	133.	128.	124.	119.	115.	110.	106.	103.
100.	97.	94.	91.	88.	85.	82.	79.	77.	75.
73.	71.	70.	68.	66.	64.	62.	60.	59.	57.
55.	53.	51.	50.	48.	46.	44.	42.	41.	39.
37.	35.	34.	32.	31.	29.	28.	26.	25.	23.
22.	20.	19.	17.	16.	14.	13.	11.	10.	8.
6.	5.	3.	2.	0.					

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

                    HYDROGRAPH AT STATION    SANOK

   TOTAL RAINFALL =    3.62, TOTAL LOSS =    2.23, TOTAL EXCESS =    1.39

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    124.92-HR
+   (CFS)       (HR)
                                  (CFS)
+    6722.     16.25                5350.       2149.        717.         413.
                            (INCHES)   .862       1.386       1.387        1.387
                             (AC-FT)  2653.       4263.       4269.        4269.

                    CUMULATIVE AREA =   57.69 SQ MI


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


            **************
            *            *
  32 KK     *    in2FRS  *
            *            *
            **************
                          COMBINE THE QUEEN CREEK WATERSHED AND THE SANOKAI WATERSHED
                          UPSTREAM OF THE SANOKAI FLOOD RETARDING STRUCTURE.

  35 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
 36 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                       HYDROGRAPH AT STATION   in2FRS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    124.92-HR
+   (CFS)       (HR)
                          (CFS)
+   17138.     16.83                14392.       6079.       2037.        1174.
                        (INCHES)     1.150       1.943       1.953        1.953
                         (AC-FT)     7136.      12058.      12122.       12122.

                        CUMULATIVE AREA =  116.35 SQ MI


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


            **************
            *            *
 37 KK      *    FRSout  *
            *            *
            **************
                           ROUTE QUEEN CREEK HYDROGRAPH THROUGH SANOKAI DIKE AND CAP OVERCHUTES.
                           LOCAL DEPRESSION IMMEDIATELY UPSTREAM OF OUTLET IS REFLECTED IN THE
                           STAGE-STORAGE RELATIONSHIP AS ZERO STORAGE AT ELEVATIONS 1568 & 1572.

 41 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        1500  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

 42 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 43 SV            STORAGE          .0        .0      23.0      79.0    1831.0    4964.0    8718.0   12957.0   17789.0

 44 SE          ELEVATION     1568.00   1572.00   1574.00   1576.00   1578.00   1580.00   1582.00   1584.00   1586.00
```

```
 45 SQ          DISCHARGE          0.      210.      420.      630.      840.     1000.     1209.

 46 SE          ELEVATION     1567.90   1571.03   1572.30   1575.29   1578.47   1581.40   1586.00

                                                                 ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .00       .00       .00      3.45     23.00     59.12     79.00   1831.00   2567.21
            OUTFLOW        .00      6.71    210.00    370.39    420.00    539.39    630.00    676.89    808.96    840.00
          ELEVATION    1567.90   1568.00   1571.03   1572.00   1572.30   1574.00   1575.29   1576.00   1578.00   1578.47

            STORAGE    4964.00   7591.85   8718.00  12957.00  17789.00
            OUTFLOW     923.55   1000.00   1027.26   1118.13   1209.00
          ELEVATION    1580.00   1581.40   1582.00   1584.00   1586.00

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

                        HYDROGRAPH AT STATION   FRSout

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR    124.92-HR
+   (CFS)       (HR)
                            (CFS)
+    1063.     30.75                 1062.       1052.       1013.         876.
                         (INCHES)     .085        .336        .971        1.457
                          (AC-FT)     527.       2087.       6026.        9040.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                       6-HR       24-HR       72-HR    124.92-HR
+  (AC-FT)      (HR)
    10382.     30.75                10338.       9892.       8236.        6045.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                       6-HR       24-HR       72-HR    124.92-HR
+   (FEET)      (HR)
   1582.78     30.67               1582.76     1582.55     1581.72      1579.63

                        CUMULATIVE AREA =  116.35 SQ MI


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


            **************
            *            *
 47 KK      *    WHTLOW  *
            *            *
            **************
                          WHITLOW RANCH WATERSHED - REPRODUCED FROM UBR MODEL
                          NEGLECTED IN HYDROGRAPH COMBINATION UPSTREAM FROM SANOKAI FRS DUE TO
                          LACK OF INFORMATION ON WHITLOW DAM ROUTING - 1000 cfs APPEARS TO BE
                          MAXIMUM OUTFLOW FROM WHITLOW DAM... NEGLECTED!
```

```
            SUBBASIN RUNOFF DATA

52 BA         SUBBASIN CHARACTERISTICS
                    TAREA      142.89  SUBBASIN AREA

              PRECIPITATION DATA

53 PB               STORM        3.97  BASIN TOTAL PRECIPITATION

14 PI           INCREMENTAL 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

54 LS         SCS LOSS RATE
                    STRTL         .33  INITIAL ABSTRACTION
                   CRVNBR       86.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

55 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG        3.07  LAG

                                   ***

                                UNIT HYDROGRAPH
                           186 END-OF-PERIOD ORDINATES
      178.      356.      535.      776.     1192.     1608.     2024.     2503.     3037.     3572.
     4107.     4783.     5496.     6209.     6937.     7888.     8838.     9789.    10798.    11927.
    13055.    14184.    15207.    16157.    17108.    18058.    18752.    19406.    20059.    20675.
```

21031.	21388.	21744.	21984.	22043.	22102.	22162.	22143.	22083.	22024.
21965.	21630.	21274.	20917.	20549.	20134.	19718.	19302.	18859.	18384.
17908.	17433.	16872.	16278.	15684.	15090.	14378.	13665.	12952.	12270.
11676.	11082.	10488.	9987.	9571.	9155.	8739.	8370.	8014.	7657.
7304.	7007.	6710.	6413.	6142.	5925.	5708.	5491.	5274.	5057.
4841.	4624.	4440.	4262.	4083.	3905.	3727.	3549.	3371.	3215.
3096.	2977.	2859.	2740.	2621.	2502.	2383.	2292.	2203.	2114.
2025.	1935.	1846.	1757.	1679.	1613.	1548.	1483.	1417.	1352.
1287.	1221.	1176.	1132.	1087.	1043.	998.	954.	909.	871.
838.	805.	773.	740.	707.	675.	642.	618.	595.	571.
547.	523.	500.	476.	456.	438.	420.	402.	384.	366.
349.	331.	320.	308.	296.	284.	272.	260.	248.	239.
232.	225.	218.	211.	204.	197.	190.	182.	175.	168.
161.	154.	147.	140.	133.	125.	118.	111.	105.	99.
93.	87.	81.	75.	70.	64.	58.	52.	46.	40.
34.	28.	22.	16.	10.	4.				

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

HYDROGRAPH AT STATION WHTLOW

TOTAL RAINFALL = 3.97, TOTAL LOSS = 1.45, TOTAL EXCESS = 2.52

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	124.92-HR
38241.	15.17	(CFS)	27056.	9667.	3226.	1860.
		(INCHES)	1.760	2.516	2.519	2.519
		(AC-FT)	13416.	19174.	19198.	19198.

CUMULATIVE AREA = 142.89 SQ MI

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	QCREEK	10712.	17.25	9114.	3930.	1320.	58.66		
HYDROGRAPH AT	SANOK	6722.	16.25	5350.	2149.	717.	57.69		
2 COMBINED AT	in2FRS	17138.	16.83	14392.	6079.	2037.	116.35		
ROUTED TO	FRSout	1063.	30.75	1062.	1052.	1013.	116.35	1582.78	30.67

HYDROGRAPH AT

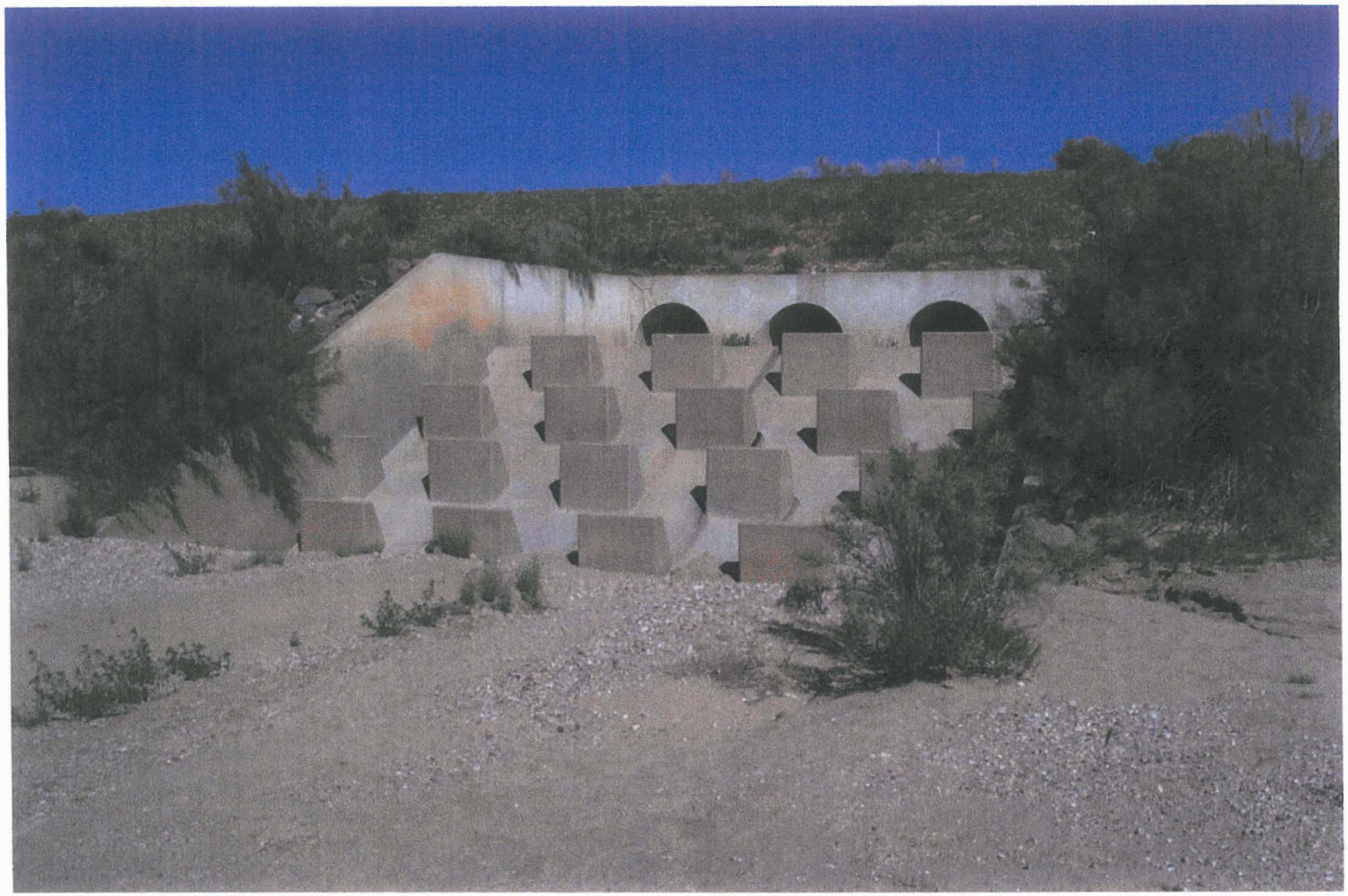
```
+                    WHTLOW     38241.   15.17      27056.      9667.      3226.     142.89

*** NORMAL END OF HEC-1 ***
```

Sanokai FRS Outlet Photos & HY-8 Model

Upstream Side of FRS Outlet

Upstream Side of FRS Outlet



Downstream Side of FRS Outlet

CURRENT DATE: 08-29-2001 FILE DATE: 08-29-2001
CURRENT TIME: 10:06:52 FILE NAME: FRS

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1567.92	1567.52	80.00	4 IRCP	6.00	3.92	.013	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: FRS DATE: 08-29-2001

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1567.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1570.07	210.0	210.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1571.39	420.0	420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1572.93	630.0	630.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1574.85	840.0	840.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1576.71	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1580.42	1260.0	1260.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1584.22	1470.0	1470.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1586.19	1680.0	1567.5	0.0	0.0	0.0	0.0	0.0	107.94	4
1586.37	1890.0	1576.2	0.0	0.0	0.0	0.0	0.0	302.82	4
1586.52	2100.0	1583.4	0.0	0.0	0.0	0.0	0.0	510.31	4
1586.00	1558.3	1558.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: FRS DATE: 08-29-2001

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1567.92	0.000	0.00	0.00	0.00
1570.07	0.000	210.00	0.00	0.00
1571.39	0.000	420.00	0.00	0.00
1572.93	0.000	630.00	0.00	0.00
1574.85	0.000	840.00	0.00	0.00
1576.71	0.000	1000.00	0.00	0.00
1580.42	0.000	1260.00	0.00	0.00
1584.22	0.000	1470.00	0.00	0.00
1586.19	-0.005	1680.00	4.60	0.27
1586.37	-0.006	1890.00	10.94	0.58
1586.52	-0.003	2100.00	6.33	0.30

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

CURRENT DATE: 08-29-2001 FILE DATE: 08-29-2001
CURRENT TIME: 10:06:52 FILE NAME: FRS

PERFORMANCE CURVE FOR CULVERT 1 - 4(6.00 (ft) BY 3.92 (ft)) IRCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1567.92	0.00	0.00	0-NF	0.00	0.00	0.00	-6.52	0.00	0.00
210.00	1570.07	2.15	2.15	1-S2n	1.70	1.93	1.63	-5.86	8.50	0.63
420.00	1571.39	3.47	3.47	1-S2n	2.46	2.77	2.51	-5.51	9.44	0.82
630.00	1572.93	5.01	5.01	5-S2n	3.11	3.43	3.16	-5.24	10.49	0.97
840.00	1574.85	6.93	6.82	6-S2n	3.92	3.92	3.82	-5.00	11.12	1.08
1000.00	1576.71	8.79	8.20	6-S2n	3.92	3.92	3.82	-4.83	13.24	1.16
1260.00	1580.42	12.50	10.95	6-S2n	3.92	3.92	3.82	-4.58	16.68	1.27
1470.00	1584.22	16.30	13.64	6-S2n	3.92	3.92	3.82	-4.39	19.46	1.35
1567.47	1586.19	18.27	15.03	6-S2n	3.92	3.92	3.82	-4.22	20.75	1.42
1576.24	1586.37	18.45	15.15	6-S2n	3.92	3.92	3.82	-4.05	20.87	1.49
1583.36	1586.52	18.60	15.26	6-S2n	3.92	3.92	3.82	-3.89	20.96	1.55

El. inlet face invert 1567.92 ft El. outlet invert 1567.52 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

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

INLET STATION	0.00 ft
INLET ELEVATION	1567.92 ft
OUTLET STATION	80.00 ft
OUTLET ELEVATION	1567.52 ft
NUMBER OF BARRELS	4
SLOPE (V/H)	0.0050
CULVERT LENGTH ALONG SLOPE	80.00 ft

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

BARREL SHAPE	USER DEFINED
BARREL SPAN	6.00 ft
BARREL RISE	3.92 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.013 FOR SIDES AND TOP
	0.013 FOR BOTTOM
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 08-29-2001 FILE DATE: 08-29-2001
CURRENT TIME: 10:06:52 FILE NAME: FRS

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	500.00 ft
SIDE SLOPE H/V (X:1)	6.0
CHANNEL SLOPE V/H (ft/ft)	0.000
MANNING'S n (.01-0.1)	0.030
CHANNEL INVERT ELEVATION	1561.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	1567.52 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	1561.00	0.000	0.00	0.00	0.00
210.00	1561.66	0.136	0.66	0.63	0.01
420.00	1562.01	0.145	1.01	0.82	0.02
630.00	1562.28	0.151	1.28	0.97	0.02
840.00	1562.52	0.155	1.52	1.08	0.03
1000.00	1562.69	0.157	1.69	1.16	0.03
1260.00	1562.94	0.161	1.94	1.27	0.03
1470.00	1563.13	0.163	2.13	1.35	0.04
1680.00	1563.30	0.165	2.30	1.42	0.04
1890.00	1563.47	0.167	2.47	1.49	0.04
2100.00	1563.63	0.168	2.63	1.55	0.05

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	16.00 ft
CREST LENGTH	500.00 ft
OVERTOPPING CREST ELEVATION	1586.00 ft

Relevant Excerpts of Revised HEC-1 Models

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

   1          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   2          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   3          ID   File Name: QC2.dat
   4          ID   Revisions Made by Dibble & Associates 7/2001
   5          ID
   6          ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
   7          ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
   8          ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
   9          ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
  10          ID   Dibble & Associates.
  11          ID
  12          ID   Rainfall depth-area relations (JD Records) modified to reflect 2-year
  13          ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
  14          ID
  15          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  16          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

              * ///////////////////////////// Rainfall Distribution ////////////////////////////
              *
 115          IN      15
 116          JD    1.30    0.01
 117          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 118          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 119          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 120          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 121          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 122          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 123          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 124          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 125          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 126          PC    .983    .986    .989    .992    .995    .998   1.000
 127          JD    1.29    1.00
 128          JD    1.26    5.00
 129          JD    1.22   10.00
 130          JD    1.17   30.00
 131          JD    1.12   60.00
 132          JD    1.10   90.00
 133          JD    1.08  120.00
 134          JD    1.07  150.00

2133          KK   RO335
2134          KM        ROUTE FLOW ALONG EMF
2135          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137          RM       4    0.42    0.30
              *
              * KK HY337
              * KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
```

```
* KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
* KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
* BA  .001
* IN    60                          35
* QI     0       0       0       1       3      11      33      81     208     3
* QI   605     831    1032    1209    1347    1453    1532    1593    1636    16
* QI  1685    1694    1695    1689    1679    1666    1650    1634    1617    16
* QI  1583    1565    1547    1529    1511
*
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^        Modifications By Dibble & Associates - July, 2001       ^^
*      ^^        The following Hard Coded Hydrograph "FRS Q"             ^^
*      ^^        Replaced the Hard Coded Hydrograph "HY337" which        ^^
*      ^^        Has Now Been "Starred-Out" Above.                       ^^
*      ^^                                                                ^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*

KK   FRS Q
KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
BA    .001
IN      5                      1500
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00200 0.00700 0.01600 0.03400 0.06200 0.10300
QI  0.1650 0.25400 0.37300 0.53700 0.75300 1.02800 1.38700 1.84000 2.40000 3.34600
QI  4.7690 6.75400 10.4920 16.7350 26.2390 36.7840 48.5110 61.6980 78.1740 98.6370
QI  122.93 148.609 175.862 204.968 236.324 270.035 306.335 344.393 384.701 426.826
QI  471.67 504.631 507.943 515.285 526.518 541.497 560.152 582.513 608.652 636.470
QI  661.98 690.604 722.287 750.306 766.261 784.019 803.549 824.804 846.552 867.372
QI  889.56 913.042 937.777 938.617 939.509 940.453 941.445 942.485 943.569 944.698
QI  945.87 947.080 948.328 949.610 950.925 952.271 953.646 955.047 956.471 957.914
QI  959.38 960.856 962.352 963.862 965.384 966.917 968.459 970.009 971.565 973.124
QI  974.68 976.238 977.790 979.337 980.877 982.409 983.931 985.443 986.943 988.431
QI  989.91 991.366 992.812 994.241 995.653 997.049 998.427 999.785 1000.89 1001.93
QI  1003.0 1003.96 1004.94 1005.91 1006.86 1007.78 1008.69 1009.57 1010.43 1011.27
QI  1012.1 1012.88 1013.66 1014.42 1015.15 1015.87 1016.57 1017.26 1017.92 1018.57
QI  1019.2 1019.82 1020.42 1021.01 1021.58 1022.13 1022.67 1023.20 1023.71 1024.20
QI  1024.7 1025.16 1025.61 1026.06 1026.49 1026.91 1027.31 1027.71 1028.09 1028.47
QI  1028.8 1029.18 1029.52 1029.85 1030.16 1030.47 1030.77 1031.05 1031.33 1031.60
QI  1031.9 1032.10 1032.34 1032.56 1032.78 1032.99 1033.19 1033.38 1033.56 1033.73
QI  1033.9 1034.05 1034.20 1034.35 1034.48 1034.61 1034.73 1034.84 1034.94 1035.04
QI  1035.1 1035.21 1035.29 1035.36 1035.42 1035.48 1035.52 1035.57 1035.60 1035.63
QI  1035.6 1035.66 1035.67 1035.66 1035.66 1035.64 1035.62 1035.59 1035.55 1035.51
```

2174	QI	1035.5	1035.39	1035.33	1035.25	1035.17	1035.08	1034.98	1034.87	1034.76	1034.63
2175	QI	1034.5	1034.37	1034.22	1034.07	1033.90	1033.73	1033.56	1033.37	1033.18	1032.98
2176	QI	1032.8	1032.55	1032.33	1032.10	1031.86	1031.61	1031.36	1031.10	1030.83	1030.56
2177	QI	1030.3	1029.99	1029.69	1029.39	1029.08	1028.76	1028.44	1028.12	1027.78	1027.44
2178	QI	1027.1	1026.75	1026.39	1026.03	1025.66	1025.29	1024.91	1024.53	1024.14	1023.75
2179	QI	1023.3	1022.95	1022.54	1022.13	1021.72	1021.30	1020.88	1020.45	1020.02	1019.59
2180	QI	1019.1	1018.71	1018.26	1017.82	1017.37	1016.91	1016.46	1016.00	1015.54	1015.08
2181	QI	1014.6	1014.14	1013.67	1013.20	1012.73	1012.25	1011.77	1011.29	1010.81	1010.32
2182	QI	1009.8	1009.35	1008.86	1008.37	1007.88	1007.38	1006.89	1006.39	1005.89	1005.39
2183	QI	1004.9	1004.39	1003.89	1003.38	1002.88	1002.37	1001.86	1001.35	1000.84	1000.33
2184	QI	999.77	999.125	998.476	997.825	997.174	996.521	995.868	995.213	994.558	993.902
2185	QI	993.25	992.588	991.930	991.271	990.612	989.952	989.291	988.630	987.968	987.305
2186	QI	986.64	985.979	985.315	984.651	983.986	983.321	982.656	981.991	981.325	980.659
2187	QI	979.99	979.328	978.662	977.995	977.329	976.663	975.997	975.330	974.664	973.997
2188	QI	973.33	972.665	971.999	971.332	970.666	970.000	969.334	968.669	968.003	967.337
2189	QI	966.67	966.007	965.342	964.677	964.012	963.347	962.683	962.019	961.355	960.691
2190	QI	960.03	959.364	958.701	958.038	957.376	956.713	956.051	955.389	954.728	954.067
2191	QI	953.41	952.745	952.084	951.424	950.764	950.105	949.445	948.787	948.128	947.470
2192	QI	946.81	946.154	945.497	944.840	944.183	943.527	942.871	942.215	941.560	940.905
2193	QI	940.25	939.596	938.942	938.289	933.329	913.216	893.534	874.276	855.432	836.456
2194	QI	815.20	794.484	774.294	754.616	721.443	677.604	636.432	587.453	540.350	1.99400
2195	QI	1.9200	1.84800	1.77800	1.70900	1.64200	1.57700	1.51400	1.45200	1.39200	1.33300
2196	QI	1.2750	1.21900	1.16400	1.11000	1.05800	1.00700	0.95800	0.91000	0.86300	0.81800
2197	QI	0.7740	0.73100	0.69000	0.65000	0.61100	0.57400	0.53800	0.50400	0.47000	0.43800
2198	QI	0.4070	0.37700	0.34800	0.32100	0.29400	0.26900	0.24500	0.22200	0.20000	0.17900
2199	QI	0.1590	0.14100	0.12400	0.10700	0.09200	0.07800	0.06600	0.05400	0.04400	0.03400
2200	QI	0.0260	0.01900	0.01300	0.00900	0.00500	0.00300	0.00100	0.00000	0.00000	0.00000
2201	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2202	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2203	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2204	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2205	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2206	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2207	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2208	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2209	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2210	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2211	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2212	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2213	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2214	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2215	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2216	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2217	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2219	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2220	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2221	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2222	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2223	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2224	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2225	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2226	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2227	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2228	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2229	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2230	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

2231	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2232	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2233	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2234	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2235	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2236	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2237	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2238	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2239	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2240	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2241	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2242	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2243	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2244	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2245	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2246	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2247	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2248	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2249	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2250	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2251	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2252	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2253	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2254	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2255	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2256	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2257	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2258	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2259	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2260	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2261	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2262	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2263	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2264	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2265	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2266	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2267	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2268	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2269	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2270	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2271	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2272	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2273	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2274	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2275	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2276	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2277	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2278	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2279	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2280	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2281	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2282	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2283	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2284	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2285	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2286	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

```
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
              *
```

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	FRS Q	1036.	26.00	1034.	1009.	419.	.00		
+	2 COMBINED AT	CO340	1036.	26.08	1034.	1009.	419.	1.10		
+	4 COMBINED AT	CO311	1039.	28.17	1038.	1016.	427.	23.57		
+	2 COMBINED AT	CO313	1039.	28.58	1038.	1016.	427.	24.62		
+	2 COMBINED AT	CO319	1039.	28.75	1038.	1016.	427.	25.94		

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

   1          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   2          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   3          ID   File Name: QC2.dat
   4          ID   Revisions Made by Dibble & Associates 7/2001
   5          ID
   6          ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
   7          ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
   8          ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
   9          ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
  10          ID   Dibble & Associates.
  11          ID
  12          ID   Rainfall depth-area relations (JD Records) modified to reflect 2-year
  13          ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
  14          ID
  15          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  16          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

              * ///////////////////////// Rainfall Distribution ////////////////////////////
              *
 115          IN      15
 116          JD    1.30    0.01
 117          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 118          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 119          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 120          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 121          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 122          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 123          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 124          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 125          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 126          PC    .983    .986    .989    .992    .995    .998   1.000
 127          JD    1.29    1.00
 128          JD    1.26    5.00
 129          JD    1.22   10.00
 130          JD    1.17   30.00
 131          JD    1.12   60.00
 132          JD    1.10   90.00
 133          JD    1.08  120.00
 134          JD    1.07  150.00

2133          KK   RO335
2134          KM        ROUTE FLOW ALONG EMF
2135          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137          RM       4    0.42    0.30
              *
              * KK HY337
              * KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
```

```
* KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
* KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
* BA  .001
* IN    60                      35
* QI     0       0       0       1       3      11      33      81     208     3
* QI   605     831    1032    1209    1347    1453    1532    1593    1636    16
* QI  1685    1694    1695    1689    1679    1666    1650    1634    1617    16
* QI  1583    1565    1547    1529    1511
*
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^        Modifications By Dibble & Associates - July, 2001      ^^
*       ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
*       ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
*       ^^        Has Now Been "Starred-Out" Above.                      ^^
*       ^^                                                               ^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*

KK   FRS Q
KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
BA    .001
IN      5                    1500
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00200 0.00700 0.01600 0.03400 0.06200 0.10300
QI  0.1650 0.25400 0.37300 0.53700 0.75300 1.02800 1.38700 1.84000 2.40000 3.34600
QI  4.7690 6.75400 10.4920 16.7350 26.2390 36.7840 48.5110 61.6980 78.1740 98.6370
QI  122.93 148.609 175.862 204.968 236.324 270.035 306.335 344.393 384.701 426.826
QI  471.67 504.631 507.943 515.285 526.518 541.497 560.152 582.513 608.652 636.470
QI  661.98 690.604 722.287 750.306 766.261 784.019 803.549 824.804 846.552 867.372
QI  889.56 913.042 937.777 938.617 939.509 940.453 941.445 942.485 943.569 944.698
QI  945.87 947.080 948.328 949.610 950.925 952.271 953.646 955.047 956.471 957.914
QI  959.38 960.856 962.352 963.862 965.384 966.917 968.459 970.009 971.565 973.124
QI  974.68 976.238 977.790 979.337 980.877 982.409 983.931 985.443 986.943 988.431
QI  989.91 991.366 992.812 994.241 995.653 997.049 998.427 999.785 1000.89 1001.93
QI  1003.0 1003.96 1004.94 1005.91 1006.86 1007.78 1008.69 1009.57 1010.43 1011.27
QI  1012.1 1012.88 1013.66 1014.42 1015.15 1015.87 1016.57 1017.26 1017.92 1018.57
QI  1019.2 1019.82 1020.42 1021.01 1021.58 1022.13 1022.67 1023.20 1023.71 1024.20
QI  1024.7 1025.16 1025.61 1026.06 1026.49 1026.91 1027.31 1027.71 1028.09 1028.47
QI  1028.8 1029.18 1029.52 1029.85 1030.16 1030.47 1030.77 1031.05 1031.33 1031.60
QI  1031.9 1032.10 1032.34 1032.56 1032.78 1032.99 1033.19 1033.38 1033.56 1033.73
QI  1033.9 1034.05 1034.20 1034.35 1034.48 1034.61 1034.73 1034.84 1034.94 1035.04
QI  1035.1 1035.21 1035.29 1035.36 1035.42 1035.48 1035.52 1035.57 1035.60 1035.63
QI  1035.6 1035.66 1035.67 1035.66 1035.66 1035.64 1035.62 1035.59 1035.55 1035.51
```

2174	QI	1035.5	1035.39	1035.33	1035.25	1035.17	1035.08	1034.98	1034.87	1034.76	1034.63
2175	QI	1034.5	1034.37	1034.22	1034.07	1033.90	1033.73	1033.56	1033.37	1033.18	1032.98
2176	QI	1032.8	1032.55	1032.33	1032.10	1031.86	1031.61	1031.36	1031.10	1030.83	1030.56
2177	QI	1030.3	1029.99	1029.69	1029.39	1029.08	1028.76	1028.44	1028.12	1027.78	1027.44
2178	QI	1027.1	1026.75	1026.39	1026.03	1025.66	1025.29	1024.91	1024.53	1024.14	1023.75
2179	QI	1023.3	1022.95	1022.54	1022.13	1021.72	1021.30	1020.88	1020.45	1020.02	1019.59
2180	QI	1019.1	1018.71	1018.26	1017.82	1017.37	1016.91	1016.46	1016.00	1015.54	1015.08
2181	QI	1014.6	1014.14	1013.67	1013.20	1012.73	1012.25	1011.77	1011.29	1010.81	1010.32
2182	QI	1009.8	1009.35	1008.86	1008.37	1007.88	1007.38	1006.89	1006.39	1005.89	1005.39
2183	QI	1004.9	1004.39	1003.89	1003.38	1002.88	1002.37	1001.86	1001.35	1000.84	1000.33
2184	QI	999.77	999.125	998.476	997.825	997.174	996.521	995.868	995.213	994.558	993.902
2185	QI	993.25	992.588	991.930	991.271	990.612	989.952	989.291	988.630	987.968	987.305
2186	QI	986.64	985.979	985.315	984.651	983.986	983.321	982.656	981.991	981.325	980.659
2187	QI	979.99	979.328	978.662	977.995	977.329	976.663	975.997	975.330	974.664	973.997
2188	QI	973.33	972.665	971.999	971.332	970.666	970.000	969.334	968.669	968.003	967.337
2189	QI	966.67	966.007	965.342	964.677	964.012	963.347	962.683	962.019	961.355	960.691
2190	QI	960.03	959.364	958.701	958.038	957.376	956.713	956.051	955.389	954.728	954.067
2191	QI	953.41	952.745	952.084	951.424	950.764	950.105	949.445	948.787	948.128	947.470
2192	QI	946.81	946.154	945.497	944.840	944.183	943.527	942.871	942.215	941.560	940.905
2193	QI	940.25	939.596	938.942	938.289	933.329	913.216	893.534	874.276	855.432	836.456
2194	QI	815.20	794.484	774.294	754.616	721.443	677.604	636.432	587.453	540.350	1.99400
2195	QI	1.9200	1.84800	1.77800	1.70900	1.64200	1.57700	1.51400	1.45200	1.39200	1.33300
2196	QI	1.2750	1.21900	1.16400	1.11000	1.05800	1.00700	0.95800	0.91000	0.86300	0.81800
2197	QI	0.7740	0.73100	0.69000	0.65000	0.61100	0.57400	0.53800	0.50400	0.47000	0.43800
2198	QI	0.4070	0.37700	0.34800	0.32100	0.29400	0.26900	0.24500	0.22200	0.20000	0.17900
2199	QI	0.1590	0.14100	0.12400	0.10700	0.09200	0.07800	0.06600	0.05400	0.04400	0.03400
2200	QI	0.0260	0.01900	0.01300	0.00900	0.00500	0.00300	0.00100	0.00000	0.00000	0.00000
2201	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2202	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2203	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2204	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2205	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2206	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2207	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2208	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2209	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2210	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2211	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2212	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2213	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2214	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2215	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2216	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2217	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2219	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2220	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2221	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2222	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2223	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2224	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2225	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2226	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2227	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2228	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2229	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2230	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

2231	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2232	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2233	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2234	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2235	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2236	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2237	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2238	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2239	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2240	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2241	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2242	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2243	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2244	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2245	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2246	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2247	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2248	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2249	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2250	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2251	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2252	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2253	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2254	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2255	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2256	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2257	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2258	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2259	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2260	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2261	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2262	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2263	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2264	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2265	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2266	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2267	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2268	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2269	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2270	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2271	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2272	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2273	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2274	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2275	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2276	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2277	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2278	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2279	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2280	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2281	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2282	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2283	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2284	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2285	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2286	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

```
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
              *
```

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	FRS Q	1036.	26.00	1034.	1009.	419.	.00		
+	2 COMBINED AT	CO340	1036.	26.08	1034.	1009.	419.	1.10		
+	4 COMBINED AT	CO311	1039.	28.17	1038.	1016.	427.	23.57		
+	2 COMBINED AT	CO313	1039.	28.58	1038.	1016.	427.	24.62		
+	2 COMBINED AT	CO319	1039.	28.75	1038.	1016.	427.	25.94		

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

  1           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  2           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  3           ID   File Name: QC5.dat
  4           ID   Revisions Made by Dibble & Associates 7/2001
  5           ID
  6           ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
  7           ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
  8           ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
  9           ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
 10           ID   Dibble & Associates.
 11           ID
 12           ID   Rainfall depth-area relations (JD Records) modified to reflect 5-year
 13           ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
 14           ID
 15           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
 16           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

              * ///////////////////////// Rainfall Distribution ////////////////////////////
              *
115           IN      15
116           JD    1.90    0.01
117           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
118           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
119           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
120           PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
121           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
122           PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
123           PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
124           PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
125           PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
126           PC    .983    .986    .989    .992    .995    .998   1.000
127           JD    1.89    1.00
128           JD    1.84    5.00
129           JD    1.78   10.00
130           JD    1.71   30.00
131           JD    1.64   60.00
132           JD    1.61   90.00
133           JD    1.58  120.00
134           JD    1.57  150.00
```

```
2133    KK   RO335
2134    KM        ROUTE FLOW ALONG EMF
2135    KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136    KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137    RM       4    0.42    0.30
        *
        * KK HY337
        * KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
        * KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
        * KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
        * BA  .001
        * IN    60                    35
        * QI     0       0       0       1       3      11      33      81     208       3
        * QI   605     831    1032    1209    1347    1453    1532    1593    1636      16
        * QI  1685    1694    1695    1689    1679    1666    1650    1634    1617      16
        * QI  1583    1565    1547    1529    1511
        *
        *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
        *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
        *      ^^        Modifications By Dibble & Associates - July, 2001      ^^
        *      ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
        *      ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
        *      ^^        Has Now Been "Starred-Out" Above.                      ^^
        *      ^^                                                               ^^
        *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
        *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
        *

2138    KK   FRS Q
2139    KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
2140    BA    .001
2141    IN       5                  1500
2142    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2143    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2144    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2145    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2146    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2147    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2148    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2149    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2150    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2151    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2152    QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2153    QI  0.0000 0.00100 0.00400 0.01000 0.02100 0.03800 0.06200 0.09700 0.14400 0.20700
2154    QI  0.2890 0.39500 0.52800 0.69200 0.89600 1.14500 1.44200 1.80400 2.23600 2.74600
2155    QI  3.3570 4.07800 4.91700 5.91000 7.06800 8.40600 9.97600 11.7970 13.8880 16.7760
2156    QI  20.583 25.4330 33.6470 46.3450 64.4620 84.4470 106.678 132.014 163.351 201.315
2157    QI  245.13 291.453 340.708 393.265 449.587 504.224 507.252 515.361 528.441 546.378
2158    QI  569.08 596.579 628.981 657.542 690.097 726.861 754.857 774.185 796.094 820.652
2159    QI  846.68 872.039 899.749 929.832 938.573 939.717 940.962 942.305 943.746 945.283
2160    QI  946.91 948.636 950.448 952.347 954.331 956.395 958.535 960.747 963.028 965.375
2161    QI  967.79 970.258 972.782 975.358 977.981 980.649 983.357 986.100 988.873 991.672
2162    QI  994.49 997.338 1000.16 1002.43 1004.72 1007.02 1009.32 1011.63 1013.93 1016.24
```

2163	QI	1018.5	1020.84	1023.12	1025.39	1027.65	1029.89	1032.12	1034.32	1036.51	1038.67
2164	QI	1040.8	1042.94	1045.03	1047.11	1049.15	1051.18	1053.17	1055.14	1057.08	1058.99
2165	QI	1060.9	1062.71	1064.53	1066.30	1068.05	1069.76	1071.43	1073.06	1074.66	1076.23
2166	QI	1077.8	1079.25	1080.71	1082.14	1083.54	1084.90	1086.24	1087.55	1088.83	1090.08
2167	QI	1091.3	1092.00	1092.65	1093.29	1093.92	1094.53	1095.13	1095.72	1096.29	1096.85
2168	QI	1097.4	1097.94	1098.47	1098.98	1099.48	1099.97	1100.46	1100.93	1101.39	1101.84
2169	QI	1102.3	1102.71	1103.13	1103.54	1103.94	1104.33	1104.72	1105.09	1105.45	1105.81
2170	QI	1106.2	1106.49	1106.82	1107.14	1107.46	1107.76	1108.06	1108.35	1108.63	1108.90
2171	QI	1109.2	1109.43	1109.68	1109.93	1110.17	1110.40	1110.63	1110.85	1111.06	1111.27
2172	QI	1111.5	1111.67	1111.86	1112.04	1112.22	1112.39	1112.55	1112.71	1112.86	1113.01
2173	QI	1113.2	1113.29	1113.41	1113.54	1113.65	1113.76	1113.87	1113.97	1114.06	1114.14
2174	QI	1114.2	1114.29	1114.36	1114.42	1114.47	1114.52	1114.56	1114.59	1114.62	1114.64
2175	QI	1114.7	1114.66	1114.66	1114.65	1114.64	1114.62	1114.59	1114.56	1114.52	1114.47
2176	QI	1114.4	1114.36	1114.30	1114.23	1114.15	1114.07	1113.98	1113.89	1113.78	1113.68
2177	QI	1113.6	1113.45	1113.32	1113.19	1113.06	1112.92	1112.77	1112.62	1112.47	1112.31
2178	QI	1112.1	1111.97	1111.80	1111.62	1111.43	1111.24	1111.05	1110.86	1110.66	1110.45
2179	QI	1110.2	1110.03	1109.81	1109.59	1109.37	1109.15	1108.92	1108.68	1108.45	1108.21
2180	QI	1108.0	1107.72	1107.48	1107.23	1106.97	1106.72	1106.46	1106.20	1105.94	1105.68
2181	QI	1105.4	1105.14	1104.87	1104.60	1104.33	1104.05	1103.78	1103.50	1103.22	1102.94
2182	QI	1102.7	1102.37	1102.08	1101.79	1101.51	1101.22	1100.92	1100.63	1100.34	1100.04
2183	QI	1099.7	1099.45	1099.15	1098.85	1098.55	1098.25	1097.94	1097.64	1097.33	1097.03
2184	QI	1096.7	1096.41	1096.11	1095.80	1095.49	1095.18	1094.86	1094.55	1094.24	1093.92
2185	QI	1093.6	1093.30	1092.98	1092.66	1092.35	1092.03	1091.71	1091.39	1090.85	1090.28
2186	QI	1089.7	1089.13	1088.56	1087.99	1087.41	1086.83	1086.26	1085.68	1085.10	1084.53
2187	QI	1083.9	1083.37	1082.79	1082.21	1081.64	1081.06	1080.48	1079.90	1079.32	1078.74
2188	QI	1078.2	1077.58	1077.00	1076.42	1075.83	1075.25	1074.67	1074.09	1073.51	1072.93
2189	QI	1072.3	1071.77	1071.19	1070.61	1070.02	1069.44	1068.86	1068.28	1067.70	1067.12
2190	QI	1066.5	1065.96	1065.38	1064.79	1064.21	1063.63	1063.05	1062.47	1061.89	1061.31
2191	QI	1060.7	1060.15	1059.57	1058.99	1058.41	1057.83	1057.25	1056.67	1056.10	1055.52
2192	QI	1054.9	1054.36	1053.78	1053.20	1052.63	1052.05	1051.47	1050.89	1050.32	1049.74
2193	QI	1049.2	1048.59	1048.01	1047.43	1046.86	1046.28	1045.71	1045.13	1044.56	1043.98
2194	QI	1043.4	1042.83	1042.26	1041.68	1041.11	1040.54	1039.97	1039.39	1038.82	1038.25
2195	QI	1037.7	1037.10	1036.53	1035.96	1035.39	1034.82	1034.25	1033.68	1033.11	1032.54
2196	QI	1032.0	1031.40	1030.83	1030.26	1029.70	1029.13	1028.56	1027.99	1027.43	1026.86
2197	QI	1026.3	1025.73	1025.16	1024.60	1024.03	1023.46	1022.90	1022.34	1021.77	1021.21
2198	QI	1020.6	1020.08	1019.52	1018.95	1018.39	1017.83	1017.27	1016.71	1016.14	1015.58
2199	QI	1015.0	1014.46	1013.90	1013.34	1012.78	1012.22	1011.66	1011.11	1010.55	1009.99
2200	QI	1009.4	1008.87	1008.32	1007.76	1007.20	1006.65	1006.09	1005.54	1004.98	1004.42
2201	QI	1003.9	1003.32	1002.76	1002.21	1001.65	1001.10	1000.55	999.993	999.295	998.597
2202	QI	997.90	997.202	996.505	995.809	995.113	994.418	993.723	993.029	992.335	991.642
2203	QI	990.95	990.257	989.565	988.874	988.183	987.493	986.803	986.113	985.424	984.736
2204	QI	984.05	983.361	982.674	981.987	981.301	980.615	979.930	979.246	978.562	977.878
2205	QI	977.20	976.512	975.830	975.148	974.467	973.786	973.106	972.426	971.747	971.068
2206	QI	970.39	969.711	969.034	968.357	967.680	967.004	966.329	965.654	964.979	964.305
2207	QI	963.63	962.958	962.285	961.613	960.941	960.270	959.599	958.929	958.259	957.589
2208	QI	956.92	956.252	955.584	954.916	954.249	953.582	952.916	952.250	951.585	950.920
2209	QI	950.26	949.592	948.929	948.266	947.603	946.941	946.280	945.619	944.958	944.298
2210	QI	943.64	942.979	942.320	941.662	941.004	940.346	939.690	939.033	938.377	935.980
2211	QI	915.74	895.931	876.554	857.596	838.877	817.488	796.644	776.332	756.538	725.773
2212	QI	681.53	639.977	591.671	544.060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2213	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2214	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2215	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2216	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2217	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2218	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

2219	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2220	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2221	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2222	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2223	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2224	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2225	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2226	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2227	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2228	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2229	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2230	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2231	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2232	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2233	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2234	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2235	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2236	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2237	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2238	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2239	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2240	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2241	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2242	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2243	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2244	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2245	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2246	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2247	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2248	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2249	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2250	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2251	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2252	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2253	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2254	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2255	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2256	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2257	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2258	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2259	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2260	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2261	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2262	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2263	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2264	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2265	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2266	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2267	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2268	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2269	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2270	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2271	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2272	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2273	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2274	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

```
2275          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2276          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2277          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2278          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2279          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2280          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2281          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2282          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2283          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2284          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2285          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2286          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
              *

2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
              *
```

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	FRS Q	1115.	27.50	1113.	1094.	658.	.00		
+	ROUTED TO	RO339	1115.	27.58	1113.	1094.	658.	.00		
+	4 COMBINED AT	CO311	1381.	17.58	1235.	1146.	701.	23.57		

	2 COMBINED AT							
+		CO313	1374.	18.00	1233.	1145.	701.	24.62

---

	2 COMBINED AT							
+		CO319	1370.	18.25	1231.	1145.	701.	25.94

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

   1          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   2          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   3          ID   File Name: QC10.dat
   4          ID   Revisions Made by Dibble & Associates 7/2001
   5          ID
   6          ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
   7          ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
   8          ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
   9          ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
  10          ID   Dibble & Associates.
  11          ID
  12          ID   Rainfall depth-area relations (JD Records) modified to reflect 10-year
  13          ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
  14          ID
  15          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  16          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

              * ///////////////////////////// Rainfall Distribution ////////////////////////////
              *
 115          IN      15
 116          JD    2.40    0.01
 117          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 118          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 119          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 120          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 121          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 122          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 123          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 124          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 125          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 126          PC    .983    .986    .989    .992    .995    .998   1.000
 127          JD    2.39    1.00
 128          JD    2.33    5.00
 129          JD    2.25   10.00
 130          JD    2.16   30.00
 131          JD    2.07   60.00
 132          JD    2.03   90.00
 133          JD    2.00  120.00
 134          JD    1.98  150.00

2133          KK   RO335
2134          KM        ROUTE FLOW ALONG EMF
2135          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137          RM       4    0.42    0.30
              *
```

```
* KK HY337
* KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
* KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
* KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
* BA  .001
* IN    60                        35
* QI     0       0       0       1       3      11      33      81     208     3
* QI   605     831    1032    1209    1347    1453    1532    1593    1636    16
* QI  1685    1694    1695    1689    1679    1666    1650    1634    1617    16
* QI  1583    1565    1547    1529    1511
*
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^        Modifications By Dibble & Associates - July, 2001      ^^
*      ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
*      ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
*      ^^        Has Now Been "Starred-Out" Above.                      ^^
*      ^^                                                               ^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*
KK   FRS Q
KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
BA    .001
IN      5                    1500
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0010 0.00300 0.00800 0.01800 0.03300 0.05400 0.08400 0.12600 0.18100 0.25600
QI  0.3510 0.47200 0.62100 0.80200 1.01800 1.27900 1.58900 1.95200 2.37400 2.86000
QI  3.4150 4.05400 4.78300 5.60800 6.54700 7.60600 8.79600 10.1490 11.6750 13.3870
QI  15.324 17.5010 19.9340 22.6830 25.7700 29.2100 33.0930 37.4390 42.2740 48.5330
QI  56.534 66.5650 82.6420 106.247 138.733 174.603 214.789 261.201 317.846 385.101
QI  460.87 505.488 511.789 524.688 544.133 570.081 602.541 638.744 673.435 713.740
QI  751.44 773.305 798.492 827.162 856.455 886.940 920.716 938.431 939.764 941.244
QI  942.88 944.656 946.590 948.681 950.930 953.339 955.907 958.631 961.506 964.531
QI  967.70 971.010 974.455 978.031 981.733 985.555 989.488 993.523 997.658 1001.49
QI  1004.9 1008.39 1011.93 1015.53 1019.18 1022.87 1026.61 1030.37 1034.17 1037.99
QI  1041.8 1045.68 1049.55 1053.43 1057.31 1061.20 1065.09 1068.98 1072.86 1076.73
QI  1080.6 1084.41 1088.21 1091.71 1093.80 1095.87 1097.92 1099.96 1101.96 1103.95
QI  1105.9 1107.86 1109.77 1111.66 1113.53 1115.37 1117.19 1118.98 1120.74 1122.48
QI  1124.2 1125.86 1127.51 1129.13 1130.72 1132.27 1133.80 1135.29 1136.75 1138.18
QI  1139.6 1140.96 1142.31 1143.62 1144.91 1146.17 1147.41 1148.62 1149.81 1150.98
QI  1152.1 1153.24 1154.34 1155.41 1156.47 1157.50 1158.51 1159.50 1160.47 1161.42
QI  1162.4 1163.27 1164.17 1165.05 1165.91 1166.76 1167.59 1168.40 1169.20 1169.99
QI  1170.8 1171.51 1172.24 1172.97 1173.67 1174.37 1175.05 1175.71 1176.37 1177.00
QI  1177.6 1178.24 1178.84 1179.43 1180.00 1180.57 1181.12 1181.66 1182.18 1182.70
QI  1183.2 1183.70 1184.19 1184.67 1185.13 1185.59 1186.04 1186.47 1186.90 1187.32
QI  1187.7 1188.13 1188.52 1188.90 1189.28 1189.64 1190.00 1190.34 1190.68 1191.01
```

2173	QI	1191.3	1191.64	1191.94	1192.23	1192.52	1192.79	1193.06	1193.32	1193.56	1193.80
2174	QI	1194.0	1194.25	1194.46	1194.66	1194.85	1195.03	1195.20	1195.36	1195.51	1195.66
2175	QI	1195.8	1195.91	1196.03	1196.13	1196.23	1196.31	1196.39	1196.45	1196.51	1196.56
2176	QI	1196.6	1196.62	1196.64	1196.66	1196.66	1196.65	1196.64	1196.61	1196.58	1196.54
2177	QI	1196.5	1196.43	1196.37	1196.30	1196.22	1196.13	1196.03	1195.93	1195.82	1195.70
2178	QI	1195.6	1195.45	1195.31	1195.17	1195.02	1194.86	1194.70	1194.53	1194.36	1194.18
2179	QI	1194.0	1193.80	1193.61	1193.41	1193.20	1192.99	1192.78	1192.56	1192.34	1192.11
2180	QI	1191.9	1191.64	1191.40	1191.16	1190.92	1190.67	1190.41	1190.16	1189.90	1189.64
2181	QI	1189.4	1189.10	1188.83	1188.56	1188.29	1188.01	1187.73	1187.45	1187.16	1186.88
2182	QI	1186.6	1186.30	1186.00	1185.71	1185.41	1185.11	1184.81	1184.51	1184.20	1183.90
2183	QI	1183.6	1183.28	1182.97	1182.66	1182.35	1182.03	1181.71	1181.40	1181.08	1180.76
2184	QI	1180.4	1180.11	1179.79	1179.46	1179.14	1178.81	1178.48	1178.15	1177.82	1177.49
2185	QI	1177.2	1176.82	1176.49	1176.16	1175.82	1175.48	1175.14	1174.81	1174.47	1174.13
2186	QI	1173.8	1173.45	1173.10	1172.76	1172.42	1172.07	1171.73	1171.38	1171.04	1170.69
2187	QI	1170.3	1170.00	1169.66	1169.31	1168.96	1168.61	1168.27	1167.92	1167.57	1167.22
2188	QI	1166.9	1166.52	1166.17	1165.82	1165.47	1165.12	1164.77	1164.42	1164.07	1163.72
2189	QI	1163.4	1163.02	1162.67	1162.31	1161.96	1161.61	1161.26	1160.91	1160.55	1160.20
2190	QI	1159.9	1159.50	1159.15	1158.79	1158.44	1158.09	1157.74	1157.38	1157.03	1156.68
2191	QI	1156.3	1155.97	1155.62	1155.26	1154.91	1154.56	1154.21	1153.85	1153.50	1153.15
2192	QI	1152.8	1152.44	1152.09	1151.73	1151.38	1151.03	1150.68	1150.32	1149.97	1149.62
2193	QI	1149.3	1148.91	1148.56	1148.20	1147.85	1147.50	1147.15	1146.79	1146.44	1146.09
2194	QI	1145.7	1145.38	1145.03	1144.68	1144.33	1143.97	1143.62	1143.27	1142.92	1142.57
2195	QI	1142.2	1141.86	1141.51	1141.16	1140.81	1140.46	1140.10	1139.75	1139.40	1139.05
2196	QI	1138.7	1138.35	1138.00	1137.65	1137.30	1136.95	1136.59	1136.24	1135.89	1135.54
2197	QI	1135.2	1134.84	1134.49	1134.14	1133.79	1133.44	1133.09	1132.74	1132.39	1132.04
2198	QI	1131.7	1131.35	1131.00	1130.65	1130.30	1129.95	1129.60	1129.25	1128.90	1128.55
2199	QI	1128.2	1127.86	1127.51	1127.16	1126.81	1126.46	1126.12	1125.77	1125.42	1125.07
2200	QI	1124.7	1124.38	1124.03	1123.68	1123.34	1122.99	1122.64	1122.30	1121.95	1121.60
2201	QI	1121.3	1120.91	1120.56	1120.22	1119.87	1119.53	1119.18	1118.83	1118.49	1118.14
2202	QI	1117.8	1117.45	1117.11	1116.76	1116.42	1116.07	1115.73	1115.38	1115.04	1114.69
2203	QI	1114.3	1114.01	1113.66	1113.32	1112.97	1112.63	1112.29	1111.94	1111.60	1111.26
2204	QI	1110.9	1110.57	1110.23	1109.88	1109.54	1109.20	1108.86	1108.51	1108.17	1107.83
2205	QI	1107.5	1107.14	1106.80	1106.46	1106.12	1105.78	1105.43	1105.09	1104.75	1104.41
2206	QI	1104.1	1103.73	1103.39	1103.05	1102.71	1102.37	1102.03	1101.68	1101.34	1101.00
2207	QI	1100.7	1100.32	1099.98	1099.64	1099.30	1098.97	1098.63	1098.29	1097.95	1097.61
2208	QI	1097.3	1096.93	1096.59	1096.25	1095.91	1095.58	1095.24	1094.90	1094.56	1094.22
2209	QI	1093.9	1093.55	1093.21	1092.87	1092.53	1092.20	1091.86	1091.52	1091.05	1090.45
2210	QI	1089.8	1089.24	1088.64	1088.04	1087.44	1086.84	1086.24	1085.64	1085.04	1084.44
2211	QI	1083.8	1083.24	1082.64	1082.05	1081.45	1080.85	1080.26	1079.66	1079.06	1078.47
2212	QI	1077.9	1077.28	1076.68	1076.09	1075.49	1074.90	1074.30	1073.71	1073.12	1072.52
2213	QI	1071.9	1071.34	1070.75	1070.16	1069.57	1068.98	1068.39	1067.80	1067.21	1066.62
2214	QI	1066.0	1065.44	1064.85	1064.26	1063.67	1063.09	1062.50	1061.91	1061.33	1060.74
2215	QI	1060.2	1059.57	1058.98	1058.40	1057.81	1057.23	1056.65	1056.06	1055.48	1054.90
2216	QI	1054.3	1053.73	1053.15	1052.57	1051.99	1051.40	1050.82	1050.24	1049.66	1049.08
2217	QI	1048.5	1047.93	1047.35	1046.77	1046.19	1045.61	1045.03	1044.46	1043.88	1043.30
2218	QI	1042.7	1042.15	1041.58	1041.00	1040.43	1039.85	1039.28	1038.70	1038.13	1037.56
2219	QI	1037.0	1036.41	1035.84	1035.27	1034.69	1034.12	1033.55	1032.98	1032.41	1031.84
2220	QI	1031.3	1030.70	1030.13	1029.56	1028.99	1028.43	1027.86	1027.29	1026.72	1026.16
2221	QI	1025.6	1025.02	1024.46	1023.89	1023.33	1022.76	1022.20	1021.63	1021.07	1020.50
2222	QI	1019.9	1019.38	1018.81	1018.25	1017.69	1017.13	1016.56	1016.00	1015.44	1014.88
2223	QI	1014.3	1013.76	1013.20	1012.64	1012.08	1011.52	1010.96	1010.40	1009.85	1009.29
2224	QI	1008.7	1008.17	1007.62	1007.06	1006.50	1005.95	1005.39	1004.84	1004.28	1003.73
2225	QI	1003.2	1002.62	1002.07	1001.51	1000.96	1000.41	999.820	999.120	998.420	997.720
2226	QI	997.02	996.328	995.632	994.936	994.241	993.546	992.852	992.159	991.465	990.773
2227	QI	990.08	989.389	988.698	988.007	987.317	986.627	985.938	985.249	984.561	983.873
2228	QI	983.19	982.498	981.812	981.126	980.441	979.756	979.071	978.387	977.704	977.021

2229	QI	976.34	975.656	974.974	974.293	973.613	972.932	972.253	971.573	970.895	970.216
2230	QI	969.54	968.861	968.184	967.508	966.832	966.157	965.482	964.807	964.133	963.460
2231	QI	962.79	962.114	961.442	960.770	960.099	959.428	958.758	958.088	957.419	956.750
2232	QI	956.08	955.413	954.746	954.079	953.412	952.746	952.081	951.416	950.751	950.087
2233	QI	949.42	948.760	948.097	947.434	946.773	946.111	945.450	944.790	944.130	943.470
2234	QI	942.81	942.152	941.494	940.836	940.179	939.522	938.866	938.210	930.805	910.674
2235	QI	890.98	871.707	852.854	833.408	812.158	791.451	771.271	751.606	714.281	670.735
2236	QI	629.79	579.114	532.514	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2237	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2238	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2239	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2240	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2241	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2242	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2243	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2244	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2245	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2246	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2247	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2248	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2249	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2250	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2251	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2252	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2253	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2254	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2255	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2256	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2257	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2258	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2259	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2260	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2261	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2262	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2263	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2264	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2265	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2266	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2267	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2268	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2269	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2270	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2271	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2272	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2273	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2274	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2275	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2276	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2277	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2278	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2279	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2280	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2281	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2282	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2283	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2284	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

```
2285          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2286          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
              *
2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
```

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	FRS Q	1197.	28.58	1195.	1176.	998.	.00		
+	2 COMBINED AT	CO340	1197.	28.67	1195.	1176.	1002.	1.10		
+	4 COMBINED AT	CO311	1769.	17.08	1532.	1293.	1074.	23.57		
+	2 COMBINED AT	CO313	1762.	17.50	1528.	1292.	1074.	24.62		
+	2 COMBINED AT	CO319	1757.	17.75	1526.	1291.	1074.	25.94		

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

   1          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   2          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   3          ID   File Name: QC25.dat
   4          ID   Revisions Made by Dibble & Associates 7/2001
   5          ID
   6          ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
   7          ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
   8          ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
   9          ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
  10          ID   Dibble & Associates.
  11          ID
  12          ID   Rainfall depth-area relations (JD Records) modified to reflect 25-year
  13          ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
  14          ID
  15          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  16          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
```

```
              * ///////////////////////////// Rainfall Distribution ////////////////////////////
              *
 115          IN      15
 116          JD    2.80    0.01
 117          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 118          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 119          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 120          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 121          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 122          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 123          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 124          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 125          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 126          PC    .983    .986    .989    .992    .995    .998   1.000
 127          JD    2.78    1.00
 128          JD    2.71    5.00
 129          JD    2.63   10.00
 130          JD    2.52   30.00
 131          JD    2.41   60.00
 132          JD    2.37   90.00
 133          JD    2.33  120.00
 134          JD    2.31  150.00
```

```
2133          KK   RO335
2134          KM        ROUTE FLOW ALONG EMF
2135          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137          RM       4    0.42    0.30
              *
              * KK HY337
              * KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
```

```
* KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
* KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
* BA  .001
* IN    60                         35
* QI     0       0       0       1       3      11      33      81     208       3
* QI   605     831    1032    1209    1347    1453    1532    1593    1636      16
* QI  1685    1694    1695    1689    1679    1666    1650    1634    1617      16
* QI  1583    1565    1547    1529    1511
*
*        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*        ^^        Modifications By Dibble & Associates - July, 2001      ^^
*        ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
*        ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
*        ^^        Has Now Been "Starred-Out" Above.                      ^^
*        ^^                                                               ^^
*        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*

KK   FRS Q
KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
BA    .001
IN     5                     1500
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00200
QI  0.0060 0.01400 0.02500 0.04100 0.06400 0.09500 0.13700 0.19400 0.26700 0.35900
QI  0.4760 0.62100 0.79600 1.00800 1.26100 1.55800 1.90600 2.31100 2.77700 3.31600
QI  3.9330 4.63300 5.42400 6.31400 7.30800 8.42700 9.67900 11.0720 12.6170 14.3230
QI  16.199 18.2740 20.5580 23.0620 25.8150 28.8280 32.1120 35.7220 39.6730 43.9780
QI  48.702 53.8620 59.4720 65.6350 72.3830 79.7460 87.8680 96.7930 106.568 118.771
QI  133.80 152.008 179.159 217.065 267.493 323.026 384.991 456.177 505.521 512.489
QI  527.44 550.443 581.414 620.340 658.230 700.413 747.185 770.762 798.215 829.672
QI  861.43 895.366 933.332 938.999 940.528 942.231 944.117 946.195 948.476 950.965
QI  953.67 956.582 959.712 963.061 966.631 970.424 974.436 978.662 983.098 987.738
QI  992.58 997.602 1002.22 1006.48 1010.88 1015.40 1020.04 1024.78 1029.63 1034.58
QI  1039.6 1044.76 1049.96 1055.24 1060.58 1065.97 1071.42 1076.90 1082.42 1087.96
QI  1092.6 1095.68 1098.81 1101.94 1105.08 1108.21 1111.34 1114.47 1117.59 1120.69
QI  1123.8 1126.85 1129.89 1132.91 1135.90 1138.86 1141.79 1144.69 1147.55 1150.38
QI  1153.2 1155.93 1158.65 1161.34 1163.99 1166.60 1169.18 1171.71 1174.21 1176.67
QI  1179.1 1181.47 1183.80 1186.09 1188.34 1190.54 1192.70 1194.82 1196.89 1198.92
QI  1200.9 1202.86 1204.77 1206.64 1208.47 1210.26 1212.02 1213.75 1215.44 1217.10
QI  1218.7 1220.32 1221.88 1223.42 1224.92 1226.39 1227.84 1229.26 1230.65 1231.99
QI  1233.1 1234.20 1235.28 1236.33 1237.37 1238.39 1239.38 1240.36 1241.33 1242.27
QI  1243.2 1244.11 1245.00 1245.87 1246.73 1247.57 1248.40 1249.21 1250.01 1250.79
QI  1251.6 1252.30 1253.04 1253.76 1254.46 1255.16 1255.84 1256.50 1257.16 1257.80
QI  1258.4 1259.05 1259.66 1260.20 1260.66 1261.11 1261.55 1261.99 1262.41 1262.83
QI  1263.2 1263.64 1264.03 1264.42 1264.80 1265.17 1265.53 1265.88 1266.23 1266.57
QI  1266.9 1267.22 1267.54 1267.84 1268.14 1268.44 1268.72 1269.00 1269.26 1269.52
```

2174	QI	1269.8	1270.02	1270.25	1270.48	1270.70	1270.91	1271.11	1271.31	1271.49	1271.67
2175	QI	1271.8	1272.00	1272.15	1272.30	1272.43	1272.56	1272.68	1272.79	1272.90	1272.99
2176	QI	1273.1	1273.16	1273.23	1273.30	1273.36	1273.41	1273.45	1273.48	1273.51	1273.53
2177	QI	1273.5	1273.55	1273.55	1273.54	1273.53	1273.51	1273.48	1273.45	1273.41	1273.37
2178	QI	1273.3	1273.26	1273.20	1273.13	1273.06	1272.98	1272.90	1272.81	1272.72	1272.62
2179	QI	1272.5	1272.41	1272.30	1272.18	1272.06	1271.94	1271.81	1271.68	1271.55	1271.41
2180	QI	1271.3	1271.12	1270.97	1270.82	1270.67	1270.51	1270.35	1270.18	1270.02	1269.85
2181	QI	1269.7	1269.51	1269.33	1269.15	1268.97	1268.79	1268.61	1268.42	1268.23	1268.04
2182	QI	1267.9	1267.66	1267.46	1267.27	1267.07	1266.87	1266.67	1266.46	1266.26	1266.05
2183	QI	1265.8	1265.64	1265.42	1265.21	1265.00	1264.79	1264.57	1264.35	1264.14	1263.92
2184	QI	1263.7	1263.48	1263.25	1263.03	1262.81	1262.58	1262.36	1262.13	1261.90	1261.67
2185	QI	1261.4	1261.21	1260.98	1260.75	1260.52	1260.28	1260.05	1259.76	1259.46	1259.16
2186	QI	1258.9	1258.56	1258.26	1257.95	1257.65	1257.34	1257.04	1256.73	1256.43	1256.12
2187	QI	1255.8	1255.51	1255.20	1254.89	1254.58	1254.27	1253.96	1253.65	1253.34	1253.03
2188	QI	1252.7	1252.41	1252.10	1251.79	1251.47	1251.16	1250.85	1250.54	1250.22	1249.91
2189	QI	1249.6	1249.28	1248.97	1248.66	1248.34	1248.03	1247.71	1247.40	1247.08	1246.77
2190	QI	1246.5	1246.14	1245.82	1245.51	1245.19	1244.88	1244.56	1244.25	1243.93	1243.61
2191	QI	1243.3	1242.98	1242.67	1242.35	1242.03	1241.72	1241.40	1241.08	1240.77	1240.45
2192	QI	1240.1	1239.82	1239.50	1239.19	1238.87	1238.55	1238.24	1237.92	1237.60	1237.29
2193	QI	1237.0	1236.65	1236.34	1236.02	1235.70	1235.39	1235.07	1234.75	1234.44	1234.12
2194	QI	1233.8	1233.49	1233.17	1232.85	1232.54	1232.22	1231.90	1231.53	1231.15	1230.77
2195	QI	1230.4	1230.01	1229.63	1229.25	1228.88	1228.50	1228.12	1227.74	1227.36	1226.98
2196	QI	1226.6	1226.23	1225.85	1225.47	1225.09	1224.72	1224.34	1223.96	1223.58	1223.21
2197	QI	1222.8	1222.45	1222.08	1221.70	1221.32	1220.94	1220.57	1220.19	1219.81	1219.44
2198	QI	1219.1	1218.69	1218.31	1217.93	1217.56	1217.18	1216.81	1216.43	1216.05	1215.68
2199	QI	1215.3	1214.93	1214.55	1214.18	1213.80	1213.43	1213.05	1212.68	1212.30	1211.93
2200	QI	1211.6	1211.18	1210.81	1210.43	1210.06	1209.69	1209.31	1208.94	1208.56	1208.19
2201	QI	1207.8	1207.45	1207.07	1206.70	1206.33	1205.95	1205.58	1205.21	1204.84	1204.46
2202	QI	1204.1	1203.72	1203.35	1202.98	1202.61	1202.23	1201.86	1201.49	1201.12	1200.75
2203	QI	1200.4	1200.01	1199.64	1199.27	1198.90	1198.53	1198.16	1197.79	1197.42	1197.05
2204	QI	1196.7	1196.31	1195.94	1195.57	1195.20	1194.83	1194.46	1194.09	1193.72	1193.35
2205	QI	1193.0	1192.62	1192.25	1191.88	1191.51	1191.14	1190.78	1190.41	1190.04	1189.67
2206	QI	1189.3	1188.94	1188.57	1188.20	1187.84	1187.47	1187.10	1186.74	1186.37	1186.00
2207	QI	1185.6	1185.27	1184.90	1184.54	1184.17	1183.81	1183.44	1183.08	1182.71	1182.34
2208	QI	1182.0	1181.61	1181.25	1180.88	1180.52	1180.15	1179.79	1179.43	1179.06	1178.70
2209	QI	1178.3	1177.97	1177.61	1177.24	1176.88	1176.51	1176.15	1175.79	1175.42	1175.06
2210	QI	1174.7	1174.34	1173.97	1173.61	1173.25	1172.89	1172.52	1172.16	1171.80	1171.44
2211	QI	1171.1	1170.71	1170.35	1169.99	1169.63	1169.27	1168.91	1168.55	1168.18	1167.82
2212	QI	1167.5	1167.10	1166.74	1166.38	1166.02	1165.66	1165.30	1164.94	1164.58	1164.22
2213	QI	1163.9	1163.50	1163.14	1162.78	1162.42	1162.07	1161.71	1161.35	1160.99	1160.63
2214	QI	1160.3	1159.91	1159.55	1159.20	1158.84	1158.48	1158.12	1157.77	1157.41	1157.05
2215	QI	1156.7	1156.34	1155.98	1155.62	1155.26	1154.91	1154.55	1154.19	1153.84	1153.48
2216	QI	1153.1	1152.77	1152.41	1152.06	1151.70	1151.34	1150.99	1150.63	1150.28	1149.92
2217	QI	1149.6	1149.21	1148.86	1148.50	1148.15	1147.79	1147.44	1147.08	1146.73	1146.38
2218	QI	1146.0	1145.67	1145.31	1144.96	1144.61	1144.25	1143.90	1143.55	1143.19	1142.84
2219	QI	1142.5	1142.13	1141.78	1141.43	1141.08	1140.72	1140.37	1140.02	1139.67	1139.31
2220	QI	1139.0	1138.61	1138.26	1137.91	1137.56	1137.20	1136.85	1136.50	1136.15	1135.80
2221	QI	1135.4	1135.10	1134.75	1134.40	1134.05	1133.70	1133.35	1133.00	1132.65	1132.30
2222	QI	1131.9	1131.60	1131.25	1130.90	1130.55	1130.20	1129.85	1129.50	1129.15	1128.80
2223	QI	1128.5	1128.11	1127.76	1127.41	1127.06	1126.71	1126.37	1126.02	1125.67	1125.32
2224	QI	1125.0	1124.63	1124.28	1123.93	1123.59	1123.24	1122.89	1122.54	1122.20	1121.85
2225	QI	1121.5	1121.16	1120.81	1120.47	1120.12	1119.77	1119.43	1119.08	1118.74	1118.39
2226	QI	1118.0	1117.70	1117.35	1117.01	1116.66	1116.32	1115.97	1115.63	1115.29	1114.94
2227	QI	1114.6	1114.25	1113.91	1113.56	1113.22	1112.88	1112.53	1112.19	1111.85	1111.50
2228	QI	1111.2	1110.82	1110.47	1110.13	1109.79	1109.44	1109.10	1108.76	1108.42	1108.07
2229	QI	1107.7	1107.39	1107.05	1106.71	1106.36	1106.02	1105.68	1105.34	1105.00	1104.66

2230	QI	1104.3	1103.97	1103.63	1103.29	1102.95	1102.61	1102.27	1101.93	1101.59	1101.25
2231	QI	1100.9	1100.57	1100.23	1099.89	1099.55	1099.21	1098.87	1098.53	1098.19	1097.85
2232	QI	1097.5	1097.17	1096.83	1096.50	1096.16	1095.82	1095.48	1095.14	1094.80	1094.46
2233	QI	1094.1	1093.79	1093.45	1093.11	1092.78	1092.44	1092.10	1091.76	1091.43	1090.88
2234	QI	1090.3	1089.68	1089.07	1088.47	1087.87	1087.27	1086.67	1086.07	1085.47	1084.87
2235	QI	1084.3	1083.67	1083.07	1082.48	1081.88	1081.28	1080.68	1080.09	1079.49	1078.89
2236	QI	1078.3	1077.70	1077.11	1076.51	1075.92	1075.32	1074.73	1074.14	1073.54	1072.95
2237	QI	1072.4	1071.77	1071.17	1070.58	1069.99	1069.40	1068.81	1068.22	1067.63	1067.04
2238	QI	1066.4	1065.86	1065.27	1064.68	1064.10	1063.51	1062.92	1062.33	1061.75	1061.16
2239	QI	1060.6	1059.99	1059.40	1058.82	1058.23	1057.65	1057.06	1056.48	1055.90	1055.31
2240	QI	1054.7	1054.15	1053.57	1052.98	1052.40	1051.82	1051.24	1050.66	1050.08	1049.50
2241	QI	1048.9	1048.34	1047.76	1047.18	1046.60	1046.03	1045.45	1044.87	1044.29	1043.72
2242	QI	1043.1	1042.57	1041.99	1041.41	1040.84	1040.26	1039.69	1039.12	1038.54	1037.97
2243	QI	1037.4	1036.82	1036.25	1035.68	1035.10	1034.53	1033.96	1033.39	1032.82	1032.25
2244	QI	1031.7	1031.11	1030.54	1029.97	1029.40	1028.83	1028.27	1027.70	1027.13	1026.56
2245	QI	1026.0	1025.43	1024.86	1024.30	1023.73	1023.17	1022.60	1022.04	1021.47	1020.91
2246	QI	1020.3	1019.78	1019.22	1018.65	1018.09	1017.53	1016.97	1016.40	1015.84	1015.28
2247	QI	1014.7	1014.16	1013.60	1013.04	1012.48	1011.92	1011.36	1010.81	1010.25	1009.69
2248	QI	1009.1	1008.57	1008.02	1007.46	1006.90	1006.35	1005.79	1005.24	1004.68	1004.13
2249	QI	1003.6	1003.02	1002.46	1001.91	1001.36	1000.80	1000.25	999.618	998.919	998.222
2250	QI	997.52	996.827	996.131	995.435	994.740	994.045	993.350	992.656	991.963	991.270
2251	QI	990.58	989.885	989.194	988.502	987.812	987.122	986.432	985.743	985.054	984.366
2252	QI	983.68	982.991	982.305	981.618	980.932	980.247	979.562	978.878	978.194	977.511
2253	QI	976.83	976.145	975.463	974.782	974.101	973.420	972.740	972.061	971.382	970.703
2254	QI	970.03	969.347	968.670	967.993	967.317	966.641	965.966	965.291	964.617	963.943
2255	QI	963.27	962.596	961.924	961.252	960.580	959.909	959.239	958.568	957.899	957.230
2256	QI	956.56	955.893	955.225	954.557	953.891	953.224	952.558	951.893	951.228	950.563
2257	QI	949.90	949.235	948.572	947.910	947.247	946.586	945.924	945.263	944.603	943.943
2258	QI	943.28	942.625	941.966	941.308	940.650	939.993	939.337	938.680	938.025	925.075
2259	QI	905.07	885.492	866.341	847.604	827.352	806.257	785.700	765.667	746.144	701.555
2260	QI	658.79	614.982	565.495	519.990	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2261	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2262	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2263	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2264	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2265	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2266	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2267	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2268	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2269	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2270	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2271	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2272	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2273	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2274	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2275	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2276	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2277	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2278	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2279	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2280	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2281	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2282	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2283	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2284	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2285	QI	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

```
2286          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
              *
2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
              *
```

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	FRS Q	1274.	29.25	1272.	1256.	1173.	.00		
+	2 COMBINED AT	CO340	1274.	29.42	1272.	1256.	1173.	1.10		
+	4 COMBINED AT	CO311	2086.	16.83	1808.	1438.	1254.	23.57		
+	2 COMBINED AT	CO313	2075.	17.25	1801.	1435.	1253.	24.62		
+	2 COMBINED AT	CO319	2069.	17.50	1796.	1434.	1252.	25.94		

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

  1           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  2           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  3           ID   File Name: QC50.dat
  4           ID   Revisions Made by Dibble & Associates 7/2001
  5           ID
  6           ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
  7           ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
  8           ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
  9           ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
 10           ID   Dibble & Associates.
 11           ID
 12           ID   Rainfall depth-area relations (JD Records) modified to reflect 50-year
 13           ID   frequency storm based on FCDMC Hydrology Manual isopluvial maps.
 14           ID
 15           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
 16           ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
```

```
              * ///////////////////////////// Rainfall Distribution ////////////////////////////
              *
115           IN      15
116           JD    3.20    0.01
117           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
118           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
119           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
120           PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
121           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
122           PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
123           PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
124           PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
125           PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
126           PC    .983    .986    .989    .992    .995    .998   1.000
127           JD    3.18    1.00
128           JD    3.10    5.00
129           JD    3.00   10.00
130           JD    2.88   30.00
131           JD    2.76   60.00
132           JD    2.71   90.00
133           JD    2.67  120.00
134           JD    2.64  150.00
```

```
2133        KK   RO335
2134        KM        ROUTE FLOW ALONG EMF
2135        KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2136        KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2137        RM       4    0.42    0.30
            *
            * KK HY337
            * KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
            * KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
            * KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
            * BA  .001
            * IN    60                     35
            * QI     0       0       0       1       3      11      33      81     208      3
            * QI   605     831    1032    1209    1347    1453    1532    1593    1636     16
            * QI  1685    1694    1695    1689    1679    1666    1650    1634    1617     16
            * QI  1583    1565    1547    1529    1511
            *
            *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
            *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
            *      ^^        Modifications By Dibble & Associates - July, 2001      ^^
            *      ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
            *      ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
            *      ^^        Has Now Been "Starred-Out" Above.                      ^^
            *      ^^                                                               ^^
            *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
            *      ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
            *
2138        KK   FRS Q
2139        KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
2140        BA    .001
2141        IN      5                    1500
2142        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2143        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2144        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2145        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2146        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2147        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2148        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2149        QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00100
2150        QI  0.0030 0.00900 0.01900 0.03500 0.05800 0.08900 0.13200 0.19000 0.26500 0.36000
2151        QI  0.4780 0.62200 0.79500 1.00100 1.24300 1.52600 1.85100 2.22700 2.66000 3.15400
2152        QI  3.7200 4.36200 5.08600 5.90400 6.82400 7.85100 9.00200 10.2830 11.7020 13.2780
2153        QI  15.021 16.9400 19.0480 21.3540 23.8680 26.6220 29.6260 32.8900 36.4270 40.2480
2154        QI  44.362 48.8110 53.6060 58.7540 64.2960 70.2430 76.6040 83.4640 90.8410 98.7550
2155        QI  107.31 116.526 126.442 137.216 148.893 161.519 175.314 190.341 206.672 226.592
2156        QI  250.57 279.042 319.620 374.443 445.721 504.802 509.853 522.009 541.977 570.668
2157        QI  608.74 649.968 693.655 745.435 770.592 800.138 834.307 868.256 905.732 938.103
2158        QI  939.62 941.329 943.243 945.375 947.732 950.321 953.154 956.241 959.597 963.229
2159        QI  967.14 971.331 975.804 980.561 985.608 990.943 996.562 1001.94 1006.82 1011.90
2160        QI  1017.2 1022.65 1028.31 1034.15 1040.15 1046.32 1052.63 1059.08 1065.66 1072.36
2161        QI  1079.2 1086.09 1092.33 1096.30 1100.32 1104.37 1108.45 1112.56 1116.69 1120.83
2162        QI  1125.0 1129.15 1133.32 1137.49 1141.66 1145.83 1149.99 1154.14 1158.27 1162.39
2163        QI  1166.5 1170.53 1174.55 1178.54 1182.49 1186.39 1190.25 1194.07 1197.83 1201.55
```

2164	QI	1205.2	1208.85	1212.42	1215.95	1219.42	1222.85	1226.23	1229.55	1232.67	1235.36
2165	QI	1238.0	1240.60	1243.15	1245.65	1248.11	1250.52	1252.88	1255.19	1257.45	1259.67
2166	QI	1261.5	1263.13	1264.77	1266.38	1267.95	1269.50	1271.01	1272.50	1273.95	1275.38
2167	QI	1276.8	1278.16	1279.51	1280.84	1282.13	1283.41	1284.66	1285.88	1287.08	1288.26
2168	QI	1289.4	1290.56	1291.68	1292.77	1293.85	1294.90	1295.94	1296.96	1297.97	1298.95
2169	QI	1299.9	1300.87	1301.80	1302.71	1303.61	1304.49	1305.35	1306.20	1307.04	1307.85
2170	QI	1308.7	1309.45	1310.22	1310.98	1311.72	1312.45	1313.17	1313.88	1314.57	1315.25
2171	QI	1315.9	1316.57	1317.22	1317.85	1318.48	1319.09	1319.69	1320.28	1320.86	1321.42
2172	QI	1322.0	1322.53	1323.07	1323.60	1324.12	1324.62	1325.12	1325.61	1326.09	1326.56
2173	QI	1327.0	1327.46	1327.90	1328.33	1328.75	1329.16	1329.56	1329.95	1330.33	1330.70
2174	QI	1331.1	1331.41	1331.75	1332.08	1332.40	1332.70	1333.00	1333.29	1333.57	1333.83
2175	QI	1334.1	1334.33	1334.57	1334.80	1335.01	1335.22	1335.41	1335.60	1335.77	1335.94
2176	QI	1336.1	1336.24	1336.38	1336.50	1336.62	1336.73	1336.83	1336.92	1337.00	1337.07
2177	QI	1337.1	1337.19	1337.23	1337.27	1337.30	1337.32	1337.34	1337.34	1337.34	1337.33
2178	QI	1337.3	1337.29	1337.26	1337.23	1337.18	1337.13	1337.08	1337.02	1336.95	1336.87
2179	QI	1336.8	1336.71	1336.62	1336.52	1336.42	1336.31	1336.20	1336.09	1335.97	1335.84
2180	QI	1335.7	1335.58	1335.44	1335.30	1335.16	1335.01	1334.86	1334.70	1334.54	1334.38
2181	QI	1334.2	1334.05	1333.88	1333.71	1333.53	1333.35	1333.17	1332.99	1332.80	1332.62
2182	QI	1332.4	1332.23	1332.04	1331.84	1331.65	1331.44	1331.24	1331.04	1330.83	1330.62
2183	QI	1330.4	1330.20	1329.99	1329.77	1329.56	1329.34	1329.12	1328.90	1328.68	1328.45
2184	QI	1328.2	1328.00	1327.78	1327.55	1327.32	1327.08	1326.85	1326.62	1326.38	1326.15
2185	QI	1325.9	1325.67	1325.43	1325.19	1324.95	1324.71	1324.47	1324.23	1323.98	1323.74
2186	QI	1323.5	1323.24	1323.00	1322.75	1322.50	1322.25	1322.00	1321.75	1321.50	1321.25
2187	QI	1321.0	1320.74	1320.49	1320.23	1319.98	1319.73	1319.47	1319.22	1318.96	1318.71
2188	QI	1318.5	1318.20	1317.94	1317.68	1317.43	1317.17	1316.91	1316.65	1316.40	1316.14
2189	QI	1315.9	1315.62	1315.36	1315.10	1314.84	1314.58	1314.32	1314.06	1313.80	1313.54
2190	QI	1313.3	1313.02	1312.76	1312.50	1312.24	1311.98	1311.72	1311.46	1311.20	1310.94
2191	QI	1310.7	1310.41	1310.15	1309.89	1309.63	1309.37	1309.11	1308.84	1308.58	1308.32
2192	QI	1308.1	1307.79	1307.53	1307.27	1307.01	1306.75	1306.48	1306.22	1305.96	1305.70
2193	QI	1305.4	1305.17	1304.91	1304.65	1304.38	1304.12	1303.86	1303.59	1303.33	1303.07
2194	QI	1302.8	1302.54	1302.28	1302.02	1301.76	1301.49	1301.23	1300.97	1300.70	1300.44
2195	QI	1300.2	1299.92	1299.65	1299.39	1299.13	1298.87	1298.60	1298.34	1298.08	1297.82
2196	QI	1297.6	1297.29	1297.03	1296.77	1296.51	1296.24	1295.98	1295.72	1295.46	1295.19
2197	QI	1294.9	1294.67	1294.41	1294.15	1293.88	1293.62	1293.36	1293.10	1292.84	1292.57
2198	QI	1292.3	1292.05	1291.79	1291.53	1291.26	1291.00	1290.74	1290.48	1290.22	1289.96
2199	QI	1289.7	1289.43	1289.17	1288.91	1288.65	1288.39	1288.13	1287.87	1287.61	1287.34
2200	QI	1287.1	1286.82	1286.56	1286.30	1286.04	1285.78	1285.52	1285.26	1285.00	1284.74
2201	QI	1284.5	1284.22	1283.96	1283.69	1283.43	1283.17	1282.91	1282.65	1282.39	1282.13
2202	QI	1281.9	1281.61	1281.35	1281.09	1280.83	1280.57	1280.32	1280.06	1279.80	1279.54
2203	QI	1279.3	1279.02	1278.76	1278.50	1278.24	1277.98	1277.72	1277.46	1277.20	1276.94
2204	QI	1276.7	1276.43	1276.17	1275.91	1275.65	1275.39	1275.13	1274.88	1274.62	1274.36
2205	QI	1274.1	1273.84	1273.58	1273.32	1273.07	1272.81	1272.55	1272.29	1272.03	1271.78
2206	QI	1271.5	1271.26	1271.00	1270.75	1270.49	1270.23	1269.97	1269.72	1269.46	1269.20
2207	QI	1268.9	1268.69	1268.43	1268.17	1267.91	1267.66	1267.40	1267.14	1266.89	1266.63
2208	QI	1266.4	1266.12	1265.86	1265.60	1265.35	1265.09	1264.83	1264.58	1264.32	1264.06
2209	QI	1263.8	1263.55	1263.29	1263.04	1262.78	1262.53	1262.27	1262.01	1261.76	1261.50
2210	QI	1261.2	1260.99	1260.74	1260.48	1260.22	1259.96	1259.64	1259.31	1258.99	1258.66
2211	QI	1258.3	1258.01	1257.69	1257.36	1257.04	1256.72	1256.39	1256.07	1255.74	1255.42
2212	QI	1255.1	1254.77	1254.45	1254.13	1253.80	1253.48	1253.16	1252.83	1252.51	1252.19
2213	QI	1251.9	1251.54	1251.22	1250.90	1250.57	1250.25	1249.93	1249.61	1249.29	1248.96
2214	QI	1248.6	1248.32	1248.00	1247.68	1247.35	1247.03	1246.71	1246.39	1246.07	1245.75
2215	QI	1245.4	1245.11	1244.78	1244.46	1244.14	1243.82	1243.50	1243.18	1242.86	1242.54
2216	QI	1242.2	1241.90	1241.58	1241.26	1240.94	1240.62	1240.30	1239.98	1239.66	1239.34
2217	QI	1239.0	1238.70	1238.38	1238.06	1237.74	1237.42	1237.11	1236.79	1236.47	1236.15
2218	QI	1235.8	1235.51	1235.19	1234.88	1234.56	1234.24	1233.92	1233.60	1233.28	1232.97
2219	QI	1232.6	1232.33	1232.01	1231.66	1231.28	1230.90	1230.52	1230.14	1229.76	1229.38

2220	QI	1229.0	1228.62	1228.24	1227.86	1227.48	1227.10	1226.72	1226.34	1225.96	1225.58
2221	QI	1225.2	1224.83	1224.45	1224.07	1223.69	1223.31	1222.94	1222.56	1222.18	1221.80
2222	QI	1221.4	1221.05	1220.67	1220.29	1219.92	1219.54	1219.16	1218.79	1218.41	1218.03
2223	QI	1217.7	1217.28	1216.91	1216.53	1216.15	1215.78	1215.40	1215.03	1214.65	1214.28
2224	QI	1213.9	1213.53	1213.15	1212.78	1212.40	1212.03	1211.65	1211.28	1210.91	1210.53
2225	QI	1210.2	1209.78	1209.41	1209.04	1208.66	1208.29	1207.92	1207.54	1207.17	1206.80
2226	QI	1206.4	1206.05	1205.68	1205.31	1204.93	1204.56	1204.19	1203.82	1203.45	1203.08
2227	QI	1202.7	1202.33	1201.96	1201.59	1201.22	1200.85	1200.48	1200.11	1199.73	1199.36
2228	QI	1199.0	1198.62	1198.25	1197.88	1197.51	1197.14	1196.77	1196.40	1196.03	1195.66
2229	QI	1195.3	1194.93	1194.56	1194.19	1193.82	1193.45	1193.08	1192.71	1192.34	1191.98
2230	QI	1191.6	1191.24	1190.87	1190.50	1190.14	1189.77	1189.40	1189.03	1188.67	1188.30
2231	QI	1187.9	1187.57	1187.20	1186.83	1186.47	1186.10	1185.73	1185.37	1185.00	1184.63
2232	QI	1184.3	1183.90	1183.54	1183.17	1182.81	1182.44	1182.08	1181.71	1181.35	1180.98
2233	QI	1180.6	1180.25	1179.89	1179.52	1179.16	1178.79	1178.43	1178.07	1177.70	1177.34
2234	QI	1177.0	1176.61	1176.25	1175.88	1175.52	1175.16	1174.79	1174.43	1174.07	1173.71
2235	QI	1173.3	1172.98	1172.62	1172.26	1171.89	1171.53	1171.17	1170.81	1170.45	1170.09
2236	QI	1169.7	1169.36	1169.00	1168.64	1168.28	1167.92	1167.56	1167.20	1166.84	1166.48
2237	QI	1166.1	1165.76	1165.40	1165.04	1164.68	1164.32	1163.96	1163.60	1163.24	1162.88
2238	QI	1162.5	1162.16	1161.80	1161.44	1161.08	1160.72	1160.37	1160.01	1159.65	1159.29
2239	QI	1158.9	1158.58	1158.22	1157.86	1157.50	1157.14	1156.79	1156.43	1156.07	1155.72
2240	QI	1155.4	1155.00	1154.64	1154.29	1153.93	1153.58	1153.22	1152.86	1152.51	1152.15
2241	QI	1151.8	1151.44	1151.08	1150.73	1150.37	1150.02	1149.66	1149.31	1148.95	1148.60
2242	QI	1148.2	1147.89	1147.53	1147.18	1146.82	1146.47	1146.12	1145.76	1145.41	1145.05
2243	QI	1144.7	1144.35	1143.99	1143.64	1143.29	1142.93	1142.58	1142.23	1141.87	1141.52
2244	QI	1141.2	1140.82	1140.46	1140.11	1139.76	1139.41	1139.06	1138.70	1138.35	1138.00
2245	QI	1137.6	1137.30	1136.95	1136.60	1136.24	1135.89	1135.54	1135.19	1134.84	1134.49
2246	QI	1134.1	1133.79	1133.44	1133.09	1132.74	1132.39	1132.04	1131.69	1131.34	1130.99
2247	QI	1130.6	1130.29	1129.94	1129.59	1129.25	1128.90	1128.55	1128.20	1127.85	1127.50
2248	QI	1127.2	1126.81	1126.46	1126.11	1125.76	1125.41	1125.07	1124.72	1124.37	1124.02
2249	QI	1123.7	1123.33	1122.98	1122.64	1122.29	1121.94	1121.60	1121.25	1120.90	1120.56
2250	QI	1120.2	1119.87	1119.52	1119.17	1118.83	1118.48	1118.14	1117.79	1117.45	1117.10
2251	QI	1116.8	1116.41	1116.07	1115.72	1115.38	1115.03	1114.69	1114.34	1114.00	1113.66
2252	QI	1113.3	1112.97	1112.62	1112.28	1111.94	1111.59	1111.25	1110.91	1110.56	1110.22
2253	QI	1109.9	1109.53	1109.19	1108.85	1108.51	1108.16	1107.82	1107.48	1107.14	1106.80
2254	QI	1106.5	1106.11	1105.77	1105.43	1105.09	1104.75	1104.40	1104.06	1103.72	1103.38
2255	QI	1103.0	1102.70	1102.36	1102.02	1101.68	1101.34	1101.00	1100.66	1100.32	1099.98
2256	QI	1099.6	1099.30	1098.96	1098.62	1098.28	1097.94	1097.60	1097.26	1096.92	1096.58
2257	QI	1096.2	1095.91	1095.57	1095.23	1094.89	1094.55	1094.22	1093.88	1093.54	1093.20
2258	QI	1092.9	1092.53	1092.19	1091.85	1091.52	1091.04	1090.44	1089.83	1089.23	1088.63
2259	QI	1088.0	1087.43	1086.83	1086.23	1085.63	1085.03	1084.43	1083.83	1083.23	1082.63
2260	QI	1082.0	1081.44	1080.84	1080.24	1079.65	1079.05	1078.46	1077.86	1077.26	1076.67
2261	QI	1076.1	1075.48	1074.89	1074.29	1073.70	1073.11	1072.51	1071.92	1071.33	1070.74
2262	QI	1070.1	1069.56	1068.96	1068.37	1067.78	1067.19	1066.60	1066.02	1065.43	1064.84
2263	QI	1064.3	1063.66	1063.08	1062.49	1061.90	1061.31	1060.73	1060.14	1059.56	1058.97
2264	QI	1058.4	1057.80	1057.22	1056.63	1056.05	1055.47	1054.88	1054.30	1053.72	1053.14
2265	QI	1052.6	1051.97	1051.39	1050.81	1050.23	1049.65	1049.07	1048.49	1047.91	1047.34
2266	QI	1046.8	1046.18	1045.60	1045.02	1044.45	1043.87	1043.29	1042.72	1042.14	1041.57
2267	QI	1041.0	1040.42	1039.84	1039.27	1038.69	1038.12	1037.55	1036.97	1036.40	1035.83
2268	QI	1035.3	1034.68	1034.11	1033.54	1032.97	1032.40	1031.83	1031.26	1030.69	1030.12
2269	QI	1029.6	1028.98	1028.42	1027.85	1027.28	1026.71	1026.15	1025.58	1025.01	1024.45
2270	QI	1023.9	1023.31	1022.75	1022.18	1021.62	1021.06	1020.49	1019.93	1019.36	1018.80
2271	QI	1018.2	1017.68	1017.11	1016.55	1015.99	1015.43	1014.87	1014.31	1013.75	1013.19
2272	QI	1012.6	1012.07	1011.51	1010.95	1010.39	1009.84	1009.28	1008.72	1008.16	1007.61
2273	QI	1007.1	1006.49	1005.94	1005.38	1004.83	1004.27	1003.72	1003.16	1002.61	1002.06
2274	QI	1001.5	1000.95	1000.40	999.802	999.104	998.406	997.708	997.011	996.315	995.618
2275	QI	994.92	994.228	993.533	992.839	992.146	991.452	990.760	990.068	989.376	988.685

```
2276          QI  987.99 987.304 986.614 985.925 985.236 984.548 983.860 983.172 982.486 981.799
2277          QI  981.11 980.428 979.743 979.058 978.374 977.691 977.008 976.325 975.643 974.962
2278          QI  974.28 973.600 972.920 972.240 971.561 970.882 970.204 969.526 968.849 968.172
2279          QI  967.50 966.819 966.144 965.469 964.794 964.120 963.447 962.774 962.101 961.429
2280          QI  960.76 960.086 959.415 958.745 958.075 957.406 956.737 956.069 955.401 954.733
2281          QI  954.07 953.400 952.734 952.068 951.403 950.738 950.074 949.410 948.747 948.084
2282          QI  947.42 946.760 946.099 945.438 944.777 944.117 943.458 942.798 942.140 941.482
2283          QI  940.82 940.167 939.510 938.853 938.198 930.425 910.302 890.614 871.352 852.506
2284          QI  833.01 811.767 791.069 770.899 751.244 713.437 669.942 628.811 578.211 531.683
2285          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2286          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2287          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2288          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2289          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2290          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
2291          QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
              *
2292          KK   RO339
2293          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2294          RM       1    0.08    0.25
              *
```

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	FRS Q	1337.	29.67	1336.	1320.	1251.	.00		
+	2 COMBINED AT	CO340	1555.	12.17	1336.	1320.	1251.	1.10		
+	4 COMBINED AT	CO311	2460.	16.75	2143.	1595.	1362.	23.57		
+	2 COMBINED AT	CO313	2456.	17.17	2141.	1594.	1362.	24.62		

```
          2 COMBINED AT
+                        CO319      2449.   17.33        2137.       1594.       1362.       25.94
```

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

   1          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   2          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
   3          ID   File Name: QC100.dat
   4          ID   Revisions Made by Dibble & Associates 7/2001
   5          ID
   6          ID   Undocumented hard coded hydrograph "HY337" replaced with hard coded
   7          ID   hydrograph "FRS Q".  Documentation for this hydrograph may be found in
   8          ID   the Revised Hydrology Technical Memorandum, or in the Design Report for
   9          ID   the Queen Creek Wash Improvements - Hawes Road to Power Road prepared by
  10          ID   Dibble & Associates.
  11          ID
  12          ID   No changes made to rainfall depth-area relations (JD Records) for 100y model
  13          ID
  14          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  15          ID   ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

              * ///////////////////////// Rainfall Distribution ////////////////////////////
              *
 114          IN      15
 115          JD    3.60    0.01
 116          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 117          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 118          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 119          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 120          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 121          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 122          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 123          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 124          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 125          PC    .983    .986    .989    .992    .995    .998   1.000
 126          JD    3.58    1.00
 127          JD    3.49    5.00
 128          JD    3.38   10.00
 129          JD    3.24   30.00
 130          JD    3.10   60.00
 131          JD    3.05   90.00
 132          JD    3.00  120.00
 133          JD    2.97  150.00

2132          KK   RO335
2133          KM        ROUTE FLOW ALONG EMF
2134          KM        ROUTE FLOWS FROM 1/4 MILE SOUTH OF QUEEN CREEK ROAD TO CHANDLER HEIGHTS
2135          KM          ROAD, WHICH IS THE CONFLUENCE OF QUEEN CREEK AND SANOQUI WASH
2136          RM       4    0.42    0.30
              *
              * KK HY337
```

```
* KM      HYDROGRAPH FROM CAP (SALT GILA AQUEDUCT - REACH 3)
* KM      HYDROGRAPH AND ROUTING PARAMETERS FROM QC ADMS
* KM      HYDROGRAPH IS FOR UPSTREAM FLOOD RETARDING STRUCTURE
* BA   .001
* IN    60                    35
* QI     0       0       0       1       3      11      33      81     208      3
* QI   605     831    1032    1209    1347    1453    1532    1593    1636     16
* QI  1685    1694    1695    1689    1679    1666    1650    1634    1617     16
* QI  1583    1565    1547    1529    1511
*
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^        Modifications By Dibble & Associates - July, 2001      ^^
*       ^^        The following Hard Coded Hydrograph "FRS Q"            ^^
*       ^^        Replaced the Hard Coded Hydrograph "HY337" which       ^^
*       ^^        Has Now Been "Starred-Out" Above.                      ^^
*       ^^                                                               ^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
*

KK   FRS Q
KM   Revised Hydrograph Out of Sanokai Flood Retarding Structure @ Queen Creek
BA    .001
IN       5                      1500
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
QI  0.0000 0.00000 0.00000 0.00000 0.00000 0.00200 0.00800 0.01800 0.03400 0.05800
QI  0.0910 0.13700 0.19900 0.28100 0.38500 0.51500 0.67500 0.86800 1.09900 1.37100
QI  1.6900 2.05800 2.47900 2.96100 3.50600 4.12200 4.81300 5.59000 6.46000 7.43000
QI  8.5140 9.72100 11.0580 12.5420 14.1800 15.9830 17.9700 20.1500 22.5350 25.1470
QI  27.998 31.0960 34.4550 38.0850 41.9940 46.2220 50.7800 55.6740 60.9220 66.5300
QI  72.507 78.9050 85.7350 93.0100 100.781 109.063 117.872 127.322 137.439 148.250
QI  159.89 172.394 185.808 200.331 216.018 232.929 251.338 271.324 292.977 319.122
QI  350.28 386.958 438.138 504.085 507.776 518.553 536.615 562.413 596.849 638.364
QI  680.00 730.607 764.240 793.765 828.289 863.763 902.161 938.030 939.604 941.385
QI  943.38 945.608 948.078 950.807 953.805 957.079 960.642 964.507 968.690 973.198
QI  978.04 983.202 988.701 994.533 1000.56 1005.70 1011.11 1016.77 1022.68 1028.82
QI  1035.2 1041.81 1048.62 1055.64 1062.86 1070.26 1077.82 1085.54 1092.50 1096.97
QI  1101.5 1106.14 1110.82 1115.54 1120.32 1125.14 1129.99 1134.87 1139.77 1144.68
QI  1149.6 1154.54 1159.47 1164.41 1169.34 1174.26 1179.17 1184.07 1188.94 1193.79
QI  1198.6 1203.38 1208.11 1212.80 1217.44 1222.03 1226.56 1231.04 1234.86 1238.51
QI  1242.1 1245.64 1249.14 1252.58 1255.98 1259.33 1262.06 1264.62 1267.13 1269.60
QI  1272.0 1274.42 1276.77 1279.07 1281.33 1283.55 1285.72 1287.84 1289.92 1291.96
QI  1294.0 1295.93 1297.85 1299.73 1301.57 1303.38 1305.15 1306.89 1308.60 1310.27
QI  1311.9 1313.52 1315.10 1316.65 1318.17 1319.67 1321.13 1322.56 1323.97 1325.36
QI  1326.7 1328.05 1329.36 1330.64 1331.90 1333.14 1334.36 1335.56 1336.73 1337.89
QI  1339.0 1340.14 1341.23 1342.31 1343.36 1344.40 1345.41 1346.41 1347.39 1348.36
QI  1349.2 1350.02 1350.83 1351.62 1352.40 1353.16 1353.91 1354.65 1355.38 1356.09
QI  1356.8 1357.47 1358.15 1358.82 1359.47 1360.11 1360.74 1361.36 1361.97 1362.57
QI  1363.2 1363.73 1364.30 1364.85 1365.40 1365.94 1366.46 1366.98 1367.49 1367.98
```

2172	QI	1368.5	1368.95	1369.41	1369.87	1370.32	1370.75	1371.18	1371.60	1372.00	1372.40
2173	QI	1372.8	1373.16	1373.52	1373.88	1374.22	1374.56	1374.88	1375.19	1375.49	1375.79
2174	QI	1376.1	1376.34	1376.60	1376.85	1377.09	1377.32	1377.54	1377.75	1377.95	1378.14
2175	QI	1378.3	1378.49	1378.65	1378.80	1378.94	1379.07	1379.20	1379.31	1379.42	1379.51
2176	QI	1379.6	1379.68	1379.75	1379.81	1379.86	1379.91	1379.94	1379.97	1380.00	1380.01
2177	QI	1380.0	1380.02	1380.01	1380.00	1379.98	1379.95	1379.92	1379.88	1379.83	1379.78
2178	QI	1379.7	1379.66	1379.59	1379.52	1379.44	1379.36	1379.27	1379.18	1379.08	1378.98
2179	QI	1378.9	1378.76	1378.65	1378.53	1378.41	1378.28	1378.15	1378.02	1377.89	1377.75
2180	QI	1377.6	1377.46	1377.31	1377.16	1377.01	1376.86	1376.70	1376.54	1376.38	1376.21
2181	QI	1376.0	1375.87	1375.70	1375.53	1375.35	1375.18	1375.00	1374.81	1374.63	1374.45
2182	QI	1374.3	1374.07	1373.88	1373.69	1373.49	1373.30	1373.10	1372.90	1372.70	1372.50
2183	QI	1372.3	1372.10	1371.89	1371.69	1371.48	1371.27	1371.06	1370.85	1370.64	1370.42
2184	QI	1370.2	1369.99	1369.78	1369.56	1369.34	1369.12	1368.90	1368.68	1368.46	1368.24
2185	QI	1368.0	1367.79	1367.56	1367.34	1367.11	1366.88	1366.66	1366.43	1366.20	1365.97
2186	QI	1365.7	1365.51	1365.28	1365.05	1364.82	1364.59	1364.36	1364.12	1363.89	1363.66
2187	QI	1363.4	1363.19	1362.96	1362.72	1362.49	1362.25	1362.02	1361.78	1361.55	1361.31
2188	QI	1361.1	1360.84	1360.60	1360.37	1360.13	1359.89	1359.65	1359.42	1359.18	1358.94
2189	QI	1358.7	1358.47	1358.23	1357.99	1357.75	1357.51	1357.27	1357.03	1356.79	1356.56
2190	QI	1356.3	1356.08	1355.84	1355.60	1355.36	1355.12	1354.88	1354.64	1354.40	1354.16
2191	QI	1353.9	1353.68	1353.44	1353.20	1352.96	1352.72	1352.48	1352.24	1352.00	1351.76
2192	QI	1351.5	1351.27	1351.03	1350.79	1350.55	1350.31	1350.07	1349.83	1349.59	1349.35
2193	QI	1349.1	1348.87	1348.63	1348.38	1348.11	1347.84	1347.57	1347.29	1347.02	1346.75
2194	QI	1346.5	1346.21	1345.93	1345.66	1345.39	1345.12	1344.85	1344.57	1344.30	1344.03
2195	QI	1343.8	1343.49	1343.22	1342.94	1342.67	1342.40	1342.13	1341.86	1341.59	1341.32
2196	QI	1341.0	1340.77	1340.50	1340.23	1339.96	1339.69	1339.42	1339.14	1338.87	1338.60
2197	QI	1338.3	1338.06	1337.79	1337.52	1337.25	1336.98	1336.70	1336.43	1336.16	1335.89
2198	QI	1335.6	1335.35	1335.08	1334.81	1334.54	1334.27	1334.00	1333.73	1333.46	1333.19
2199	QI	1332.9	1332.65	1332.38	1332.11	1331.84	1331.57	1331.30	1331.03	1330.76	1330.49
2200	QI	1330.2	1329.95	1329.68	1329.41	1329.14	1328.87	1328.60	1328.33	1328.06	1327.79
2201	QI	1327.5	1327.25	1326.98	1326.71	1326.45	1326.18	1325.91	1325.64	1325.37	1325.10
2202	QI	1324.8	1324.56	1324.30	1324.03	1323.76	1323.49	1323.22	1322.95	1322.68	1322.42
2203	QI	1322.1	1321.88	1321.61	1321.34	1321.08	1320.81	1320.54	1320.27	1320.01	1319.74
2204	QI	1319.5	1319.20	1318.94	1318.67	1318.40	1318.13	1317.87	1317.60	1317.33	1317.06
2205	QI	1316.8	1316.53	1316.26	1316.00	1315.73	1315.46	1315.20	1314.93	1314.66	1314.40
2206	QI	1314.1	1313.86	1313.60	1313.33	1313.06	1312.80	1312.53	1312.27	1312.00	1311.73
2207	QI	1311.5	1311.20	1310.94	1310.67	1310.40	1310.14	1309.87	1309.61	1309.34	1309.08
2208	QI	1308.8	1308.55	1308.28	1308.02	1307.75	1307.49	1307.22	1306.95	1306.69	1306.42
2209	QI	1306.2	1305.90	1305.63	1305.37	1305.10	1304.84	1304.57	1304.31	1304.04	1303.78
2210	QI	1303.5	1303.25	1302.99	1302.72	1302.46	1302.19	1301.93	1301.67	1301.40	1301.14
2211	QI	1300.9	1300.61	1300.35	1300.08	1299.82	1299.56	1299.29	1299.03	1298.77	1298.50
2212	QI	1298.2	1297.98	1297.71	1297.45	1297.19	1296.92	1296.66	1296.40	1296.13	1295.87
2213	QI	1295.6	1295.35	1295.08	1294.82	1294.56	1294.30	1294.03	1293.77	1293.51	1293.25
2214	QI	1293.0	1292.72	1292.46	1292.20	1291.94	1291.67	1291.41	1291.15	1290.89	1290.63
2215	QI	1290.4	1290.10	1289.84	1289.58	1289.32	1289.06	1288.80	1288.53	1288.27	1288.01
2216	QI	1287.8	1287.49	1287.23	1286.97	1286.71	1286.45	1286.19	1285.92	1285.66	1285.40
2217	QI	1285.1	1284.88	1284.62	1284.36	1284.10	1283.84	1283.58	1283.32	1283.06	1282.80
2218	QI	1282.5	1282.28	1282.02	1281.76	1281.50	1281.24	1280.98	1280.72	1280.46	1280.20
2219	QI	1279.9	1279.68	1279.42	1279.16	1278.90	1278.64	1278.38	1278.13	1277.87	1277.61
2220	QI	1277.3	1277.09	1276.83	1276.57	1276.31	1276.05	1275.80	1275.54	1275.28	1275.02
2221	QI	1274.8	1274.50	1274.24	1273.99	1273.73	1273.47	1273.21	1272.95	1272.69	1272.44
2222	QI	1272.2	1271.92	1271.66	1271.41	1271.15	1270.89	1270.63	1270.37	1270.12	1269.86
2223	QI	1269.6	1269.34	1269.09	1268.83	1268.57	1268.32	1268.06	1267.80	1267.54	1267.29
2224	QI	1267.0	1266.77	1266.52	1266.26	1266.00	1265.75	1265.49	1265.23	1264.98	1264.72
2225	QI	1264.5	1264.21	1263.95	1263.69	1263.44	1263.18	1262.93	1262.67	1262.41	1262.16
2226	QI	1261.9	1261.65	1261.39	1261.13	1260.88	1260.62	1260.37	1260.11	1259.82	1259.49
2227	QI	1259.2	1258.84	1258.52	1258.19	1257.87	1257.55	1257.22	1256.90	1256.57	1256.25

2228	QI	1255.9	1255.60	1255.28	1254.95	1254.63	1254.31	1253.98	1253.66	1253.34	1253.01
2229	QI	1252.7	1252.37	1252.05	1251.72	1251.40	1251.08	1250.76	1250.43	1250.11	1249.79
2230	QI	1249.5	1249.14	1248.82	1248.50	1248.18	1247.86	1247.53	1247.21	1246.89	1246.57
2231	QI	1246.2	1245.93	1245.61	1245.29	1244.96	1244.64	1244.32	1244.00	1243.68	1243.36
2232	QI	1243.0	1242.72	1242.40	1242.08	1241.76	1241.44	1241.12	1240.80	1240.48	1240.16
2233	QI	1239.8	1239.52	1239.20	1238.88	1238.56	1238.24	1237.92	1237.60	1237.28	1236.97
2234	QI	1236.6	1236.33	1236.01	1235.69	1235.37	1235.05	1234.73	1234.42	1234.10	1233.78
2235	QI	1233.5	1233.14	1232.83	1232.51	1232.19	1231.87	1231.49	1231.11	1230.73	1230.35
2236	QI	1230.0	1229.59	1229.21	1228.83	1228.45	1228.07	1227.69	1227.31	1226.93	1226.55
2237	QI	1226.2	1225.80	1225.42	1225.04	1224.66	1224.28	1223.90	1223.53	1223.15	1222.77
2238	QI	1222.4	1222.01	1221.64	1221.26	1220.88	1220.50	1220.13	1219.75	1219.37	1219.00
2239	QI	1218.6	1218.24	1217.87	1217.49	1217.12	1216.74	1216.36	1215.99	1215.61	1215.24
2240	QI	1214.9	1214.49	1214.11	1213.74	1213.36	1212.99	1212.61	1212.24	1211.86	1211.49
2241	QI	1211.1	1210.74	1210.37	1209.99	1209.62	1209.25	1208.87	1208.50	1208.13	1207.75
2242	QI	1207.4	1207.01	1206.63	1206.26	1205.89	1205.52	1205.14	1204.77	1204.40	1204.03
2243	QI	1203.7	1203.28	1202.91	1202.54	1202.17	1201.80	1201.43	1201.05	1200.68	1200.31
2244	QI	1199.9	1199.57	1199.20	1198.83	1198.46	1198.09	1197.72	1197.35	1196.98	1196.61
2245	QI	1196.2	1195.87	1195.50	1195.13	1194.76	1194.39	1194.03	1193.66	1193.29	1192.92
2246	QI	1192.6	1192.18	1191.81	1191.45	1191.08	1190.71	1190.34	1189.97	1189.61	1189.24
2247	QI	1188.9	1188.51	1188.14	1187.77	1187.40	1187.04	1186.67	1186.30	1185.94	1185.57
2248	QI	1185.2	1184.84	1184.47	1184.11	1183.74	1183.38	1183.01	1182.64	1182.28	1181.91
2249	QI	1181.5	1181.18	1180.82	1180.45	1180.09	1179.73	1179.36	1179.00	1178.63	1178.27
2250	QI	1177.9	1177.54	1177.18	1176.81	1176.45	1176.09	1175.72	1175.36	1175.00	1174.63
2251	QI	1174.3	1173.91	1173.55	1173.18	1172.82	1172.46	1172.10	1171.73	1171.37	1171.01
2252	QI	1170.6	1170.29	1169.93	1169.56	1169.20	1168.84	1168.48	1168.12	1167.76	1167.40
2253	QI	1167.0	1166.68	1166.32	1165.96	1165.60	1165.24	1164.88	1164.52	1164.16	1163.80
2254	QI	1163.4	1163.08	1162.72	1162.36	1162.00	1161.64	1161.28	1160.93	1160.57	1160.21
2255	QI	1159.8	1159.49	1159.13	1158.78	1158.42	1158.06	1157.70	1157.34	1156.99	1156.63
2256	QI	1156.3	1155.91	1155.56	1155.20	1154.84	1154.49	1154.13	1153.77	1153.42	1153.06
2257	QI	1152.7	1152.35	1151.99	1151.64	1151.28	1150.93	1150.57	1150.22	1149.86	1149.50
2258	QI	1149.1	1148.79	1148.44	1148.09	1147.73	1147.38	1147.02	1146.67	1146.31	1145.96
2259	QI	1145.6	1145.25	1144.90	1144.54	1144.19	1143.84	1143.48	1143.13	1142.78	1142.42
2260	QI	1142.1	1141.72	1141.37	1141.01	1140.66	1140.31	1139.96	1139.60	1139.25	1138.90
2261	QI	1138.5	1138.20	1137.85	1137.49	1137.14	1136.79	1136.44	1136.09	1135.74	1135.39
2262	QI	1135.0	1134.69	1134.34	1133.99	1133.64	1133.28	1132.93	1132.58	1132.23	1131.89
2263	QI	1131.5	1131.19	1130.84	1130.49	1130.14	1129.79	1129.44	1129.09	1128.74	1128.39
2264	QI	1128.0	1127.70	1127.35	1127.00	1126.65	1126.30	1125.96	1125.61	1125.26	1124.91
2265	QI	1124.6	1124.22	1123.87	1123.52	1123.18	1122.83	1122.48	1122.14	1121.79	1121.44
2266	QI	1121.1	1120.75	1120.40	1120.06	1119.71	1119.37	1119.02	1118.68	1118.33	1117.98
2267	QI	1117.6	1117.29	1116.95	1116.60	1116.26	1115.91	1115.57	1115.22	1114.88	1114.54
2268	QI	1114.2	1113.85	1113.50	1113.16	1112.82	1112.47	1112.13	1111.78	1111.44	1111.10
2269	QI	1110.8	1110.41	1110.07	1109.73	1109.38	1109.04	1108.70	1108.36	1108.01	1107.67
2270	QI	1107.3	1106.99	1106.64	1106.30	1105.96	1105.62	1105.28	1104.94	1104.60	1104.25
2271	QI	1103.9	1103.57	1103.23	1102.89	1102.55	1102.21	1101.87	1101.53	1101.19	1100.85
2272	QI	1100.5	1100.17	1099.83	1099.49	1099.15	1098.81	1098.47	1098.13	1097.79	1097.45
2273	QI	1097.1	1096.77	1096.44	1096.10	1095.76	1095.42	1095.08	1094.74	1094.41	1094.07
2274	QI	1093.7	1093.39	1093.05	1092.72	1092.38	1092.04	1091.70	1091.37	1090.77	1090.17
2275	QI	1089.6	1088.97	1088.37	1087.76	1087.16	1086.56	1085.96	1085.36	1084.76	1084.17
2276	QI	1083.6	1082.97	1082.37	1081.77	1081.17	1080.58	1079.98	1079.38	1078.79	1078.19
2277	QI	1077.6	1077.00	1076.41	1075.81	1075.22	1074.62	1074.03	1073.44	1072.84	1072.25
2278	QI	1071.7	1071.07	1070.48	1069.89	1069.29	1068.70	1068.11	1067.52	1066.93	1066.34
2279	QI	1065.8	1065.17	1064.58	1063.99	1063.40	1062.82	1062.23	1061.64	1061.06	1060.47
2280	QI	1059.9	1059.30	1058.71	1058.13	1057.54	1056.96	1056.38	1055.79	1055.21	1054.63
2281	QI	1054.0	1053.46	1052.88	1052.30	1051.72	1051.14	1050.56	1049.98	1049.40	1048.82
2282	QI	1048.2	1047.66	1047.08	1046.50	1045.92	1045.35	1044.77	1044.19	1043.62	1043.04
2283	QI	1042.5	1041.89	1041.31	1040.74	1040.16	1039.59	1039.01	1038.44	1037.87	1037.29

```
2284          QI  1036.7 1036.15 1035.58 1035.00 1034.43 1033.86 1033.29 1032.72 1032.15 1031.58
2285          QI  1031.0 1030.44 1029.87 1029.30 1028.73 1028.16 1027.60 1027.03 1026.46 1025.90
2286          QI  1025.3 1024.76 1024.20 1023.63 1023.07 1022.50 1021.94 1021.37 1020.81 1020.24
2287          QI  1019.7 1019.12 1018.55 1017.99 1017.43 1016.87 1016.31 1015.74 1015.18 1014.62
2288          QI  1014.1 1013.50 1012.94 1012.38 1011.82 1011.26 1010.71 1010.15 1009.59 1009.03
2289          QI  1008.5 1007.92 1007.36 1006.81 1006.25 1005.69 1005.14 1004.58 1004.03 1003.47
2290          QI  1002.9 1002.37 1001.81 1001.26 1000.71 1000.15 999.494 998.796 998.098 997.401
              *
2291          KK   RO339
2292          KM        ROUTE FLOW FROM "FRS Q" (formerly "HY337") TO CO340
2293          RM       1    0.08    0.25
```

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	FRS Q	1380.	30.08	1379.	1364.	1301.	.00		
+	2 COMBINED AT	CO340	1809.	12.17	1379.	1364.	1301.	1.10		
+	4 COMBINED AT	CO311	2831.	16.67	2485.	1744.	1447.	23.57		
+	2 COMBINED AT	CO313	2839.	17.00	2492.	1747.	1448.	24.62		
+	2 COMBINED AT	CO319	2856.	17.25	2507.	1753.	1450.	25.94		

PB83-223768

TR-20, PROJECT FORMULATION - HYDROLOGY (1982 VERSION)
TECHNICAL RELEASE NUMBER 20

Soil Conservation Service
Lanham, MD

May 82

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
NTIS®

RAINFALL TABLE 2

STANDARD SCS 24-HOUR, TYPE II DISTRIBUTION
CUMULATIVE RAINFALL TABLE
(REVISED MAY 1982)

	TABLE NO.	TIME INCREMENT					
5	RAINFL 2	0.2500					
8	0.0	0.0020	0.0050	0.0080	0.0110	1	
8	0.0140	0.0170	0.0200	0.0230	0.0260	2.25	
8	0.0290	0.0320	0.0350	0.0380	0.0410	3.5	
8	0.0440	0.0480	0.0520	0.0560	0.0600	4.75	
8	0.0640	0.0680	0.0720	0.0760	0.0800	6.0	
8	0.0850	0.0900	0.0950	0.1000	0.1050	7.25	
8	0.1100	0.1150	0.1200	0.1260	0.1330	8.5	
8	0.1400	0.1470	0.1550	0.1630	0.1720	9.75	
8	0.1810	0.1910	0.2030	0.2180	0.2360	11.0	
8	0.2570	0.2830	0.3870	0.6630	0.7070	12.25	
8	0.7350	0.7580	0.7760	0.7910	0.8040		
8	0.8150	0.8250	0.8340	0.8420	0.8490		
8	0.8560	0.8630	0.8690	0.8750	0.8810		
8	0.8870	0.8930	0.8980	0.9030	0.9080		
8	0.9130	0.9180	0.9220	0.9260	0.9300		
8	0.9340	0.9380	0.9420	0.9460	0.9500		
8	0.9530	0.9560	0.9590	0.9620	0.9650		
8	0.9680	0.9710	0.9740	0.9770	0.9800		
8	0.9830	0.9860	0.9890	0.9920	0.9950		
8	0.9980	1.0000	1.0000	1.0000	1.0000		
9	ENDTBL						

Note: On Executive Control use Rainfall Depth in inches and Rainfall Duration of 1.0. The format for this table is Form #271, Page F-7.

RAINFALL TABLE 6

STANDARD SCS DIMENSIONLESS DISTRIBUTION
for
EMERGENCY SPILLWAY ~~FOR~~ AND FREEBOARD HYDROGRAPHS
CUMULATIVE RAINFALL TABLE
(REVISED MAY 1982)

	TABLE NO.	TIME INCREMENT				
5	RAINFL 6	0.0200				
8	0.0	0.0080	0.0162	0.0246	0.0333	
8	0.0425	0.0524	0.0630	0.0743	0.0863	1
8	0.0990	0.1124	0.1265	0.1420	0.1595	4
8	0.1800	0.2050	0.2550	0.3450	0.4370	19
8	0.5300	0.6030	0.6330	0.6600	0.6840	24
8	0.7050	0.7240	0.7420	0.7590	0.7750	29
8	0.7900	0.8043	0.8180	0.8312	0.8439	34
8	0.8561	0.8678	0.8790	0.8898	0.9002	39
8	0.9103	0.9201	0.9297	0.9391	0.9483	44
8	0.9573	0.9661	0.9747	0.9832	0.9916	49
8	1.0000	1.0000	1.0000	1.0000	1.0000	
9	ENDTBL	50				

Note: On Executive Control use Rainfall Depth in inches and Rainfall Duration in hours. The format for this table is Form #271, Page F-7.

Digital HEC-1 Models