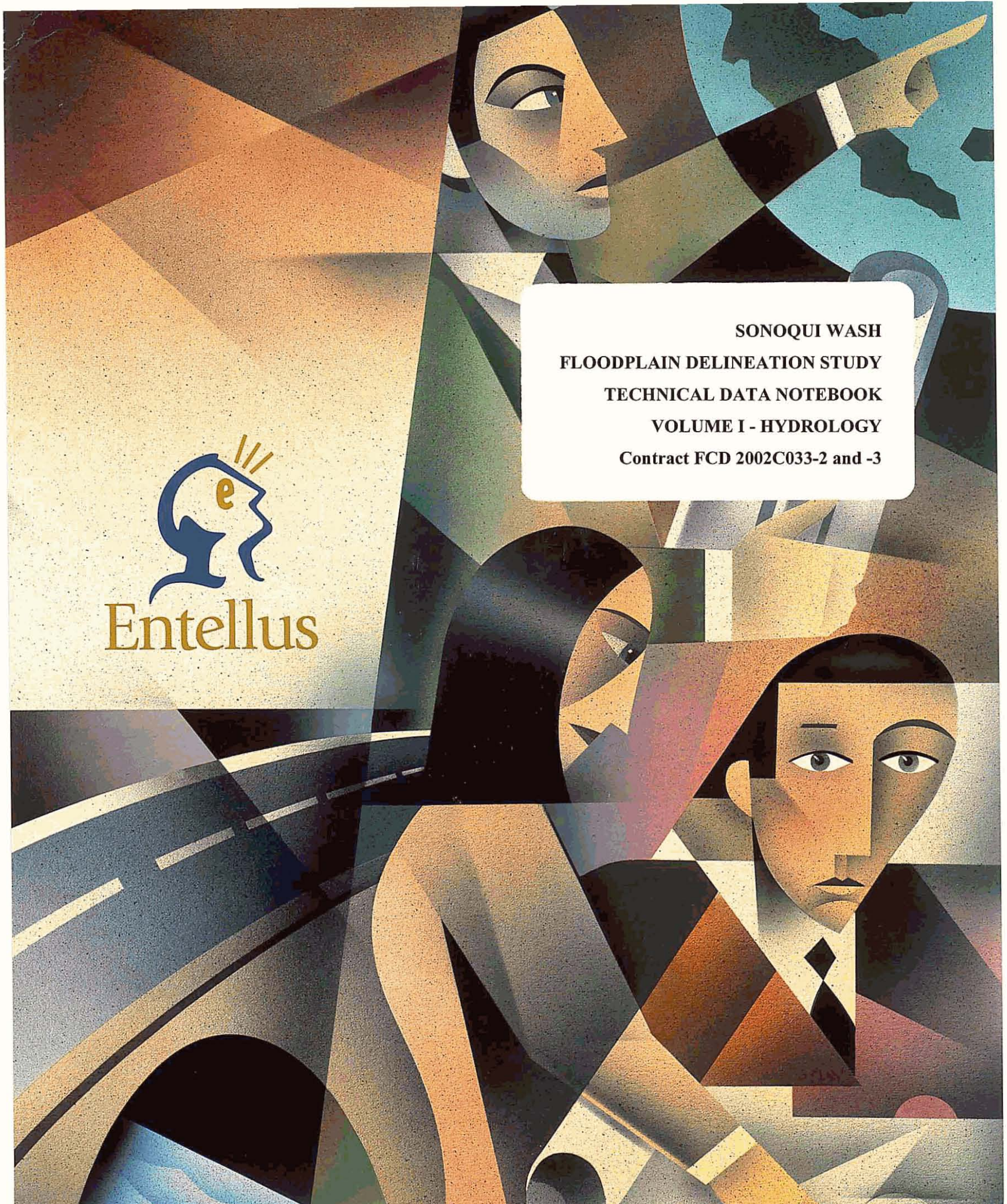

SONOQUI WASH FLOODPLAIN DELINEATION STUDY TECHNICAL DATA NOTEBOOK VOLUME I - HYDROLOGY

Contract FCD 2002C033-2 and -3

Entellus

SONOQUI WASH

FLOODPLAIN DELINEATION STUDY

TECHNICAL DATA NOTEBOOK

VOLUME I - HYDROLOGY

Contract FCD 2002CO33-2 and -3

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SONOQUI WASH
FLOODPLAIN DELINEATION STUDY
FCD 2002C033-2 and -3

TECHNICAL DATA NOTEBOOK
VOLUME I - HYDROLOGY

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SECTION 1: INTRODUCTION

The hydraulic analysis presented in this report is a part of the scope of work performed by Entellus, Inc. for the Flood Control District of Maricopa County (District) under Contract FCD 97-11, and modified and finalized under Contracts FCD 2002C033-2 and FCD 2002C033-3. The project under this contract consists approximately seven (7) river miles of floodplain delineation for Sonoqui Wash from Ellsworth Road to Higley Road, in eastern Maricopa County.

The Sonoqui Wash is located in Maricopa County. However, its associated watershed includes areas of Maricopa and Pinal Counties. The watershed is located within Township 2 South, Range 6 East; Township 2 South, Range 7 East; Township 3 South, Range 6 East; Township 3 South, Range 7 East; and Township 3 South, Range 8 East, Gila and Salt River Base and Meridian, Maricopa and Pinal Counties, Arizona.

The Sonoqui Wash is within the Town of Queen Creek, the City of Gilbert, and unincorporated areas of Maricopa County. The wash originates at Hunt Highway near Ellsworth Road where runoff from the Sacaton Mountains enter the wash and flow northwesterly for approximately five (5) miles to the alignment of Ocotillo Road near Power Road. From this point on, the wash runs westerly for approximately two and half (2.5) miles along the Ocotillo Road alignment to its confluence with East Maricopa Floodway (EMF). (See **Figure 1.1**)

The contributing watershed consists of approximately sixty-six (66) square miles, with a general drainage direction from south to north in the upper watershed turning northwesterly, and eventually westerly in the lower watershed. Drainage paths in the study area are characterized by poorly defined channels with mild banks and grades.

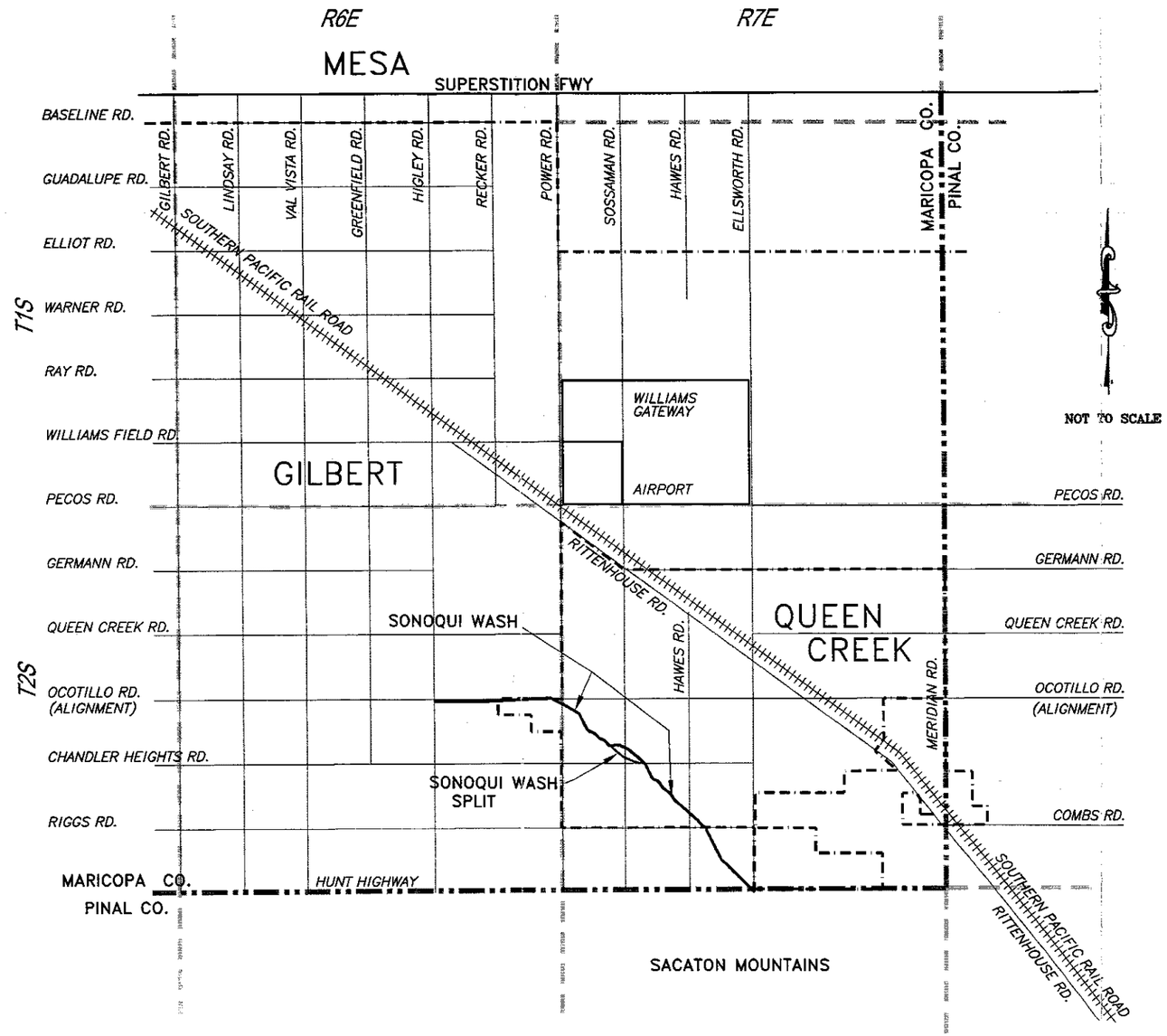

FIGURE 1.1
LOCATION MAP

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However, the natural drainage pattern of the study area has been significantly altered by agricultural activity and urban development. In addition, roadway construction in conjunction with urbanization have affected runoff peaks throughout the study area.

Climate of the study area are characterized by hot summers, mild winters and infrequent rainfalls. The mean annual rainfall is about 8.5 inches, falling normally in two seasons. One season, primarily resulting from local convective storms, lasts from July to mid-September; the other season, mainly formed by cyclonic (frontal) storms, extends from December through March. Of the two types of storms, the summer convective storm is considered to be the more critical flood producing event in this area.

Huitt-Zollars, Inc. performed an Area Drainage Master Plan (ADMP) for the Queen Creek area under a contract with the Flood Control District of Maricopa County **(Reference 5)**. The flow entering the Sonoqui Wash from the Queen Creek watershed (through two crossings along the Southern Pacific Railroad) was provided by the District and was based on the Queen Creek ADMP Hydrology

SECTION 2: ADWR/FEMA FORMS

The entire contents of this section are found in **Section 2** of "*Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics.*"

SECTION 3: MAPPING AND SURVEY INFORMATION

The entire contents of this section are found in **Section 3** of *"Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."*

SECTION 4: HYDROLOGY

4.1 Method Description

In the absence of historical gage data in this area, peak flows in this study were obtained through precipitation/runoff modeling. The hydrologic modeling was performed by means of the 1991 version of the HEC-1 computer program as developed by the U.S. Army Corps of Engineers **(Reference 1).** The estimation procedures for model parameters and components were based on the Hydrologic Design Manual (hereinafter referred to as the Manual) published by the District **(Reference 20).**

Schematic flow routing diagrams for runoff modeling are presented on **Plate 4.** A duration of 24 hours was used for this study because it produces higher peak flows than the 6-hour storm. A time step of five (5) minutes was used in the computation. The normal depth routing method was used for routing flow from one concentration point to the next.

4.2 Parameter Estimation

4.2.1 Drainage Area Boundary

Based on the topographic mapping information, the study watershed was divided into sixty-one (61) sub-basins to form an interconnected system of stream network components (see **Plate 1**). Watershed parameters such as size, length, elevation, and slope for each sub-basin are tabulated in **Appendix D.2.4.**

The sub-basins were identified by a letter followed by a number. The letter indicates the relative location where the sub-basin is located. In order to facilitate locating the sub-basins, the watershed was divided into several areas as follows:

South Area (S) - This portion of the watershed is located in Pinal County, south of Hunt Highway, and extends southerly to the rim of the Sacaton Mountains. This area is approximately twenty-nine (29) square miles in size, and includes the only mountain area of this study. The lower portion of this area exhibits the characteristics of distributary flows with multiple, unstable, small channels. However, Hunt Highway concentrates the flows and provides some stability downstream.

East of Railroad (RR) - The Southern Pacific Railroad traverses the entire watershed along the east end of this study. The embankment of the railroad is significantly higher than the surrounding area and effectively blocks storm runoff from the east. However, a small portion of the flow from this area would enter the Sonoqui watershed through three (3) culvert openings.

East Area (E) - The east area is approximately twenty (20) square miles in size and is located between the Southern Pacific Railroad and Hunt Highway. This area is characterized by mildly sloped irrigated fields.

North Area (N) - The north area consists of approximately three (3) square miles along the north boundary adjacent to the Queen Creek Watershed. Some of the flow from this watershed does break away and discharge into Queen Creek.

West Area (W) - This area, approximately five (5) square miles in size, is bounded by Hunt Highway in the south, Chandler Heights Road in the north, Sossaman Road in the east and Higley Road in the west. The area is characterized by agricultural fields with considerably mild slopes. Runoff from this area is likely to split at several locations and some of the split flows may not return to Sonoqui Wash.

Central Area (C)- The central area includes the basins adjacent to Sonoqui Wash with a size of approximately six (6) square miles. Most of the existing development is concentrated in this area.

4.2.2 Gage Data

No gage data was available for Sonoqui Wash.

4.2.3 Statistical Parameters

There are no site specific statistical data available for this project. However, the USGS has developed generalized regression equations for Region 13 which includes Arizona **(Reference 7)**. These equations are based on stream gage data across the entire region. Unfortunately, most of the stream gages used for the development of these equations are located in larger, well defined watercourses instead of the shallow, wide and poorly defined watercourses encountered through the project area. These regression equations significantly overestimate the peak runoff for the project area. Therefore, the applicability of these regression equations to this project is not warranted.

4.2.4 Precipitation

The estimated rainfall depths for the 100-year storm was obtained from the charts derived from the NOAA Atlas published for Arizona **(Reference 4).** The 6-hour and the 24-hour storms were used as the input for peak flow estimation. The 24-hour storm produced the higher peak flows on Sonoqui Wash. However, the 6-hour storm produced higher peak flows for individual areas. The results of both the 24 and 6 hour storms are summarized in **Tables 4.1** and **4.2**.

The distribution and area reduction for the 6-hour and the 24-hour storms were obtained by using the MCUHP1 module of the DDMS software package, which was developed by the District.

4.2.5 Physical Parameters

4.2.5.1 Basin Parameters

Soil and Land Use: Information on soil groups was obtained from *Soil Survey of Eastern Maricopa and Northern Pinal Counties Area, Arizona,* published by the Soil Conservation Service (SCS) in November 1987 **(Reference 3).** Boundaries of the soil groups are shown on **Plate 2**. Information on land use was obtained from the 1996 digital aerial photographs provided by the District **(Reference 16)**. Locations of specific land use within the study area are shown on **Plate 3**. Soil and land use information for each sub-basin is summarized in **Appendix D.2.1** and **Appendix D.2.2**.

Rainfall Losses: Rainfall losses, which consist of surface retention loss and infiltration loss, were computed from the Green-Ampt method. The parameter estimation for the Green-Ampt method is discussed below and summarized in **Appendix D.2.5**.

Surface Retention Loss - The surface retention loss (IA) for each soil group was estimated on the basis of land use pattern and soil slopes obtained from **Reference 3** as well as the criteria given in Table 4.1 of the Manual.

Percent of Outcrop - The weighted value of percent of rock outcrop (RTIMP) for each sub-basin was computed

automatically by the Drainage Design Menu System (DDMS) computer software, which uses soil information contained in **Reference 3**

Infiltration Loss - The three (3) parameters as coded in HEC-1 for infiltration loss are:

- Hydraulic conductivity at natural saturation (XKSAT)
- Wetting front capillary suction (PSIF)
- Volumetric soil moisture deficit (DTHETA)

The parameter values for various soil groups were extracted from the built-in tables in the DDMS software. Weighted values of these parameters were computed for all the sub-basins for existing development conditions. The selection of DTHETA was based on the dry antecedent soil moisture condition for natural desert and mountain areas; the normal antecedent soil moisture condition for all developed areas; and wet antecedent soil moisture condition for irrigated fields. However, for sub-basins E1 and E2, an average value between normal and wet antecedent soil moisture conditions was used because the entire agricultural fields are unlikely to be saturated simultaneously at any given time. In addition, values for XKSAT were adjusted according to the vegetation cover. A 30 percent vegetation cover was used for most undeveloped and low density residential areas. Areas that are on the steep slopes or have other zoning designations were assigned with other percentage of vegetation cover based upon aerial photography of the specific area.

Unit Hydrograph, Time of Concentration, and Lag Time: The Clark unit hydrograph was used in the computation of peak discharges for all sub-basins except sub-basins E1 and E2.

These two sub-basins size and slope are inadequate for the use of the Clark unit hydrograph since the time of concentration is much larger than the maximum recommended (1.5 hours). For these two (2) sub-basins S-graphs were used. The other sub-basins used the Clark unit hydrograph, which consists of three (3) parameters:

- Time of Concentration
- Storage Coefficient
- Time-Area Relation

Time of Concentration - The Papadakis method was used for estimating the time of concentration. It is a function of length and slope of the flow path, average rainfall intensity, and the watershed resistance coefficient, which is a function of watershed type and size. Values of these parameters are shown in **Appendix D.2.4**. The length and slope of the flow path for each sub-basin were obtained from the topographic maps **(References 10 through 12 and 15)**. Slope adjustments for slopes greater than two-hundred (200) feet per mile were automatically implemented by the DDMS software. This procedure is based on Figure 5.4 of the Manual. Detailed slope adjustment procedure for each sub-basin is presented in **Appendix D.2.4**. The rainfall intensity for each sub-basin was automatically computed by the MCUHP1 module of the DDMS software. The values for resistance coefficient were determined from Table 5.1 of the Manual.

Storage Coefficient and Time-Area Relation - The storage coefficient is a function of time of concentration, the watershed

size and the length of flow path. The time-area relation is a parameter showing the equal travel-time zones in a watershed.

The computation for time of concentration, storage coefficient and time-area relation was performed by means of trial-and-error method through the MCUHP1 module of the DDMS software. Input and output values (including the ordinates of Clark unit hydrographs) are presented in **Appendix D.2.5**. A review of results indicated that all sub-basins were suitable for the Clark method, except for sub-basins E1 and E2, which were modeled using the S-graph methodology.

S-Graphs: Due to the size of sub-basins E1 and E2, S-graphs were utilized. Details on the S-graphs can be found in the Manual. The Manual specifies four (4) different S-graphs: Phoenix Valley, Phoenix Mountain, Desert/Rangeland and Agricultural. The Agricultural S-graph was used for both sub-basins E1 and E2. Details on the calculation of the S-graphs are found in **Appendix D.2.3**. The following parameters are necessary to compute the S-graph:

- S-Graph Type
- Hydraulic Efficiency
- L_{ca}
- Lag Time

S-Graph Type – The standard agricultural S-graph was used for sub-basins E1 and E2, as presented in the Manual.

Hydraulic Efficiency – The hydraulic efficiency (K_n) was estimated based upon the guidelines presented in the Manual.

The Manual recommends a range of values between 0.06 and 0.15 for K_n. 0.07 was chosen for K_n.

L_{ca} – L_{ca} is defined in the Manual as being the length along watercourse to a point opposite the centroid in miles. The centroid was calculated using the "mass properties" command in AutoCAD 2000 ("massprop"), and a line perpendicular to the watercourse from the centroid was drawn in order to determine the L_{ca}. A graphical representation of the L_{ca}'s can be found in **Appendix D.2.3**.

Lag Time - The Slope and Lag Time for sub-basins E1 and E2 were estimated based on the topographic mapping and the following procedures from the Manual. The values recommended by the Corps of Engineers for both "C" and "m" were used. The centroids were located by using the procedure described above under L_{ca}. A summary of the Lag Time parameters used can be found in **Appendix D.2.3**.

4.2.5.2 Reach Routing Parameters

The normal depth routing method was used for routing flow from one concentration point to the next. Five typical cross-sections were developed from the topographic base map and the 1" = 200' scale map. In general, each routing reach used one of these cross sections to describe the channel geometry. However, at several locations, specific cross sections were generated for flow routing. The slope between two concentration points was computed based on the length and elevations obtained from the 1" = 200' topographic map

whenever possible. The routing information and slope computations are tabulated in **Appendix D.3.**

Because the "n" value is a relatively insensitive parameter in normal depth routing, areas of similar conditions were assigned the same "n" values. The "n" values for paved streets was selected to be 0.020 while channels ranged from 0.035 to 0.045. Cultivated fields were assigned values between 0.06 and 0.08; natural desert, between 0.06 and 0.07; mountain areas, between 0.06 and 0.08; and urbanized areas ranged from 0.08 to 0.10. These "n" values were obtained from **Reference 2**.

The number of steps used in the normal depth routing calculation was obtained using the following equations:

$$N = L / (V * \text{Time step})$$

Where

L = Routing Length (ft)

V = Flow Velocity (fps) = $L / (T_{routed} - T_{in})$

T_{routed} = Time to peak for routed hydrograph (sec)

T_{in} = Time to peak for inflow hydrograph (sec)

Channel infiltration losses were not included in the routing computation because no data was available. However, excluding these losses would give a conservative estimate on peak flows.

4.2.5.3 Storage Route Parameters

Storage routing was not used in this study because there are no permanent storage areas anywhere in the watershed. There are

a number of depressed areas that could act as storage but these areas are likely to be eliminated as development or agricultural activity increases.

4.2.5.4 Flow Splits and Diversions

See Special problems section 4.3.1 for details regarding Split flows.

4.3 Special Problems and Solutions

4.3.1 Split Flows

In the course of the study, special attention was paid to flow estimation at the following locations:

- Roadway embankments which caused water to overtop the roadway and/or split the flow
- Street intersections where flows were split into two streets
- Irrigation ditches and field berms that may alter the natural flow paths

Split flow was considered in the model by use of a diversion card. The amount of flow in each direction was determined by considering the relative values of slope, area and roughness in each split direction. Computations on split flows are included in **Appendix D.4.**

Special attention was given to the possible diversions at the Sonoqui Wash crossing at Riggs Road and at Chandler Heights Road. At these two locations the capacity analysis (see *Sanokai Wash Floodplain Delineation Study, Hydrology and Hydraulics Report*, **Reference 17**) shows that the capacity of the wash is significantly lower than the runoff estimated for the 100-year storm. At the Riggs Road crossing the

amount of flow was calculated using HEC-RAS. The HEC-RAS model was set with a junction at the split flow location. The upstream flow was divided between the main downstream channel (Sonoqui Wash) and the split channel along Riggs Road. The percentage of the flow in each channel was modified until the water surface at the junction were the same for all the channel. This process was repeated for several upstream flows to obtain a rating curve for the split flow. The rating curves and the HEC-RAS model are included in **Appendix D.4.**

The capacity of the Sonoqui Wash immediately upstream of Chandler Heights Road is less than the 100-year runoff estimated at this point. However, it is expected that new development in the area will prevent the flow from leaving the wash or be redirected back into the wash at locations further downstream. For these reasons, it was agreed by the District and the Town of Queen Creek to assume that the water would remain in the wash. This condition would result in a more conservative floodplain delineation downstream of Chandler Heights. However, flows along Chandler Heights Road west of Sonoqui Wash would be underestimated in the analyses under current conditions.

There is another low capacity reach in Sonoqui Wash located east of the Power Road crossing where flow in excess of 1600 cfs would spill to the southwest toward Power Road. Most of this flow will be contained by irrigation ditches and berms located south of the project's mapping limits. These structures along with the embankment of Power Road would cause the spilled flow to return to the wash near the Power Road crossing. Since the flow spills and returns to the wash within the same sub-basin there was no need to code this condition in the HEC-1 model.

4.3.2 Clark Unit Hydrographs

Based upon the Clark unit hydrograph methodology as outlined in the Manual, the time of concentrations for sub-basins E1 and E2 exceeded the maximum recommended by the District (1.5 hours). It was determined that the Clark unit hydrograph was not adequate to model either of the two sub-basins, and so the S-graph methodology was then utilized to model sub-basins E1 and E2.

4.3.3 Southern Pacific Railroad Flows

The Southern Pacific Railroads embankment was used as a watershed boundary for this study, because the top of the embankment is considerably higher than the adjacent ground. However, a small portion of the flow enters the Sonoqui wash watershed through three openings under the railroad. The flows through these railroads were provided by the District and are based on the Queen Creek/Sanokai Wash Hydraulic Master Plan FCD 98-26 (**Reference 18**). The contributing areas for the three (3) railroad structures were calculated based upon the amount of flow being diverted through the railroad structures versus the total flow at the structures. These calculations, were performed for both the 6-hr and the 24-hr models, and due to the varied flows between the two models, the areas associated with the structures vary slightly between the two models. The District provided Entellus with the input hydrographs for these three (3) locations using the Army Corp of Engineers HEC Data Storage System (DSS). Documentation for these hydrographs was prepared by the District and is contained in **Appendix D.5**.

4.3.4 HEC-1 Warnings and Errors

There were no errors reported by the HEC-1 program. The only warning message encountered in either of the two HEC-1 models was as follows:

WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

This warning occurs on the last ordinate of the DSS input for Railroad structure RRW1. If the soil infiltration is greater than the runoff, a negative value for ponding will be returned. Thus HEC-1 corrects this negative value by simply setting the value to zero. The warning was ignored.

4.4 Calibration

As mentioned previously, historical gage records are not available for the study area. However, the District has established a chart to describe the general relationships between peak discharge and watershed size in Maricopa County **(Reference 6)**. In this study, the estimated peak discharges at major concentration points were plotted on the District's chart for comparison purposes. As indicated in **Figure 4.1**, the estimated values of peak discharges are in general agreement with the correlation curves developed by the District based on gaging information in the County. Additionally, USGS regression equations **(Reference 7)** were used for comparison but found to significantly overestimate the peak flows for the Sonoqui Wash.

4.5 Results of Hydrologic Analysis

Results of runoff modeling for both the 6- and 24-hour storms are summarized in **Tables 4.1** and **4.2**. Outputs of the HEC-1 model runs for the 100-yr, 6-hr existing and the 100-yr, 24-hr existing models are presented in **Appendix D.6.1** and **Appendix D.6.2** respectively.

In the absence of historical gage data in the watershed, the peak flows in this study were derived through hydrologic modeling. The values of peak discharges resulting from hydrologic modeling appear to be reasonable for use as input for floodplain and floodway delineation.

Figure 4.1: HEC-1 Peak Runoff Compared to Discharge Predicted Using Regression Analysis of USGS Data for Gages in Arizona

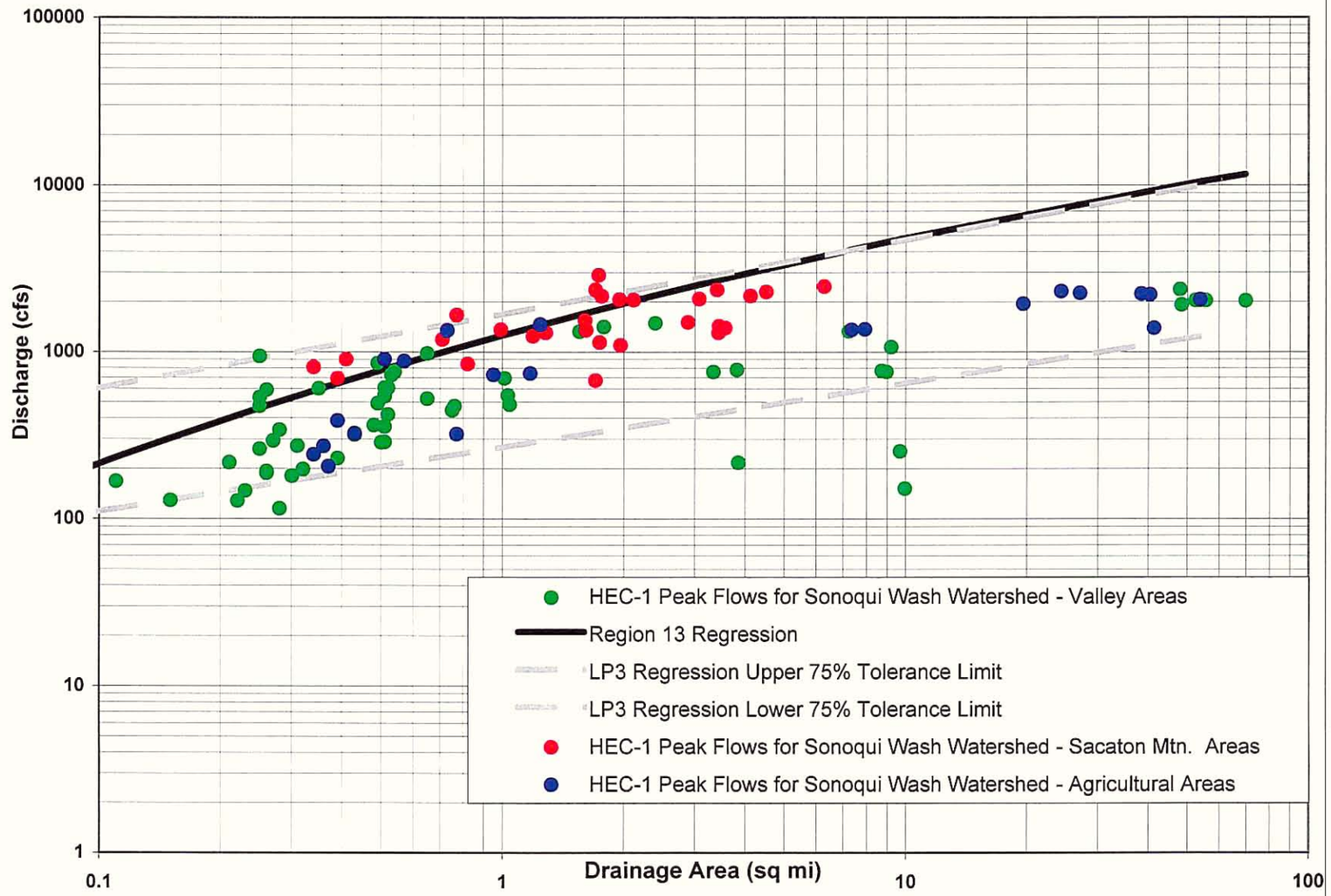


Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
S9	2359	12.58	3.4	2343	4.67	3.4	2359	12.58	24-hour	3.4	694
DDS9	472	12.58	3.4	469	4.67	3.4	472	12.58	24-hour	3.4	139
*DS9	1887	12.58	3.4	1874	4.67	3.4	1887	12.58	24-hour	3.4	555
S10	883	12.25	0.71	1191	4.25	0.71	1191	4.25	6-hour	0.71	1677
CP-S10	2171	12.58	4.11	2124	4.58	4.11	2171	12.58	24-hour	4.11	528
RS10	2045	12.75	4.11	2056	4.83	4.11	2056	4.83	6-hour	4.11	500
E8	215	12.75	0.39	388	4.58	0.39	388	4.58	6-hour	0.39	995
DS9	472	12.58	3.4	469	4.67	3.4	472	12.58	24-hour	3.4	139
RS9E	392	13.25	3.4	418	5.33	3.4	418	5.33	6-hour	3.4	123
RS9C	375	13.5	3.4	408	5.5	3.4	408	5.5	6-hour	3.4	120
*CP-E8	487	13.42	0.39	695	5.33	0.39	695	5.33	6-hour	0.39	1782
CP-E8	2264	12.75	4.5	2292	4.75	4.5	2292	4.75	6-hour	4.5	509
DDE8	505	12.75	4.5	512	4.75	4.5	512	4.75	6-hour	4.5	114
*DE8	1759	12.75	4.5	1781	4.75	4.5	1781	4.75	6-hour	4.5	396
RE8	1629	13.17	4.5	1717	5.25	4.5	1717	5.25	6-hour	4.5	382
C1	391	12.25	0.35	605	4.25	0.35	605	4.25	6-hour	0.35	1729
S11	1102	12.33	0.99	1361	4.33	0.99	1361	4.33	6-hour	0.99	1375
RS11	830	12.92	0.99	1057	4.83	0.99	1057	4.83	6-hour	0.99	1068
S12	611	12.17	0.41	906	4.17	0.41	906	4.17	6-hour	0.41	2210
RS12	280	13.42	0.41	411	5.25	0.41	411	5.25	6-hour	0.41	1002
CP-C1	2377	13.17	6.26	2476	5.17	6.26	2476	5.17	6-hour	6.26	396
RC1N	2239	13.58	6.26	2372	5.58	6.26	2372	5.58	6-hour	6.26	379
S1	2163	12.25	1.76	2055	4.33	1.76	2163	12.25	24-hour	1.76	1229
RS1	391	21.92	1.76	452	13.58	1.76	452	13.58	6-hour	1.76	257
S2	2081	12.67	3.07	1922	4.75	3.07	2081	12.67	24-hour	3.07	678
RS2	841	17.67	3.07	919	9.67	3.07	919	9.67	6-hour	3.07	299
S3B	2888	12.17	1.73	2855	4.25	1.73	2888	12.17	24-hour	1.73	1669
RS3B	1021	14.83	1.73	1257	6.75	1.73	1257	6.75	6-hour	1.73	727
S3A	595	13	1.7	676	5.08	1.7	676	5.08	6-hour	1.7	398
CP-S3A	1124	14.83	3.43	1305	6.83	3.43	1305	6.83	6-hour	3.43	380

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RS3A	784	18.5	3.43	906	10.5	3.43	906	10.5	6-hour	3.43	264
E1	1193	14.92	7.91	1370	7.17	7.91	1370	7.17	6-hour	7.91	173
*RRW1	306	14.58	3.37	329	6.58	3.16	329	6.58	6-hour	3.16	104
RRW1	301	15.67	3.37	325	7.75	3.16	325	7.75	6-hour	3.16	103
CP-E1	1947	18.25	19.54	1877	10.42	19.33	1947	18.25	24-hour	19.54	100
RE1	1859	20.42	19.54	1741	12.75	19.33	1859	20.42	24-hour	19.54	95
S4B	1128	12.42	1.28	1307	4.42	1.28	1307	4.42	6-hour	1.28	1021
RS4B	665	13.75	1.28	850	5.67	1.28	850	5.67	6-hour	1.28	664
S4A	1517	12.42	1.6	1549	4.42	1.6	1549	4.42	6-hour	1.6	968
CP-S4A	1510	12.42	2.88	1253	4.42	2.88	1510	12.42	24-hour	2.88	524
RS4A	696	14.17	2.88	739	6.17	2.88	739	6.17	6-hour	2.88	257
S5	524	12.17	0.34	810	4.08	0.34	810	4.08	6-hour	0.34	2382
RS5	193	14.08	0.34	292	5.75	0.34	292	5.75	6-hour	0.34	859
*RRW2	123	15.83	0.21	140	7.92	0.18	140	7.92	6-hour	0.18	778
RRW2	119	21	0.21	138	11.92	0.18	138	11.92	6-hour	0.18	767
*RRW3	349	14.08	1.28	423	9.58	1.14	423	9.58	6-hour	1.14	371
RRW3	339	18.92	1.28	414	13.08	1.14	414	13.08	6-hour	1.14	363
CP-D5	2310	20.42	24.25	2223	12.75	23.87	2310	20.42	24-hour	24.25	95
RD5	2246	21.92	24.25	2173	14.17	23.87	2246	21.92	24-hour	24.25	93
S6	647	12.42	0.82	849	4.42	0.82	849	4.42	6-hour	0.82	1035
RS6	274	15.5	0.82	381	7.33	0.82	381	7.33	6-hour	0.82	465
S7B	1324	12.17	0.77	1674	4.17	0.77	1674	4.17	6-hour	0.77	2174
RS7B	534	13.33	0.77	742	5.25	0.77	742	5.25	6-hour	0.77	964
S7A	1098	12.42	1.19	1246	4.42	1.19	1246	4.42	6-hour	1.19	1047
CP-S7A	1098	12.42	1.96	1062	4.42	1.96	1098	12.42	24-hour	1.96	560
RS7A	509	14.33	1.96	647	6.33	1.96	647	6.33	6-hour	1.96	330
CP-D6	2253	21.92	27.03	2127	14.17	26.65	2253	21.92	24-hour	27.03	83
RD6	2228	22.67	27.03	2108	14.92	26.65	2228	22.67	24-hour	27.03	82
E5	541	12.42	0.57	883	4.42	0.57	883	4.42	6-hour	0.57	1549
RE5	423	12.83	0.57	684	4.75	0.57	684	4.75	6-hour	0.57	1200

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
E2	1272	14.42	7.33	1363	6.33	7.33	1363	6.33	6-hour	7.33	186
S8B	2342	12.25	1.7	2359	4.25	1.7	2359	4.25	6-hour	1.7	1388
RS8B	1130	13.75	1.7	1432	5.67	1.7	1432	5.67	6-hour	1.7	842
S8A	1132	12.58	1.74	1143	4.58	1.74	1143	4.58	6-hour	1.74	657
CP-S8A	1192	13.67	3.44	1429	5.67	3.44	1429	5.67	6-hour	3.44	415
RS8A	887	15.58	3.44	1056	7.58	3.44	1056	7.58	6-hour	3.44	307
CP-E2	2235	22.75	38.36	2038	14.92	37.98	2235	22.75	24-hour	38.36	58
RE2	2207	23.83	38.36	1983	16.08	37.98	2207	23.83	24-hour	38.36	58
E6	569	13.08	1.17	745	5.08	1.17	745	5.08	6-hour	1.17	637
E11	140	13.08	0.34	244	5	0.34	244	5	6-hour	0.34	718
DDE11	131	13.08	0.34	229	5	0.34	229	5	6-hour	0.34	674
*DE11	9	13.08	0.34	15	5	0.34	15	5	6-hour	0.34	44
RE11N	8	15.17	0.34	12	6.25	0.34	12	6.25	6-hour	0.34	35
E3	185	13.08	0.43	323	4.92	0.43	323	4.92	6-hour	0.43	751
DE11	131	13.08	0.34	229	5	0.34	229	5	6-hour	0.34	674
RE11S	87	16.75	0.34	150	8.33	0.34	150	8.33	6-hour	0.34	441
CP-E3	185	13.08	0.77	323	4.92	0.77	323	4.92	6-hour	0.77	419
DDE3	24	13.08	0.77	38	5	0.77	38	5	6-hour	0.77	49
*DE3	161	13.08	0.77	268	5	0.77	268	5	6-hour	0.77	348
RE3W	128	14.83	0.77	214	6.58	0.77	214	6.58	6-hour	0.77	278
CP-E6	2205	23.83	40.3	1967	16.08	39.92	2205	23.83	24-hour	40.3	55
DDE6	801	23.83	40.3	714	16.08	39.92	801	23.83	24-hour	40.3	20
*DE6	1403	23.83	40.3	1253	16.08	39.92	1403	23.83	24-hour	40.3	35
RE6S	1390	24.92	40.3	1247	17.08	39.92	1390	24.92	24-hour	40.3	34
E9	466	12.92	0.95	729	4.83	0.95	729	4.83	6-hour	0.95	767
DE8	505	12.75	4.5	512	4.75	4.5	512	4.75	6-hour	4.5	114
RE8E	422	13.83	4.5	461	5.83	4.5	461	5.83	6-hour	4.5	102
CP-E9	1390	24.92	41.25	1240	17.08	40.87	1390	24.92	24-hour	41.25	34
DDE9	200	24.92	41.25	179	17.08	40.87	200	24.92	24-hour	41.25	5
*DE9	1187	24.92	41.25	1061	17.08	40.87	1187	24.92	24-hour	41.25	29

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RE9W	1186	25	41.25	1061	17.17	40.87	1186	25	24-hour	41.25	29
C4	173	12.5	0.31	275	4.5	0.31	275	4.5	6-hour	0.31	887
C2	120	12.92	0.32	199	4.83	0.32	199	4.83	6-hour	0.32	622
C3	102	12.5	0.11	169	4.42	0.11	169	4.42	6-hour	0.11	1536
DDC3	42	12.5	0.11	57	4.42	0.11	57	4.42	6-hour	0.11	518
*DC3	59	12.5	0.11	112	4.42	0.11	112	4.42	6-hour	0.11	1018
RC3SW	49	12.83	0.11	93	4.67	0.11	93	4.67	6-hour	0.11	845
*CP-C2	282	12.75	0.75	448	4.67	0.75	448	4.67	6-hour	0.75	597
CP-C2	2331	13.67	48.26	2371	5.67	47.88	2371	5.67	6-hour	47.88	50
DDC2	363	13.67	48.26	147	5.67	47.88	363	13.67	24-hour	48.26	8
*DC2	1968	13.67	48.26	1611	5.75	47.88	1968	13.67	24-hour	48.26	41
RC2	1921	13.83	48.26	1599	5.92	47.88	1921	13.83	24-hour	48.26	40
C16	26	12.17	0.03	40	4.08	0.03	40	4.08	6-hour	0.03	1333
CP-C16	1921	13.83	48.28	1599	5.92	47.9	1921	13.83	24-hour	48.28	40
RC16	1870	14.25	48.28	1569	6.33	47.9	1870	14.25	24-hour	48.28	39
DE3	24	13.08	0.77	38	5	0.77	38	5	6-hour	0.77	49
RE3	17	17.58	0.77	25	9.08	0.77	25	9.08	6-hour	0.77	32
E4	134	12.75	0.37	207	4.67	0.37	207	4.67	6-hour	0.37	559
CP-E4	134	12.75	0.37	207	4.67	0.37	207	4.67	6-hour	0.37	559
DDE4O	51	12.75	0.37	79	4.67	0.37	79	4.67	6-hour	0.37	214
*DE4	83	12.75	0.37	128	4.67	0.37	128	4.67	6-hour	0.37	346
RE4	56	16.67	0.37	93	8.33	0.37	93	8.33	6-hour	0.37	251
E7	169	12.5	0.36	274	4.42	0.36	274	4.42	6-hour	0.36	761
DE6	801	23.83	40.3	714	16.08	39.92	801	23.83	24-hour	40.3	20
RE6	798	24.33	40.3	712	16.58	39.92	798	24.33	24-hour	40.3	20
CP-E7	967	23.83	0.73	1347	8.75	0.73	1347	8.75	6-hour	0.73	1845
RE7	953	25.25	0.73	1296	10.17	0.73	1296	10.17	6-hour	0.73	1775
E10	563	12.33	0.51	906	4.33	0.51	906	4.33	6-hour	0.51	1776
DE9	200	24.92	41.25	179	17.08	40.87	200	24.92	24-hour	41.25	5
RE9N	199	25.42	41.25	178	17.5	40.87	199	25.42	24-hour	41.25	5

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-E10	1183	25.17	1.24	1468	10.17	1.24	1468	10.17	6-hour	1.24	1184
RE10	1162	27.08	1.24	1417	18.42	1.24	1417	18.42	6-hour	1.24	1143
N2	518	12.25	0.54	761	4.25	0.54	761	4.25	6-hour	0.54	1409
DC3	42	12.5	0.11	57	4.42	0.11	57	4.42	6-hour	0.11	518
RC3NW	20	17.25	0.11	27	9.08	0.11	27	9.08	6-hour	0.11	245
CP-N2	1162	27.08	1.78	1415	18.42	1.78	1415	18.42	6-hour	1.78	795
DDN2	206	27.08	1.78	208	18.58	1.78	208	18.58	6-hour	1.78	117
*DN2	946	27.08	1.78	1163	18.58	1.78	1163	18.58	6-hour	1.78	653
RN2S	944	27.42	1.78	1159	18.92	1.78	1159	18.92	6-hour	1.78	651
DN2	206	27.08	1.78	208	18.58	1.78	208	18.58	6-hour	1.78	117
RN2N	206	27.92	1.78	208	19.33	1.78	208	19.33	6-hour	1.78	117
DDD3	36	27.83	1.78	36	19.33	1.78	36	27.83	24-hour	1.78	20
*DD3	170	27.92	1.78	172	19.33	1.78	172	19.33	6-hour	1.78	97
RD3W	170	29.92	1.78	172	20.58	1.78	172	20.58	6-hour	1.78	97
C7	229	12.5	0.48	365	4.42	0.48	365	4.42	6-hour	0.48	760
CP-C7	2037	25.67	52.32	1788	18.25	51.94	2037	25.67	24-hour	52.32	39
RC7	2035	26	52.32	1786	18.42	51.94	2035	26	24-hour	52.32	39
N1	150	13.08	0.39	232	5	0.39	232	5	6-hour	0.39	595
DD3	36	27.83	1.78	36	19.33	1.78	36	27.83	24-hour	1.78	20
RD3N	36	29.92	1.78	36	21.42	1.78	36	29.92	24-hour	1.78	20
CP-N1	151	13.08	0.39	232	5	0.39	232	5	6-hour	0.39	595
DDN1O	4	13.08	0.39	6	5	0.39	6	5	6-hour	0.39	15
*DN1	147	13.08	0.39	226	5	0.39	226	5	6-hour	0.39	579
RN1	107	16.08	0.39	155	7.67	0.39	155	7.67	6-hour	0.39	397
N3	345	12.5	0.65	525	4.5	0.65	525	4.5	6-hour	0.65	808
CP-N3	344	12.5	1.04	485	4.5	1.04	485	4.5	6-hour	1.04	466
DDN3	333	12.5	1.04	469	4.5	1.04	469	4.5	6-hour	1.04	451
*DN3	11	12.5	1.04	16	4.5	1.04	16	4.5	6-hour	1.04	15
RN3S	9	13.58	1.04	14	5.42	1.04	14	5.42	6-hour	1.04	13
C7A	79	12.67	0.22	129	4.58	0.22	129	4.58	6-hour	0.22	586

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-C7A	2034	26	53.58	1781	18.42	53.2	2034	26	24-hour	53.58	38
RC7A	2030	26.25	53.58	1777	18.75	53.2	2030	26.25	24-hour	53.58	38
C8	82	12.33	0.15	130	4.33	0.15	130	4.33	6-hour	0.15	867
DDC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
*DC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
RC8N	34	13.08	0.15	56	4.92	0.15	56	4.92	6-hour	0.15	373
DN3	333	12.5	1.04	469	4.5	1.04	469	4.5	6-hour	1.04	451
RN3W	263	14.08	1.04	364	5.83	1.04	364	5.83	6-hour	1.04	350
CP-D2	2057	26.25	53.74	1801	18.75	53.36	2057	26.25	24-hour	53.74	38
RD2	2051	26.75	53.74	1797	19.25	53.36	2051	26.75	24-hour	53.74	38
C10	183	12.67	0.5	289	4.67	0.5	289	4.67	6-hour	0.5	578
N4	72	13.17	0.28	116	5.08	0.28	116	5.08	6-hour	0.28	414
CP-C10	2051	26.75	54.51	1792	19.25	54.13	2051	26.75	24-hour	54.51	38
DDC10	2049	26.75	54.51	1792	19.25	54.13	2049	26.75	24-hour	54.51	38
*DC10	0	0	54.51	0	0	54.13	0	0	24-hour	54.51	0
C5	683	12.25	0.65	982	4.25	0.65	982	4.25	6-hour	0.65	1511
DC2	363	13.67	48.26	147	5.67	47.88	363	13.67	24-hour	48.26	8
RC2S	207	16.08	48.26	107	8	47.88	207	16.08	24-hour	48.26	4
CP-C5	683	12.25	0.65	982	4.25	0.65	982	4.25	6-hour	0.65	1511
RC5	278	18.08	0.65	642	9.17	0.65	642	9.17	6-hour	0.65	988
S13	2051	12.42	2.11	2006	4.42	2.11	2051	12.42	24-hour	2.11	972
RS13	1308	13.33	2.11	1498	5.33	2.11	1498	5.33	6-hour	2.11	710
W1	216	12.33	0.28	342	4.33	0.28	342	4.33	6-hour	0.28	1221
CP-W1	1322	13.33	2.39	1492	5.33	2.39	1492	5.33	6-hour	2.39	624
DDW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
*DW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
RW1	507	14.25	2.39	606	6.25	2.39	606	6.25	6-hour	2.39	254
S14	1352	12.42	1.61	1353	4.42	1.61	1353	4.42	6-hour	1.61	840
S15	1894	12.42	1.95	2064	4.5	1.95	2064	4.5	6-hour	1.95	1058
RS15	1220	13.92	1.95	1490	5.83	1.95	1490	5.83	6-hour	1.95	764

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-S14	1363	12.42	3.56	1397	5.83	3.56	1397	5.83	6-hour	3.56	392
DDS14O	681	12.42	3.56	698	5.83	3.56	698	5.83	6-hour	3.56	196
*DS14A	681	12.42	3.56	698	5.83	3.56	698	5.83	6-hour	3.56	196
DDS14B	285	12.42	3.56	296	5.83	3.56	296	5.83	6-hour	3.56	83
*DS14B	396	12.42	3.56	403	5.83	3.56	403	5.83	6-hour	3.56	113
DDS14C	114	12.42	3.56	118	5.83	3.56	118	5.83	6-hour	3.56	33
*DS14C	282	12.42	3.56	284	5.83	3.56	284	5.83	6-hour	3.56	80
RS14E	240	17.25	3.56	273	6.67	3.56	273	6.67	6-hour	3.56	77
W2	166	12.42	0.25	263	4.33	0.25	263	4.33	6-hour	0.25	1052
DW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
RW1W	557	13.92	2.39	644	5.92	2.39	644	5.92	6-hour	2.39	269
CP-W2	568	13.92	3.81	782	5.92	3.81	782	5.92	6-hour	3.81	205
RW2	518	14.42	3.81	750	6.5	3.81	750	6.5	6-hour	3.81	197
W3	46	12.33	0.06	70	4.33	0.06	70	4.33	6-hour	0.06	1167
C6	116	12.92	0.3	182	4.83	0.3	182	4.83	6-hour	0.3	607
CP-C6	1150	14.5	7.21	1332	6.58	7.21	1332	6.58	6-hour	7.21	185
DDC6	670	14.5	7.21	852	6.58	7.21	852	6.58	6-hour	7.21	118
*DC6	480	14	7.21	480	6	7.21	480	14	24-hour	7.21	67
RC6S	480	14.42	7.21	480	6.33	7.21	480	14.42	24-hour	7.21	67
W5	314	12.33	0.49	494	4.25	0.49	494	4.25	6-hour	0.49	1008
DS14C	114	12.42	3.56	118	5.83	3.56	118	5.83	6-hour	3.56	33
RS14W	61	16.58	3.56	71	8.42	3.56	71	8.42	6-hour	3.56	20
CP-W5	314	12.33	0.49	494	4.25	0.49	494	4.25	6-hour	0.49	1008
RW5	259	12.83	0.49	408	4.75	0.49	408	4.75	6-hour	0.49	833
W6	275	12.67	0.52	422	4.58	0.52	422	4.58	6-hour	0.52	812
W4	541	12.17	0.49	858	4.17	0.49	858	4.17	6-hour	0.49	1751
DS14B	285	12.42	3.56	296	5.83	3.56	296	5.83	6-hour	3.56	83
RS14C	149	16.33	3.56	184	8.25	3.56	184	8.25	6-hour	3.56	52
CP-W4	541	12.17	0.49	858	4.17	0.49	858	4.17	6-hour	0.49	1751
RW4N	296	13.42	0.49	478	5.25	0.49	478	5.25	6-hour	0.49	976

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-W6	773	13.33	8.7	769	5.25	8.7	773	13.33	24-hour	8.7	89
RW6	697	13.75	8.7	732	5.75	8.7	732	5.75	6-hour	8.7	84
W7	91	12.5	0.23	148	4.5	0.23	148	4.5	6-hour	0.23	643
CP-W7	730	13.75	8.93	762	5.75	8.93	762	5.75	6-hour	8.93	85
RW7	727	13.75	8.93	759	5.83	8.93	759	5.83	6-hour	8.93	85
W8	120	12.42	0.26	194	4.42	0.26	194	4.42	6-hour	0.26	746
DC6	670	14.5	7.21	852	6.58	7.21	852	6.58	6-hour	7.21	118
RC6N	383	16.75	7.21	593	8.67	7.21	593	8.67	6-hour	7.21	82
DC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
RC8W	26	15.08	0.15	38	6.83	0.15	38	6.83	6-hour	0.15	253
CP-W8	759	13.75	9.19	1070	8.67	9.19	1070	8.67	6-hour	9.19	116
DDW8	759	13.75	9.19	840	8.58	9.19	840	8.58	6-hour	9.19	91
*DW8	4	16.5	9.19	230	8.67	9.19	230	8.67	6-hour	9.19	25
RW8N	0	18.92	9.19	111	10.58	9.19	111	10.58	6-hour	9.19	12
C11	190	12.33	0.27	295	4.33	0.27	295	4.33	6-hour	0.27	1093
C9	140	12.33	0.21	218	4.33	0.21	218	4.33	6-hour	0.21	1038
RC9W	89	15.25	0.21	123	6.83	0.21	123	6.83	6-hour	0.21	586
CP-C11	190	12.33	9.66	255	10.58	9.66	255	10.58	6-hour	9.66	26
DDC11	103	12.33	9.66	96	4.33	9.66	103	12.33	24-hour	9.66	11
*DC11	74	12.33	9.66	69	4.33	9.66	74	12.33	24-hour	9.66	8
RC11S	55	13.5	9.66	56	5.42	9.66	56	5.42	6-hour	9.66	6
C12	115	13	0.26	189	4.92	0.26	189	4.92	6-hour	0.26	727
CP-C12	142	13.33	9.93	153	5.25	9.93	153	5.25	6-hour	9.93	15
DDC12	48	13.33	9.93	52	5.25	9.93	52	5.25	6-hour	9.93	5
*DC12	94	13.33	9.93	101	5.25	9.93	101	5.25	6-hour	9.93	10
RC12N	58	17.17	9.93	65	9	9.93	65	9	6-hour	9.93	7
W9	396	12.42	0.52	609	4.42	0.52	609	4.42	6-hour	0.52	1171
RW9	258	13.33	0.52	401	5.17	0.52	401	5.17	6-hour	0.52	771
W11	303	12.67	0.51	542	4.58	0.51	542	4.58	6-hour	0.51	1063
CP-W11	392	13.25	1.03	550	5.08	1.03	550	5.08	6-hour	1.03	534

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RW11	351	14	1.03	500	5.75	1.03	500	5.75	6-hour	1.03	485
W12	467	12.42	0.53	728	4.42	0.53	728	4.42	6-hour	0.53	1374
DW8	759	13.75	9.19	840	8.58	9.19	840	8.58	6-hour	9.19	91
RW8S	749	14.08	9.19	840	9.08	9.19	840	9.08	6-hour	9.19	91
CP-W12	1180	14	1.55	1329	5.75	1.55	1329	5.75	6-hour	1.55	857
DDW12	680	13.08	1.55	680	4.75	1.55	680	13.08	24-hour	1.55	439
*DW12	500	14	1.55	649	5.75	1.55	649	5.75	6-hour	1.55	419
RW12N	326	17.17	1.55	496	8.58	1.55	496	8.58	6-hour	1.55	320
W18	294	12.25	0.25	475	4.25	0.25	475	4.25	6-hour	0.25	1900
DW12	680	13.08	1.55	680	4.75	1.55	680	13.08	24-hour	1.55	439
RW12S	680	13.33	1.55	680	5	1.55	680	13.33	24-hour	1.55	439
CP-W18	693	13.25	0.25	943	4.42	0.25	943	4.42	6-hour	0.25	3772
DDW18	360	12.25	0.25	360	4.17	0.25	360	12.25	24-hour	0.25	1440
*DW18	333	13.25	0.25	583	4.42	0.25	583	4.42	6-hour	0.25	2332
RW18N	322	15.83	0.25	347	7.33	0.25	347	7.33	6-hour	0.25	1388
W10	381	12.5	0.51	609	4.42	0.51	609	4.42	6-hour	0.51	1194
RW10	218	14.08	0.51	343	5.83	0.51	343	5.83	6-hour	0.51	673
W16	331	12.17	0.25	534	4.17	0.25	534	4.17	6-hour	0.25	2136
CP-W16	331	12.17	0.76	475	4.17	0.76	475	4.17	6-hour	0.76	625
RW16N	179	15.67	0.76	270	5.42	0.76	270	5.42	6-hour	0.76	355
W17	386	12.17	0.26	593	4.17	0.26	593	4.17	6-hour	0.26	2281
DW18	360	12.25	0.25	360	4.17	0.25	360	12.25	24-hour	0.25	1440
RW18S	360	12.5	0.25	361	4.42	0.25	361	4.42	6-hour	0.25	1444
CP-W17	562	12.25	1.01	698	4.25	1.01	698	4.25	6-hour	1.01	691
DDW17O	545	12.25	1.01	681	4.25	1.01	681	4.25	6-hour	1.01	674
*DW17	17	10.5	1.01	17	3.67	1.01	17	10.5	24-hour	1.01	17
RW17	17	18.58	1.01	17	11.5	1.01	17	18.58	24-hour	1.01	17
C14	224	12.58	0.51	358	4.5	0.51	358	4.5	6-hour	0.51	702
DC12	48	13.33	9.93	52	5.25	9.93	52	5.25	6-hour	9.93	5
RC12W	36	16	9.93	38	7.75	9.93	38	7.75	6-hour	9.93	4

Table 4.1
HEC-1 Model Results
Model Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-C14	670	17.25	3.33	761	8.67	3.33	761	8.67	6-hour	3.33	229
DDC14O	546	17.25	3.33	620	8.67	3.33	620	8.67	6-hour	3.33	186
*DC14	124	17.25	3.33	140	8.67	3.33	140	8.67	6-hour	3.33	42
RC14N	116	18.42	3.33	132	9.75	3.33	132	9.75	6-hour	3.33	40
C15	196	12.67	0.51	290	4.67	0.51	290	4.67	6-hour	0.51	569
CP-C15	190	12.67	3.84	218	4.75	3.84	218	4.75	6-hour	3.84	57
DDC15O	104	12.67	3.84	119	4.75	3.84	119	4.75	6-hour	3.84	31
*DC15	86	12.67	3.84	99	4.75	3.84	99	4.75	6-hour	3.84	26
RC15N	82	13.17	3.84	96	5.17	3.84	96	5.17	6-hour	3.84	25
DC11	103	12.33	9.66	96	4.33	9.66	103	12.33	24-hour	9.66	11
RC11N	61	14.5	9.66	64	6.42	9.66	64	6.42	6-hour	9.66	7
C13	351	12.33	0.51	552	4.33	0.51	552	4.33	6-hour	0.51	1082
N5	202	12.83	0.43	321	4.75	0.43	321	4.75	6-hour	0.43	747
DC10	2049	26.75	54.51	1792	19.25	54.13	2049	26.75	24-hour	54.51	38
RC10W	2041	27.83	54.51	1781	20.42	54.13	2041	27.83	24-hour	54.51	37
CP-N5	2038	27.83	55.45	1776	20.42	55.07	2038	27.83	24-hour	55.45	37
RN5W	2030	28.83	55.45	1767	21.5	55.07	2030	28.83	24-hour	55.45	37
N6	183	13.08	0.43	328	4.92	0.43	328	4.92	6-hour	0.43	763
CP-N6	2030	28.83	69.65	1755	21.5	69.27	2030	28.83	24-hour	69.65	29

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
*DE8	1759	12.75	4.5	1781	4.75	4.5	1781	4.75	6-hour	4.5	396
*DW17	17	10.5	1.01	17	3.67	1.01	17	10.5	24-hour	1.01	17
*CP-C2	282	12.75	0.75	448	4.67	0.75	448	4.67	6-hour	0.75	597
*CP-E8	487	13.42	0.39	695	5.33	0.39	695	5.33	6-hour	0.39	1782
*DC10	0	0	54.51	0	0	54.13	0	0	24-hour	54.51	0
*DC11	74	12.33	9.66	69	4.33	9.66	74	12.33	24-hour	9.66	8
*DC12	94	13.33	9.93	101	5.25	9.93	101	5.25	6-hour	9.93	10
*DC14	124	17.25	3.33	140	8.67	3.33	140	8.67	6-hour	3.33	42
*DC15	86	12.67	3.84	99	4.75	3.84	99	4.75	6-hour	3.84	26
*DC2	1968	13.67	48.26	1611	5.75	47.88	1968	13.67	24-hour	48.26	41
*DC3	59	12.5	0.11	112	4.42	0.11	112	4.42	6-hour	0.11	1018
*DC6	480	14	7.21	480	6	7.21	480	14	24-hour	7.21	67
*DC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
*DD3	170	27.92	1.78	172	19.33	1.78	172	19.33	6-hour	1.78	97
*DE11	9	13.08	0.34	15	5	0.34	15	5	6-hour	0.34	44
*DE3	161	13.08	0.77	268	5	0.77	268	5	6-hour	0.77	348
*DE4	83	12.75	0.37	128	4.67	0.37	128	4.67	6-hour	0.37	346
*DE6	1403	23.83	40.3	1253	16.08	39.92	1403	23.83	24-hour	40.3	35
*DE9	1187	24.92	41.25	1061	17.08	40.87	1187	24.92	24-hour	41.25	29
*DN1	147	13.08	0.39	226	5	0.39	226	5	6-hour	0.39	579
*DN2	946	27.08	1.78	1163	18.58	1.78	1163	18.58	6-hour	1.78	653
*DN3	11	12.5	1.04	16	4.5	1.04	16	4.5	6-hour	1.04	15
*DS14A	681	12.42	3.56	698	5.83	3.56	698	5.83	6-hour	3.56	196
*DS14B	396	12.42	3.56	403	5.83	3.56	403	5.83	6-hour	3.56	113
*DS14C	282	12.42	3.56	284	5.83	3.56	284	5.83	6-hour	3.56	80
*DS9	1887	12.58	3.4	1874	4.67	3.4	1887	12.58	24-hour	3.4	555
*DW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
*DW12	500	14	1.55	649	5.75	1.55	649	5.75	6-hour	1.55	419
*DW18	333	13.25	0.25	583	4.42	0.25	583	4.42	6-hour	0.25	2332
*DW8	4	16.5	9.19	230	8.67	9.19	230	8.67	6-hour	9.19	25

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
*RRW1	306	14.58	3.37	329	6.58	3.16	329	6.58	6-hour	3.16	104
*RRW2	123	15.83	0.21	140	7.92	0.18	140	7.92	6-hour	0.18	778
*RRW3	349	14.08	1.28	423	9.58	1.14	423	9.58	6-hour	1.14	371
C1	391	12.25	0.35	605	4.25	0.35	605	4.25	6-hour	0.35	1729
C10	183	12.67	0.5	289	4.67	0.5	289	4.67	6-hour	0.5	578
C11	190	12.33	0.27	295	4.33	0.27	295	4.33	6-hour	0.27	1093
C12	115	13	0.26	189	4.92	0.26	189	4.92	6-hour	0.26	727
C13	351	12.33	0.51	552	4.33	0.51	552	4.33	6-hour	0.51	1082
C14	224	12.58	0.51	358	4.5	0.51	358	4.5	6-hour	0.51	702
C15	196	12.67	0.51	290	4.67	0.51	290	4.67	6-hour	0.51	569
C16	26	12.17	0.03	40	4.08	0.03	40	4.08	6-hour	0.03	1333
C2	120	12.92	0.32	199	4.83	0.32	199	4.83	6-hour	0.32	622
C3	102	12.5	0.11	169	4.42	0.11	169	4.42	6-hour	0.11	1536
C4	173	12.5	0.31	275	4.5	0.31	275	4.5	6-hour	0.31	887
C5	683	12.25	0.65	982	4.25	0.65	982	4.25	6-hour	0.65	1511
C6	116	12.92	0.3	182	4.83	0.3	182	4.83	6-hour	0.3	607
C7	229	12.5	0.48	365	4.42	0.48	365	4.42	6-hour	0.48	760
C7A	79	12.67	0.22	129	4.58	0.22	129	4.58	6-hour	0.22	586
C8	82	12.33	0.15	130	4.33	0.15	130	4.33	6-hour	0.15	867
C9	140	12.33	0.21	218	4.33	0.21	218	4.33	6-hour	0.21	1038
CP-C1	2377	13.17	6.26	2476	5.17	6.26	2476	5.17	6-hour	6.26	396
CP-C10	2051	26.75	54.51	1792	19.25	54.13	2051	26.75	24-hour	54.51	38
CP-C11	190	12.33	9.66	255	10.58	9.66	255	10.58	6-hour	9.66	26
CP-C12	142	13.33	9.93	153	5.25	9.93	153	5.25	6-hour	9.93	15
CP-C14	670	17.25	3.33	761	8.67	3.33	761	8.67	6-hour	3.33	229
CP-C15	190	12.67	3.84	218	4.75	3.84	218	4.75	6-hour	3.84	57
CP-C16	1921	13.83	48.28	1599	5.92	47.9	1921	13.83	24-hour	48.28	40
CP-C2	2331	13.67	48.26	2371	5.67	47.88	2371	5.67	6-hour	47.88	50
CP-C5	683	12.25	0.65	982	4.25	0.65	982	4.25	6-hour	0.65	1511
CP-C6	1150	14.5	7.21	1332	6.58	7.21	1332	6.58	6-hour	7.21	185

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-C7	2037	25.67	52.32	1788	18.25	51.94	2037	25.67	24-hour	52.32	39
CP-C7A	2034	26	53.58	1781	18.42	53.2	2034	26	24-hour	53.58	38
CP-D2	2057	26.25	53.74	1801	18.75	53.36	2057	26.25	24-hour	53.74	38
CP-D5	2310	20.42	24.25	2223	12.75	23.87	2310	20.42	24-hour	24.25	95
CP-D6	2253	21.92	27.03	2127	14.17	26.65	2253	21.92	24-hour	27.03	83
CP-E1	1947	18.25	19.54	1877	10.42	19.33	1947	18.25	24-hour	19.54	100
CP-E10	1183	25.17	1.24	1468	10.17	1.24	1468	10.17	6-hour	1.24	1184
CP-E2	2235	22.75	38.36	2038	14.92	37.98	2235	22.75	24-hour	38.36	58
CP-E3	185	13.08	0.77	323	4.92	0.77	323	4.92	6-hour	0.77	419
CP-E4	134	12.75	0.37	207	4.67	0.37	207	4.67	6-hour	0.37	559
CP-E6	2205	23.83	40.3	1967	16.08	39.92	2205	23.83	24-hour	40.3	55
CP-E7	967	23.83	0.73	1347	8.75	0.73	1347	8.75	6-hour	0.73	1845
CP-E8	2264	12.75	4.5	2292	4.75	4.5	2292	4.75	6-hour	4.5	509
CP-E9	1390	24.92	41.25	1240	17.08	40.87	1390	24.92	24-hour	41.25	34
CP-N1	151	13.08	0.39	232	5	0.39	232	5	6-hour	0.39	595
CP-N2	1162	27.08	1.78	1415	18.42	1.78	1415	18.42	6-hour	1.78	795
CP-N3	344	12.5	1.04	485	4.5	1.04	485	4.5	6-hour	1.04	466
CP-N5	2038	27.83	55.45	1776	20.42	55.07	2038	27.83	24-hour	55.45	37
CP-N6	2030	28.83	69.65	1755	21.5	69.27	2030	28.83	24-hour	69.65	29
CP-S10	2171	12.58	4.11	2124	4.58	4.11	2171	12.58	24-hour	4.11	528
CP-S14	1363	12.42	3.56	1397	5.83	3.56	1397	5.83	6-hour	3.56	392
CP-S3A	1124	14.83	3.43	1305	6.83	3.43	1305	6.83	6-hour	3.43	380
CP-S4A	1510	12.42	2.88	1253	4.42	2.88	1510	12.42	24-hour	2.88	524
CP-S7A	1098	12.42	1.96	1062	4.42	1.96	1098	12.42	24-hour	1.96	560
CP-S8A	1192	13.67	3.44	1429	5.67	3.44	1429	5.67	6-hour	3.44	415
CP-W1	1322	13.33	2.39	1492	5.33	2.39	1492	5.33	6-hour	2.39	624
CP-W11	392	13.25	1.03	550	5.08	1.03	550	5.08	6-hour	1.03	534
CP-W12	1180	14	1.55	1329	5.75	1.55	1329	5.75	6-hour	1.55	857
CP-W16	331	12.17	0.76	475	4.17	0.76	475	4.17	6-hour	0.76	625
CP-W17	562	12.25	1.01	698	4.25	1.01	698	4.25	6-hour	1.01	691

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
CP-W18	693	13.25	0.25	943	4.42	0.25	943	4.42	6-hour	0.25	3772
CP-W2	568	13.92	3.81	782	5.92	3.81	782	5.92	6-hour	3.81	205
CP-W4	541	12.17	0.49	858	4.17	0.49	858	4.17	6-hour	0.49	1751
CP-W5	314	12.33	0.49	494	4.25	0.49	494	4.25	6-hour	0.49	1008
CP-W6	773	13.33	8.7	769	5.25	8.7	773	13.33	24-hour	8.7	89
CP-W7	730	13.75	8.93	762	5.75	8.93	762	5.75	6-hour	8.93	85
CP-W8	759	13.75	9.19	1070	8.67	9.19	1070	8.67	6-hour	9.19	116
DC10	2049	26.75	54.51	1792	19.25	54.13	2049	26.75	24-hour	54.51	38
DC11	103	12.33	9.66	96	4.33	9.66	103	12.33	24-hour	9.66	11
DC12	48	13.33	9.93	52	5.25	9.93	52	5.25	6-hour	9.93	5
DC2	363	13.67	48.26	147	5.67	47.88	363	13.67	24-hour	48.26	8
DC3	42	12.5	0.11	57	4.42	0.11	57	4.42	6-hour	0.11	518
DC6	670	14.5	7.21	852	6.58	7.21	852	6.58	6-hour	7.21	118
DC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
DD3	36	27.83	1.78	36	19.33	1.78	36	27.83	24-hour	1.78	20
DDC10	2049	26.75	54.51	1792	19.25	54.13	2049	26.75	24-hour	54.51	38
DDC11	103	12.33	9.66	96	4.33	9.66	103	12.33	24-hour	9.66	11
DDC12	48	13.33	9.93	52	5.25	9.93	52	5.25	6-hour	9.93	5
DDC14O	546	17.25	3.33	620	8.67	3.33	620	8.67	6-hour	3.33	186
DDC15O	104	12.67	3.84	119	4.75	3.84	119	4.75	6-hour	3.84	31
DDC2	363	13.67	48.26	147	5.67	47.88	363	13.67	24-hour	48.26	8
DDC3	42	12.5	0.11	57	4.42	0.11	57	4.42	6-hour	0.11	518
DDC6	670	14.5	7.21	852	6.58	7.21	852	6.58	6-hour	7.21	118
DDC8	41	12.33	0.15	65	4.33	0.15	65	4.33	6-hour	0.15	433
DDD3	36	27.83	1.78	36	19.33	1.78	36	27.83	24-hour	1.78	20
DDE11	131	13.08	0.34	229	5	0.34	229	5	6-hour	0.34	674
DDE3	24	13.08	0.77	38	5	0.77	38	5	6-hour	0.77	49
DDE4O	51	12.75	0.37	79	4.67	0.37	79	4.67	6-hour	0.37	214
DDE6	801	23.83	40.3	714	16.08	39.92	801	23.83	24-hour	40.3	20
DDE8	505	12.75	4.5	512	4.75	4.5	512	4.75	6-hour	4.5	114

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
DDE9	200	24.92	41.25	179	17.08	40.87	200	24.92	24-hour	41.25	5
DDN1O	4	13.08	0.39	6	5	0.39	6	5	6-hour	0.39	15
DDN2	206	27.08	1.78	208	18.58	1.78	208	18.58	6-hour	1.78	117
DDN3	333	12.5	1.04	469	4.5	1.04	469	4.5	6-hour	1.04	451
DDS14B	285	12.42	3.56	296	5.83	3.56	296	5.83	6-hour	3.56	83
DDS14C	114	12.42	3.56	118	5.83	3.56	118	5.83	6-hour	3.56	33
DDS14O	681	12.42	3.56	698	5.83	3.56	698	5.83	6-hour	3.56	196
DDS9	472	12.58	3.4	469	4.67	3.4	472	12.58	24-hour	3.4	139
DDW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
DDW12	680	13.08	1.55	680	4.75	1.55	680	13.08	24-hour	1.55	439
DDW17O	545	12.25	1.01	681	4.25	1.01	681	4.25	6-hour	1.01	674
DDW18	360	12.25	0.25	360	4.17	0.25	360	12.25	24-hour	0.25	1440
DDW8	759	13.75	9.19	840	8.58	9.19	840	8.58	6-hour	9.19	91
DE11	131	13.08	0.34	229	5	0.34	229	5	6-hour	0.34	674
DE3	24	13.08	0.77	38	5	0.77	38	5	6-hour	0.77	49
DE6	801	23.83	40.3	714	16.08	39.92	801	23.83	24-hour	40.3	20
DE8	505	12.75	4.5	512	4.75	4.5	512	4.75	6-hour	4.5	114
DE9	200	24.92	41.25	179	17.08	40.87	200	24.92	24-hour	41.25	5
DN2	206	27.08	1.78	208	18.58	1.78	208	18.58	6-hour	1.78	117
DN3	333	12.5	1.04	469	4.5	1.04	469	4.5	6-hour	1.04	451
DS14B	285	12.42	3.56	296	5.83	3.56	296	5.83	6-hour	3.56	83
DS14C	114	12.42	3.56	118	5.83	3.56	118	5.83	6-hour	3.56	33
DS9	472	12.58	3.4	469	4.67	3.4	472	12.58	24-hour	3.4	139
DW1	661	13.33	2.39	738	5.33	2.39	738	5.33	6-hour	2.39	309
DW12	680	13.08	1.55	680	4.75	1.55	680	13.08	24-hour	1.55	439
DW18	360	12.25	0.25	360	4.17	0.25	360	12.25	24-hour	0.25	1440
DW8	759	13.75	9.19	840	8.58	9.19	840	8.58	6-hour	9.19	91
E1	1193	14.92	7.91	1370	7.17	7.91	1370	7.17	6-hour	7.91	173
E10	563	12.33	0.51	906	4.33	0.51	906	4.33	6-hour	0.51	1776
E11	140	13.08	0.34	244	5	0.34	244	5	6-hour	0.34	718

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
E2	1272	14.42	7.33	1363	6.33	7.33	1363	6.33	6-hour	7.33	186
E3	185	13.08	0.43	323	4.92	0.43	323	4.92	6-hour	0.43	751
E4	134	12.75	0.37	207	4.67	0.37	207	4.67	6-hour	0.37	559
E5	541	12.42	0.57	883	4.42	0.57	883	4.42	6-hour	0.57	1549
E6	569	13.08	1.17	745	5.08	1.17	745	5.08	6-hour	1.17	637
E7	169	12.5	0.36	274	4.42	0.36	274	4.42	6-hour	0.36	761
E8	215	12.75	0.39	388	4.58	0.39	388	4.58	6-hour	0.39	995
E9	466	12.92	0.95	729	4.83	0.95	729	4.83	6-hour	0.95	767
N1	150	13.08	0.39	232	5	0.39	232	5	6-hour	0.39	595
N2	518	12.25	0.54	761	4.25	0.54	761	4.25	6-hour	0.54	1409
N3	345	12.5	0.65	525	4.5	0.65	525	4.5	6-hour	0.65	808
N4	72	13.17	0.28	116	5.08	0.28	116	5.08	6-hour	0.28	414
N5	202	12.83	0.43	321	4.75	0.43	321	4.75	6-hour	0.43	747
N6	183	13.08	0.43	328	4.92	0.43	328	4.92	6-hour	0.43	763
RC10W	2041	27.83	54.51	1781	20.42	54.13	2041	27.83	24-hour	54.51	37
RC11N	61	14.5	9.66	64	6.42	9.66	64	6.42	6-hour	9.66	7
RC11S	55	13.5	9.66	56	5.42	9.66	56	5.42	6-hour	9.66	6
RC12N	58	17.17	9.93	65	9	9.93	65	9	6-hour	9.93	7
RC12W	36	16	9.93	38	7.75	9.93	38	7.75	6-hour	9.93	4
RC14N	116	18.42	3.33	132	9.75	3.33	132	9.75	6-hour	3.33	40
RC15N	82	13.17	3.84	96	5.17	3.84	96	5.17	6-hour	3.84	25
RC16	1870	14.25	48.28	1569	6.33	47.9	1870	14.25	24-hour	48.28	39
RC1N	2239	13.58	6.26	2372	5.58	6.26	2372	5.58	6-hour	6.26	379
RC2	1921	13.83	48.26	1599	5.92	47.88	1921	13.83	24-hour	48.26	40
RC2S	207	16.08	48.26	107	8	47.88	207	16.08	24-hour	48.26	4
RC3NW	20	17.25	0.11	27	9.08	0.11	27	9.08	6-hour	0.11	245
RC3SW	49	12.83	0.11	93	4.67	0.11	93	4.67	6-hour	0.11	845
RC5	278	18.08	0.65	642	9.17	0.65	642	9.17	6-hour	0.65	988
RC6N	383	16.75	7.21	593	8.67	7.21	593	8.67	6-hour	7.21	82
RC6S	480	14.42	7.21	480	6.33	7.21	480	14.42	24-hour	7.21	67

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RC7	2035	26	52.32	1786	18.42	51.94	2035	26	24-hour	52.32	39
RC7A	2030	26.25	53.58	1777	18.75	53.2	2030	26.25	24-hour	53.58	38
RC8N	34	13.08	0.15	56	4.92	0.15	56	4.92	6-hour	0.15	373
RC8W	26	15.08	0.15	38	6.83	0.15	38	6.83	6-hour	0.15	253
RC9W	89	15.25	0.21	123	6.83	0.21	123	6.83	6-hour	0.21	586
RD2	2051	26.75	53.74	1797	19.25	53.36	2051	26.75	24-hour	53.74	38
RD3N	36	29.92	1.78	36	21.42	1.78	36	29.92	24-hour	1.78	20
RD3W	170	29.92	1.78	172	20.58	1.78	172	20.58	6-hour	1.78	97
RD5	2246	21.92	24.25	2173	14.17	23.87	2246	21.92	24-hour	24.25	93
RD6	2228	22.67	27.03	2108	14.92	26.65	2228	22.67	24-hour	27.03	82
RE1	1859	20.42	19.54	1741	12.75	19.33	1859	20.42	24-hour	19.54	95
RE10	1162	27.08	1.24	1417	18.42	1.24	1417	18.42	6-hour	1.24	1143
RE11N	8	15.17	0.34	12	6.25	0.34	12	6.25	6-hour	0.34	35
RE11S	87	16.75	0.34	150	8.33	0.34	150	8.33	6-hour	0.34	441
RE2	2207	23.83	38.36	1983	16.08	37.98	2207	23.83	24-hour	38.36	58
RE3	17	17.58	0.77	25	9.08	0.77	25	9.08	6-hour	0.77	32
RE3W	128	14.83	0.77	214	6.58	0.77	214	6.58	6-hour	0.77	278
RE4	56	16.67	0.37	93	8.33	0.37	93	8.33	6-hour	0.37	251
RE5	423	12.83	0.57	684	4.75	0.57	684	4.75	6-hour	0.57	1200
RE6	798	24.33	40.3	712	16.58	39.92	798	24.33	24-hour	40.3	20
RE6S	1390	24.92	40.3	1247	17.08	39.92	1390	24.92	24-hour	40.3	34
RE7	953	25.25	0.73	1296	10.17	0.73	1296	10.17	6-hour	0.73	1775
RE8	1629	13.17	4.5	1717	5.25	4.5	1717	5.25	6-hour	4.5	382
RE8E	422	13.83	4.5	461	5.83	4.5	461	5.83	6-hour	4.5	102
RE9N	199	25.42	41.25	178	17.5	40.87	199	25.42	24-hour	41.25	5
RE9W	1186	25	41.25	1061	17.17	40.87	1186	25	24-hour	41.25	29
RN1	107	16.08	0.39	155	7.67	0.39	155	7.67	6-hour	0.39	397
RN2N	206	27.92	1.78	208	19.33	1.78	208	19.33	6-hour	1.78	117
RN2S	944	27.42	1.78	1159	18.92	1.78	1159	18.92	6-hour	1.78	651
RN3S	9	13.58	1.04	14	5.42	1.04	14	5.42	6-hour	1.04	13

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RN3W	263	14.08	1.04	364	5.83	1.04	364	5.83	6-hour	1.04	350
RN5W	2030	28.83	55.45	1767	21.5	55.07	2030	28.83	24-hour	55.45	37
RRW1	301	15.67	3.37	325	7.75	3.16	325	7.75	6-hour	3.16	103
RRW2	119	21	0.21	138	11.92	0.18	138	11.92	6-hour	0.18	767
RRW3	339	18.92	1.28	414	13.08	1.14	414	13.08	6-hour	1.14	363
RS1	391	21.92	1.76	452	13.58	1.76	452	13.58	6-hour	1.76	257
RS10	2045	12.75	4.11	2056	4.83	4.11	2056	4.83	6-hour	4.11	500
RS11	830	12.92	0.99	1057	4.83	0.99	1057	4.83	6-hour	0.99	1068
RS12	280	13.42	0.41	411	5.25	0.41	411	5.25	6-hour	0.41	1002
RS13	1308	13.33	2.11	1498	5.33	2.11	1498	5.33	6-hour	2.11	710
RS14C	149	16.33	3.56	184	8.25	3.56	184	8.25	6-hour	3.56	52
RS14E	240	17.25	3.56	273	6.67	3.56	273	6.67	6-hour	3.56	77
RS14W	61	16.58	3.56	71	8.42	3.56	71	8.42	6-hour	3.56	20
RS15	1220	13.92	1.95	1490	5.83	1.95	1490	5.83	6-hour	1.95	764
RS2	841	17.67	3.07	919	9.67	3.07	919	9.67	6-hour	3.07	299
RS3A	784	18.5	3.43	906	10.5	3.43	906	10.5	6-hour	3.43	264
RS3B	1021	14.83	1.73	1257	6.75	1.73	1257	6.75	6-hour	1.73	727
RS4A	696	14.17	2.88	739	6.17	2.88	739	6.17	6-hour	2.88	257
RS4B	665	13.75	1.28	850	5.67	1.28	850	5.67	6-hour	1.28	664
RS5	193	14.08	0.34	292	5.75	0.34	292	5.75	6-hour	0.34	859
RS6	274	15.5	0.82	381	7.33	0.82	381	7.33	6-hour	0.82	465
RS7A	509	14.33	1.96	647	6.33	1.96	647	6.33	6-hour	1.96	330
RS7B	534	13.33	0.77	742	5.25	0.77	742	5.25	6-hour	0.77	964
RS8A	887	15.58	3.44	1056	7.58	3.44	1056	7.58	6-hour	3.44	307
RS8B	1130	13.75	1.7	1432	5.67	1.7	1432	5.67	6-hour	1.7	842
RS9C	375	13.5	3.4	408	5.5	3.4	408	5.5	6-hour	3.4	120
RS9E	392	13.25	3.4	418	5.33	3.4	418	5.33	6-hour	3.4	123
RW1	507	14.25	2.39	606	6.25	2.39	606	6.25	6-hour	2.39	254
RW10	218	14.08	0.51	343	5.83	0.51	343	5.83	6-hour	0.51	673
RW11	351	14	1.03	500	5.75	1.03	500	5.75	6-hour	1.03	485

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
RW12N	326	17.17	1.55	496	8.58	1.55	496	8.58	6-hour	1.55	320
RW12S	680	13.33	1.55	680	5	1.55	680	13.33	24-hour	1.55	439
RW16N	179	15.67	0.76	270	5.42	0.76	270	5.42	6-hour	0.76	355
RW17	17	18.58	1.01	17	11.5	1.01	17	18.58	24-hour	1.01	17
RW18N	322	15.83	0.25	347	7.33	0.25	347	7.33	6-hour	0.25	1388
RW18S	360	12.5	0.25	361	4.42	0.25	361	4.42	6-hour	0.25	1444
RW1W	557	13.92	2.39	644	5.92	2.39	644	5.92	6-hour	2.39	269
RW2	518	14.42	3.81	750	6.5	3.81	750	6.5	6-hour	3.81	197
RW4N	296	13.42	0.49	478	5.25	0.49	478	5.25	6-hour	0.49	976
RW5	259	12.83	0.49	408	4.75	0.49	408	4.75	6-hour	0.49	833
RW6	697	13.75	8.7	732	5.75	8.7	732	5.75	6-hour	8.7	84
RW7	727	13.75	8.93	759	5.83	8.93	759	5.83	6-hour	8.93	85
RW8N	0	18.92	9.19	111	10.58	9.19	111	10.58	6-hour	9.19	12
RW8S	749	14.08	9.19	840	9.08	9.19	840	9.08	6-hour	9.19	91
RW9	258	13.33	0.52	401	5.17	0.52	401	5.17	6-hour	0.52	771
S1	2163	12.25	1.76	2055	4.33	1.76	2163	12.25	24-hour	1.76	1229
S10	883	12.25	0.71	1191	4.25	0.71	1191	4.25	6-hour	0.71	1677
S11	1102	12.33	0.99	1361	4.33	0.99	1361	4.33	6-hour	0.99	1375
S12	611	12.17	0.41	906	4.17	0.41	906	4.17	6-hour	0.41	2210
S13	2051	12.42	2.11	2006	4.42	2.11	2051	12.42	24-hour	2.11	972
S14	1352	12.42	1.61	1353	4.42	1.61	1353	4.42	6-hour	1.61	840
S15	1894	12.42	1.95	2064	4.5	1.95	2064	4.5	6-hour	1.95	1058
S2	2081	12.67	3.07	1922	4.75	3.07	2081	12.67	24-hour	3.07	678
S3A	595	13	1.7	676	5.08	1.7	676	5.08	6-hour	1.7	398
S3B	2888	12.17	1.73	2855	4.25	1.73	2888	12.17	24-hour	1.73	1669
S4A	1517	12.42	1.6	1549	4.42	1.6	1549	4.42	6-hour	1.6	968
S4B	1128	12.42	1.28	1307	4.42	1.28	1307	4.42	6-hour	1.28	1021
S5	524	12.17	0.34	810	4.08	0.34	810	4.08	6-hour	0.34	2382
S6	647	12.42	0.82	849	4.42	0.82	849	4.42	6-hour	0.82	1035
S7A	1098	12.42	1.19	1246	4.42	1.19	1246	4.42	6-hour	1.19	1047

Table 4.2
HEC-1 Model Results
Alphanumeric Order

	24 Hour Storm			6 Hour Storm			Controlling				
ID	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Peak Flow [cfs]	Time to Peak [hours]	Drainage Area [mi^2]	Flow [cfs]	Peak Hour [hour]	Storm Duration	Drainage Area [mi^2]	Unit Discharge [cfs/mi^2]
S7B	1324	12.17	0.77	1674	4.17	0.77	1674	4.17	6-hour	0.77	2174
S8A	1132	12.58	1.74	1143	4.58	1.74	1143	4.58	6-hour	1.74	657
S8B	2342	12.25	1.7	2359	4.25	1.7	2359	4.25	6-hour	1.7	1388
S9	2359	12.58	3.4	2343	4.67	3.4	2359	12.58	24-hour	3.4	694
W1	216	12.33	0.28	342	4.33	0.28	342	4.33	6-hour	0.28	1221
W10	381	12.5	0.51	609	4.42	0.51	609	4.42	6-hour	0.51	1194
W11	303	12.67	0.51	542	4.58	0.51	542	4.58	6-hour	0.51	1063
W12	467	12.42	0.53	728	4.42	0.53	728	4.42	6-hour	0.53	1374
W16	331	12.17	0.25	534	4.17	0.25	534	4.17	6-hour	0.25	2136
W17	386	12.17	0.26	593	4.17	0.26	593	4.17	6-hour	0.26	2281
W18	294	12.25	0.25	475	4.25	0.25	475	4.25	6-hour	0.25	1900
W2	166	12.42	0.25	263	4.33	0.25	263	4.33	6-hour	0.25	1052
W3	46	12.33	0.06	70	4.33	0.06	70	4.33	6-hour	0.06	1167
W4	541	12.17	0.49	858	4.17	0.49	858	4.17	6-hour	0.49	1751
W5	314	12.33	0.49	494	4.25	0.49	494	4.25	6-hour	0.49	1008
W6	275	12.67	0.52	422	4.58	0.52	422	4.58	6-hour	0.52	812
W7	91	12.5	0.23	148	4.5	0.23	148	4.5	6-hour	0.23	643
W8	120	12.42	0.26	194	4.42	0.26	194	4.42	6-hour	0.26	746
W9	396	12.42	0.52	609	4.42	0.52	609	4.42	6-hour	0.52	1171

SECTION 5: HYDRAULICS

The entire contents of this section are found in **Section 5** of *"Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."*

SECTION 6: EROSION AND SEDIMENT TRANSPORT

This section does not apply to this report.

SECTION 7: DRAFT FIS DATA

The entire contents of this section are found in **Section 7** of *"Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."*

APPENDIX A: REFERENCES

A.1 Data Collection Summary

A.1.1 Other Published Flood Studies

There are no significant published flood studies of record other than those listed under **Appendix A.2** of this report.

A.1.2 Previous FEMA Studies

There are no previous FEMA studies for the study watershed. However, there is a FEMA study for Queen Creek Wash which is located immediately north of Sonoqui Wash.

A.1.3 Other Applicable Studies

There are several previous studies of portions of the study area. Refer to **Appendix A.2.**

A.1.4 Published and Unpublished Historical Flood Information

The Flood Control District of Maricopa County has plots of inundation limits for four historical storms ranging from 1926 to 1954. Refer to **Appendix A.2.**

A.2 Reference Documents

1. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, *Generalized Computer Program 723-X6-L2010, HEC-1 Flood Hydrograph Package,* Davis, California, February 1981, Revised May 1991.

2. U.S. Department of the Interior, Geological Survey, *Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona*. 1991.

3. U.S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Eastern Maricopa and Northern Pinal Counties Area, Arizona,* November 1974.

4. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, *Precipitation-Frequency Atlas of the Western United States, Volume VIII - Arizona,* 1973.

5. Flood Control District of Maricopa County, *Final Report, Queen Creek Area Drainage Master Study, FCD 86-23*, Wood & Associates, revised August 1991.

6. Flood Control District of Maricopa County, Internal Memorandum. *Flood Frequency Analysis of Stream Flow Stations*, Russ Cruff, FCDMC, April 1996.

7. U.S. Department of the Interior, Geological Survey, Water Supply Paper 2433, *Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States*.

8. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, *HEC-RAS User's Manual,* Davis, California, April 1997.

9. Boss International, *River Modeling System (RMS) for AutoCAD 2000,* Version 2000 Windows, 2002.

10. U.S. Department of the Interior, Geological Survey, *7.5 Minute Series Topographic Maps,* Scale 1:24,000, Contour Interval - 20 Feet, Chandler Heights, Maricopa County, Arizona. 1964, 1982 photo revised.

11. U.S. Department of the Interior, Geological Survey, *7.5 Minute Series Topographic Maps,* Scale 1:24,000, Contour Interval - 20 Feet, Sacaton, Maricopa County, Arizona. 1964, 1982 photo revised.

12. U.S. Department of the Interior, Geological Survey, *7.5 Minute Series Topographic Maps,* Scale 1:24,000, Contour Interval - 20 Feet, Sacaton NE, Maricopa County, Arizona. 1964, 1974 photo revised.

13. Aerial Mapping Company, Inc., Topographic Mapping, *Sonoqui Wash Floodplain Delineation Study*, Scale 1" = 200', 2-foot contour interval, 2003.

14. U.S. Department of Agriculture, Soil Conservation Service, *Queen Creek Historical Floods Inundation Maps*. On file at the District.

15. Wood & Associates, Inc., *Queen Creek ADMS Topographic mapping*, Scale 1"=200', 2-foot contour interval, November 1986.

16. Landis Aerial Survey, *Aerial Photograph, Outside Phoenix*, 1996.

17. Flood Control District of Maricopa County, *Sanokai Wash Floodplain Delineation Study, Hydrology and Hydraulics Report, FCD 97-11,* Entellus, Inc., Revised May 1999.

18. Flood Control District of Maricopa County, *Queen Creek/Sanokai Wash Hydraulic Master Plan & East Maricopa Floodway Capacity Mitigation Study; FCD 98-26,* Huitt-Zollars, Inc., December 1999.

19. FEMA Website, www.fema.gov, 2003.

20. Flood Control District of Maricopa County, *Hydrologic Design Manual for Maricopa County, Arizona, Vol. 1 – Hydrology*, undated.

21. Federal Highway Administration, *Hydraulic Design of Highway Culverts, FHWA-IP-85-15*, September 1985.

APPENDIX B: GENERAL DOCUMENTATION AND CORRESPONDENCE

The entire contents of this appendix are found in **Appendix B** of "Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."

APPENDIX C: SURVEY FIELD NOTES

The entire contents of this appendix are found in **Appendix C** of "Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."

APPENDIX D: HYDROLOGIC ANALYSIS SUPPORTING DOCUMENTATION

D.1 Precipitation Data

D.2 Physical Parameter Calculations

D.2.1 Soils

D.2.2 Land Use

D.2.3 S-Graphs

D.2.4 Hydraulic Length and Slope

D.2.5 Green and Ampt Parameters

D.3 Hydrograph Routing

D.4 Flow Splits and Diversion Data

D.5 Southern Pacific Railroad Input Flows

D.6 HEC-1 Output

D.6.1 100-yr, 6-hr HEC-1 Output (Existing Conditions)

D.6.2 100-yr, 24-hr HEC-1 Output (Existing Conditions)

D.1 Precipitation Data

*** O U T P U T D A T A ***

REVISED JUNE 1988 TO UPDATE COMPUTATION OF SHORT-DURATION VALUES

PRECIPITATION FREQUENCY VALUES FOR ~~Sonolai~~ Sonoqui FPD,
PRIMARY ZONE NUMBER= 7
SHORT-DURATION ZONE NUMBER= 8

OPTION NUMBER 2 --- INPUT OF 12 PRECIP VALUES
LATITUDE 33.15N LONGITUDE 111.60W ELEVATION 1500 FEET

POINT VALUES
RETURN PERIOD

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	
5-MIN	.29	.40	.47	.57	.65	.73	.91	5-MIN
10-MIN	.44	.61	.72	.87	1.00	1.12	1.39	10-MIN
15-MIN	.53	.76	.91	1.11	1.27	1.43	1.80	15-MIN
30-MIN	.70	1.02	1.22	1.50	1.72	1.94	2.44	30-MIN
1-HR	.86	1.25	1.52	1.87	2.15	2.43	3.06	1-HR
2-HR	.95	1.37	1.65	2.04	2.34	2.63	3.32	2-HR
3-HR	1.01	1.45	1.75	2.15	2.46	2.77	3.49	3-HR
6-HR	1.12	1.60	1.92	2.36	2.70	3.04	3.82	6-HR
12-HR	1.23	1.76	2.10	2.58	2.95	3.32	4.17	12-HR
24-HR	1.35	1.91	2.29	2.81	3.21	3.60	4.52	24-HR

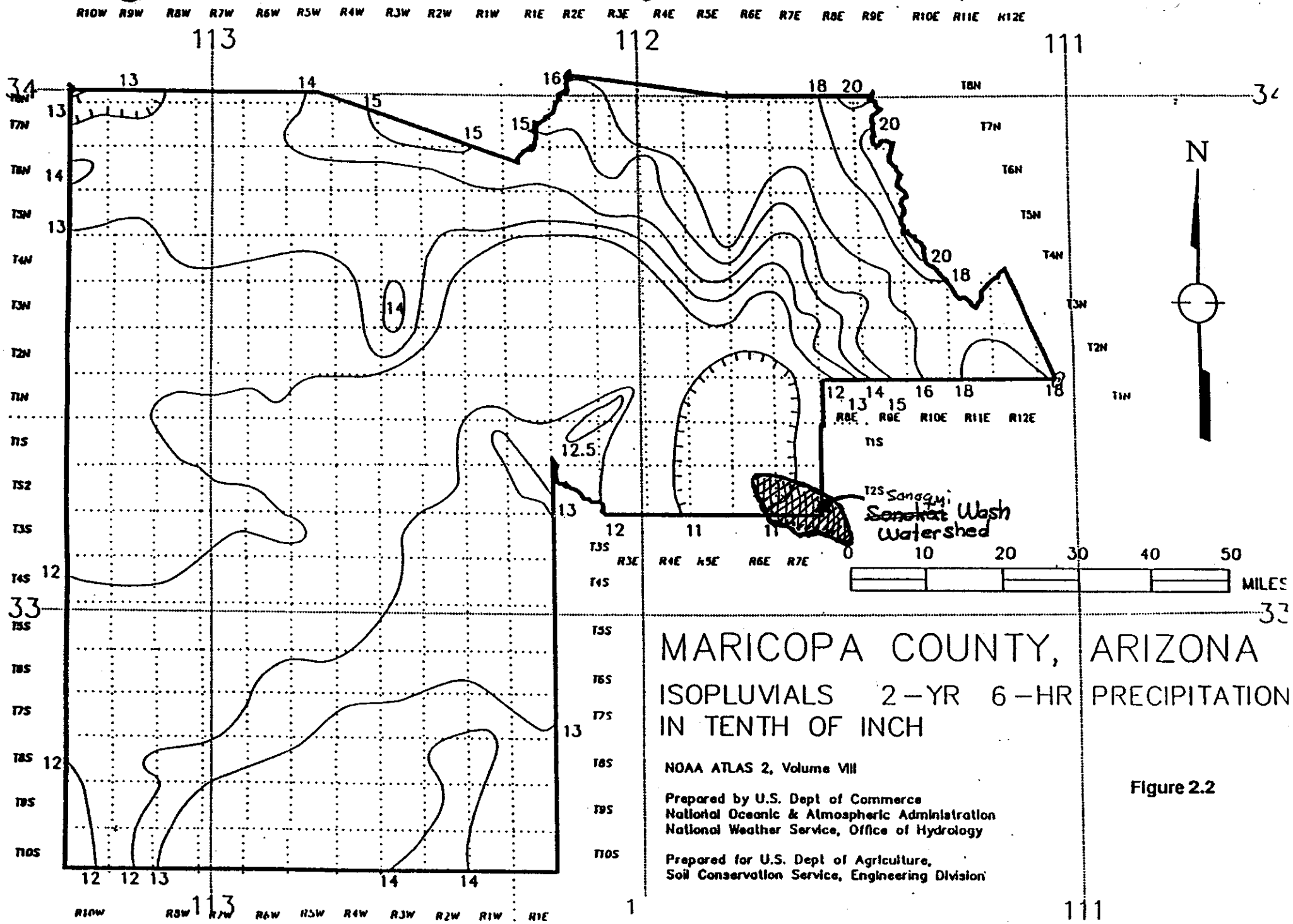
* IF YOUR SITE IS IN ARIZONA OR NEW MEXICO, PLEASE CONSULT THE FOLLOWING PAPER FOR REVISED DEPTH-AREA VALUES:
DEPTH-AREA RATIOS IN THE SEMI-ARID SOUTHWEST UNITED STATES
NOAA TECHNICAL MEMORANDUM NWS HYDRO-40
ZEHR AND MYERS
AUGUST 1984

INPUT DATA

PROJECT NAME=Sonolai FPD,
ZONE= 7 SHORT-DURATION ZONE= 8
LATITUDE= 33.15 LONGITUDE= 111.60 ELEVATION= 1500
12-VALUE PRECIPITATION OPTION
PRECIPITATION VALUE:

1.13	1.60
1.90	2.35
2.70	3.05
1.35	1.90
2.30	2.82
3.20	3.60

* * * * E N D O F R U N * * * *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T6N
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T4N
T3N
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T7S
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T9S
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N
Sanaqui Wash watershed
0 10 20 30 40 50
MILES
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 2-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

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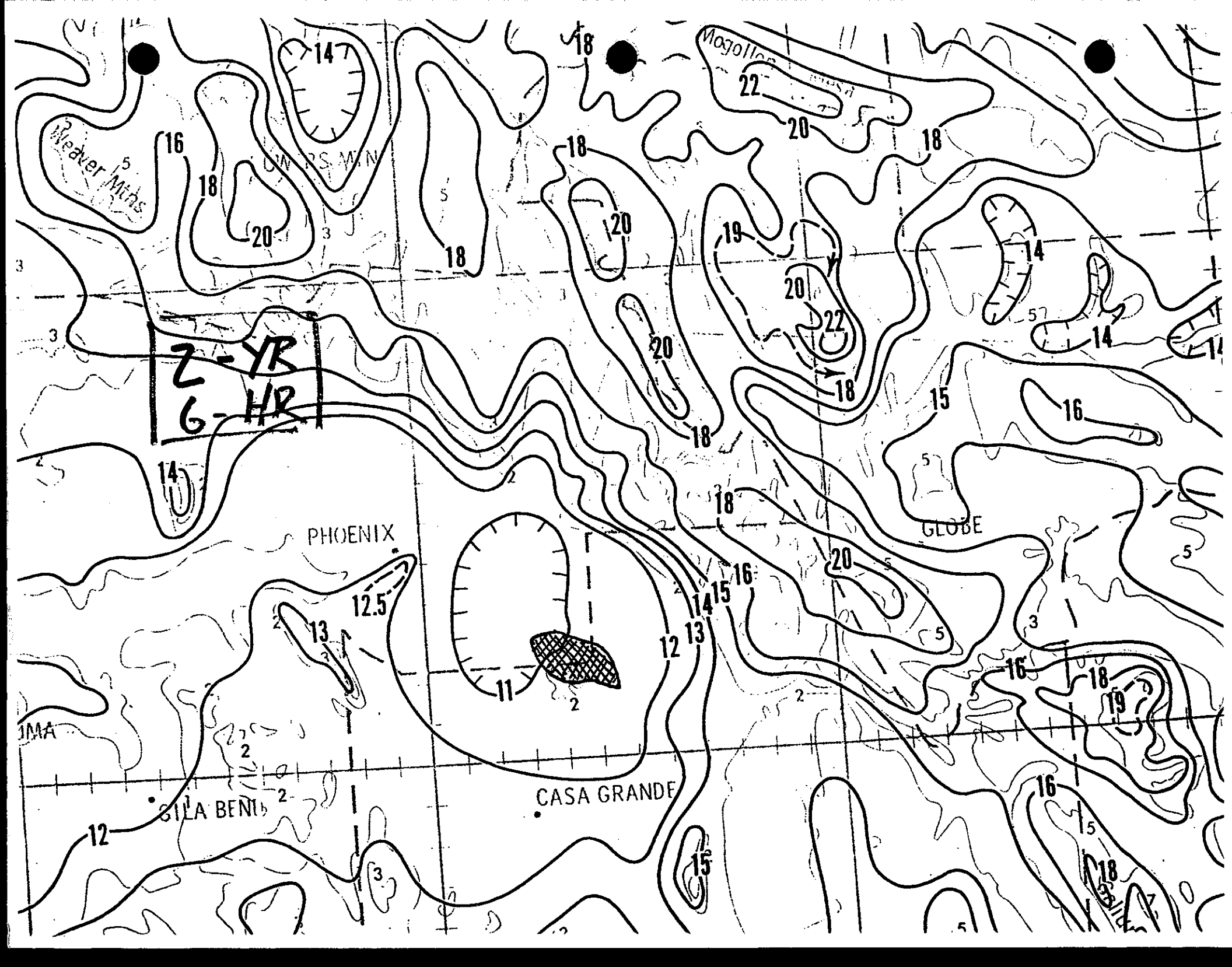
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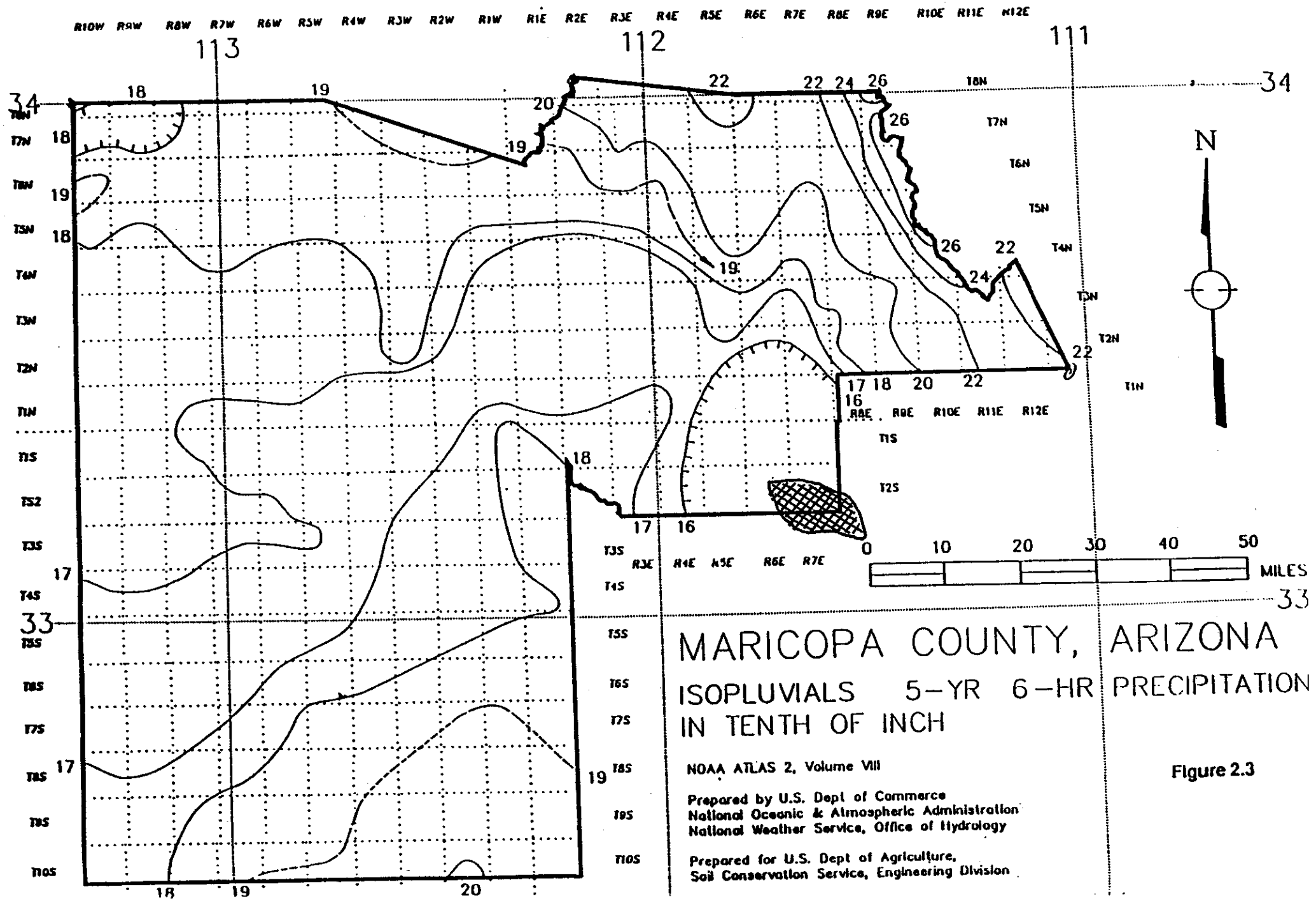
GLOBE
CASA GRANDE
GILA BEND
Weaver Mtns
Mogollon Mesa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ISOPLUVIALS 5-YR 6-HR PRECIPITATION
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NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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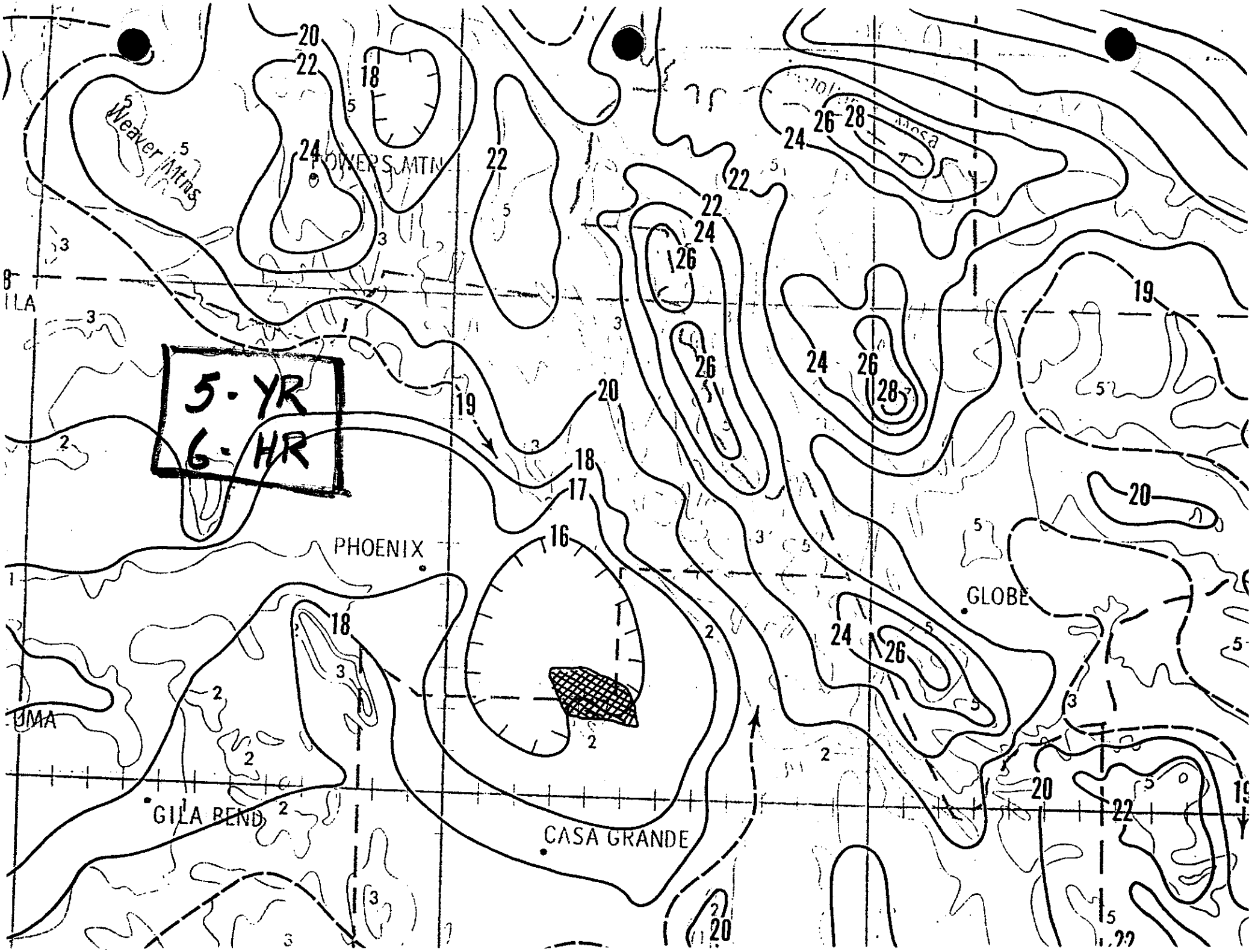
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POWERS MTN
PHOENIX
GLOBE
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CASA GRANDE
ILA
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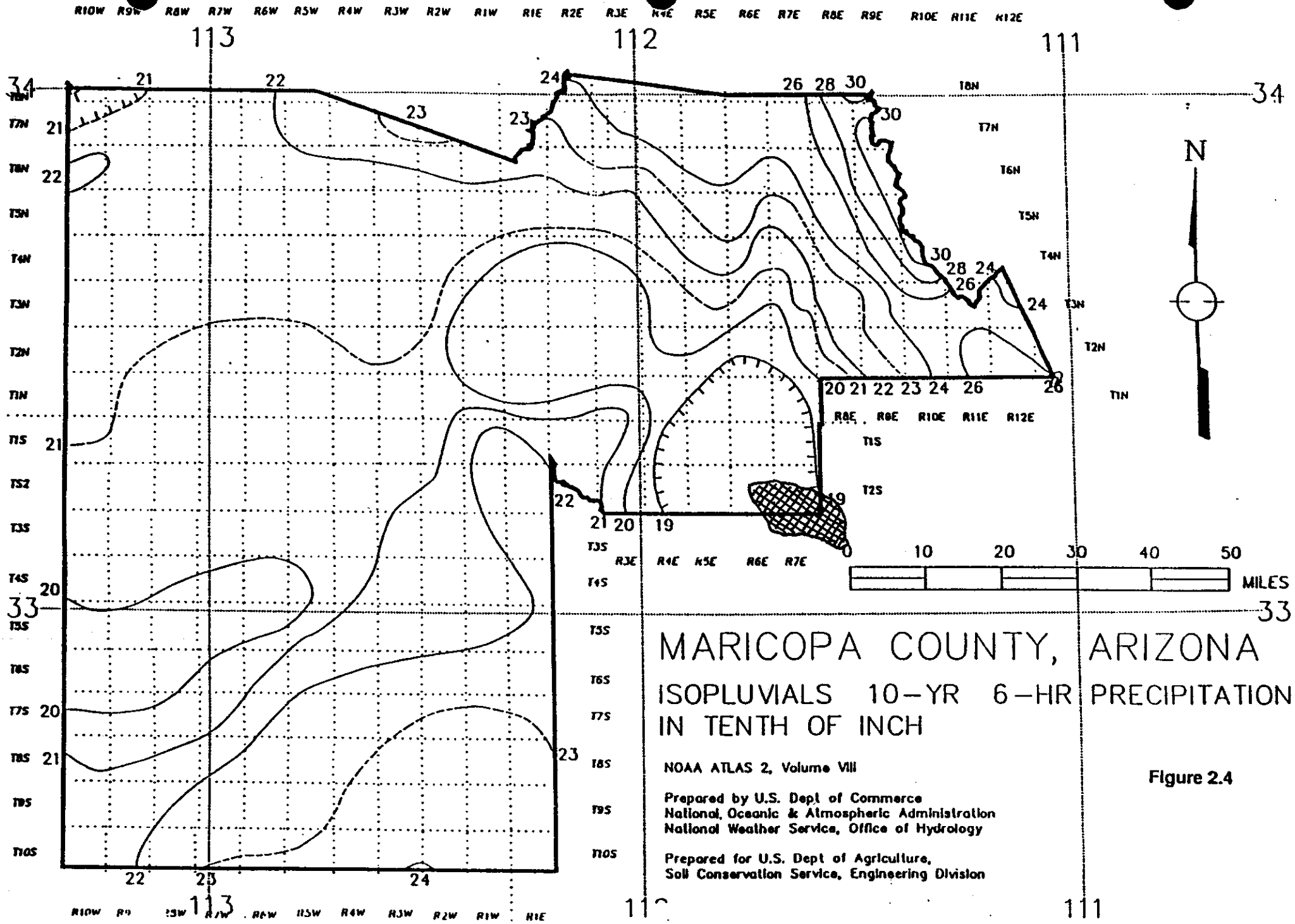
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 10-YR 6-HR PRECIPITATION
IN TENTH OF INCH
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Prepared by U.S. Dept of Commerce
National, Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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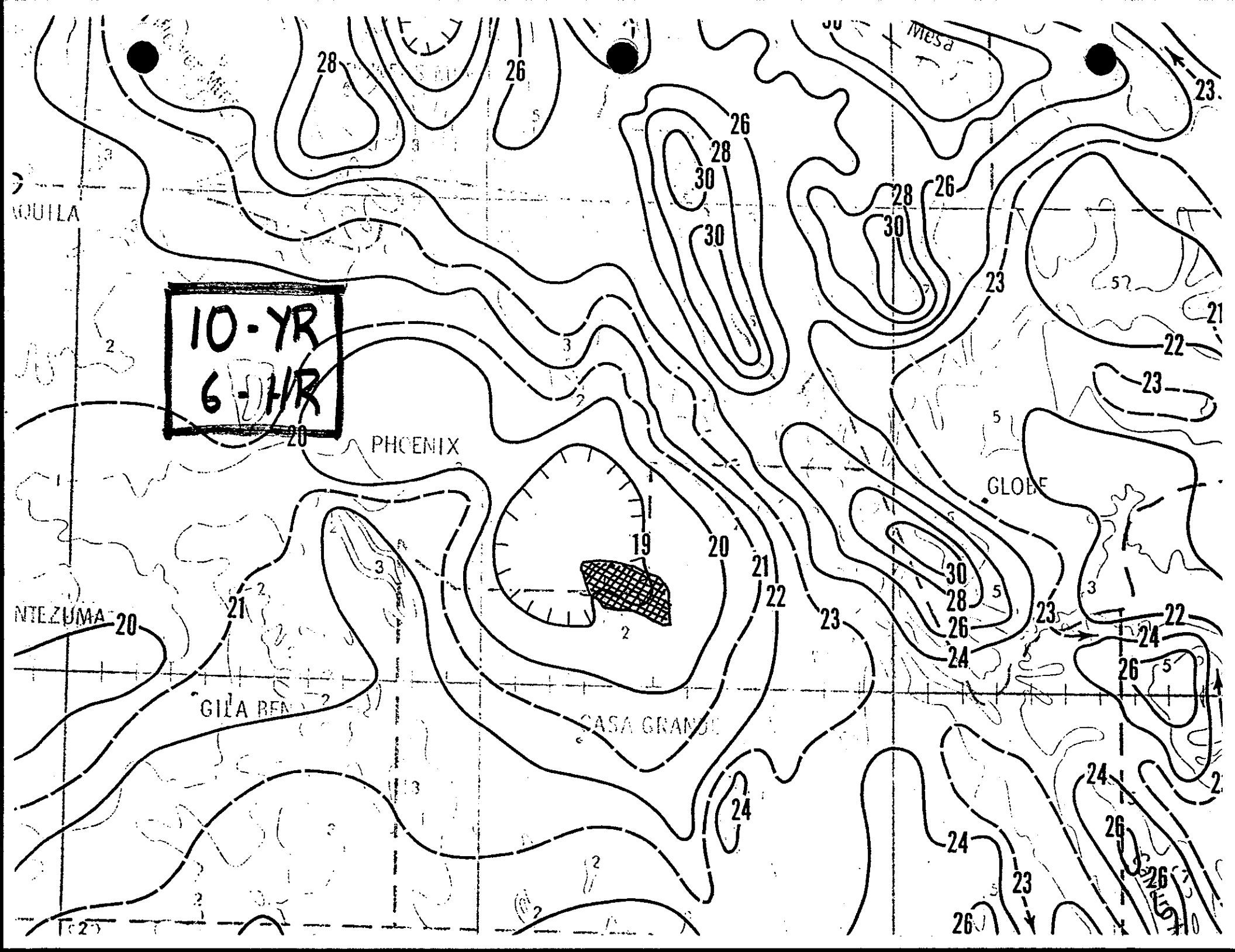
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GILA BEND
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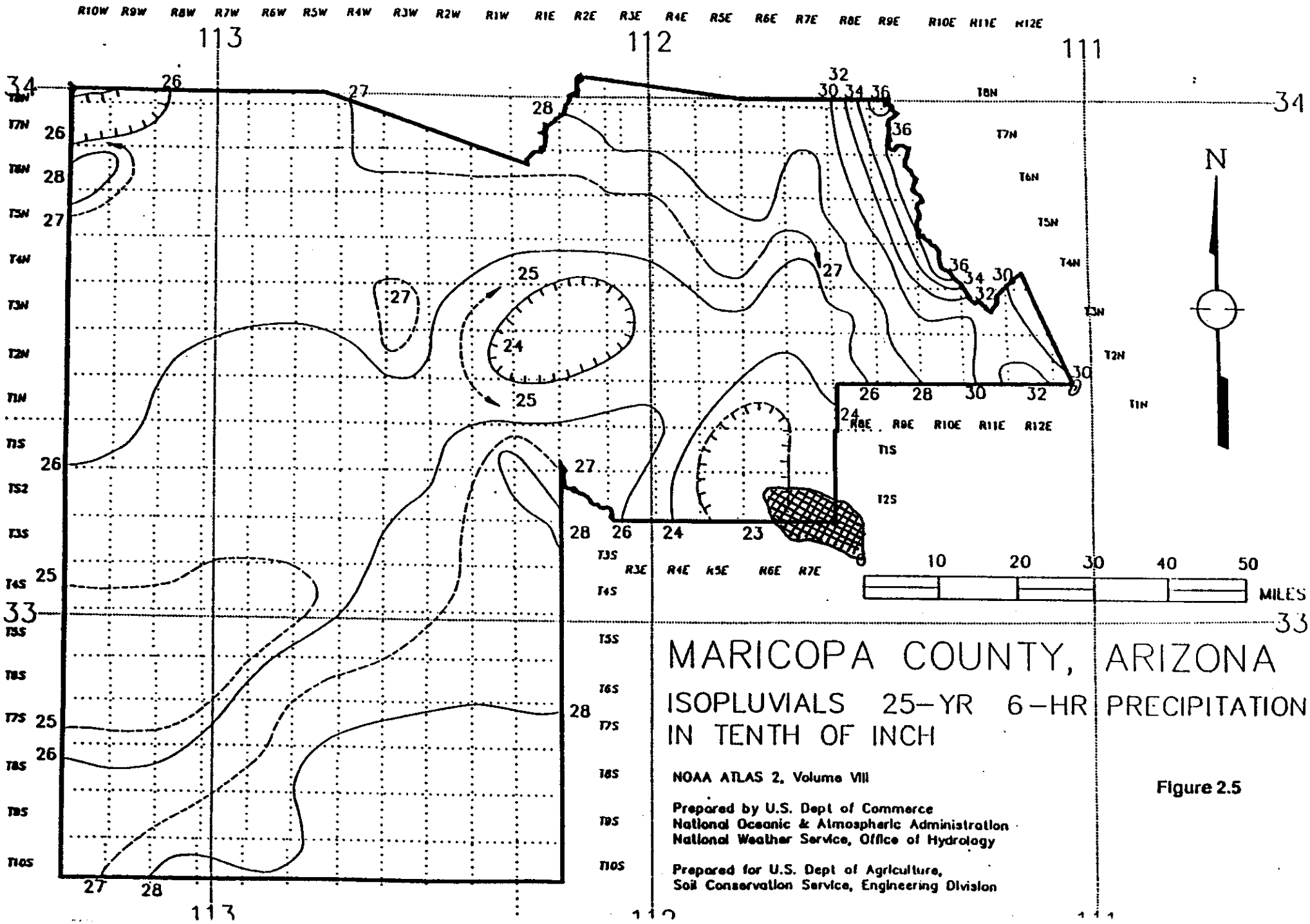
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MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 25-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
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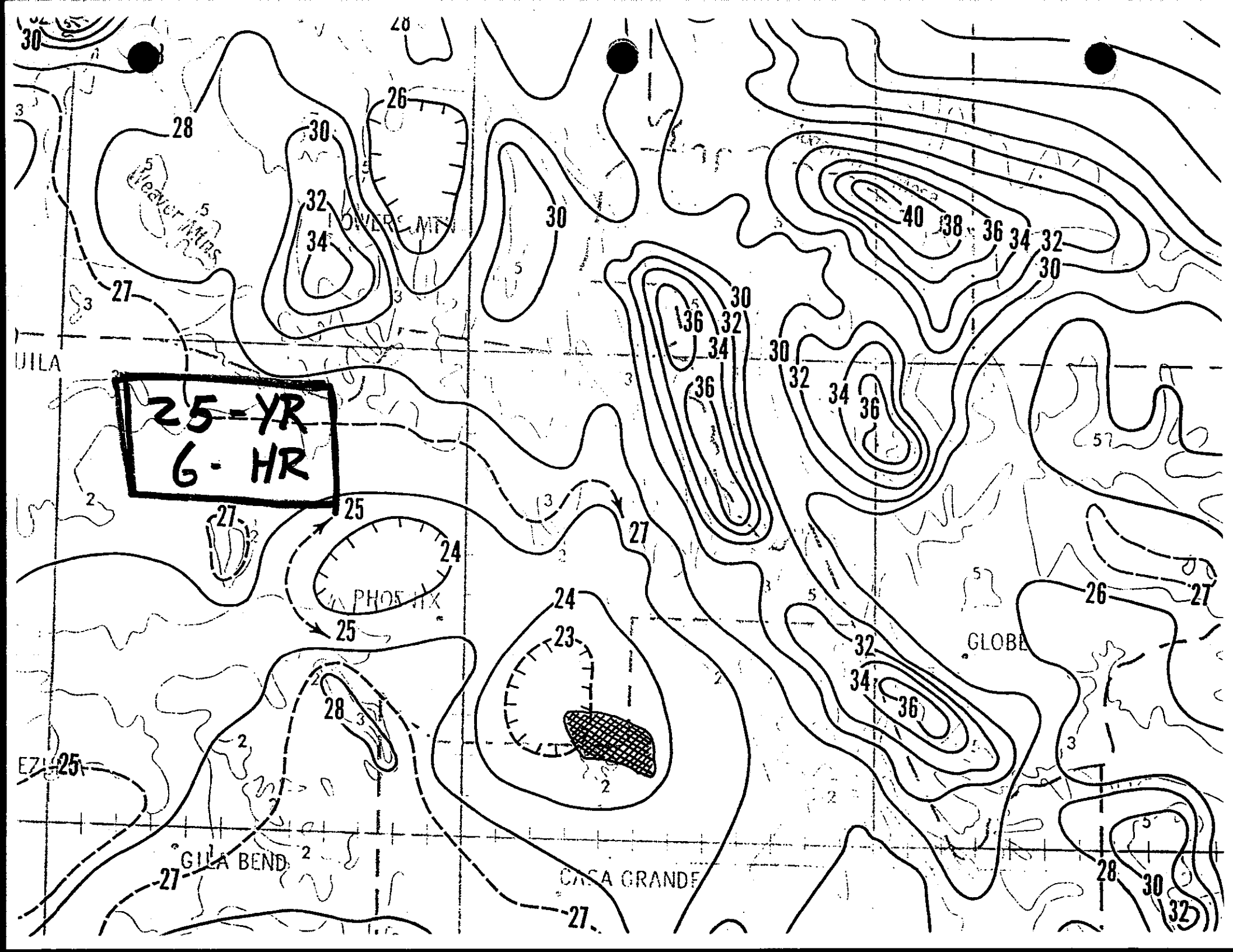
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Beaver Mtns
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GILA BEND
CASA GRANDE

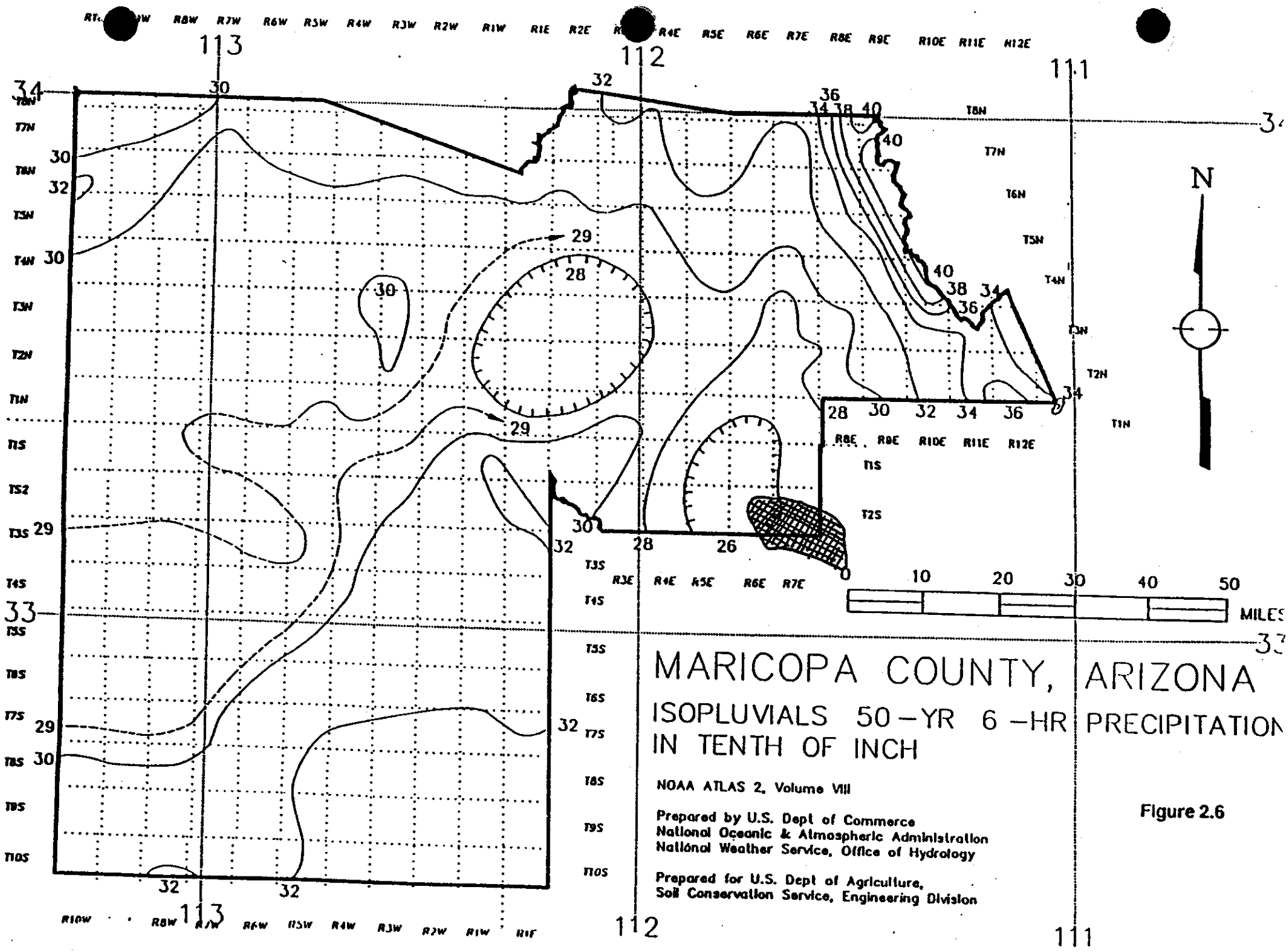
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 50-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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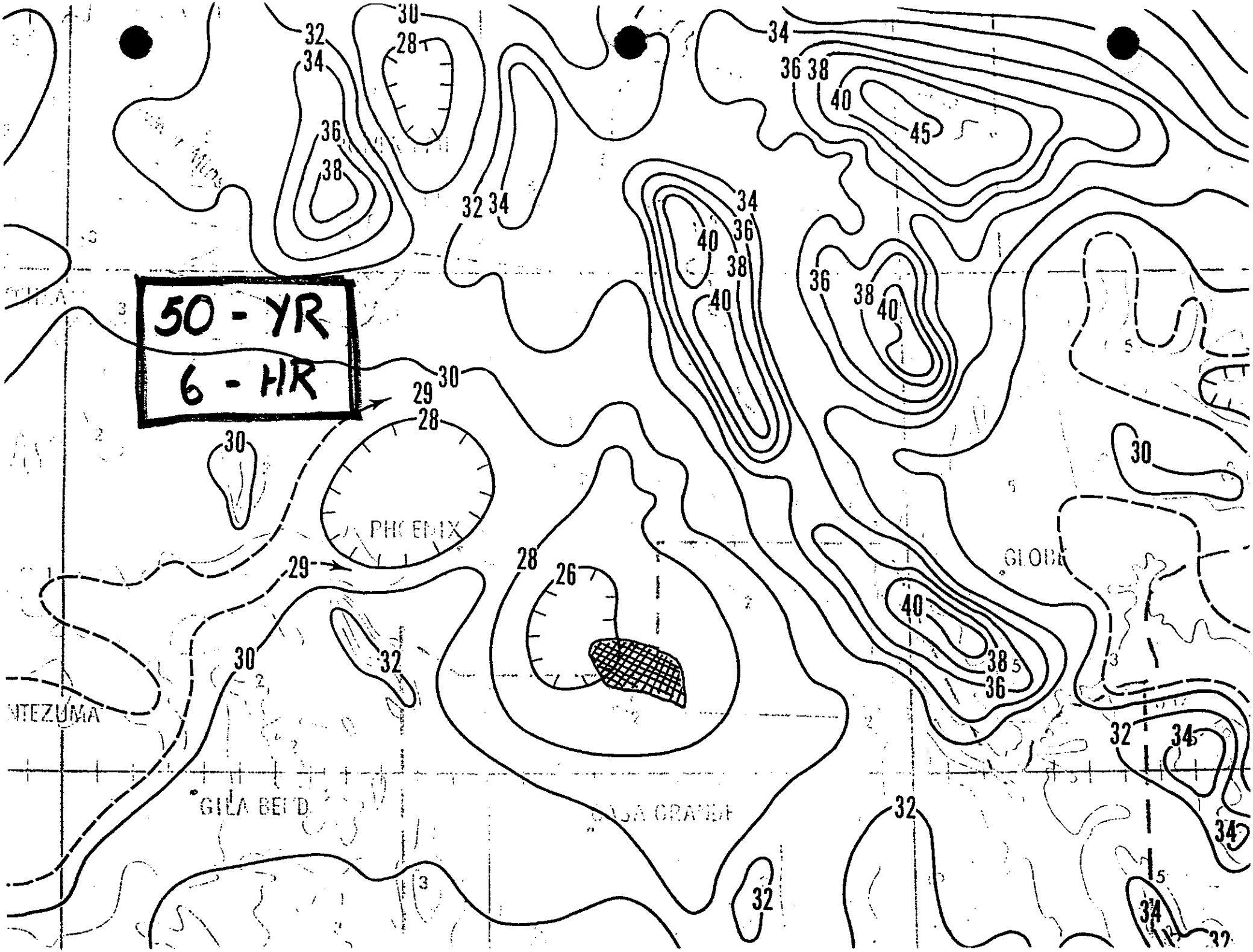
Figure 2.6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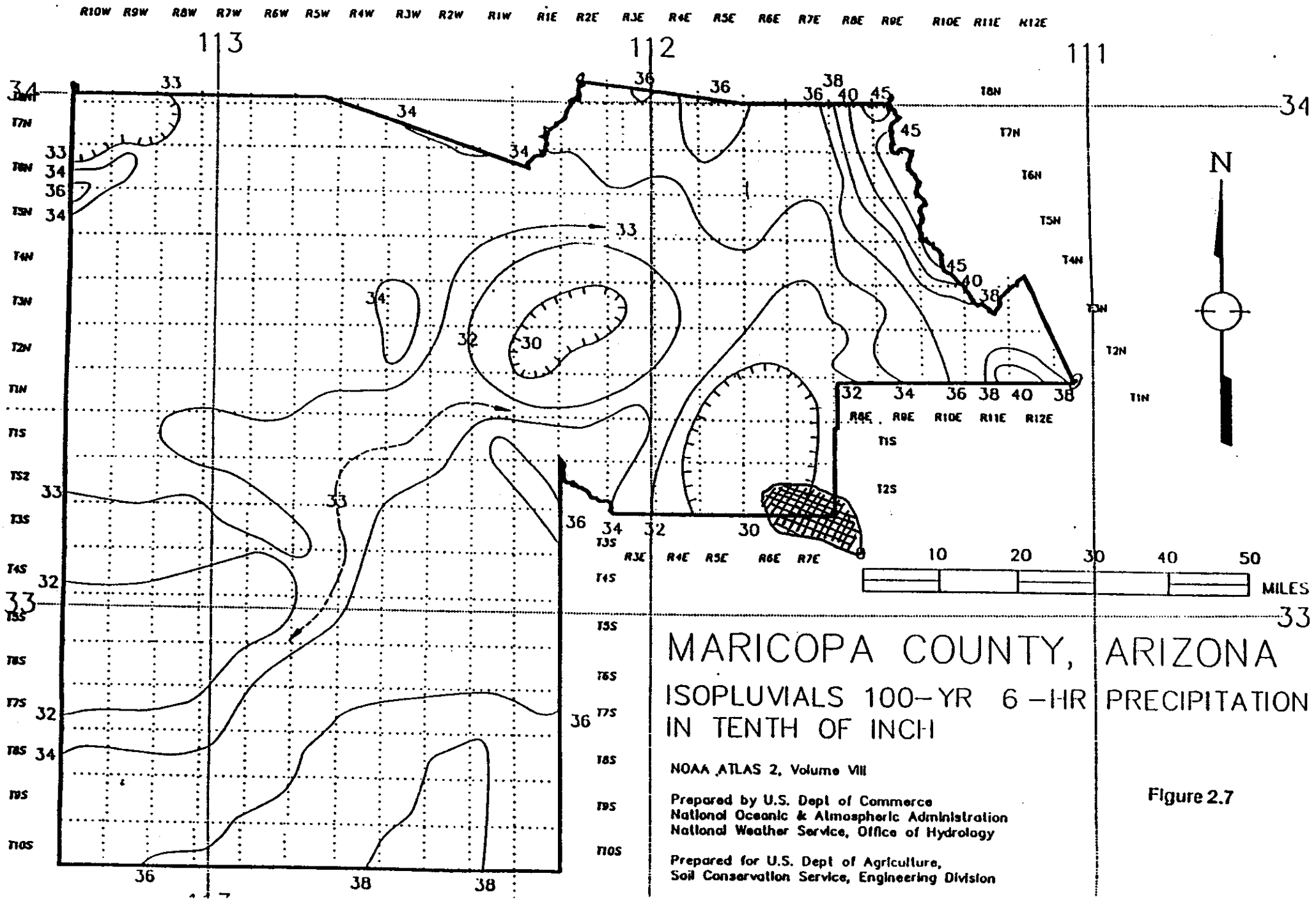
6 - HR
PHOENIX
GLOBE
GILA BEND
SACATON
MONTEZUMA



MARICOPA COUNTY, ARIZONA

ISOPLUVIALS 100-YR 6-HR PRECIPITATION IN TENTH OF INCH

NOAA ATLAS 2, Volume VIII

Prepared by U.S. Dept of Commerce
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National Weather Service, Office of Hydrology

Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

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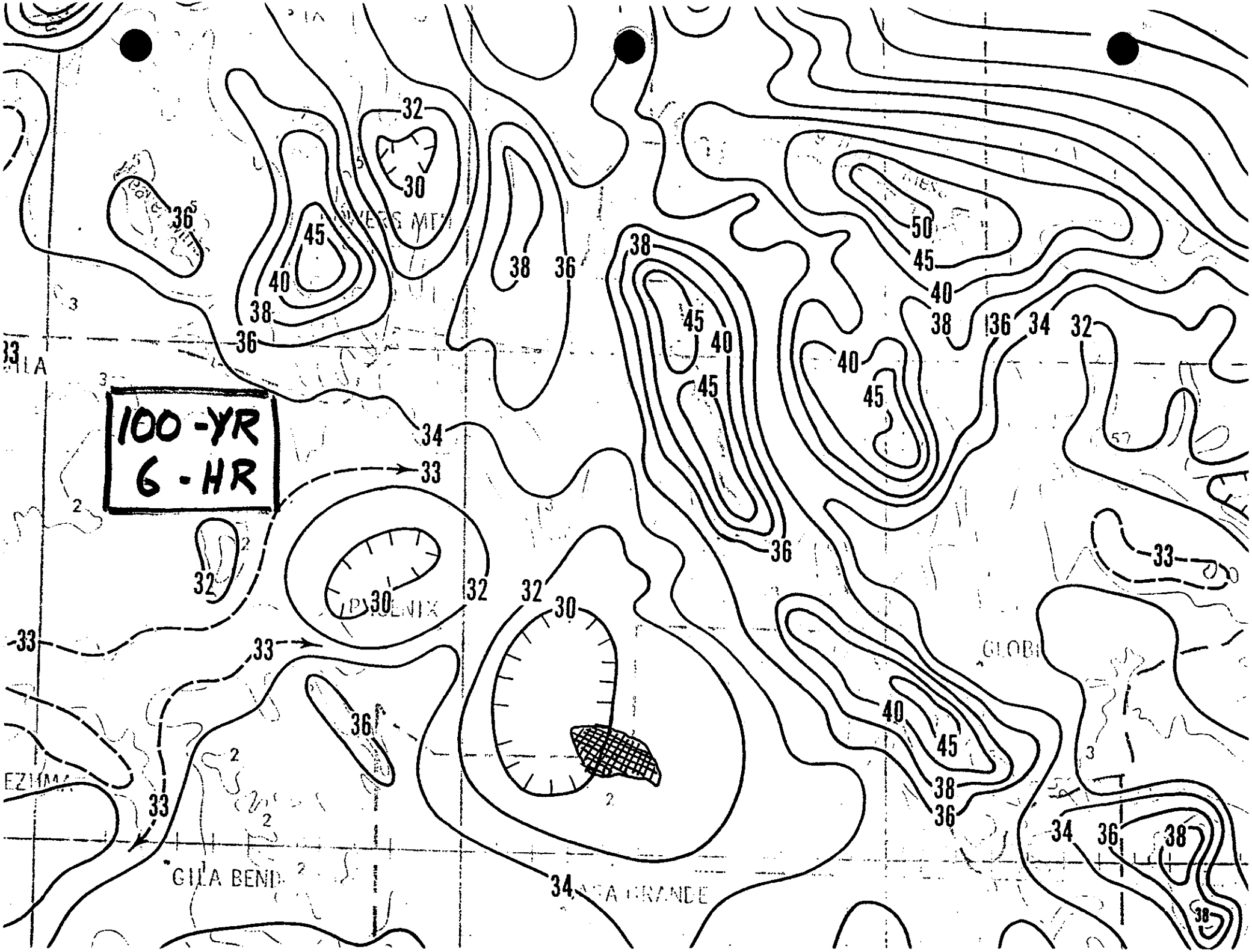
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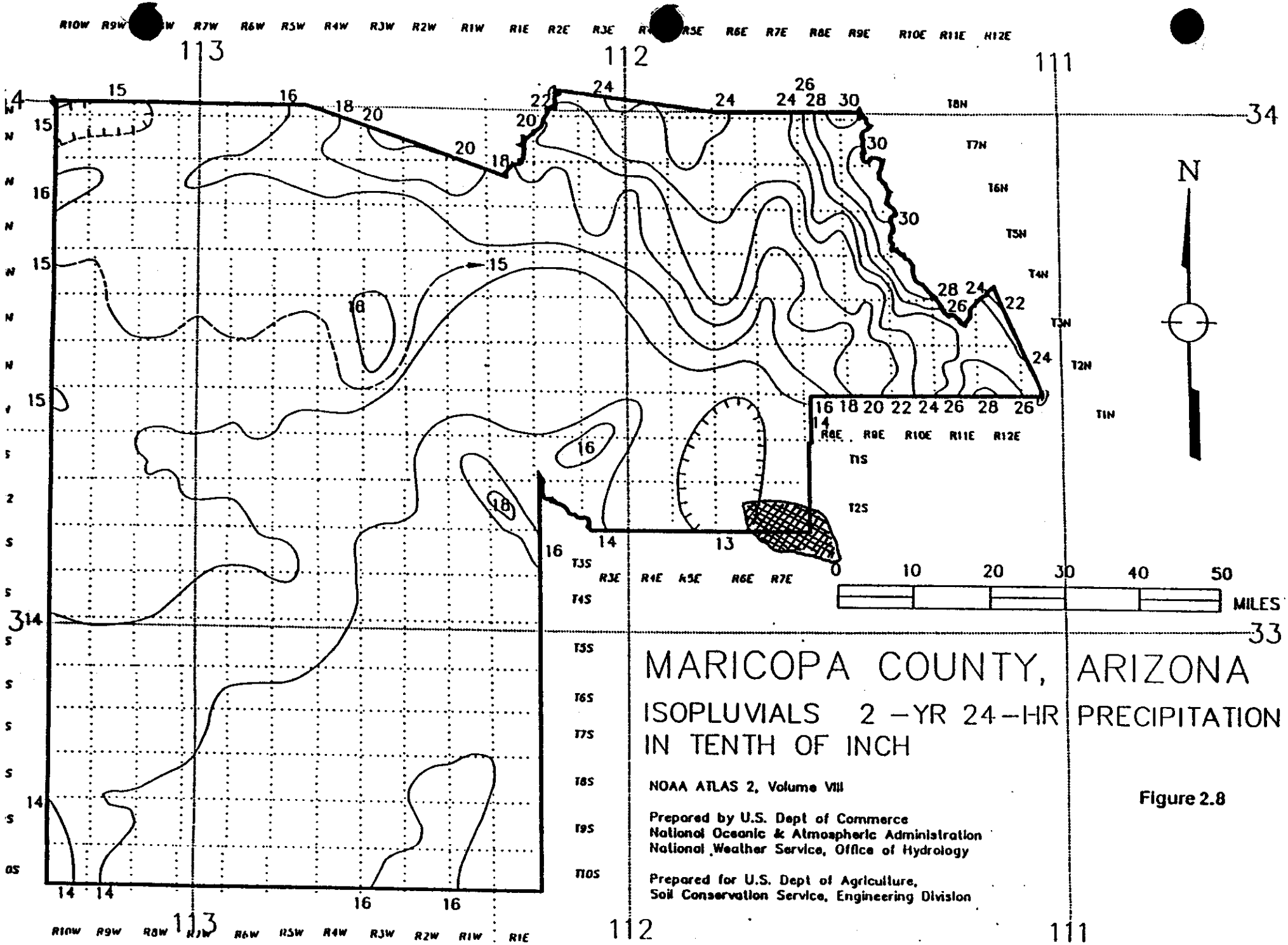
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 2 -YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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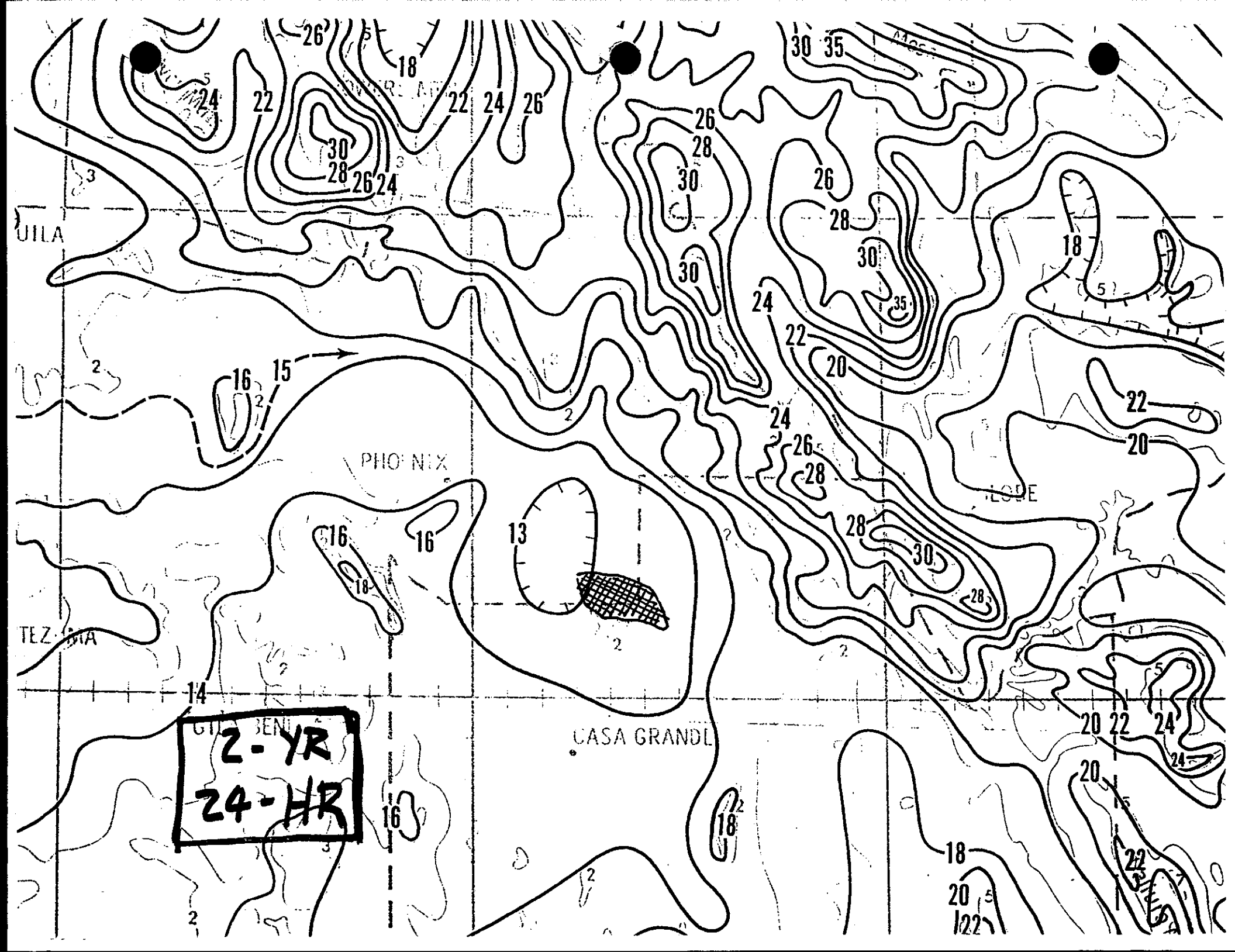
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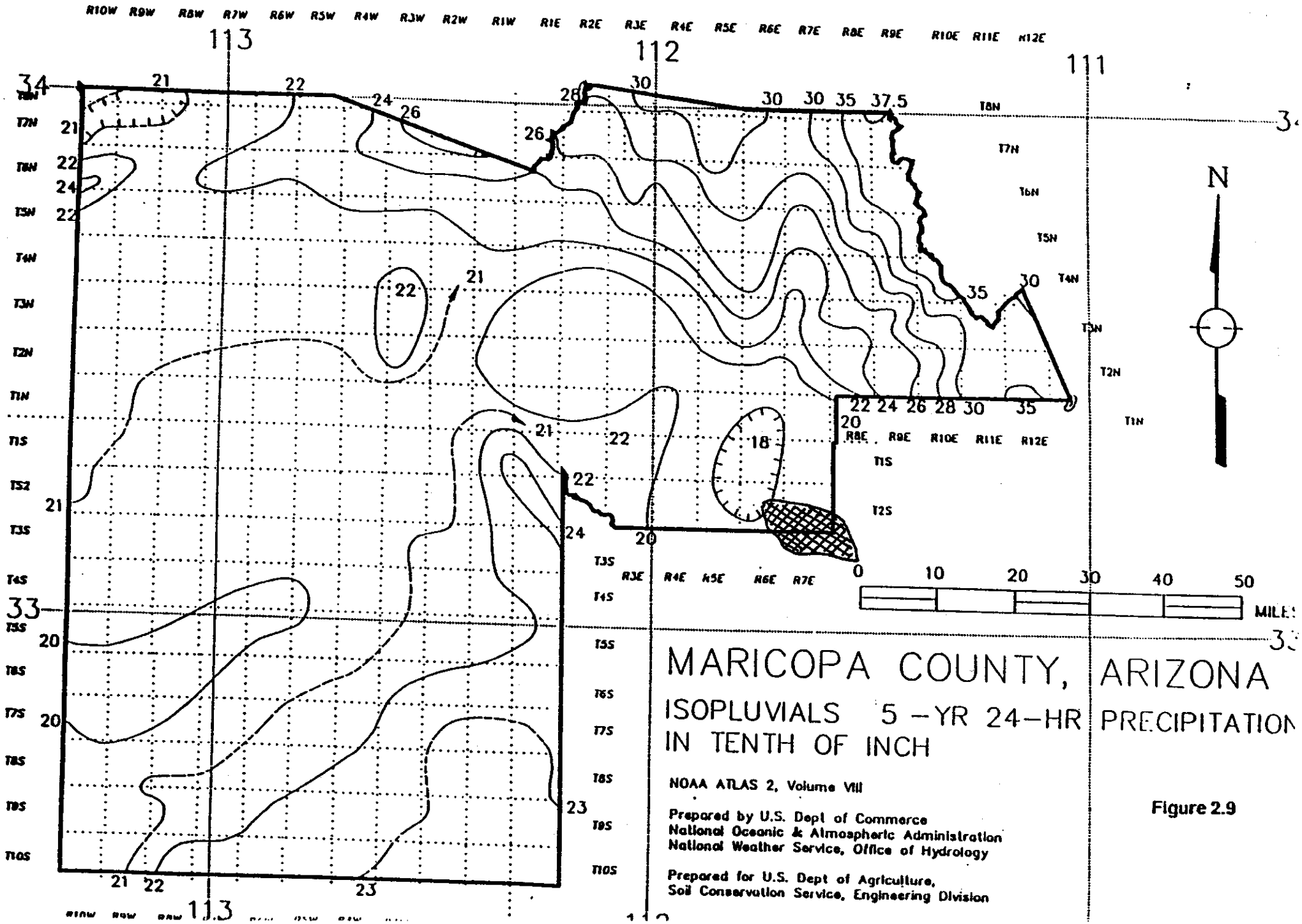
CASA GRANDE
2-YR
24-HR


MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 5 -YR 24-HR PRECIPITATION
IN TENTH OF INCH
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National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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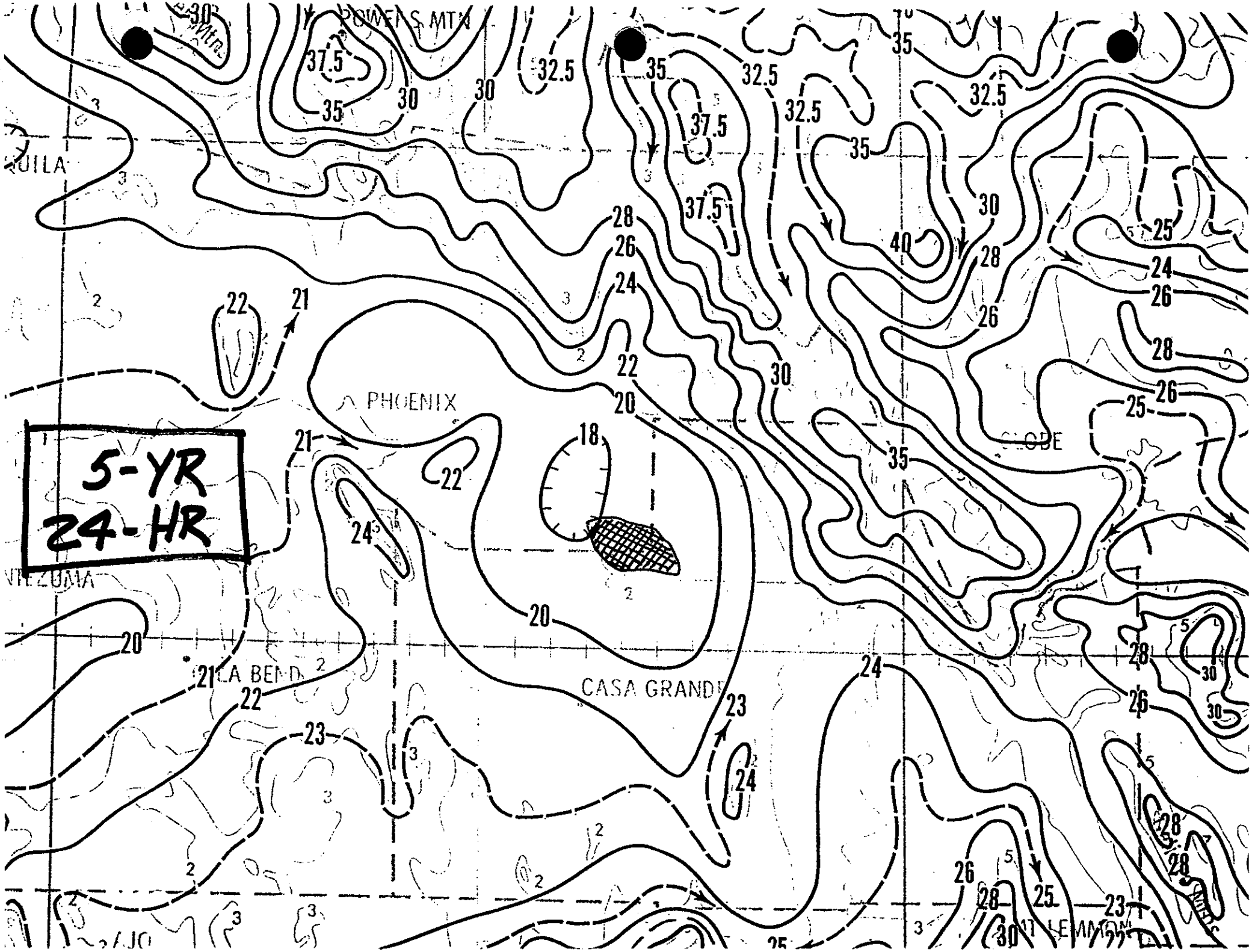
Figure 2.9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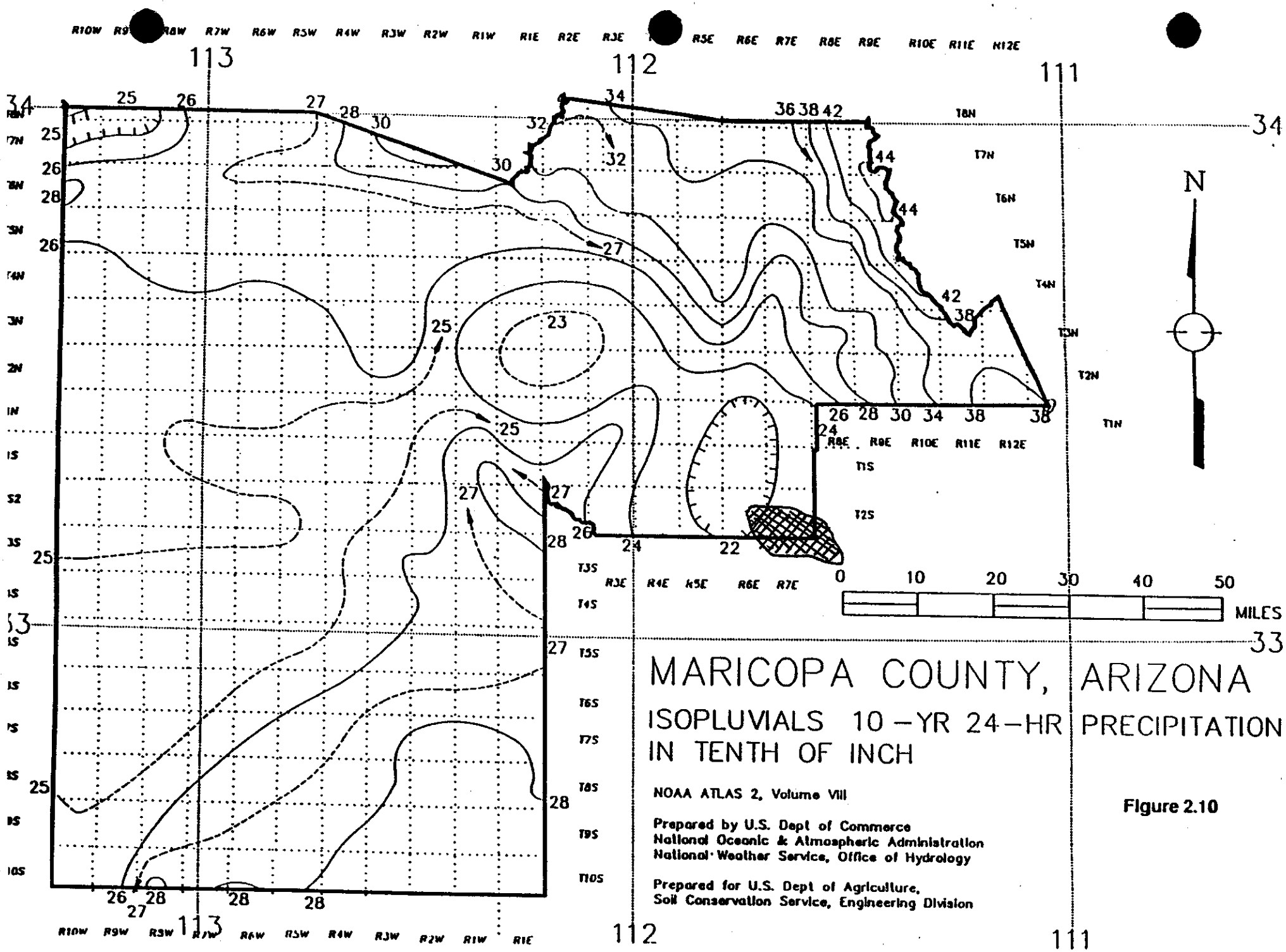
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 10-YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
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National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
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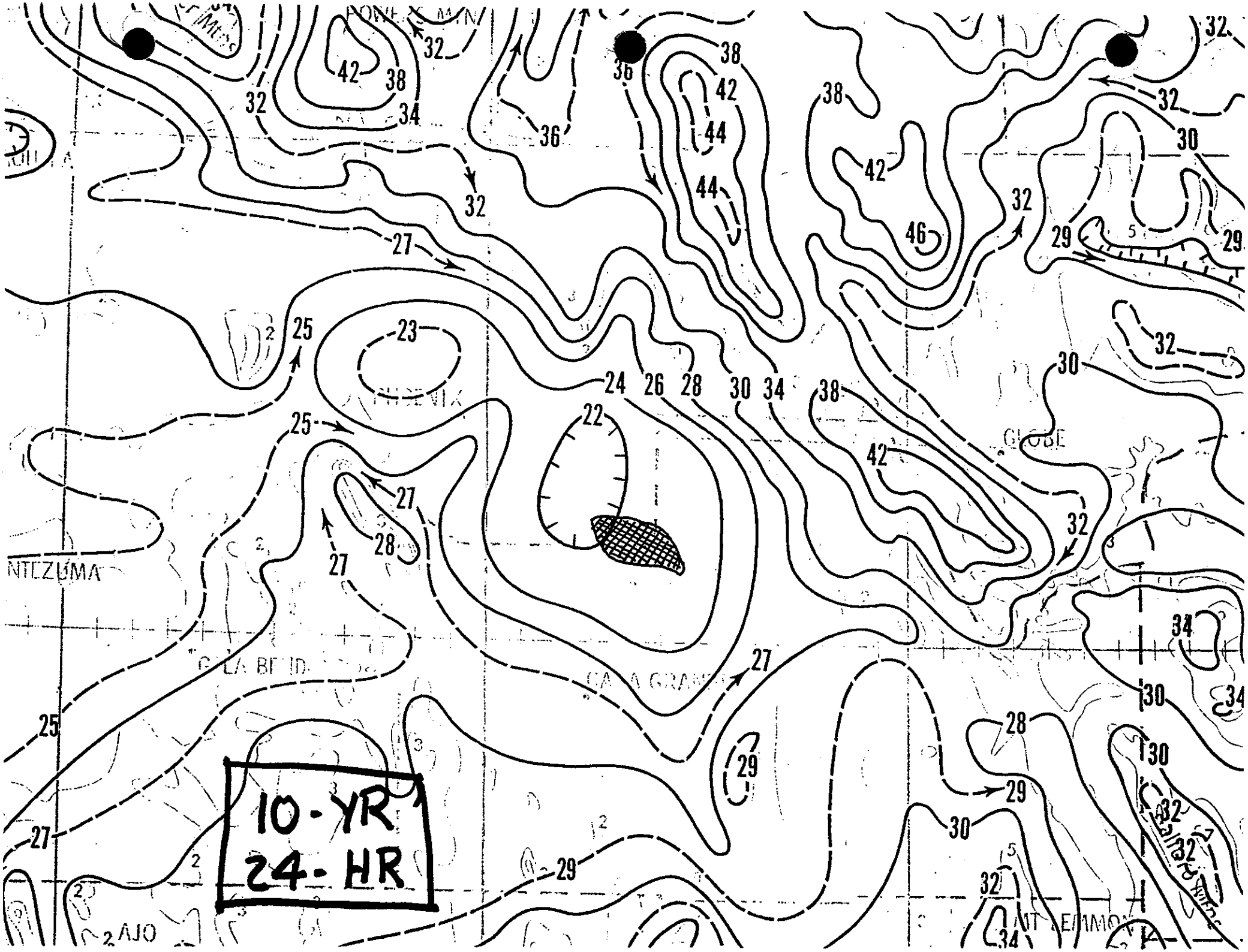
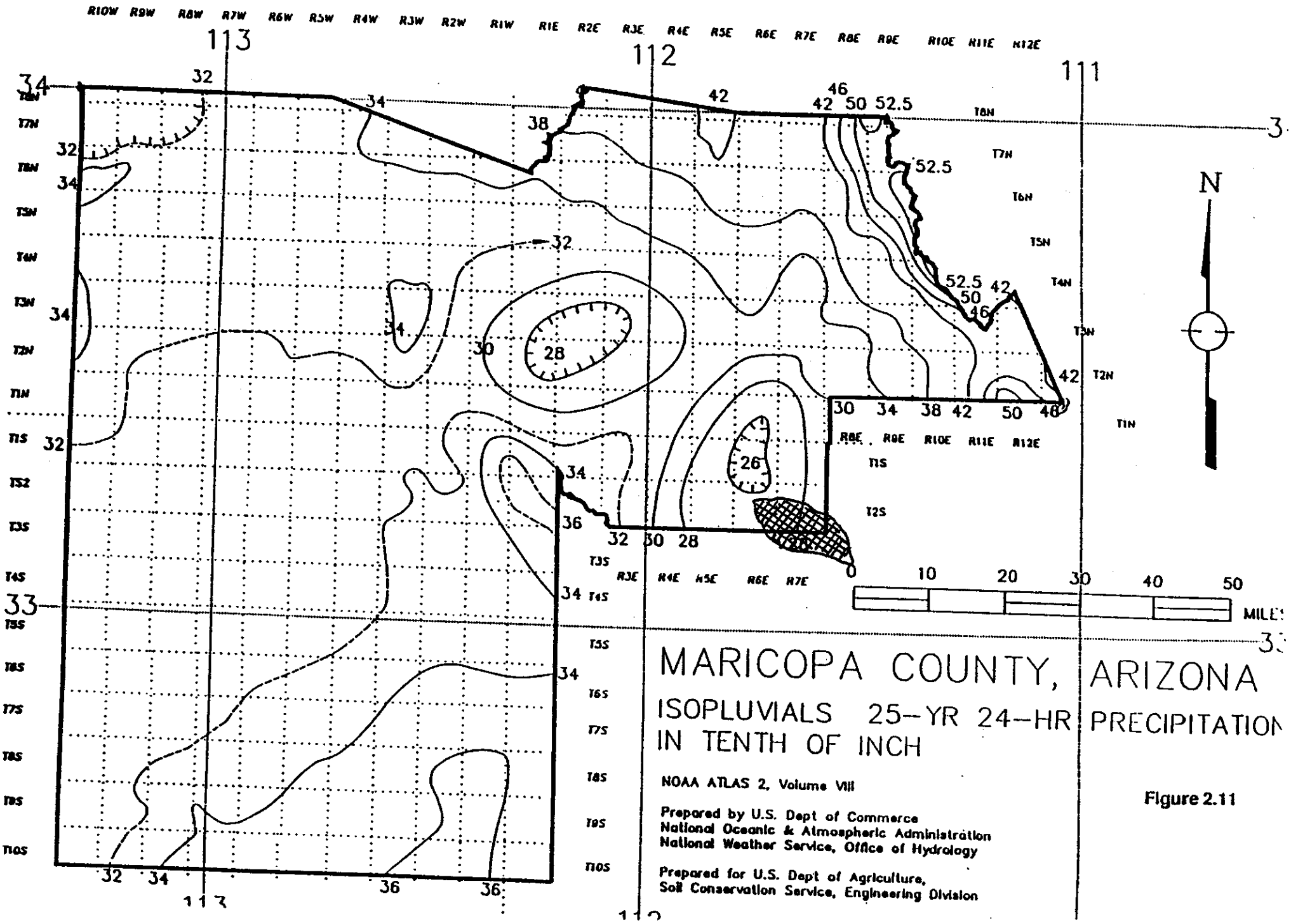
Figure 2.10


10-YR
24-HR
PHOENIX
GLOBE
MONTEZUMA
GILA BEND
GILA GRANDE
AJO
MT. LEMMON
Gallina Mts.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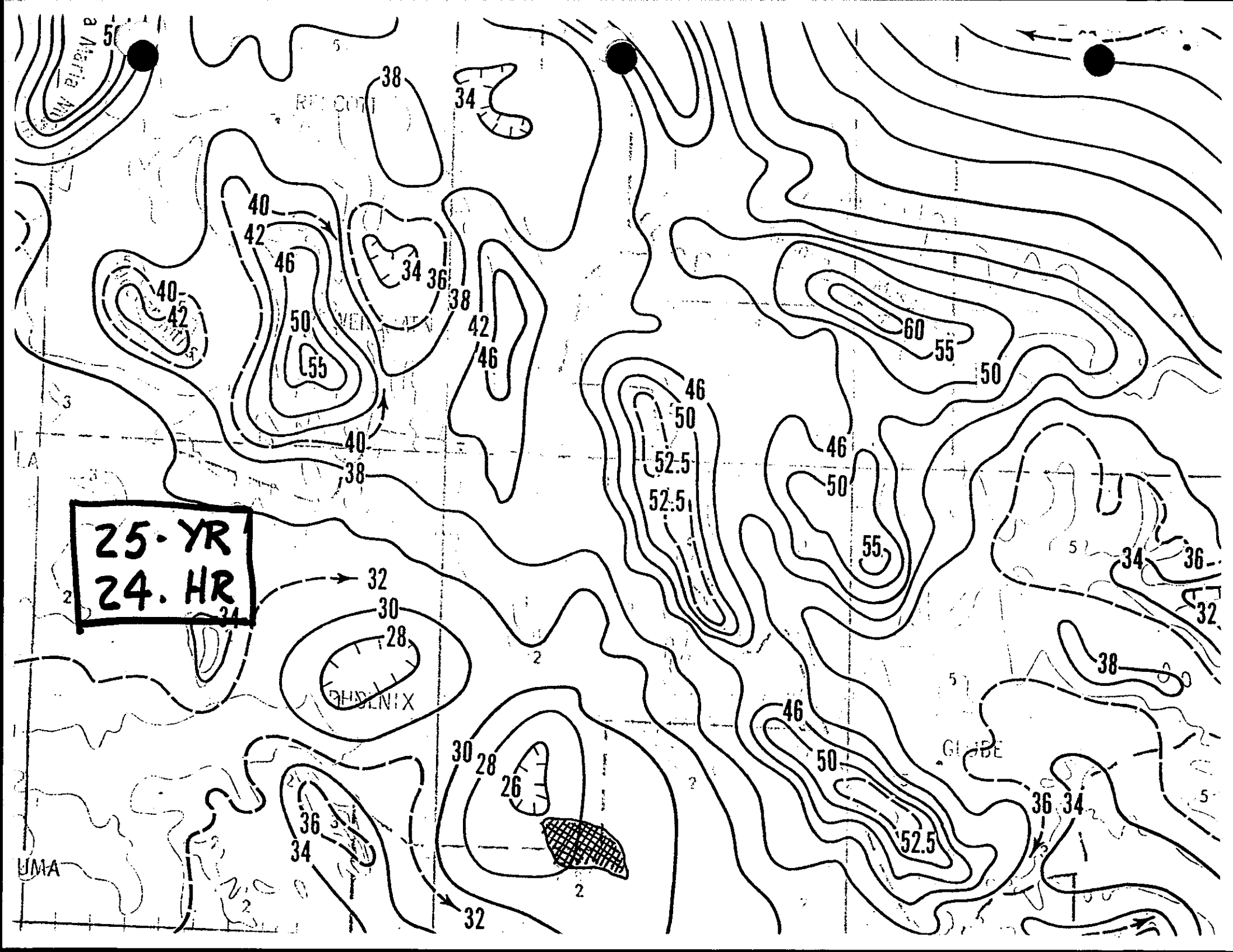
113
112
111
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S
N
10 20 30 40 50
MILES
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 25-YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.11


25-YR
24. HR
PHOENIX
GLOBE
YUMA

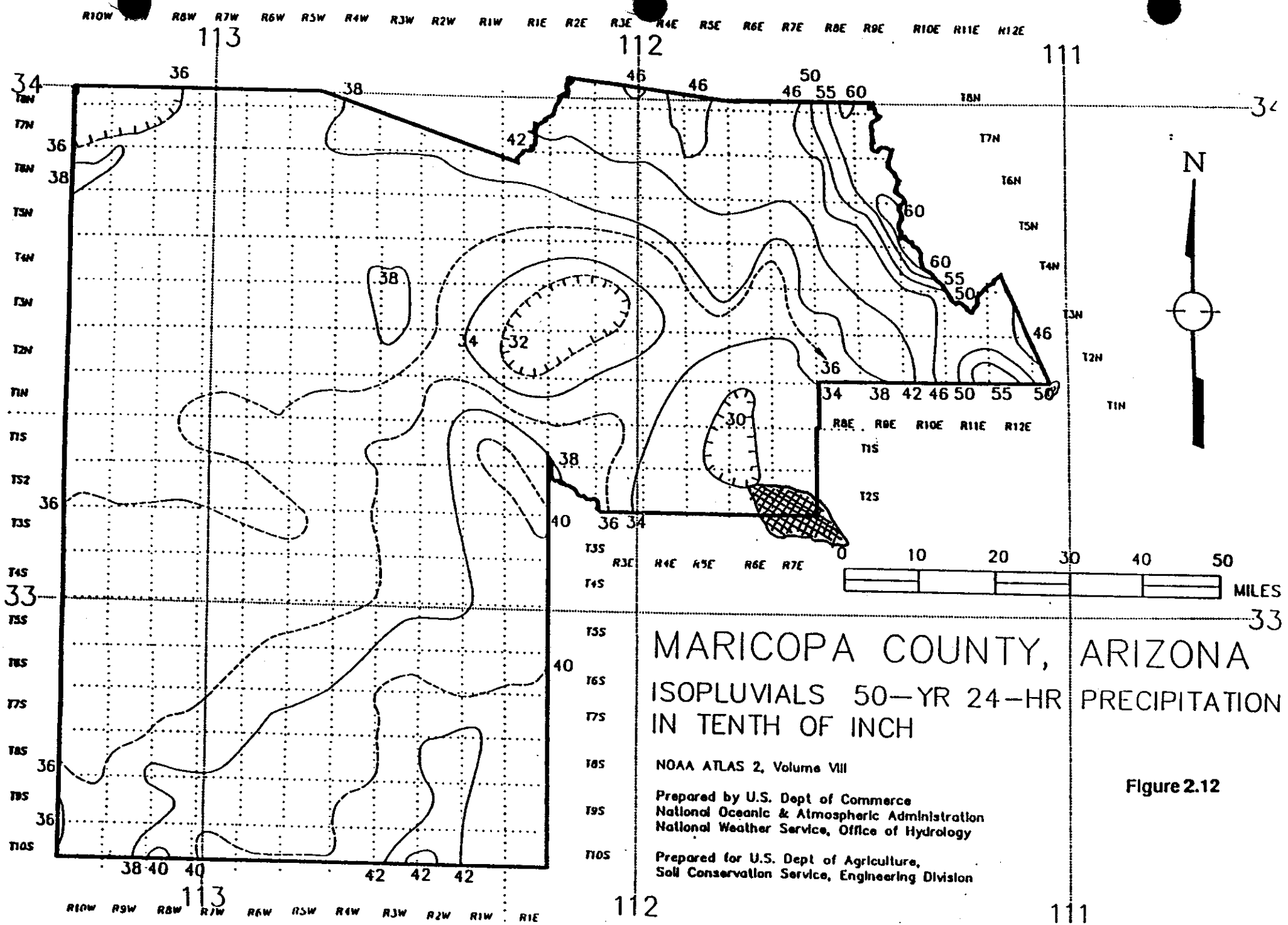
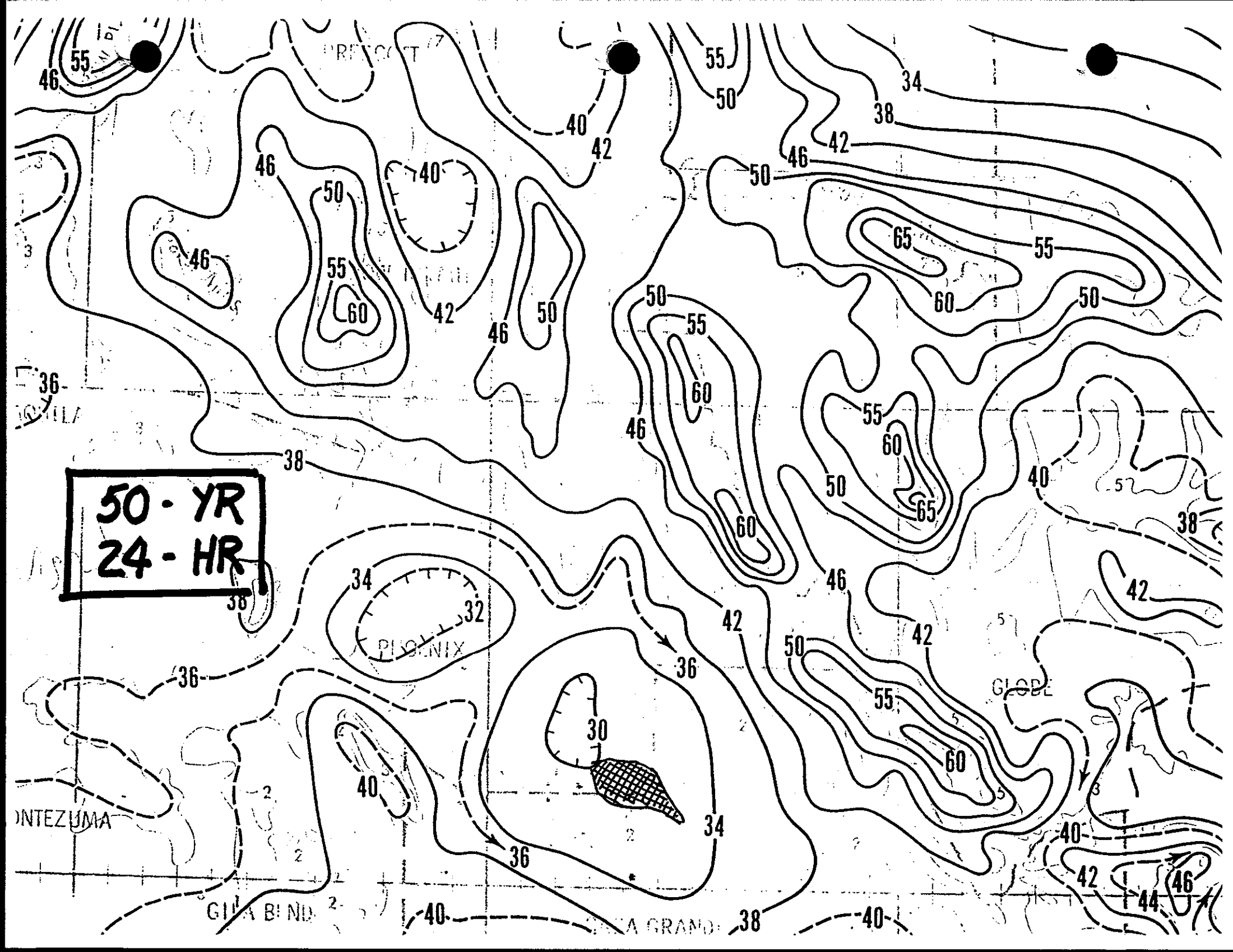

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 50—YR 24—HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
N
MILES
0 10 20 30 40 50
113
112
111
34
33

Figure 2.12


50 - YR
24 - HR
PHOENIX
GLOBE
GILA BEND
MONTEZUMA

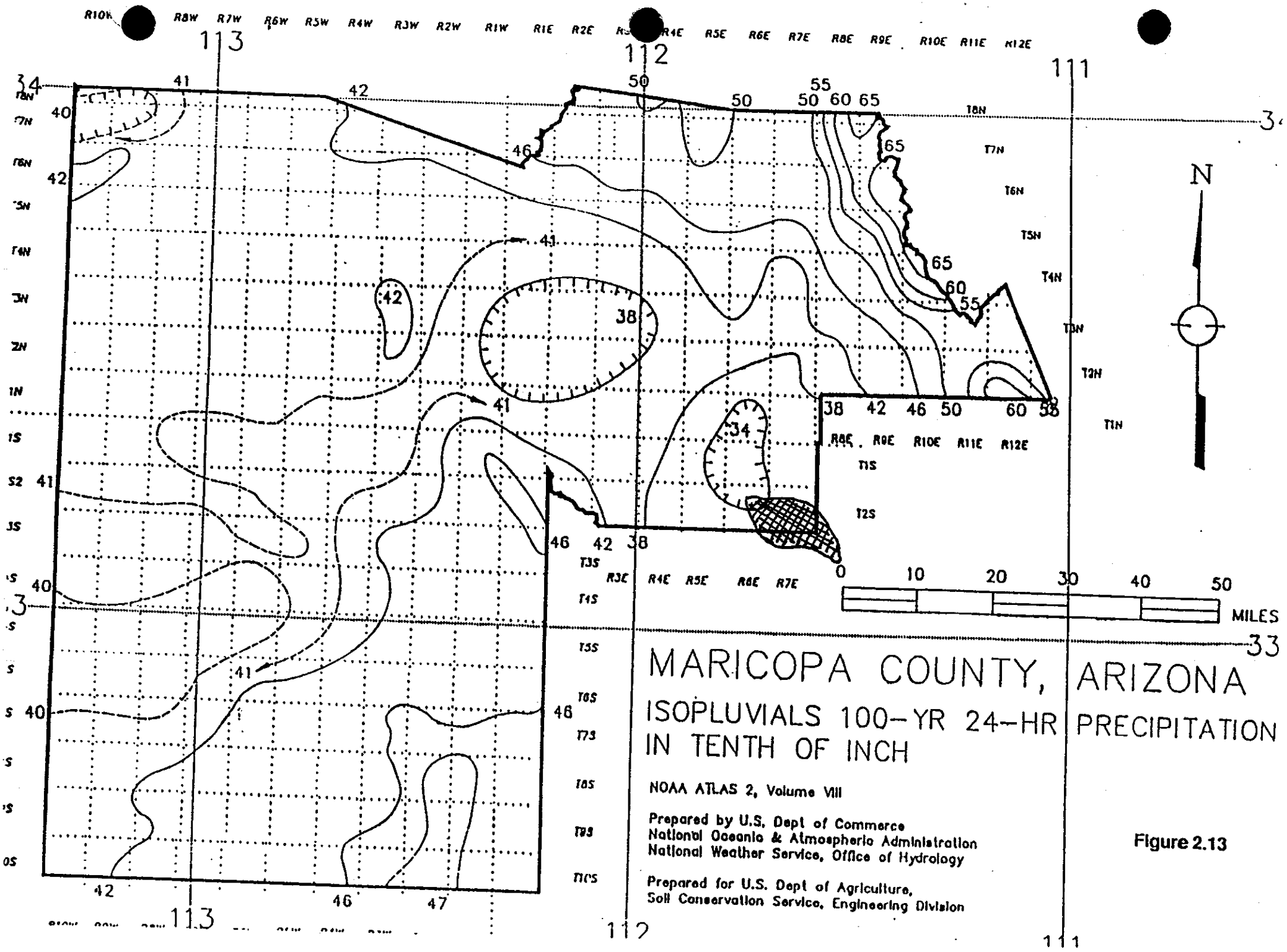
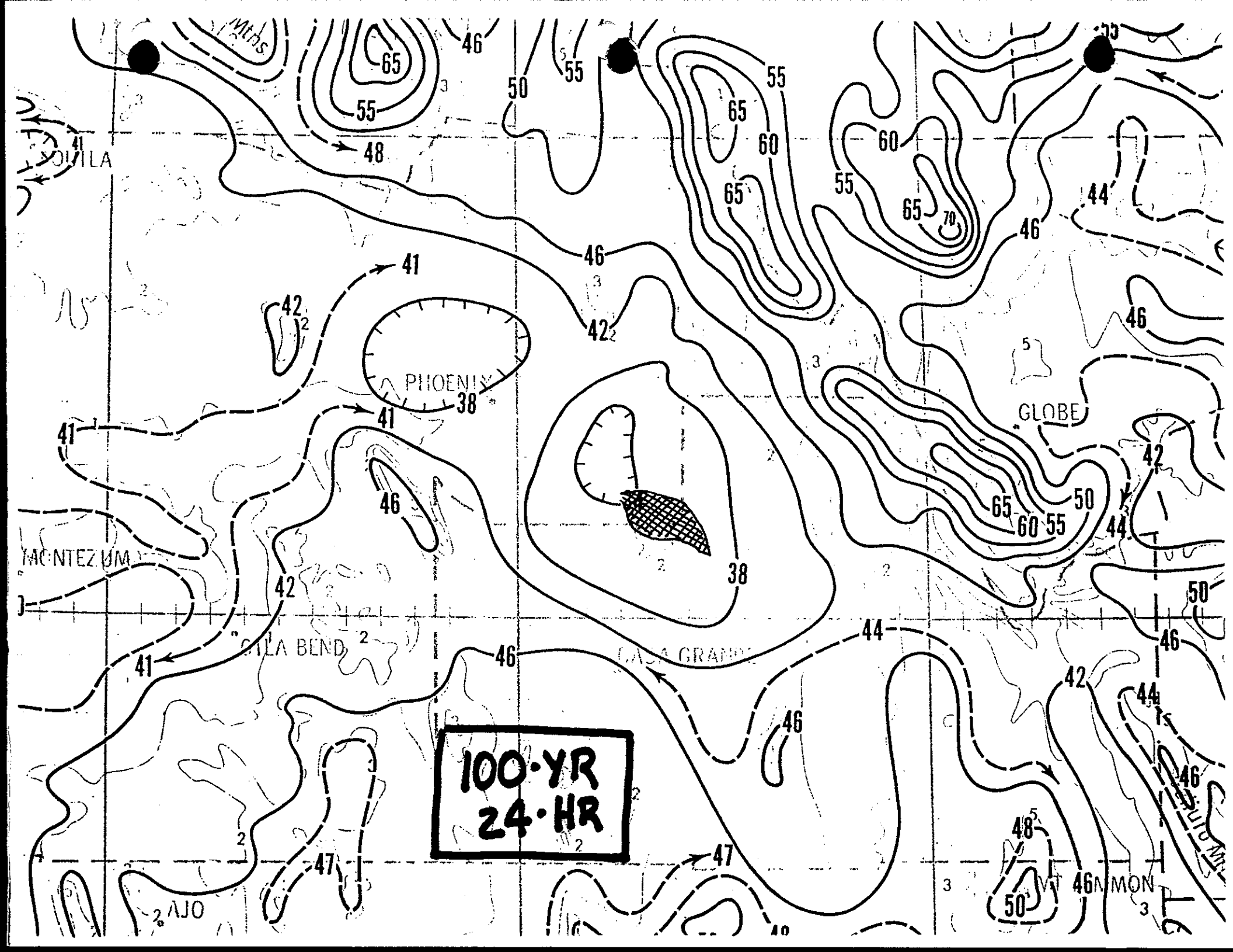

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 100-YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
N
MILES
0 10 20 30 40 50
R10W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S
113 112 111
34 33

Figure 2.13


100-YR
24-HR
PHOENIX
GLOBE
GILA BEND
CASA GRANDE
AJO
MONTEZUMA
65
55
50
46
48
41
42
38
60
70
44
47

D.2 Physical Parameter Calculations

D.2.1 Soils

D.2.2 Land Use

D.2.3 S-Graphs

D.2.4 Hydraulic Length and Slope

D.2.5 Green and Ampt Parameters

D.2.1 Soils

Soil Types
(Square miles)

Basin Soil	S1	S2	S3A	S3B	S4A	S4B	S5	S6	S7A	S7B	S8A
ANA			0.3119		0.7400	0.0465	0.0925	0.0963			
ANB					0.3919		0.0582	0.0798	0.3170		0.7523
AOB			0.1358	0.2161	0.0156	0.4054		0.0050	0.3504	0.0840	0.8286
CB			0.0138		0.0033	0.0383					
CEC	0.0354	0.3783	0.0362		0.0574	0.0312	0.0244	0.0618	0.0040	0.0556	
CO											
ES											
GF											
GN											
GM			0.0094		0.1703			0.1030	0.4059		0.1247
GR											
LAA		1.4457	0.7230								
LAB								0.0499			
MO	0.2090	0.1151									
MV	0.0050	0.3627	0.2523					0.0281			
PVC					0.0051	0.0895	0.0064	0.0349	0.0175	0.2383	
RIA	1.0636	0.2386	0.0231								
RIB		0.1465	0.1598	0.0718	0.0238	0.2058		0.0603	0.0285		0.0219
RO	0.4116	0.2764	0.0376	1.4372	0.1690	0.4583	0.1296	0.0588		0.3473	
RU											
TRB	0.0347	0.1089			0.0238	0.0018	0.0269	0.2413	0.0670	0.0478	0.0118
VE											
VF											
Grav											
Total Soil Area	**1.7594**	**3.0721**	**1.7031**	**1.7251**	**1.6001**	**1.2768**	**0.3380**	**0.8192**	**1.1903**	**0.7730**	**1.7393**

Soil Types
(Square miles)

Basin Soil	S8B	S9	S10	S11	S12	S13	S14	S15	E1	E2
ANA					0.0201	0.0169	0.1011		0.5018	1.3399
ANB		0.2699	0.0918	0.0467	0.0391	0.0434	0.0402		0.0216	0.0638
AOB	0.4631	0.7714	0.1290	0.0866	0.0637	0.6744	1.3637	0.4515		
CB										
CEC	0.0044							0.0629		
CO									2.1785	0.1298
ES										0.0896
GF										0.1915
GN									0.2951	0.4061
GM									0.1192	4.0482
GR		0.0014	0.1470	0.1013	0.0273	0.1561				
LAA										0.1446
LAB										
MO							0.0076		0.4958	0.0399
MV									3.6472	0.8553
PVC	0.1833	0.8559				0.1223		0.1078		
RIA										
RIB	0.0023									
RO	1.0436	1.3937	0.2951	0.5821	0.1829	0.7050	0.0158	1.3281		
RU					0.0416	0.1306				
TRB		0.1114	0.0292	0.1401	0.0324	0.0840	0.0788			
VE									0.6466	
VF										0.0181
Grav			0.0194	0.0364	0.0007	0.1774				
Total Soil Area	**1.6967**	**3.4037**	**0.7114**	**0.9933**	**0.4079**	**2.1101**	**1.6072**	**1.9502**	**7.9057**	**7.3268**

Soil Types
(Square miles)

Basin Soil	E3	E4	E5	E6	E7	E8	E9	E10	E11	N1
ANA			0.2787	0.2198		0.0489	0.2218			
ANB			0.2883	0.0760		0.2433	0.5277			
AOB						0.0536				
CB										
CEC										
CO										
ES										
GF		0.0419			0.1408			0.0626	0.0711	0.0191
GN										
GM	0.4300	0.3143	0.0039	0.8713	0.2069		0.2038	0.4202	0.2642	0.3718
GR										
LAA										
LAB										
MO										
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB										
VE						0.0434				
VF		0.0153			0.0082			0.0259	0.0027	
Grav										
Total Soil Area	**0.4300**	**0.3715**	**0.5710**	**1.1671**	**0.3559**	**0.3891**	**0.9533**	**0.5087**	**0.3380**	**0.3908**

Soil Types
(Square miles)

Basin Soil	N2	N3	N4	N5	N6	C1	C2	C3	C4	C5
ANA						0.1212	0.1437		0.1940	0.4796
ANB						0.2343	0.0619		0.0406	0.0092
AOB										0.0163
CB										
CEC										
CO										
ES										
GF	0.0752	0.0921	0.1233	0.1344	0.0115					
GN										
GM	0.4645	0.5311	0.0024	0.2776	0.4075		0.1159	0.1125	0.0762	0.1410
GR										
LAA										
LAB										
MO										
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB										
VE										
VF		0.0307	0.1515	0.0141	0.0121					
Grav										
Total Soil Area	**0.5397**	**0.6538**	**0.2772**	**0.4261**	**0.4311**	**0.3554**	**0.3215**	**0.1125**	**0.3108**	**0.6462**

Soil Types
(Square miles)

Basin Soil	C6	C7	C7A	C8	C9	C10	C11	C12	C13	C14
ANA	0.0107									
ANB										
AOB										
CB										
CEC										
CO										
ES										
GF		0.0329		0.0116	0.0565	0.1238			0.0300	0.1362
GN										
GM	0.2887	0.4304	0.2189	0.1163	0.1429	0.3390	0.2690	0.2637	0.4665	0.3527
GR										
LAA										
LAB										
MO										
MV										
PVC										0.0229
RIA										
RIB										
RO										
RU										
TRB										
VE										
VF	0.0014	0.0212		0.0245	0.0068	0.0384			0.0120	
Grav										
Total Soil Area	**0.3008**	**0.4845**	**0.2189**	**0.1523**	**0.2063**	**0.5012**	**0.2690**	**0.2637**	**0.5085**	**0.5118**

Soil Types
(Square miles)

Basin Soil	C15	C16	W1	W2	W3	W4	W5	W6	W7	W8
ANA			0.1264	0.1719		0.2464	0.1219	0.0760		
ANB			0.1318	0.0602		0.0195				
AOB										
CB										
CEC										
CO										
ES										
GF										
GN										0.0206
GM	0.5114	0.0275	0.0218	0.0214	0.0606	0.1102	0.1320	0.4413	0.2284	0.2270
GR										
LAA										
LAB										
MO						0.0628	0.2173			
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB						0.0507	0.0182			
VE										
VF										
Grav										0.0077
Total Soil Area	**0.5114**	**0.0275**	**0.2801**	**0.2535**	**0.0606**	**0.4896**	**0.4895**	**0.5173**	**0.2284**	**0.2553**

Soil Types
(Square miles)

Basin Soil	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18
ANA	0.4316	0.4239	0.4950	0.1934	0.5625	0.3445	0.2484	0.2455	0.0839	0.1026
ANB										
AOB										
CB										
CEC										
CO										
ES										
GF									0.0552	0.0287
GN										
GM				0.3338						
GR									0.1169	0.1222
LAA										
LAB										
MO	0.0839	0.0888	0.0150		0.0601	0.0255				
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB										
VE										
VF										
Grav										
Total Soil Area	**0.5155**	**0.5127**	**0.5100**	**0.5272**	**0.6225**	**0.3700**	**0.2484**	**0.2455**	**0.2560**	**0.2535**

Soil Types
(Square feet)

Basin Soil	S1	S2	S3A	S3B	S4A	S4B	S5	S6	S7A	S7B	S8A
ANA			8,696,615		20,629,266	1,295,649	2,578,283	2,683,647			
ANB					10,924,226		1,621,856	2,223,352	8,837,818		20,974,196
AOB			3,785,752	6,023,900	434,659	11,302,915		140,716	9,768,433	2,341,759	23,098,990
CB			383,650		92,752	1,066,781					
CEC	988,152	10,547,572	1,009,017		1,600,085	870,358	680,188	1,721,537	110,902	1,549,321	
CO											
ES											
GF											
GN											
GM			263,256		4,746,576			2,872,292	11,316,693		3,475,640
GR											
LAA		40,304,446	20,157,353								
LAB								1,389,773			
MO	5,826,564	3,207,589									
MV	140,685	10,110,382	7,035,114					783,745			
PVC					141,437	2,494,922	179,742	973,106	488,016	6,643,981	
RIA	29,652,802	6,650,459	644699								
RIB		4,084,888	4,454,355	2,000,521	663,606	5,736,826		1,680,788	794,455		611,095
RO	11,473,412	7,705,464	1,048,613	40,067,321	4,712,798	12,777,672	3,613,436	1,640,581		9,680,831	
RU											
TRB	967,258	3,035,796			664,170	49,282	749,704	6,728,275	1,867,302	1,333,640	329,604
VE											
VF											
Grav											
Total Soil Area	**49,048,873**	**85,646,597**	**47,478,424**	**48,091,742**	**44,609,574**	**35,594,405**	**9,423,209**	**22,837,812**	**33,183,619**	**21,549,532**	**48,489,525**
Basin Area	49,048,873	85,643,085	47,616,422	48,112,264	44,447,749	35,694,620	9,423,209	22,837,850	33,174,463	21,724,253	48,885,742
Difference	0	(3,512)	137,998	20,522	(161,826)	100,216	0	38	(9,156)	174,721	396,216
% Difference	0.00%	-0.00%	0.29%	0.04%	-0.36%	0.28%	0.00%	0.00%	-0.03%	0.80%	0.81%

Soil Types
(Square feet)

Basin Soil	S8B	S9	S10	S11	S12	S13	S14	S15	E1	E2
ANA					559,308	472,424	2,818,169		13,988,025	37,354,166
ANB		7,524,377	2,559,935	1,302,441	1,090,830	1,208,771	1,120,349		602,294	1,780,022
AOB	12,911,479	21,504,444	3,596,187	2,415,113	1,777,212	18,800,297	38,016,714	12,586,100		
CB										
CEC	121,385							1,752,552		
CO									60,733,283	3,619,096
ES										2,496,706
GF										5,339,310
GN									8,226,374	11,320,633
GM									3,324,111	112,856,574
GR		40,154	4,096,975	2,825,411	760,892	4,353,200				
LAA										4,030,606
LAB										
MO							212,652		13,820,829	1,112,653
MV									101,677,584	23,843,943
PVC	5,108,987	23,860,046				3,409,084		3,005,961		
RIA										
RIB	64,466									
RO	29,094,607	38,853,625	8,225,657	16,229,030	5,100,088	19,653,847	440,887	37,024,161		
RU					1,160,542	3,642,043				
TRB		3,106,022	814,566	3,904,748	902,836	2,342,009	2,197,831			
VE									18,026,878	
VF										505,200
Grav			540,006	1,015,002	19,178	4,945,078				
Total Soil Area	**47,300,924**	**94,888,668**	**19,833,326**	**27,691,745**	**11,370,887**	**58,826,753**	**44,806,601**	**54,368,775**	**220,399,378**	**204,258,909**
Basin Area	47,262,419	94,800,213	19,833,326	27,691,745	11,370,887	58,824,772	44,806,601	54,378,775	220,484,313	204,310,176
Difference	(38,505)	(88,454)	(0)	0	0	(1,981)	(0)	10,000	84,935	51,267
% Difference	-0.08%	-0.09%	-0.00%	0.00%	0.00%	-0.00%	-0.00%	0.02%	0.04%	0.03%

Soil Types
(Square feet)

Basin Soil	E3	E4	E5	E6	E7	E8	E9	E10	E11	N1
ANA			7,770,721	6,126,539		1,362,937	6,183,662			
ANB			8,038,661	2,119,359		6,781,597	14,711,092			
AOB						1,493,565				
CB										
CEC										
CO										
ES										
GF		1,167,665			3,925,293			1,746,261	1,983,393	531,984
GN										
GM	11,988,846	8,761,412	108,054	24,291,350	5,767,777		5,681,998	11,715,175	7,365,652	10,364,200
GR										
LAA										
LAB										
MO										
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB						1,209,387				
VE										
VF		427,425			227,533			721,098	74,376	
Grav										
Total Soil Area	**11,988,846**	**10,356,502**	**15,917,436**	**32,537,248**	**9,920,603**	**10,847,486**	**26,576,752**	**14,182,534**	**9,423,421**	**10,896,184**
Basin Area	11,988,846	10,356,006	15,942,935	32,493,702	9,915,023	10,791,648	26,584,339	14,118,126	9,345,763	10,869,897
Difference	0	(496)	25,499	(43,546)	(5,580)	(55,838)	7,587	(64,408)	(77,658)	(26,287)
% Difference	0.00%	-0.00%	0.16%	-0.13%	-0.06%	-0.52%	0.03%	-0.46%	-0.83%	-0.24%

Soil Types
(Square feet)

Basin Soil	N2	N3	N4	N5	N6	C1	C2	C3	C4	C5	C6
ANA						3,377,663	4,006,460		5,408,754	13,371,871	297,212
ANB						6,531,667	1,725,303		1,131,241	257,368	
AOB										453,470	
CB											
CEC											
CO											
ES											
GF	2,096,122	2,567,766	3,436,378	3,747,309	321,485						
GN											
GM	12,948,890	14,805,818	67,899	7,739,125	11,359,944		3,230,362	3,135,433	2,123,827	3,931,237	8,049,730
GR											
LAA											
LAB											
MO											
MV											
PVC											
RIA											
RIB											
RO											
RU											
TRB											
VE											
VF		854,584	4,222,530	393,204	336,460						
Grav											38,663
Total Soil Area	**15,045,012**	**18,228,168**	**7,726,807**	**11,879,638**	**12,017,889**	**9,909,330**	**8,962,125**	**3,135,433**	**8,663,822**	**18,013,946**	**8,385,605**
Basin Area	15,051,578	18,227,698	7,792,482	11,855,828	12,002,431	9,865,809	8,917,169	3,135,433	8,702,335	18,068,344	8,377,181
Difference	6,566	(470)	65,675	(23,810)	(15,458)	(43,521)	(44,956)	0	38,513	54,398	(8,424)
% Difference	0.04%	-0.00%	0.84%	-0.20%	-0.13%	-0.44%	-0.50%	0.00%	0.44%	0.30%	-0.10%

Soil Types
(Square feet)

Basin Soil	C7	C7A	C8	C9	C10	C11	C12	C13	C14	C15	C16
ANA											
ANB											
AOB											
CB											
CEC											
CO											
ES											
GF	918,011		322,393	1,576,050	3,452,088			837,602	3,798,330		
GN											
GM	11,997,862	6,103,772	3,241,237	3,985,145	9,450,228	7,498,370	7,352,703	13,004,219	9,831,664	14,258,233	767,046
GR											
LAA											
LAB											
MO											
MV											
PVC									639,012		
RIA											
RIB											
RO											
RU											
TRB											
VE											
VF	591,279		682,680	188,769	1,070,349			334,028			
Grav											
Total Soil Area	**13,507,152**	**6,103,772**	**4,246,310**	**5,749,964**	**13,972,665**	**7,498,370**	**7,352,703**	**14,175,849**	**14,269,006**	**14,258,233**	**767,046**
Basin Area	13,494,380	6,103,772	4,263,449	5,784,155	13,996,367	7,498,370	7,352,703	14,182,989	14,215,831	14,258,233	767,046
Difference	(12,772)	0	17,139	34,191	23,702	0	0	7,140	(53,175)	0	0
% Difference	-0.09%	0.00%	0.40%	0.59%	0.17%	0.00%	0.00%	0.05%	-0.37%	0.00%	0.00%

Soil Types
(Square feet)

Basin Soil	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
ANA	3,524,730	4,791,786		6,870,089	3,398,902	2,118,797			12,033,399	11,816,553
ANB	3,675,161	1,678,649		544,089						
AOB										
CB										
CEC										
CO										
ES										
GF										
GN								575,512		
GM	608,475	597,392	1,689,707	3,072,035	3,680,853	12,302,083	6,367,659	6,327,004		
GR										
LAA										
LAB										
MO				1,749,793	6,058,770				2,339,059	2,475,783
MV										
PVC										
RIA										
RIB										
RO										
RU										
TRB				1,412,548	507,107					
VE										
VF										
Grav								214,008		
Total Soil Area	**7,808,366**	**7,067,827**	**1,689,707**	**13,648,554**	**13,645,632**	**14,420,880**	**6,367,659**	**7,116,524**	**14,372,458**	**14,292,336**
Basin Area	7,797,981	7,055,808	1,689,707	13,656,562	13,665,710	14,454,627	6,367,659	7,095,241	14,421,092	14,275,769
Difference	(10,385)	(12,019)	0	8,008	20,078	33,747	0	(21,283)	48,634	(16,567)
% Difference	-0.13%	-0.17%	0.00%	0.06%	0.15%	0.23%	0.00%	-0.30%	0.34%	-0.12%

Soil Types
(Square feet)

Basin Soil	W11	W12	W13	W14	W15	W16	W17	W18
ANA	13,800,723	5,391,066	15,680,252	9,604,676	6,924,572	6,843,862	2,339,766	2,861,281
ANB								
AOB								
CB								
CEC								
CO								
ES								
GF							1,537,718	799,796
GN								
GM		9,305,715					3,258,272	3,407,324
GR								
LAA								
LAB								
MO	418,559		1,675,017	711,132				
MV								
PVC								
RIA								
RIB								
RO								
RU								
TRB								
VE								
VF								
Grav								
Total Soil Area	**14,219,282**	**14,696,781**	**17,355,269**	**10,315,808**	**6,924,572**	**6,843,862**	**7,135,756**	**7,068,401**
Basin Area	14,234,984	14,726,798	17,377,650	10,320,779	6,924,572	6,843,862	7,130,192	7,076,627
Difference	15,702	30,017	22,381	4,971	0	0	(5,564)	8,226
% Difference	0.11%	0.20%	0.13%	0.05%	0.00%	0.00%	-0.08%	0.12%

D.2.2 Land Use

Land Use
(Square miles)

Basin		S1	S2	S3A	S3B	S4A	S4B	S5	S6
Land Use	**ID**								
Desert	ND	1.548	2.609	1.645	0.653	0.069	0.796	0.177	0.665
Open	OPN								
Very low den. res	VLDR								
Low den. res.	LDR								
midium den. res.	MDR								
Multi family res.	MFR								
Industrial	IND								
Commercial	COMM								
Park	P								
RowCrop	RC								
Mountain	MOU	0.211	0.463	0.062	1.069	1.522	0.484	0.161	0.155
Orchard	ORC								
Trailer Park	TP								
Total		1.759	3.072	1.707	1.722	1.591	1.280	0.338	0.819

Land Use
(Square miles)

Basin	S7A	S7B	S8A	S8B	S9	S10	S11	S12	S13
Land Use									
Desert	1.110	0.133	1.748	0.725	1.546	0.300	0.219	0.178	1.099
Open									
Very low den. res									
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop									
Mountain	0.080	0.645	0.006	0.968	1.855	0.412	0.775	0.230	1.011
Orchard									
Trailer Park									
Total	1.190	0.778	1.754	1.693	3.400	0.711	0.993	0.408	2.110

Land Use
(Square miles)

Basin	S14	S15	E1	E2	E3	E4	E5	E6	E7
Land Use									
Desert	1.602	0.653							
Open									
Very low den. res								0.103	0.148
Low den. res.									
midium den. res.									
Multi family res.									
Industrial				0.329		0.058			
Commercial									
Park									
RowCrop			7.909	7.000	0.426	0.315	0.572	1.060	0.205
Mountain	0.005	1.297							
Orchard									
Trailer Park									
Total	1.607	1.951	7.909	7.329	0.426	0.373	0.572	1.164	0.353

Land Use
(Square miles)

Basin	E8	E9	E10	E11	N1	N2	N3	N4	N5
Land Use									
Desert									0.213
Open									
Very low den. res					0.110	0.052	0.109	0.017	
Low den. res.									
midium den. res.							0.171		
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	0.387	0.618	0.089	0.335	0.279		0.373	0.261	0.213
Mountain									
Orchard		0.343	0.413			0.489			
Trailer Park									
Total	0.387	0.961	0.502	0.335	0.389	0.540	0.653	0.278	0.425

Land Use
(Square miles)

Basin	N6	C1	C2	C3	C4	C5	C6	C7	C7A
Land Use									
Desert		0.356	0.066		0.312	0.647	0.300	0.154	
Open									
Very low den. res								0.133	0.004
Low den. res.									
midium den. res.									0.109
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	0.323		0.255	0.081				0.159	0.103
Mountain									
Orchard	0.108			0.031					
Trailer Park								0.031	0.002
Total	0.431	0.356	0.321	0.112	0.312	0.647	0.300	0.477	0.219

Land Use
(Square miles)

Basin	C8	C9	C10	C11	C12	C13	C14	C15	C16
Land Use									
Desert									0.027
Open									
Very low den. res	0.153								
Low den. res.				0.269	0.052	0.097	0.129	0.161	
midium den. res.		0.208	0.246						
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop			0.258		0.213	0.173	0.121	0.347	
Mountain									
Orchard						0.238	0.258		
Trailer Park									
Total	0.153	0.208	0.504	0.269	0.264	0.507	0.508	0.508	0.027

Land Use
(Square miles)

Basin	W1	W2	W3	W4	W5	W6	W7	W8	W9
Land Use									
Desert	0.278	0.253	0.060			0.520			
Open									
Very low den. res					0.265		0.227	0.254	0.108
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop					0.128				0.081
Mountain									
Orchard				0.490	0.096				0.329
Trailer Park									
Total	0.278	0.253	0.060	0.490	0.490	0.520	0.227	0.254	0.518

Land Use
(Square miles)

Basin	W10	W11	W12	W13	W14	W15	W16	W17	W18
Land Use									
Desert				0.247	0.248				
Open									
Very low den. res	0.187			0.121	0.125				
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	0.326	0.249				0.125			
Mountain									
Orchard		0.260	0.528	0.255		0.123	0.246	0.256	0.254
Trailer Park									
Total	0.514	0.509	0.528	0.622	0.373	0.248	0.246	0.256	0.254

Land Use
(Square feet)

Basin		S1	S2	S3A	S3B	S4A	S4B	S5	S6
Land Use	**ID**								
Desert	ND	43,167,138	72,744,943	45,863,108	18,201,536	1,933,078	22,194,555	4,942,313	18,527,693
Open	OPN								
Very low den. res	VLDR								
Low den. res.	LDR								
midium den. res.	MDR								
Multi family res.	MFR								
Industrial	IND								
Commercial	COMM								
Park	P								
RowCrop	RC								
Mountain	MOU	5,881,735	12,898,142	1,722,160	29,794,275	42,419,465	13,483,477	4,480,897	4,310,157
Orchard	ORC								
Trailer Park	TP								
Total land use		**49,048,873**	**85,643,085**	**47,585,268**	**47,995,811**	**44,352,543**	**35,678,032**	**9,423,209**	**22,837,850**
Basin Area		49,048,873	85,643,085	47,616,422	48,112,264	44,447,749	35,694,620	9,423,209	22,837,850
Difference		0	0	31,154	116,453	95,206	16,589	0	0
% Difference		0.0%	0.0%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%

Land Use
(Square feet)

Basin	S7A	S7B	S8A	S8B	S9	S10	S11	S12	S13
Land Use									
Desert	30,949,456	3,695,904	48,744,544	20,211,839	43,094,100	8,353,695	6,096,326	4,967,010	30,630,528
Open									
Very low den. res									
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop									
Mountain	2,237,096	17,984,182	154,110	26,982,854	51,706,113	11,479,631	21,595,419	6,403,877	28,194,244
Orchard									
Trailer Park									
Total land use	**33,186,552**	**21,680,086**	**48,898,654**	**47,194,693**	**94,800,213**	**19,833,326**	**27,691,745**	**11,370,887**	**58,824,772**
Basin Area	33,174,463	21,724,253	48,885,742	47,262,419	94,800,213	19,833,326	27,691,745	11,370,887	58,824,772
Difference	(12,088)	44,168	(12,913)	67,726	(0)	0	0	0	(0)
% Difference	-0.0%	0.2%	-0.0%	0.1%	-0.0%	0.0%	0.0%	0.0%	-0.0%

Land Use
(Square feet)

Basin	S14	S15	E1	E2	E3	E4	E5	E6	E7
Land Use									
Desert	44,668,813	18,217,028							
Open									
Very low den. res									
Low den. res.								2,879,380	4,126,655
midium den. res.									
Multi family res.									
Industrial				9,160,000		1,628,023			
Commercial									
Park									
RowCrop			220,484,313	195,150,176	11,882,874	8,780,614	15,942,935	29,558,357	5,723,892
Mountain	137,788	36,161,747							
Orchard									
Trailer Park									
Total land use	**44,806,601**	**54,378,775**	**220,484,313**	**204,310,176**	**11,882,874**	**10,408,637**	**15,942,935**	**32,437,737**	**9,850,547**
Basin Area	44,806,601	54,378,775	220,484,313	204,310,176	11,988,846	10,356,006	15,942,935	32,493,702	9,915,023
Difference	0	0	0	0	105,972	(52,631)	0	55,965	64,476
% Difference	0.0%	0.0%	0.0%	0.0%	0.9%	-0.5%	0.0%	0.2%	0.7%

Land Use
(Square feet)

Basin	E8	E9	E10	E11	N1	N2	N3	N4	N5
Land Use									
Desert									5,927,914
Open									
Very low den. res					3,076,999	1,438,192	3,045,728	473,473	
Low den. res.									
midium den. res.							4,777,095		
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	10,791,648	17,226,195	2,487,190	9,345,763	7,779,161		10,391,502	7,282,123	5,927,914
Mountain									
Orchard		9,558,750	11,500,655			13,620,948			
Trailer Park									
Total land use	**10,791,648**	**26,784,945**	**13,987,845**	**9,345,763**	**10,856,160**	**15,059,140**	**18,214,325**	**7,755,596**	**11,855,828**
Basin Area	10,791,648	26,584,339	14,118,126	9,345,763	10,869,897	15,051,578	18,227,698	7,792,482	11,855,828
Difference	0	(200,606)	130,281	0	13,737	(7,562)	13,373	36,886	0
% Difference	0.0%	-0.8%	0.9%	0.0%	0.1%	-0.1%	0.1%	0.5%	0.0%

Land Use
(Square feet)

Basin	N6	C1	C2	C3	C4	C5	C6	C7	C7A
Land Use									
Desert		9,933,156	1,843,045		8,711,650	18,031,794	8,377,181	4,295,638	
Open									
Very low den. res								3,711,844	124,933
Low den. res.									
midium den. res.									3,051,281
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	9,001,823		7,104,757	2,268,565				4,434,229	2,857,666
Mountain									
Orchard	3,000,608			866,868					
Trailer Park								854,686	66,656
Total land use	**12,002,431**	**9,933,156**	**8,947,802**	**3,135,433**	**8,711,650**	**18,031,794**	**8,377,181**	**13,296,397**	**6,100,536**
Basin Area	12,002,431	9,865,809	8,917,169	3,135,433	8,702,335	18,068,344	8,377,181	13,494,380	6,103,772
Difference	0	(67,347)	(30,633)	0	(9,315)	36,550	0	197,983	3,236
% Difference	0.0%	-0.7%	-0.3%	0.0%	-0.1%	0.2%	0.0%	1.5%	0.1%

Land Use
(Square feet)

Basin	C8	C9	C10	C11	C12	C13	C14	C15	C16
Land Use									
Desert									761,775
Open									
Very low den. res	4,256,251								
Low den. res.				7,505,314	1,438,283	2,696,825	3,589,431	4,481,193	
midium den. res.		5,786,913	6,849,288						
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop			7,196,305		5,933,149	4,817,342	3,378,389	9,687,362	
Mountain									
Orchard						6,622,260	7,201,310		
Trailer Park									
Total land use	**4,256,251**	**5,786,913**	**14,045,593**	**7,505,314**	**7,371,432**	**14,136,427**	**14,169,130**	**14,168,555**	**761,775**
Basin Area	4,263,449	5,784,155	13,996,367	7,498,370	7,352,703	14,182,989	14,215,831	14,258,233	767,046
Difference	7,198	(2,758)	(49,226)	(6,944)	(18,729)	46,562	46,701	89,678	5,271
% Difference	0.2%	-0.0%	-0.4%	-0.1%	-0.3%	0.3%	0.3%	0.6%	0.7%

Land Use
(Square feet)

Basin	W1	W2	W3	W4	W5	W6	W7	W8	W9
Land Use									
Desert	7,737,841	7,055,808	1,685,576			14,489,893			
Open									
Very low den. res					7,398,216		6,325,207	7,087,131	3,018,604
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop					3,580,809				2,249,984
Mountain									
Orchard				13,656,562	2,681,025				9,160,793
Trailer Park									
Total land use	**7,737,841**	**7,055,808**	**1,685,576**	**13,656,562**	**13,660,050**	**14,489,893**	**6,325,207**	**7,087,131**	**14,429,381**
Basin Area	7,797,981	7,055,808	1,689,707	13,656,562	13,665,710	14,454,627	6,367,659	7,095,241	14,421,092
Difference	60,140	0	4,131	0	5,660	(35,266)	42,452	8,110	(8,289)
% Difference	0.8%	0.0%	0.2%	0.0%	0.0%	-0.2%	0.7%	0.1%	-0.1%

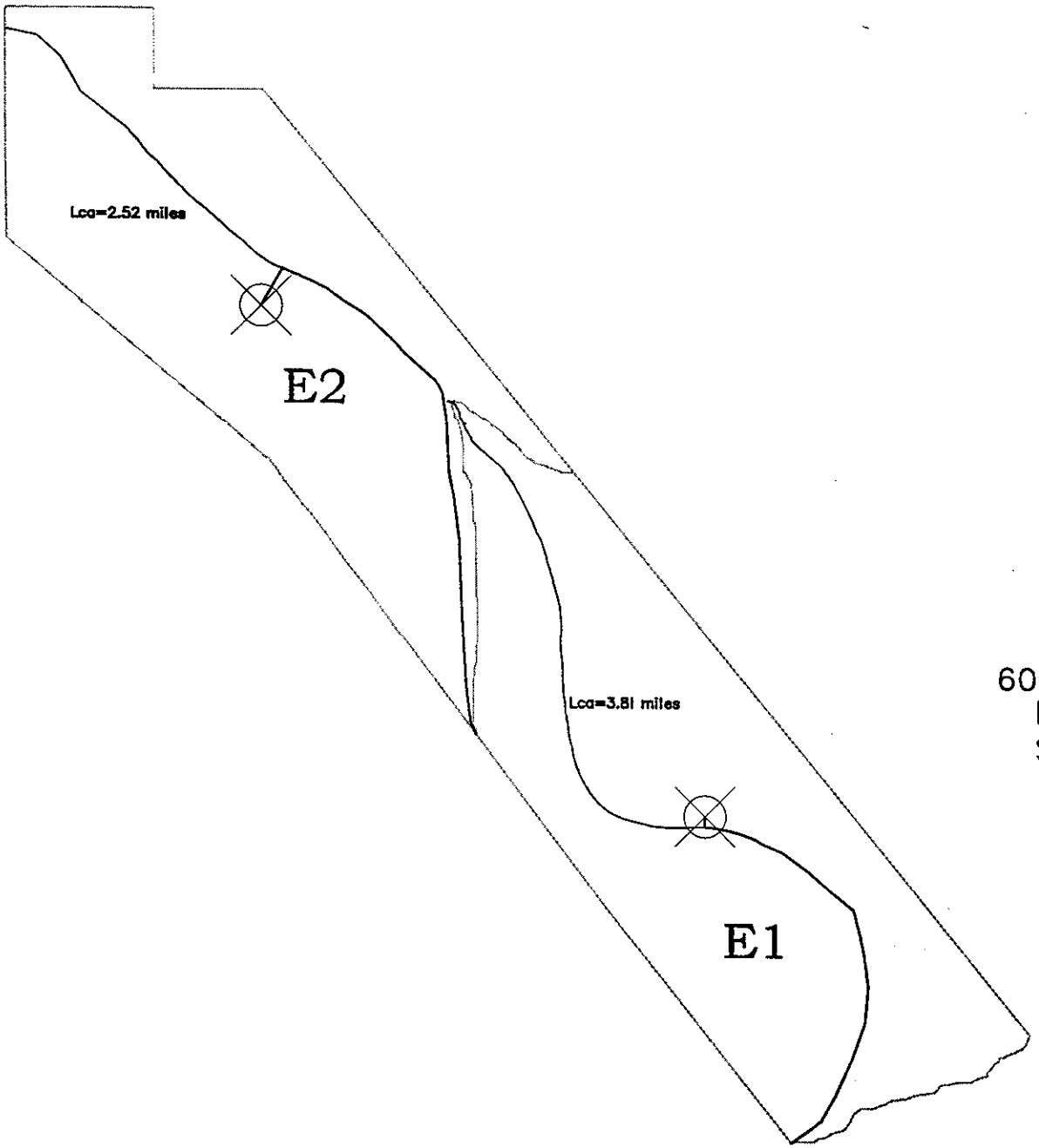
Land Use
(Square feet)

Basin	W10	W11	W12	W13	W14	W15	W16	W17	W18
Land Use									
Desert				6,882,985	6,909,921				
Open									
Very low den. res	5,219,038			3,366,109	3,477,121				
Low den. res.									
midium den. res.									
Multi family res.									
Industrial									
Commercial									
Park									
RowCrop	9,097,429	6,952,892				3,479,489			
Mountain									
Orchard		7,244,688	14,730,349	7,105,063		3,436,061	6,851,331	7,130,192	7,076,627
Trailer Park									
Total land use	**14,316,467**	**14,197,580**	**14,730,349**	**17,354,157**	**10,387,042**	**6,915,550**	**6,851,331**	**7,130,192**	**7,076,627**
Basin Area	14,275,769	14,234,984	14,726,798	17,377,650	10,320,779	6,924,572	6,843,862	7,130,192	7,076,627
Difference	(40,698)	37,404	(3,551)	23,493	(66,263)	9,022	(7,469)	0	0
% Difference	-0.3%	0.3%	-0.0%	0.1%	-0.6%	0.1%	-0.1%	0.0%	0.0%

D.2.3 S-Graphs

Summary of Lca and Kn values for S-Graphs

Basin ID	Basin Area (acres)	Basin Area (sqmiles)	Time of Concentration Length (ft)	Time of Concentration Length (miles)	U/S Elev. (ft)	D/S Elev. (ft)	Slope (ft/mile)	K_n	L_{ca} (Miles)	Basin Lag (Hours)
E1	5061.62	7.9	33886	6.4	1542	1488	8.4	0.070	3.81	3.78
E2	4690.32	7.3	31606	6.0	1522	1440	13.7	0.070	2.52	2.86



6000' 0' 6000' 12000'

SCALE: 1"= 6000'

DESIGN	BY RAS	DATE 02/2004
DESIGN CHK.		

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SONOQUI WASH
FLOODPLAIN DELINEATION STUDY
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CONTRACT FCD 97-11

Basin Centroids and Lca's

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	
JOB NO.	310.001		

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Basin Characteristics:

Area (A) = 7.9 mi^2

Lag = 3.78 hr

$$Q_{ult} = \frac{645.33 * A}{D} = \frac{645.33 * 7.9}{\left(5/60\right)} = 61177.28 cfs$$

where: Q_{ult} = Ultimate Discharge (cfs)

A = Drainage Area (mi^2)

D = Duration of rainfall excess

The following table was constructed using the % Q_{ult}, Discharge, % Lag and Time

* Discharge is calculated as % Q_{ult} * Q_{ult}
* Time is calculated as Lag * % Lag

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	
JOB NO.	310.001		

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Ordinate	% Q_{ult}	Discharge cfs	% Lag	Time hours
0	0	0.00	0.00	0.00
1	2	1223.55	21.00	0.79
2	4	2447.09	31.00	1.17
3	6	3670.64	37.00	1.40
4	8	4894.18	41.00	1.55
5	10	6117.73	45.00	1.70
6	12	7341.27	48.00	1.81
7	14	8564.82	52.00	1.97
8	16	9788.37	56.00	2.12
9	18	11011.91	59.00	2.23
10	20	12235.46	62.00	2.34
11	22	13459.00	64.00	2.42
12	24	14682.55	67.50	2.55
13	26	15906.09	70.00	2.65
14	28	17129.64	72.50	2.74
15	30	18353.19	75.00	2.84
16	32	19576.73	77.50	2.93
17	34	20800.28	80.00	3.02
18	36	22023.82	82.50	3.12
19	38	23247.37	85.00	3.21
20	40	24470.91	87.50	3.31
21	42	25694.46	90.00	3.40
22	44	26918.00	92.50	3.50
23	46	28141.55	95.00	3.59
24	48	29365.10	97.50	3.69
25	50	30588.64	100.00	3.78
26	52	31812.19	103.00	3.89
27	54	33035.73	106.00	4.01
28	56	34259.28	109.00	4.12
29	58	35482.82	112.00	4.23
30	60	36706.37	115.00	4.35
31	62	37929.92	117.50	4.44
32	64	39153.46	120.50	4.55
33	66	40377.01	123.00	4.65
34	68	41600.55	127.00	4.80

Entellus

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CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study **JOB NO.** 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Ordinate	% Q_{ult}	Discharge cfs	% Lag	Time hours
35	70	42824.10	131.00	4.95
36	72	44047.64	135.00	5.10
37	74	45271.19	138.60	5.24
38	76	46494.74	142.00	5.37
39	78	47718.28	147.00	5.56
40	80	48941.83	152.50	5.76
41	82	50165.37	158.00	5.97
42	84	51388.92	165.00	6.24
43	86	52612.46	172.50	6.52
44	88	53836.01	179.00	6.77
45	90	55059.56	190.00	7.18
46	92	56283.10	203.00	7.67
47	94	57506.65	220.00	8.32
48	96	58730.19	243.00	9.19
49	98	59953.74	280.00	10.58
50	100	61177.28	448.00	16.93

Entellus

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CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
0	0.00	0.0		0.0
1	0.08	128.4	0.0	128.4
2	0.17	256.9	128.4	128.4
3	0.25	385.3	256.9	128.4
4	0.33	513.8	385.3	128.4
5	0.42	642.2	513.8	128.4
6	0.50	770.7	642.2	128.4
7	0.58	899.1	770.7	128.4
8	0.67	1027.6	899.1	128.4
9	0.75	1156.0	1027.6	128.4
10	0.83	1351.5	1156.0	195.5
11	0.92	1621.3	1351.5	269.7
12	1.00	1891.0	1621.3	269.7
13	1.08	2160.7	1891.0	269.7
14	1.17	2430.5	2160.7	269.7
15	1.25	2869.0	2430.5	438.5
16	1.33	3318.5	2869.0	449.6
17	1.42	3816.8	3318.5	498.3
18	1.50	4491.2	3816.8	674.4
19	1.58	5165.5	4491.2	674.4
20	1.67	5839.9	5165.5	674.4
21	1.75	6646.4	5839.9	806.5
22	1.83	7494.5	6646.4	848.1
23	1.92	8168.8	7494.5	674.4
24	2.00	8843.2	8168.8	674.4
25	2.08	9517.5	8843.2	674.4
26	2.17	10326.4	9517.5	808.9
27	2.25	11225.5	10326.4	899.1
28	2.33	12124.7	11225.5	899.1
29	2.42	13418.0	12124.7	1293.3
30	2.50	14206.3	13418.0	788.3
31	2.58	15094.7	14206.3	888.5
32	2.67	16173.7	15094.7	1079.0

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

The next step was to transform the S-Graph into a 5-minute unit graph. This was done based upon the S-graph from the previous table. Linear interpolation was utilized to obtain the 5-minute intervals for the unit graph. The details are shown in the table to the left. HEC-1 only allows the UI Card to contain 150, ordinates, so it was truncated at that point.

Entellus

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JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
33	2.75	17252.6	16173.7	1079.0
34	2.83	18331.6	17252.6	1079.0
35	2.92	19410.6	18331.6	1079.0
36	3.00	20489.5	19410.6	1079.0
37	3.08	21568.5	20489.5	1079.0
38	3.17	22647.5	21568.5	1079.0
39	3.25	23726.4	22647.5	1079.0
40	3.33	24805.4	23726.4	1079.0
41	3.42	25884.4	24805.4	1079.0
42	3.50	26963.3	25884.4	1079.0
43	3.58	28042.3	26963.3	1079.0
44	3.67	29121.3	28042.3	1079.0
45	3.75	30200.2	29121.3	1079.0
46	3.83	31164.1	30200.2	963.9
47	3.92	32063.2	31164.1	899.1
48	4.00	32962.4	32063.2	899.1
49	4.08	33861.5	32962.4	899.1
50	4.17	34760.6	33861.5	899.1
51	4.25	35659.8	34760.6	899.1
52	4.33	36558.9	35659.8	899.1
53	4.42	37608.4	36558.9	1049.5
54	4.50	38561.1	37608.4	952.7
55	4.58	39521.6	38561.1	960.5
56	4.67	40516.7	39521.6	995.1
57	4.75	41191.1	40516.7	674.4
58	4.83	41865.4	41191.1	674.4
59	4.92	42539.8	41865.4	674.4
60	5.00	43214.1	42539.8	674.4
61	5.08	43888.5	43214.1	674.4
62	5.17	44620.1	43888.5	731.6
63	5.25	45375.2	44620.1	755.1
64	5.33	46168.5	45375.2	793.4
65	5.42	46812.4	46168.5	643.9

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET _____ OF _____

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CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
66	5.50	47351.9	46812.4	539.5
67	5.58	47875.6	47351.9	523.7
68	5.67	48366.1	47875.6	490.4
69	5.75	48856.5	48366.1	490.4
70	5.83	49346.9	48856.5	490.4
71	5.92	49837.4	49346.9	490.4
72	6.00	50293.0	49837.4	455.6
73	6.08	50678.3	50293.0	385.3
74	6.17	51063.7	50678.3	385.3
75	6.25	51445.0	51063.7	381.3
76	6.33	51804.7	51445.0	359.7
77	6.42	52164.3	51804.7	359.7
78	6.50	52524.0	52164.3	359.7
79	6.58	52925.4	52524.0	401.4
80	6.67	53340.4	52925.4	415.0
81	6.75	53755.3	53340.4	415.0
82	6.83	54033.6	53755.3	278.2
83	6.92	54278.8	54033.6	245.2
84	7.00	54524.0	54278.8	245.2
85	7.08	54769.2	54524.0	245.2
86	7.17	55014.4	54769.2	245.2
87	7.25	55228.9	55014.4	214.4
88	7.33	55436.4	55228.9	207.5
89	7.42	55643.9	55436.4	207.5
90	7.50	55851.3	55643.9	207.5
91	7.58	56058.8	55851.3	207.5
92	7.67	56266.3	56058.8	207.5
93	7.75	56429.0	56266.3	162.6
94	7.83	56587.6	56429.0	158.7
95	7.92	56746.3	56587.6	158.7
96	8.00	56905.0	56746.3	158.7
97	8.08	57063.6	56905.0	158.7
98	8.17	57222.3	57063.6	158.7

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET		OF	
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CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
99	8.25	57381.0	57222.3	158.7
100	8.33	57531.0	57381.0	150.1
101	8.42	57648.3	57531.0	117.3
102	8.50	57765.6	57648.3	117.3
103	8.58	57882.9	57765.6	117.3
104	8.67	58000.2	57882.9	117.3
105	8.75	58117.4	58000.2	117.3
106	8.83	58234.7	58117.4	117.3
107	8.92	58352.0	58234.7	117.3
108	9.00	58469.3	58352.0	117.3
109	9.08	58586.5	58469.3	117.3
110	9.17	58703.8	58586.5	117.3
111	9.25	58786.7	58703.8	82.9
112	9.33	58859.6	58786.7	72.9
113	9.42	58932.5	58859.6	72.9
114	9.50	59005.4	58932.5	72.9
115	9.58	59078.3	59005.4	72.9
116	9.67	59151.2	59078.3	72.9
117	9.75	59224.1	59151.2	72.9
118	9.83	59297.0	59224.1	72.9
119	9.92	59369.9	59297.0	72.9
120	10.00	59442.8	59369.9	72.9
121	10.08	59515.7	59442.8	72.9
122	10.17	59588.6	59515.7	72.9
123	10.25	59661.5	59588.6	72.9
124	10.33	59734.4	59661.5	72.9
125	10.42	59807.3	59734.4	72.9
126	10.50	59880.3	59807.3	72.9
127	10.58	59953.2	59880.3	72.9
128	10.67	59969.7	59953.2	16.5
129	10.75	59985.7	59969.7	16.1
130	10.83	60001.8	59985.7	16.1
131	10.92	60017.8	60001.8	16.1

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

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JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
132	11.00	60033.9	60017.8	16.1
133	11.08	60049.9	60033.9	16.1
134	11.17	60066.0	60049.9	16.1
135	11.25	60082.1	60066.0	16.1
136	11.33	60098.1	60082.1	16.1
137	11.42	60114.2	60098.1	16.1
138	11.50	60130.2	60114.2	16.1
139	11.58	60146.3	60130.2	16.1
140	11.67	60162.3	60146.3	16.1
141	11.75	60178.4	60162.3	16.1
142	11.83	60194.5	60178.4	16.1
143	11.92	60210.5	60194.5	16.1
144	12.00	60226.6	60210.5	16.1
145	12.08	60242.6	60226.6	16.1
146	12.17	60258.7	60242.6	16.1
147	12.25	60274.7	60258.7	16.1
148	12.33	60290.8	60274.7	16.1
149	12.42	60306.8	60290.8	16.1
150	12.50	60322.9	60306.8	16.1

* 5-minute Lag.
** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET _____ OF _____

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JOB: Sonoqui Wash Floodplain Delineation Study JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
0	0.00	0.0
1	0.08	128.4
2	0.17	128.4
3	0.25	128.4
4	0.33	128.4
5	0.42	128.4
6	0.50	128.4
7	0.58	128.4
8	0.67	128.4
9	0.75	128.4
10	0.83	195.5
11	0.92	269.7
12	1.00	269.7
13	1.08	269.7
14	1.17	269.7
15	1.25	438.5
16	1.33	449.6
17	1.42	498.3
18	1.50	674.4
19	1.58	674.4
20	1.67	674.4
21	1.75	806.5
22	1.83	848.1
23	1.92	674.4
24	2.00	674.4
25	2.08	674.4
26	2.17	808.9
27	2.25	899.1
28	2.33	899.1
29	2.42	1293.3
30	2.50	788.3
31	2.58	888.5
32	2.67	1079.0
33	2.75	1079.0

Entellus

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JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
34	2.83	1079.0
35	2.92	1079.0
36	3.00	1079.0
37	3.08	1079.0
38	3.17	1079.0
39	3.25	1079.0
40	3.33	1079.0
41	3.42	1079.0
42	3.50	1079.0
43	3.58	1079.0
44	3.67	1079.0
45	3.75	1079.0
46	3.83	963.9
47	3.92	899.1
48	4.00	899.1
49	4.08	899.1
50	4.17	899.1
51	4.25	899.1
52	4.33	899.1
53	4.42	1049.5
54	4.50	952.7
55	4.58	960.5
56	4.67	995.1
57	4.75	674.4
58	4.83	674.4
59	4.92	674.4
60	5.00	674.4
61	5.08	674.4
62	5.17	731.6
63	5.25	755.1
64	5.33	793.4
65	5.42	643.9
66	5.50	539.5
67	5.58	523.7

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CLIENT: FCDMC

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JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
68	5.67	490.4
69	5.75	490.4
70	5.83	490.4
71	5.92	490.4
72	6.00	455.6
73	6.08	385.3
74	6.17	385.3
75	6.25	381.3
76	6.33	359.7
77	6.42	359.7
78	6.50	359.7
79	6.58	401.4
80	6.67	415.0
81	6.75	415.0
82	6.83	278.2
83	6.92	245.2
84	7.00	245.2
85	7.08	245.2
86	7.17	245.2
87	7.25	214.4
88	7.33	207.5
89	7.42	207.5
90	7.50	207.5
91	7.58	207.5
92	7.67	207.5
93	7.75	162.6
94	7.83	158.7
95	7.92	158.7
96	8.00	158.7
97	8.08	158.7
98	8.17	158.7
99	8.25	158.7
100	8.33	150.1
101	8.42	117.3

Entellus

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JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
102	8.50	117.3
103	8.58	117.3
104	8.67	117.3
105	8.75	117.3
106	8.83	117.3
107	8.92	117.3
108	9.00	117.3
109	9.08	117.3
110	9.17	117.3
111	9.25	82.9
112	9.33	72.9
113	9.42	72.9
114	9.50	72.9
115	9.58	72.9
116	9.67	72.9
117	9.75	72.9
118	9.83	72.9
119	9.92	72.9
120	10.00	72.9
121	10.08	72.9
122	10.17	72.9
123	10.25	72.9
124	10.33	72.9
125	10.42	72.9
126	10.50	72.9
127	10.58	72.9
128	10.67	16.5
129	10.75	16.1
130	10.83	16.1
131	10.92	16.1
132	11.00	16.1
133	11.08	16.1
134	11.17	16.1
135	11.25	16.1

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JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E1

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
136	11.33	16.1
137	11.42	16.1
138	11.50	16.1
139	11.58	16.1
140	11.67	16.1
141	11.75	16.1
142	11.83	16.1
143	11.92	16.1
144	12.00	16.1
145	12.08	16.1
146	12.17	16.1
147	12.25	16.1
148	12.33	16.1
149	12.42	16.1
150	12.50	16.1

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BY	RAS	DATE	2/19/2004
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S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Basin Characteristics:

Area (A) = 7.3 mi^2

Lag = 2.86 hr

$$Q_{ult} = \frac{645.33 * A}{D} = \frac{645.33 * 7.3}{\left(5/60\right)} = 56530.91 cfs$$

where: Q_{ult} = Ultimate Discharge (cfs)

A = Drainage Area (mi^2)

D = Duration of rainfall excess

The following table was constructed using the % Q_{ult}, Discharge, % Lag and Time

* Discharge is calculated as % Q_{ult} * Q_{ult}
* Time is calculated as Lag * % Lag

Entellus

SHEET	_____	OF	_____
BY	RAS	DATE	2/19/2004
CHECK	_____	DATE	_____

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study **JOB NO.** 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Ordinate	% Q_{ult}	Discharge cfs	% Lag	Time hours
0	0	0.00	0.00	0.00
1	2	1130.62	21.00	0.60
2	4	2261.24	31.00	0.89
3	6	3391.85	37.00	1.06
4	8	4522.47	41.00	1.17
5	10	5653.09	45.00	1.29
6	12	6783.71	48.00	1.37
7	14	7914.33	52.00	1.49
8	16	9044.95	56.00	1.60
9	18	10175.56	59.00	1.69
10	20	11306.18	62.00	1.77
11	22	12436.80	64.00	1.83
12	24	13567.42	67.50	1.93
13	26	14698.04	70.00	2.00
14	28	15828.65	72.50	2.07
15	30	16959.27	75.00	2.15
16	32	18089.89	77.50	2.22
17	34	19220.51	80.00	2.29
18	36	20351.13	82.50	2.36
19	38	21481.75	85.00	2.43
20	40	22612.36	87.50	2.50
21	42	23742.98	90.00	2.57
22	44	24873.60	92.50	2.65
23	46	26004.22	95.00	2.72
24	48	27134.84	97.50	2.79
25	50	28265.45	100.00	2.86
26	52	29396.07	103.00	2.95
27	54	30526.69	106.00	3.03
28	56	31657.31	109.00	3.12
29	58	32787.93	112.00	3.20
30	60	33918.54	115.00	3.29
31	62	35049.16	117.50	3.36
32	64	36179.78	120.50	3.45
33	66	37310.40	123.00	3.52
34	68	38441.02	127.00	3.63

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	
JOB NO.	310.001		

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Ordinate	% Q_{ult}	Discharge cfs	% Lag	Time hours
35	70	39571.64	131.00	3.75
36	72	40702.25	135.00	3.86
37	74	41832.87	138.60	3.96
38	76	42963.49	142.00	4.06
39	78	44094.11	147.00	4.20
40	80	45224.73	152.50	4.36
41	82	46355.34	158.00	4.52
42	84	47485.96	165.00	4.72
43	86	48616.58	172.50	4.93
44	88	49747.20	179.00	5.12
45	90	50877.82	190.00	5.43
46	92	52008.44	203.00	5.81
47	94	53139.05	220.00	6.29
48	96	54269.67	243.00	6.95
49	98	55400.29	280.00	8.01
50	100	56530.91	448.00	12.81

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	
JOB NO.	310.001		

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
0	0.00	0.0		0.0
1	0.08	156.9	0.0	156.9
2	0.17	313.7	156.9	156.9
3	0.25	470.6	313.7	156.9
4	0.33	627.5	470.6	156.9
5	0.42	784.4	627.5	156.9
6	0.50	941.2	784.4	156.9
7	0.58	1098.1	941.2	156.9
8	0.67	1391.8	1098.1	293.7
9	0.75	1721.2	1391.8	329.4
10	0.83	2050.7	1721.2	329.4
11	0.92	2459.3	2050.7	408.7
12	1.00	3008.4	2459.3	549.1
13	1.08	3640.2	3008.4	631.9
14	1.17	4463.8	3640.2	823.6
15	1.25	5287.4	4463.8	823.6
16	1.33	6263.6	5287.4	976.2
17	1.42	7217.2	6263.6	953.6
18	1.50	8040.8	7217.2	823.6
19	1.58	8864.4	8040.8	823.6
20	1.67	9902.4	8864.4	1037.9
21	1.75	11000.5	9902.4	1098.1
22	1.83	12469.9	11000.5	1469.5
23	1.92	13411.2	12469.9	941.2
24	2.00	14666.4	13411.2	1255.2
25	2.08	15984.1	14666.4	1317.7
26	2.17	17301.9	15984.1	1317.7
27	2.25	18619.6	17301.9	1317.7
28	2.33	19937.4	18619.6	1317.7
29	2.42	21255.1	19937.4	1317.7
30	2.50	22572.8	21255.1	1317.7
31	2.58	23890.6	22572.8	1317.7
32	2.67	25208.3	23890.6	1317.7

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

The next step was to transform the S-Graph into a 5-minute unit graph. This was done based upon the S-graph from the previous table. Linear interpolation was utilized to obtain the 5-minute intervals for the unit graph. The details are shown in the table to the left. HEC-1 only allows the UI Card to contain 150, ordinates, so it was truncated at that point.

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CHECK _____ DATE _____

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
33	2.75	26526.0	25208.3	1317.7
34	2.83	27843.8	26526.0	1317.7
35	2.92	29012.2	27843.8	1168.4
36	3.00	30110.3	29012.2	1098.1
37	3.08	31208.4	30110.3	1098.1
38	3.17	32306.5	31208.4	1098.1
39	3.25	33404.6	32306.5	1098.1
40	3.33	34619.6	33404.6	1215.0
41	3.42	35789.3	34619.6	1169.7
42	3.50	37028.9	35789.3	1239.6
43	3.58	37958.1	37028.9	929.1
44	3.67	38781.7	37958.1	823.6
45	3.75	39605.2	38781.7	823.6
46	3.83	40428.8	39605.2	823.6
47	3.92	41313.5	40428.8	884.7
48	4.00	42251.9	41313.5	938.4
49	4.08	43138.5	42251.9	886.6
50	4.17	43797.4	43138.5	658.9
51	4.25	44423.3	43797.4	625.9
52	4.33	45022.3	44423.3	599.0
53	4.42	45621.2	45022.3	599.0
54	4.50	46220.2	45621.2	599.0
55	4.58	46719.8	46220.2	499.6
56	4.67	47190.4	46719.8	470.6
57	4.75	47649.4	47190.4	458.9
58	4.83	48088.6	47649.4	439.2
59	4.92	48527.9	48088.6	439.2
60	5.00	49021.0	48527.9	493.2
61	5.08	49527.8	49021.0	506.8
62	5.17	49917.1	49527.8	389.2
63	5.25	50216.6	49917.1	299.5
64	5.33	50516.0	50216.6	299.5
65	5.42	50815.5	50516.0	299.5

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CHECK _____ DATE _____

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
66	5.50	51078.5	50815.5	263.0
67	5.58	51331.9	51078.5	253.4
68	5.67	51585.3	51331.9	253.4
69	5.75	51838.8	51585.3	253.4
70	5.83	52072.5	51838.8	233.7
71	5.92	52266.2	52072.5	193.8
72	6.00	52460.0	52266.2	193.8
73	6.08	52653.8	52460.0	193.8
74	6.17	52847.6	52653.8	193.8
75	6.25	53041.4	52847.6	193.8
76	6.33	53210.1	53041.4	168.7
77	6.42	53353.3	53210.1	143.2
78	6.50	53496.6	53353.3	143.2
79	6.58	53639.8	53496.6	143.2
80	6.67	53783.0	53639.8	143.2
81	6.75	53926.3	53783.0	143.2
82	6.83	54069.5	53926.3	143.2
83	6.92	54212.7	54069.5	143.2
84	7.00	54323.3	54212.7	110.6
85	7.08	54412.3	54323.3	89.0
86	7.17	54501.4	54412.3	89.0
87	7.25	54590.4	54501.4	89.0
88	7.33	54679.5	54590.4	89.0
89	7.42	54768.5	54679.5	89.0
90	7.50	54857.5	54768.5	89.0
91	7.58	54946.6	54857.5	89.0
92	7.67	55035.6	54946.6	89.0
93	7.75	55124.6	55035.6	89.0
94	7.83	55213.7	55124.6	89.0
95	7.92	55302.7	55213.7	89.0
96	8.00	55391.7	55302.7	89.0
97	8.08	55418.0	55391.7	26.3
98	8.17	55437.6	55418.0	19.6

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CLIENT: FCDMC

CHECK _____ DATE _____

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
99	8.25	55457.2	55437.6	19.6
100	8.33	55476.8	55457.2	19.6
101	8.42	55496.5	55476.8	19.6
102	8.50	55516.1	55496.5	19.6
103	8.58	55535.7	55516.1	19.6
104	8.67	55555.3	55535.7	19.6
105	8.75	55574.9	55555.3	19.6
106	8.83	55594.5	55574.9	19.6
107	8.92	55614.1	55594.5	19.6
108	9.00	55633.7	55614.1	19.6
109	9.08	55653.3	55633.7	19.6
110	9.17	55672.9	55653.3	19.6
111	9.25	55692.5	55672.9	19.6
112	9.33	55712.2	55692.5	19.6
113	9.42	55731.8	55712.2	19.6
114	9.50	55751.4	55731.8	19.6
115	9.58	55771.0	55751.4	19.6
116	9.67	55790.6	55771.0	19.6
117	9.75	55810.2	55790.6	19.6
118	9.83	55829.8	55810.2	19.6
119	9.92	55849.4	55829.8	19.6
120	10.00	55869.0	55849.4	19.6
121	10.08	55888.6	55869.0	19.6
122	10.17	55908.2	55888.6	19.6
123	10.25	55927.9	55908.2	19.6
124	10.33	55947.5	55927.9	19.6
125	10.42	55967.1	55947.5	19.6
126	10.50	55986.7	55967.1	19.6
127	10.58	56006.3	55986.7	19.6
128	10.67	56025.9	56006.3	19.6
129	10.75	56045.5	56025.9	19.6
130	10.83	56065.1	56045.5	19.6
131	10.92	56084.7	56065.1	19.6

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	
JOB NO.	310.001		

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

5-minute unit graph:

Ordinate	Time hours	Q_{s1} cfs	Q_{s2}* cfs	Q_{ug}** cfs
132	11.00	56104.3	56084.7	19.6
133	11.08	56123.9	56104.3	19.6
134	11.17	56143.6	56123.9	19.6
135	11.25	56163.2	56143.6	19.6
136	11.33	56182.8	56163.2	19.6
137	11.42	56202.4	56182.8	19.6
138	11.50	56222.0	56202.4	19.6
139	11.58	56241.6	56222.0	19.6
140	11.67	56261.2	56241.6	19.6
141	11.75	56280.8	56261.2	19.6
142	11.83	56300.4	56280.8	19.6
143	11.92	56320.0	56300.4	19.6
144	12.00	56339.6	56320.0	19.6
145	12.08	56359.3	56339.6	19.6
146	12.17	56378.9	56359.3	19.6
147	12.25	56398.5	56378.9	19.6
148	12.33	56418.1	56398.5	19.6
149	12.42	56437.7	56418.1	19.6
150	12.50	56457.3	56437.7	19.6

* 5-minute Lag

** $Q_{ug} = Q_{s1} - Q_{s2}$

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CLIENT: FCDMC

CHECK _____ DATE _____

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
0	0.00	0.0
1	0.08	156.9
2	0.17	156.9
3	0.25	156.9
4	0.33	156.9
5	0.42	156.9
6	0.50	156.9
7	0.58	156.9
8	0.67	293.7
9	0.75	329.4
10	0.83	329.4
11	0.92	408.7
12	1.00	549.1
13	1.08	631.9
14	1.17	823.6
15	1.25	823.6
16	1.33	976.2
17	1.42	953.6
18	1.50	823.6
19	1.58	823.6
20	1.67	1037.9
21	1.75	1098.1
22	1.83	1469.5
23	1.92	941.2
24	2.00	1255.2
25	2.08	1317.7
26	2.17	1317.7
27	2.25	1317.7
28	2.33	1317.7
29	2.42	1317.7
30	2.50	1317.7
31	2.58	1317.7
32	2.67	1317.7
33	2.75	1317.7

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
34	2.83	1317.7
35	2.92	1168.4
36	3.00	1098.1
37	3.08	1098.1
38	3.17	1098.1
39	3.25	1098.1
40	3.33	1215.0
41	3.42	1169.7
42	3.50	1239.6
43	3.58	929.1
44	3.67	823.6
45	3.75	823.6
46	3.83	823.6
47	3.92	884.7
48	4.00	938.4
49	4.08	886.6
50	4.17	658.9
51	4.25	625.9
52	4.33	599.0
53	4.42	599.0
54	4.50	599.0
55	4.58	499.6
56	4.67	470.6
57	4.75	458.9
58	4.83	439.2
59	4.92	439.2
60	5.00	493.2
61	5.08	506.8
62	5.17	389.2
63	5.25	299.5
64	5.33	299.5
65	5.42	299.5
66	5.50	263.0
67	5.58	253.4

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CLIENT: FCDMC

CHECK _____ DATE _____

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
68	5.67	253.4
69	5.75	253.4
70	5.83	233.7
71	5.92	193.8
72	6.00	193.8
73	6.08	193.8
74	6.17	193.8
75	6.25	193.8
76	6.33	168.7
77	6.42	143.2
78	6.50	143.2
79	6.58	143.2
80	6.67	143.2
81	6.75	143.2
82	6.83	143.2
83	6.92	143.2
84	7.00	110.6
85	7.08	89.0
86	7.17	89.0
87	7.25	89.0
88	7.33	89.0
89	7.42	89.0
90	7.50	89.0
91	7.58	89.0
92	7.67	89.0
93	7.75	89.0
94	7.83	89.0
95	7.92	89.0
96	8.00	89.0
97	8.08	26.3
98	8.17	19.6
99	8.25	19.6
100	8.33	19.6
101	8.42	19.6

Entellus

SHEET		OF	
BY	RAS	DATE	2/19/2004
CHECK		DATE	

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study

JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
102	8.50	19.6
103	8.58	19.6
104	8.67	19.6
105	8.75	19.6
106	8.83	19.6
107	8.92	19.6
108	9.00	19.6
109	9.08	19.6
110	9.17	19.6
111	9.25	19.6
112	9.33	19.6
113	9.42	19.6
114	9.50	19.6
115	9.58	19.6
116	9.67	19.6
117	9.75	19.6
118	9.83	19.6
119	9.92	19.6
120	10.00	19.6
121	10.08	19.6
122	10.17	19.6
123	10.25	19.6
124	10.33	19.6
125	10.42	19.6
126	10.50	19.6
127	10.58	19.6
128	10.67	19.6
129	10.75	19.6
130	10.83	19.6
131	10.92	19.6
132	11.00	19.6
133	11.08	19.6
134	11.17	19.6
135	11.25	19.6

Entellus

SHEET _____ OF _____

BY RAS DATE 2/19/2004

CHECK _____ DATE _____

CLIENT: FCDMC

JOB: Sonoqui Wash Floodplain Delineation Study JOB NO. 310.001

S-Graph and Unit Graph Generation

Basin: E2

100-yr, 24-hr and 6-hr Storm Events

Final 5-minute unit graph:

Ordinate	Time hours	Discharge cfs
136	11.33	19.6
137	11.42	19.6
138	11.50	19.6
139	11.58	19.6
140	11.67	19.6
141	11.75	19.6
142	11.83	19.6
143	11.92	19.6
144	12.00	19.6
145	12.08	19.6
146	12.17	19.6
147	12.25	19.6
148	12.33	19.6
149	12.42	19.6
150	12.50	19.6

D.2.4 Hydraulic Length and Slope

SONOQUI WASH
Basin Parameters
02/26/04

Basin ID	Area (SF)	Area (Acres)	Area (SQ. MI.)	General Slope	Flow Path (ft)	Flow Path (Miles)	Flow Path Upstream El.	Flow Path Downstream El.
S1	49,048,873	1,126.01	1.759	0.01931	8,390	1.589	1680.0	1518.0
S2	85,643,085	1,966.09	3.072	0.01135	15,421	2.921	1692.0	1517.0
S3A	47,616,422	1,093.12	1.708	0.00759	17,915	3.393	1658.0	1522.0
S3B	48,112,264	1,104.51	1.726	0.05632	8,381	1.587	2130.0	1658.0
S4A	44,447,749	1,020.38	1.594	0.00915	8,092	1.532	1600.0	1526.0
S4B	35,694,620	819.44	1.280	0.03796	13,963	2.645	2130.0	1600.0
S5	9,423,209	216.33	0.338	0.08265	4,561	0.864	1894.0	1517.0
S6	22,837,850	524.28	0.819	0.02659	12,071	2.286	1832.0	1511.0
S7A	33,174,463	761.58	1.190	0.01059	7,745	1.467	1590.0	1508.0
S7B	21,724,253	498.72	0.779	0.08689	5,006	0.948	2025.0	1590.0
S8A	48,885,742	1,122.26	1.754	0.01140	11,926	2.259	1640.0	1504.0
S8B	47,262,419	1,085.00	1.695	0.06597	10,944	2.073	2362.0	1640.0
S9	94,800,213	2,176.31	3.400	0.03698	23,795	4.507	2362.0	1482.0
S10	19,833,326	455.31	0.711	0.07052	7,672	1.453	2000.0	1459.0
S11	27,691,745	635.71	0.993	0.07826	11,552	2.188	2370.0	1466.0
S12	11,370,887	261.04	0.408	0.13134	5,611	1.063	2180.0	1443.0
S13	58,824,772	1,350.43	2.110	0.04296	13,965	2.645	2050.0	1450.0
S14	44,806,601	1,028.62	1.607	0.01530	10,654	2.018	1608.0	1445.0
S15	54,378,775	1,248.36	1.951	0.03621	15,270	2.892	2161.0	1608.0
E1	220,484,313	5,061.62	7.909	0.00159	33,886	6.418	1542.0	1488.0
E2	204,310,176	4,690.32	7.329	0.00259	31,606	5.986	1522.0	1440.0
E3	11,988,846	275.23	0.430	0.00326	6,600	1.250	1460.0	1438.5
E4	10,356,006	237.74	0.371	0.00263	6,475	1.226	1455.0	1438.0
E5	15,942,935	366.00	0.572	0.01021	4,603	0.872	1503.0	1456.0
E6	32,493,702	745.95	1.166	0.00409	9,300	1.761	1458.0	1420.0
E7	9,915,023	227.62	0.356	0.00363	5,458	1.034	1438.0	1418.2
E8	10,791,648	247.74	0.387	0.00794	6,295	1.192	1490.0	1440.0
E9	26,584,339	610.29	0.954	0.00570	9,825	1.861	1457.0	1401.0
E10	14,118,126	324.11	0.506	0.00370	5,400	1.023	1420.0	1400.0
E11	9,345,763	214.55	0.335	0.00302	5,970	1.131	1478.0	1460.0
N1	10,869,897	249.54	0.390	0.00291	6,525	1.236	1400.5	1381.5
N2	15,051,578	345.54	0.540	0.00269	6,135	1.162	1400.0	1383.5
N3	18,227,698	418.45	0.654	0.00286	5,775	1.094	1383.0	1366.5
N4	7,792,482	178.89	0.280	0.00356	5,900	1.117	1368.5	1347.5
N5	11,855,828	272.17	0.425	0.00326	5,525	1.046	1350.0	1332.0
N6	12,002,431	275.54	0.431	0.00271	6,650	1.259	1333.0	1315.0
C1	9,865,809	226.49	0.354	0.00966	3,675	0.696	1440.0	1404.5

SONOQUI WASH
Basin Parameters
02/26/04

Basin ID	Area (SF)	Area (Acres)	Area (SQ. MI.)	General Slope	Flow Path (ft)	Flow Path (Miles)	Flow Path Upstream El.	Flow Path Downstream El.
C2	8,917,169	204.71	0.320	0.00536	6,360	1.205	1418.1	1384.0
C3	3,135,433	71.98	0.112	0.00190	2,000	0.379	1400.0	1396.2
C4	8,702,335	199.78	0.312	0.00709	6,210	1.176	1428.0	1384.0
C5	18,068,344	414.79	0.648	0.00765	6,000	1.136	1432.2	1386.3
C6	8,377,181	192.31	0.300	0.00236	6,135	1.162	1387.0	1372.5
C7	13,494,380	309.79	0.484	0.00317	6,150	1.165	1387.0	1367.5
C7A	6,103,772	140.12	0.219	0.00368	6,350	1.203	1384.9	1361.5
C8	4,263,449	97.88	0.153	0.00230	4,575	0.866	1378.5	1368.0
C9	5,784,155	132.79	0.207	0.00297	4,550	0.862	1366.0	1352.5
C10	13,996,367	321.31	0.502	0.00286	7,375	1.397	1368.6	1347.5
C11	7,498,370	172.14	0.269	0.00245	4,075	0.772	1352.5	1342.5
C12	7,352,703	168.79	0.264	0.00235	4,600	0.871	1343.0	1332.2
C13	14,182,989	325.60	0.509	0.00389	6,040	1.144	1354.5	1331.0
C14	14,215,831	326.35	0.510	0.00210	7,300	1.383	1332.0	1316.7
C15	14,258,233	327.32	0.511	0.00248	6,650	1.259	1331.5	1315.0
C16	767,046	17.61	0.028	0.00606	1,650	0.313	1384.0	1374.0
W1	7,797,981	179.02	0.280	0.01198	5,425	1.027	1446.0	1381.0
W2	7,055,808	161.98	0.253	0.01059	5,760	1.091	1448.0	1387.0
W3	1,689,707	38.79	0.061	0.00518	2,800	0.530	1387.0	1372.5
W4	13,656,562	313.51	0.490	0.00777	7,850	1.487	1452.0	1391.0
W5	13,665,710	313.72	0.490	0.00887	7,100	1.345	1450.0	1387.0
W6	14,454,627	331.83	0.518	0.00412	7,275	1.378	1390.0	1360.0
W7	6,367,659	146.18	0.228	0.00282	6,200	1.174	1374.0	1356.5
W8	7,095,241	162.88	0.255	0.00332	6,025	1.141	1370.0	1350.0
W9	14,421,092	331.06	0.517	0.00854	7,850	1.487	1447.0	1380.0
W10	14,275,769	327.73	0.512	0.01170	6,000	1.136	1440.2	1370.0
W11	14,234,984	326.79	0.511	0.00431	6,500	1.231	1382.5	1354.5
W12	14,726,798	338.08	0.528	0.00331	7,850	1.487	1360.5	1334.5
W16	6,843,862	157.11	0.245	0.00564	3,900	0.739	1359.5	1337.5
W17	7,130,192	163.69	0.256	0.00551	3,900	0.739	1337.5	1316.0
W18	7,076,627	162.46	0.254	0.00531	3,900	0.739	1345.0	1324.3
LF	5,382,071	123.56	0.193			0.000		

D.2.5 Green and Ampt Parameters

LOSS PARAMETERS FOR SUBBASIN: S1

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
RIA	1.064	60.5	0.40	0
CEC	0.035	2.0	0.40	0
TRB	0.035	2.0	0.10	0
MO	0.209	11.9	0.40	0
RO	0.412	23.4	0.25	65
MV	0.005	0.3	0.25	0

TOTAL = 1.760 Sq.Miles XKSAT = 0.35 %Rock = 15

DTHETA

Dry = 0.35 PSIF = 4.25
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.548	Desert	88.0	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.211	Mountain	12.0	DRY	25	0	0.15	0.08	Hi	0.10
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
1.759 = Total Area			Avg. =	25	0%	0.330			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.41

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 15
% EFFECTIVE IMP. = 15

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S1	1.760	1.590	0.042	102.0	0.33	0.35	4.25	0.41	15

LOSS PARAMETERS FOR SUBBASIN: S2

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
LAA	1.446	47.0	0.25	0
RIA	0.240	7.8	0.40	0
TRB	0.109	3.5	0.10	0
RIB	0.147	4.8	0.40	0
CEC	0.378	12.3	0.40	0
RO	0.276	9.0	0.25	65
MO	0.115	3.7	0.40	0
MV	0.363	11.8	0.25	0

TOTAL = 3.074 Sq.Miles XKSAT = 0.28 %Rock = 6

DTHETA

Dry = 0.35 PSIF = 4.60
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
2.610	Desert	84.9	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.464	Mountain	15.1	DRY	25	0	0.15	0.08	Hi	0.09
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
3.074 = Total Area			Avg. =	25	0%	0.320			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.33

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 6
% EFFECTIVE IMP. = 6

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S2	3.074	2.920	0.040	60.0	0.32	0.35	4.60	0.33	6

LOSS PARAMETERS FOR SUBBASIN: E1

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.502	6.3	0.40	0
ANB	0.022	0.3	0.40	0
CO	2.178	27.5	0.04	0
GN	0.295	3.7	0.04	0
GM	0.119	1.5	0.25	0
MO	0.499	6.3	0.40	0
MV	3.647	46.1	0.25	0
VE	0.647	8.2	0.01	0

TOTAL = 7.909 Sq.Miles XKSAT = 0.12 %Rock = 0

DTHETA

Dry = 0.37 PSIF = 6.60
Normal = 0.19
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
3.955	RowCrop	50.0	WET	85	0	0.50	0.10	Hi	0.06
3.954	Mountain	50.0	DRY	25	0	0.15	0.08	Hi	0.06
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

7.909 = Total Area Avg. = 55 0% 0.320

PERCENT OF SUBBASIN DRY = 50.0 %
NORMAL = 0.0 %
WET = 50.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.19

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.18

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E1	7.909	6.420	0.057	8.0	0.32	0.19	6.60	0.18	0

LOSS PARAMETERS FOR SUBBASIN: S3B

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
RO	1.437	83.3	0.25	65
RIB	0.072	4.2	0.40	0
AOB	0.216	12.5	0.40	0

TOTAL = 1.725 Sq.Miles XKSAT = 0.27 %Rock = 54

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.653	Desert	37.9	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
1.069	Mountain	62.1	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
1.722 = Total Area			Avg. =	25	0%	0.230			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.31

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 54
% EFFECTIVE IMP. = 54

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S3B	1.725	1.590	0.060	261.2	0.23	0.35	4.65	0.31	54

LOSS PARAMETERS FOR SUBBASIN: S3A

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.036	2.1	0.40	0
RIA	0.023	1.4	0.40	0
RO	0.038	2.2	0.25	65
MV	0.252	14.8	0.25	0
LAA	0.723	42.5	0.25	0
RIB	0.160	9.4	0.40	0
ANA	0.312	18.3	0.40	0
AOB	0.136	8.0	0.40	0
CB	0.014	0.8	0.25	0
GM	0.009	0.5	0.25	0

TOTAL = 1.703 Sq.Miles XKSAT = 0.30 %Rock = 1

DTHETA

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.645	Desert	96.4	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.062	Mountain	3.6	DRY	25	0	0.15	0.08	Hi	0.11
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.707 = Total Area Avg. = 25 0% 0.340

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.35

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 1
% EFFECTIVE IMP. = 1

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S3A	1.703	3.390	0.040	40.0	0.34	0.35	4.50	0.35	1

LOSS PARAMETERS FOR SUBBASIN: S4B

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.031	2.4	0.40	0

TRB	0.002	0.2	0.10	0
RO	0.458	35.9	0.25	65
RIB	0.206	16.1	0.40	0
ANA	0.047	3.7	0.40	0
AOB	0.405	31.7	0.40	0
CB	0.038	3.0	0.25	0
PVC	0.090	7.0	0.40	0

TOTAL = 1.277 Sq.Miles XKSAT = 0.33 %Rock = 23

DTHETA
========

Dry = 0.35 PSIF = 4.35
Normal = 0.25
Wet = 0.00

LAND USE
========

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.796	Desert	62.2	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.484	Mountain	37.8	DRY	25	0	0.15	0.08	Hi	0.09
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.280 = Total Area Avg. = 25 0% 0.270

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.38

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 23

% EFFECTIVE IMP. = 23

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S4B	1.277	2.640	0.054	200.9	0.27	0.35	4.35	0.38	23

LOSS PARAMETERS FOR SUBBASIN: S4A

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.057	3.6	0.40	0
TRB	0.024	1.5	0.10	0
RO	0.169	10.6	0.25	65
RIB	0.024	1.5	0.40	0
ANA	0.740	46.3	0.40	0
AOB	0.016	1.0	0.40	0
CB	0.003	0.2	0.25	0
GM	0.170	10.6	0.25	0
ANB	0.392	24.5	0.40	0
PVC	0.005	0.3	0.40	0

TOTAL = 1.600 Sq.Miles XKSAT = 0.35 %Rock = 7

DTHETA

Dry = 0.35 PSIF = 4.25
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.522	Desert	95.7	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.069	Mountain	4.3	DRY	25	0	0.15	0.08	Hi	0.11
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.591 = Total Area Avg. = 25 0% 0.340

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.41

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 7
% EFFECTIVE IMP. = 7

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S4A	1.600	1.530	0.040	48.0	0.34	0.35	4.25	0.41	7

LOSS PARAMETERS FOR SUBBASIN: S5

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop

ANA	0.093	27.5	0.40	0
ANB	0.058	17.2	0.40	0
TRB	0.027	8.0	0.10	0
CEC	0.024	7.1	0.40	0
PVC	0.006	1.8	0.40	0
RO	0.130	38.5	0.25	65

TOTAL = 0.338 Sq.Miles XKSAT = 0.30 %Rock = 25

DTHETA
========

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE
========

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.177	Desert	52.4	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.161	Mountain	47.6	DRY	25	0	0.15	0.08	Hi	0.10
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.338 = Total Area Avg. = 25 0% 0.250

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.35

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 25
% EFFECTIVE IMP. = 25

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S5	0.338	0.860	0.068	298.4	0.25	0.35	4.50	0.35	25

LOSS PARAMETERS FOR SUBBASIN: S6

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.062	7.6	0.40	0
TRB	0.241	29.4	0.10	0
RO	0.059	7.2	0.25	65
MV	0.028	3.4	0.25	0
RIB	0.060	7.3	0.40	0
ANA	0.096	11.7	0.40	0
AOB	0.005	0.6	0.40	0
GM	0.103	12.6	0.25	0
ANB	0.080	9.8	0.40	0
PVC	0.035	4.3	0.40	0
LAB	0.050	6.1	0.25	0

TOTAL = 0.819 Sq.Miles XKSAT = 0.23 %Rock = 5

DTHETA

Dry = 0.36 PSIF = 5.00
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.665	Desert	81.1	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.155	Mountain	18.9	DRY	25	0	0.15	0.08	Hi	0.10
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.820 = Total Area Avg. = 25 0% 0.310

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.36

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.27

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 5
% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S6	0.819	2.290	0.050	140.0	0.31	0.36	5.00	0.27	5

LOSS PARAMETERS FOR SUBBASIN: S7B

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.056	7.2	0.40	0
TRB	0.048	6.2	0.10	0
RO	0.347	44.9	0.25	65
AOB	0.084	10.9	0.40	0
PVC	0.238	30.8	0.40	0

TOTAL = 0.773 Sq.Miles XKSAT = 0.30 %Rock = 29

DTHETA

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.133	Desert	17.1	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.645	Mountain	82.9	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.778 = Total Area Avg. = 25 0% 0.180

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.35

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 29
% EFFECTIVE IMP. = 29

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S7B	0.773	0.950	0.076	299.2	0.18	0.35	4.50	0.35	29

LOSS PARAMETERS FOR SUBBASIN: S7A

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.004	0.3	0.40	0
TRB	0.067	5.6	0.10	0
RIB	0.029	2.4	0.40	0
AOB	0.350	29.4	0.40	0
GM	0.406	34.1	0.25	0
ANB	0.317	26.6	0.40	0
PVC	0.018	1.5	0.40	0

TOTAL = 1.191 Sq.Miles XKSAT = 0.32 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.40
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.110	Desert	93.3	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.080	Mountain	6.7	DRY	25	0	0.15	0.08	Hi	0.11
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.190 = Total Area Avg. = 25 0% 0.340

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.37

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S7A	1.191	1.470	0.043	56.0	0.34	0.35	4.40	0.37	0

LOSS PARAMETERS FOR SUBBASIN: E2

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	1.340	18.3	0.40	0
ANB	0.064	0.9	0.40	0
CO	0.130	1.8	0.04	0
ES	0.090	1.2	0.25	0
GF	0.192	2.6	0.25	0
GN	0.406	5.5	0.04	0
GM	4.048	55.2	0.25	0
LAA	0.145	2.0	0.25	0
MO	0.040	0.5	0.40	0
MV	0.855	11.7	0.25	0
VF	0.018	0.2	1.20	0

TOTAL = 7.328 Sq.Miles XKSAT = 0.24 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.90
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
0.329	Ind	5.2	NORMAL	20	55	0.15	0.03	Min	0.03
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
3.000	RowCrop	47.4	WET	85	0	0.50	0.10	Hi	0.07
3.000	Mountain	47.4	DRY	25	0	0.15	0.08	Hi	0.07
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

6.329 = Total Area Avg. = 54 3% 0.320

PERCENT OF SUBBASIN DRY = 47.0 %
NORMAL = 5.0 %
WET = 47.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.18

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.36

IMPERVIOUS AREA: URBAN @ 100 % effective = 3
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 3

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E2	7.328	5.990	0.057	14.0	0.32	0.18	4.90	0.36	3

LOSS PARAMETERS FOR SUBBASIN: E11

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop

GF	0.071	21.0	0.25	0
GM	0.264	78.1	0.25	0
VF	0.003	0.9	1.20	0

TOTAL = 0.338 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA
========
Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE
========

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.335	RowCrop	100.	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.335 = Total Area Avg. = 85 0% 0.500

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.46

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E11	0.338	1.130	0.092	16.0	0.50	0.00	4.80	0.46	0

LOSS PARAMETERS FOR SUBBASIN: E3

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.430	100.	0.25	0

TOTAL = 0.430 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.426	RowCrop	100.	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.426 = Total Area Avg. = 85 0% 0.500

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.46

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E3	0.430	1.250	0.089	18.0	0.50	0.00	4.80	0.46	0

LOSS PARAMETERS FOR SUBBASIN: E4

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.042	11.3	0.25	0
GM	0.314	84.6	0.25	0
VF	0.015	4.0	1.20	0

TOTAL = 0.371 Sq.Miles XKSAT = 0.27 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
0.058	Ind	15.5	NORMAL	20	55	0.15	0.03	Min	0.03
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.315	RowCrop	84.5	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.373 = Total Area Avg. = 80 9% 0.450

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 16.0 %
WET = 84.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.04

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.48

IMPERVIOUS AREA: URBAN @ 100 % effective = 9
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 9

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E4	0.371	1.230	0.080	14.0	0.45	0.04	4.65	0.48	9

LOSS PARAMETERS FOR SUBBASIN: E7

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.141	39.6	0.25	0
GM	0.207	58.1	0.25	0
TRB	0.008	2.2	0.10	0

TOTAL = 0.356 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.148	V.L.D.R	41.9	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.205	RowCrop	58.1	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.353 = Total Area Avg. = 63 2% 0.420

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 42.0 %
WET = 58.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.10

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.40

IMPERVIOUS AREA: URBAN @ 100 % effective = 2
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 2

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E7	0.356	1.030	0.073	19.0	0.42	0.10	4.80	0.40	2

LOSS PARAMETERS FOR SUBBASIN: S8B

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
CEC	0.004	0.2	0.40	0
RO	1.044	61.6	0.25	65
RIB	0.002	0.1	0.40	0
AOB	0.463	27.3	0.40	0
PVC	0.183	10.8	0.40	0

TOTAL = 1.696 Sq.Miles XKSAT = 0.30 %Rock = 40

DTHETA

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.725	Desert	42.8	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.968	Mountain	57.2	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.693 = Total Area Avg. = 25 0% 0.240

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.35

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 40
% EFFECTIVE IMP. = 40

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S8B	1.696	2.070	0.059	277.2	0.24	0.35	4.50	0.35	40

LOSS PARAMETERS FOR SUBBASIN: S8A

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
TRB	0.012	0.7	0.10	0
RIB	0.022	1.3	0.40	0
AOB	0.829	47.6	0.40	0
GM	0.125	7.2	0.25	0
ANB	0.752	43.2	0.40	0

TOTAL = 1.740 Sq.Miles XKSAT = 0.38 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.10
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.749	Desert	99.7	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.005	Mountain	0.3	DRY	25	0	0.15	0.08	Hi	0.14
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.754 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S8A	1.740	2.260	0.038	60.0	0.35	0.35	4.10	0.44	0

LOSS PARAMETERS FOR SUBBASIN: S9

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANB	0.270	7.9	0.40	0
AOB	0.771	22.7	0.40	0
TRB	0.111	3.3	0.10	0
PVC	0.856	25.2	0.40	0
RO	1.394	41.0	0.25	65
GR	0.001	0.0	1.20	0

TOTAL = 3.403 Sq.Miles XKSAT = 0.31 %Rock = 27

DTHETA

Dry = 0.35 PSIF = 4.45
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.546	Desert	45.5	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
1.855	Mountain	54.5	DRY	25	0	0.15	0.08	Hi	0.07
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
3.401 = Total Area			Avg. =	25	0%	0.240			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.36

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 27

% EFFECTIVE IMP. = 27

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S9	3.403	4.510	0.052	195.0	0.24	0.35	4.45	0.36	27

LOSS PARAMETERS FOR SUBBASIN: S10

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANB	0.092	12.9	0.40	0
AOB	0.129	18.1	0.40	0
TRB	0.029	4.1	0.10	0
GR	0.147	20.7	1.20	0
RO	0.295	41.5	0.25	65
GRAVE	0.019	2.7	1.50	0

TOTAL = 0.711 Sq.Miles XKSAT = 0.40 %Rock = 27

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.300	Desert	42.1	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.412	Mountain	57.9	DRY	25	0	0.15	0.08	Hi	0.09
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.712 = Total Area Avg. = 25 0% 0.230

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.47

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 27

% EFFECTIVE IMP. = 27

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S10	0.711	1.450	0.067	283.2	0.23	0.35	3.95	0.47	27

LOSS PARAMETERS FOR SUBBASIN: E8

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.049	12.6	0.40	0
ANB	0.243	62.5	0.40	0
AOB	0.054	13.9	0.40	0
TRB	0.043	11.1	0.10	0

TOTAL = 0.389 Sq.Miles XKSAT = 0.34 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.30
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.387	RowCrop	100.	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.387 = Total Area Avg. = 85 0% 0.500

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.62

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E8	0.389	1.190	0.090	42.0	0.50	0.00	4.30	0.62	0

LOSS PARAMETERS FOR SUBBASIN: E5

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.279	48.9	0.40	0
ANB	0.288	50.4	0.40	0
GM	0.004	0.7	0.25	0

TOTAL = 0.571 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.572	RowCrop	100.	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.572 = Total Area Avg. = 85 0% 0.500

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.73

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E5	0.571	0.870	0.086	54.0	0.50	0.00	3.95	0.73	0

LOSS PARAMETERS FOR SUBBASIN: E6

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.220	18.9	0.40	0
ANB	0.076	6.5	0.40	0
GM	0.871	74.6	0.25	0

TOTAL = 1.167 Sq.Miles XKSAT = 0.28 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.60
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.103	V.L.D.R	8.9	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
1.060	RowCrop	91.1	WET	85	0	0.50	0.10	Hi	0.08
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.163 = Total Area Avg. = 80 0% 0.480

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 9.0 %
WET = 91.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.02

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.50

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E6	1.167	1.760	0.075	22.0	0.48	0.02	4.60	0.50	0

LOSS PARAMETERS FOR SUBBASIN: E9

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.222	23.3	0.40	0
ANB	0.528	55.3	0.40	0
GM	0.204	21.4	0.25	0

TOTAL = 0.954 Sq.Miles XKSAT = 0.36 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.20
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.618	RowCrop	64.3	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.343	Orchard	35.7	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.961 = Total Area Avg. = 85 0% 0.570

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.66

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E9	0.954	1.860	0.060	30.0	0.57	0.00	4.20	0.66	0

LOSS PARAMETERS FOR SUBBASIN: E10

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.063	12.4	0.25	0
GM	0.420	82.5	0.25	0
VF	0.026	5.1	1.20	0

TOTAL = 0.509 Sq.Miles XKSAT = 0.27 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.089	RowCrop	17.7	WET	85	0	0.50	0.10	Hi	0.11
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.413	Orchard	82.3	WET	85	0	0.70	0.04	Min	0.02
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.502 = Total Area Avg. = 85 0% 0.660

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.50

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
E10	0.509	1.020	0.035	20.0	0.66	0.00	4.65	0.50	0

LOSS PARAMETERS FOR SUBBASIN: S11

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANB	0.047	4.7	0.40	0
AOB	0.087	8.8	0.40	0
TRB	0.140	14.1	0.10	0
GR	0.101	10.2	1.20	0
RO	0.582	58.6	0.25	65
GRAVE	0.036	3.6	1.50	0

TOTAL = 0.993 Sq.Miles XKSAT = 0.29 %Rock = 38

DTHETA

Dry = 0.35 PSIF = 4.55
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.219	Desert	22.0	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.775	Mountain	78.0	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.994 = Total Area Avg. = 25 0% 0.190

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.34

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 38

% EFFECTIVE IMP. = 38

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S11	0.993	2.190	0.072	297.5	0.19	0.35	4.55	0.34	38

LOSS PARAMETERS FOR SUBBASIN: C1

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.121	34.1	0.40	0
ANB	0.234	65.9	0.40	0

TOTAL = 0.355 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.356	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.356 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.47

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C1	0.355	0.700	0.048	51.0	0.35	0.35	3.95	0.47	0

LOSS PARAMETERS FOR SUBBASIN: S12

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.020	4.9	0.40	0
ANB	0.039	9.6	0.40	0
AOB	0.064	15.7	0.40	0
TRB	0.032	7.8	0.10	0
GR	0.027	6.6	1.20	0
RU	0.042	10.3	0.40	20
RO	0.183	44.9	0.25	65
GRAVE	0.001	0.2	1.50	0

TOTAL = 0.408 Sq.Miles XKSAT = 0.31 %Rock = 31

DTHETA

Dry = 0.35 PSIF = 4.45
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.178	Desert	43.6	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.230	Mountain	56.4	DRY	25	0	0.15	0.08	Hi	0.10
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.408 = Total Area Avg. = 25 0% 0.240

PERCENT OF SUBBASIN *DRY =* 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.36

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 31

% EFFECTIVE IMP. = 31

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S12	0.408	1.060	0.070	315.0	0.24	0.35	4.45	0.36	31

LOSS PARAMETERS FOR SUBBASIN: C4

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.194	62.4	0.40	0
ANB	0.041	13.2	0.40	0
GM	0.076	24.4	0.25	0

TOTAL = 0.311 Sq.Miles XKSAT = 0.36 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.20
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.312	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.312 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.42

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C4	0.311	1.180	0.048	37.0	0.35	0.35	4.20	0.42	0

LOSS PARAMETERS FOR SUBBASIN: C2

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.144	44.7	0.40	0
ANB	0.062	19.3	0.40	0
GM	0.116	36.0	0.25	0

TOTAL = 0.322 Sq.Miles XKSAT = 0.34 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.30
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.066	Desert	20.6	DRY	25	0	0.35	0.05	Low	0.06
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.255	RowCrop	79.4	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.321 = Total Area Avg. = 73 0% 0.470

PERCENT OF SUBBASIN DRY = 21.0 %
NORMAL = 0.0 %
WET = 79.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.07

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.58

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C2	0.322	1.210	0.084	28.0	0.47	0.07	4.30	0.58	0

LOSS PARAMETERS FOR SUBBASIN: C3

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.112	100.	0.25	0

TOTAL = 0.112 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.081	RowCrop	72.3	WET	85	0	0.50	0.10	Hi	0.11
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.031	Orchard	27.7	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.112 = Total Area			Avg. =	85	0%	0.560			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.46

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C3	0.112	0.380	0.083	10.0	0.56	0.00	4.80	0.46	0

LOSS PARAMETERS FOR SUBBASIN: N2

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.075	13.9	0.25	0
GM	0.465	86.1	0.25	0

TOTAL = 0.540 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.052	V.L.D.R	9.6	NORMAL	30	5	0.30	0.05	Low	0.06
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.489	Orchard	90.4	WET	85	0	0.70	0.04	Min	0.02
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.541 = Total Area Avg. = 80 0% 0.660

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 10.0 %
WET = 90.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.03

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N2	0.540	1.160	0.026	14.0	0.66	0.03	4.80	0.44	0

LOSS PARAMETERS FOR SUBBASIN: N1

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.019	4.9	0.25	0
GM	0.372	95.1	0.25	0

TOTAL = 0.391 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.110	V.L.D.R	28.3	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.279	RowCrop	71.7	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.389 = Total Area Avg. = 70 1% 0.440

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 28.0 %
WET = 72.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.07

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.42

IMPERVIOUS AREA: URBAN @ 100 % effective = 1
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 1

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N1	0.391	1.240	0.078	15.0	0.44	0.07	4.80	0.42	1

LOSS PARAMETERS FOR SUBBASIN: N3

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.092	14.1	0.25	0
GM	0.531	81.2	0.25	0
VF	0.031	4.7	1.20	0

TOTAL = 0.654 Sq.Miles XKSAT = 0.27 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.109	V.L.D.R	16.7	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
0.171	M.D.R.	26.2	NORMAL	50	30	0.25	0.05	Low	0.05
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.373	RowCrop	57.1	WET	85	0	0.50	0.10	Hi	0.09
0.000	Mountain	0.0	DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.653 = Total Area Avg. = 68 9% 0.400

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 43.0 %
WET = 57.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.11

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA: URBAN @ 100 % effective = 9
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 9

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N3	0.654	1.090	0.067	15.0	0.40	0.11	4.65	0.44	9

LOSS PARAMETERS FOR SUBBASIN: C16

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.027	100.	0.25	0

TOTAL = 0.027 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.027	Desert	100.	DRY	25	0	0.35	0.05	Low	0.06
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.027 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.29

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C16	0.027	0.310	0.063	32.0	0.35	0.35	4.80	0.29	0

LOSS PARAMETERS FOR SUBBASIN: C7

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.033	6.8	0.25	0
GM	0.430	88.8	0.25	0
VF	0.021	4.3	1.20	0

TOTAL = 0.484 Sq.Miles XKSAT = 0.27 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.154	Desert	32.3	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
0.133	V.L.D.R	27.9	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.159	RowCrop	33.3	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
0.031	Tr. Park	6.5	NORMAL	20	50	0.15	0.03	Min	0.03
0.477 = Total Area			Avg. =	47	5%	0.370			

PERCENT OF SUBBASIN DRY = 32.0 %
NORMAL = 34.0 %
WET = 33.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.20

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.38

IMPERVIOUS AREA: URBAN @ 100 % effective = 5
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C7	0.484	1.160	0.059	17.0	0.37	0.20	4.65	0.38	5

LOSS PARAMETERS FOR SUBBASIN: S13

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.017	0.8	0.40	0
ANB	0.043	2.0	0.40	0
AOB	0.674	32.0	0.40	0
PVC	0.122	5.8	0.40	0
TRB	0.084	4.0	0.10	0
RU	0.131	6.2	0.40	20
RO	0.705	33.4	0.25	65
GR	0.156	7.4	1.20	0
GRAVE	0.177	8.4	1.50	0

TOTAL = 2.109 Sq.Miles XKSAT = 0.39 %Rock = 23

DTHETA

Dry = 0.35 PSIF = 4.00
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.099	Desert	52.1	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
1.011	Mountain	47.9	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

2.110 = Total Area Avg. = 25 0% 0.250

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.45

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 23
% EFFECTIVE IMP. = 23

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S13	2.109	2.640	0.054	223.6	0.25	0.35	4.00	0.45	23

LOSS PARAMETERS FOR SUBBASIN: W1

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.126	45.0	0.40	0
ANB	0.132	47.1	0.40	0
GM	0.022	7.9	0.25	0

TOTAL = 0.280 Sq.Miles XKSAT = 0.39 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.00
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.278	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.278 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.45

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W1	0.280	1.030	0.049	63.0	0.35	0.35	4.00	0.45	0

LOSS PARAMETERS FOR SUBBASIN: C5

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.480	74.3	0.40	0
ANB	0.009	1.4	0.40	0
AOB	0.016	2.5	0.40	0
GM	0.141	21.8	0.25	0

TOTAL = 0.646 Sq.Miles XKSAT = 0.36 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.20
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.647	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.647 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.42

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C5	0.646	1.140	0.044	82.0	0.35	0.35	4.20	0.42	0

LOSS PARAMETERS FOR SUBBASIN: W2

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.172	68.0	0.40	0
ANB	0.060	23.7	0.40	0
GM	0.021	8.3	0.25	0

TOTAL = 0.253 Sq.Miles XKSAT = 0.38 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.10
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.253	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.								
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0.253 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W2	0.253	1.090	0.050	56.0	0.35	0.35	4.10	0.44	0

LOSS PARAMETERS FOR SUBBASIN: W3

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.061	100.	0.25	0

TOTAL = 0.061 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.060	Desert	100.	DRY	25	0	0.35	0.05	Low	0.06
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.060 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.29

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W3	0.061	0.530	0.058	27.0	0.35	0.35	4.80	0.29	0

LOSS PARAMETERS FOR SUBBASIN: C6

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.011	3.7	0.40	0
GM	0.289	96.0	0.25	0
VF	0.001	0.3	1.20	0

TOTAL = 0.301 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.300	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.300 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.30

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C6	0.301	1.160	0.049	12.0	0.35	0.35	4.70	0.30	0

LOSS PARAMETERS FOR SUBBASIN: C8

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.012	7.9	0.25	0
GM	0.116	76.3	0.25	0
VF	0.024	15.8	1.20	0

TOTAL = 0.152 Sq.Miles XKSAT = 0.32 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.40
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.153	V.L.D.R	100.	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.153 = Total Area Avg. = 30 5% 0.300

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 100. %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.25

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.39

IMPERVIOUS AREA: URBAN @ 100 % effective = 5
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C8	0.152	0.870	0.053	22.0	0.30	0.25	4.40	0.39	5

LOSS PARAMETERS FOR SUBBASIN: W4

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.246	50.2	0.40	0
ANB	0.020	4.1	0.40	
ANB	0.020	4.1	0.40	
ANB	0.020	4.1	0.40	
ANB	0.020	4.1	0.40	

TOTAL = 0.490 Sq.Miles XKSAT = 0.31 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.45
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.490	Orchard	100.	WET	85	0	0.70	0.04	Min	0.02
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.490 = Total Area			Avg. =	85	0%	0.700			

PERCENT OF SUBBASIN
DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.57

IMPERVIOUS AREA:
URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W4	0.490	1.490	0.024	41.0	0.70	0.00	4.45	0.57	0

LOSS PARAMETERS FOR SUBBASIN: S14

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.101	6.3	0.40	0
AOB	1.364	84.8	0.40	0
TRB	0.079	4.9	0.10	0
ANB	0.040	2.5	0.40	0
MO	0.008	0.5	0.40	
MO	0.008	0.5	0.40	

TOTAL = 1.608 Sq.Miles XKSAT = 0.37 %Rock = 1

DTHETA

Dry = 0.35 PSIF = 4.15
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.602	Desert	99.7	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
0.005	Mountain	0.3	DRY	25	0	0.15	0.08	Hi	0.14
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.607 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.43

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 1

% EFFECTIVE IMP. = 1

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S14	1.608	2.020	0.038	81.0	0.35	0.35	4.15	0.43	1

LOSS PARAMETERS FOR SUBBASIN: W5

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.122	24.9	0.40	0
TRB	0.018	3.7	0.10	0
MO	0.217	44.4	0.40	0
GM	0.132	27.0	0.25	0

TOTAL = 0.489 Sq.Miles XKSAT = 0.33 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.35
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.265	V.L.D.R	54.2	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.128	RowCrop	26.2	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.096	Orchard	19.6	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.489 = Total Area Avg. = 56 3% 0.430

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 54.0 %
WET = 46.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.14

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.50

IMPERVIOUS AREA: URBAN @ 100 % effective = 3
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 3

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W5	0.489	1.350	0.053	47.0	0.43	0.14	4.35	0.50	3

LOSS PARAMETERS FOR SUBBASIN: W6

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.076	14.7	0.40	0
GM	0.441	85.3	0.25	0

TOTAL = 0.517 Sq.Miles XKSAT = 0.27 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.65
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.520	Desert	100.	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.520 = Total Area Avg. = 25 0% 0.350

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.31

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W6	0.517	1.380	0.045	22.0	0.35	0.35	4.65	0.31	0

LOSS PARAMETERS FOR SUBBASIN: W7

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.228	100.	0.25	0

TOTAL = 0.228 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.227	V.L.D.R	100.	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.227 = Total Area			Avg. =	30	5%	0.300			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 100. %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.25

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.31

IMPERVIOUS AREA: URBAN @ 100 % effective = 5
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W7	0.228	1.170	0.050	15.0	0.30	0.25	4.80	0.31	5

LOSS PARAMETERS FOR SUBBASIN: W8

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.227	88.7	0.25	0
GF	0.021	8.2	0.25	0
VF	0.008	3.1	1.20	0

TOTAL = 0.256 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.254	V.L.D.R	100.	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.254 = Total Area Avg. = 30 5% 0.300

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 100. %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.25

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.32

IMPERVIOUS AREA: URBAN @ 100 % effective = 5
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W8	0.256	1.140	0.050	18.0	0.30	0.25	4.70	0.32	5

LOSS PARAMETERS FOR SUBBASIN: C9

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.056	27.2	0.25	0
GM	0.143	69.4	0.25	0
VF	0.007	3.4	1.20	0

TOTAL = 0.206 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
0.208	M.D.R.	100.	NORMAL	50	30	0.25	0.05	Low	0.05
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.208 = Total Area Avg. = 50 30% 0.250

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 100. %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.25

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.38

IMPERVIOUS AREA: URBAN @ 100 % effective = 30
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 30

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C9	0.206	0.860	0.051	16.0	0.25	0.25	4.70	0.38	30

LOSS PARAMETERS FOR SUBBASIN: C10

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.124	24.8	0.25	0
GM	0.339	67.7	0.25	0
VF	0.038	7.6	1.20	0

TOTAL = 0.501 Sq.Miles XKSAT = 0.28 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.60
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
0.246	M.D.R.	48.8	NORMAL	50	30	0.25	0.05	Low	0.05
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.258	RowCrop	51.2	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.504 = Total Area Avg. = 71 15% 0.380

PERCENT OF SUBBASIN
DRY = 0.0 %
NORMAL = 49.0 %
WET = 51.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.12

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.47

IMPERVIOUS AREA:
URBAN @ 100 % effective = 15
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 15

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C10	0.501	1.400	0.067	15.0	0.38	0.12	4.60	0.47	15

LOSS PARAMETERS FOR SUBBASIN: N4

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.123	44.4	0.25	0
GM	0.002	0.7	0.25	0
VF	0.152	54.9	1.20	0

TOTAL = 0.277 Sq.Miles XKSAT = 0.59 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.38
Normal = 0.27
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.017	V.L.D.R	6.1	NORMAL	30	5	0.30	0.05	Low	0.07
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.261	RowCrop	93.9	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.278 = Total Area Avg. = 82 0% 0.490

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 6.0 %
WET = 94.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.02

SUBBASIN XKSAT ADJUSTED FOR VEG. = 1.06

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N4	0.277	1.120	0.091	19.0	0.49	0.02	3.38	1.06	0

LOSS PARAMETERS FOR SUBBASIN: C13

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.030	5.9	0.25	0
GM	0.467	91.7	0.25	0
VF	0.012	2.4	1.20	0

TOTAL = 0.509 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
0.097	L.D.R.	19.1	NORMAL	50	15	0.30	0.05	Low	0.06
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.173	RowCrop	34.1	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.238	Orchard	46.9	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.508 = Total Area Avg. = 79 3% 0.560

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 19.0 %
WET = 81.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.05

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.46

IMPERVIOUS AREA: URBAN @ 100 % effective = 3
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 3

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C13	0.509	1.140	0.050	21.0	0.56	0.05	4.70	0.46	3

LOSS PARAMETERS FOR SUBBASIN: N5

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.134	31.5	0.25	0
GM	0.278	65.3	0.25	0
VF	0.014	3.3	1.20	0

TOTAL = 0.426 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.213	Desert	50.0	DRY	25	0	0.35	0.05	Low	0.05
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.213	RowCrop	50.0	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.426 = Total Area Avg. = 55 0% 0.430

PERCENT OF SUBBASIN DRY = 50.0 %
NORMAL = 0.0 %
WET = 50.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.17

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.39

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N5	0.426	1.050	0.068	17.0	0.43	0.17	4.70	0.39	0

LOSS PARAMETERS FOR SUBBASIN: C11

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.269	100.	0.25	0

TOTAL = 0.269 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
0.269	L.D.R.	100.	NORMAL	50	15	0.30	0.05	Low	0.05
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.269 = Total Area Avg. = 50 15% 0.300

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 100. %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.25

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.36

IMPERVIOUS AREA: URBAN @ 100 % effective = 15
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 15

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C11	0.269	0.770	0.049	13.0	0.30	0.25	4.80	0.36	15

LOSS PARAMETERS FOR SUBBASIN: C12

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.264	100.	0.25	0

TOTAL = 0.264 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
0.052	L.D.R.	19.6	NORMAL	50	15	0.30	0.05	Low	0.06
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.213	RowCrop	80.4	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.265 = Total Area			Avg. =	79	3%	0.460			

PERCENT OF SUBBASIN
DRY = 0.0 %
NORMAL = 20.0 %
WET = 80.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.05

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA:
URBAN @ 100 % effective = 3
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 3

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C12	0.264	0.870	0.085	12.0	0.46	0.05	4.80	0.44	3

LOSS PARAMETERS FOR SUBBASIN: C14

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ES	0.136	26.6	0.25	0
GM	0.353	68.9	0.25	0
MV	0.023	4.5	0.25	0

TOTAL = 0.512 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
0.129	L.D.R.	25.4	NORMAL	50	15	0.30	0.05	Low	0.05
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.121	RowCrop	23.8	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.258	Orchard	50.8	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.508 = Total Area			Avg. =	77	4%	0.550			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 25.0 %
WET = 75.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.06

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.44

IMPERVIOUS AREA: URBAN @ 100 % effective = 4
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 4

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C14	0.512	1.380	0.044	11.0	0.55	0.06	4.80	0.44	4

LOSS PARAMETERS FOR SUBBASIN: C15

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.511	100.	0.25	0

TOTAL = 0.511 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
0.161	L.D.R.	31.7	NORMAL	50	15	0.30	0.05	Low	0.05
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.347	RowCrop	68.3	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.508 = Total Area Avg. = 75 5% 0.440

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 32.0 %
WET = 68.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.08

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.43

IMPERVIOUS AREA: URBAN @ 100 % effective = 5
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 5

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C15	0.511	1.260	0.074	13.0	0.44	0.08	4.80	0.43	5

LOSS PARAMETERS FOR SUBBASIN: N6

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GF	0.012	2.8	0.25	0
GM	0.407	94.4	0.25	0
VF	0.012	2.8	1.20	0

TOTAL = 0.431 Sq.Miles XKSAT = 0.26 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.70
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.323	RowCrop	74.9	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.108	Orchard	25.1	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.431 = Total Area			Avg. =	85	0%	0.550			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.48

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
N6	0.431	1.260	0.072	14.0	0.55	0.00	4.70	0.48	0

LOSS PARAMETERS FOR SUBBASIN: S15

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
AOB	0.451	23.1	0.40	0
PVC	0.108	5.5	0.40	0
CEC	0.063	3.2	0.40	0
RO	1.328	68.1	0.25	65

TOTAL = 1.950 Sq.Miles XKSAT = 0.29 %Rock = 44

DTHETA

Dry = 0.35 PSIF = 4.55
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.653	Desert	33.5	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
1.297	Mountain	66.5	DRY	25	0	0.15	0.08	Hi	0.08
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

1.950 = Total Area Avg. = 25 0% 0.220

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.34

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 44

% EFFECTIVE IMP. = 44

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
S15	1.950	2.890	0.061	191.0	0.22	0.35	4.55	0.34	44

LOSS PARAMETERS FOR SUBBASIN: W9

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.432	83.7	0.40	0
MO	0.084	16.3	0.40	0

TOTAL = 0.516 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.108	V.L.D.R	20.8	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.081	RowCrop	15.6	WET	85	0	0.50	0.10	Hi	0.11
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.329	Orchard	63.5	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.518 = Total Area Avg. = 74 1% 0.580

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 21.0 %
WET = 79.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.05

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.68

IMPERVIOUS AREA: URBAN @ 100 % effective = 1
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 1

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W9	0.516	1.490	0.038	45.0	0.58	0.05	3.95	0.68	1

LOSS PARAMETERS FOR SUBBASIN: W10

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.424	82.7	0.40	0
MO	0.089	17.3	0.40	0

TOTAL = 0.513 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.187	V.L.D.R	36.5	NORMAL	30	5	0.30	0.05	Low	0.05
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.326	RowCrop	63.5	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.513 = Total Area Avg. = 66 2% 0.430

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 36.0 %
WET = 64.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.09

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.65

IMPERVIOUS AREA: URBAN @ 100 % effective = 2
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 2

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W10	0.513	1.140	0.071	62.0	0.43	0.09	3.95	0.65	2

LOSS PARAMETERS FOR SUBBASIN: W11

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.495	97.1	0.40	0
MO	0.015	2.9	0.40	0

TOTAL = 0.510 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.249	RowCrop	48.9	WET	85	0	0.50	0.10	Hi	0.09
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.260	Orchard	51.1	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	
0.509 = Total Area			Avg. =	85	0%	0.600			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.73

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W11	0.510	1.230	0.055	23.0	0.60	0.00	3.95	0.73	0

LOSS PARAMETERS FOR SUBBASIN: W12

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.193	36.6	0.40	0
GM	0.334	63.4	0.25	0

TOTAL = 0.527 Sq.Miles XKSAT = 0.30 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.528	Orchard	100.	WET	85	0	0.70	0.04	Min	0.02
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.528 = Total Area Avg. = 85 0% 0.700

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.55

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W12	0.527	1.490	0.024	17.0	0.70	0.00	4.50	0.55	0

LOSS PARAMETERS FOR SUBBASIN: W16

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.245	100.	0.40	0

TOTAL = 0.245 Sq.Miles XKSAT = 0.40 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.95
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.246	Orchard	100.	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.246 = Total Area Avg. = 85 0% 0.700

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.73

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0

% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W16	0.245	0.740	0.026	30.0	0.70	0.00	3.95	0.73	0

LOSS PARAMETERS FOR SUBBASIN: W17

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
ANA	0.084	32.8	0.40	0
ES	0.055	21.5	0.25	0
GM	0.117	45.7	0.25	0

TOTAL = 0.256 Sq.Miles XKSAT = 0.29 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.55
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.256	Orchard	100.	WET	85	0	0.70	0.04	Min	0.03
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.256 = Total Area Avg. = 85 0% 0.700

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.53

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W17	0.256	0.740	0.026	29.0	0.70	0.00	4.55	0.53	0

LOSS PARAMETERS FOR SUBBASIN: W18

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Acres	% Area	XKSAT	% Rock Outcrop
ANA	0.103	40.6	0.40	0
ES	0.029	11.4	0.25	0
GM	0.122	48.0	0.25	0

TOTAL = 0.254 Acres XKSAT = 0.30 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.50
Normal = 0.25
Wet = 0.00

LAND USE

AREA Acres	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		WET	85	0	0.50	0.10	Hi	
	Mountain		DRY	25	0	0.15	0.08	Hi	
0.254	Orchard	100.	WET	85	0	0.70	0.04	Min	0.04
	Tr. Park		NORMAL	20	50	0.15	0.03	Min	

0.254 = Total Area Avg. = 85 0% 0.700

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 0.0 %
WET = 100. %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.00

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.55

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
W18	0.254	0.740	0.044	28.0	0.70	0.00	4.50	0.55	0

LOSS PARAMETERS FOR SUBBASIN: C7A

Soil Survey Used Eastern County

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
GM	0.219	100.	0.25	0

TOTAL = 0.219 Sq.Miles XKSAT = 0.25 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.80
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
	Desert		DRY	25	0	0.35	0.05	Low	
	OPEN		DRY	10	0	0.10	0.02	Min	
0.004	V.L.D.R	1.8	NORMAL	30	5	0.30	0.05	Low	0.07
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
0.109	M.D.R.	50.0	NORMAL	50	30	0.25	0.05	Low	0.05
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	20	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
0.103	RowCrop	47.2	WET	85	0	0.50	0.10	Hi	0.10
	Mountain		DRY	25	0	0.15	0.08	Hi	
	Orchard		WET	85	0	0.70	0.04	Min	
0.002	Tr. Park	0.9	NORMAL	20	50	0.15	0.03	Min	0.04
0.218 = Total Area			Avg. =	69	16%	0.370			

PERCENT OF SUBBASIN DRY = 0.0 %
NORMAL = 53.0 %
WET = 47.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.13

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.41

IMPERVIOUS AREA: URBAN @ 100 % effective = 16
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 16

INPUT VALUES FOR MCUHP1 PROGRAM

SUBBASIN	Area sq.mi.	Length mi.	Kb	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %
C7A	0.219	1.200	0.072	20.0	0.37	0.13	4.80	0.41	16

Summary of MCUHP1 Input Parameters
for Sonoqui Wash
100-Year, 6-Hour Storm

Input File: SNQ6.M1I
Output File: SNQ6.M1O

Date: 03/12/04
Entellus Inc.

Subbasin	Area	IA	DTHETA	PSIF	XKSAT	RTIMP	Tc	R
	[sq. miles]	ins.			adj.	%		
S1	1.760	0.33	0.35	4.25	0.41	15	0.53	0.19
S2	3.074	0.32	0.35	4.60	0.33	6	1.03	0.47
E1(1)	7.909	0.32	0.19	6.60	0.18	0	***	***
S3B	1.725	0.23	0.35	4.65	0.31	54	0.41	0.14
S3A	1.703	0.34	0.35	4.50	0.35	1	1.40	1.06
S4B	1.277	0.27	0.35	4.35	0.38	23	0.61	0.40
S4A	1.600	0.34	0.35	4.25	0.41	7	0.69	0.26
S5	0.338	0.25	0.35	4.50	0.35	25	0.25	0.13
S6	0.819	0.31	0.36	5.00	0.27	5	0.59	0.45
S7B	0.773	0.18	0.35	4.50	0.35	29	0.30	0.11
S7A	1.191	0.34	0.35	4.40	0.37	0	0.65	0.28
E2(1)	7.328	0.32	0.18	4.90	0.36	3	***	***
E11	0.338	0.50	0.00	4.80	0.46	0	1.31	1.02
E3	0.430	0.50	0.00	4.80	0.46	0	1.31	0.96
E4	0.371	0.45	0.04	4.65	0.48	9	1.41	1.13
E7	0.356	0.42	0.10	4.80	0.40	2	1.02	0.70
S8B	1.696	0.24	0.35	4.50	0.35	40	0.47	0.21
S8A	1.740	0.35	0.35	4.10	0.44	0	0.86	0.44
S9	3.403	0.24	0.35	4.45	0.36	27	0.92	0.56
S10	0.711	0.23	0.35	3.95	0.47	27	0.38	0.21
E8	0.389	0.50	0.00	4.30	0.62	0	0.88	0.63
E5	0.571	0.50	0.00	3.95	0.73	0	0.62	0.27
E6	1.167	0.48	0.02	4.60	0.50	0	1.50	0.83
E9	0.954	0.57	0.00	4.20	0.66	0	1.13	0.71
E10	0.509	0.66	0.00	4.65	0.50	0	0.52	0.27
S11	0.993	0.19	0.35	4.55	0.34	38	0.51	0.33
C1	0.355	0.35	0.35	3.95	0.47	0	0.38	0.17
S12	0.408	0.24	0.35	4.45	0.36	31	0.28	0.16
C4	0.311	0.35	0.35	4.20	0.42	0	0.68	0.53
C2	0.322	0.47	0.07	4.30	0.58	0	1.14	0.95
C3	0.112	0.56	0.00	4.80	0.46	0	0.65	0.37
N2	0.540	0.66	0.03	4.80	0.44	0	0.57	0.31
N1	0.391	0.44	0.07	4.80	0.42	1	1.40	1.09
N3	0.654	0.40	0.11	4.65	0.44	9	1.14	0.58
C16	0.027	0.35	0.35	4.80	0.29	0	0.30	0.30
C7	0.484	0.37	0.20	4.65	0.38	5	1.33	0.89
S13	2.109	0.25	0.35	4.00	0.45	23	0.63	0.31
W1	0.280	0.35	0.35	4.00	0.45	0	0.47	0.34
C5	0.646	0.35	0.35	4.20	0.42	0	0.43	0.21
W2	0.253	0.35	0.35	4.10	0.44	0	0.53	0.43
W3	0.061	0.35	0.35	4.80	0.29	0	0.45	0.46
C6	0.301	0.35	0.35	4.70	0.30	0	1.10	0.92
C8	0.152	0.30	0.25	4.40	0.39	5	0.67	0.62

(1) S-Graph Method was used

Summary of MCUHP1 Input Parameters
for Sonoqui Wash
100-Year, 6-Hour Storm

Input File: SNQ6.M1I
Output File: SNQ6.M1O

Date: 03/12/04
Entellus Inc.

Subbasin	Area	IA	DTHETA	PSIF	XKSAT	RTIMP	Tc	R
	[sq. miles]	ins.			adj.	%		
W4	0.490	0.70	0.00	4.45	0.57	0	0.38	0.26
S14	1.608	0.35	0.35	4.15	0.43	1	0.67	0.32
W5	0.489	0.43	0.14	4.35	0.50	3	0.67	0.45
W6	0.517	0.35	0.35	4.65	0.31	0	0.88	0.61
W7	0.228	0.30	0.25	4.80	0.31	5	0.94	0.91
W8	0.256	0.30	0.25	4.70	0.32	5	0.85	0.74
C9	0.206	0.25	0.25	4.70	0.38	30	0.70	0.54
C10	0.501	0.38	0.12	4.60	0.47	15	1.35	1.00
N4	0.277	0.49	0.02	3.38	1.06	0	1.49	1.31
C13	0.509	0.56	0.05	4.70	0.46	3	0.77	0.45
N5	0.426	0.43	0.17	4.70	0.39	0	1.10	0.70
C11	0.269	0.30	0.25	4.80	0.36	15	0.72	0.44
C12	0.264	0.46	0.05	4.80	0.44	3	1.24	0.90
C14	0.512	0.55	0.06	4.80	0.44	4	1.11	0.79
C15	0.511	0.44	0.08	4.80	0.43	5	1.45	0.99
N6	0.431	0.55	0.00	4.70	0.48	0	1.27	0.94
S15	1.950	0.22	0.35	4.55	0.34	44	0.69	0.39
W9	0.516	0.58	0.05	3.95	0.68	1	0.57	0.40
W10	0.513	0.43	0.09	3.95	0.65	2	0.66	0.38
W11	0.510	0.60	0.00	3.95	0.73	0	0.84	0.53
W12	0.527	0.70	0.00	4.50	0.55	0	0.57	0.39
W16	0.245	0.70	0.00	3.95	0.73	0	0.29	0.17
W17	0.256	0.70	0.00	4.55	0.53	0	0.29	0.16
W18	0.254	0.70	0.00	4.50	0.55	0	0.43	0.25
C7A	0.219	0.37	0.13	4.80	0.41	16		

(1) S-Graph Method was used

Summary of MCUHP1 Input Parameters
for Sonoqui Wash
100-Year, 24-Hour Storm

Input File: SNQ24.M1I
Output File: SNQ24.M1O

Date: 03/12/04
Entellus Inc.

Subbasin	Area	IA	DTHETA	PSIF	XKSAT	RTIMP	Tc	R
	[sq. miles]	ins.			adj.	%		
S1	1.760	0.33	0.35	4.25	0.41	15	0.49	0.17
S2	3.074	0.32	0.35	4.60	0.33	6	0.98	0.45
E1(1)	7.909	0.50	0.09	6.60	0.22	0	***	***
S3B	1.725	0.23	0.35	4.65	0.31	54	0.39	0.14
S3A	1.703	0.34	0.35	4.50	0.35	1	1.39	1.05
S4B	1.277	0.27	0.35	4.35	0.38	23	0.61	0.40
S4A	1.600	0.34	0.35	4.25	0.41	7	0.68	0.26
S5	0.338	0.25	0.35	4.50	0.35	25	0.28	0.15
S6	0.819	0.31	0.36	5.00	0.27	5	0.62	0.47
S7B	0.773	0.18	0.35	4.50	0.35	29	0.32	0.12
S7A	1.191	0.34	0.35	4.40	0.37	0	0.64	0.28
E2(1)	7.328	0.48	0.13	4.90	0.43	3	***	***
E11	0.338	0.50	0.00	4.80	0.46	0	1.50	1.19
E3	0.430	0.50	0.00	4.80	0.46	0	1.50	1.12
E4	0.371	0.45	0.04	4.65	0.48	9	1.50	1.21
E7	0.356	0.42	0.10	4.80	0.40	2	1.16	0.81
S8B	1.696	0.24	0.35	4.50	0.35	40	0.45	0.20
S8A	1.740	0.35	0.35	4.10	0.44	0	0.82	0.42
S9	3.403	0.24	0.35	4.45	0.36	27	0.90	0.55
S10	0.711	0.23	0.35	3.95	0.47	27	0.41	0.22
E8	0.389	0.50	0.00	4.30	0.62	0	1.05	0.77
E5	0.571	0.50	0.00	3.95	0.73	0	0.71	0.31
E6	1.167	0.48	0.02	4.60	0.50	0	1.50	0.83
E9	0.954	0.57	0.00	4.20	0.66	0	1.28	0.82
E10	0.509	0.66	0.00	4.65	0.50	0	0.59	0.31
S11	0.993	0.19	0.35	4.55	0.34	38	0.52	0.34
C1	0.355	0.35	0.35	3.95	0.47	0	0.43	0.20
S12	0.408	0.24	0.35	4.45	0.36	31	0.32	0.18
C4	0.311	0.35	0.35	4.20	0.42	0	0.75	0.59
C2	0.322	0.47	0.07	4.30	0.58	0	1.29	1.09
C3	0.112	0.56	0.00	4.80	0.46	0	0.75	0.43
N2	0.540	0.66	0.03	4.80	0.44	0	0.62	0.35
N1	0.391	0.44	0.07	4.80	0.42	1	1.50	1.18
N3	0.654	0.40	0.11	4.65	0.44	9	1.27	0.66
C16	0.027	0.35	0.35	4.80	0.29	0	0.35	0.35
C7	0.484	0.37	0.20	4.65	0.38	5	1.17	0.75
S13	2.109	0.25	0.35	4.00	0.45	23	0.60	0.30
W1	0.280	0.35	0.35	4.00	0.45	0	0.52	0.38
C5	0.646	0.35	0.35	4.20	0.42	0	0.46	0.22
W2	0.253	0.35	0.35	4.10	0.44	0	0.59	0.49
W3	0.061	0.35	0.35	4.80	0.29	0	0.50	0.51
C6	0.301	0.35	0.35	4.70	0.30	0	1.23	1.04
C8	0.152	0.30	0.25	4.40	0.39	5	0.75	0.71

(1) S-Graph Method was used

Summary of MCUHP1 Input Parameters
for Sonoqui Wash
100-Year, 24-Hour Storm

Input File: SNQ24.M1I
Output File: SNQ24.M1O

Date: 03/12/04
Entellus Inc.

Subbasin	Area	IA	DTHETA	PSIF	XKSAT	RTIMP	Tc	R
	[sq. miles]	ins.			adj.	%		
W4	0.490	0.70	0.00	4.45	0.57	0	0.43	0.30
S14	1.608	0.35	0.35	4.15	0.43	1	0.64	0.30
W5	0.489	0.43	0.14	4.35	0.50	3	0.75	0.51
W6	0.517	0.35	0.35	4.65	0.31	0	0.98	0.68
W7	0.228	0.30	0.25	4.80	0.31	5	1.07	1.05
W8	0.256	0.30	0.25	4.70	0.32	5	0.96	0.85
C9	0.206	0.25	0.25	4.70	0.38	30	0.78	0.62
C10	0.501	0.38	0.12	4.60	0.47	15	1.50	1.13
N4	0.277	0.49	0.02	3.38	1.06	0	1.50	1.32
C13	0.509	0.56	0.05	4.70	0.46	3	0.87	0.51
N5	0.426	0.43	0.17	4.70	0.39	0	1.23	0.79
C11	0.269	0.30	0.25	4.80	0.36	15	0.80	0.50
C12	0.264	0.46	0.05	4.80	0.44	3	1.42	1.04
C14	0.512	0.55	0.06	4.80	0.44	4	1.25	0.90
C15	0.511	0.44	0.08	4.80	0.43	5	1.50	1.02
N6	0.431	0.55	0.00	4.70	0.48	0	1.50	1.13
S15	1.950	0.22	0.35	4.55	0.34	44	0.69	0.39
W9	0.516	0.58	0.05	3.95	0.68	1	0.63	0.44
W10	0.513	0.43	0.09	3.95	0.65	2	0.74	0.43
W11	0.510	0.60	0.00	3.95	0.73	0	0.99	0.63
W12	0.527	0.70	0.00	4.50	0.55	0	0.64	0.44
W16	0.245	0.70	0.00	3.95	0.73	0	0.34	0.20
W17	0.256	0.70	0.00	4.55	0.53	0	0.33	0.19
W18	0.254	0.70	0.00	4.50	0.55	0	0.48	0.28
C7A	0.219	0.37	0.13	4.80	0.41	16	1.23	1.28

(1) S-Graph Method was used

D.3 Hydrograph Routing

~~Sanokai~~ Sonoqui Wash Floodplain Delineation Study
Routing Data for the 100-Year 6-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RC10W	5410	1347.5	CP-C10	1332.0	CP-N5	0.0029	13	15.00	16.08	1.39	0.045	0.080	RC10W
RC11N	3550	1342.5	CP-C11	1332	CP-N5	0.0030	26	4.33	6.42	0.47	0.080	0.080	Field
RC11S	2625	1342.5	CP-C11	1332.2	CP-C12	0.0039	14	4.33	5.42	0.67	0.035	0.080	Street
RC12N	6475	1332.2	CP-C12	1313.5	CP-N6	0.0029	45	5.25	9.00	0.48	0.080	0.080	Field
RC12W	5300	1332.2	CP-C12	1316.7	CP-C14	0.0029	30	5.25	7.75	0.59	0.020	0.080	Street
RC14N	1775	1316.7	CP-C14	1315.0	CP-C15	0.0010	13	8.67	9.75	0.46	0.035	0.080	Street
RC15N	825	1315.0	CP-C15	1313.5	CP-N6	0.0018	6	4.75	5.17	0.55	0.020	0.080	Street
RC16	5465	1374.0	CP-C16	1367.5	CP-C7	0.0012	5	11.58	11.92	4.46	0.040	0.080	RC16
RC1N	2800	1404.5	CP-C1	1384.0	CP-C2	0.0073	5	5.17	5.58	1.90	0.050	0.050	RC1N
RC2	1650	1384.0	CP-C2	1374.0	CP-C16	0.0061	3	11.33	11.58	1.83	0.060	0.070	RC2
RC2S	1800	1387.1	CP-C2	1387.0	CP-C5	0.0001	29	11.42	13.75	0.21	0.020	0.080	Street
RC3NW	5350	1396.2	CP-C3	1383.5	CP-N2	0.0024	56	4.42	9.08	0.32	0.070	0.080	Field
RC3SW	3060	1396.2	CP-C3	1384.0	CP-C2	0.0040	3	4.42	4.67	3.40	0.045	0.080	Channel
RC5	5560	1386.3	CP-C5	1372.5	CP-C6	0.0025	69	4.25	9.92	0.27	0.060	0.070	Field
RC6N	5850	1372.5	CP-C6	1350	CP-W8	0.0038	27	6.58	8.67	0.78	0.090	0.090	Field
RC6S	5200	1372.5	CP-C6	1360	CP-W6	0.0024	6	6.00	6.33	4.38	0.035	0.080	RC6S
RC7	2250	1367.5	CP-C7	1361.5	CP-C7A	0.0027	1	14.17	14.25	7.81	0.045	0.080	new RC7
RC7A	3200	1361.5	CP-C7A	1359.5	CP-D2	0.0006	3	14.25	14.50	3.56	0.045	0.080	old RC7
RC8N	4100	1368.0	CP-C8	1359.5	CP-D2	0.0021	8	4.33	4.92	1.93	0.045	0.080	RC8N
RC8W	5280	1368.0	CP-C8	1350.0	CP-W8	0.0034	31	4.33	6.83	0.59	0.020	0.080	Street
RC9W	3875	1352.5	CP-C9	1342.5	CP-C11	0.0026	30	4.33	6.83	0.43	0.100	0.100	Field
RD2	3475	1359.5	CP-D2	1347.5	CP-C10	0.0035	6	14.50	15.00	1.93	0.060	0.080	RD2
RD3N	3025	1384.0	CP-D3	1381.5	CP-N1	0.0008	28	13.67	16.00	0.36	0.020	0.080	Street
RD3W	3550	1384.0	CP-D3	1367.5	CP-C7	0.0046	17	13.67	15.08	0.70	0.090	0.090	Field
RD5	6430	1478.0	CP-D5	1467.0	CP-D6	0.0017	17	6.83	8.17	1.33	0.060	0.080	Railroad
RD6	5161	1467.0	CP-D6	1440.0	CP-E2	0.0052	9	8.17	9.00	1.73	0.060	0.080	Railroad
RE1	8256	1488.0	CP-E1	1478.0	CP-D5	0.0012	24	4.75	6.75	1.15	0.060	0.080	Railroad
RE10	6000	1400.0	CP-E10	1386.5	CP-N2	0.0023	19	11.17	12.75	1.05	0.070	0.080	Field
RE11N	6950	1460.0	CP-E11	1438.5	CP-E3	0.0031	15	5.00	6.25	1.54	0.040	0.080	RE11N
RE11S	6600	1460.0	CP-E11	1438.5	CP-E3	0.0033	40	5.00	8.33	0.55	0.070	0.080	Field
RE2	6025	1440.0	CP-E2	1420.0	CP-E6	0.0033	12	9.00	10.00	1.67	0.060	0.080	Railroad
RE3	2700	1438.5	CP-E3	1438.0	CP-E4	0.0002	49	5.00	9.08	0.18	0.020	0.080	Street
RE3W	5200	1438.5	CP-E3	1420.0	CP-E6	0.0036	18	5.00	6.58	0.91	0.020	0.080	Street
RE4	6400	1438.0	CP-E4	1418.2	CP-E7	0.0031	44	4.67	8.33	0.49	0.070	0.080	Field
RE5	2150	1454.0	CP-E5	1440.0	CP-E2	0.0065	4	4.42	4.75	1.81	0.020	0.080	Street

Sonoqui

~~Sanokai~~ Wash Floodplain Delineation Study
Routing Data for the 100-Year 6-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RE6	1465	1420.0	CP-E6	1418.2	CP-E7	0.0012	6	10.08	10.58	0.81	0.020	0.080	Street
RE6S	5200	1420.0	CP-E6	1402.0	CP-E9	0.0035	13	10.08	11.08	1.44	0.020	0.080	Street
RE7	5200	1418.2	CP-E7	1400.0	CP-E10	0.0035	16	9.83	11.08	1.16	0.070	0.080	Field
RE8	3675	1440.0	CP-E8	1404.5	CP-C1	0.0097	7	4.75	5.25	2.04	0.060	0.070	RE8
RE8E	5300	1440.0	CP-E8	1402.0	CP-E9	0.0072	13	4.75	5.83	1.36	0.020	0.080	Street
RE9N	1300	1402.0	CP-E9	1400.0	CP-E10	0.0015	6	11.17	11.67	0.72	0.020	0.080	Street
RE9W	4000	1402.0	CP-E9	1384.0	CP-C2	0.0045	2	11.17	11.33	6.94	0.035	0.080	RE9W
RN1	5200	1381.5	CP-N1	1366.5	CP-N3	0.0029	33	5.00	7.67	0.54	0.080	0.080	Field
RN2N	2000	1386.5	CP-N2	1384.0	CP-D3	0.0013	11	12.83	13.67	0.66	0.020	0.080	Street
RN2S	4850	1386.5	CP-N2	1367.5	CP-C7	0.0039	3	12.83	13.08	5.39	0.055	0.080	RN2S
RN3S	1600	1366.5	CP-N3	1361.5	CP-C7	0.0031	12	4.50	5.42	0.48	0.020	0.080	Street
RN3W	2850	1366.5	CP-N3	1359.5	CP-D2	0.0025	16	4.50	5.83	0.60	0.080	0.090	Field
RN5W	5275	1332.0	CP-N5	1313.5	CP-N6	0.0035	12	16.08	17.00	1.59	0.045	0.080	RN5W
RRW1	2700	1495.0	*RRW1	1488.0	CP-E1	0.0026	13	4.75	5.75	0.75	0.080	0.080	Field
RRW2	7800	1493.0	*RRW2	1478.0	CP-D5	0.0019	51	4.75	8.92	0.52	0.080	0.080	Field
RRW3	4950	1384.0	*RRW3	1381.5	CP-D5	0.0005	36	4.75	7.67	0.47	0.080	0.080	Field
RS1	24000	1518.0	CP-S1	1488.0	CP-E1	0.0013	111	4.33	13.58	0.72	0.080	0.080	Railroad
RS10	1859	1459.0	CP-S10	1440.0	CP-E8	0.0102	3	4.58	4.83	2.07	0.060	0.070	Mountain
RS11	3100	1434.0	CP-S11	1404.5	CP-C1	0.0095	6	4.33	4.83	1.72	0.070	0.070	Field
RS12	4300	1426.0	CP-S12	1404.5	CP-C1	0.0050	13	4.17	5.25	1.11	0.070	0.070	Field
RS13	5600	1440.0	CP-S13	1389.0	CP-W1	0.0091	11	4.42	5.33	1.71	0.070	0.070	Field
RS14C	7325	1448	CP-S14	1391	CP-W4	0.0078	30	5.83	8.25	0.84	0.070	0.080	Field
RS14E	5250	1448	CP-S14	1389	CP-W2	0.0112	11	5.83	6.67	1.74	0.020	0.070	Street
RS14W	6625	1448	CP-S14	1387	CP-W5	0.0092	32	5.83	8.42	0.71	0.070	0.070	Field
RS15	10135	1600	CP-S15	1448	CP-S14	0.0150	16	4.50	5.83	2.12	0.080	0.080	Mountain
RS2	15964	1517.0	CP-S2	1488.0	CP-E1	0.0018	60	4.75	9.67	0.90	0.080	0.080	Railroad
RS3A	11731	1522.0	CP-S3A	1488.0	CP-E1	0.0029	45	6.83	10.50	0.89	0.080	0.080	Field
RS3B	17915	1658.0	CP-S3B	1522.0	CP-S3A	0.0076	30	4.25	6.75	1.99	0.060	0.070	Mountain
RS4A	7390	1526.0	CP-S4A	1478.0	CP-D5	0.0065	21	4.42	6.17	1.17	0.080	0.080	Field
RS4B	8090	1600.0	CP-S4B	1526.0	CP-S4A	0.0091	15	4.42	5.67	1.80	0.060	0.070	Mountain
RS5	5790	1517.0	CP-S5	1478.0	CP-D5	0.0067	21	4.08	5.75	0.96	0.080	0.080	Field
RS6	8910	1511.0	CP-S6	1467.0	CP-D6	0.0049	35	4.42	7.33	0.85	0.080	0.080	Field
RS7A	6900	1508.0	CP-S7A	1467.0	CP-D6	0.0059	24	4.42	6.33	1.00	0.080	0.080	Field
RS7B	7714	1590.0	CP-S7B	1508.0	CP-S7A	0.0106	13	4.17	5.25	1.98	0.060	0.070	Mountain
RS8A	9191	1504.0	CP-S8A	1440.0	CP-E2	0.0070	23	5.67	7.58	1.34	0.080	0.080	Field

~~Sanokai~~ Sonoqui Wash Floodplain Delineation Study
Routing Data for the 100-Year 6-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RS8B	11791	1640.0	CP-S8B	1504.0	CP-S8A	0.0115	18	4.25	5.67	2.31	0.060	0.070	Mountain
RS9C	2550	1449	NA	1440	CP-E8	0.0035	3	5.33	5.50	4.17	0.045	0.070	RS9C
RS9E	2550	1459	CP-S9	1449	NA	0.0039	8	4.67	5.33	1.07	0.060	0.070	Mountain
RW1	3375	1389.0	CP-W1	1372.5	CP-C6	0.0049	12	5.33	6.25	1.02	0.070	0.080	Field
RW10	4800	1370	CP-W10	1337	CP-W16	0.0069	17	4.42	5.83	0.95	0.070	0.080	Field
RW11	2925	1354.5	CP-W11	1334.5	CP-W12	0.0068	9	5.08	5.75	1.21	0.070	0.080	Field
RW12N	7300	1334.5	CP-W12	1316.7	CP-C14	0.0024	34	5.75	8.58	0.72	0.080	0.080	Field
RW12S	2625	1334.5	CP-W12	1324.3	CP-W18	0.0039	4	4.75	5.00	2.92	0.045	0.080	RW12S
RW16N	3750	1337	CP-W16	1317	CP-W17	0.0053	30	4.17	5.42	0.83	0.070	0.080	Field
RW17	2700	1317	CP-W17	1316.7	CP-C14	0.0001	94	3.67	11.50	0.10	0.020	0.080	Street
RW18N	5075	1324.3	CP-W18	1316.7	CP-C14	0.0015	35	4.42	7.33	0.48	0.070	0.080	Field
RW18S	2725	1324.3	CP-W18	1317	CP-W17	0.0027	4	4.17	4.42	3.03	0.045	0.080	RW18S
RW1W	1100	1389	CP-W1	1388.5	CP-W2	0.0005	8	5.33	5.92	0.52	0.020	0.080	Street
RW2	2600	1388.5	CP-W2	1372.5	CP-C6	0.0062	6	5.92	6.50	1.25	0.020	0.080	Street
RW4N	4250	1391.0	CP-W4	1360.0	CP-W6	0.0073	13	4.17	5.25	1.09	0.070	0.080	Field
RW5	2725	1387.0	CP-W5	1360.0	CP-W6	0.0099	6	4.25	4.75	1.51	0.020	0.080	Street
RW6	1425	1360.0	CP-W6	1356.5	CP-W7	0.0025	6	5.25	5.75	0.79	0.045	0.080	RW6
RW7	1400	1356.5	CP-W7	1350.0	CP-W8	0.0046	1	5.75	5.83	4.86	0.045	0.080	RW7
RW8N	4075	1350.0	CP-W8	1342.5	CP-C11	0.0018	24	8.67	10.58	0.59	0.100	0.100	Field
RW8S	5175	1350	CP-W8	1334.5	CP-W12	0.0030	7	8.58	9.08	2.88	0.045	0.080	RW8S
RW9	3100	1380	CP-W9	1354.5	CP-W11	0.0082	9	4.42	5.17	1.15	0.070	0.080	Field

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~~Sanokai~~ Wash Floodplain Delineation Study
Routing Data for the 100-Year 24-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RC10W	5410	1347.5	CP-C10	1332.0	CP-N5	0.0029	12	22.00	23.00	1.50	0.045	0.080	RC10W
RC11N	3550	1342.5	CP-C11	1332	CP-N5	0.0030	27	12.33	14.50	0.45	0.080	0.080	Field
RC11S	2625	1342.5	CP-C11	1332.2	CP-C12	0.0039	15	12.33	13.50	0.62	0.035	0.080	Street
RC12N	6475	1332.2	CP-C12	1313.5	CP-N6	0.0029	47	13.33	17.17	0.47	0.080	0.080	Field
RC12W	5300	1332.2	CP-C12	1316.7	CP-C14	0.0029	33	13.33	16.00	0.55	0.020	0.080	Street
RC14N	1775	1316.7	CP-C14	1315.0	CP-C15	0.0010	13	17.42	18.50	0.46	0.035	0.080	Street
RC15N	825	1315.0	CP-C15	1313.5	CP-N6	0.0018	6	12.67	13.17	0.46	0.020	0.080	Street
RC16	5465	1374.0	CP-C16	1367.5	CP-C7	0.0012	3	15.00	15.25	6.07	0.040	0.080	RC16
RC1N	2800	1404.5	CP-C1	1384.0	CP-C2	0.0073	5	13.17	13.58	1.90	0.050	0.050	RC1N
RC2	1650	1384.0	CP-C2	1374.0	CP-C16	0.0061	1	14.92	15.00	5.73	0.060	0.070	RC2
RC2S	1800	1387.1	CP-C2	1387.0	CP-C5	0.0001	18	14.92	16.42	0.33	0.020	0.080	Street
RC3NW	5350	1396.2	CP-C3	1383.5	CP-N2	0.0024	57	12.50	17.25	0.31	0.070	0.080	Field
RC3SW	3060	1396.2	CP-C3	1384.0	CP-C2	0.0040	4	12.50	12.83	2.58	0.045	0.080	Channel
RC5	5560	1386.3	CP-C5	1372.5	CP-C6	0.0025	20	16.33	18.00	0.92	0.060	0.070	Field
RC6N	5850	1372.5	CP-C6	1350	CP-W8	0.0038	27	14.50	16.83	0.70	0.090	0.090	Field
RC6S	5200	1372.5	CP-C6	1360	CP-W6	0.0024	6	14.00	14.42	3.44	0.035	0.080	RC6S
RC7	2250	1367.5	CP-C7	1361.5	CP-C7A	0.0027	4	20.83	21.25	1.49	0.045	0.080	new RC7
RC7A	3200	1361.5	CP-C7A	1359.5	CP-D2	0.0006	4	21.25	21.58	2.69	0.045	0.080	old RC7
RC8N	4100	1368.0	CP-C8	1359.5	CP-D2	0.0021	9	12.33	13.08	1.52	0.045	0.080	RC8N
RC8W	5280	1368.0	CP-C8	1350.0	CP-W8	0.0034	33	12.33	15.08	0.53	0.020	0.080	Street
RC9W	3875	1352.5	CP-C9	1342.5	CP-C11	0.0026	36	12.33	15.25	0.37	0.100	0.100	Field
RD2	3475	1359.5	CP-D2	1347.5	CP-C10	0.0035	4	21.58	22.00	2.30	0.060	0.080	RD2
RD3N	3025	1384.0	CP-D3	1381.5	CP-N1	0.0008	27	21.33	23.58	0.37	0.020	0.080	Street
RD3W	3550	1384.0	CP-D3	1367.5	CP-C7	0.0046	26	21.42	23.58	0.46	0.090	0.090	Field
RD5	6430	1478.0	CP-D5	1467.0	CP-D6	0.0017	15	14.67	15.92	1.43	0.060	0.080	Railroad
RD6	5161	1467.0	CP-D6	1440.0	CP-E2	0.0052	8	15.92	16.58	2.17	0.060	0.080	Railroad
RE1	8256	1488.0	CP-E1	1478.0	CP-D5	0.0012	24	12.67	14.67	1.15	0.060	0.080	Railroad
RE10	6000	1400.0	CP-E10	1386.5	CP-N2	0.0023	18	19.08	20.58	1.11	0.070	0.080	Field
RE11N	6950	1460.0	CP-E11	1438.5	CP-E3	0.0031	26	13.08	15.17	0.92	0.040	0.080	RE11N
RE11S	6600	1460.0	CP-E11	1438.5	CP-E3	0.0033	45	13.08	16.75	0.50	0.070	0.080	Field
RE2	6025	1440.0	CP-E2	1420.0	CP-E6	0.0033	12	16.58	17.50	1.82	0.060	0.080	Railroad
RE3	2700	1438.5	CP-E3	1438.0	CP-E4	0.0002	54	13.08	17.58	0.17	0.020	0.080	Street
RE3W	5200	1438.5	CP-E3	1420.0	CP-E6	0.0036	23	13.08	14.92	0.79	0.020	0.080	Street
RE4	6400	1438.0	CP-E4	1418.2	CP-E7	0.0031	49	12.67	16.75	0.44	0.070	0.080	Field
RE5	2150	1454.0	CP-E5	1440.0	CP-E2	0.0065	5	12.42	12.83	1.46	0.020	0.080	Street

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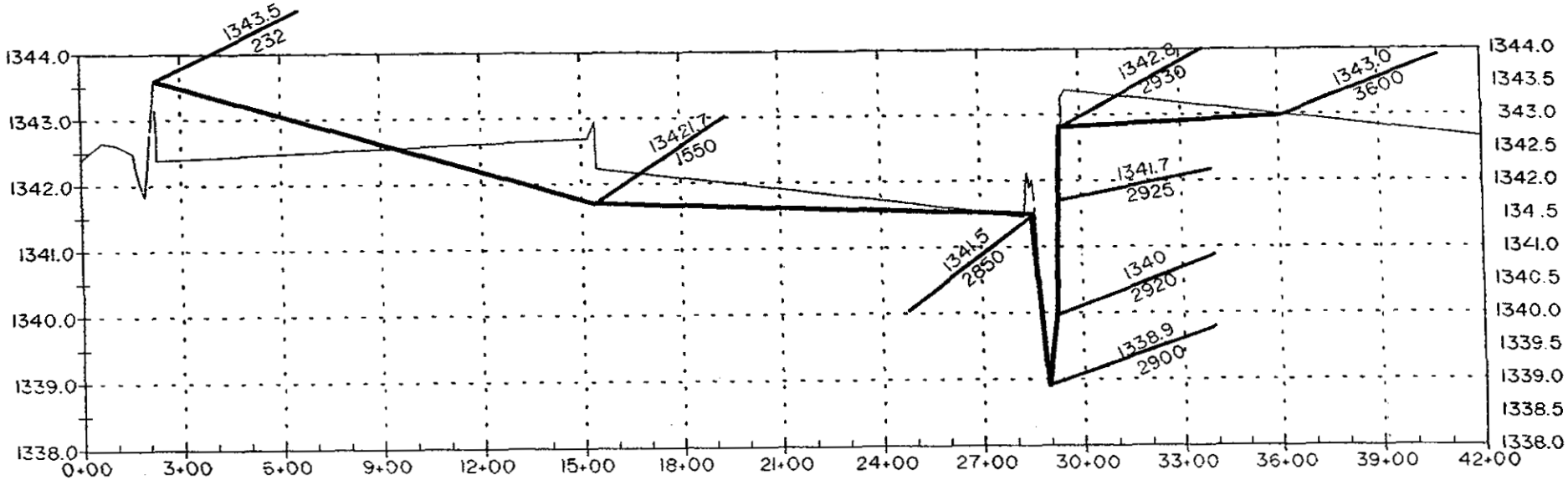
~~Sanokai~~ Wash Floodplain Delineation Study
Routing Data for the 100-Year 24-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RE6	1465	1420.0	CP-E6	1418.2	CP-E7	0.0012	6	17.50	17.92	0.97	0.020	0.080	Street
RE6S	5200	1420.0	CP-E6	1402.0	CP-E9	0.0035	12	17.50	18.42	1.57	0.020	0.080	Street
RE7	5200	1418.2	CP-E7	1400.0	CP-E10	0.0035	15	17.83	19.08	1.16	0.070	0.080	Field
RE8	3675	1440.0	CP-E8	1404.5	CP-C1	0.0097	6	12.75	13.17	2.43	0.060	0.070	RE8
RE8E	5300	1440.0	CP-E8	1402.0	CP-E9	0.0072	13	12.75	13.83	1.36	0.020	0.080	Street
RE9N	1300	1402.0	CP-E9	1400.0	CP-E10	0.0015	6	18.42	18.92	0.72	0.020	0.080	Street
RE9W	4000	1402.0	CP-E9	1384.0	CP-C2	0.0045	5	18.42	18.83	2.71	0.035	0.080	RE9W
RN1	5200	1381.5	CP-N1	1366.5	CP-N3	0.0029	36	13.08	16.08	0.48	0.080	0.080	Field
RN2N	2000	1386.5	CP-N2	1384.0	CP-D3	0.0013	11	20.58	21.42	0.66	0.020	0.080	Street
RN2S	4850	1386.5	CP-N2	1367.5	CP-C7	0.0039	3	20.58	20.83	5.39	0.055	0.080	RN2S
RN3S	1600	1366.5	CP-N3	1361.5	CP-C7A	0.0031	13	12.50	13.58	0.41	0.020	0.080	Street
RN3W	2850	1366.5	CP-N3	1359.5	CP-D2	0.0025	19	12.50	14.08	0.50	0.080	0.090	Field
RN5W	5275	1332.0	CP-N5	1313.5	CP-N6	0.0035	12	23.00	23.92	1.59	0.045	0.080	RN5W
RRW1	2700	1495.0	*RRW1	1488.0	CP-E1	0.0026	10	12.75	13.58	0.90	0.080	0.080	Field
RRW2	7800	1493.0	*RRW2	1478.0	CP-D5	0.0019	45	12.75	16.42	0.59	0.080	0.080	Field
RRW3	4950	1384.0	*RRW3	1381.5	CP-D5	0.0005	13	12.75	13.83	1.27	0.080	0.080	Field
RS1	24000	1518.0	CP-S1	1488.0	CP-E1	0.0013	120	12.25	22.55	0.65	0.080	0.080	Railroad
RS10	1859	1459.0	CP-S10	1440.0	CP-E8	0.0102	3	12.58	12.75	3.04	0.060	0.070	Mountain
RS11	3100	1434.0	CP-S11	1404.5	CP-C1	0.0095	8	12.33	12.92	1.46	0.070	0.070	Field
RS12	4300	1426.0	CP-S12	1404.5	CP-C1	0.0050	15	12.17	13.42	0.96	0.070	0.070	Field
RS13	5600	1440.0	CP-S13	1389.0	CP-W1	0.0091	11	12.42	13.33	1.71	0.070	0.070	Field
RS14C	7325	1448	CP-S14	1391	CP-W4	0.0078	49	12.42	16.42	0.51	0.070	0.080	Field
RS14E	5250	1448	CP-S14	1389	CP-W2	0.0112	59	12.42	17.33	0.30	0.020	0.070	Street
RS14W	6625	1448	CP-S14	1387	CP-W5	0.0092	50	12.42	16.58	0.44	0.070	0.070	Field
RS15	10135	1600	CP-S15	1448	CP-S14	0.0150	18	12.42	13.92	1.88	0.080	0.080	Mountain
RS2	15964	1517.0	CP-S2	1488.0	CP-E1	0.0018	61	12.67	17.67	0.89	0.080	0.080	Railroad
RS3A	11731	1522.0	CP-S3A	1488.0	CP-E1	0.0029	45	14.83	18.58	0.87	0.080	0.080	Field
RS3B	17915	1658.0	CP-S3B	1522.0	CP-S3A	0.0076	32	12.17	14.83	1.87	0.060	0.070	Mountain
RS4A	7390	1526.0	CP-S4A	1478.0	CP-D5	0.0065	21	12.42	14.17	1.17	0.080	0.080	Field
RS4B	8090	1600.0	CP-S4B	1526.0	CP-S4A	0.0091	16	12.42	13.75	1.69	0.060	0.070	Mountain
RS5	5790	1517.0	CP-S5	1478.0	CP-D5	0.0067	23	12.17	14.08	0.84	0.080	0.080	Field
RS6	8910	1511.0	CP-S6	1467.0	CP-D6	0.0049	38	12.42	15.58	0.78	0.080	0.080	Field
RS7A	6900	1508.0	CP-S7A	1467.0	CP-D6	0.0059	24	12.42	14.42	0.96	0.080	0.080	Field
RS7B	7714	1590.0	CP-S7B	1508.0	CP-S7A	0.0106	15	12.17	13.42	1.71	0.060	0.070	Mountain
RS8A	9191	1504.0	CP-S8A	1440.0	CP-E2	0.0070	24	13.75	15.67	1.33	0.080	0.080	Field

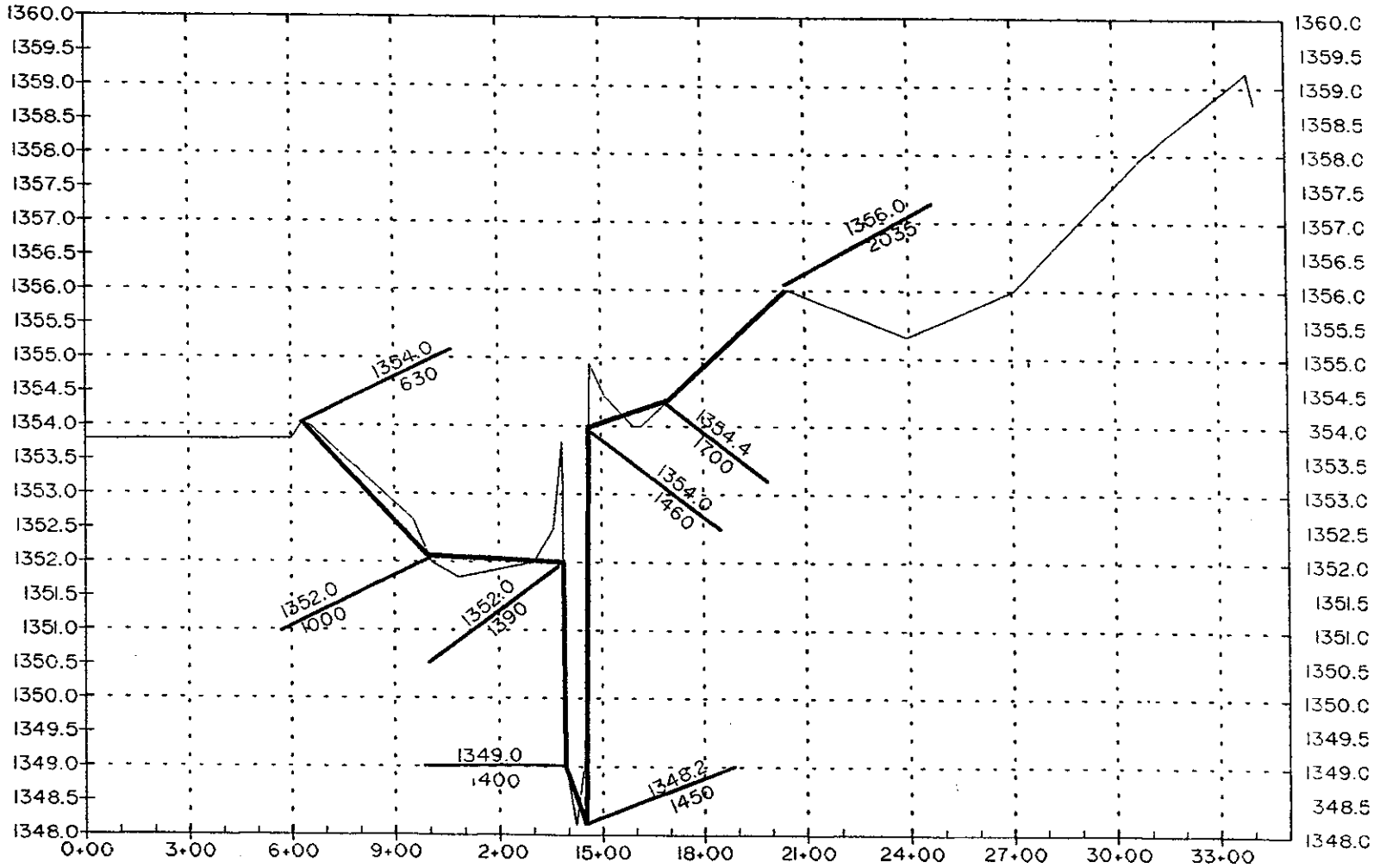
Sanaqui ~~Sanokai~~ Wash Floodplain Delineation Study
Routing Data for the 100-Year 24-Hour Storm

Routing ID	Length (ft)	Upstream Elev.	Upstream Conc. Point	Downstream Elev.	Downstream Conc. Point	General Slope (ft/ft)	Time Step	Peak In (hrs.)	Peak Out (hrs.)	Velocity (ft/s)	Channel Roughness "n"	Overbank Roughness "n"	Flow Cross-Section
RS8B	11791	1640.0	CP-S8B	1504.0	CP-S8A	0.0115	18	12.25	13.75	2.18	0.060	0.070	Mountain
RS9C	2550	1449	NA	1440	CP-E8	0.0035	3	13.25	13.50	2.83	0.045	0.070	RS9C
RS9E	2550	1459	CP-S9	1449	NA	0.0039	9	12.58	13.25	1.06	0.060	0.070	Mountain
RW1	3375	1389.0	CP-W1	1372.5	CP-C6	0.0049	12	13.33	14.33	0.94	0.070	0.080	Field
RW10	4800	1370	CP-W10	1337	CP-W16	0.0069	21	12.50	14.17	0.80	0.070	0.080	Field
RW11	2925	1354.5	CP-W11	1334.5	CP-W12	0.0068	9	13.25	14.00	1.08	0.070	0.080	Field
RW12N	7300	1334.5	CP-W12	1316.7	CP-C14	0.0024	52	14.00	17.42	0.59	0.080	0.080	Field
RW12S	2625	1334.5	CP-W12	1324.3	CP-W18	0.0039	4	13.17	13.42	2.92	0.045	0.080	RW12S
RW16N	3750	1337	CP-W16	1317	CP-W17	0.0053	25	12.17	15.67	0.30	0.070	0.080	Field
RW17	2700	1317	CP-W17	1316.7	CP-C14	0.0001	69	10.67	18.67	0.09	0.020	0.080	Street
RW18N	5075	1324.3	CP-W18	1316.7	CP-C14	0.0015	48	13.33	16.08	0.51	0.070	0.080	Field
RW18S	2725	1324.3	CP-W18	1317	CP-W17	0.0027	4	12.25	12.58	2.29	0.045	0.080	RW18S
RW1W	1100	1389	CP-W1	1388.5	CP-W2	0.0005	8	13.33	14.00	0.46	0.020	0.080	Street
RW2	2600	1388.5	CP-W2	1372.5	CP-C6	0.0062	6	14.00	14.50	1.44	0.020	0.080	Street
RW4N	4250	1391.0	CP-W4	1360.0	CP-W6	0.0073	15	12.17	13.42	0.94	0.070	0.080	Field
RW5	2725	1387.0	CP-W5	1360.0	CP-W6	0.0099	6	12.33	12.83	1.51	0.020	0.080	Street
RW6	1425	1360.0	CP-W6	1356.5	CP-W7	0.0025	3	13.33	13.75	0.94	0.045	0.080	RW6
RW7	1400	1356.5	CP-W7	1350.0	CP-W8	0.0046	1	13.75	13.75	97.22	0.045	0.080	RW7
RW8N	4075	1350.0	CP-W8	1342.5	CP-C11	0.0018	42	20.42	22.67	0.50	0.100	0.100	Field
RW8S	5175	1350	CP-W8	1334.5	CP-W12	0.0030	5	20.25	20.67	3.42	0.045	0.080	RW8S
RW9	3100	1380	CP-W9	1354.5	CP-W11	0.0082	11	12.42	13.42	0.86	0.070	0.080	Field

Sonoqui
~~Sanoka~~i Wash Main Channel
RC10W & RN5W

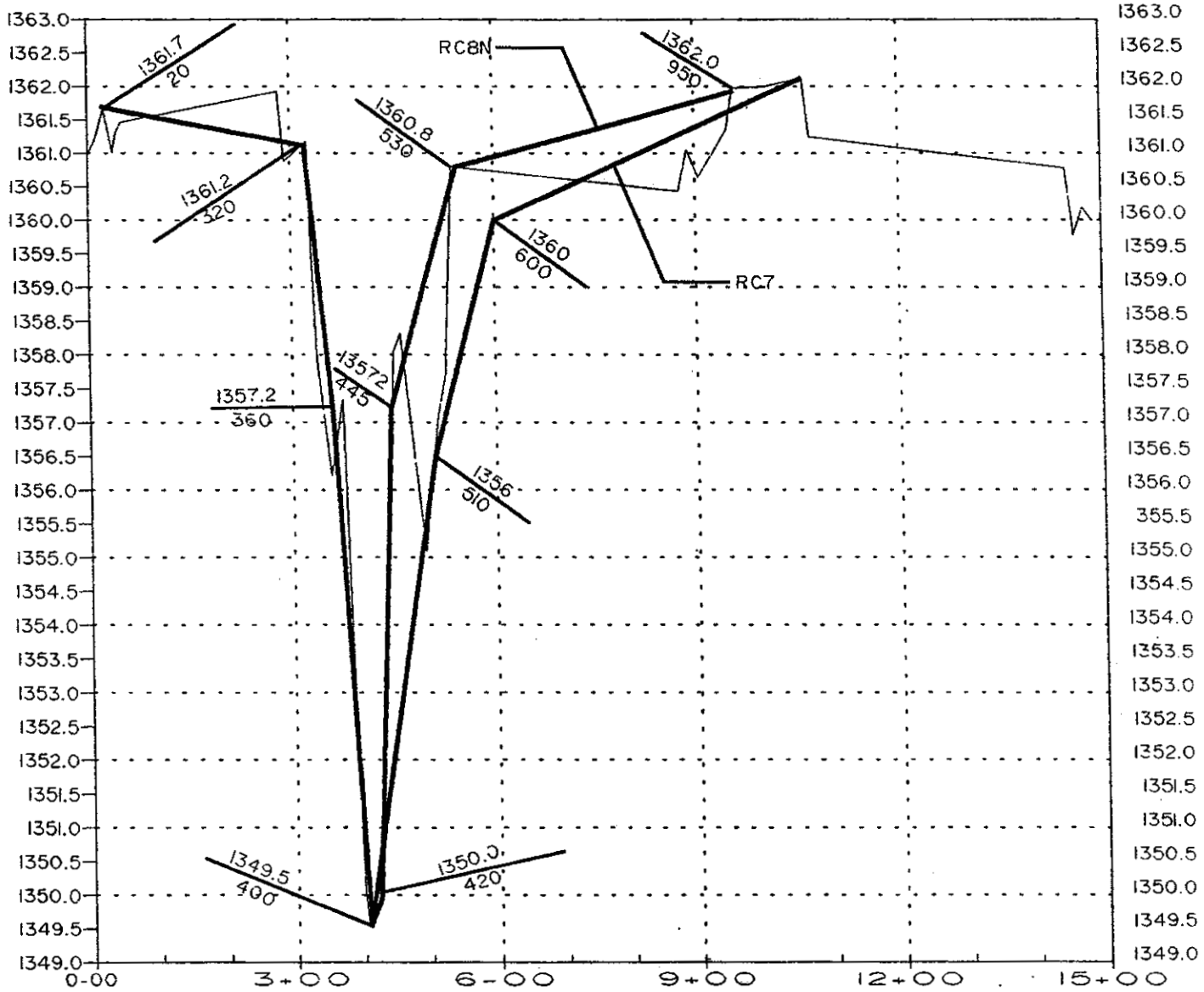


~~Sanokai~~ Sonoqui Wash Main Channel
RD2

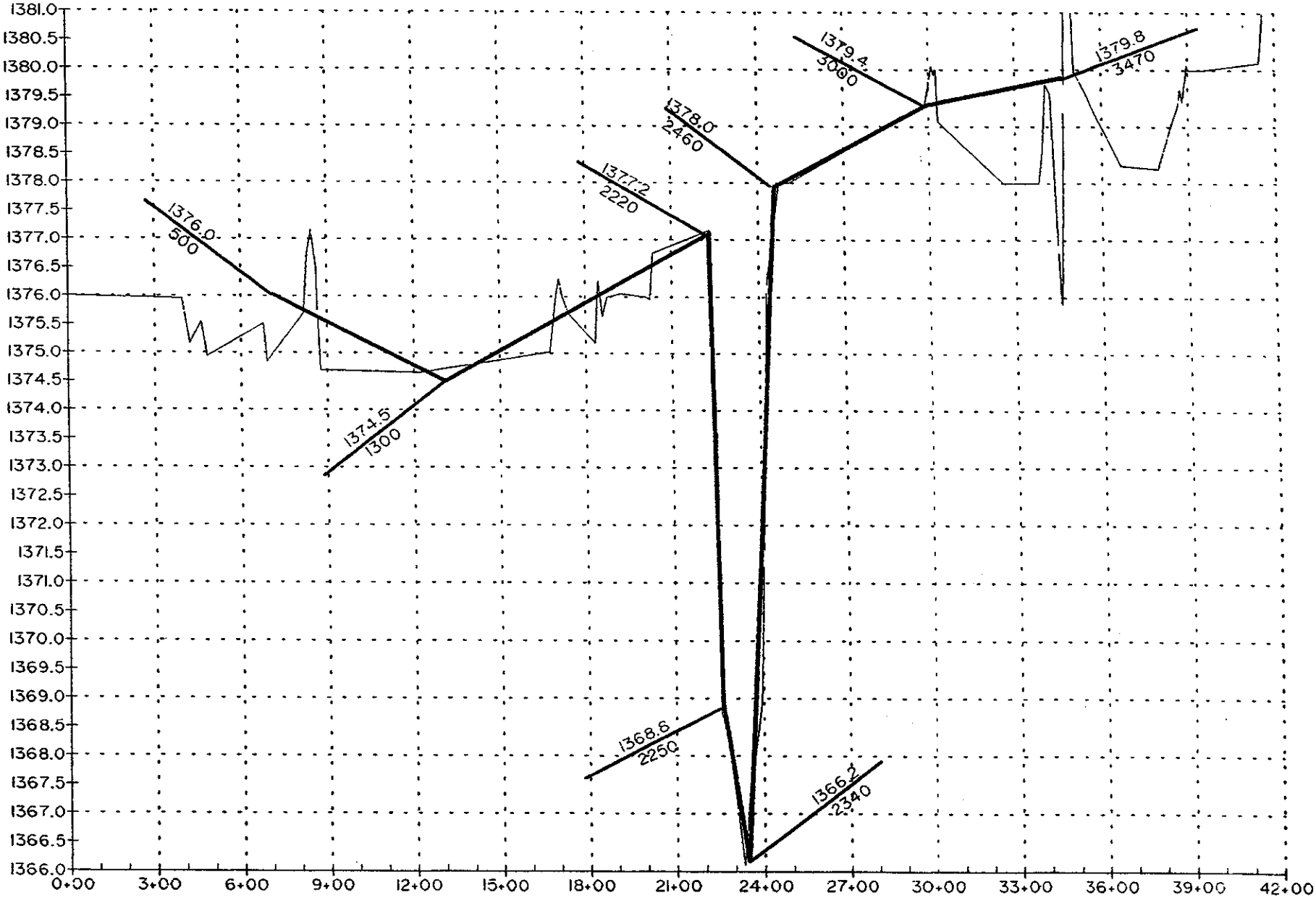


~~Sanokai~~ Sonoqui Wash Main Channel

RC7 & RC8N

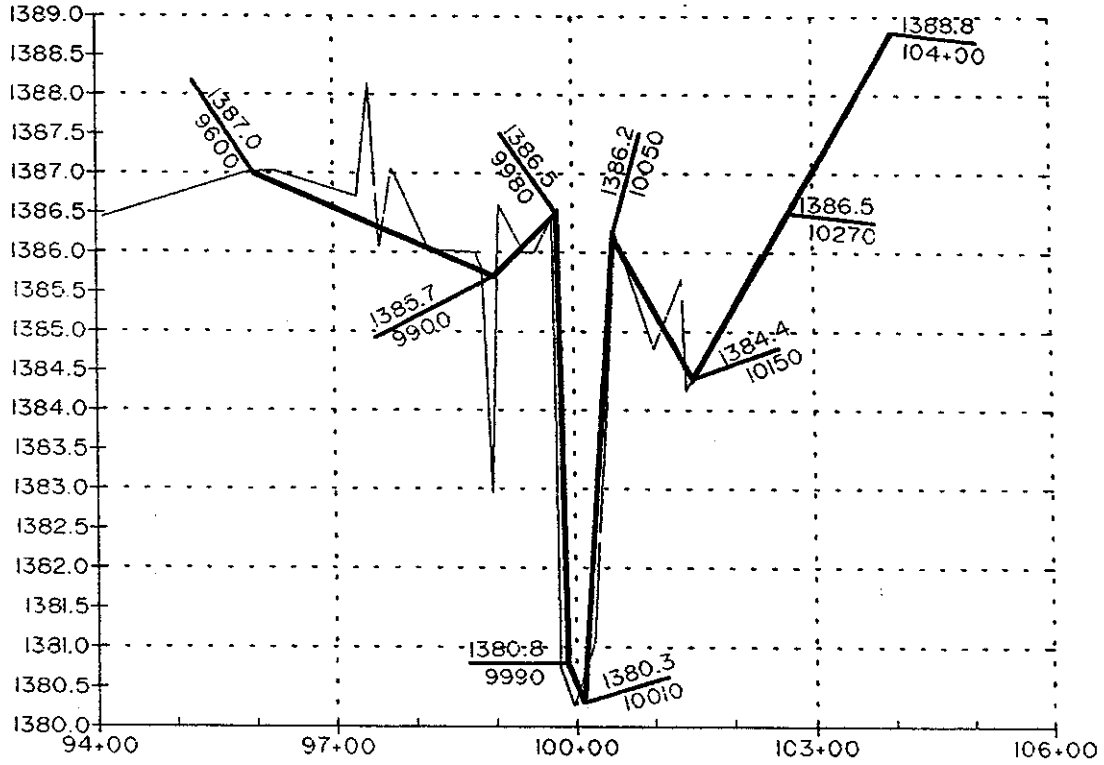


Sonoqui ~~Sanokai~~ Wash Main Channel
RN2S & RC16



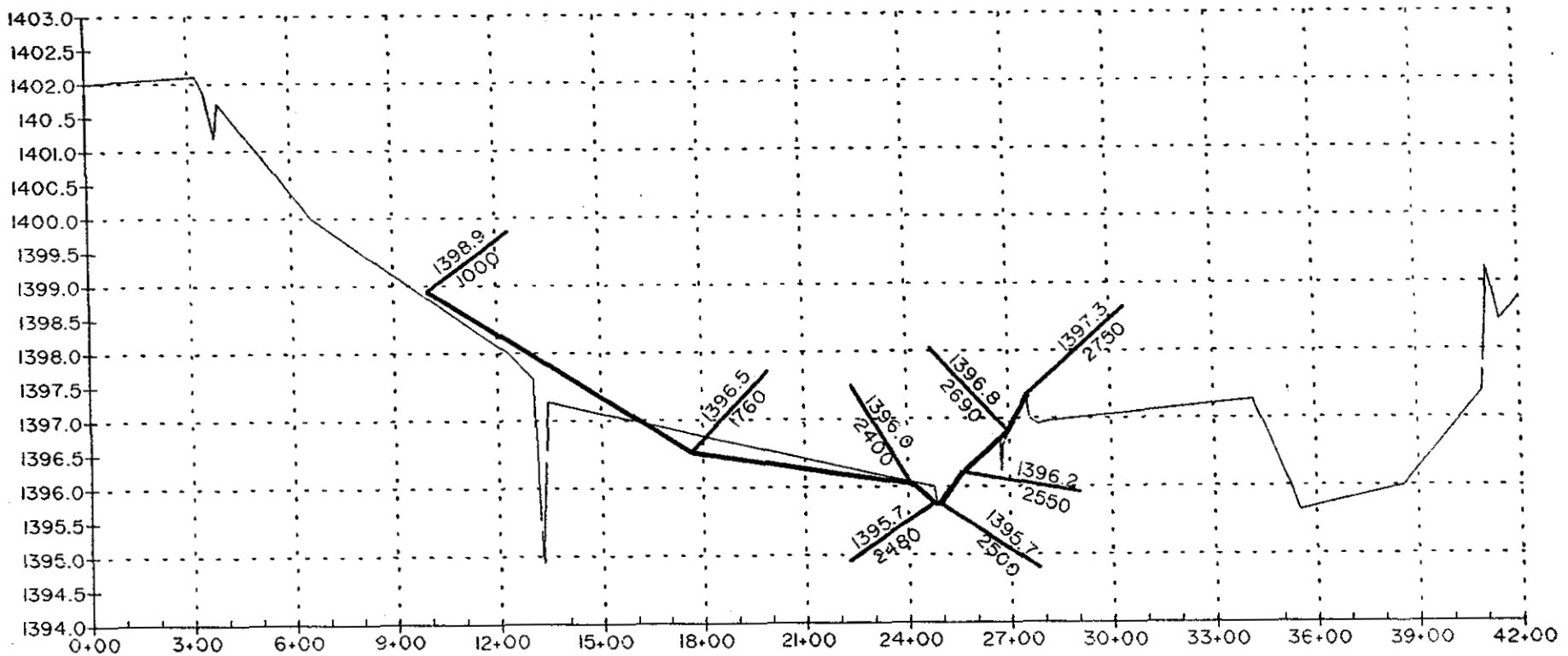
Sonoqui ~~Sanokai~~ Wash Main Channel

RC2



~~Sanokai~~ Sonoqui Wash Main Channel

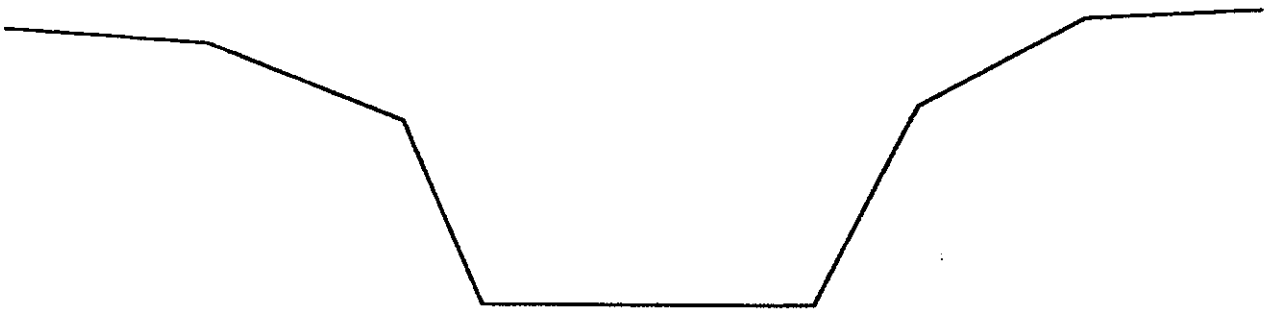
RE8



Sonoqui ~~Sanokai~~ Wash Floodplain Delineation

Hydrologic Routing Cross-Section

Higley Rd. Channel



RW17

Hor. (X)	0	50	100	105	120	125	175	225
Ver. (Y)	3	2.5	2	0	0	2	2.5	3

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Hydrologic Routing Cross-Section

Chandler Heigths Road Channel

RW18S

Hor. (X)	0	50	100	125	145	170	220	270
Ver. (Y)	4	3.5	3	0	0	3	3.5	4

RW12S

Hor. (X)	0	50	100	125	145	170	220	270
Ver. (Y)	5	4.5	4	0	0	4	4.5	5

RW8S

Hor. (X)	0	50	100	130	145	175	225	275
Ver. (Y)	6	5.5	5	0	0	5	5.5	6

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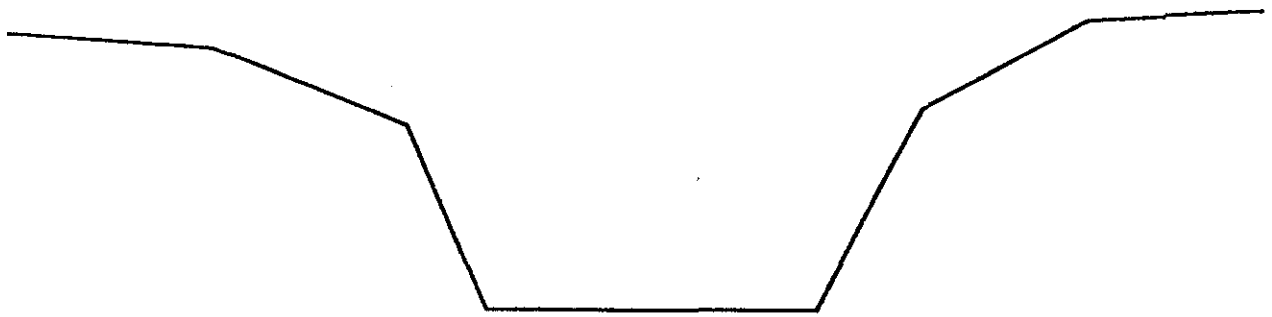
Hydrologic Routing Cross-Section

Landfill Channel



RE9W

Hor. (X)	0	305	310	322.5	347.5	360	365	670
Ver. (Y)	7.9	6	5	0	0	5	6	7.9

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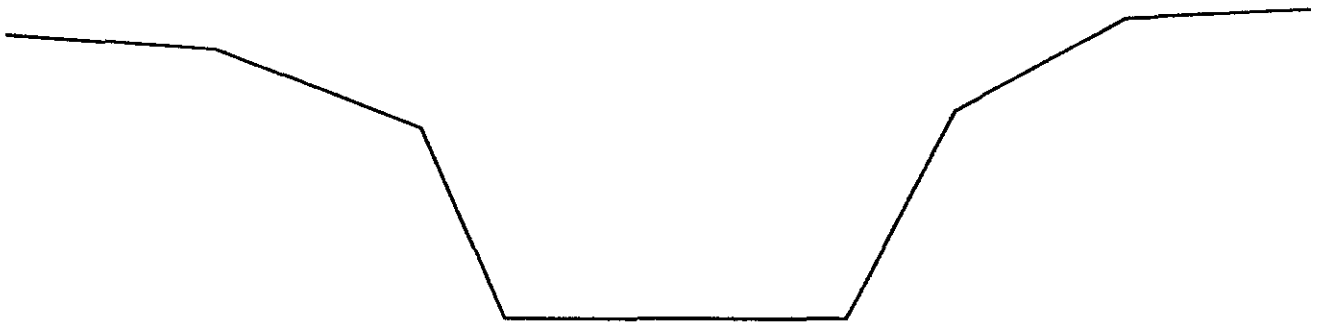
Hydrologic Routing Cross-Section

Cloud and Power Road Channel



RC6C

Hor. (X)	0	5	10	22.5	32.5	45	50	55
Ver. (Y)	7	6	5	0	0	5	6	7

RW6

Hor. (X)	0	750	1110	1122.5	1132.5	1145	1505	2000
Ver. (Y)	6.5	5.5	5	0	0	5	5.5	6.5

RW7

Hor. (X)	0	5	10	22.5	32.5	45	50	100
Ver. (Y)	7	6	5	0	0	5	6	7.1

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Hydrologic Routing Cross-Section

Empire Road Channel

RS9C

Hor. (X)	0	5	10	32.5	52.5	75	80	85
Ver. (Y)	6	5	4	0	0	4	5	6

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Hydrologic Routing Cross-Section

REIIN

REIIN

Hor. (X)	0	5	10	35	55	70	75	80
Ver. (Y)	7	6	5	0	0	5	6	7

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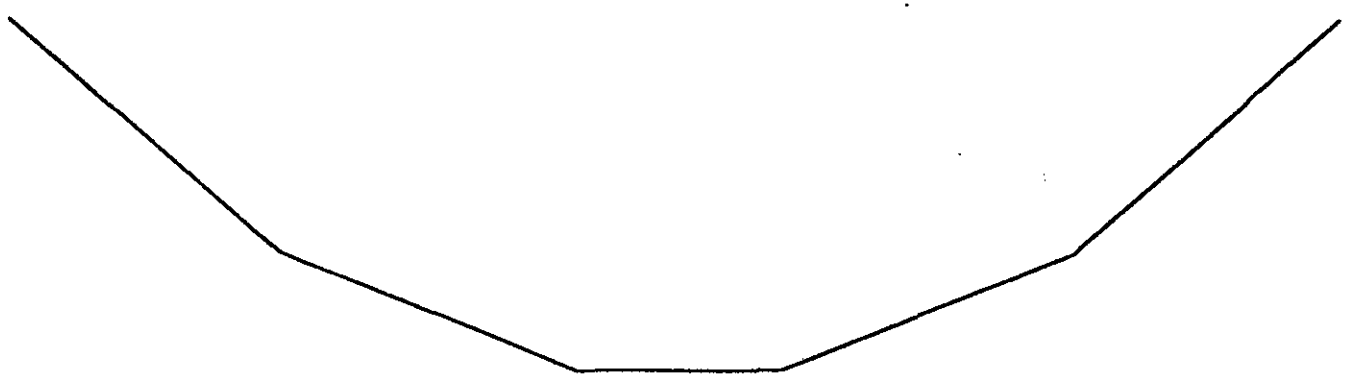
Hydrologic Routing Cross-Section

Mountain Typical Section



RS9C

Hor. (X)	0	400	800	1200	1600	2000	2400	2800
Ver. (Y)	3	1	.5	0	0	.5	1	3

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Hydrologic Routing Cross-Section

Field Typical Section

RS9C

Hor. (X)	0	1000	2400	2497.5	2500	2502.5	4000	5000
Ver. (Y)	5	3.5	3	2	0	2	3	5

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Hydrologic Routing Cross-Section

Railroad Typical Section

RS9C

Hor. (X)	0	800	2975	2990	3010	3025	5200	6000
Ver. (Y)	10	8	2	0	0	2	8	10

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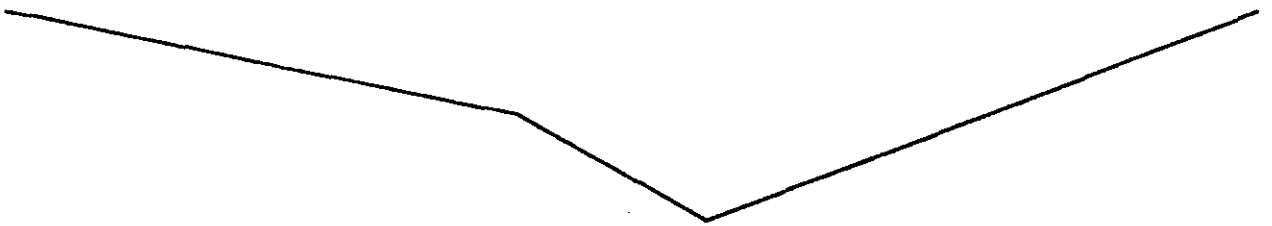
Hydrologic Routing Cross-Section

Typical Street Section



REIIN

Hor. (X)	0	1000	2470	2488	2512	2515	2520	5000
Ver. (Y)	4.5	3.5	1.5	1	.5	0	.5	4.5

D.4 Flow Splits and Diversion Data

APPENDIX D.4

Diversion/Split Flow Calculations

Most of the split flows encountered in the Sonoqui Wash watershed are located at roadway intersections where gentle slopes allow the flow to take different, flow paths. The amount of flow in each direction is mostly dependent on the relative relationships between slopes, areas and roughness. A spreadsheet was developed to quantify the flows in each split direction. The spreadsheet calculated split flows using the relative values of the three parameters. The procedure assumes that the flow depth y is the same for the inflow and outflows of the split location. The formulas used in the spreadsheet were derived using the Manning's equation under a wide shallow channel condition:

$$Q = \frac{1.49}{n} R^{\frac{2}{3}} A S^{\frac{1}{2}} \qquad (1)$$

Where:

Q = Flow in cfs
n = Manning's roughness coefficient
S = Land slope in ft/ft
R = Hydraulic radius = $\frac{A}{P}$

for a wide rectangular channel the area A and the wetted perimeter P can be approximated to be:

$$\mathbf{A} = yB \qquad (2)$$
$$\mathbf{P} = B$$

Where **B**= Width (3)
Y= Flow depth

Substituting (2) & (3) to (1):

$$Q = \frac{1.49}{n} y^{5/3} B S^{1/2}$$

By continuity

$$Q_{in} = Q_1 + Q_2$$

$$\frac{1.49}{n_{in}} y^{5/3} B_{in} S_{in}^{1/2} = \frac{1.49}{n_1} y^{5/3} B_1 S_1^{1/2} + \frac{1.49}{n_2} y^{5/3} B_2 S_2^{1/2}$$

Eliminating terms

$$Q_{in} = \left| \frac{B_1 S_1^{1/2}}{n_1} + \frac{B_2 S_2^{1/2}}{n_2} \right| Const$$

By proportionality

$$\frac{Q_2}{Q_1} = \frac{\dfrac{B_2 S_2^{1/2}}{n_2}}{\dfrac{B_1 S_1^{1/2}}{n_1}}$$

Substituting in continuity

$$Q_{in} = Q_1 + Q_1 \frac{\dfrac{B_2 S_2^{1/2}}{n_2}}{\dfrac{B_1 S_1^{1/2}}{n_1}}$$

Rearranging

$$Q_1 = \frac{Q_{in}}{1 + \dfrac{\dfrac{B_2 S_2^{1/2}}{n_2}}{\dfrac{B_1 S_1^{1/2}}{n_1}}}$$

At Cloud Road and Chandler Heights Road, the entire runoff was assumed to flow in the channel until its capacity is exceeded. Any flow exceeding this capacity was assumed to be sheet flow following the general slope of the area.

At Sub-basin S-9, runoff was divided into two flow paths in order to determine the amount of runoff flowing into the channel south of Empire Road. The relative flows in each path were determined as a direct function of the tributary area with 3/4 flowing to the west path and 1/4 to the east path. These values appear to be consistent with the relative size of the dip sections observed on Hunt Highway.

East Area Diversion Calculations

Entellus

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BY	WAL	DATE	03/09/98
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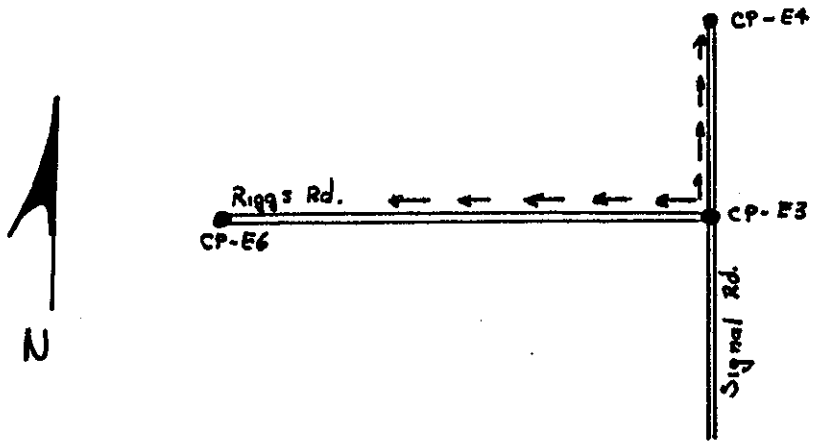
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Signal Rd. & Riggs Rd. SW Corner of E4

Split Point ID: CP-E3

Split Description Double split flows to the North and West



Diversion path 1

Description West along Riggs Rd. to CP_E6

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0036 ft/ft

Diversion Path 2

Description North along Signal Rd. to CP-E7

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0002 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Split Flow Table

Split Point Location: Signal Rd. & Riggs Rd. SW Corner of E4
Split Point ID: CP-E3
Split Description Double split flows to the North and West

		S =	0.0036		S=	0.0002		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	0	0.035	0.0	0	0.018	0.0
40	3.5	5	0.035	32.4	5	0.035	7.6	0	0.018	0.0
80	3.5	10	0.035	64.7	10	0.035	15.3	0	0.018	0.0
120	1.2	100	0.035	103.0	70	0.035	17.0	0	0.018	0.0
160	1.2	120	0.035	138.3	80	0.035	21.7	0	0.018	0.0
200	1.3	150	0.035	175.2	90	0.035	24.8	0	0.018	0.0
240	1.4	150	0.035	210.3	90	0.035	29.7	0	0.018	0.0
280	1.2	225	0.035	245.3	135	0.035	34.7	0	0.018	0.0
320	1.3	225	0.035	280.4	135	0.035	39.6	0	0.018	0.0
360	1.2	300	0.035	315.4	180	0.035	44.6	0	0.018	0.0
400	1.3	300	0.035	350.4	180	0.035	49.6	0	0.018	0.0

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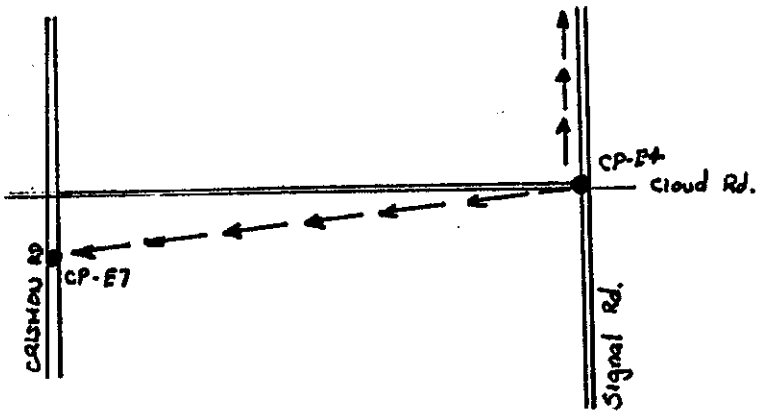
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Signal Butte Rd. & NW Corner of Basin E4

Split Point ID: CP-E4

Split Description Double Split - Flow to the North, Flow to the West



Diversion path 1

Description: West along Cloud Rd., then South along Crismon Rd. to CP-E7 (RE4)

General Contour Slope: ft

Angle between cont/split: Degrees

Estimated Slope = 0.0031 ft/ft

Diversion Path 2

Description: North along Signal Butte Rd., then Offsite (RE4O)

General Contour Slope: 0.0036 ft

Angle between cont/split: 75 Degrees

Estimated Slope = 0.0009 ft/ft

Diversion Path 3

Description:

General Contour Slope: ft

Angle between cont/split: Degrees

Split Flow Table

Split Point Location: Signal Butte Rd. & NW Corner of Basin E4
Split Point ID: CP-E4
Split Description Double Split - Flow to the North, Flow to the West

		S =	0.0031		S=	0.000932		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	0	0.035	0.0	0	0.018	0.0
30	1.1	20	0.035	18.6	22.5	0.035	11.4	0	0.018	0.0
60	1.1	40	0.035	37.1	45	0.035	22.9	0	0.018	0.0
90	1.3	50	0.035	55.7	56.25	0.035	34.3	0	0.018	0.0
120	1.4	60	0.035	74.2	67.5	0.035	45.8	0	0.018	0.0
150	1.5	60	0.035	92.8	67.5	0.035	57.2	0	0.018	0.0
180	1.6	70	0.035	111.3	78.75	0.035	68.7	0	0.018	0.0
210	1.7	70	0.035	129.9	78.75	0.035	80.1	0	0.018	0.0
240	1.9	70	0.035	148.4	78.75	0.035	91.6	0	0.018	0.0
270	1.9	80	0.035	167.0	90	0.035	103.0	0	0.018	0.0
300	2.0	80	0.035	185.5	90	0.035	114.5	0	0.018	0.0

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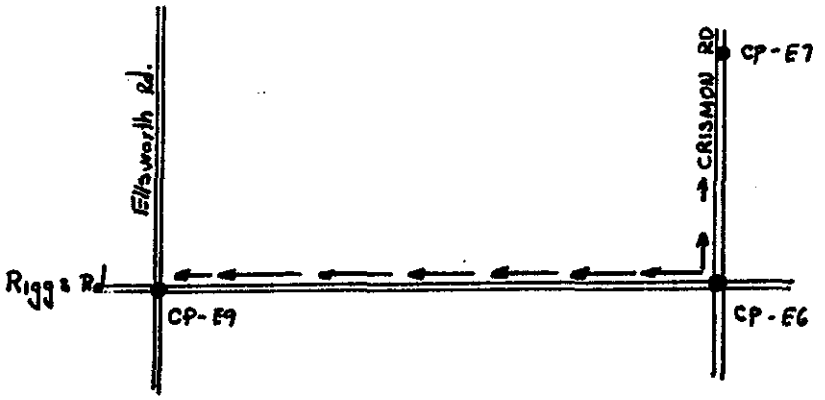
Split Flow Calculations

Split Point Location: Crimson Rd. & Riggs Rd. aligment NW Corner of Basin E6

Split Point ID: CP-E6

Split Description Double split to north along Crismon and west along Rigs



Diversion path 1

Description West along Riggs Rd. Aligment

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0035 ft/ft

Diversion Path 2

Description North along Crismon Rd. to CP-E7 (RE6)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0012 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Split Flow Table

Split Point Location: Crimson Rd. & Riggs Rd. aligment NW Corner of Basin E6
Split Point ID: CP-E6
Split Description Double split to north along Crismon and west along Rigs

		S =	0.0035		S=	0.0012		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	90	0.035	0	80	0.035	0	0	0.018	0.0
30	0.5	90	0.035	20	80	0.035	10	0	0.018	0.0
60	0.7	90	0.035	39	80	0.035	21	0	0.018	0.0
90	0.9	90	0.035	59	80	0.035	31	0	0.018	0.0
120	1.1	90	0.035	79	80	0.035	41	0	0.018	0.0
150	1.2	90	0.035	99	80	0.035	51	0	0.018	0.0
180	1.4	90	0.035	118	80	0.035	62	0	0.018	0.0
210	1.5	90	0.035	138	80	0.035	72	0	0.018	0.0
240	1.6	90	0.035	158	80	0.035	82	0	0.018	0.0
270	1.7	90	0.035	178	80	0.035	92	0	0.018	0.0
300	1.8	90	0.035	197	80	0.035	103	0	0.018	0.0

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~~Sanokai~~ Sonoqui Wash Floodplain Delineation

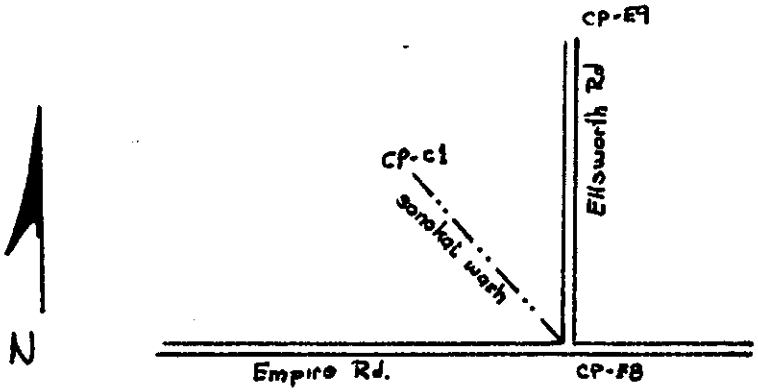
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Hunt Highway & Ellsworth Rd.

Split Point ID: CP-E8

Split Description Split flow between Sonokai wash flowing North West and Ellsworth Rd. Flowing North



Diversion path 1

Description NW through wash to CP-C1 (RE8)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0097 ft/ft

Diversion Path 2

Description North along Ellsworth Rd.

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0072 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Split Flow Table

Split Point Location: Hunt Highway & Ellsworth Rd.
Split Point ID: CP-E8
Split Description Split flow between Sanokai wash flowing North West and Ellsworth Rd. Flowing North

		S =	0.0097		S=	0.0072		S=		
Inflow	Approx.	Diversion No. 1			Diversion No. 2			0	0	0.0
	Depth	width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.045	0	0	0.045	0	0	0.018	0.0
250	2.1	70	0.045	250	0	0.045	0	0	0.018	0.0
500	2.5	100	0.045	460	10	0.045	40	0	0.018	0.0
750	2.0	180	0.045	583	60	0.045	167	0	0.018	0.0
1000	1.9	250	0.045	763	90	0.045	237	0	0.018	0.0
1250	2.0	300	0.045	971	100	0.045	279	0	0.018	0.0
1500	2.2	300	0.045	1165	100	0.045	335	0	0.018	0.0
1750	2.4	300	0.045	1360	100	0.045	390	0	0.018	0.0
2000	2.6	300	0.045	1554	100	0.045	446	0	0.018	0.0
2250	2.8	300	0.045	1748	100	0.045	502	0	0.018	0.0
2500	3.0	300	0.045	1942	100	0.045	558	0	0.018	0.0

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~~Sanokai~~ Sanoqui Wash Floodplain Delineation

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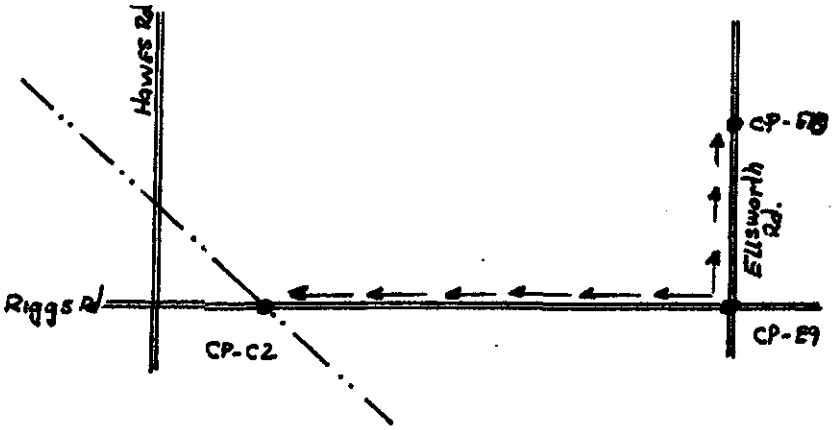
Split Flow Calculations

Split Point Location: Ellsworth Rd. & Riggs Rd.

Split Point ID: CP-E9

Split Description Split West along Riggs Rd and North along Ellsworth



Diversion path 1

Description West along Riggs Rd. to CP-C2 (RE9W)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0048 ft/ft

Diversion Path 2

Description North along Ellsworth Rd. to CP-E10 (RE9)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0004 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Split Flow Table

Split Point Location: Ellsworth Rd. & Riggs Rd.
Split Point ID: CP-E9
Split Description Split West along Riggs Rd and North along Ellsworth

		S =	0.0048		S=	0.0004		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	0	0.035	0.0	0	0.018	0.0
200	2.1	40	0.035	132.9	70	0.035	67.1	0	0.018	0.0
400	3.3	40	0.035	265.7	70	0.035	134.3	0	0.018	0.0
600	2.5	120	0.035	513.5	70	0.035	86.5	0	0.018	0.0
800	3.0	120	0.035	684.7	70	0.035	115.3	0	0.018	0.0
1000	3.4	120	0.035	855.9	70	0.035	144.1	0	0.018	0.0
1200	3.8	120	0.035	1027.1	70	0.035	172.9	0	0.018	0.0
1400	4.2	120	0.035	1198.2	70	0.035	201.8	0	0.018	0.0
1600	4.5	120	0.035	1369.4	70	0.035	230.6	0	0.018	0.0
1800	4.8	120	0.035	1540.6	70	0.035	259.4	0	0.018	0.0
2000	5.2	120	0.035	1711.8	70	0.035	288.2	0	0.018	0.0

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BY	WAL	DATE	03/09/98
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Client FCDMC

~~Sanokai~~ Sonoqui Wash Floodplain Delineation

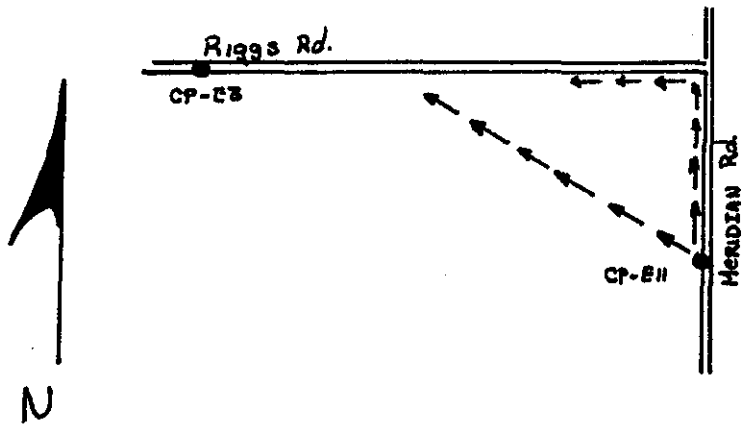
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Meridian Rd. & SE Corner of Basin E3

Split Point ID: CP-E11

Split Description Split Flow - two paths, Roadway flow along Meridian/Riggs road and Sheet flow



Diversion path 1

Description In ditch travelling North along RR, then along Riggs Rd. to CP-E3 (RE11N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0032 ft/ft

Diversion Path 2

Description Sheet flow across Basin E3, then along Riggs Rd. to CP-E3 (RE11S)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0034 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Meridian Rd. & SE Corner of Basin E3
Split Point ID: CP-E11
Split Description Split Flow - two paths, Roadway flow along Meridian/Riggs road and Sheet flow

		S =	0.0032		S=	0.0034		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	0	0.075	0.0	0	0.018	0.0
20	0.2	30	0.035	2.2	500	0.075	17.8	0	0.018	0.0
40	0.3	30	0.035	2.9	800	0.075	37.1	0	0.018	0.0
60	0.3	40	0.035	5.1	900	0.075	54.9	0	0.018	0.0
80	0.4	45	0.035	6.3	1100	0.075	73.7	0	0.018	0.0
100	0.3	80	0.035	6.6	1100	0.035	93.4	0	0.018	0.0
120	0.3	80	0.035	7.9	1100	0.035	112.1	0	0.018	0.0
140	0.3	80	0.035	9.2	1100	0.035	130.8	0	0.018	0.0
160	0.4	80	0.035	10.5	1100	0.035	149.5	0	0.018	0.0
180	0.4	80	0.035	11.9	1100	0.035	168.1	0	0.018	0.0
200	0.4	80	0.035	13.2	1100	0.035	186.8	0	0.018	0.0

Intermediate Area Diversion Calculations

Entellus

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BY	WAL	DATE	03/09/98
CHECK		DATE	

Client FCDMC

~~Sanokai~~ Wash Floodplain Delineation

Sonoqui

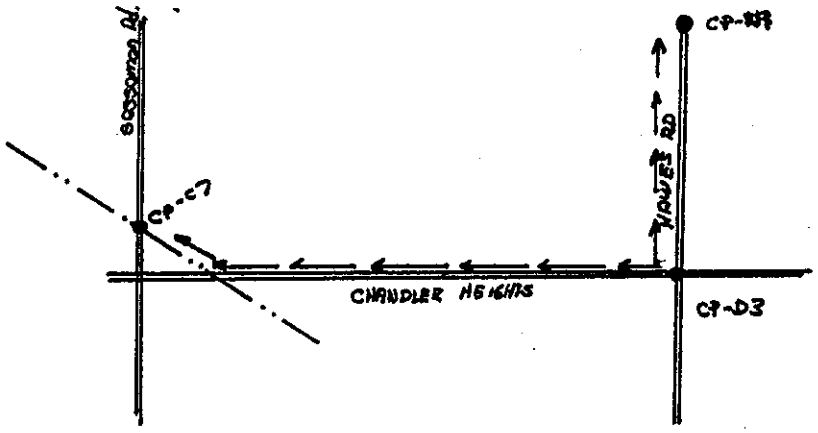
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Chandler Heights Rd. & Hawes Rd.

Split Point ID: CP-D3

Split Description Double Split - Flow to the North, Flow to the West along Chandler Heights



Diversion path 1

Description Flow along Chandler Heights Rd., then Sanokai Wash to CP-C7 (RD3W)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0029 ft/ft

Diversion Path 2

Description Flow along Hawes Rd. to CP-N1 (RD3N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0005 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Chandler Heights Rd. & Hawes Rd.
Split Point ID: CP-D3
Split Description Double Split - Flow to the North, Flow to the West along Chandler Heights

		S =	0.0029		S=	0.0005		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	60	0.035	0.0	0	0.018	0.0
50	1.0	50	0.035	33.4	60	0.035	16.6	0	0.018	0.0
100	1.2	80	0.035	76.3	60	0.035	23.7	0	0.018	0.0
150	1.4	90	0.035	117.5	60	0.035	32.5	0	0.018	0.0
200	1.5	110	0.035	163.1	60	0.035	36.9	0	0.018	0.0
250	1.6	140	0.035	212.2	60	0.035	37.8	0	0.018	0.0
300	1.6	170	0.035	261.7	60	0.035	38.3	0	0.018	0.0
350	1.6	200	0.035	311.2	60	0.035	38.8	0	0.018	0.0
400	1.6	280	0.045	358.9	60	0.035	41.1	0	0.018	0.0
450	1.8	280	0.045	403.8	60	0.035	46.2	0	0.018	0.0
500	1.9	280	0.045	448.7	60	0.035	51.3	0	0.018	0.0

South Area Diversion Calculations

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BY	WAL	DATE	03/09/98
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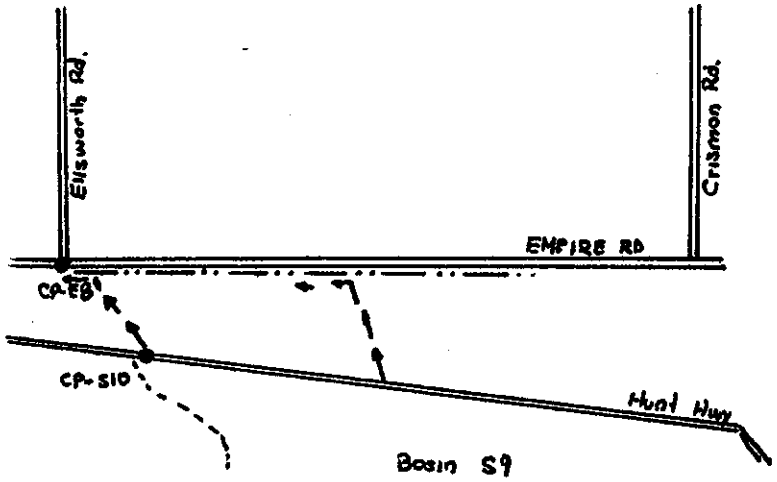
~~Sanekati~~ Wash Floodplain Delineation
Sonoqui

JOB NO. 310.001

Split Flow Calculations

Split Point Location: Hunt Hwy
Split Point ID: CP-S9
Split Description Split flow off basin S9. Two dip sections on Hunt Hwy the west is significantly large and the east dip. section is Approximately 1/4 the size and tributary area



Diversion path 1

Description	Main dip Section (west) direct to CP-E8		
General Contour Slope		0.0100	ft
Angle between cont/split			Degrees
Estimated Slope	=	0.0100	ft/ft

Diversion Path 2

Description	Small dip Section (east) flow to Empire Rd Channel		
General Contour Slope		0.0100	ft
Angle between cont/split			Degrees
Estimated Slope	=	0.0100	ft/ft

Diversion Path 3

Description			
General Contour Slope			ft
Angle between cont/split			Degrees
Estimated Slope	=	0.0000	ft/ft

Split Flow Table

Split Point Location: Hunt Hwy

Split Point ID: CP-S9

Split Description Split flow off basin S9. Two dip sections on Hunt Hwy the west is significantly large and the east dip. section is Approximately 1/4 the size and tributary area

		S =		0.01	S=		0.01	S=		0
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.05	0.0	0	0.05	0.0	0	0.018	0.0
250	1.2	160	0.05	200.0	40	0.05	50.0	0	0.018	0.0
500	1.8	160	0.05	400.0	40	0.05	100.0	0	0.018	0.0
750	1.8	240	0.05	600.0	60	0.05	150.0	0	0.018	0.0
1000	2.1	240	0.05	800.0	60	0.05	200.0	0	0.018	0.0
1250	2.1	320	0.05	1000.0	80	0.05	250.0	0	0.018	0.0
1500	2.3	320	0.05	1200.0	80	0.05	300.0	0	0.018	0.0
1750	2.3	360	0.05	1400.0	90	0.05	350.0	0	0.018	0.0
2000	2.5	360	0.05	1600.0	90	0.05	400.0	0	0.018	0.0
2250	2.6	400	0.05	1800.0	100	0.05	450.0	0	0.018	0.0
2500	2.7	400	0.05	2000.0	100	0.05	500.0	0	0.018	0.0

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~~Sanokai~~ Sonoqui Wash Floodplain Delineation

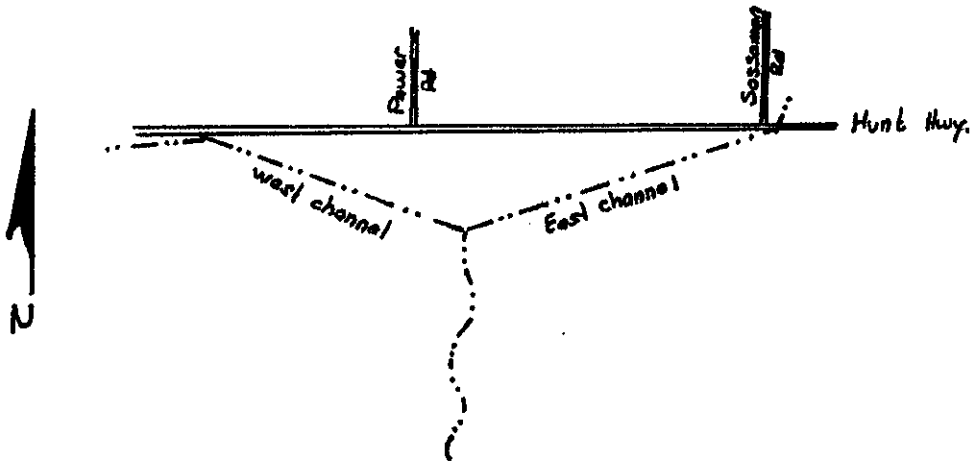
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Hunt Highway between Recker and Sossaman

Split Point ID: CP-S14 A

Split Description Upstream from Hunt Highway there are two man made channels one to the west the other to the East the two channels form a triangular configuration with Hunt Hwy as the lower length of the Triangle



Diversion path 1

Description East Channel towards Sossaman Rd.

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0200 ft/ft

Diversion Path 2

Description West channel towards Power Rd.

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0200 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Hunt Highway between Recker and Sossaman

Split Point ID: CP-S14 A

Split Description Upstream from Hunt Highway there are two man made channels one to the west the other to the East the two channels form a triangular configuration with Hunt Hwy as the lower length of the Triangle

		S =		0.02	S=		0.02	S=		0
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	100	0.045	0.0	100	0.045	0.0	0	0.018	0.0
182	0.7	100	0.045	90.9	100	0.045	90.9	0	0.018	0.0
364	1.1	100	0.045	181.8	100	0.045	181.8	0	0.018	0.0
545	1.4	100	0.045	272.7	100	0.045	272.7	0	0.018	0.0
727	1.7	100	0.045	363.6	100	0.045	363.6	0	0.018	0.0
909	2.0	100	0.045	454.5	100	0.045	454.5	0	0.018	0.0
1091	2.2	100	0.045	545.5	100	0.045	545.5	0	0.018	0.0
1273	2.4	100	0.045	636.4	100	0.045	636.4	0	0.018	0.0
1455	2.6	100	0.045	727.3	100	0.045	727.3	0	0.018	0.0
1636	2.8	100	0.045	818.2	100	0.045	818.2	0	0.018	0.0
1818	3.0	100	0.045	909.1	100	0.045	909.1	0	0.018	0.0
2000	3.2	100	0.045	1000.0	100	0.045	1000.0	0	0.018	0.0

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BY	WAL	DATE	03/09/98
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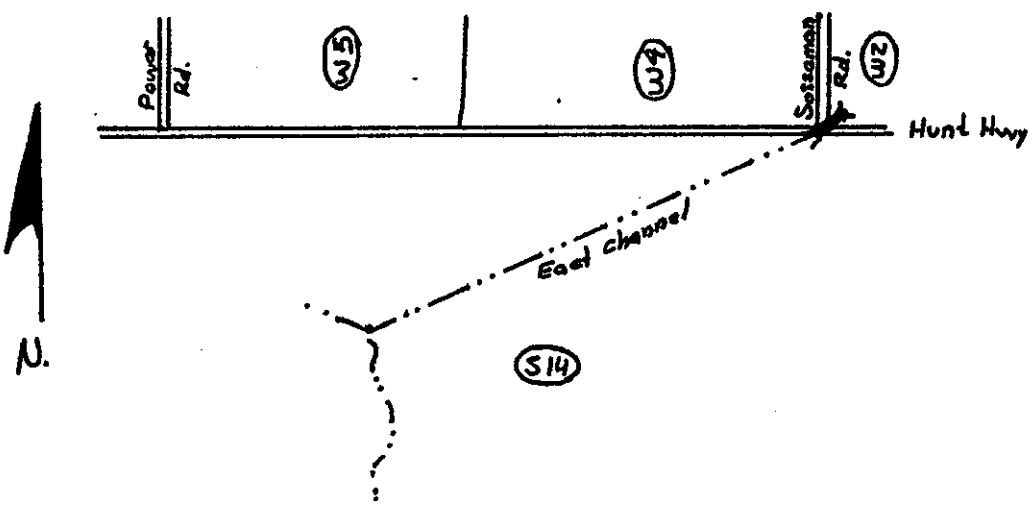
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Hunt Highway between Power and Sossaman

Split Point ID: CP-S14

Split Description Flow along the East channel and overflow into basins W4, W5 and W2
W2 take capacity of channel (235cfs) excess split between three basins



Diversion path 1

Description to Basin W2 overflow
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0100 ft/ft

Diversion Path 2

Description To basin W4 overflow
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0100 ft/ft

Diversion Path 3

Description To basin W5 overflow
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0100 ft/ft

Split Flow Table

Split Point Location: Hunt Highway between Power and Sossaman

Split Point ID: CP-S14

Split Description Flow along the East channel and overflow into basins W4, W5 and W2

W2 take capacity of channel (235cfs) excess split between three basins

		W2			W4			W5			W2+W5
		S =		0.01	S=		0.01	S=		0.01	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3			
		width	n value	Flow	width	n value	Flow	width	n value	Flow	
0	0.0	500	0.045	0	2500	0.045	0	1000	0.045	0	0
75	0.3	500	0.045	75	2500	0.045	0	1000	0.045	0	75
150	0.5	500	0.045	150	2500	0.045	0	1000	0.045	0	150
225	0.6	500	0.045	225	2500	0.045	0	1000	0.045	0	225
300	0.6	500	0.045	234	2500	0.045	47	1000	0.045	19	253
375	0.6	500	0.045	244	2500	0.045	94	1000	0.045	38	282
450	0.6	500	0.045	253	2500	0.045	141	1000	0.045	56	309
525	0.7	500	0.045	263	2500	0.045	188	1000	0.045	75	338
600	0.7	500	0.045	272	2500	0.045	234	1000	0.045	94	366
675	0.7	500	0.045	281	2500	0.045	281	1000	0.045	113	394
750	0.7	500	0.045	291	2500	0.045	328	1000	0.045	131	422

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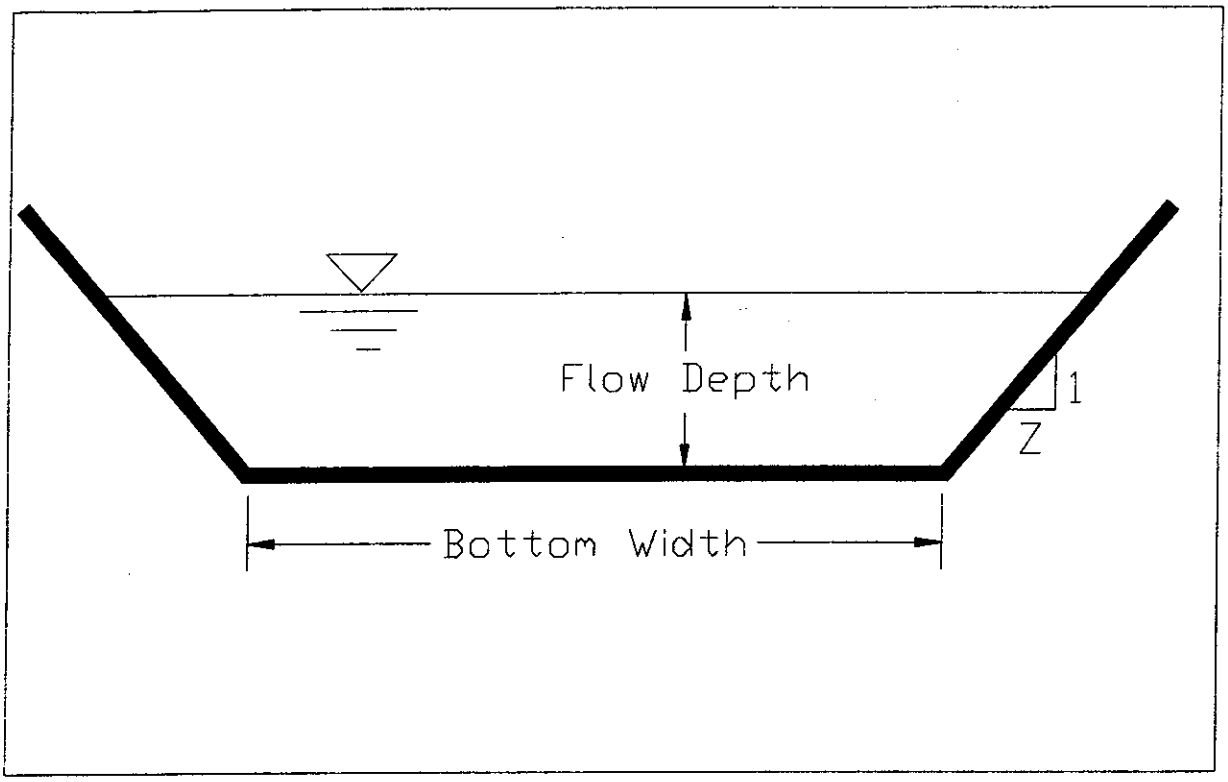
Sonoqui

JOB NO. 310.001

TRAPEZOIDAL CHANNEL COMPUTATION



Location: Triangular configuration. East channel near Hunt Hwy and Sossaman Rd.

Bottom Width	(ft)	6
Side Slope	(Z:1)	1.5
Side Slope	(Z:1)	1.5
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0070
Flow Depth	(ft)	4.00
X-Section Area	(sft)	48.00
Wetted Perimeter	(ft)	20.42
Hydraulic Radius	(ft)	2.35
Velocity	(fps)	4.90
Discharge	(cfs)	235.13
Freeboard	(ft)	0
Channel Depth	(ft)	4.00
Top width	(ft)	18.00

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BY HAA DATE 3/30/98

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Capacity of East channel

Top Elev = 1474 (2 ft contour map)

Bottom Elev. = 1446 (2 ft contour map)

Reach length = 3800 ft

$$\text{Slope} = \frac{1474 - 1446}{3800}$$

$$= 0.0074 \leftarrow S$$

Capacity of channel Q = 235.13 cfs (from calc sheet)

bottom width = 6 ft

Channel depth = 4 ft

side slopes = 1:1

Manning n value = 0.045

Central Area Diversion Calculations

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BY	WAL	DATE	03/09/98
CHECK		DATE	

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~~Sanokai~~ Wash Floodplain Delineation

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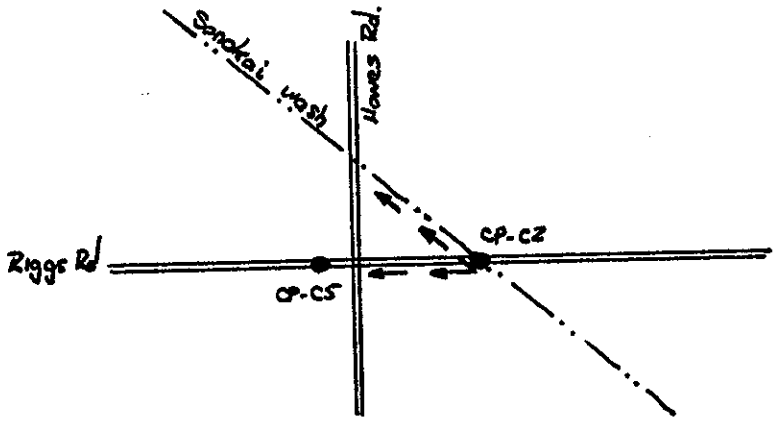
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Riggs Rd.& Southeast Corner of Basin C-16

Split Point ID: CP-C2

Split Description Double plit flow at Riggs near Landfield



Diversion path 1

Description Flow through Sanokai Wash to CP-C16 (RC2)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0061 ft/ft

Diversion Path 2

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0001 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Q main channel before split (cfs)	Q main channel after split (cfs)	Q tributary after split (cfs)
1500	1499	1
1600	1590	10
1900	1680	220
2000	1750	250
2500	2080	420
3000	2440	560
3500	2800	700
4000	3170	830

DCZ

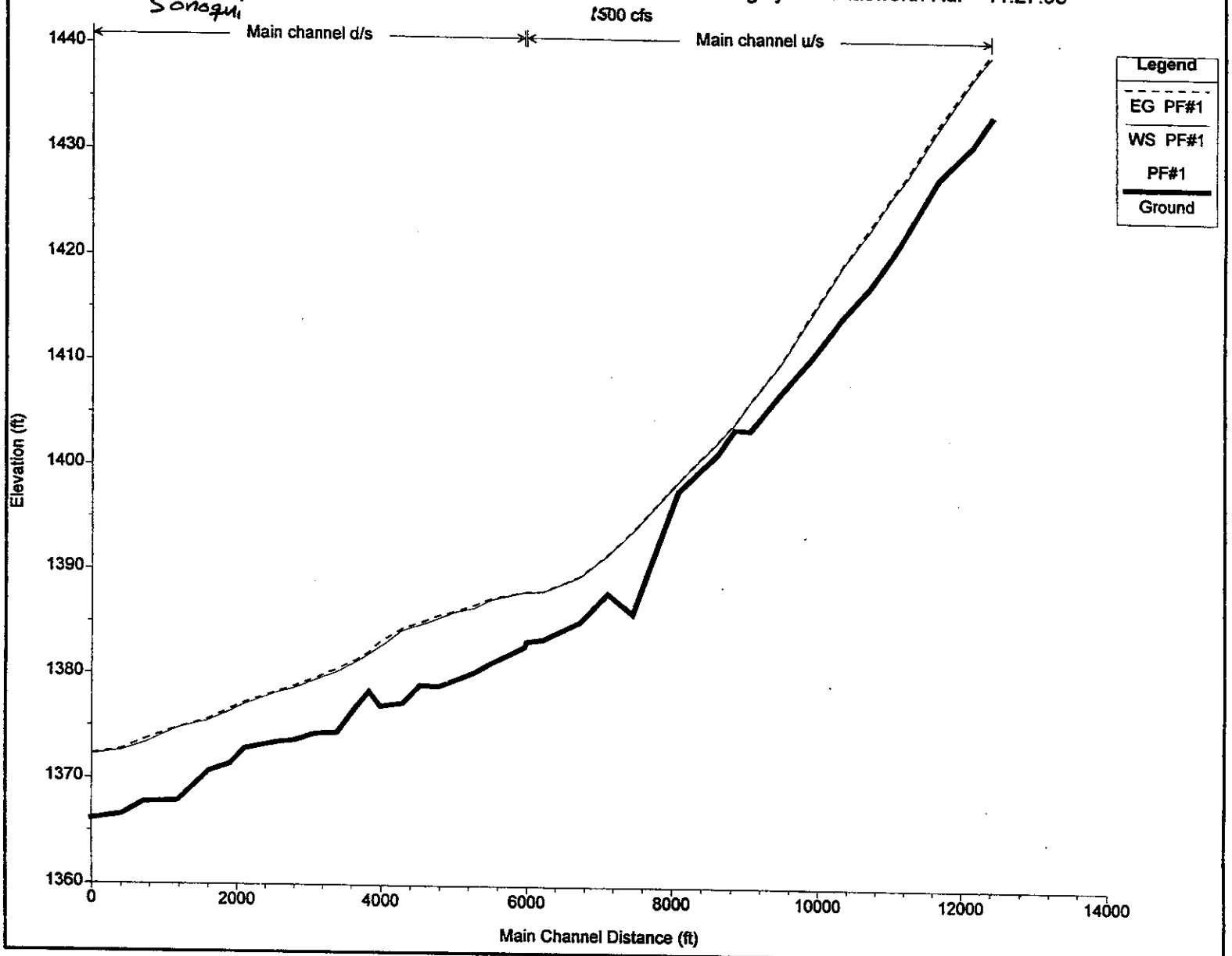
Sonoqui ~~Sonoki~~ Wash @ Riggs Rd.

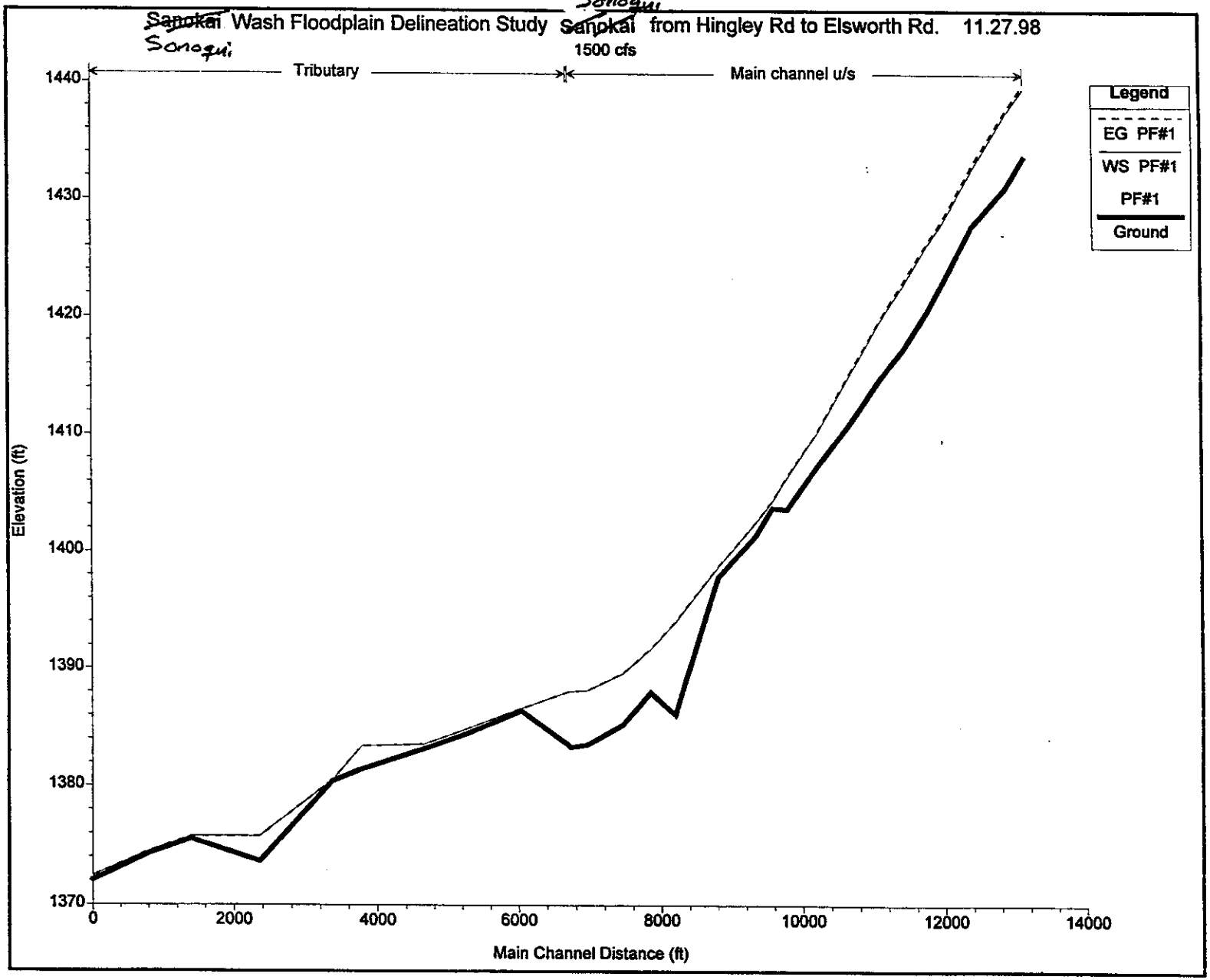
main channel = ~~Sonoki Wash~~ Sonoqui Wash

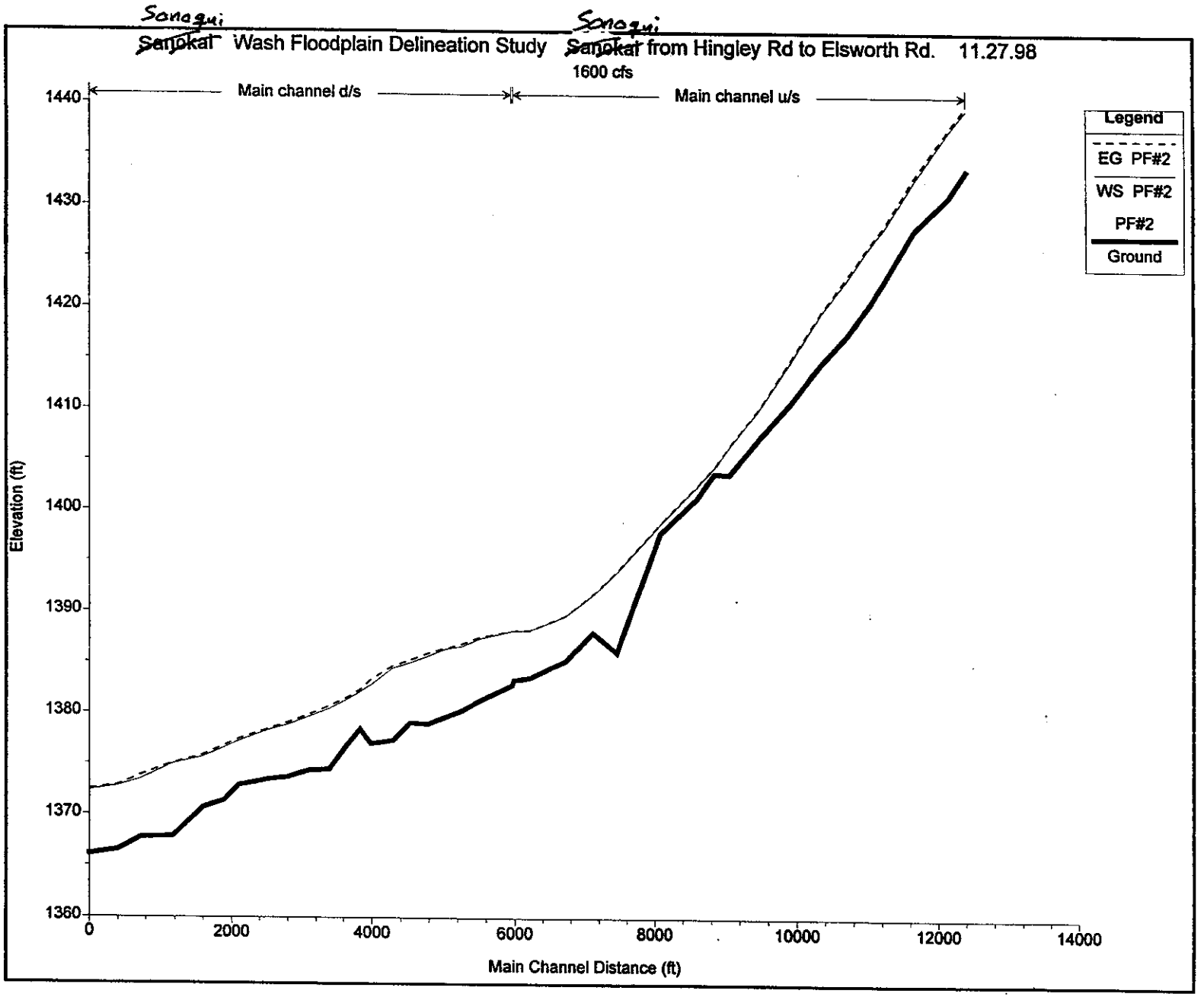
tributary = Diversion

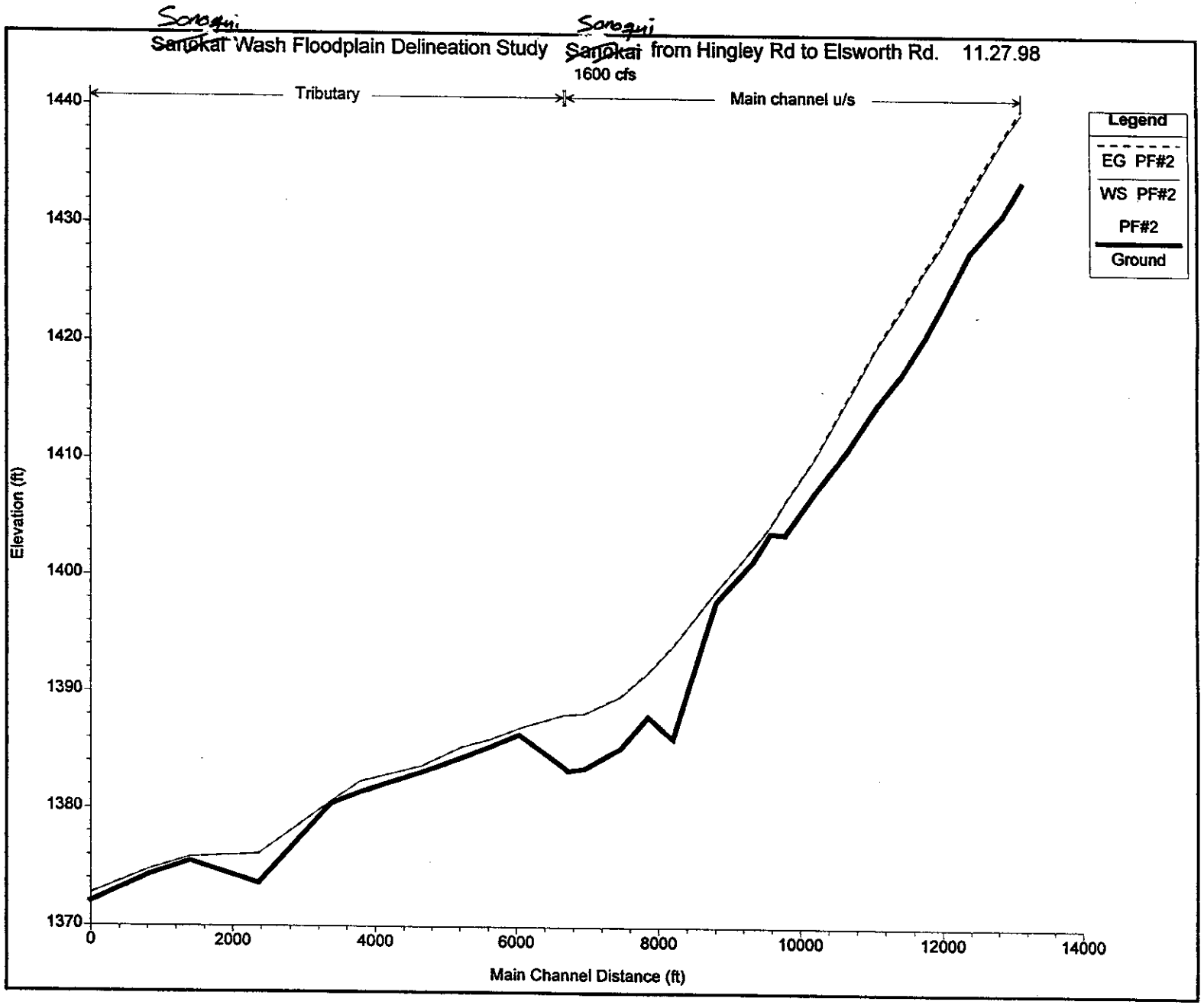
HEC-RAS model = MODSECS.prj (Included in disk)

~~Sanokai~~ Sonoqui Wash Floodplain Delineation Study Sanokai from Hingley Rd to Elsworth Rd. 11.27.98

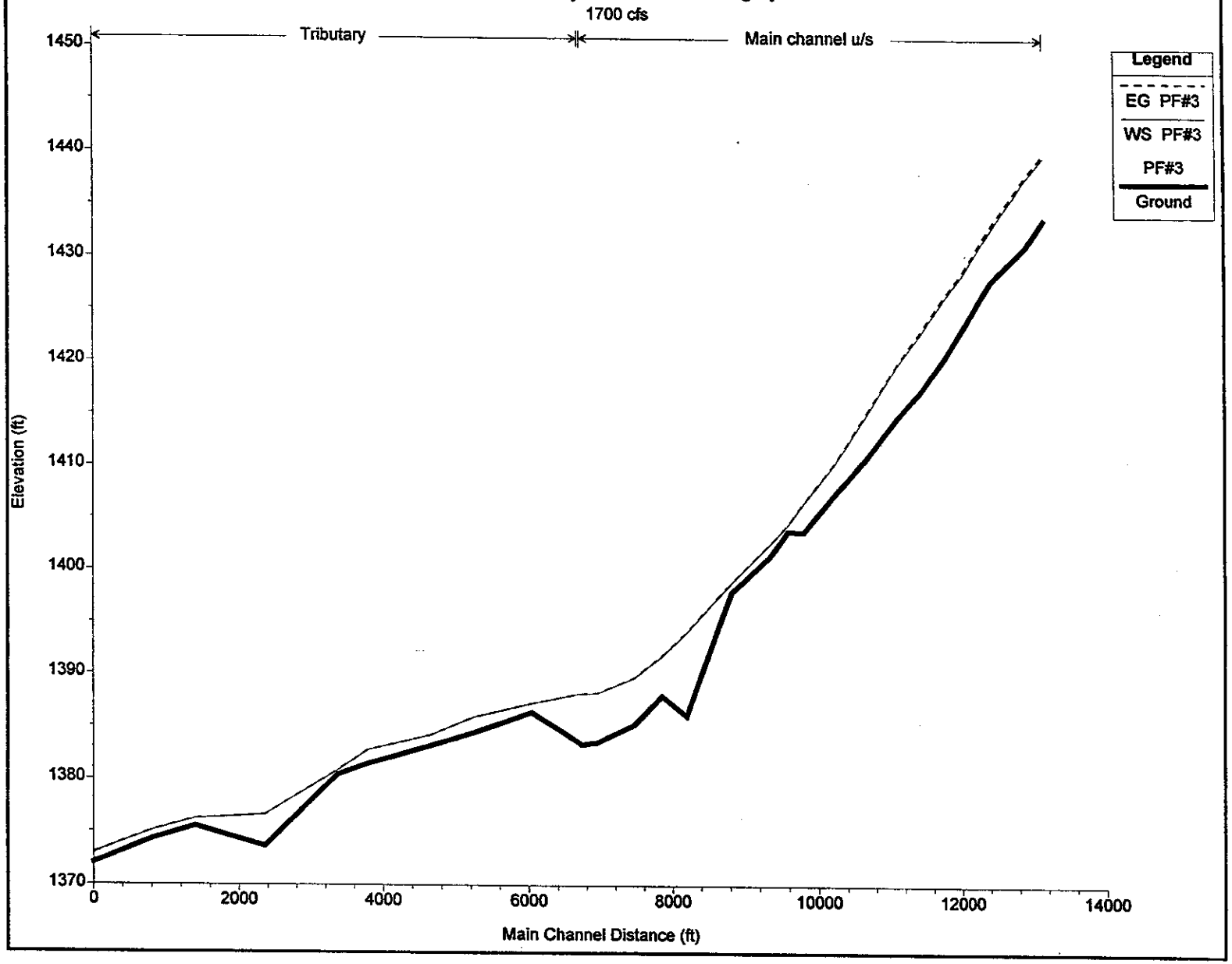


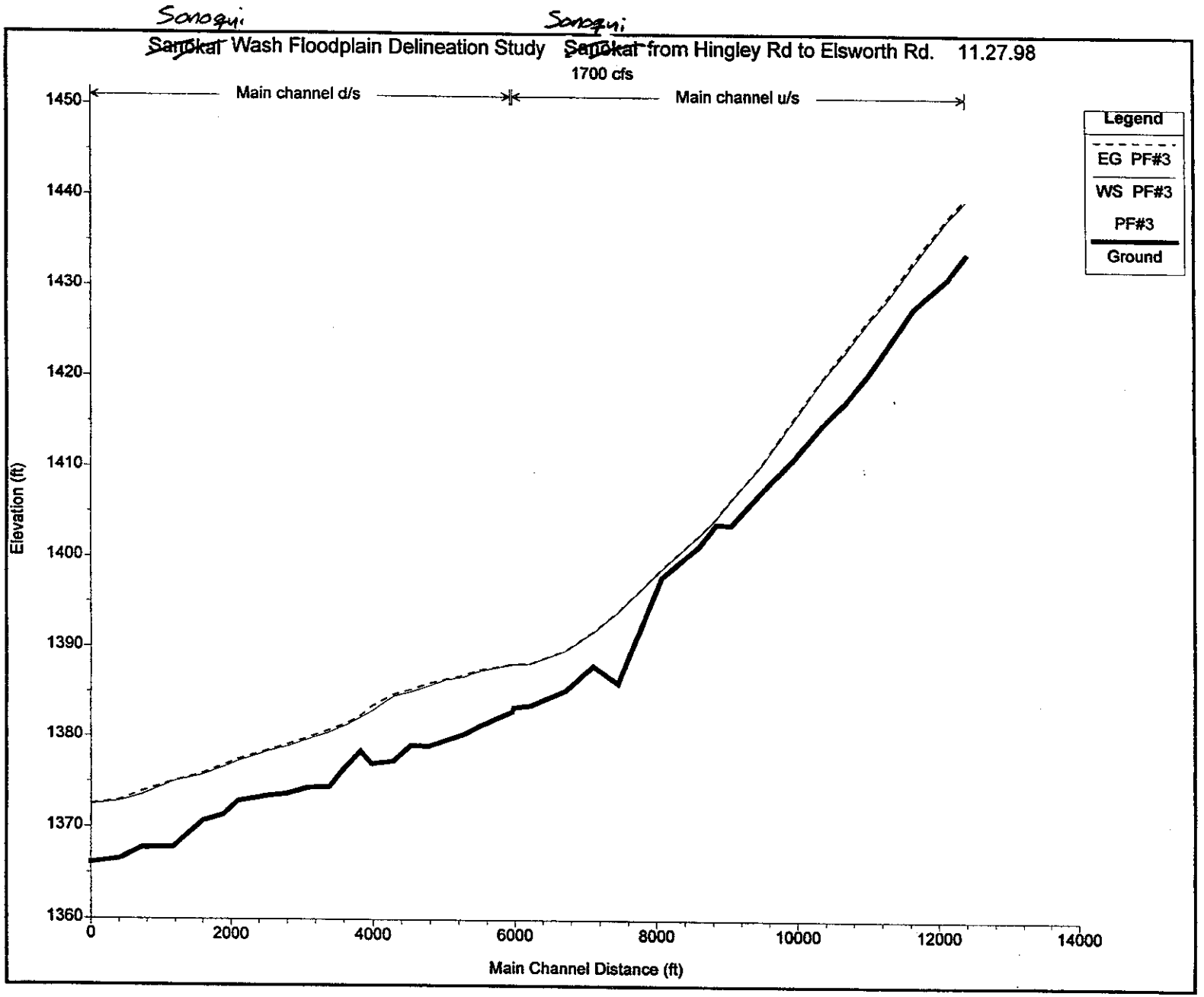

~~Sanokai~~ Sonoqui Wash Floodplain Delineation Study ~~Sanokai~~ Sonoqui from Hingley Rd to Elsworth Rd. 11.27.98
1500 cfs
Tributary
Main channel u/s
Legend
EG PF#1
WS PF#1
PF#1
Ground
Elevation (ft)
1440
1430
1420
1410
1400
1390
1380
1370
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)


Sonoqui
~~Sanokat~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanokat~~ from Hingley Rd to Elsworth Rd. 11.27.98
1600 cfs
Main channel d/s
Main channel u/s
Legend
EG PF#2
WS PF#2
PF#2
Ground
Elevation (ft)
1440
1430
1420
1410
1400
1390
1380
1370
1360
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)


Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98
1600 cfs
Tributary
Main channel u/s
Legend
EG PF#2
WS PF#2
PF#2
Ground
Elevation (ft)
1440
1430
1420
1410
1400
1390
1380
1370
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

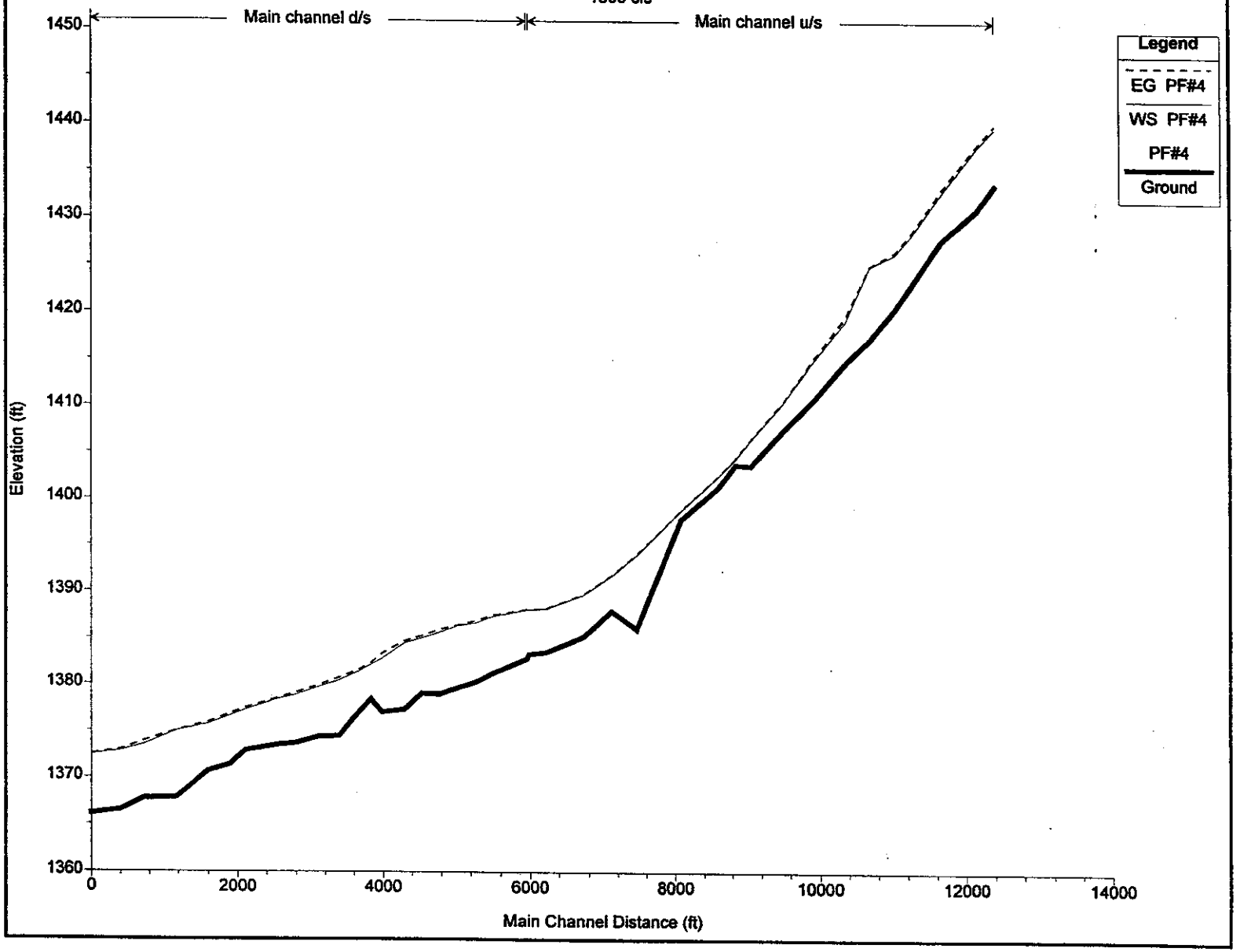
Sonoqui ~~Sanokai~~. Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98

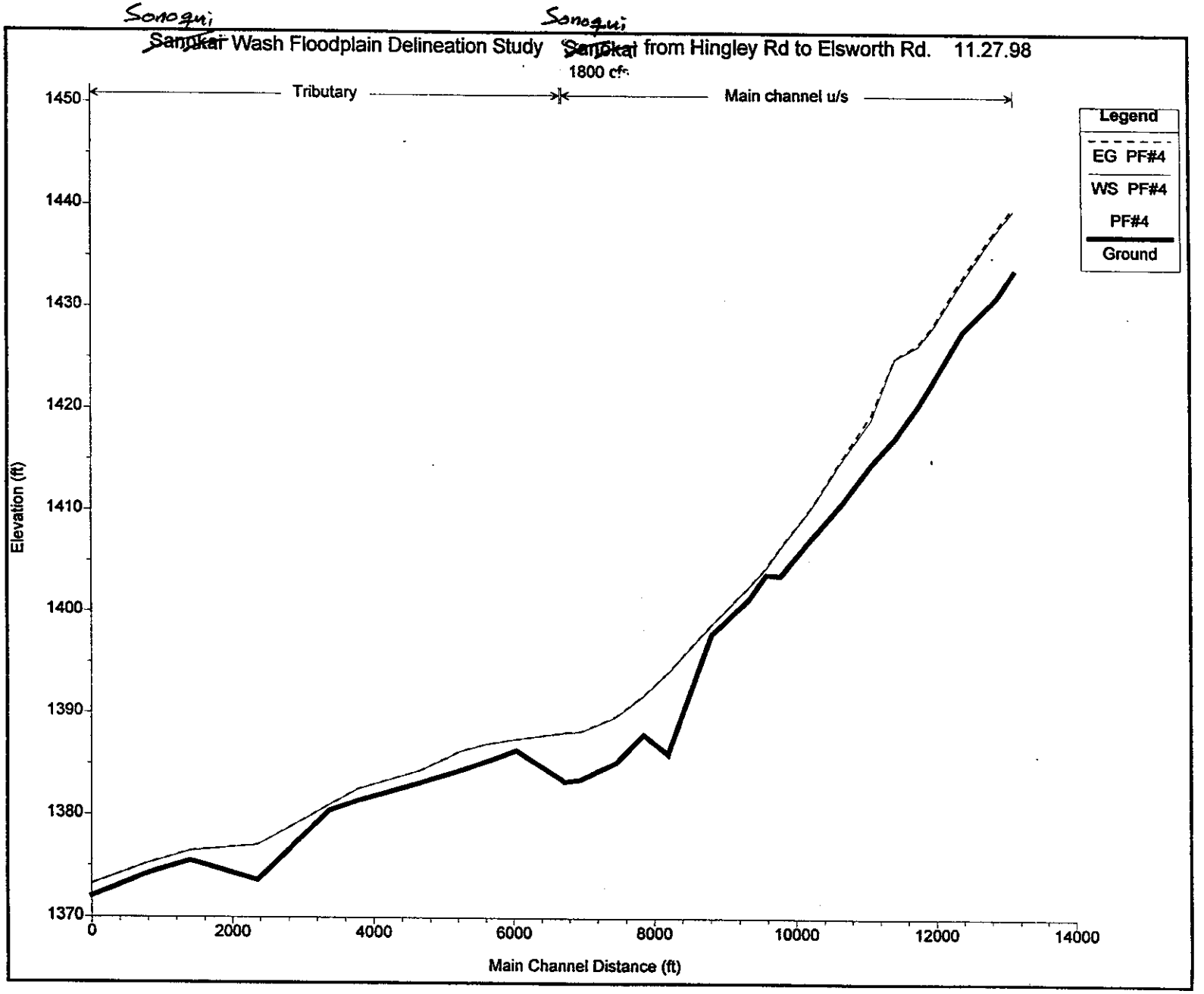



Sonoqui
Sonoqui
~~Sanokal~~ Wash Floodplain Delineation Study ~~Sanokal~~ from Hingley Rd to Elsworth Rd. 11.27.98
1700 cfs
Main channel d/s
Main channel u/s
Legend
EG PF#3
WS PF#3
PF#3
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
1360
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

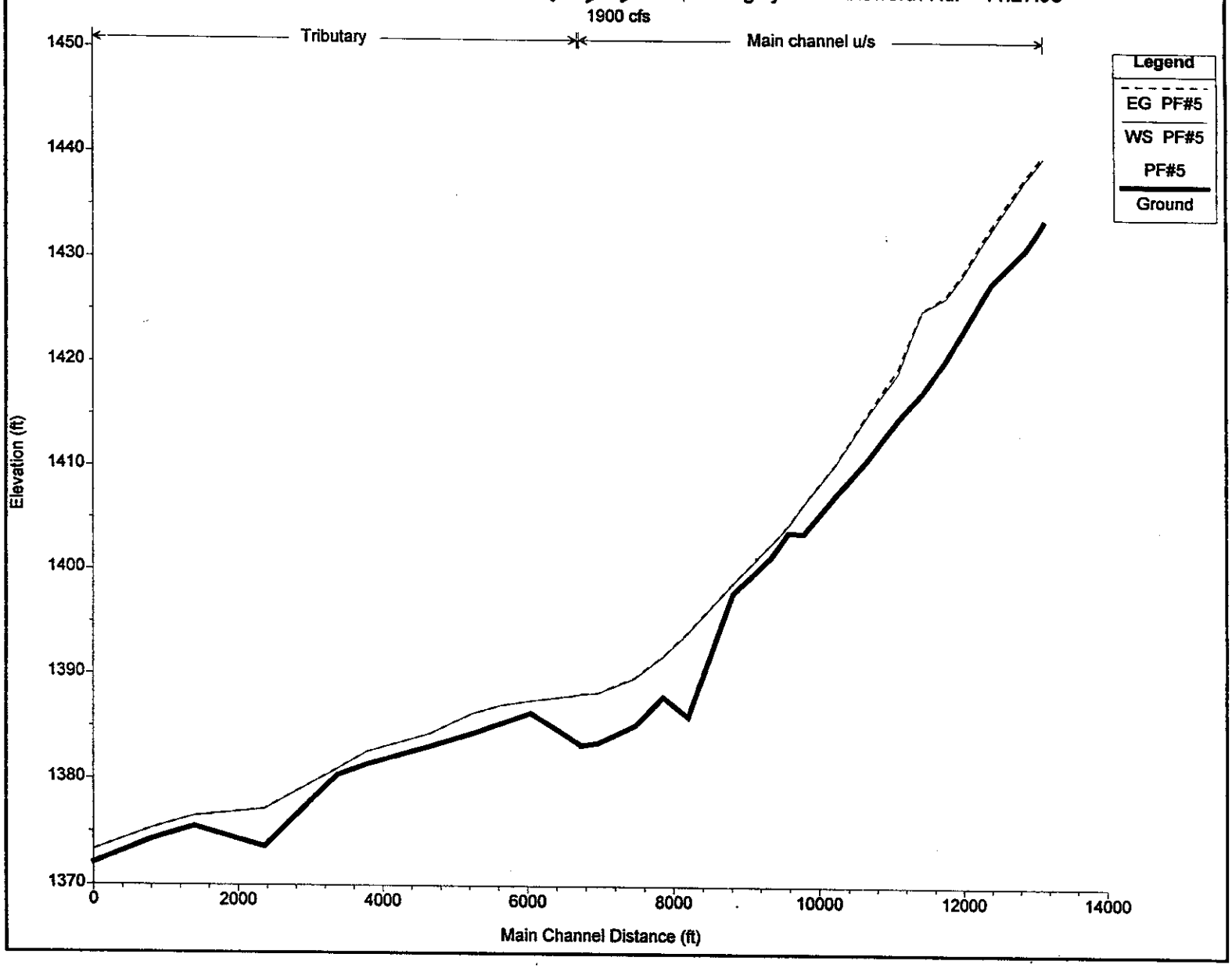
Sonoqui ~~Santaka~~ Wash Floodplain Delineation Study Sonoqui ~~Santaka~~ from Hingley Rd to Elsworth Rd. 11.27.98

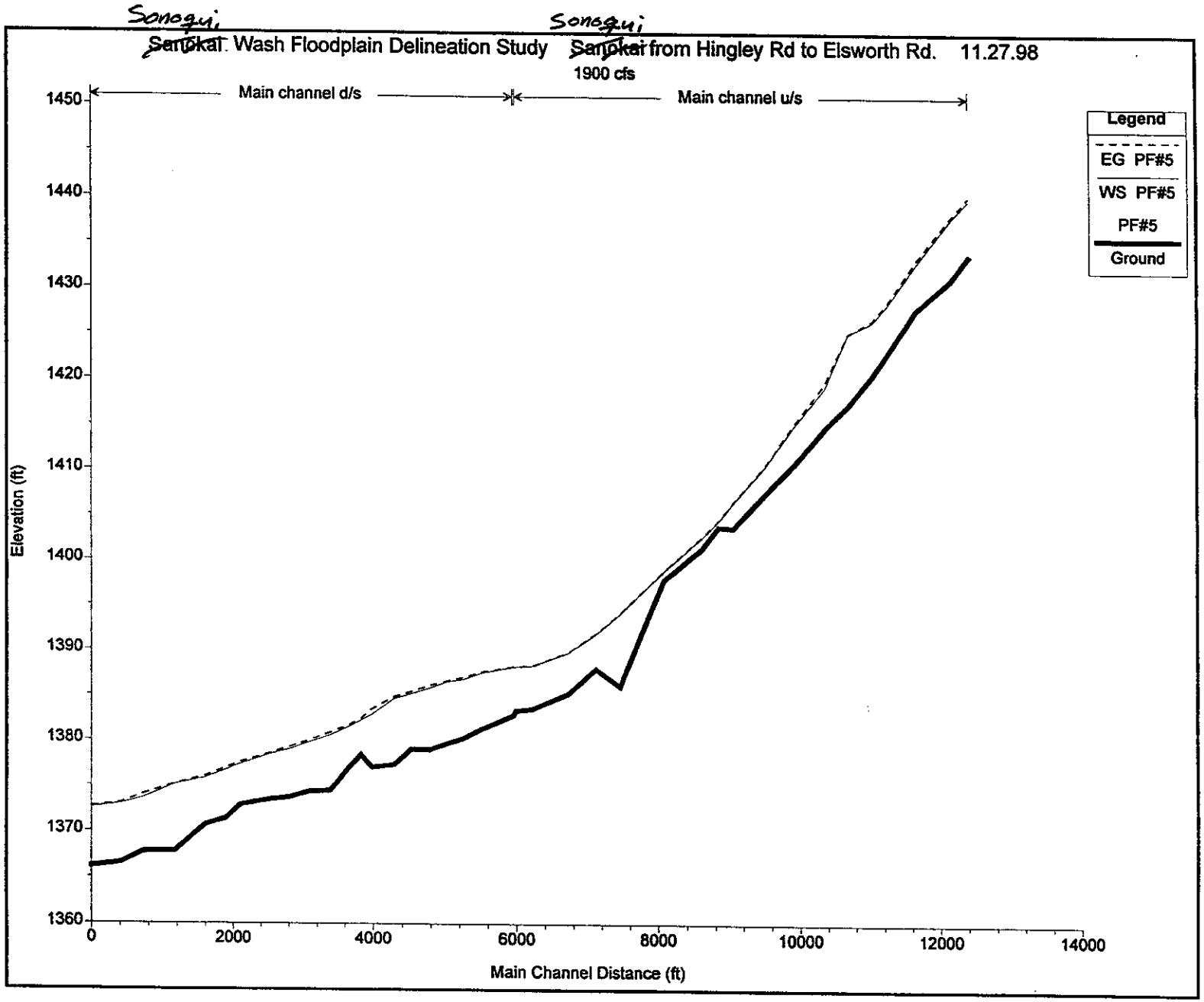
1800 cfs

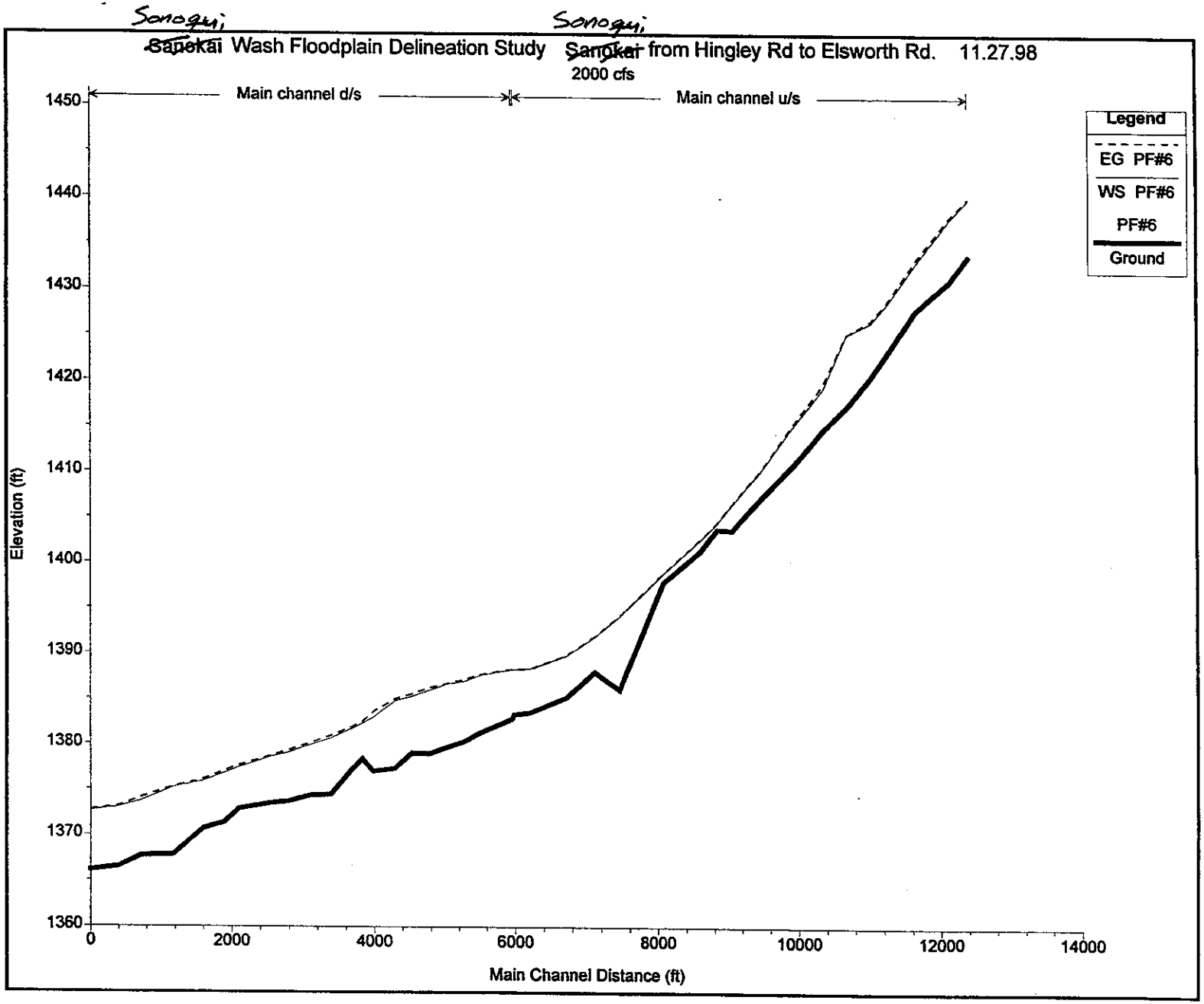



Sonoqui
~~Sanqkai~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanqkai~~ from Hingley Rd to Elsworth Rd. 11.27.98
1800 cfs
Tributary
Main channel u/s
Legend
EG PF#4
WS PF#4
PF#4
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

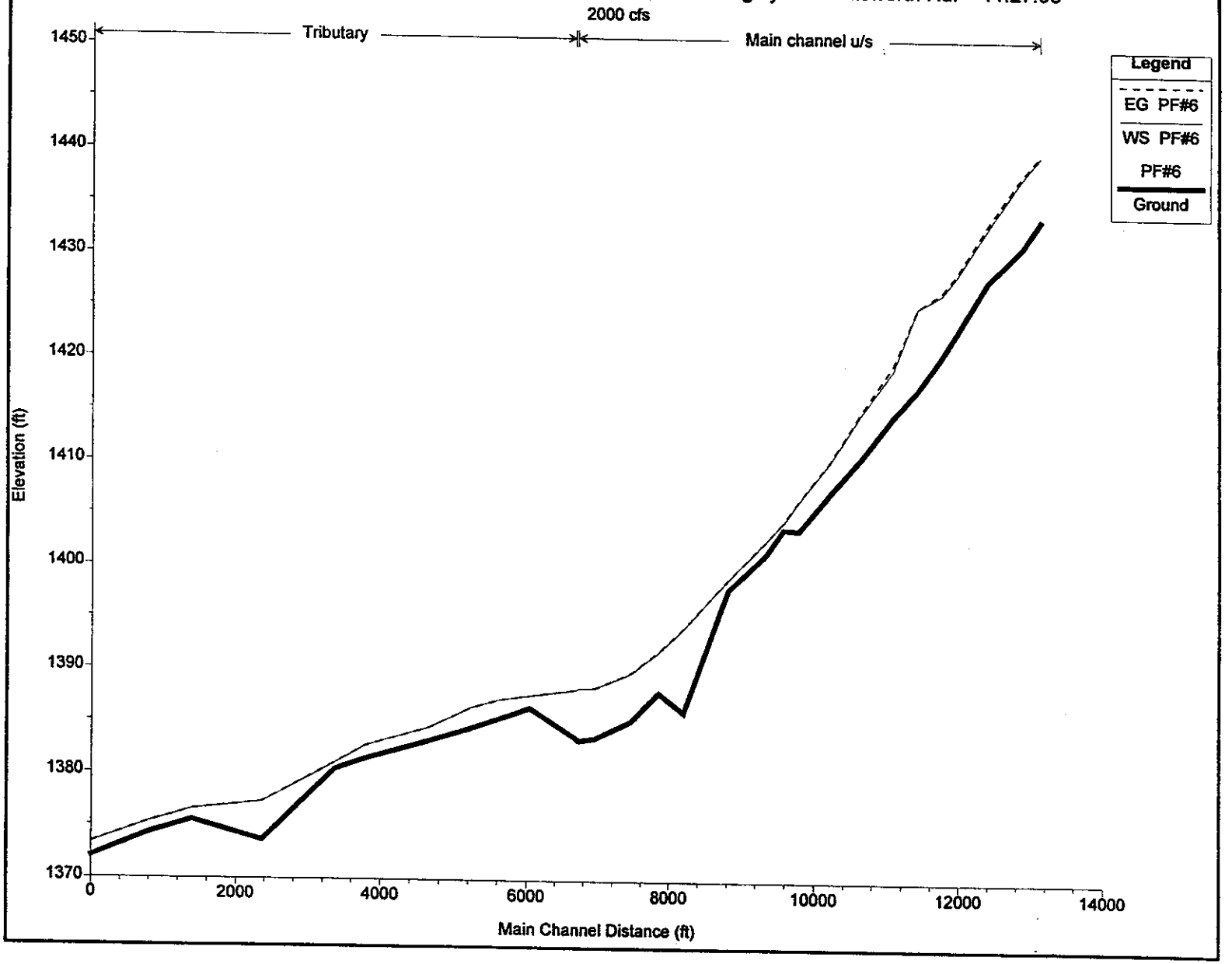
Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98



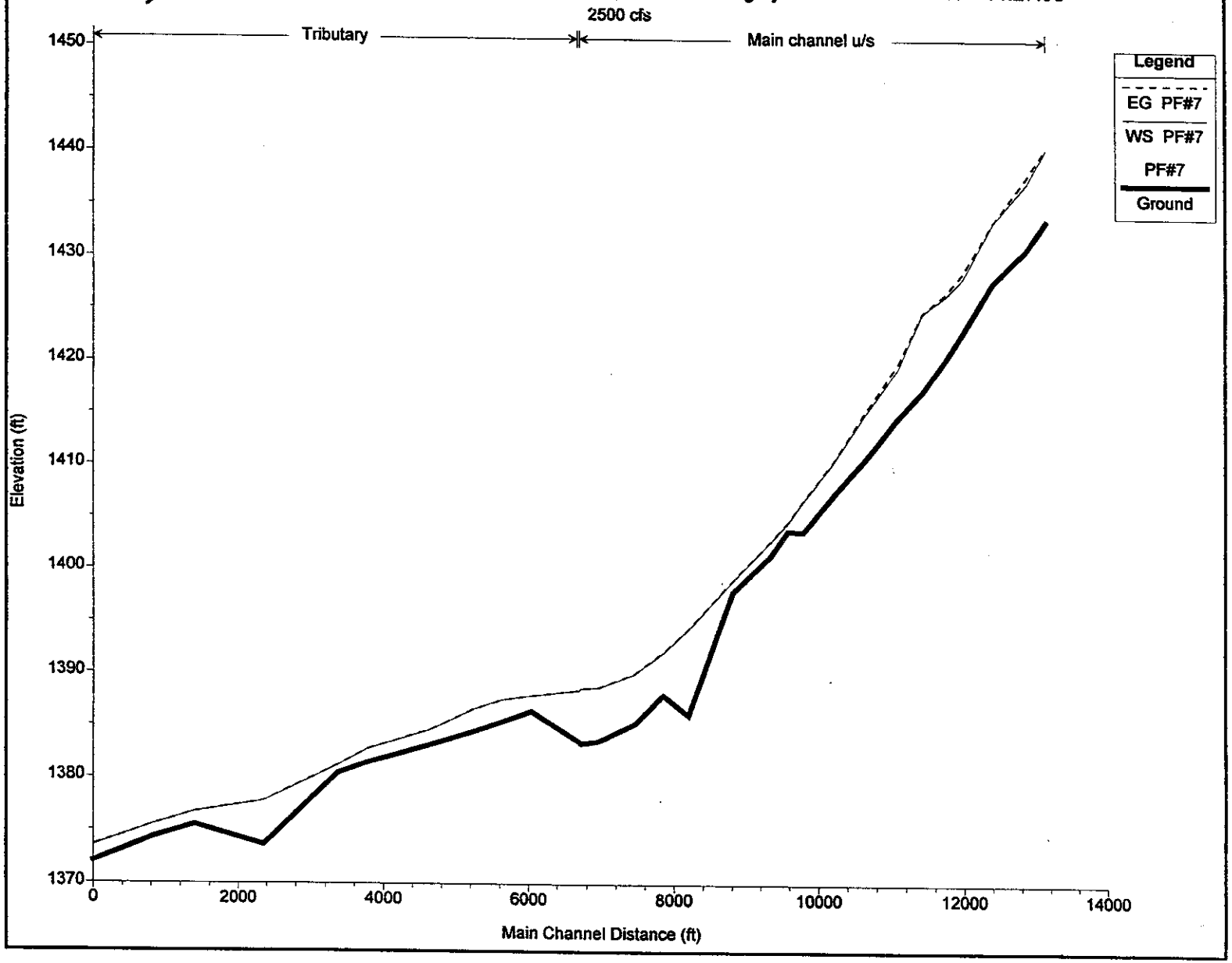

Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanokai~~ from Hingley Rd to Elsworth Rd.
11.27.98
1900 cfs
Main channel d/s
Main channel u/s
Legend
EG PF#5
WS PF#5
PF#5
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
1360
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)


Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98
2000 cfs
Main channel d/s
Main channel u/s
Legend
EG PF#6
WS PF#6
PF#6
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
1360
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

Sonoqui ~~Sapokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sapokai~~ from Hingley Rd to Elsworth Rd. 11.27.98

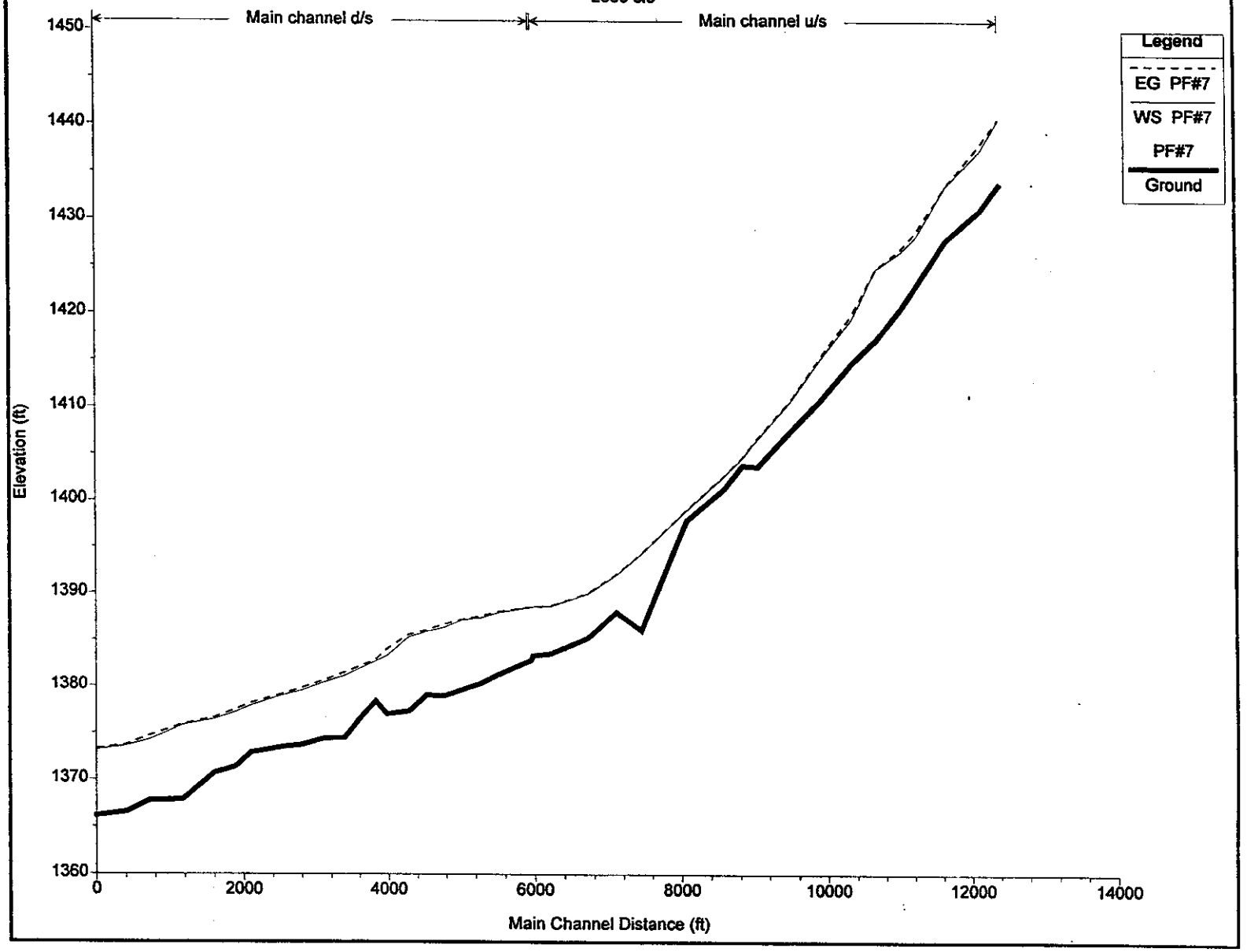


Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98



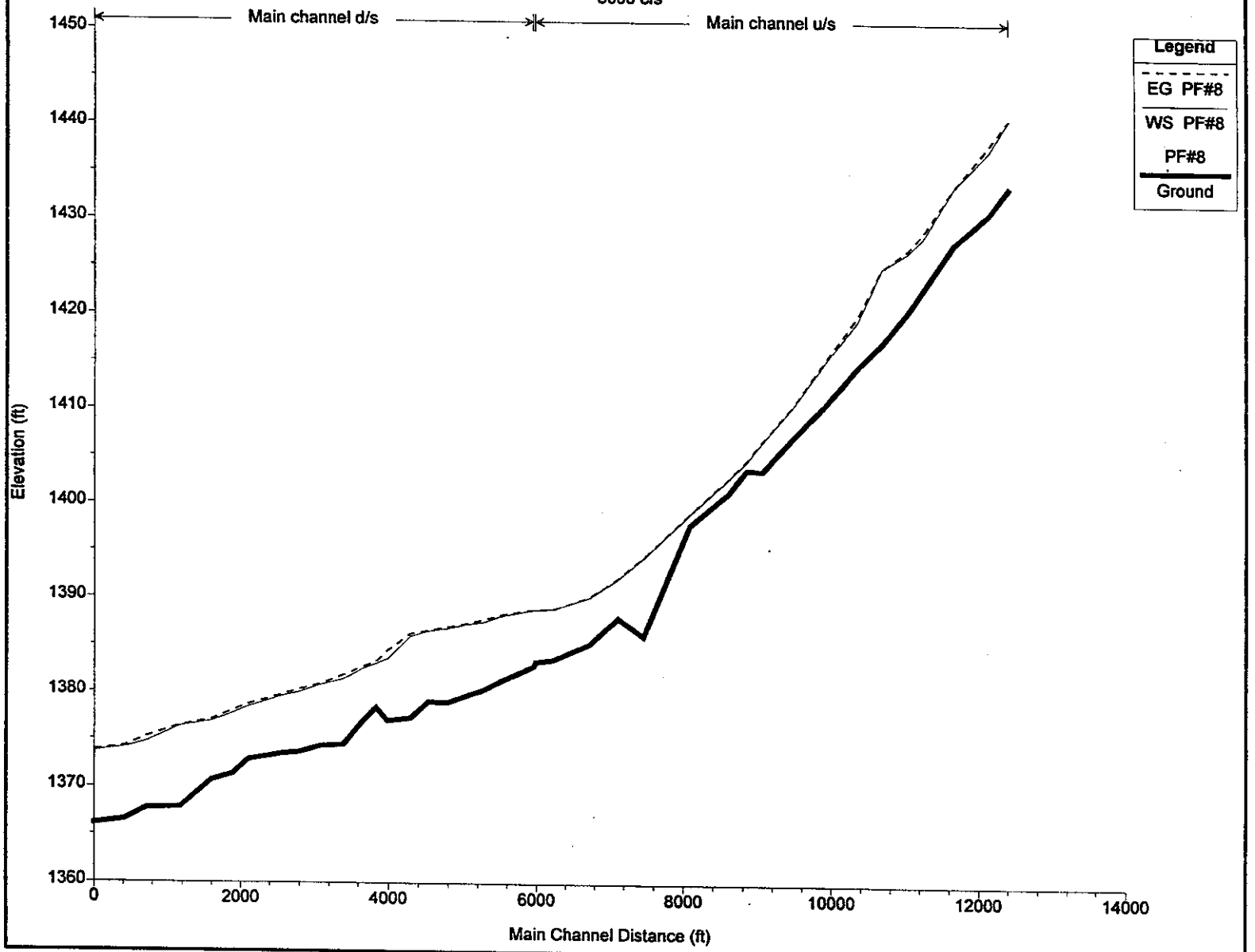
Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sangkai~~ from Hingley Rd to Elsworth Rd. 11.27.98

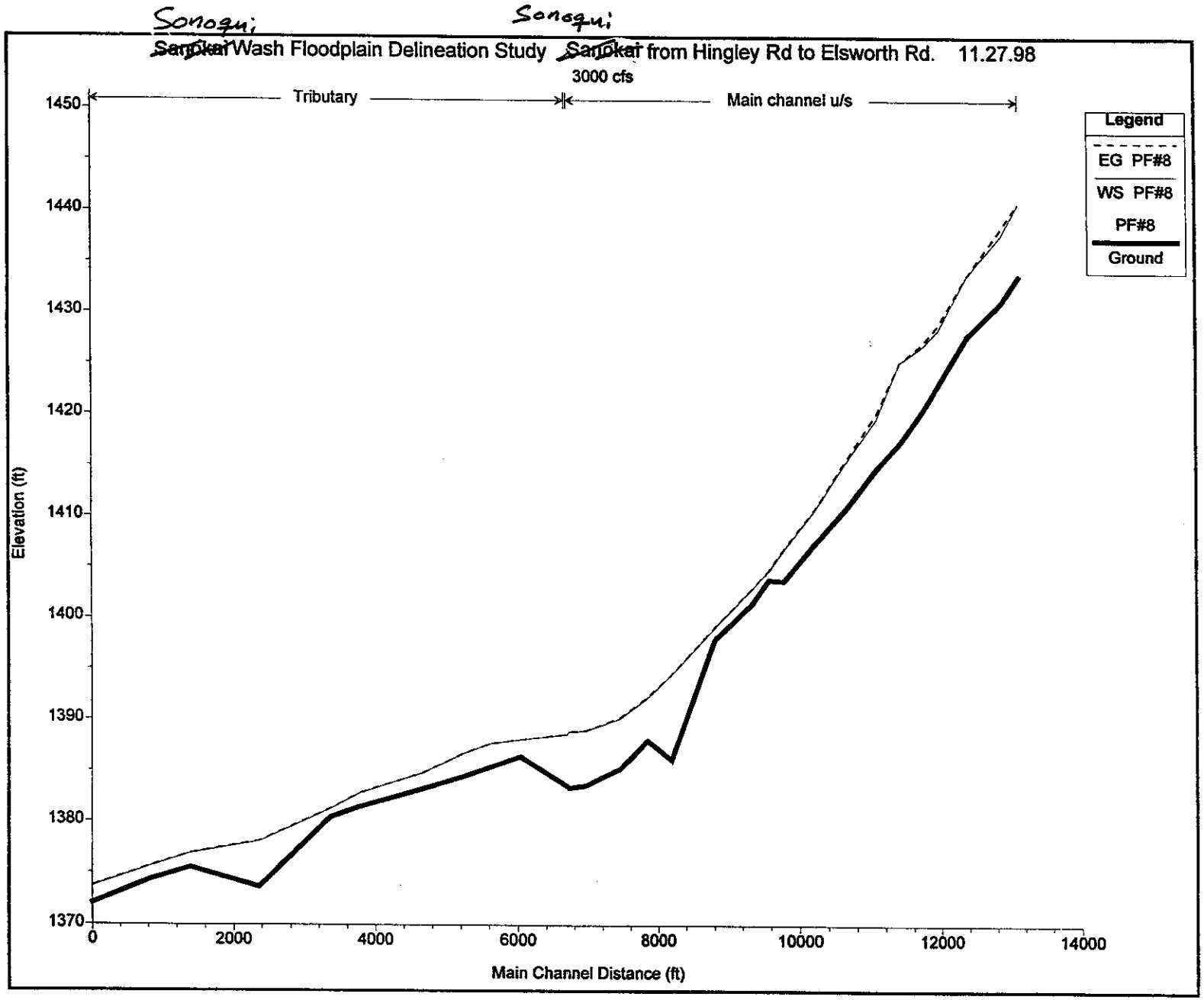
2500 cfs

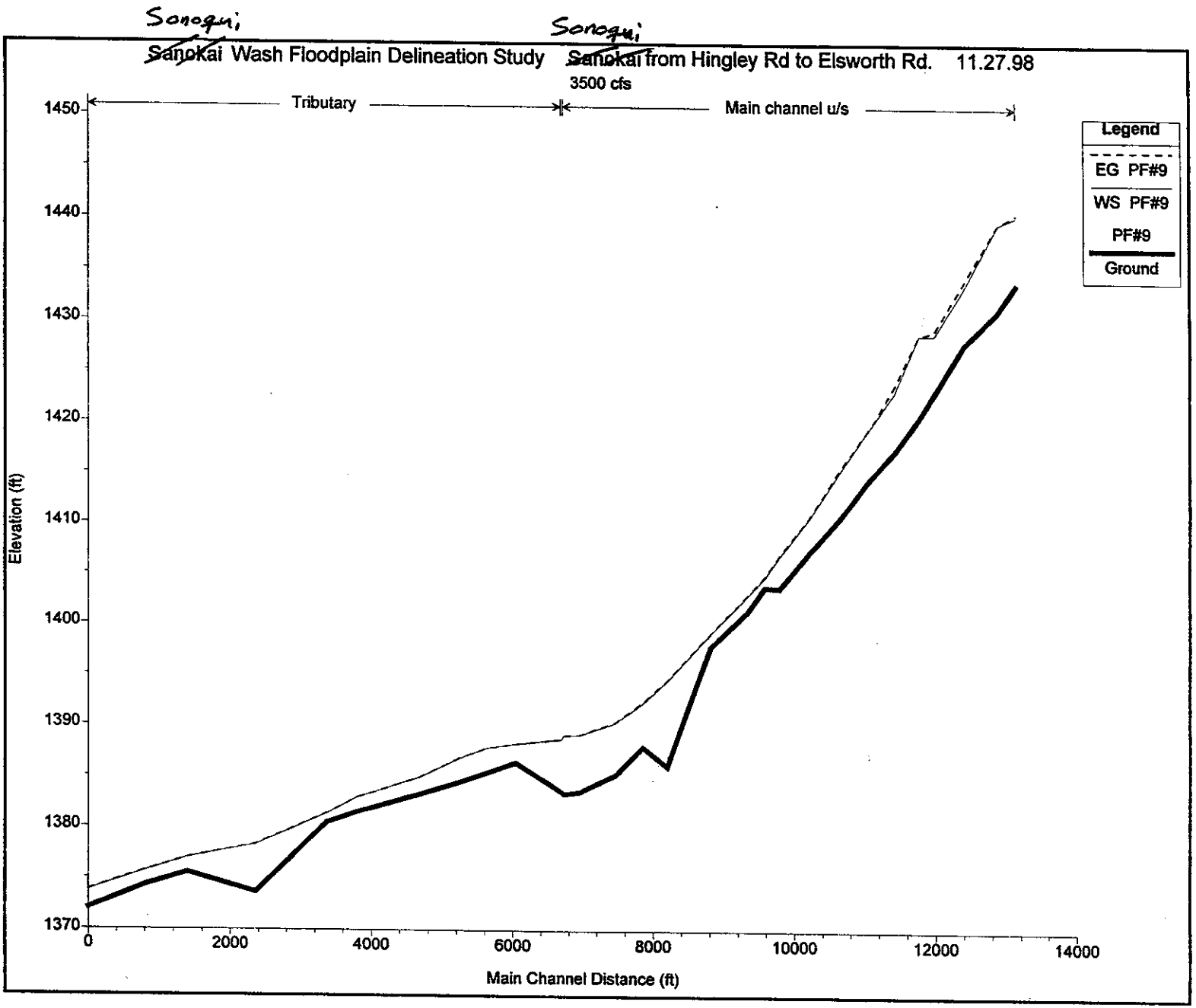


Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98

3000 cfs

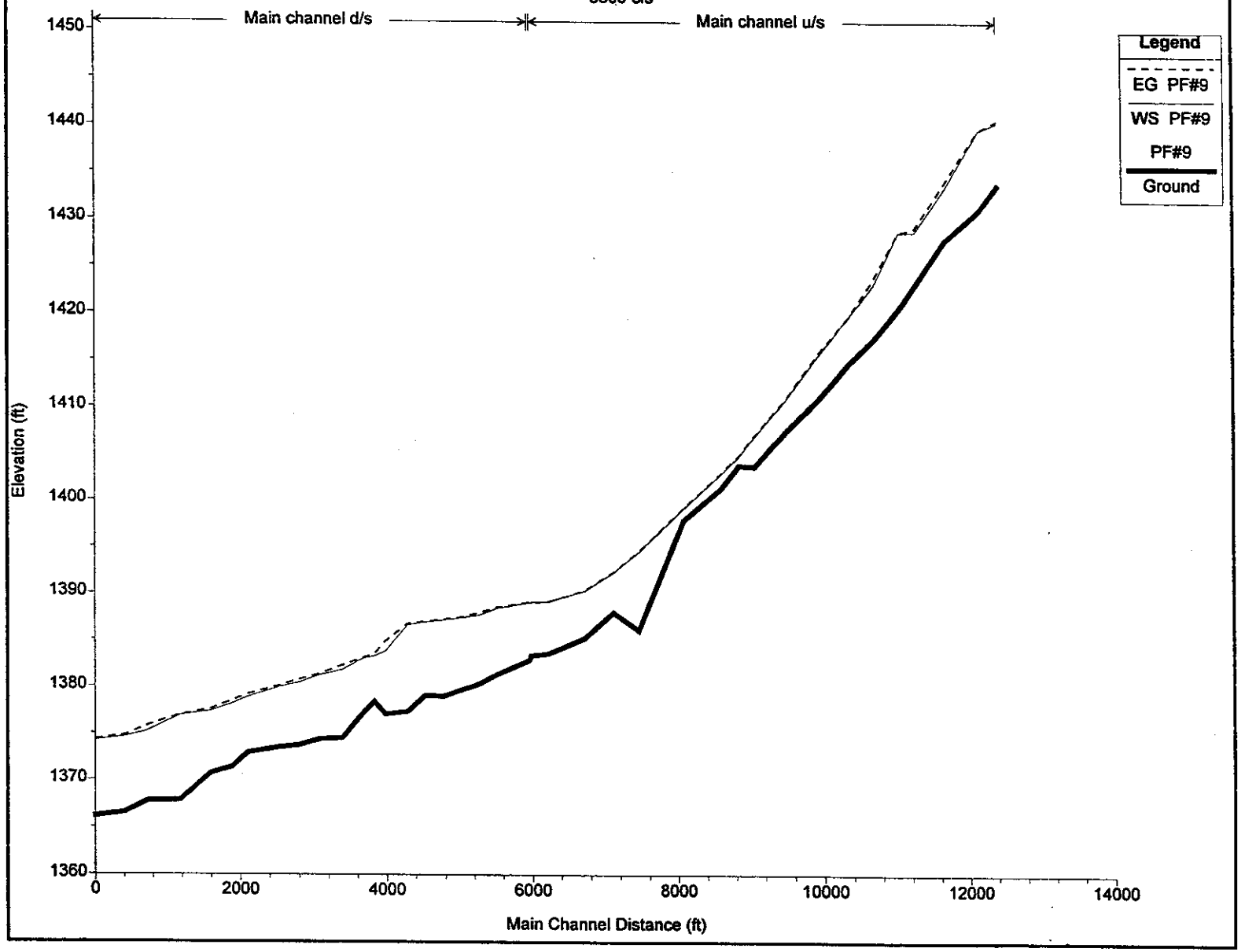



Sonoqui
Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98
3000 cfs
Tributary
Main channel u/s
Legend
EG PF#8
WS PF#8
PF#8
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

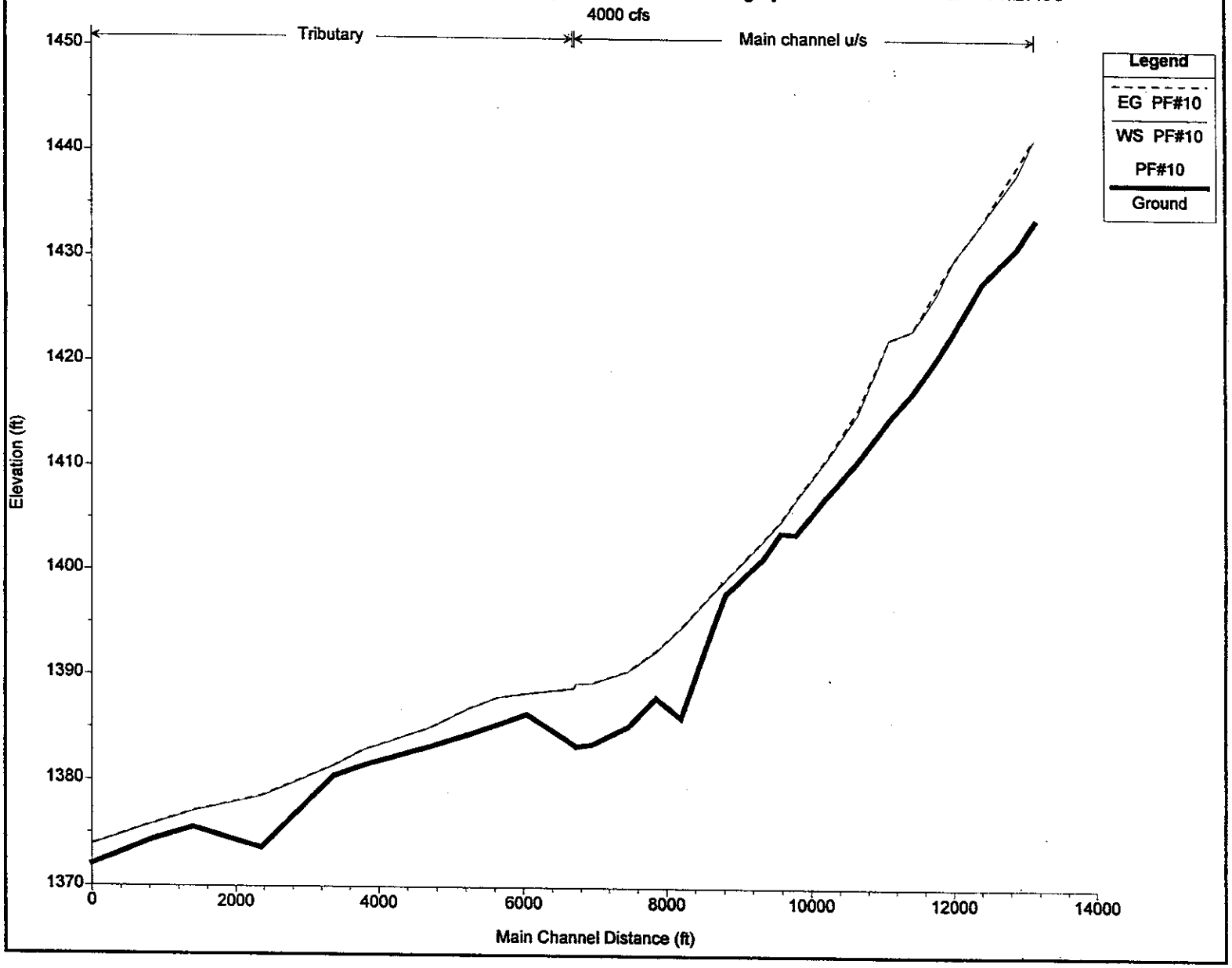

Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study
Sonoqui
~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98
3500 cfs
Tributary
Main channel u/s
Legend
EG PF#9
WS PF#9
PF#9
Ground
Elevation (ft)
1450
1440
1430
1420
1410
1400
1390
1380
1370
0
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)

Sonoqui ~~Sanokal~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokal~~ from Hingley Rd to Elsworth Rd. 11.27.98

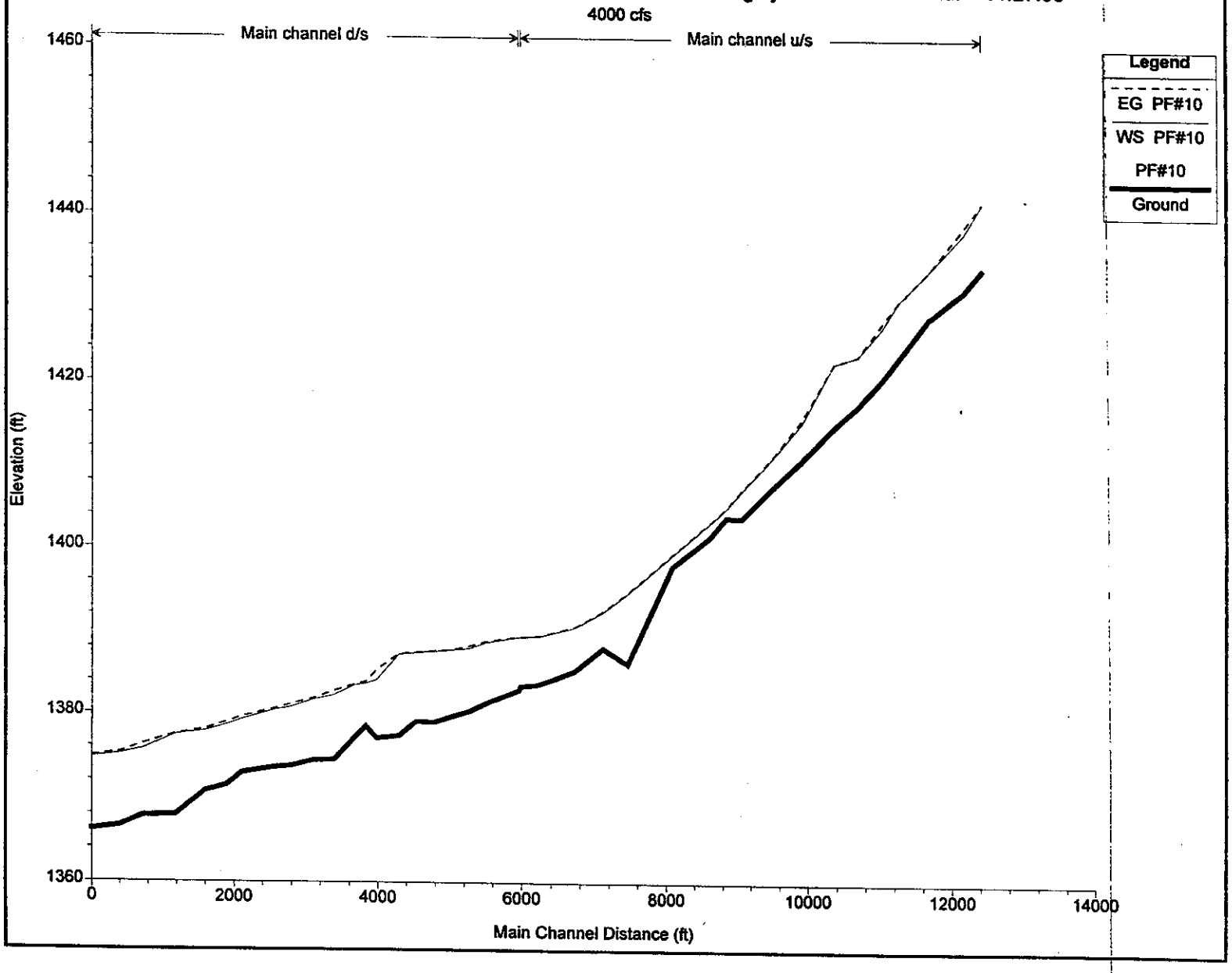
3500 cfs



Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98



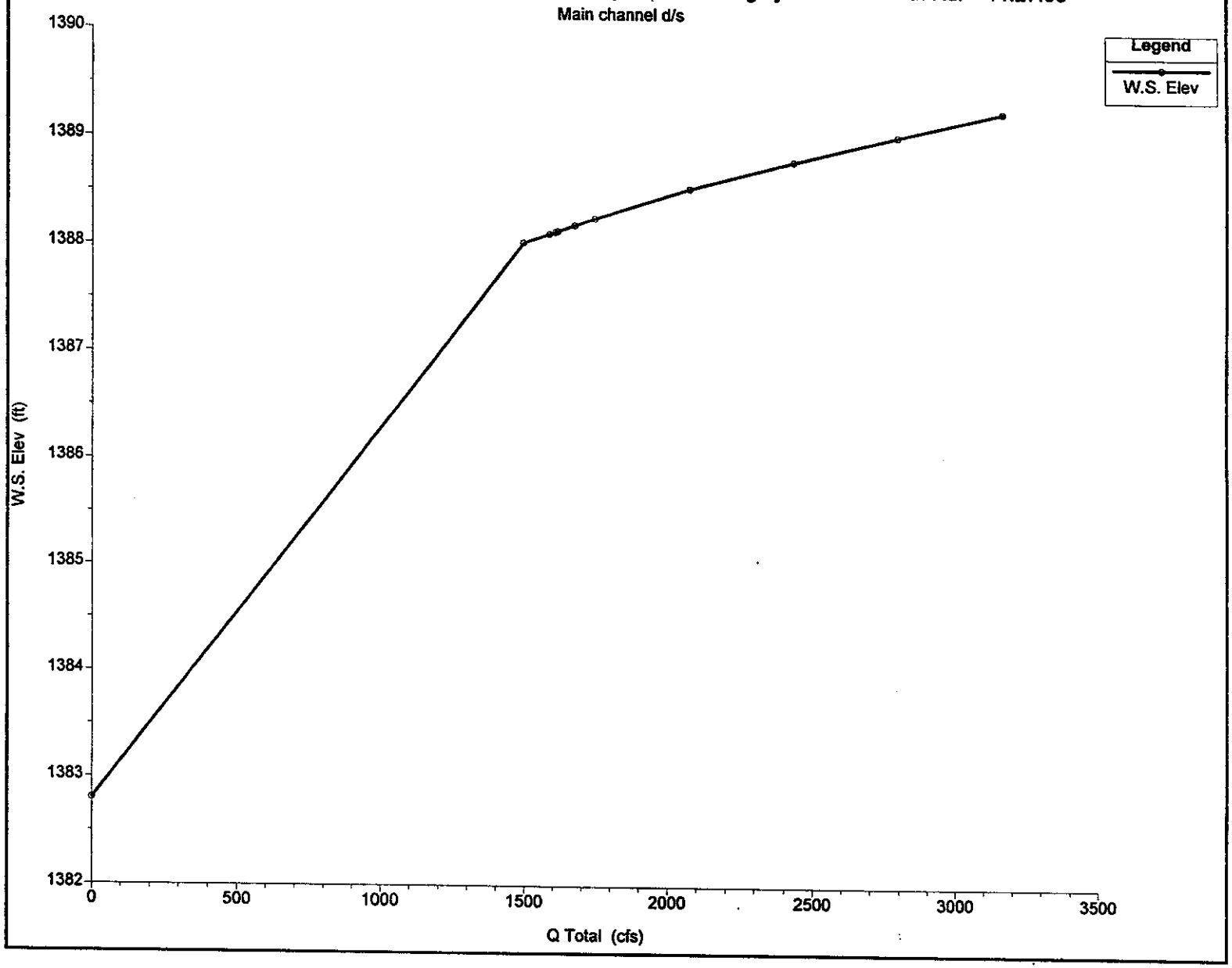
Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98



Sonoqui Sonoqui

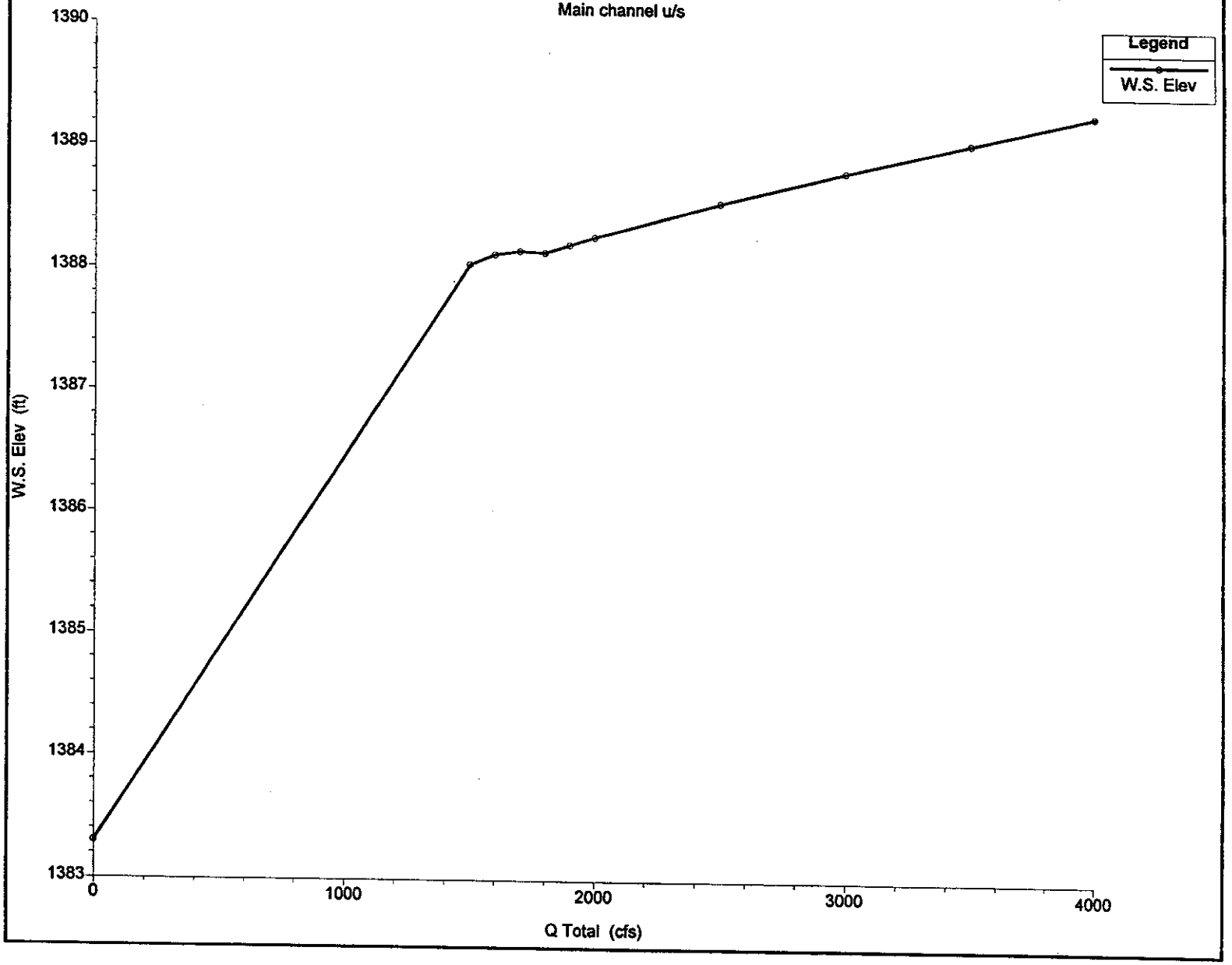
~~Sanokai~~ Wash Floodplain Delineation Study ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98

Main channel d/s

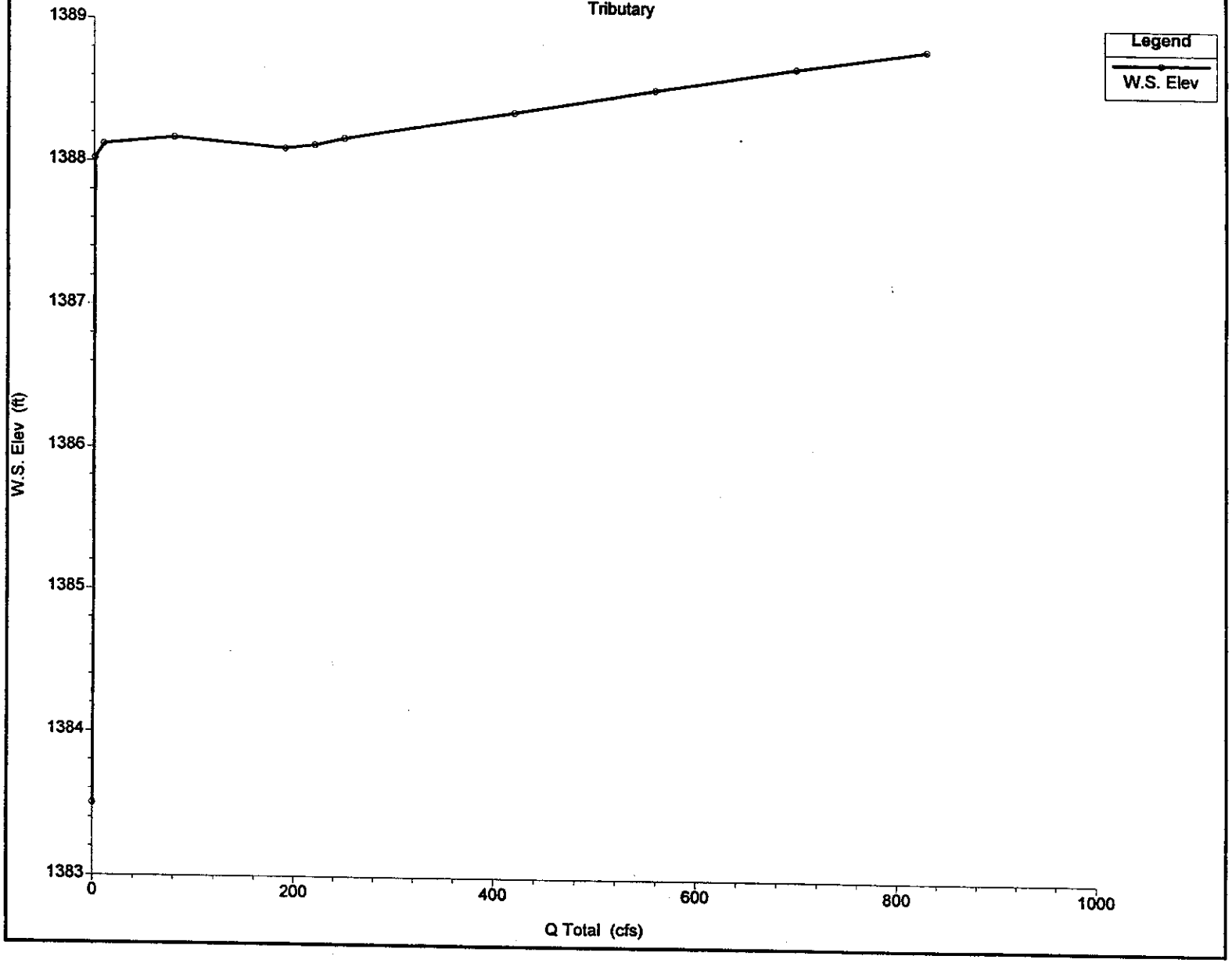


Sonoqui ~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98

Main channel u/s



Sonoqui
~~Sanokai~~ Wash Floodplain Delineation Study Sonoqui ~~Sanokai~~ from Hingley Rd to Elsworth Rd. 11.27.98
Tributary



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Client FCDMC

~~Sanokai~~ Sonoqui Wash Floodplain Delineation

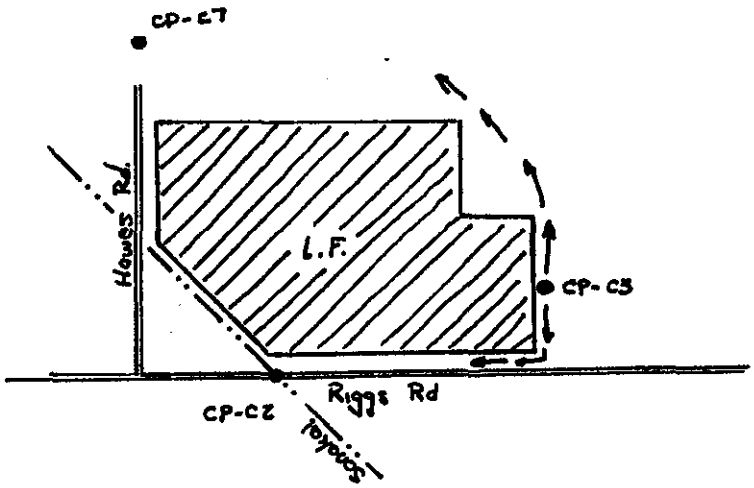
JOB NO. 310.001

Split Flow Calculations

Split Point Location: 2000' East of Ellsworth Rd. & 1000' North of Riggs Rd.

Split Point ID: CP-C3

Split Description Runoff from basin C3 are divided into to flow paths around the landfield. Part of the runoff flows South to the channel along Riggs Rd. and part flows North and eventually east north of the landfield



Diversion path 1

Description Flow along Landfill Site, then along Riggs Rd. to CP-C2 (RC3SW)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0046 ft/ft

Diversion Path 2

Description Flow along Landfill Site, then across Basin N2 to CP-N2 (RC3NW)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0019 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: 2000' East of Ellsworth Rd. & 1000' North of Riggs Rd.

Split Point ID: CP-C3

Split Description Runoff from basin C3 are divided into to flow paths around the landfield. Part of the runoff flows South to the channel along Riggs Rd. and part flows North and eventually east north of the landfield

		S =	0.0046		S=	0.0019		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	40	0.055	0.0	60	0.055	0.0	0	0.018	0.0
20	0.6	40	0.055	10.2	60	0.055	9.8	0	0.018	0.0
40	0.9	40	0.055	20.4	60	0.055	19.6	0	0.018	0.0
60	1.1	50	0.055	32.7	65	0.055	27.3	0	0.018	0.0
80	1.2	60	0.055	45.7	70	0.055	34.3	0	0.018	0.0
100	1.1	90	0.055	58.3	100	0.055	41.7	0	0.018	0.0
120	0.8	120	0.035	79.4	150	0.055	40.6	0	0.018	0.0
140	0.9	120	0.035	92.6	150	0.055	47.4	0	0.018	0.0
160	1.0	120	0.035	105.9	150	0.055	54.1	0	0.018	0.0
180	1.1	120	0.035	119.1	150	0.055	60.9	0	0.018	0.0
200	1.1	120	0.035	132.3	150	0.055	67.7	0	0.018	0.0

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Client FCDMC

~~Sanpkai~~ Sonoqui Wash Floodplain Delineation

JOB NO. 310.001

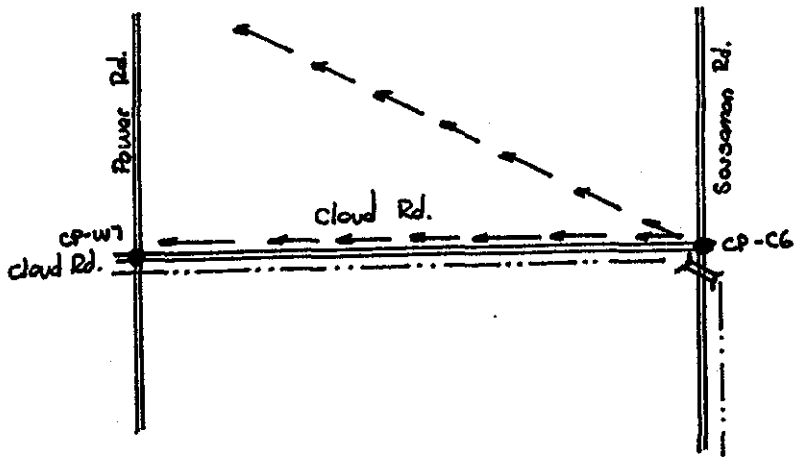
Split Flow Calculations

Split Point Location: Sossaman Rd. & Cloud Rd.

Split Point ID: CP-C6

Split Description Double Split - Flow to the west on Cloud Rd. channel, overflow is sheet flow to the north West

Flow crosses sossaman through 3-36" culvert



Diversion path 1

Description West on Cloud Rd. channel

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0025 ft/ft

Diversion Path 2

Description Sheet flow to the north west

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0040 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

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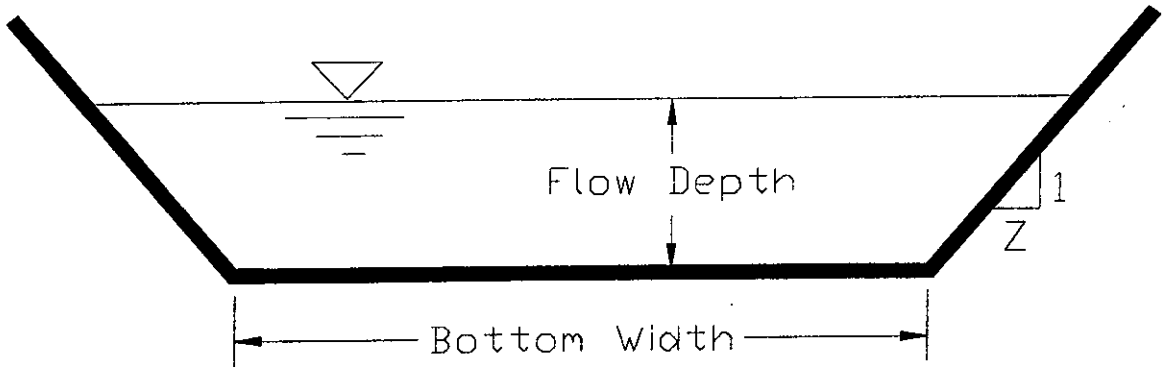
JOB NO. 310.001

TRAPEZOIDAL CHANNEL COMPUTATION



Location: Cloud Road channel between Sossaman and Power Rds.
CP-C6

Bottom Width	(ft)	10
Side Slope	(Z:1)	3
Side Slope	(Z:1)	3
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0025
Flow Depth	(ft)	5.00
X-Section Area	(sft)	125.00
Wetted Perimeter	(ft)	41.62
Hydraulic Radius	(ft)	3.00
Velocity	(fps)	3.45
Discharge	(cfs)	430.92
Freeboard	(ft)	0
Channel Depth	(ft)	5.00
Top width	(ft)	40.00

Split Flow Table

Split Point Location: Sossaman Rd. & Cloud Rd.
Split Point ID: CP-C6
Split Description Double Split - Flow to the west on Cloud Rd. channel, overflow is sheet flow to the north West Flow crosses sossaman through 3-36" culvert

		Cloud Channel S = 0.0025			Sheet flow S= 0.004			S= 0		
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0				0.0			0.0			
80				80.0			0.0			
160				160.0			0.0			
240				240.0			0.0			
320				320.0			0.0			
400				400.0			0.0			
480				480.0			0.0			
560				480.0			80.0			
640				480.0			160.0			
720				480.0			240.0			
800				480.0			320.0			

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~~Sanokai~~ Sonoqui Wash Floodplain Delineation

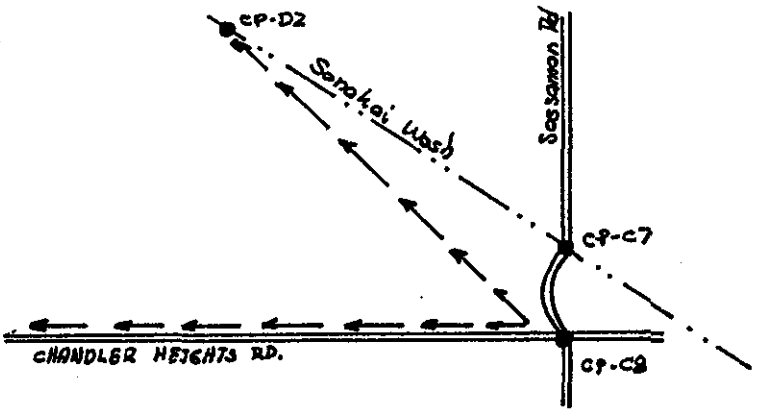
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Sossaman Rd. & Chandler Heights Rd.

Split Point ID: CP-C8

Split Description Double Split - Flow to the North, Flow to the West



Diversion path 1

Description Flow through Sanokai Wash to CP-D2 (RC8N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0027 ft/ft

Diversion Path 2

Description Flow along Chandler Heights Rd. to CP-W8 (RC8W)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0028 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Sossaman Rd. & Chandler Heights Rd.
Split Point ID: CP-C8
Split Description Double Split - Flow to the North, Flow to the West

		S =	0.0027		S=	0.0028		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	100	0.035	0.0	100	0.036	0.0	0	0.018	0.0
40	0.5	100	0.035	20.1	100	0.036	19.9	0	0.018	0.0
80	0.7	100	0.035	40.2	100	0.036	39.8	0	0.018	0.0
120	0.9	100	0.035	60.3	100	0.036	59.7	0	0.018	0.0
160	1.1	100	0.035	80.4	100	0.036	79.6	0	0.018	0.0
200	1.2	100	0.035	100.5	100	0.036	99.5	0	0.018	0.0
240	1.4	100	0.035	120.6	100	0.036	119.4	0	0.018	0.0
280	1.5	100	0.035	140.7	100	0.036	139.3	0	0.018	0.0
320	1.7	100	0.035	160.8	100	0.036	159.2	0	0.018	0.0
360	1.8	100	0.035	180.9	100	0.036	179.1	0	0.018	0.0
400	1.9	100	0.035	201.0	100	0.036	199.0	0	0.018	0.0

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~~Santaki~~ Sonoqui Wash Floodplain Delineation

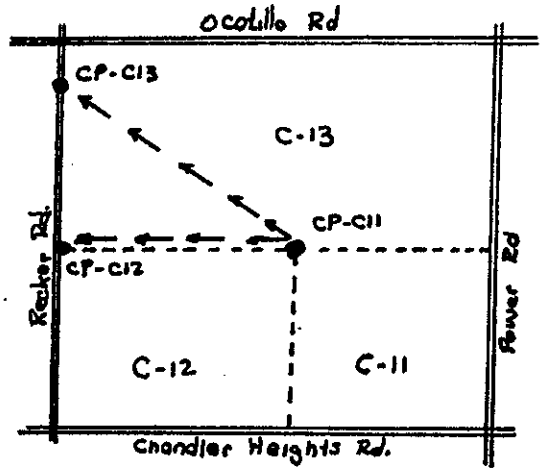
JOB NO. 310.001

Split Flow Calculations

Split Point Location: 1/2 Mile West of Power Rd. & 1/2 Mile North of Chandler Heights Rd.

Split Point ID: CP-C11

Split Description Double Split - Flow west to CP-C12 and flow North West CP-C13



Diversion path 1

Description Sheet flow west across Basin C12 to CP-C12 (RC11S)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0036 ft/ft

Diversion Path 2

Description Sheet Flow across Basin C13 to CP-C13(RC11N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0043 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: 1/2 Mile West of Power Rd. & 1/2 Mile North of Chandler Heights Rd.
Split Point ID: CP-C11
Split Description Double Split - Flow west to CP-C12 and flow North West CP-C13

		To CP-C12			To CP-C13					
		S =	0.0036		S=	0.0043		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	500	0.055	0.0	700	0.06	0.0	0	0.018	0.0
60	0.2	500	0.055	25.0	700	0.06	35.0	0	0.018	0.0
120	0.4	500	0.055	49.9	700	0.06	70.1	0	0.018	0.0
180	0.5	500	0.055	74.9	700	0.06	105.1	0	0.018	0.0
240	0.6	500	0.055	99.9	700	0.06	140.1	0	0.018	0.0
300	0.7	500	0.055	124.9	700	0.06	175.1	0	0.018	0.0
360	0.7	500	0.055	149.8	700	0.06	210.2	0	0.018	0.0
420	0.8	500	0.055	174.8	700	0.06	245.2	0	0.018	0.0
480	0.9	500	0.055	199.8	700	0.06	280.2	0	0.018	0.0
540	0.9	500	0.055	224.8	700	0.06	315.2	0	0.018	0.0
600	1.0	500	0.055	249.7	700	0.06	350.3	0	0.018	0.0

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~~Sonoqui~~ Wash Floodplain Delineation

Sonoqui

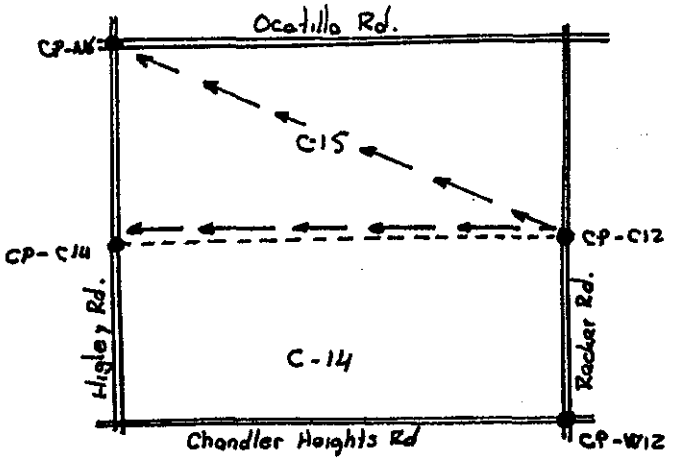
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Recker Rd. 1/2 Mile North of Chandler Heights Rd.

Split Point ID: CP-C12

Split Description Double Split - Flow north west to ~~Sonoqui~~ Sonoqui and west to Hongley Rd.



Diversion path 1

Description Flow North west across Basin C15 to ~~Sonoqui~~ Sonoqui (CP-N6)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0028 ft/ft 0.0005

Diversion Path 2

Description Sheet Flow across Basin C14 to CP-C14 (RC12W)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0026 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Recker Rd. 1/2 Mile North of Chandler Heights Rd.
Split Point ID: CP-C12
Split Description Double Split - Flow north west to Sanokai and west to Hongley Rd.

		to N6			to C14					
		S =	0.0028		S=	0.0026		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	150	0.055	0.0	80	0.055	0.0	0	0.018	0.0
40	0.6	150	0.055	26.4	80	0.055	13.6	0	0.018	0.0
80	0.9	150	0.055	52.8	80	0.055	27.2	0	0.018	0.0
120	1.1	150	0.055	79.3	80	0.055	40.7	0	0.018	0.0
160	1.3	150	0.055	105.7	80	0.055	54.3	0	0.018	0.0
200	1.5	150	0.055	132.1	80	0.055	67.9	0	0.018	0.0
240	1.7	150	0.055	158.5	80	0.055	81.5	0	0.018	0.0
280	1.8	150	0.055	184.9	80	0.055	95.1	0	0.018	0.0
320	2.0	150	0.055	211.4	80	0.055	108.6	0	0.018	0.0
360	2.1	150	0.055	237.8	80	0.055	122.2	0	0.018	0.0
400	2.3	150	0.055	264.2	80	0.055	135.8	0	0.018	0.0

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Client FCDMC

~~Sawtelle~~ Sonoqui Wash Floodplain Delineation

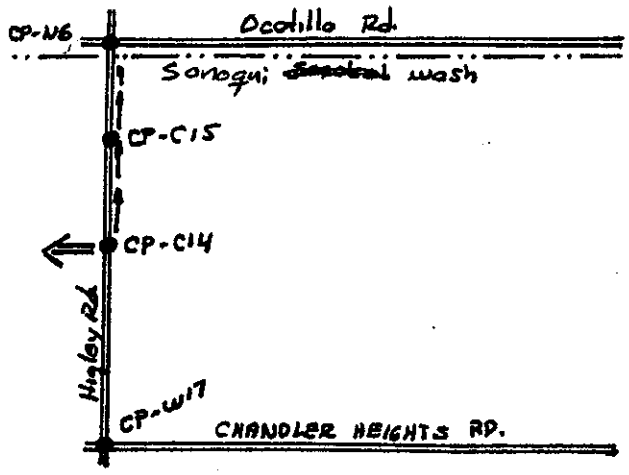
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Higley Rd. 1/2 mile North of Chandler Heights Rd.

Split Point ID: CP-C14

Split Description Split Flow - One to the North, One to the West



Diversion path 1

Description Flow North along Higley Rd. to CP-C15 (RC14N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0010 ft/ft

Diversion Path 2

Description Flow West Offsite (RC14O)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0020 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Higley Rd. 1/2 mile North of Chandler Heights Rd.
Split Point ID: CP-C14
Split Description Split Flow - One to the North, One to the West

		S =	0.001		S=	0.002		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.035	0.0	0	0.075	0.0	0	0.018	0.0
60	8.5	4	0.035	60.0	0	0.075	0.0	0	0.018	0.0
120	0.7	90	0.035	22.2	600	0.075	97.8	0	0.018	0.0
180	0.9	90	0.035	33.3	600	0.075	146.7	0	0.018	0.0
240	1.1	90	0.035	44.4	600	0.075	195.6	0	0.018	0.0
300	1.3	90	0.035	55.6	600	0.075	244.4	0	0.018	0.0
360	1.4	90	0.035	66.7	600	0.075	293.3	0	0.018	0.0
420	1.5	90	0.035	77.8	600	0.075	342.2	0	0.018	0.0
480	1.7	90	0.035	88.9	600	0.075	391.1	0	0.018	0.0
540	1.8	90	0.035	100.0	600	0.075	440.0	0	0.018	0.0
600	1.9	90	0.035	111.1	600	0.075	488.9	0	0.018	0.0

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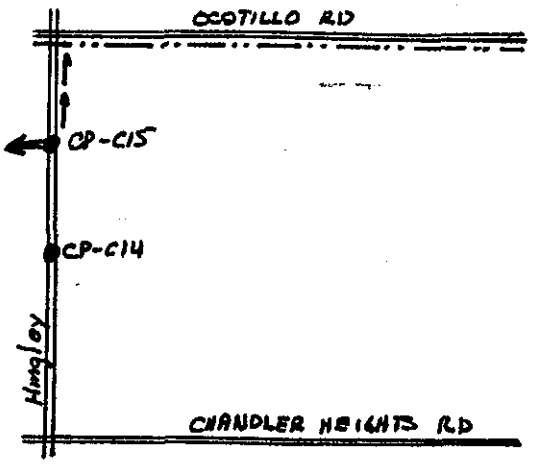
~~Sanokai~~ Sonoqui Wash Floodplain Delineation

JOB NO. 310.001

Split Flow Calculations

Split Point Location: Higley Rd. 800' South of Ocotillo Rd.
Split Point ID: CP-C15
Split Description Split Flow - One to the North, One to the West



Diversion path 1
Description Flow North along Higley Rd. to CP-N6 (RC15N)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0018 ft/ft

Diversion Path 2
Description Flow Offsite (RC15O)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0017 ft/ft

Diversion Path 3
Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Higley Rd. 800' South of Ocotillo Rd.
Split Point ID: CP-C15
Split Description Split Flow - One to the North, One to the West

Inflow	Approx. Depth	S = 0.0018			S= 0.0017			S= 0		
		Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	90	0.035	0.0	0	0.075	0.0	0	0.018	0.0
42	0.5	90	0.035	13.9	400	0.075	28.1	0	0.018	0.0
84	0.7	90	0.035	27.9	400	0.075	56.1	0	0.018	0.0
126	0.8	150	0.035	57.0	400	0.075	69.0	0	0.018	0.0
168	0.9	150	0.035	76.0	400	0.075	92.0	0	0.018	0.0
210	1.1	150	0.035	95.0	400	0.075	115.0	0	0.018	0.0
252	1.2	150	0.035	114.1	400	0.075	137.9	0	0.018	0.0
294	1.3	150	0.035	133.1	400	0.075	160.9	0	0.018	0.0
336	1.4	150	0.035	152.1	400	0.075	183.9	0	0.018	0.0
378	1.5	150	0.035	171.1	400	0.075	206.9	0	0.018	0.0
420	1.6	150	0.035	190.1	400	0.075	229.9	0	0.018	0.0

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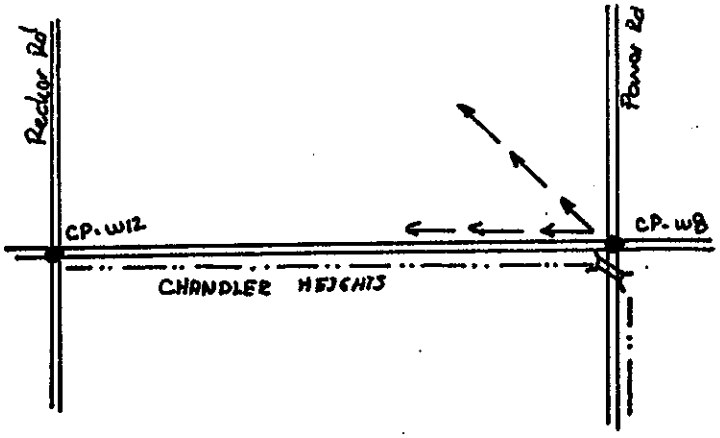
Split Flow Calculations

Split Point Location: Chandler Heights Rd. & Power Rd.

Split Point ID: CP-W8

Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west
Crosses Power road through 4-10'X4' RCB



Diversion path 1

Description Flow West along Chandler Hts Rd.
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0034 ft/ft

Diversion Path 2

Description Overflow through Basin C11 to CP-C11 (RW8N)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = ft/ft

Diversion Path 3

Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

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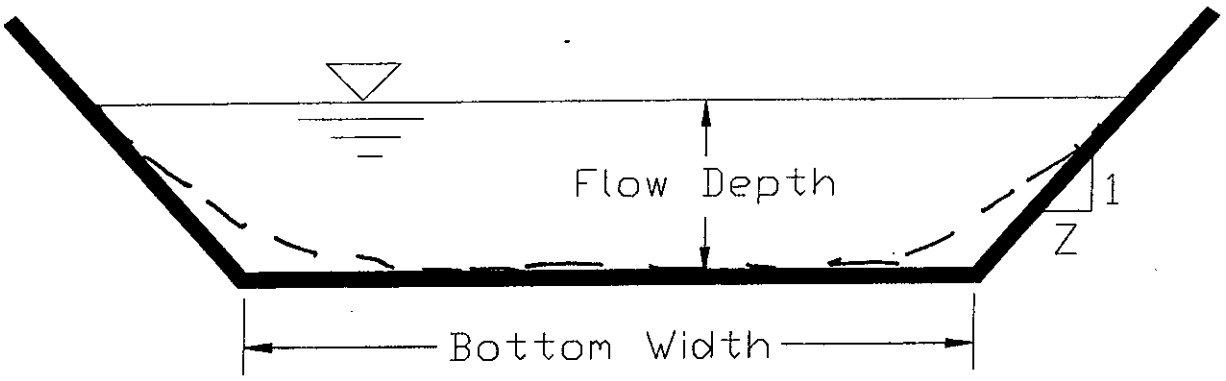
TRAPEZOIDAL CHANNEL COMPUTATION



Location: Chandler Heights Rd. channel between Power and Recker Rds. (Upstream Reach) CP-W8

Bottom Width	(ft)	15
Side Slope	(Z:1)	6
Side Slope	(Z:1)	6
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0030
Flow Depth	(ft)	5.00
X-Section Area	(sft)	225.00
Wetted Perimeter	(ft)	75.83
Hydraulic Radius	(ft)	2.97
Velocity	(fps)	3.75
Discharge	(cfs)	842.90
Freeboard	(ft)	0
Channel Depth	(ft)	5.00
Top width	(ft)	75.00

Split Flow Table

Split Point Location: Chandler Heights Rd. & Power Rd.
Split Point ID: CP-W8
Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west
Crosses Power road through 4-10'X4' RCB

		Chandler Heights			Overflow					
		S =	0.0034		S=	0		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0				0.0			0.0			
100				100.0			0.0			
200				200.0			0.0			
300				300.0			0.0			
400				400.0			0.0			
500				500.0			0.0			
600				600.0			0.0			
700				700.0			0.0			
800				800.0			0.0			
900				840.0			60.0			
1000				840.0			160.0			

Central Area Diversion Calculations

West Area Diversion Calculations

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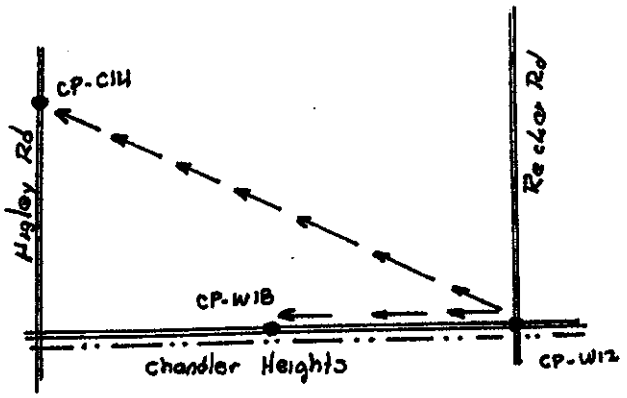
Split Flow Calculations

Split Point Location: Chandler Heights Rd. & Recker Rd.
Split Point ID: CP-W12
Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west



Diversion path 1
Description Flow West along Chandler Hts Rd.
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0034 ft/ft

Diversion Path 2
Description Overflow through Basin C14 to CP-C14
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = ft/ft

Diversion Path 3
Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

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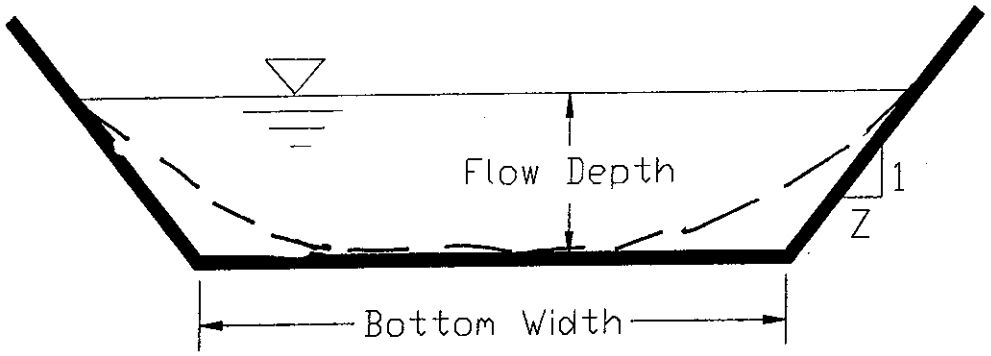
TRAPEZOIDAL CHANNEL COMPUTATION



Location: Chandler Heights Rd. channel 3/4-mile east of Higley Rd. (Middle Reach) CP-W12

Bottom Width	(ft)	20
Side Slope	(Z:1)	6
Side Slope	(Z:1)	6
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0039
Flow Depth	(ft)	4.00
X-Section Area	(sft)	176.00
Wetted Perimeter	(ft)	68.66
Hydraulic Radius	(ft)	2.56
Velocity	(fps)	3.87
Discharge	(cfs)	681.84
Freeboard	(ft)	0
Channel Depth	(ft)	4.00
Top width	(ft)	68.00

Split Flow Table

Split Point Location: Chandler Heights Rd. & Recker Rd.
Split Point ID: CP-W12
Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west
0

		Chandler Heights			Overflow					
		S =	0.0034		S=	0		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0				0.0			0.0			
100				100.0			0.0			
200				200.0			0.0			
300				300.0			0.0			
400				400.0			0.0			
500				500.0			0.0			
600				600.0			0.0			
700				680.0			20.0			
800				680.0			120.0			
900				680.0			220.0			
1000				680.0			320.0			

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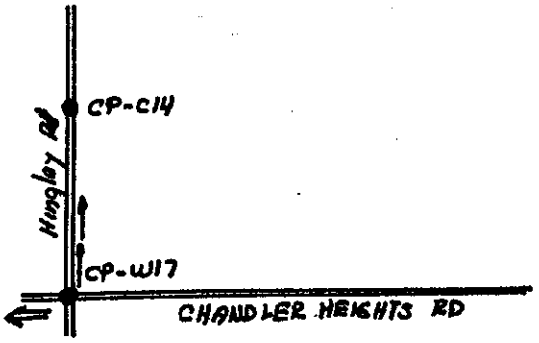
Split Flow Calculations

Split Point Location: Higley Rd.and Chandler Heights Rd.
Split Point ID: CP-W17
Split Description Split Flow - One to the North, One to the West



Diversion path 1

Description Flow North along Higley Rd. to CP-C14
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0032 ft/ft

Diversion Path 2

Description Flow West Offsite (RW17O)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0020 ft/ft

Diversion Path 3

Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

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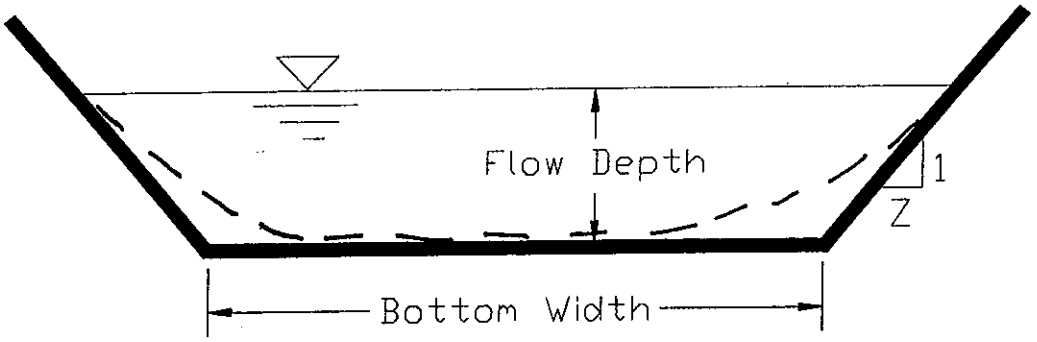

Location: Higley Road Channel North of Chandler Heights Road
CP-W17

Bottom Width	(ft)	15
Side Slope	(Z:1)	2.5
Side Slope	(Z:1)	2.5
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0001
Flow Depth	(ft)	2.00
X-Section Area	(sft)	40.00
Wetted Perimeter	(ft)	25.77
Hydraulic Radius	(ft)	1.55
Velocity	(fps)	0.44
Discharge	(cfs)	17.76
Freeboard	(ft)	0
Channel Depth	(ft)	2.00
Top width	(ft)	25.00

Split Flow Table

Split Point Location: Higley Rd.and Chandler Heights Rd.
Split Point ID: CP-W17
Split Description Split Flow - One to the North, One to the West

		S =	0.0001		S=	0.002		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0				0.0			0.0			
100				17.0			83.0			
200				17.0			183.0			
300				17.0			283.0			
400				17.0			383.0			
500				17.0			483.0			
600				17.0			583.0			
700				17.0			683.0			
800				17.0			783.0			
900				17.0			883.0			
1000				17.0			983.0			

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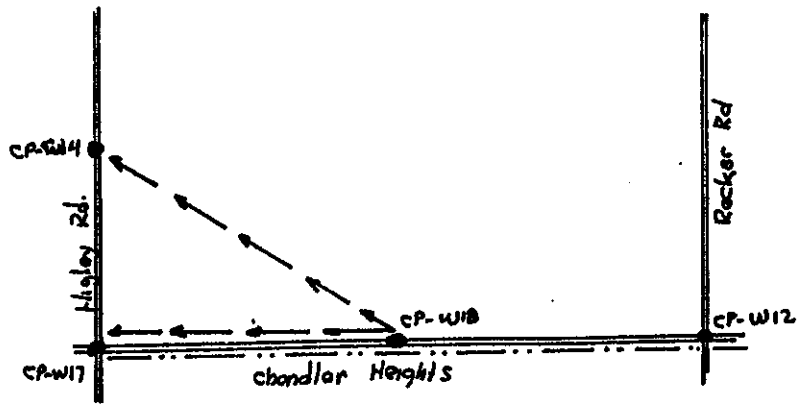
JOB NO. 310.001

Split Flow Calculations

Split Point Location: Chandler Heights Rd. & 1/2 mile west of Recker Rd.
Split Point ID: CP-W18
Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west



Diversion path 1
Description Flow West along Chandler Hts Rd.
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0034 ft/ft

Diversion Path 2
Description Overflow through Basin C14 to CP-C14
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = ft/ft

Diversion Path 3
Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

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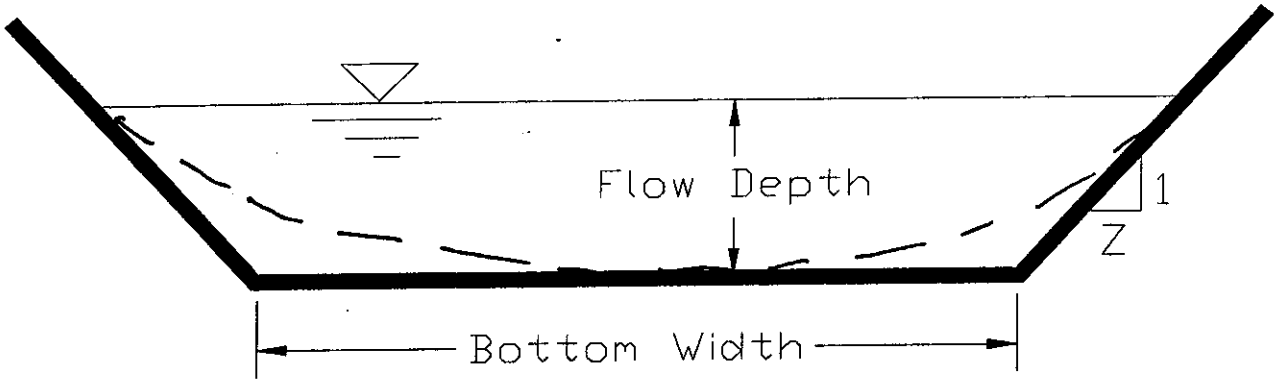
TRAPEZOIDAL CHANNEL COMPUTATION



Location: Chandler Heights Rd. channel 1/4-mile east of Higley Rd. (Downstream Reach) CP-W18

Bottom Width	(ft)	20
Side Slope	(Z:1)	8.3
Side Slope	(Z:1)	8.3
Roughness n		0.045
Bottom Slope	(ft/ft)	0.0028
Flow Depth	(ft)	3.00
X-Section Area	(sft)	134.70
Wetted Perimeter	(ft)	70.16
Hydraulic Radius	(ft)	1.92
Velocity	(fps)	2.71
Discharge	(cfs)	364.64
Freeboard	(ft)	0
Channel Depth	(ft)	3.00
Top width	(ft)	69.80

Split Flow Table

Split Point Location: Chandler Heights Rd. & 1/2 mile west of Recker Rd.
Split Point ID: CP-W18
Split Description Double Split - Flow west on Chandler Heigths channel, overflow to the north west
0

		Chandler Heights S = 0.0028			Overflow S= 0			S= 0		
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0				0.0			0.0			
100				100.0			0.0			
200				200.0			0.0			
300				300.0			0.0			
400				360.0			40.0			
500				360.0			140.0			
600				360.0			240.0			
700				360.0			340.0			
800				360.0			440.0			
900				360.0			540.0			
1000				360.0			640.0			

North Area Diversion Calculations

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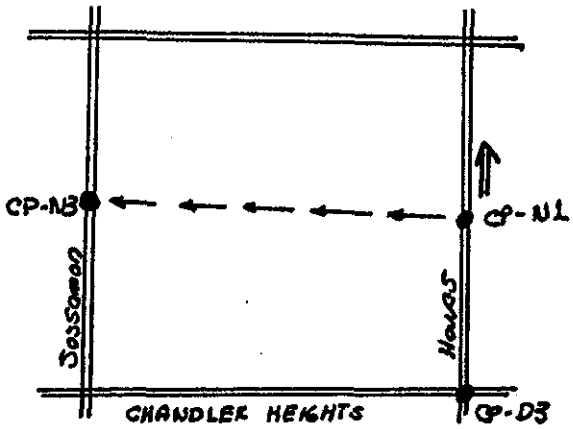
Split Flow Calculations

Split Point Location: Hawes Rd. 5000' North of Chandler Heights Rd.

Split Point ID: CP-N1

Split Description Double Split - Flow to the North along Hawes, Flow West to Sossaman



Diversion path 1

Description Sheet Flow across Basin N3 to CP-N3 (RN1)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0029 ft/ft

Diversion Path 2

Description Flow along Hawes Rd. to Queen Creek (RN1O)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0003 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Hawes Rd. 5000' North of Chandler Heights Rd.
Split Point ID: CP-N1
Split Description Double Split - Flow to the North along Hawes, Flow West to Sossaman

		S =	0.0029		S=	0.0003		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	1300	0.055	0.0	60	0.035	0.0	0	0.018	0.0
60	0.2	1300	0.055	58.6	60	0.035	1.4	0	0.018	0.0
120	0.4	1300	0.055	117.3	60	0.035	2.7	0	0.018	0.0
180	0.5	1300	0.055	175.9	60	0.035	4.1	0	0.018	0.0
240	0.6	1300	0.055	234.5	60	0.035	5.5	0	0.018	0.0
300	0.7	1300	0.055	293.2	60	0.035	6.8	0	0.018	0.0
360	0.7	1300	0.055	351.8	60	0.035	8.2	0	0.018	0.0
420	0.8	1300	0.055	410.4	60	0.035	9.6	0	0.018	0.0
480	0.9	1300	0.055	469.1	60	0.035	10.9	0	0.018	0.0
540	0.9	1300	0.055	527.7	60	0.035	12.3	0	0.018	0.0
600	1.0	1300	0.055	586.3	60	0.035	13.7	0	0.018	0.0

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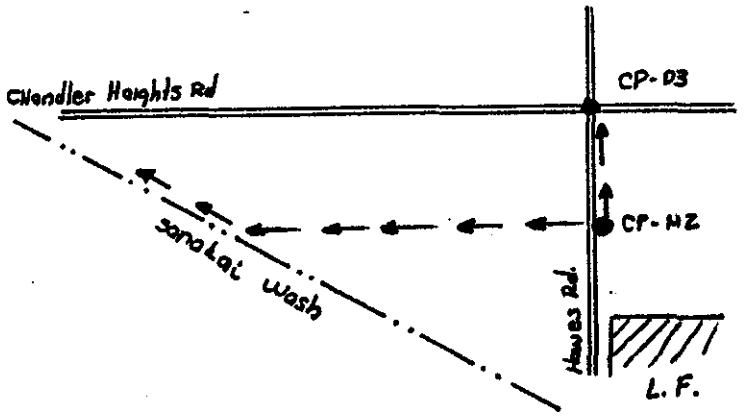
Split Flow Calculations

Split Point Location: Hawes Rd. 1/2 Mile North of Riggs Rd.

Split Point ID: CP-N2

Split Description Double Split - Flow to the North to Chandler Heigths, Flow to the Westto Sanokai



Diversion path 1

Description Sheet Flow across Basin C7, then Sanokai Wash to CP-C7 (RN2S)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0035 ft/ft

Diversion Path 2

Description Flow along Hawes Rd. to CP-D3 (RN2N)

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0003 ft/ft

Diversion Path 3

Description

General Contour Slope ft

Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Hawes Rd. 1/2 Mile North of Riggs Rd.
Split Point ID: CP-N2
Split Description Double Split - Flow to the North to Chandler Heigths, Flow to the Westto Sanokai

		S =	0.0035		S=	0.0003		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	0	0.055	0.0	0	0.035	0.0	0	0.018	0.0
140	0.0	0	0.055	0.0	10	0.035	139.7	0	0.018	0.0
280	0.0	10	0.055	0.0	30	0.035	162.4	0	0.018	0.0
420	4.5	40	0.055	248.5	60	0.035	171.5	0	0.018	0.0
560	4.6	50	0.045	385.8	60	0.035	174.2	0	0.018	0.0
700	4.7	65	0.045	519.5	60	0.035	180.5	0	0.018	0.0
840	4.9	75	0.045	645.6	60	0.035	194.4	0	0.018	0.0
980	4.9	90	0.045	783.4	60	0.035	196.6	0	0.018	0.0
1120	5.0	100	0.045	913.7	60	0.035	206.3	0	0.018	0.0
1260	5.0	115	0.045	1053.2	60	0.035	206.8	0	0.018	0.0
1400	5.1	130	0.045	1192.8	60	0.035	207.2	0	0.018	0.0

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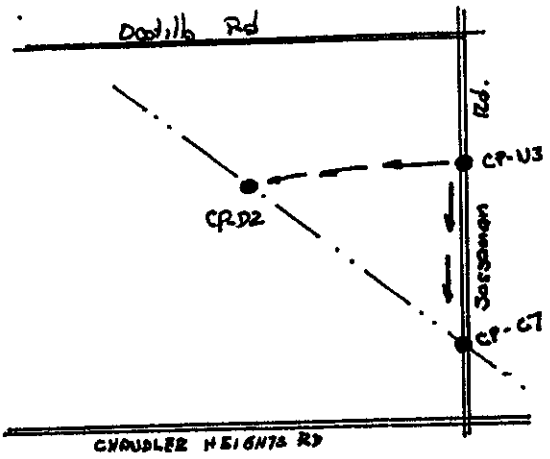
Split Flow Calculations

Split Point Location: Sossaman Rd. 3000' North of Chandler Heights Rd.
Split Point ID: CP-N3
Split Description Double Split - Flow to the West, Flow to the South



Diversion path 1
Description Sheet Flow across Basin C10 to CP-D2 (RN3W)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0032 ft/ft

Diversion Path 2
Description Flow along Sossaman Rd. to CP-C7 (RN3S)
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0003 ft/ft

Diversion Path 3
Description
General Contour Slope ft
Angle between cont/split Degrees

Estimated Slope = 0.0000 ft/ft

Split Flow Table

Split Point Location: Sossaman Rd. 3000' North of Chandler Heights Rd.
Split Point ID: CP-N3
Split Description Double Split - Flow to the West, Flow to the South
0
0

		S =	0.0032		S=	0.0003		S=	0	
Inflow	Approx. Depth	Diversion No. 1			Diversion No. 2			Diversion No. 3		
		width	n value	Flow	width	n value	Flow	width	n value	Flow
0	0.0	850	0.085	0.0	40	0.035	0.0	0	0.018	0.0
80	0.5	850	0.085	77.3	40	0.035	2.7	0	0.018	0.0
160	0.7	850	0.085	154.6	40	0.035	5.4	0	0.018	0.0
240	0.9	850	0.085	231.9	40	0.035	8.1	0	0.018	0.0
320	1.1	850	0.085	309.2	40	0.035	10.8	0	0.018	0.0
400	1.3	850	0.085	386.5	40	0.035	13.5	0	0.018	0.0
480	1.4	850	0.085	463.8	40	0.035	16.2	0	0.018	0.0
560	1.5	850	0.085	541.1	40	0.035	18.9	0	0.018	0.0
640	1.7	850	0.085	618.4	40	0.035	21.6	0	0.018	0.0
720	1.8	850	0.085	695.7	40	0.035	24.3	0	0.018	0.0
800	1.9	850	0.085	773.0	40	0.035	27.0	0	0.018	0.0

D.5 Southern Pacific Railroad Input Flows

QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN

FCD 98-26

November 2000

TECHNICAL REPORT

Prepared for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

by

HUITT-ZOLLARS

Registered Professional Engineer (Civil)
CERTIFICATE NO.
12250
FRED K.
DUREN, JR.
Date Signed 12/1/00
ARIZONA, U.S.A.

In Association with

Aquatic Consulting & Testing/Archaeological Consultant Services
Hoque & Associates/Kenney Aerial Mapping/WEST Consultants

Queen Creek/Sanokai Wash Hydraulic Master Plan Technical Report

Queen Creek/Sanokai Wash Hydraulic Master Plan

FCD 98-26

Prepared for:
Flood Control District of
Maricopa County

Prepared by:
Huitt-Zollars, Inc.
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September 2000

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Project Queen Creek
Client FCDMC
Task SPRR Crossing Diversions

HUITT ZOLLARS INCORPORATED

Job No. 05-0949-01
By CJ Date 3/99
Chkd Date
Sheet 1 of

Approach: Having limited topographical information in the area. Our approach is to develop a rating curve which will split flow between flow passing under the SPRR culverts and flow passing by through a idealized channel, the flow split is based upon the ratio between the culvert capacity at a flow depth and the channel capacity at the same flow depth. From this a rating curve is developed. An example of this is presented below

Calculation Example

Assume: flow depth = 4'

Channel capacity at 4' = 200 cfs

Culvert capacity at 4' = 150 cfs

$\therefore$ Culvert capacity ratio $= \frac{150}{(150+200)} \times 200\text{cfs} \approx 86\text{cfs}$

Channel capacity ratio $= \frac{200}{(150+200)} \times 200\text{cfs} \approx 114\text{cfs}$

$\therefore$ at 4': $Q_{Culv} = 86$ cfs

$Q_{Channel} = 114$ cfs

$Q_{Total} = 200$ cfs

Project _____ Job No. _____
Client _____ By _____ Date _____
Task _____ Chkd _____ Date _____
Sheet 2 of _____

HUITT ZOLLARS INCORPORATED

Channel Dimensions

It is assumed there is a maximum head of 2.5' over the top of the culvert inlet, therefore the max. channel depth is 7' (50" x 3.5' CMPA ≈ 54" CMP: 4.5'+2.5=7.0

SPRR side slope = 2:1
Basin side slope = 10:1

Channel Slope determined from basin routing parameter for RO354, RO363, and RO355

	Length		bottom Elev	
RO355	1300		1511	
RO354	7800	distance	1494	fall
RO363	11600		1480	

slope is across RO354 & RO363 from bottom of RO355 to bottom of RO363

$$\therefore \quad S = \frac{1511 - 1480}{(7800 + 11600)} = 0.0016 \text{ ft/ft}$$

Roughness coefficient assumed rough at n = 0.043

See attach Flow master output for results

Project _____
Client _____
Task _____

HUITT ZOLLARS INCORPORATED

Job No. _____
By _____ Date _____
Chkd _____ Date _____
Sheet 3 of _____

Culvert Capacities

It is assumed that culverts are under inlet control. Culvert capacities are determined using nomographs [redacted] It is assumed culvert inlets have a headwall (culverts do have sandbag headwalls)

Nomographs are attached

Culvert hydrographs

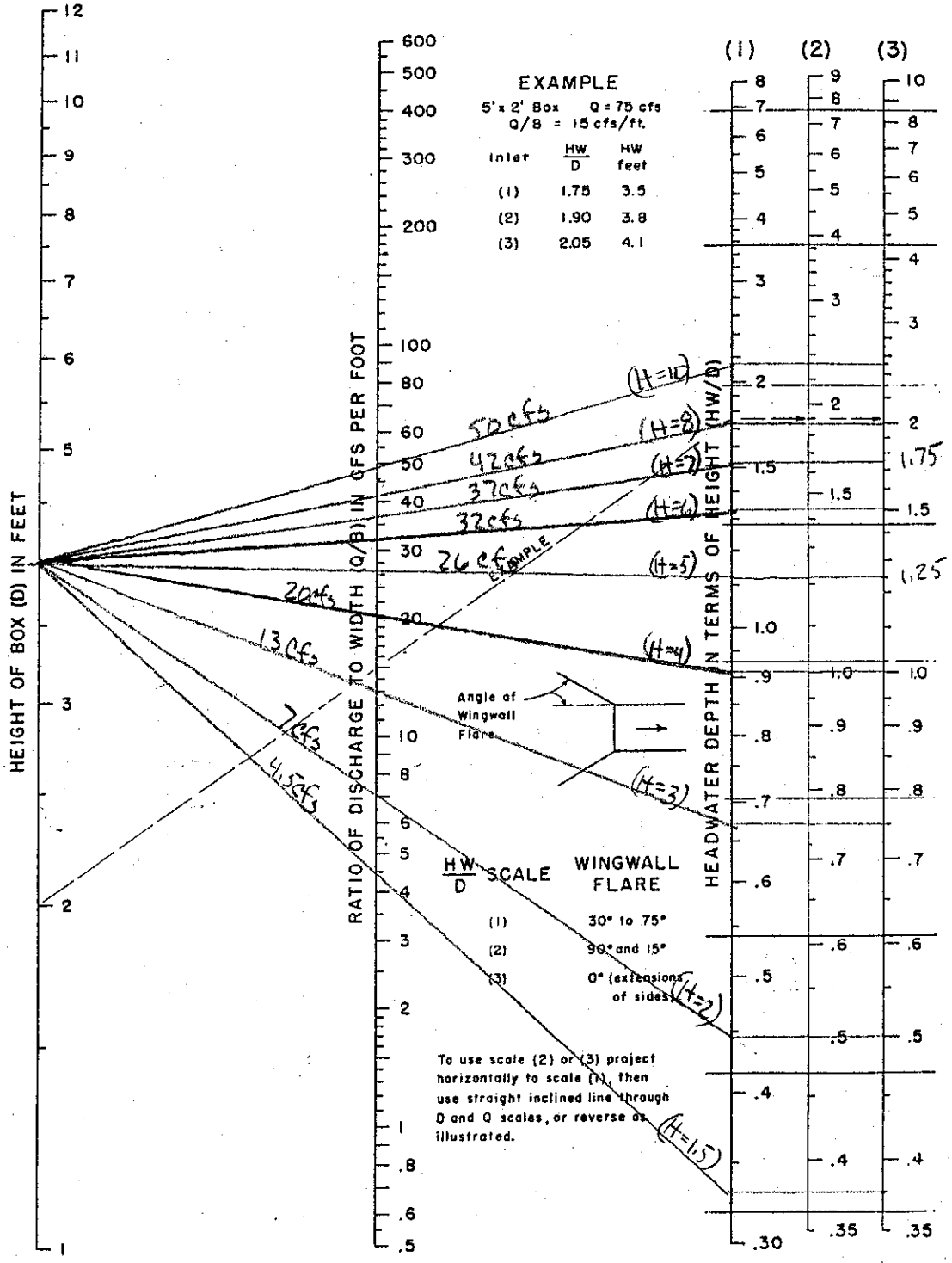
Culvert hydrographs have been developed using info from the HEC-1 models (Subbasin hydrographs), Flowmaster data (corresponding water surface elevations), and culvert nomographs (culvert discharges at corresponding WSEL)

The hydrograph data was put into a spreadsheet and the hydrographs are attached.

3a

4-3'x4' Box

CHART I

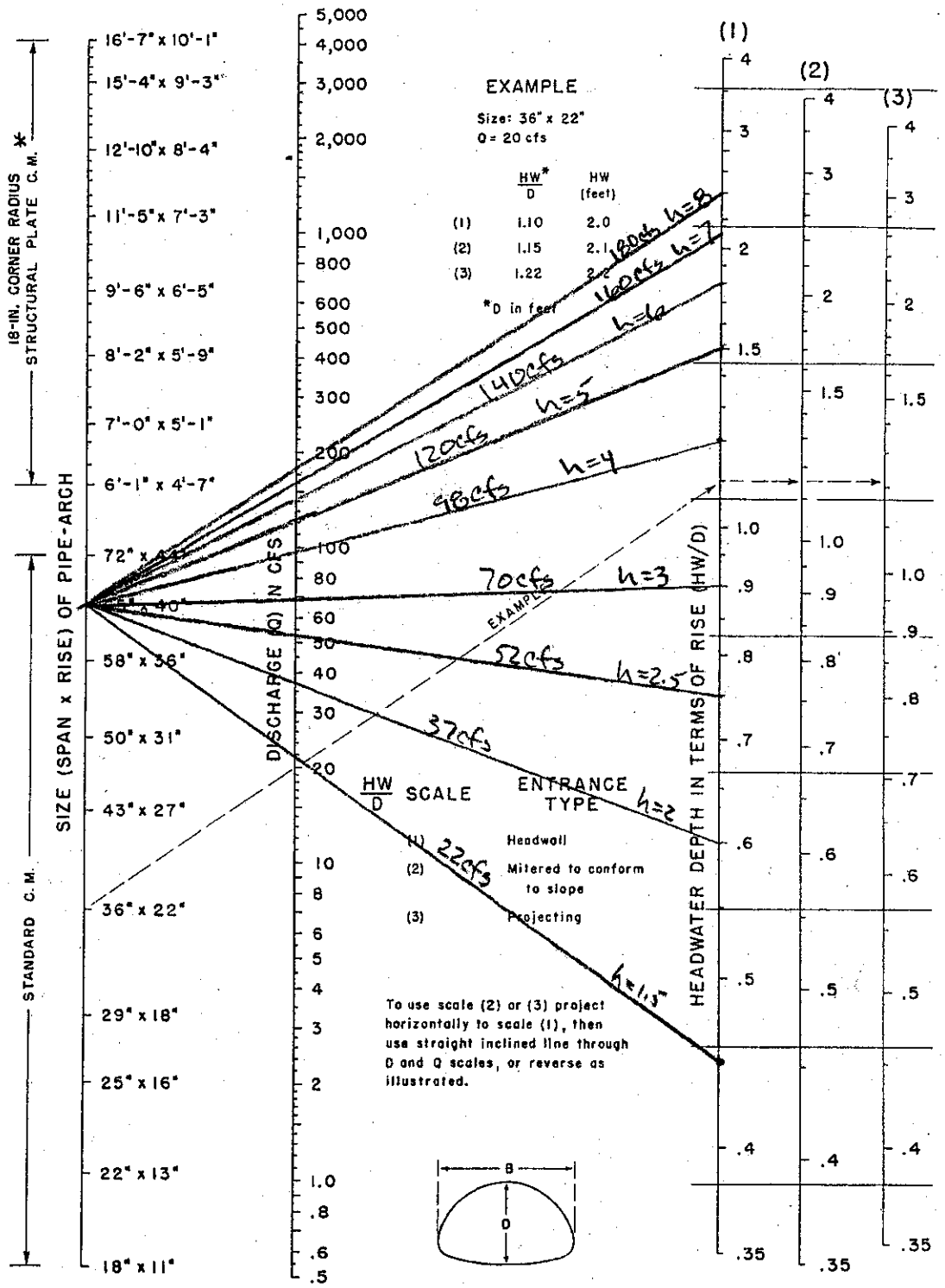


HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

	Q/ft	Q total	H	Q_T	H	Q_T
1.5	4.5	54	1.75	69	4.25	294
2.0	7	84	2.25	102	4.5	330
3.0	13	156	2.5	120	5.25	348
4.0	20	240	2.75	138	5.5	366
5.0	26	312	3.25	177	5.75	399
6.0	32	384	3.5	198	6.25	414
[illegible]	[illegible]	444	3.75	219	6.5	429
			4.25	258	6.75	

CHART 6



*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN. 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

HEC-1 Diversions Curves for SPRR Crossings

Flow Depth (ft)	Channel Capacity (cfs)	RRW1 (4-3'x4' WBC) Capacity (cfs)	RRW2 (1-5'x3.5' CMPA) Capacity (cfs)	RRW3 (6-5'x3.5' CMPA) Capacity (cfs)	RRW1			RRW2			RRW3		
					Culvert (cfs)	Channel (cfs)	Total (cfs)	Culvert (cfs)	Channel (cfs)	Total (cfs)	Culvert (cfs)	Channel (cfs)	Total (cfs)
0	0	-	-	-	0	**0**	**0**	0	**0**	**0**	0	**0**	**0**
0.25	0	-	-	-	0	0	0	0	0	0	0	0	0
0.5	1	-	-	-	1	0	1	1	0	1	1	0	1
0.75	2	-	-	-	2	0	2	2	0	2	2	0	2
1	5	-	-	-	5	0	5	5	0	5	5	0	5
1.25	9	-	-	-	9	0	9	9	0	9	9	0	9
1.5	15	54	22	132	12	3	15	9	6	15	13	2	15
1.75	23	69	30	180	17	6	23	13	10	23	20	3	23
2	33	84	37	222	24	9	33	17	16	33	29	4	33
2.25	45	102	44	264	31	14	45	22	23	45	38	7	45
2.5	59	120	52	312	40	**19**	**59**	28	**31**	**59**	50	**9**	**59**
2.75	76	138	61	366	49	27	76	34	42	76	63	13	76
3	96	156	70	420	59	37	96	40	56	96	78	18	96
3.25	119	177	77	462	71	48	119	47	72	119	95	24	119
3.5	145	198	84	504	84	**61**	**145**	53	**92**	**145**	113	**32**	**145**
3.75	175	219	91	546	97	78	175	60	115	175	133	42	175
4	207	240	98	588	111	96	207	67	140	207	153	54	207
4.25	244	258	104	624	125	**119**	**244**	73	**171**	**244**	175	**69**	**244**
4.5	284	276	109	654	140	144	284	79	205	284	198	86	284
4.75	328	294	115	690	155	173	328	85	243	328	222	106	328
5	376	312	120	720	171	205	376	91	285	376	247	129	376
5.25	428	330	125	750	186	**242**	**428**	97	**331**	**428**	272	**156**	**428**
5.5	485	348	130	780	203	282	485	103	382	485	299	186	485
5.75	546	366	135	810	219	**327**	**546**	108	**438**	**546**	326	**220**	**546**
6	611	384	140	840	236	375	611	114	497	611	354	257	611
6.25	682	399	145	870	252	**430**	**682**	120	**562**	**682**	382	**300**	**682**
6.5	757	414	150	900	268	489	757	125	632	757	411	346	757
6.75	837	429	155	930	284	**553**	**837**	131	**706**	**837**	441	**396**	**837**
7	922	444	160	960	300	622	922	136	786	922	470	452	922
7.25	1013	459	165	990	316	**697**	**1013**	142	**871**	**1013**	501	**512**	**1013**
7.5	1108	474	170	1020	332	776	1108	147	961	1108	531	577	1108
7.75	1210	489	175	1050	348	862	1210	153	1057	1210	562	648	1210
8	1320	504	180	1080	365	**955**	**1320**	158	**1162**	**1320**	594	**726**	**1320**

BOLD are values used for the diversion curve tables in the HEC-1 analysis.
All culvert capacities based on FHWA nomographs

SPRR Channel Rating Table
Rating Table for Irregular Channel

Project Description	
Project File	g:\proj\05094901\h&h\working\emf\hydrology\existing\sprrxing.fm2
Worksheet	Hypothetical Channel-North side of SPRR <duplicate>
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Constant Data	
Channel Slope	0.001600 ft/ft

Input Data			
	Minimum	Maximum	Increment
Water Surface Elevation	90.00	100.00	0.25 ft

Rating Table

Water Surface Elevation (ft)	Wtd. Mannings Coefficient	Discharge (cfs)	Velocity (ft/s)
90.00	0.043	0.00	0.00
90.25	0.043	0.13	0.34
90.50	0.043	0.81	0.54
90.75	0.043	2.39	0.71
91.00	0.043	5.14	0.86
91.25	0.043	9.33	0.99
91.50	0.043	15.16	1.12
91.75	0.043	22.87	1.24
92.00	0.043	32.66	1.36
92.25	0.043	44.71	1.47
92.50	0.043	59.21	1.58
92.75	0.043	76.35	1.68
93.00	0.043	96.28	1.78
93.25	0.043	119.19	1.88
93.50	0.043	145.24	1.98
93.75	0.043	174.58	2.07
94.00	0.043	207.36	2.16
94.25	0.043	243.75	2.25
94.50	0.043	283.88	2.34
94.75	0.043	327.91	2.42
95.00	0.043	375.97	2.51
95.25	0.043	428.21	2.59
95.50	0.043	484.77	2.67
95.75	0.043	545.78	2.75
96.00	0.043	611.37	2.83
96.25	0.043	681.68	2.91

SPRR Channel Rating Table
Rating Table for Irregular Channel

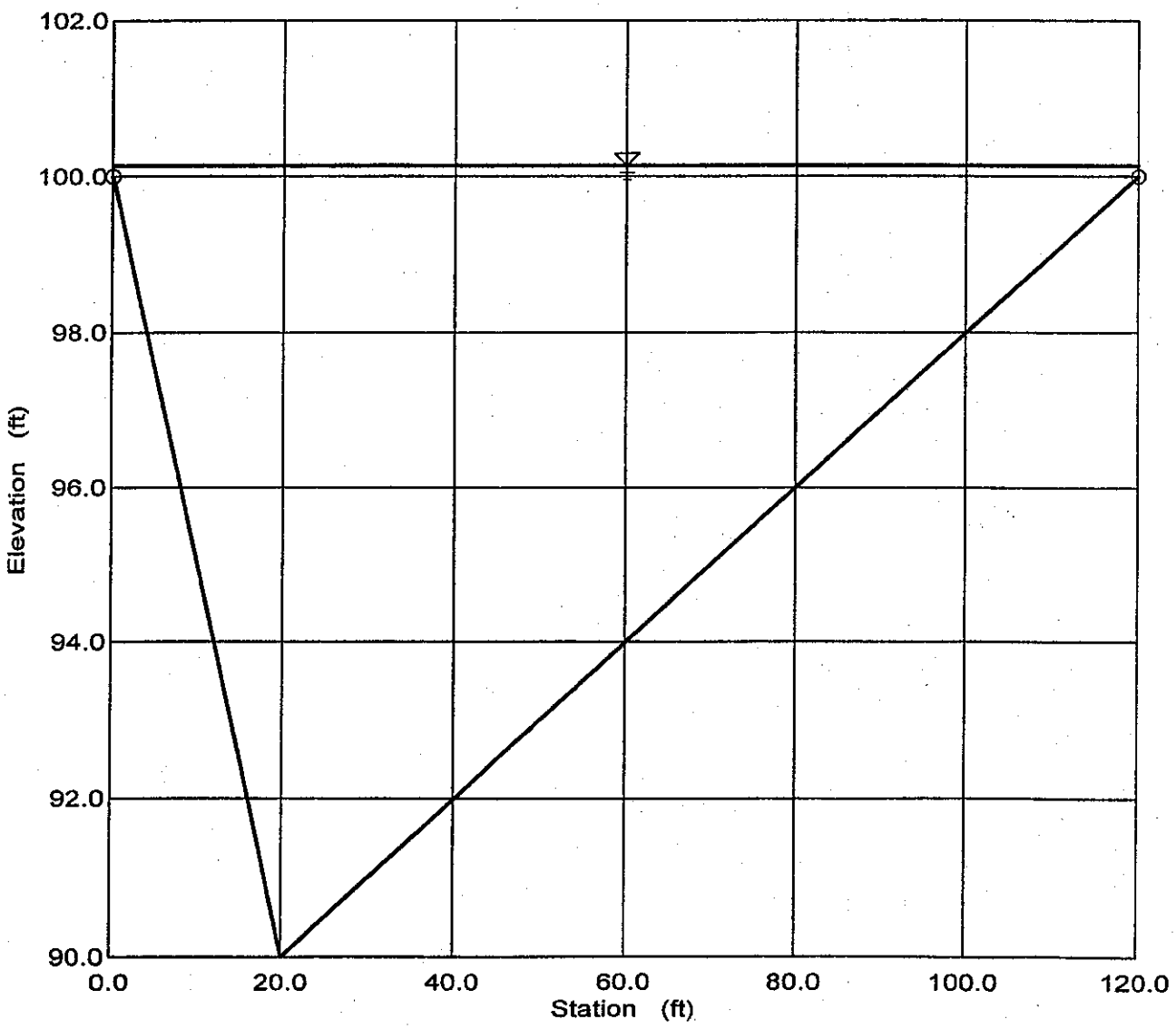
Rating Table

Water Surface Elevation (ft)	Wtd. Mannings Coefficient	Discharge (cfs)	Velocity (ft/s)
96.50	0.043	756.84	2.99
96.75	0.043	836.97	3.06
97.00	0.043	922.21	3.14
97.25	0.043	1,012.67	3.21
97.50	0.043	1,108.48	3.28
97.75	0.043	1,209.77	3.36
98.00	0.043	1,316.66	3.43
98.25	0.043	1,429.26	3.50
98.50	0.043	1,547.69	3.57
98.75	0.043	1,672.07	3.64
99.00	0.043	1,802.52	3.71
99.25	0.043	1,939.15	3.78
99.50	0.043	2,082.07	3.85
99.75	0.043	2,231.41	3.91
100.00	0.043	2,387.26	3.98

Cross Section
Cross Section for Irregular Channel

Project Description	
Project File	g:\proj\05094901\h&h\working\emf\hydrology\existing\sprrxing.fm2
Worksheet	Hypothetical Channel-North side of SPRR <duplicate>
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Section Data		
Wtd. Mannings Coefficient	0.043	
Channel Slope	0.001600	ft/ft
Water Surface Elevation	100.12	ft
Discharge	2,482.57	cfs



D.5 Southern Pacific Railroad Input Flows

D.5.1 100-yr, 6-hr HEC-1 Output (Diverted flows through the structures)

D.5.2 100-yr, 24-hr HEC-1 Output (Diverted flows through the structures)

D.5.1 100-yr, 6-hr HEC-1 Output (Diverted flows through the structures)

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   10MAR04  TIME  07:49:02  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*   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    FILE NAME:  SONOQRR6.DAT  (3/10/04)  (CWR)  100-YR, 6-HR STORM
   3          ID
   4          ID    THIS MODEL IS SONOQRR.DAT WITH THE 24-HR PRECIP REMOVED AND THE 6-HR PRECIP
   5          ID    ADDED.  THE VALUES ON THE PC AND JD RECORDS ARE FROM THE ORINGINAL (FCD 97-
   6          ID    11) SONOQUI WASH STUDY HYDROLOGY PREPARED BY ENTELLUS.
   7          ID
   8          ID    ***************************************************************************
   9          ID    FILE NAME:  SONOQRR.DAT  (2/25/04)  (CWR)
  10          ID
  11          ID    THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS ARE
  12          ID    PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RAILROAD.
  13          ID    THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT.  THIS DATA WILL BECOME
  14          ID    PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN
  15          ID    DELINEATION STUDY (FCD 2002C033-2).
  16          ID
  17          ID
  18          ID    ***************************************************************************
  19          ID    FILE NAME:  SONOUPRR.DAT  (2/20/04) (CWR)
  20          ID
  21          ID    THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD
  22          ID    EDITED OUT.  IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND
  23          ID    DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT:  RRW1 TO CP-E1; RRW2 AND
  24          ID    RRW3 TO CP-D5.  THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA A
  25          ID    ZW CARD.  THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR
  26          ID    CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING
  27          ID    SONOQUI WASH WATERSHED.  THIS DATA WILL BECOME PART OF THE HYDROLOGY
  28          ID    SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD
  29          ID    2002C033-2).
  30          ID
  31          ID    THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER THE
  32          ID    QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).
  33          ID
  34          ID    ***************************************************************************
  35          ID
  36          ID    FILE NAME:  SONOFEMA.DAT  (11/18/03)
  37          ID
  38          ID    THIS MODEL IS BEING USED TO DETERMINE THE EXISTING CONDITIONS FLOWS IN
  39          ID    SONOQUI WASH FOR A FLOODPLAIN DELINEATION STUDY TO BE SUBMITTED TO FEMA
  40          ID    UNDER FCD CONTRACT #2002C033-2.
  41          ID
  42          ID    THE ORIGINAL HYDROLOGIC MODEL FOR SONOQUI WASH WAS PREPARED BY ENTELLUS FOR
  43          ID    FCD CONTRACT #97-11 (COMPLETED MARCH 1999).  IN DEC. 1999, THAT MODEL WAS
  44          ID    MODIFIED BY HUITT-ZOLLARS FOR THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER
  45          ID    PLAN.  MODIFICATIONS TO THE ENTELLUS MODEL INCLUDED:  CHANGES IN DISCHARGE
  46          ID    DISTRIBUTION AT FLOW SPLITS AT THE RAILROAD (CONCENTRATION POINTS C0362,
  47          ID    C0364C, AND C0364B) BASED ON MORE DETAILED DATA OF THE RAILROAD CROSSINGS;
  48          ID    AND, A VERY MINOR ADJUSTMENT TO THE AERIAL REDUCTION FACTORS ON THE JD CARDS
  49          ID    TO MAKE THE MODEL COMPATIBLE WITH OTHER MODELS WITHIN THE WATERSHED OF THE
  50          ID    EAST MARICOPA FLOODWAY (EMF).
  51          ID
  52          ID    THIS MODEL IS THE HUITT-ZOLLARS MODEL (FILE NAME: 1CQCSW.DAT) WITH AREAS NOT
  53          ID    TRIBUTARY TO SONOQUI WASH REMOVED FROM THE MODELING.  THIS CHANGE WAS MADE
  54          ID    BY THE FCDMC ENGINEERING DIVISION, HYDROLOGY/HYDRAULICS BRANCH (CWR) ON NOV.
```

```
 55          ID    18, 2003.  THIS IS A STAND-ALONE MODEL.  NO ADDITIONAL MODELS ARE REQUIRED

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

 56          ID    TO RUN THIS MODEL.
 57          ID
 58          ID    THE ORIGINAL ID CARDS FROM THE HUITT-ZOLLARS AND ENTELLUS STUDIES HAVE BEEN
 59          ID    MAINTAINED AND ARE NOTED IN THE PARAGRAPHS BELOW.
 60          ID
 61          ID    (end FCD comments 11/18/03)
 62          ID    ****************************************************************************
 63          ID    ****************************************************************************
 64          ID         PROJECT:  Queen Creek/Sanokai Wash Hydraulic Master Plan &
 65          ID                   East Maricopa Floodway Capacity Mitigation Study
 66          ID    PREPARED FOR:  Flood Control District of Maricopa County
 67          ID     PREPARED BY:  Huitt-Zollars, Inc
 68          ID        FILENAME:  1CQCSW.DAT
 69          ID            DATE:  Dec 1999
 70          ID
 71          ID    This model is for the 100-year, 24 hr existing conditions event
 72          ID    for the watershed areas tributary to Queen Creek and Sanokai
 73          ID    Wash and for the watershed areas tributary to the East
 74          ID    Maricopa Floodway south of Rittenhouse Rd. and approximately
 75          ID    north of Hunt Hwy (County Line).
 76          ID
 77          ID    This model is a supporting model for the preferred alternative
 78          ID    (Alternative  1C) of the East Maricopa Floodway Capacity Mitigation
 79          ID    Study.  This model was constructed from previous study models and
 80          ID    updated for new existing hydrologic conditions as part of the
 81          ID    Queen Creek/Sanokai Wash HMP & EMF Capacity Mitigation Study.
 82          ID    Previous studies include the East Mesa ADMP, the Queen Creek ADMS
 83          ID    and the Sanokai Wash FDS.
 84          ID
 85          ID    The mitigating measures in this watershed area have been included in
 86          ID    the EMF routing model, 1C-EMFRT.DAT.  Therefore, no changes have been
 87          ID    to the base existing conditions model.
 88          ID
 89          ID    Alternative 1C includes offline EMF detention basins at Chandler
 90          ID    Heights Rd., Rittenhouse Rd., and north of the proposed Santan
 91          ID    Freeway alignment (north of Knox. Rd).  In addition, this alternative
 92          ID    includes two watershed detention basins.  One off the Guadalupe
 93          ID    Channel located approximately northeast of the intersection of Power
 94          ID    Rd. and Guadalupe Rd.  The other off the Powerline Floodway
 95          ID    located approximately northwest of the intersection of the Powerline
 96          ID    Floodway and Ellsworth Rd (Ray Basin).  All basins for this alternative
 97          ID    are modeled in 1C-EMFRT.DAT with the exception of the Ray Basin.  The
 98          ID    Ray Basin is modeled in 1CSEMESA.DAT.
 99          ID
100          ID    In addition, in 1C-EMFRT.DAT the n-value for routing between Broadway
101          ID    Rd. and Apache Trail (Main St.) has been changed from 0.025 to 0.018
102          ID    to account for the proposed soil cement lining of the EMF as
103          ID    part of the recommended alternative.
104          ID
105          ID    ***********************************************************************
106          ID                         RUNNING EMF HYDROLOGY MODELS
107          ID    ***********************************************************************
108          ID
109          ID    The model 1C-EMFRT.DAT is the "routing" model used to evaluate
110          ID    flows in the EMF for the existing conditions.  The model imports
```



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

111          ID    hydrographs via TAPE21 files from the supporting hydrologic
112          ID    models and then routes them along the EMF from approximately
113          ID    Brown Rd. and south to Hunt Hwy (the County Line).
114          ID
115          ID    This model is one of the four supporting hydrologic models used to
116          ID    evaluate flow in the East Maricopa Floodway (EMF).  Each model
117          ID    evaluates the hydrology for a specific area that is ultimately
118          ID    tributary to the EMF. The four supporting models are:
119          ID
120          ID       *  1CNWMESA.DAT - Preferred Alternative 1C hydrology based on
121          ID                          existing conditions hydrology for NE Mesa
122          ID                          (~east of the EMF to the CAP(at Hawes Rd.)
123          ID                          & ~south of McKellips Rd. to US60)
124          ID
125          ID       *  1CNEMESA.DAT - Preferred Alternative 1C hydrology based on
126          ID                          existing conditions hydrology for NW Mesa
127          ID                          (~area northeast of Hawes Rd./US60)
128          ID
129          ID       *  1CSEMESA.DAT - Preferred Alternative 1C hydrology based on
130          ID                          existing conditions hydrology for SE Mesa
```

```
131          ID                          (~area east of the EMF from US60 south to
132          ID                           Rittenhouse Rd. (excluding areas
133          ID                           tributary to Queen Creek))
134          ID                           1CSEMESA.DAT imports hydrographs from
135          ID                           1CNEMESA.DAT via DSS files.  Therefore,
136          ID                           1CNEMESA.DAT must be run first and then
137          ID                           when running 1CSEMESA.DAT, 1CNEMESA.DSS
138          ID                           must be specified as the DSS file
139          ID                           (the default would be 1CSEMESA.DSS)
140          ID
141          ID       *  1CQCSW.DAT    - Preferred Alternative 1C hydrology based on
142          ID                          existing conditions hydrology for Queen
143          ID                          Creek/Sanokai Wash area (all areas
144          ID                          tributary to Queen Creek & Sanokai Wash
145          ID                          and areas tributary to the EMF south of
146          ID                          Rittenhouse Rd.)
147          ID
148          ID    ********************************************************************
149          ID    IT IS IMPORTANT TO NOTE THAT THE SUPPORTING MODELS DO NOT
150          ID    CORRECTLY ROUTE FLOWS ALONG THE EMF NOR DO THEY IMPORT ALL
151          ID    THE NECESSARY FLOWS TO CORRECTLY EVALUATE FLOWS WITHIN THE
152          ID    EMF.  TO EVALUATE FLOWS WITHIN THE EMF, ALL THE SUPPORTING
153          ID    MODELS SHOULD BE RUN (TO DEVELOP THE TAPE21 FILE) AND THEN
154          ID    THE EMF ROUTING MODEL (X-EMF-RT.DAT).  ONLY THE EMF ROUTING
155          ID    MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.
156          ID    ********************************************************************
157          ID
158          ID    ********************************************************************
159          ID              RECOMMENDED RUN ORDER FOR EMF HYDROLOGY MODELS
160          ID    ********************************************************************
161          ID
162          ID         1. Erase any existing TAPE21 file in run directory.
163          ID         2. Run 1CNEMESA.DAT, 1CNWMESA.DAT & 1CQCSW.DAT (any order)
164          ID         3. Run 1CSEMESA.DAT (specifying 1CNEMESA.DSS as DSS file)
165          ID         4. Run 1C-EMFRT.DAT
```



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

166          ID
167          ID    ********************************************************************
168          ID              BEGIN ID COMMENTS FROM ORIGINAL HYDROLOGY MODELS
169          ID    ********************************************************************
170          ID
171          ID   ***************************************************************************
172          ID   **    SANOKAI WASH FLOODPLAIN DELINEATION STUDY                          **
173          ID   **    100-Year 24-hour Storm                                             **
174          ID   **    First Run Date  February 10-1998                                   **
175          ID   **    Run Date  May 20-1998                                              **
176          ID   **    Entellus, Inc.                                   File SNQ24.DAT    **
177          ID   ***************************************************************************
178          ID
179          ID   DDM MCUHP1 Sanokai Wash Floodplain Delineation Study
             *
180          IT       5 01APR97    0000    1500
181          IO       5
             *
             *
             *  REMVOVE 24 HOUR RAINFALL DATA
             *
             *DIAGRAM
             * /////////////////////////// Rainfall Distribution ////////////////////////////
             *
             * IN    15
             * JD  3.60    0.01
             * PC  .000    .002    .005    .008    .011    .014    .017    .020    .023    .0
             * PC  .029    .032    .035    .038    .041    .044    .048    .052    .056    .0
             * PC  .064    .068    .072    .076    .080    .085    .090    .095    .100    .1
             * PC  .110    .115    .120    .126    .133    .140    .147    .155    .163    .1
             * PC  .181    .191    .203    .218    .236    .257    .283    .387    .663    .7
             * PC  .735    .758    .776    .791    .804    .815    .825    .834    .842    .8
             * PC  .856    .863    .869    .875    .881    .887    .893    .898    .903    .9
             * PC  .913    .918    .922    .926    .930    .934    .938    .942    .946    .9
             * PC  .953    .956    .959    .962    .965    .968    .971    .974    .977    .9
             * PC  .983    .986    .989    .992    .995    .998   1.000
             * JD  3.58     1.0
             * JD  3.49     5.0
             * JD  3.38    10.0
             * JD  3.24    30.0
             * JD  3.10    60.0
             * JD  3.05    90.0
             * JD  3.00   120.0
             * JD  2.97   150.0
             *
```

```
                 * ////////////////////////// End Distribution ////////////////////////////////
                 *
                 *  INSERT 6 HOUR PRECIP DATA FROM ORIGINAL ENTELLUS STUDY
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////// Rainfall Distributio ////////////////////////////
                 * ////////////////////////////////////////////////////////////////////////////
 182             IN      15
 183             JD    3.04     0.01
 184             PC    .000     .008     .016     .025     .033     .041     .050     .058     .066     .074
1                                                HEC-1 INPUT                                                    PAGE  5

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

 185             PC    .087     .099     .118     .138     .216     .377     .834     .911     .931     .950
 186             PC    .962     .972     .983     .991    1.000
 187             JD    3.02     0.50
 188             JD    2.98     2.80
 189             PC    .000     .009     .016     .025     .034     .042     .051     .059     .067     .076
 190             PC    .087     .100     .120     .163     .252     .451     .694     .837     .900     .938
 191             PC    .950     .963     .975     .988    1.000
 192             JD    2.80     16.0
 193             PC    .000     .015     .020     .030     .048     .063     .076     .090     .105     .119
 194             PC    .135     .152     .175     .222     .304     .472     .670     .796     .868     .912
 195             PC    .946     .960     .973     .987    1.000
 196             JD    2.46     90.0
 197             PC    .000     .021     .035     .051     .071     .087     .105     .125     .143     .160
 198             PC    .179     .201     .232     .281     .364     .500     .658     .773     .841     .888
 199             PC    .927     .945     .964     .982    1.000
 200             JD    1.73    500.0
 201             PC    .000     .024     .043     .059     .078     .098     .119     .141     .162     .186
 202             PC    .212     .239     .271     .321     .408     .515     .627     .735     .814     .864
 203             PC    .907     .930     .954     .977    1.000
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////// End Distribution ////////////////////////////////
                 * ////////////////////////////////////////////////////////////////////////////
                 *

 204             KK  SUB354
 205             KM   BASIN 354
 206             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 207             KM    L=       2.9  Lca=      1.9   S=   17.2  Kn= .086  LAG= 138.0
 208             KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
 209             BA    1.50
 210             LG     .47      .07     6.80      .19      .00
 211             UI     40.      40.      40.      40.      40.      49.      84.      84.     109.     141.
 212             UI    196.     211.     252.     229.     211.     249.     282.     346.     277.     338.
 213             UI    338.     338.     338.     338.     338.     338.     338.     315.     282.     282.
 214             UI    282.     296.     306.     317.     211.     211.     211.     228.     245.     184.
 215             UI    162.     154.     154.     141.     121.     117.     113.     119.     130.      98.
 216             UI     77.      77.      70.      65.      65.      65.      50.      50.      50.      50.
 217             UI     46.      37.      37.      37.      37.      37.      37.      24.      23.      23.
 218             UI     23.      23.      23.      23.      23.      23.      23.      10.       5.       5.
 219             UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 220             UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 221             UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 222             UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 223             UI      5.       5.       5.       0.       0.       0.       0.       0.       0.       0.
 224             UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *

 225             KK   RO355
 226             KM         ROUTE FLOW FROM SB354 TO CO358
 227             RM      42    8.60    0.20
                 *
1                                                HEC-1 INPUT                                                    PAGE  6

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

 228             KK  SUB356
 229             KM   BASIN 356
 230             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 231             KM    L=       5.1  Lca=      3.5   S=   12.7  Kn= .093  LAG= 246.0
 232             KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
 233             BA    4.24
 234             LG     .48      .04     5.30      .35      .00
 235             UI     64.      64.      64.      64.      64.      64.      64.      64.      64.      64.
 236             UI    110.     134.     134.     134.     134.     200.     223.     223.     311.     334.
 237             UI    334.     334.     430.     403.     334.     334.     334.     384.     445.     445.
 238             UI    556.     521.     382.     502.     534.     534.     534.     534.     534.     534.
 239             UI    534.     534.     534.     534.     534.     534.     534.     534.     534.     463.
 240             UI    445.     445.     445.     445.     445.     445.     483.     517.     445.     509.
 241             UI    437.     334.     334.     334.     334.     334.     356.     371.     389.     376.
```

```
242          UI    267.    267.    251.    243.    243.    243.    243.    229.    191.    191.
243          UI    191.    180.    178.    178.    182.    206.    206.    206.    127.    121.
244          UI    121.    121.    121.    112.    103.    103.    103.    103.    103.    100.
245          UI     79.     79.     79.     79.     79.     79.     79.     79.     63.     58.
246          UI     58.     58.     58.     58.     58.     58.     58.     58.     58.     48.
247          UI     36.     36.     36.     36.     36.     36.     36.     36.     36.     36.
248          UI     36.     36.     36.     36.     36.     36.     36.     29.      8.      8.
249          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
250          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
251          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
252          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
253          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
254          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
255          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
256          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
257          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
258          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

259          KK   CO358
260          KM        COMBINE RO355 AND SUB256
261          HC       2
             *

262          KK   RO359
263          KM        ROUTE FLOW FROM CO358 TO CO362
264          RM      14    2.89    0.20
             *

265          KK  SUB360
266          KM   BASIN 360
267          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
268          KM    L=      4.6  Lca=      2.7   S=   16.4  Kn= .083  LAG= 183.0
269          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
270          BA    4.79
271          LG     .46     .09    6.60     .20     .00
272          UI     97.     97.     97.     97.     97.     97.     97.    130.    203.    203.
273          UI    203.    291.    338.    415.    507.    507.    596.    603.    507.    507.
274          UI    592.    676.    780.    763.    648.    811.    811.    811.    811.    811.
275          UI    811.    811.    811.    811.    811.    811.    757.    676.    676.    676.
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

276          UI    676.    676.    799.    676.    797.    512.    507.    507.    507.    540.
277          UI    572.    591.    405.    398.    369.    369.    369.    355.    290.    290.
278          UI    278.    270.    270.    306.    312.    250.    184.    184.    184.    171.
279          UI    156.    156.    156.    156.    130.    119.    119.    119.    119.    119.
280          UI    104.     88.     88.     88.     88.     88.     88.     88.     86.     55.
281          UI     55.     55.     55.     55.     55.     55.     55.     55.     55.     55.
282          UI     55.     55.     33.     12.     12.     12.     12.     12.     12.     12.
283          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
284          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
285          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
286          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
287          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
288          UI     12.     12.     12.      0.      0.      0.      0.      0.      0.      0.
289          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

290          KK   CO362
291          KM        COMBINE RO359 AND SUB360
292          HC       2
             *

293          KK   *RRW1
294          KM    DIVERSION FLOW FROM CO362 DUE TO A 4-3'x4' WOOD BOX CULVERT
295          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
296          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
297          DT  DDRRW1
298          DI       0      59     145     244     428     546     682     837    1013    1320
299          DQ       0      19      61     119     242     327     430     553     697     955
300          ZW     A=RRW1              B=RRW1              C=FLOW  E=5MIN F=100YR
             *

301          KK  *DDRW1
302          KM    RETRIEVE DIVERSION FLOW FROM DDRRW1
303          DR  DDRRW1
             *

304          KK  RO363A
305          KM        ROUTE FLOW *DRRW1 TO *RRW2
306          RM       8    1.49    0.20
             *
```

```
307          KK    364C
308          KM   BASIN 364C
309          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
310          KM    L=      3.4  Lca=      1.9   S=   24.3  Kn= .070  LAG= 111.0
311          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
312          BA    1.27
313          LG     .43     .15    4.50     .46     .00
314          UI     39.     39.     39.     39.     39.    104.    116.    151.    179.    205.
315          UI    230.    258.    274.    305.    324.    341.    350.    360.    371.    371.
316          UI    371.    365.    352.    348.    329.    303.    277.    266.    237.    221.
317          UI    205.    190.    176.    164.    151.    138.    128.    119.    108.    106.
318          UI     87.     86.     77.     73.     73.     60.     59.     59.     48.     41.
319          UI     41.     41.     41.     29.     26.     26.     26.     26.     26.     26.
320          UI     21.      9.      9.      9.      9.      9.      9.      9.      9.      9.
```



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

321          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
322          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
323          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

324          KK  CO364C
325          KM    COMBINE FLOWS COMING ALONG THE RAILROAD TRACK WITH FLOWS GENERATED FROM
326          KM    SUBBASIN 364C
327          HC       2
             *

328          KK   *RRW2
329          KM    DIVERSION FLOW FROM CO364C DUE TO A  1-5'x3.5' CMPA CULVERT
330          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
331          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
332          DT  DDRRW2
333          DI       0      59     145     244     428     546     682     837    1013    1320
334          DQ       0      31      92     171     331     438     562     706     871    1162
335          ZW     A=RRW2              B=RRW2              C=FLOW  E=5MIN F=100YR
             *
             *

336          KK  *DDRW2
337          KM    RETRIEVE DIVERSION FLOW FROM DDRRW2
338          DR  DDRRW2
             *

339          KK  RO363B
340          KM        ROUTE FLOW *DRRW2 TO *RRW3
341          RM       8    1.49    0.20
             *

342          KK    364B
343          KM   BASIN 364B
344          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
345          KM    L=      3.7  Lca=      1.8   S=   23.0  Kn= .070  LAG= 113.0
346          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
347          BA    2.21
348          LG     .43     .15    4.60     .43     .00
349          UI     72.     72.     72.     72.     92.    151.    151.    251.    332.    378.
350          UI    464.    378.    421.    504.    579.    561.    605.    605.    605.    605.
351          UI    605.    605.    565.    504.    504.    505.    560.    536.    378.    378.
352          UI    399.    437.    316.    281.    275.    258.    216.    206.    202.    233.
353          UI    181.    137.    136.    116.    116.    113.     89.     89.     89.     82.
354          UI     66.     66.     66.     66.     64.     41.     41.     41.     41.     41.
355          UI     41.     41.     41.     18.      9.      9.      9.      9.      9.      9.
356          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
357          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
358          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
359          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
```



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

361          KK  CO364B
362          KM    COMBINE FLOWS FROM ALONG RAILROAD TRACK WITH THOSE GENERATED FROM BASIN 364B
363          HC       2
             *

364          KK   *RRW3
365          KM    DIVERSION FLOW FROM RO363C DUE TO A  6-5'x3.5' CMPA CULVERT
366          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
```

```
367          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
368          KM    DIVERTED FLOW IS RETRIEVED AND COMBINED AT SUBBASIN 364C.
369          DT  DDRRW3
370          DI       0      59     145     244     428     546     682     837    1013    1320
371          DQ       0       9      32      69     156     220     300     396     512     726
372          ZW     A=RRW3             B=RRW3             C=FLOW  E=5MIN F=100YR
             *
373          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  204      SUB354
               V
               V
  225       RO355
               .
               .
  228           .      SUB356
                .           .
                .           .
  259       CO358............
               V
               V
  262       RO359
               .
               .
  265           .      SUB360
                .           .
                .           .
  290       CO362............
               .
               .
  297           .-------> DDRRW1
  293       *RRW1
               .
               .
  303           .           .<-------  DDRRW1
  301           .      *DDRW1
                .           V
                .           V
  304           .      RO363A
                .           .
                .           .
  307           .           .        364C
                .           .           .
                .           .           .
  324           .      CO364C............
                .           .
                .           .
  332           .           .-------> DDRRW2
  328           .       *RRW2
                .           .
                .           .
  338           .           .           .<-------  DDRRW2
  336           .           .      *DDRW2
                .           .           V
                .           .           V
  339           .           .      RO363B
                .           .           .
                .           .           .
  342           .           .           .        364B
                .           .           .           .
                .           .           .           .
  361           .           .      CO364B............
                .           .           .
                .           .           .
  369           .           .           .-------> DDRRW3
  364           .           .       *RRW3

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
*************************************
*                                   *                                    *
*                                   *                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                *    U.S. ARMY CORPS OF
ENGINEERS     *
*              JUN   1998           *                                    *    HYDROLOGIC ENGINEERING
CENTER     *
*           VERSION 4.1             *                                    *          609 SECOND
STREET          *
```

* * * DAVIS, CALIFORNIA
95616 *
* RUN DATE 10MAR04 TIME 07:49:02 * * (916) 756-1104
*
* * *
*
****
****

FILE NAME: SONOQRR6.DAT (3/10/04) (CWR) 100-YR, 6-HR STORM

THIS MODEL IS SONOQRR.DAT WITH THE 24-HR PRECIP REMOVED AND THE 6-HR PRECIP ADDED. THE VALUES ON THE PC AND JD RECORDS ARE FROM THE ORINGINAL (FCD 97-11) SONOQUI WASH STUDY HYDROLOGY PREPARED BY ENTELLUS.

****
FILE NAME: SONOQRR.DAT (2/25/04) (CWR)

THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS ARE PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RAILROAD. THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT. THIS DATA WILL BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).

****
FILE NAME: SONOUPRR.DAT (2/20/04) (CWR)

THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD EDITED OUT. IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT: RRW1 TO CP-E1; RRW2 AND RRW3 TO CP-D5. THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA A ZW CARD. THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING SONOQUI WASH WATERSHED. THIS DATA WILL BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).

THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).

****

FILE NAME: SONOFEMA.DAT (11/18/03)

THIS MODEL IS BEING USED TO DETERMINE THE EXISTING CONDITIONS FLOWS IN SONOQUI WASH FOR A FLOODPLAIN DELINEATION STUDY TO BE SUBMITTED TO FEMA UNDER FCD CONTRACT #2002C033-2.

THE ORIGINAL HYDROLOGIC MODEL FOR SONOQUI WASH WAS PREPARED BY ENTELLUS FOR FCD CONTRACT #97-11 (COMPLETED MARCH 1999). IN DEC. 1999, THAT MODEL WAS MODIFIED BY HUITT-ZOLLARS FOR THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN. MODIFICATIONS TO THE ENTELLUS MODEL INCLUDED: CHANGES IN DISCHARGE DISTRIBUTION AT FLOW SPLITS AT THE RAILROAD (CONCENTRATION POINTS CO362, CO364C, AND CO364B) BASED ON MORE DETAILED DATA OF THE RAILROAD CROSSINGS; AND, A VERY MINOR ADJUSTMENT TO THE AERIAL REDUCTION FACTORS ON THE JD CARDS TO MAKE THE MODEL COMPATIBLE WITH OTHER MODELS WITHIN THE WATERSHED OF THE EAST MARICOPA FLOODWAY (EMF).

THIS MODEL IS THE HUITT-ZOLLARS MODEL (FILE NAME: 1CQCSW.DAT) WITH AREAS NOT TRIBUTARY TO SONOQUI WASH REMOVED FROM THE MODELING. THIS CHANGE WAS MADE BY THE FCDMC ENGINEERING DIVISION, HYDROLOGY/HYDRAULICS BRANCH (CWR) ON NOV. 18, 2003. THIS IS A STAND-ALONE MODEL. NO ADDITIONAL MODELS ARE REQUIRED TO RUN THIS MODEL.

THE ORIGINAL ID CARDS FROM THE HUITT-ZOLLARS AND ENTELLUS STUDIES HAVE BEEN MAINTAINED AND ARE NOTED IN THE PARAGRAPHS BELOW.

(end FCD comments 11/18/03)
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     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:  1CQCSW.DAT
        DATE:  Dec 1999
```

This model is for the 100-year, 24 hr existing 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 is a supporting model for the preferred alternative (Alternative 1C) of the East Maricopa Floodway Capacity Mitigation Study. This model was constructed from previous study models and updated for new existing hydrologic conditions as part of the Queen Creek/Sanokai Wash HMP & EMF Capacity Mitigation Study. Previous studies include the East Mesa ADMP, the Queen Creek ADMS and the Sanokai Wash FDS.

The mitigating measures in this watershed area have been included in the EMF routing model, 1C-EMFRT.DAT. Therefore, no changes have been to the base existing conditions model.

Alternative 1C includes offline EMF detention basins at Chandler Heights Rd., Rittenhouse Rd., and north of the proposed Santan Freeway alignment (north of Knox. Rd). In addition, this alternative includes two watershed detention basins. One off the Guadalupe Channel located approximately northeast of the intersection of Power Rd. and Guadalupe Rd. The other off the Powerline Floodway located approximately northwest of the intersection of the Powerline Floodway and Ellsworth Rd (Ray Basin). All basins for this alternative are modeled in 1C-EMFRT.DAT with the exception of the Ray Basin. The Ray Basin is modeled in 1CSEMESA.DAT.

In addition, in 1C-EMFRT.DAT the n-value for routing between Broadway Rd. and Apache Trail (Main St.) has been changed from 0.025 to 0.018 to account for the proposed soil cement lining of the EMF as part of the recommended alternative.

****

RUNNING EMF HYDROLOGY MODELS

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The model 1C-EMFRT.DAT is the "routing" model used to evaluate flows in the EMF for the existing 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).

This model is one of the 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:

* 1CNWMESA.DAT - Preferred Alternative 1C hydrology based on existing conditions hydrology for NE Mesa (~east of the EMF to the CAP(at Hawes Rd.) & ~south of McKellips Rd. to US60)

* 1CNEMESA.DAT - Preferred Alternative 1C hydrology based on existing conditions hydrology for NW Mesa (~area northeast of Hawes Rd./US60)

* 1CSEMESA.DAT - Preferred Alternative 1C hydrology based on existing conditions hydrology for SE Mesa (~area east of the EMF from US60 south to Rittenhouse Rd. (excluding areas tributary to Queen Creek)) 1CSEMESA.DAT imports hydrographs from 1CNEMESA.DAT via DSS files. Therefore, 1CNEMESA.DAT must be run first and then when running 1CSEMESA.DAT, 1CNEMESA.DSS must be specified as the DSS file (the default would be 1CSEMESA.DSS)

* 1CQCSW.DAT - Preferred Alternative 1C hydrology based on existing 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 (X-EMF-RT.DAT). ONLY THE EMF ROUTING MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.

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

                    ********************************************************************
                              RECOMMENDED RUN ORDER FOR EMF HYDROLOGY MODELS
                    ********************************************************************

                         1. Erase any existing TAPE21 file in run directory.
                         2. Run 1CNEMESA.DAT, 1CNWMESA.DAT & 1CQCSW.DAT (any order)
                         3. Run 1CSEMESA.DAT (specifying 1CNEMESA.DSS as DSS file)
                         4. Run 1C-EMFRT.DAT

                    ********************************************************************
                              BEGIN ID COMMENTS FROM ORIGINAL HYDROLOGY MODELS
                    ********************************************************************

                   ***************************************************************************
                   **    SANOKAI WASH FLOODPLAIN DELINEATION STUDY                          **
                   **    100-Year 24-hour Storm                                             **
                   **    First Run Date  February 10-1998                                   **
                   **    Run Date  May 20-1998                                              **
                   **    Entellus, Inc.                                   File SNQ24.DAT    **
                   ***************************************************************************

                   DDM MCUHP1 Sanokai Wash Floodplain Delineation Study

181 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

183 JD          INDEX STORM NO. 1
                       STRM        3.04  PRECIPITATION DEPTH
                       TRDA         .01  TRANSPOSITION DRAINAGE AREA

184 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

187 JD          INDEX STORM NO. 2
                       STRM        3.02  PRECIPITATION DEPTH
                       TRDA         .50  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

188 JD          INDEX STORM NO. 3
                       STRM        2.98  PRECIPITATION DEPTH
                       TRDA        2.80  TRANSPOSITION DRAINAGE AREA

189 PI            PRECIPITATION PATTERN
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

192 JD        INDEX STORM NO. 4
                STRM        2.80  PRECIPITATION DEPTH
                TRDA       16.00  TRANSPOSITION DRAINAGE AREA

193 PI          PRECIPITATION PATTERN
                .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

196 JD        INDEX STORM NO. 5
                STRM        2.46  PRECIPITATION DEPTH
                TRDA       90.00  TRANSPOSITION DRAINAGE AREA

197 PI          PRECIPITATION PATTERN
                .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01

200 JD        INDEX STORM NO. 6
                STRM        1.73  PRECIPITATION DEPTH
                TRDA      500.00  TRANSPOSITION DRAINAGE AREA

 PI             PRECIPITATION PATTERN
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                .04       .03       .03       .03       .02       .02       .02       .01       .01       .01
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-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/03APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/03APR1997/5MIN//
```

```
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/03APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/03APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/03APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/31MAR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/01APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/02APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/03APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/04APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/05APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/06APR1997/5MIN/100YR/
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	SUB354	553.	5.83	260.	67.	22.	1.50		
+	ROUTED TO	RO355	401.	14.58	248.	67.	22.	1.50		
+	HYDROGRAPH AT	SUB356	742.	7.33	526.	159.	53.	4.24		
+	2 COMBINED AT	CO358	714.	7.33	507.	213.	71.	5.74		
+	ROUTED TO	RO359	674.	10.25	496.	213.	71.	5.74		
+	HYDROGRAPH AT	SUB360	1165.	6.50	684.	187.	62.	4.79		
+	2 COMBINED AT	CO362	1095.	6.58	900.	369.	123.	10.53		
+	DIVERSION TO	DDRRW1	766.	6.58	606.	227.	76.	10.53		
+	HYDROGRAPH AT	*RRW1	329.	6.58	294.	142.	47.	10.53		
+	HYDROGRAPH AT	*DDRW1	766.	6.58	606.	227.	76.	10.53		
+	ROUTED TO	RO363A	732.	8.25	598.	227.	76.	10.53		
+	HYDROGRAPH AT	364C	430.	5.50	160.	40.	13.	1.27		
+	2 COMBINED AT	CO364C	984.	7.92	807.	333.	111.	1.27		
+	DIVERSION TO	DDRRW2	844.	7.92	679.	265.	88.	1.27		

```
+        HYDROGRAPH AT
                          *RRW2      140.    7.92        128.        68.        23.      1.27
+        HYDROGRAPH AT
                          *DDRW2     844.    7.92        679.       265.        88.      1.27
+        ROUTED TO
                          RO363B     821.    9.58        675.       265.        88.      1.27
+        HYDROGRAPH AT
                           364B      667.    5.42        261.        66.        22.      2.21
+        2 COMBINED AT
                          CO364B     819.    9.58        717.       330.       110.      2.21
+        DIVERSION TO
                          DDRRW3     367.    9.58        303.       125.        42.      2.21
+        HYDROGRAPH AT
                          *RRW3      423.    9.58        382.       191.        64.      2.21


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


-----DSS---ZCLOSE Unit:  71,   File: SONOQRR6.DSS
          Pointer Utilization:    .25
          Number of Records:      42
          File Size:      83.9  Kbytes
          Percent Inactive:     .0
```

D.5.2 100-yr, 24-hr HEC-1 Output (Diverted flows through the structures)

```
1**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*             JUN  1998              *
*           VERSION 4.1              *
*                                    *
*  RUN DATE  25FEB04  TIME  08:44:24 *
*                                    *
**************************************
```

```
**************************************
*                                    *
*   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   FILE NAME:  SONOQRR.DAT  (2/25/04)  (CWR)
   3          ID
   4          ID   THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS ARE
   5          ID   PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RAILROAD.
   6          ID   THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT.  THIS DATA WILL BECOME
   7          ID   PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN
   8          ID   DELINEATION STUDY (FCD 2002C033-2).
   9          ID
  10          ID
  11          ID   ***************************************************************************
  12          ID   FILE NAME:  SONOUPRR.DAT  (2/20/04) (CWR)
  13          ID
  14          ID   THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD
  15          ID   EDITED OUT.  IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND
  16          ID   DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT:  RRW1 TO CP-E1; RRW2 AND
  17          ID   RRW3 TO CP-D5.  THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA A
  18          ID   ZW CARD.  THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR
  19          ID   CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING
  20          ID   SONOQUI WASH WATERSHED.  THIS DATA WILL BECOME PART OF THE HYDROLOGY
  21          ID   SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD
  22          ID   2002C033-2).
  23          ID
  24          ID   THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER THE
  25          ID   QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).
  26          ID
  27          ID   ***************************************************************************
  28          ID
  29          ID   FILE NAME:  SONOFEMA.DAT  (11/18/03)
  30          ID
  31          ID   THIS MODEL IS BEING USED TO DETERMINE THE EXISTING CONDITIONS FLOWS IN
  32          ID   SONOQUI WASH FOR A FLOODPLAIN DELINEATION STUDY TO BE SUBMITTED TO FEMA
  33          ID   UNDER FCD CONTRACT #2002C033-2.
  34          ID
  35          ID   THE ORIGINAL HYDROLOGIC MODEL FOR SONOQUI WASH WAS PREPARED BY ENTELLUS FOR
  36          ID   FCD CONTRACT #97-11 (COMPLETED MARCH 1999).  IN DEC. 1999, THAT MODEL WAS
  37          ID   MODIFIED BY HUITT-ZOLLARS FOR THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER
  38          ID   PLAN.  MODIFICATIONS TO THE ENTELLUS MODEL INCLUDED:  CHANGES IN DISCHARGE
  39          ID   DISTRIBUTION AT FLOW SPLITS AT THE RAILROAD (CONCENTRATION POINTS CO362,
  40          ID   CO364C, AND CO364B) BASED ON MORE DETAILED DATA OF THE RAILROAD CROSSINGS;
  41          ID   AND, A VERY MINOR ADJUSTMENT TO THE AERIAL REDUCTION FACTORS ON THE JD CARDS
  42          ID   TO MAKE THE MODEL COMPATIBLE WITH OTHER MODELS WITHIN THE WATERSHED OF THE
  43          ID   EAST MARICOPA FLOODWAY (EMF).
  44          ID
  45          ID   THIS MODEL IS THE HUITT-ZOLLARS MODEL (FILE NAME: 1CQCSW.DAT) WITH AREAS NOT
  46          ID   TRIBUTARY TO SONOQUI WASH REMOVED FROM THE MODELING.  THIS CHANGE WAS MADE
  47          ID   BY THE FCDMC ENGINEERING DIVISION, HYDROLOGY/HYDRAULICS BRANCH (CWR) ON NOV.
  48          ID   18, 2003.  THIS IS A STAND-ALONE MODEL.  NO ADDITIONAL MODELS ARE REQUIRED
  49          ID   TO RUN THIS MODEL.
  50          ID
  51          ID   THE ORIGINAL ID CARDS FROM THE HUITT-ZOLLARS AND ENTELLUS STUDIES HAVE BEEN
  52          ID   MAINTAINED AND ARE NOTED IN THE PARAGRAPHS BELOW.
  53          ID
  54          ID   (end FCD comments 11/18/03)
```

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

 56          ID    ******************************************************************************
 57          ID         PROJECT:  Queen Creek/Sanokai Wash Hydraulic Master Plan &
 58          ID                   East Maricopa Floodway Capacity Mitigation Study
 59          ID    PREPARED FOR:  Flood Control District of Maricopa County
 60          ID     PREPARED BY:  Huitt-Zollars, Inc
 61          ID        FILENAME:  1CQCSW.DAT
 62          ID            DATE:  Dec 1999
 63          ID
 64          ID    This model is for the 100-year, 24 hr existing conditions event
 65          ID    for the watershed areas tributary to Queen Creek and Sanokai
 66          ID    Wash and for the watershed areas tributary to the East
 67          ID    Maricopa Floodway south of Rittenhouse Rd. and approximately
 68          ID    north of Hunt Hwy (County Line).
 69          ID
 70          ID    This model is a supporting model for the preferred alternative
 71          ID    (Alternative  1C) of the East Maricopa Floodway Capacity Mitigation
 72          ID    Study.  This model was constructed from previous study models and
 73          ID    updated for new existing hydrologic conditions as part of the
 74          ID    Queen Creek/Sanokai Wash HMP & EMF Capacity Mitigation Study.
 75          ID    Previous studies include the East Mesa ADMP, the Queen Creek ADMS
 76          ID    and the Sanokai Wash FDS.
 77          ID
 78          ID    The mitigating measures in this watershed area have been included in
 79          ID    the EMF routing model, 1C-EMFRT.DAT.  Therefore, no changes have been
 80          ID    to the base existing conditions model.
 81          ID
 82          ID    Alternative 1C includes offline EMF detention basins at Chandler
 83          ID    Heights Rd., Rittenhouse Rd., and north of the proposed Santan
 84          ID    Freeway alignment (north of Knox. Rd).  In addition, this alternative
 85          ID    includes two watershed detention basins.  One off the Guadalupe
 86          ID    Channel located approximately northeast of the intersection of Power
 87          ID    Rd. and Guadalupe Rd.  The other off the Powerline Floodway
 88          ID    located approximately northwest of the intersection of the Powerline
 89          ID    Floodway and Ellsworth Rd (Ray Basin).  All basins for this alternative
 90          ID    are modeled in 1C-EMFRT.DAT with the exception of the Ray Basin.  The
 91          ID    Ray Basin is modeled in 1CSEMESA.DAT.
 92          ID
 93          ID    In addition, in 1C-EMFRT.DAT the n-value for routing between Broadway
 94          ID    Rd. and Apache Trail (Main St.) has been changed from 0.025 to 0.018
 95          ID    to account for the proposed soil cement lining of the EMF as
 96          ID    part of the recommended alternative.
 97          ID
 98          ID    ***********************************************************************
 99          ID                        RUNNING EMF HYDROLOGY MODELS
100          ID    ***********************************************************************
101          ID
102          ID    The model 1C-EMFRT.DAT is the "routing" model used to evaluate
103          ID    flows in the EMF for the existing conditions.  The model imports
104          ID    hydrographs via TAPE21 files from the supporting hydrologic
105          ID    models and then routes them along the EMF from approximately
106          ID    Brown Rd. and south to Hunt Hwy (the County Line).
107          ID
108          ID    This model is one of the four supporting hydrologic models used to
109          ID    evaluate flow in the East Maricopa Floodway (EMF).  Each model
110          ID    evaluates the hydrology for a specific area that is ultimately
```



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

111          ID    tributary to the EMF. The four supporting models are:
112          ID
113          ID       *  1CNWMESA.DAT - Preferred Alternative 1C hydrology based on
114          ID                          existing conditions hydrology for NE Mesa
115          ID                          (~east of the EMF to the CAP(at Hawes Rd.)
116          ID                          & ~south of McKellips Rd. to US60)
117          ID
118          ID       *  1CNEMESA.DAT - Preferred Alternative 1C hydrology based on
119          ID                          existing conditions hydrology for NW Mesa
120          ID                          (~area northeast of Hawes Rd./US60)
121          ID
122          ID       *  1CSEMESA.DAT - Preferred Alternative 1C hydrology based on
123          ID                          existing conditions hydrology for SE Mesa
124          ID                          (~area east of the EMF from US60 south to
125          ID                           Rittenhouse Rd. (excluding areas
126          ID                           tributary to Queen Creek))
127          ID                           1CSEMESA.DAT imports hydrographs from
128          ID                           1CNEMESA.DAT via DSS files.  Therefore,
129          ID                           1CNEMESA.DAT must be run first and then
130          ID                           when running 1CSEMESA.DAT, 1CNEMESA.DSS
```

```
131          ID                          must be specified as the DSS file
132          ID                          (the default would be 1CSEMESA.DSS)
133          ID
134          ID       *  1CQCSW.DAT   - Preferred Alternative 1C hydrology based on
135          ID                          existing conditions hydrology for Queen
136          ID                          Creek/Sanokai Wash area (all areas
137          ID                          tributary to Queen Creek & Sanokai Wash
138          ID                          and areas tributary to the EMF south of
139          ID                          Rittenhouse Rd.)
140          ID
141          ID    ******************************************************************
142          ID    IT IS IMPORTANT TO NOTE THAT THE SUPPORTING MODELS DO NOT
143          ID    CORRECTLY ROUTE FLOWS ALONG THE EMF NOR DO THEY IMPORT ALL
144          ID    THE NECESSARY FLOWS TO CORRECTLY EVALUATE FLOWS WITHIN THE
145          ID    EMF.  TO EVALUATE FLOWS WITHIN THE EMF, ALL THE SUPPORTING
146          ID    MODELS SHOULD BE RUN (TO DEVELOP THE TAPE21 FILE) AND THEN
147          ID    THE EMF ROUTING MODEL (X-EMF-RT.DAT).  ONLY THE EMF ROUTING
148          ID    MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.
149          ID    ******************************************************************
150          ID
151          ID    ******************************************************************
152          ID              RECOMMENDED RUN ORDER FOR EMF HYDROLOGY MODELS
153          ID    ******************************************************************
154          ID
155          ID         1. Erase any existing TAPE21 file in run directory.
156          ID         2. Run 1CNEMESA.DAT, 1CNWMESA.DAT & 1CQCSW.DAT (any order)
157          ID         3. Run 1CSEMESA.DAT (specifying 1CNEMESA.DSS as DSS file)
158          ID         4. Run 1C-EMFRT.DAT
159          ID
160          ID    ******************************************************************
161          ID              BEGIN ID COMMENTS FROM ORIGINAL HYDROLOGY MODELS
162          ID    ******************************************************************
163          ID
164          ID   ***************************************************************************
165          ID   **    SANOKAI WASH FLOODPLAIN DELINEATION STUDY                          **
1                                   HEC-1 INPUT                                                PAGE  4

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

166          ID   **    100-Year 24-hour Storm                                              **
167          ID   **    First Run Date  February 10-1998                                   **
168          ID   **    Run Date  May 20-1998                                              **
169          ID   **    Entellus, Inc.                                   File SNQ24.DAT    **
170          ID   ***************************************************************************
171          ID
172          ID   DDM MCUHP1 Sanokai Wash Floodplain Delineation Study
             *
173          IT       5 01APR97    0000    1500
174          IO       5
             *
             *DIAGRAM
             * ////////////////////////// Rainfall Distribution ////////////////////////////
             *
175          IN      15
176          JD    3.60     0.01
177          PC    .000     .002     .005     .008     .011     .014     .017     .020     .023     .026
178          PC    .029     .032     .035     .038     .041     .044     .048     .052     .056     .060
179          PC    .064     .068     .072     .076     .080     .085     .090     .095     .100     .105
180          PC    .110     .115     .120     .126     .133     .140     .147     .155     .163     .172
181          PC    .181     .191     .203     .218     .236     .257     .283     .387     .663     .707
182          PC    .735     .758     .776     .791     .804     .815     .825     .834     .842     .849
183          PC    .856     .863     .869     .875     .881     .887     .893     .898     .903     .908
184          PC    .913     .918     .922     .926     .930     .934     .938     .942     .946     .950
185          PC    .953     .956     .959     .962     .965     .968     .971     .974     .977     .980
186          PC    .983     .986     .989     .992     .995     .998    1.000
187          JD    3.58      1.0
188          JD    3.49      5.0
189          JD    3.38     10.0
190          JD    3.24     30.0
191          JD    3.10     60.0
192          JD    3.05     90.0
193          JD    3.00    120.0
194          JD    2.97    150.0
             *
             * ////////////////////////// End Distribution ////////////////////////////////
             *

195          KK  SUB354
196          KM   BASIN 354
197          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
198          KM    L=      2.9  Lca=      1.9   S=   17.2  Kn= .086  LAG= 138.0
199          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
200          BA    1.50
201          LG     .47      .07     6.80      .19      .00
```

```
202          UI     40.     40.     40.     40.     40.     49.     84.     84.    109.    141.
203          UI    196.    211.    252.    229.    211.    249.    282.    346.    277.    338.
204          UI    338.    338.    338.    338.    338.    338.    338.    315.    282.    282.
205          UI    282.    296.    306.    317.    211.    211.    211.    228.    245.    184.
206          UI    162.    154.    154.    141.    121.    117.    113.    119.    130.     98.
207          UI     77.     77.     70.     65.     65.     65.     50.     50.     50.     50.
208          UI     46.     37.     37.     37.     37.     37.     37.     24.     23.     23.
209          UI     23.     23.     23.     23.     23.     23.     23.     10.      5.      5.
210          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
211          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
1                                          HEC-1 INPUT                                          PAGE  5

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

212          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
213          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
214          UI      5.      5.      5.      0.      0.      0.      0.      0.      0.      0.
215          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

216          KK   RO355
217          KM        ROUTE FLOW FROM SB354 TO CO358
218          RM      42    8.60    0.20
             *

219          KK  SUB356
220          KM   BASIN 356
221          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
222          KM    L=       5.1  Lca=       3.5   S=   12.7  Kn= .093  LAG= 246.0
223          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
224          BA    4.24
225          LG     .48     .04    5.30     .35     .00
226          UI     64.     64.     64.     64.     64.     64.     64.     64.     64.     64.
227          UI    110.    134.    134.    134.    134.    200.    223.    223.    311.    334.
228          UI    334.    334.    430.    403.    334.    334.    334.    384.    445.    445.
229          UI    556.    521.    382.    502.    534.    534.    534.    534.    534.    534.
230          UI    534.    534.    534.    534.    534.    534.    534.    534.    534.    463.
231          UI    445.    445.    445.    445.    445.    445.    483.    517.    445.    509.
232          UI    437.    334.    334.    334.    334.    334.    356.    371.    389.    376.
233          UI    267.    267.    251.    243.    243.    243.    243.    229.    191.    191.
234          UI    191.    180.    178.    178.    182.    206.    206.    206.    127.    121.
235          UI    121.    121.    121.    112.    103.    103.    103.    103.    103.    100.
236          UI     79.     79.     79.     79.     79.     79.     79.     79.     63.     58.
237          UI     58.     58.     58.     58.     58.     58.     58.     58.     58.     48.
238          UI     36.     36.     36.     36.     36.     36.     36.     36.     36.     36.
239          UI     36.     36.     36.     36.     36.     36.     36.     29.      8.      8.
240          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
241          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
242          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
243          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
244          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
245          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
246          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
247          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
248          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
249          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

250          KK   CO358
251          KM        COMBINE RO355 AND SUB256
252          HC       2
             *

253          KK   RO359
254          KM        ROUTE FLOW FROM CO358 TO CO362
255          RM      14    2.89    0.20
             *
1                                          HEC-1 INPUT                                          PAGE  6

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

256          KK  SUB360
257          KM   BASIN 360
258          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
259          KM    L=       4.6  Lca=       2.7   S=   16.4  Kn= .083  LAG= 183.0
260          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
261          BA    4.79
262          LG     .46     .09    6.60     .20     .00
263          UI     97.     97.     97.     97.     97.     97.     97.    130.    203.    203.
264          UI    203.    291.    338.    415.    507.    507.    596.    603.    507.    507.
265          UI    592.    676.    780.    763.    648.    811.    811.    811.    811.    811.
266          UI    811.    811.    811.    811.    811.    811.    757.    676.    676.    676.
267          UI    676.    676.    799.    676.    797.    512.    507.    507.    507.    540.
```

```
268          UI    572.    591.    405.    398.    369.    369.    369.    355.    290.    290.
269          UI    278.    270.    270.    306.    312.    250.    184.    184.    184.    171.
270          UI    156.    156.    156.    156.    130.    119.    119.    119.    119.    119.
271          UI    104.     88.     88.     88.     88.     88.     88.     88.     86.     55.
272          UI     55.     55.     55.     55.     55.     55.     55.     55.     55.     55.
273          UI     55.     55.     33.     12.     12.     12.     12.     12.     12.     12.
274          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
275          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
276          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
277          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
278          UI     12.     12.     12.     12.     12.     12.     12.     12.     12.     12.
279          UI     12.     12.     12.      0.      0.      0.      0.      0.      0.      0.
280          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

281          KK   CO362
282          KM        COMBINE RO359 AND SUB360
283          HC       2
             *

284          KK   *RRW1
285          KM    DIVERSION FLOW FROM CO362 DUE TO A 4-3'x4' WOOD BOX CULVERT
286          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
287          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
288          DT  DDRRW1
289          DI       0      59     145     244     428     546     682     837    1013    1320
290          DQ       0      19      61     119     242     327     430     553     697     955
291          ZW     A=RRW1              B=RRW1              C=FLOW  E=5MIN F=100YR
             *

292          KK  *DDRW1
293          KM    RETRIEVE DIVERSION FLOW FROM DDRRW1
294          DR  DDRRW1
             *

295          KK  RO363A
296          KM        ROUTE FLOW *DRRW1 TO *RRW2
297          RM       8    1.49    0.20
             *
```



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

298          KK    364C
299          KM   BASIN 364C
300          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
301          KM    L=      3.4  Lca=      1.9   S=   24.3  Kn= .070  LAG= 111.0
302          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
303          BA    1.27
304          LG     .43     .15    4.50     .46     .00
305          UI     39.     39.     39.     39.     39.    104.    116.    151.    179.    205.
306          UI    230.    258.    274.    305.    324.    341.    350.    360.    371.    371.
307          UI    371.    365.    352.    348.    329.    303.    277.    266.    237.    221.
308          UI    205.    190.    176.    164.    151.    138.    128.    119.    108.    106.
309          UI     87.     86.     77.     73.     73.     60.     59.     59.     48.     41.
310          UI     41.     41.     41.     29.     26.     26.     26.     26.     26.     26.
311          UI     21.      9.      9.      9.      9.      9.      9.      9.      9.      9.
312          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
313          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
314          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

315          KK  CO364C
316          KM    COMBINE FLOWS COMING ALONG THE RAILROAD TRACK WITH FLOWS GENERATED FROM
317          KM    SUBBASIN 364C
318          HC       2
             *

319          KK   *RRW2
320          KM    DIVERSION FLOW FROM CO364C DUE TO A  1-5'x3.5' CMPA CULVERT
321          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
322          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
323          DT  DDRRW2
324          DI       0      59     145     244     428     546     682     837    1013    1320
325          DQ       0      31      92     171     331     438     562     706     871    1162
326          ZW     A=RRW2              B=RRW2              C=FLOW  E=5MIN F=100YR
             *
             *

327          KK  *DDRW2
328          KM    RETRIEVE DIVERSION FLOW FROM DDRRW2
329          DR  DDRRW2
             *
```

```
330          KK  RO363B
331          KM        ROUTE FLOW *DRRW2 TO *RRW3
332          RM       8    1.49    0.20
             *

333          KK    364B
334          KM   BASIN 364B
335          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
336          KM    L=      3.7  Lca=      1.8   S=   23.0  Kn= .070  LAG= 113.0
337          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
338          BA    2.21
339          LG     .43     .15    4.60     .43     .00
340          UI     72.     72.     72.     72.     92.    151.    151.    251.    332.    378.
1                                          HEC-1 INPUT                                                    PAGE  8

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

341          UI    464.    378.    421.    504.    579.    561.    605.    605.    605.    605.
342          UI    605.    605.    565.    504.    504.    505.    560.    536.    378.    378.
343          UI    399.    437.    316.    281.    275.    258.    216.    206.    202.    233.
344          UI    181.    137.    136.    116.    116.    113.     89.     89.     89.     82.
345          UI     66.     66.     66.     66.     64.     41.     41.     41.     41.     41.
346          UI     41.     41.     41.     18.      9.      9.      9.      9.      9.      9.
347          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
348          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
349          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
350          UI      9.      0.      0.      0.      0.      0.      0.      0.      0.      0.
351          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

352          KK  CO364B
353          KM    COMBINE FLOWS FROM ALONG RAILROAD TRACK WITH THOSE GENERATED FROM BASIN 364B
354          HC       2
             *

355          KK   *RRW3
356          KM    DIVERSION FLOW FROM RO363C DUE TO A  6-5'x3.5' CMPA CULVERT
357          KM    DIVERTED FLOW IS FLOW *NOT* PASSING THRU THE CULVERT
358          KM    (CULVERT DIMENSIONS PER SANOKAI WASH FIS STUDY HYDROLOGY MAP)
359          KM    DIVERTED FLOW IS RETRIEVED AND COMBINED AT SUBBASIN 364C.
360          DT  DDRRW3
361          DI       0      59     145     244     428     546     682     837    1013    1320
362          DQ       0       9      32      69     156     220     300     396     512     726
363          ZW     A=RRW3              B=RRW3              C=FLOW  E=5MIN F=100YR
             *
364          ZZ
1
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  195     SUB354
               V
               V
  216      RO355
               .
               .
  219          .       SUB356
               .            .
               .            .
  250      CO358............
               V
               V
  253      RO359
               .
               .
  256          .       SUB360
               .            .
               .            .
  281      CO362............
               .
               .
  288          .-------->  DDRRW1
  284      *RRW1
               .
               .
  294          .            .<-------  DDRRW1
  292          .       *DDRW1
               .            V
               .            V
  295          .       RO363A
```

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                .           .
                .           .
  298           .           .        364C
                .           .           .
                .           .           .
  315           .      CO364C............
                .           .
                .           .
  323           .           .-------> DDRRW2
  319           .       *RRW2
                .           .
                .           .
  329           .           .           .<-------  DDRRW2
  327           .           .      *DDRW2
                .           .           V
                .           .           V
  330           .           .      RO363B
                .           .           .
                .           .           .
  333           .           .           .        364B
                .           .           .           .
                .           .           .           .
  352           .           .      CO364B............
                .           .           .
                .           .           .
  360           .           .           .-------> DDRRW3
  355           .           .       *RRW3
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *   U.S. ARMY CORPS OF
ENGINEERS     *
 *              JUN   1998              *                                                    *   HYDROLOGIC ENGINEERING
CENTER    *
 *           VERSION 4.1                *                                                    *          609 SECOND
STREET          *
 *                                      *                                                    *      DAVIS, CALIFORNIA
95616       *
 *      RUN DATE   25FEB04  TIME  08:44:24  *                                                *          (916) 756-1104
*                                       *                                                    *
*
 ****************************************
****************************************
```

FILE NAME: SONOQRR.DAT (2/25/04) (CWR)

THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS ARE PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RAILROAD. THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT. THIS DATA WILL BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).

****

FILE NAME: SONOUPRR.DAT (2/20/04) (CWR)

THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD EDITED OUT. IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT: RRW1 TO CP-E1; RRW2 AND RRW3 TO CP-D5. THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA A ZW CARD. THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING SONOQUI WASH WATERSHED. THIS DATA WILL BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).

THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).

****

FILE NAME: SONOFEMA.DAT (11/18/03)

THIS MODEL IS BEING USED TO DETERMINE THE EXISTING CONDITIONS FLOWS IN SONOQUI WASH FOR A FLOODPLAIN DELINEATION STUDY TO BE SUBMITTED TO FEMA

UNDER FCD CONTRACT #2002C033-2.

THE ORIGINAL HYDROLOGIC MODEL FOR SONOQUI WASH WAS PREPARED BY ENTELLUS FOR FCD CONTRACT #97-11 (COMPLETED MARCH 1999). IN DEC. 1999, THAT MODEL WAS MODIFIED BY HUITT-ZOLLARS FOR THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN. MODIFICATIONS TO THE ENTELLUS MODEL INCLUDED: CHANGES IN DISCHARGE DISTRIBUTION AT FLOW SPLITS AT THE RAILROAD (CONCENTRATION POINTS CO362, CO364C, AND CO364B) BASED ON MORE DETAILED DATA OF THE RAILROAD CROSSINGS; AND, A VERY MINOR ADJUSTMENT TO THE AERIAL REDUCTION FACTORS ON THE JD CARDS TO MAKE THE MODEL COMPATIBLE WITH OTHER MODELS WITHIN THE WATERSHED OF THE EAST MARICOPA FLOODWAY (EMF).

THIS MODEL IS THE HUITT-ZOLLARS MODEL (FILE NAME: 1CQCSW.DAT) WITH AREAS NOT TRIBUTARY TO SONOQUI WASH REMOVED FROM THE MODELING. THIS CHANGE WAS MADE BY THE FCDMC ENGINEERING DIVISION, HYDROLOGY/HYDRAULICS BRANCH (CWR) ON NOV. 18, 2003. THIS IS A STAND-ALONE MODEL. NO ADDITIONAL MODELS ARE REQUIRED TO RUN THIS MODEL.

THE ORIGINAL ID CARDS FROM THE HUITT-ZOLLARS AND ENTELLUS STUDIES HAVE BEEN MAINTAINED AND ARE NOTED IN THE PARAGRAPHS BELOW.

(end FCD comments 11/18/03)
****
****

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     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:  1CQCSW.DAT
        DATE:  Dec 1999
```

This model is for the 100-year, 24 hr existing 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 is a supporting model for the preferred alternative (Alternative 1C) of the East Maricopa Floodway Capacity Mitigation Study. This model was constructed from previous study models and updated for new existing hydrologic conditions as part of the Queen Creek/Sanokai Wash HMP & EMF Capacity Mitigation Study. Previous studies include the East Mesa ADMP, the Queen Creek ADMS and the Sanokai Wash FDS.

The mitigating measures in this watershed area have been included in the EMF routing model, 1C-EMFRT.DAT. Therefore, no changes have been to the base existing conditions model.

Alternative 1C includes offline EMF detention basins at Chandler Heights Rd., Rittenhouse Rd., and north of the proposed Santan Freeway alignment (north of Knox. Rd). In addition, this alternative includes two watershed detention basins. One off the Guadalupe Channel located approximately northeast of the intersection of Power Rd. and Guadalupe Rd. The other off the Powerline Floodway located approximately northwest of the intersection of the Powerline Floodway and Ellsworth Rd (Ray Basin). All basins for this alternative are modeled in 1C-EMFRT.DAT with the exception of the Ray Basin. The Ray Basin is modeled in 1CSEMESA.DAT.

In addition, in 1C-EMFRT.DAT the n-value for routing between Broadway Rd. and Apache Trail (Main St.) has been changed from 0.025 to 0.018 to account for the proposed soil cement lining of the EMF as part of the recommended alternative.

****
RUNNING EMF HYDROLOGY MODELS
****

The model 1C-EMFRT.DAT is the "routing" model used to evaluate flows in the EMF for the existing 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).

This model is one of the 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:

* 1CNWMESA.DAT - Preferred Alternative 1C hydrology based on existing conditions hydrology for NE Mesa (~east of the EMF to the CAP(at Hawes Rd.) & ~south of McKellips Rd. to US60)

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                    *  1CNEMESA.DAT - Preferred Alternative 1C hydrology based on
                                      existing conditions hydrology for NW Mesa
                                      (~area northeast of Hawes Rd./US60)

                    *  1CSEMESA.DAT - Preferred Alternative 1C hydrology based on
                                      existing conditions hydrology for SE Mesa
                                      (~area east of the EMF from US60 south to
                                       Rittenhouse Rd. (excluding areas
                                       tributary to Queen Creek))
                                       1CSEMESA.DAT imports hydrographs from
                                       1CNEMESA.DAT via DSS files.  Therefore,
                                       1CNEMESA.DAT must be run first and then
                                       when running 1CSEMESA.DAT, 1CNEMESA.DSS
                                       must be specified as the DSS file
                                       (the default would be 1CSEMESA.DSS)

                    *  1CQCSW.DAT   - Preferred Alternative 1C hydrology based on
                                      existing 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 (X-EMF-RT.DAT).  ONLY THE EMF ROUTING
                  MODEL SHOULD BE USED TO DETERMINE FLOWS WITHIN THE EMF.
                  ********************************************************************

                  ********************************************************************
                            RECOMMENDED RUN ORDER FOR EMF HYDROLOGY MODELS
                  ********************************************************************

                       1. Erase any existing TAPE21 file in run directory.
                       2. Run 1CNEMESA.DAT, 1CNWMESA.DAT & 1CQCSW.DAT (any order)
                       3. Run 1CSEMESA.DAT (specifying 1CNEMESA.DSS as DSS file)
                       4. Run 1C-EMFRT.DAT

                  ********************************************************************
                             BEGIN ID COMMENTS FROM ORIGINAL HYDROLOGY MODELS
                  ********************************************************************

                 ***************************************************************************
                 **    SANOKAI WASH FLOODPLAIN DELINEATION STUDY                          **
                 **    100-Year 24-hour Storm                                             **
                 **    First Run Date  February 10-1998                                   **
                 **    Run Date  May 20-1998                                              **
                 **    Entellus, Inc.                                   File SNQ24.DAT    **
                 ***************************************************************************

                 DDM MCUHP1 Sanokai Wash Floodplain Delineation Study

174 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

176 JD        INDEX STORM NO. 1
```

```
                STRM        3.60  PRECIPITATION DEPTH
                TRDA         .01  TRANSPOSITION DRAINAGE AREA

177 PI        PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

187 JD        INDEX STORM NO. 2
                STRM        3.58  PRECIPITATION DEPTH
                TRDA        1.00  TRANSPOSITION DRAINAGE AREA

  0 PI        PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .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

188 JD        INDEX STORM NO. 3
                STRM        3.49  PRECIPITATION DEPTH
                TRDA        5.00  TRANSPOSITION DRAINAGE AREA

  0 PI        PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.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
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

189 JD INDEX STORM NO. 4

STRM 3.38 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

190 JD INDEX STORM NO. 5

STRM 3.24 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00

1 JD      INDEX STORM NO. 6
          STRM        3.10  PRECIPITATION DEPTH
          TRDA       60.00  TRANSPOSITION DRAINAGE AREA

0 PI      PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
          .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
          .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
          .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00

192 JD    INDEX STORM NO. 7
          STRM        3.05  PRECIPITATION DEPTH
          TRDA       90.00  TRANSPOSITION DRAINAGE AREA

0 PI      PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .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       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00

193 JD    INDEX STORM NO. 8
          STRM        3.00  PRECIPITATION DEPTH
          TRDA      120.00  TRANSPOSITION DRAINAGE AREA

0 PI      PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.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
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

194 JD INDEX STORM NO. 9

STRM 2.97 PRECIPITATION DEPTH

TRDA 150.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00		

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   -----DSS---ZOPEN:  New File Opened,  File: SONOQRR.DSS
                      Unit:  71;  DSS Version: 6-JG
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/31MAR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/01APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/02APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/04APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/05APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/06APR1997/5MIN/100YR/
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/02APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/03APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW1/RRW1/FLOW/05APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/01APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/04APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/06APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW1/RRW1/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW1/RRW1/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    3:  /RRW1/RRW1/FLOW/02APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    1:  /RRW2/RRW2/FLOW/31MAR1997/5MIN/100YR/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW2/RRW2/FLOW/05APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    4:  /RRW2/RRW2/FLOW/06APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW2/RRW2/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW2/RRW2/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    5:  /RRW2/RRW2/FLOW/02APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    6:  /RRW3/RRW3/FLOW/06APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    7:  /RRW3/RRW3/FLOW/31MAR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /RRW3/RRW3/FLOW/01APR1997/5MIN//
-----DSS---ZWRITE Unit  71; Vers.    7:  /RRW3/RRW3/FLOW/02APR1997/5MIN//
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-----DSS---ZWRITE Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/06APR1997/5MIN/100YR/
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

TIME OF STAGE +	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	MAX
+	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		
+	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		
	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


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


     -----DSS---ZCLOSE Unit:  71,   File: SONOQRR.DSS
              Pointer Utilization:    .25
              Number of Records:      63
              File Size:    120.5  Kbytes
              Percent Inactive:     .0
```

D.6 HEC-1 Output

D.6.1 100-yr, 6-hr HEC-1 Output (Existing Conditions)

D.6.2 100-yr, 24-hr HEC-1 Output (Existing Conditions)

D.6.1 100-yr, 6-hr HEC-1 Output (Existing Conditions)

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   14MAY04  TIME  10:41:57  *
*                                      *
****************************************
```

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

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

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

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

1 HEC-1 INPUT PAGE 1

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

  1           ID   ******************************************************************************
  2           ID   ******************************************************************************
  3           ID   **    SONOQUI WASH FLOODPLAIN DELINEATION STUDY                             **
  4           ID   **    100-Year 6-hour Storm                                                 **
  5           ID   **    First Run Date  February 10-1998                                      **
  6           ID   **    Run Date             May 20-1998                                      **
  7           ID   **    REVISED:           March 10-2004                                      **
  8           ID   **    REVISION CHANGES:                                                     **
  9           ID   **                     Basins E1 and E2 changed from Clark UH to S-graphs  **
 10           ID   **                     Changed method of Railroad Culvert flow calculations**
 11           ID   **                          Applies to structures RRW1, RRW2 and RRW3      **
 12           ID   **                          See note prior to structure RRW1               **
 13           ID   **                     Extended X-Section for structure RRW3               **
 14           ID   **    Entellus, Inc.                                     File SNQ6.DAT     **
 15           ID   ******************************************************************************
 16           ID   ******************************************************************************
 17           ID
 18           ID   DDM MCUHP1 Sonoqui Wash floodplain Delineation Study
              *
              *
 19           IT       5 01APR97             600
 20           IO       5
              *
              *DIAGRAM
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////////// Rainfall Distribution//////////////////////////
              * ////////////////////////////////////////////////////////////////////////////
 21           IN      15
 22           JD    3.04    0.01
 23           PC    .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
 24           PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
 25           PC    .962    .972    .983    .991   1.000
 26           JD    3.02    0.50
 27           JD    2.98    2.80
 28           PC    .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
 29           PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 30           PC    .950    .963    .975    .988   1.000
 31           JD    2.80    16.0
 32           PC    .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
 33           PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
 34           PC    .946    .960    .973    .987   1.000
 35           JD    2.46    90.0
 36           PC    .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
 37           PC    .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
 38           PC    .927    .945    .964    .982   1.000
```

```
 39          JD    1.73   500.0
 40          PC    .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
 41          PC    .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
 42          PC    .907    .930    .954    .977   1.000
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////// End Distribution ////////////////////////////////
             * ////////////////////////////////////////////////////////////////////////////
             *
             * ***************************************************************************
             * **********************   Basin S9     ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE  2

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


 43          KK      S9
 44          KM   SUB-BASIN S9
 45          KM   6-HOUR RAINFALL, PATTERN NO. 2.11 WAS USED TO FIND TC & R FOR THIS BASIN
 46          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .971
 47          KM     L = 4.51  Kb = .052  Adj. Slope =  195.0
 48          BA   3.403
 49          LG    .240    .350   4.450    .360  27.000
 50          UC    .921    .561
 51          UA       0       3       5       8      12      20      43      75      90      96
 52          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.       ////
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

 53          KK    *DS9
 54          KM    DIVERSION FLOW FROM CP-S9
 55          DT    DDS9
 56          DI       0     250     500     750    1000    1250    1500    1750    2000    2500
 57          DQ       0      50     100     150     200     250     300     350     400     500
             *
             *
             * ***************************************************************************
             * **********************   Basin S10    ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

 58          KK     S10
 59          KM   SUB-BASIN S10
 60          KM   6-HOUR RAINFALL, PATTERN NO. 1.20 WAS USED TO FIND TC & R FOR THIS BASIN
 61          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .991
 62          KM     L = 1.45  Kb = .067  Adj. Slope =  283.2
 63          BA    .711
 64          LG    .230    .350   3.950    .470  27.000
 65          UC    .379    .206
 66          UA       0       3       5       8      12      20      43      75      90      96
 67          UA     100
             *
             *
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++ Conc. Point CP-S10     ++++++++++++++++++++++++++++++++
             * +++  Combines basins S9 & S10                                             +++
             * +++  Hunt Hwy near Ellsworth Rd.                                          +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  3

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


 68          KK  CP-S10
 69          HC       2
             *
             *
```

```
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S10         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr  Route CP-S10 to CP-E8 Through Basin E8                                rrr
                    * rrr  Mountain typical cross section - natural channel                      rrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * DDM    ***** Preserved *****

 70                 KK    RS10
 71                 RS       3     FLOW
 72                 RC     .07      .06      .07     1859    .0102
 73                 RX       0      400      800     1200     1600     2000     2400     2800
 74                 RY       3        1       .5        0        0       .5        1        3
                    *
                    *
                    * *****************************************************************************
                    * *********************   Basin E8     ****************************************
                    * *****************************************************************************
                    * DDM    ***** Updated *****

 75                 KK      E8
 76                 KM    SUB-BASIN E8
 77                 KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
 78                 KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
 79                 KM      L = 1.19  Kb = .090  Adj. Slope =    42.0
 80                 BA    .389
 81                 LG    .500     .000    4.300     .620     .000
 82                 UC    .875     .628
 83                 UA       0        3        5        8       12       20       43       75       90       96
 84                 UA     100
                    *
                    *
                    * /////////////////////////////////////////////////////////////////////////////
                    * //////////////////////   Diversion Recover DS9   //////////////////////////////
                    * ///   Through small dip section on Hunt Hwy and into Empire Rd. channel   ////
                    * /////////////////////////////////////////////////////////////////////////////
                    * DDM    ***** Preserved *****

 85                 KK      DS9
 86                 KM     Return flow from CP-S9
 87                 DR     DDS9
                    *
                    *
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S9E         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr  Route S-9 to Empire Rd. Channel                                      rrrr
                    * rrr  mountain typical cross-section - natural channel                     rrrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * DDM    ***** Preserved *****
1                                        HEC-1 INPUT                                              PAGE  4

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


 88                 KK    RS9E
 89                 RS       8     FLOW
 90                 RC     .07      .06      .07     2550    .0039
 91                 RX       0      400      800     1200     1600     2000     2400     2800
 92                 RY       3        1       .5        0        0       .5        1        3
                    *
                    *
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S9C         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * rrr  Route S-9 to CP-E8 thruogh Empire Rd. Channel                         rrr
                    * rrr  Cross-section RS9C  -  channel flow                                   rrr
                    * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                    * DDM    ***** Preserved *****

 93                 KK    RS9C
 94                 RS       3     FLOW
 95                 RC     .07     .045      .07     2550    .0035
 96                 RX       0        5       10     32.5     52.5       75       80       85
 97                 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.                     +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK  *CP-E8
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.                     +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

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



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

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

KK     RE8
RS       7    FLOW
RC    0.07    0.06    0.07    3675   .0097
RX    1000    1760    2400    2480    2500    2550    2690    2750
RY  1398.9  1396.5    1396  1395.7  1395.7  1396.2  1396.8  1397.3
*
*
* ***************************************************************************
* **********************   Basin C1     ***************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK      C1
KM   SUB-BASIN C1
KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
KM     L =  .70  Kb = .048  Adj. Slope =   51.0
BA    .355
LG    .350    .350   3.950    .470    .000
UC    .383    .173
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
*
* ***************************************************************************
* **********************   Basin S11    ***************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK     S11
```

```
123          KM   SUB-BASIN S11
124          KM   6-HOUR RAINFALL, PATTERN NO. 1.40 WAS USED TO FIND TC & R FOR THIS BASIN
125          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .987
126          KM     L = 2.19  Kb = .072  Adj. Slope =  297.5
127          BA    .993
128          LG    .190    .350   4.550    .340  38.000
129          UC    .512    .331
130          UA       0       3       5       8      12      20      43      75      90      96
131          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S11 to CP-C1 Through Basin C1                          rrr
             * rrr  Field typical Section  -  Sheet flow                                rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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

132          KK    RS11
133          RS       6    FLOW
134          RC     .07     .07     .07    3100   .0095
135          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
136          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin S12     ************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

137          KK     S12
138          KM   SUB-BASIN S12
139          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
140          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
141          KM     L = 1.06  Kb = .070  Adj. Slope =  315.0
142          BA    .408
143          LG    .240    .350   4.450    .360  31.000
144          UC    .279    .157
145          UA       0       3       5       8      12      20      43      75      90      96
146          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S12        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S12 to CP-C1 Through Basin C4                          rrr
             * rrr  Field typical Section  -  Sheet flow                                rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

147          KK    RS12
148          RS      13    FLOW
149          RC     .07     .07     .07    4300   .0050
150          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
151          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 Sonoqui Wash with Santan Blvd                        +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

152          KK   CP-C1
153          HC       4
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C1N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C1 to CP-C2 Through Basin C2  (Sonoqui Wash)                  rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

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

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

 154            KK    RC1N
 155            RS       5    FLOW
 156            RC     .05     .05     .05    2800   .0073
 157            RX       0     500    2815    2820    2845    2860    3700    4010
 158            RY  1391.5  1390.2    1389  1387.8  1387.8    1394  1394.4  1396.9
                *
                *
                * ******************************************************************************
                * **********************   Basin S1    ****************************************
                * ******************************************************************************
                * DDM   ***** Updated *****

 159            KK      S1
 160            KM   SUB-BASIN S1
 161            KM   6-HOUR RAINFALL, PATTERN NO. 1.73 WAS USED TO FIND TC & R FOR THIS BASIN
 162            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
 163            KM     L = 1.59  Kb = .042  Adj. Slope =  102.0
 164            BA   1.760
 165            LG    .330    .350   4.250    .410  15.000
 166            UC    .529    .192
 167            UA       0       3       5       8      12      20      43      75      90      96
 168            UA     100
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-S1       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin S1 to CP-E1 Through Basin E1                                 rrr
                * rrr  Railroad typical section  -  sheet flow across fields                   rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 169            KK     RS1
 170            RS     111    FLOW
 171            RC     .08     .08     .08   24000   .0013
 172            RX       0     800    2975    2990    3010    3025    5200    6000
 173            RY      10       8       2       0       0       2       8      10
                *
                *
                * ******************************************************************************
                * **********************   Basin S2    ****************************************
                * ******************************************************************************
                * DDM   ***** Updated *****

 174            KK      S2
 175            KM   SUB-BASIN S2
 176            KM   6-HOUR RAINFALL, PATTERN NO. 2.05 WAS USED TO FIND TC & R FOR THIS BASIN
 177            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .973
 178            KM     L = 2.92  Kb = .040  Adj. Slope =   60.0
 179            BA   3.074
 180            LG    .320    .350   4.600    .330   6.000
 181            UC   1.029    .475
 182            UA       0       3       5       8      12      20      43      75      90      96
 183            UA     100
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * 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
                * DDM   ***** Preserved *****
```



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

 184            KK     RS2
 185            RS      60    FLOW
 186            RC     .08     .08     .08   15964   .0018
```

```
187          RX       0     800    2975    2990    3010    3025    5200    6000
188          RY      10       8       2       0       0       2       8      10
             *
             *
             * ***************************************************************************
             * **********************   Basin S3B    ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

189          KK     S3B
190          KM   SUB-BASIN S3B
191          KM   6-HOUR RAINFALL, PATTERN NO. 1.72 WAS USED TO FIND TC & R FOR THIS BASIN
192          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
193          KM     L = 1.59  Kb = .060  Adj. Slope =  261.2
194          BA   1.725
195          LG    .230    .350   4.650    .310  54.000
196          UC    .408    .145
197          UA       0       3       5       8      12      20      43      75      90      96
198          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S3B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S3B to CP-S3A Through Basin S3A                          rrr
             * rrr  Mountain typical section  -                                          rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

199          KK    RS3B
200          RS      30    FLOW
201          RC    0.07    0.06    0.07   17915   .0076
202          RX       0     400     800    1200    1600    2000    2400    2800
203          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * ***************************************************************************
             * **********************   Basin S3A    ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

204          KK     S3A
205          KM   SUB-BASIN S3A
206          KM   6-HOUR RAINFALL, PATTERN NO. 1.71 WAS USED TO FIND TC & R FOR THIS BASIN
207          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
208          KM     L = 3.39  Kb = .040  Adj. Slope =   40.0
209          BA   1.703
210          LG    .340    .350   4.500    .350   1.000
211          UC   1.404   1.057
212          UA       0       3       5       8      12      20      43      75      90      96
213          UA     100
             *
             *
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-S3A     ++++++++++++++++++++++++++++++
             * +++  Combines basins S3B & S3A (Hunt Hwy)                                 +++
             * +++  Hunt Hwy near intersection of aligments of Kenworthy & Judd Rds.      +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```



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


214          KK  CP-S3A
215          HC       2
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S3A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-S3A to CP-E1 Through Basin E1                               rr
             * rrr  Field typical section  -  sheet flow across fields                   rr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

216          KK    RS3A
```

```
217          RS      45    FLOW
218          RC    0.08    0.08    0.08   11731   .0029
219          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
220          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ****************************************************************************
             * **********************   Basin E1     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

221          KK      E1
222          KM   SUB-BASIN E1
223          BA   7.909
224          LG    .320    .190   6.600    .180    .000
             *
             * THIS S-GRAPH WAS CALCULATED BASED ON THE FOLLOWING PARAMETERS:
             * AGRICULTURAL S-GRAPH WAS UTILIZED
             * TIME OF CONCENTRATION=33886 [FT] OR 6.4 [MILES]
             * TIME OF CONCENTRATION SLOPE=8.4 [FT/MILE]
             * Kn=0.070
             *      *** THE MARICOPA COUNTY HYDROLOGY MANUAL HAS RECOMMENDS A Kn RANGE OF
             *      *** 0.06 [MIN], 0.10 [AVG], 0.15 [MAX] FOR THE AGRICULTURAL S-GRAPH
             * Lca=3.81 [MILES]
             * BASIN LAG TIME 3.78 [HOURS]
             *
             * *** DUE TO THE NUMBER OF ORDINATES REQUIRED FOR THE COMPLETE S-GRAPH, IT WAS
             * *** AUGMENTED AFTER THE 150TH ORDINATE, THE MAXIMUM ALLOWED IN HEC-1.
             *
225          UI    0.00  128.45  128.45  128.45  128.45  128.45  128.45  128.45  128.45  128.45
226          UI  195.48  269.74  269.74  269.74  269.74  438.49  449.57  498.30  674.35  674.35
227          UI  674.35  806.53  848.07  674.35  674.35  674.35  808.86  899.14  899.14 1293.32
228          UI  788.26  888.45 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96
229          UI  1079.0 1078.96 1078.96 1078.96 1078.96 1078.96  963.87  899.14  899.14  899.14
230          UI  899.14  899.14  899.14 1049.47  952.73  960.49  995.13  674.35  674.35  674.35
231          UI  674.35  674.35  731.60  755.06  793.36  643.88  539.48  523.75  490.44  490.44
232          UI  490.44  490.44  455.63  385.34  385.34  381.34  359.65  359.65  359.65  401.37
233          UI  414.99  414.99  278.22  245.22  245.22  245.22  245.22  214.43  207.49  207.49
234          UI  207.49  207.49  207.49  162.62  158.67  158.67  158.67  158.67  158.67  158.67
235          UI  150.06  117.28  117.28  117.28  117.28  117.28  117.28  117.28  117.28  117.28
236          UI  117.28   82.88   72.90   72.90   72.90   72.90   72.90   72.90   72.90   72.90
237          UI   72.90   72.90   72.90   72.90   72.90   72.90   72.90   72.90   16.51   16.06
```



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

238          UI   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06
239          UI   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06
             *
             *
             *
             *
             * iiiiiiiiiiiiiiiiiiiiii     Input flow *RRW1    iiiiiiiiiiiiiiiiiiiiiiiiiiii
             * iii 4-3x5 trusts Southern Pacific Rail Road                                iii
             * iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
             * iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
             * iii a conservative assumption and flow is not expected to reach this       iii
             * iii height                                                                  iii
             * iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
             *
             *
             * ****************************************************************************
             * ****************************************************************************
             * ************************** BEGINNING OF INPUT FROM **************************
             * ********************** QUEEN CREEK/Sanokai MASTER PLAN **********************
             * ****************************************************************************
             * ****************************************************************************
             *
             *
             *
             * The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file
             * SONOQRR6.DAT and the DSS file SONOQRR.DSS as outputed from the .DAT file.
             * These files were obtained from Catherine Regester at the FCDMC on Feb. 25,
             * 2004.  The following description is given at the begining of the file
             * SONOQRR6.DAT:
```

```
*
*
* ***************************************************************************
* ***************************************************************************
* ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
* ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
* **                                                                      **
* **  FILE NAME:  SONOQRR6.DAT  (3/10/04)  (CWR)  100-YR, 6-HR STORM      **
* **                                                                      **
* ** THIS MODEL IS SONOQRR.DAT WITH THE 24-HR PRECIP REMOVED AND THE 6-HR  **
* ** PRECIP ADDED.  THE VALUES ON THE PC AND JD RECORDS ARE FROM THE ORINGINAL**
* ** (FCD 97-11) SONOQUI WASH STUDY HYDROLOGY PREPARED BY ENTELLUS.       **
* **                                                                      **
* **                                                                      **
* ** ******************************************************************** **
* ** FILE NAME:  SONOQRR.DAT  (2/25/04)  (CWR)                            **
* **                                                                      **
* ** THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS **
* ** ARE PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RR**
* ** THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT.  THIS DATA WILL **
* ** BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH  **
* ** FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).                       **
* **                                                                      **
* **                                                                      **
* ** ******************************************************************** **
* ** FILE NAME:  SONOUPRR.DAT  (2/20/04) (CWR)                            **
* **                                                                      **
* ** THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD**
* ** EDITED OUT.  IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND **
* ** DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT:  RRW1 TO CP-E1; RRW2 AND**
* ** RRW3 TO CP-D5.  THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA**
* ** A ZW CARD.  THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR **
* ** CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING**
* ** SONOQUI WASH WATERSHED.  THIS DATA WILL BECOME PART OF THE HYDROLOGY **
* ** SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD **
* ** 2002C033-2).                                                         **
* **                                                                      **
* ** THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER **
* ** THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).      **
* **                                                                      **
* ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
* ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
* ***************************************************************************
* ***************************************************************************
*
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*
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 240          KK   *RRW1
 241          BA    3.16
              * 3.16 sq miles is the attributing area to the RRW1 structure.
              * The diverted flow is 329cfs, and the entire flow at
              * the previous concentration point was 1095cfs.  Thus 329cfs/1095cfs=30%.
              * WHen this percentage is applied to the 10.53 sq miles as found in the output
              * from SONOQRR6.DAT, this becomes 3.16 sq miles. The hydrograph from the DSS
              * file is unrouted, so the original route was utilized to route the data.
 242          KM   FLOW FROM CULVERT BY RAILROAD
              *
 243          ZR  =QI A=RRW1              B=RRW1              C=FLOW  E=5MIN F=100YR
              *
              *
              *
              *
              * ***************************************************************************
              * ***************************************************************************
              * ***************************** END OF INPUT FROM ******************************
              * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ************************
              * ***************************************************************************
              * ***************************************************************************
```

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                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RRW1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Culvert *RRW1 to CP-E1 Through Basin E2                       rrr
                 * rrr  Field typical section  -  Sheet flow across fields                  rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM    ***** Preserved *****

 244             KK    RRW1
 245             RS      13    FLOW
 246             RC     .08     .08     .08    2700   .0026
 247             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 248             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              +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * DDM    ***** Preserved *****

 249             KK   CP-E1
 250             HC       5
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-E1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-E1 to CP-D5 (midway ofE2) Through Basin E2                 rrr
                 * rrr  Railroad typical section - channel flow                             rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM    ***** Preserved *****
1                                         HEC-1 INPUT                                                  PAGE 12

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


 251             KK     RE1
 252             RS      24    FLOW
 253             RC    0.08    0.06    0.08    8256   .0012
 254             RX       0     800    2975    2990    3010    3025    5200    6000
 255             RY      10       8       2       0       0       2       8      10
                 *
                 *
                 * **************************************************************************
                 * *********************    Basin S4B     ***************************************
                 * **************************************************************************
                 * DDM    ***** Updated *****

 256             KK     S4B
 257             KM   SUB-BASIN S4B
 258             KM   6-HOUR RAINFALL, PATTERN NO. 1.54 WAS USED TO FIND TC & R FOR THIS BASIN
 259             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .985
 260             KM     L = 2.64  Kb = .054  Adj. Slope =  200.9
 261             BA   1.277
 262             LG    .270    .350   4.350    .380  23.000
 263             UC    .608    .403
 264             UA       0       3       5       8      12      20      43      75      90      96
 265             UA     100
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S4B        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S4B to CP-S4A Through Basin S4A                         rrr
                 * rrr  Mountain typical section  - natural channel flow                    rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM    ***** Preserved *****

 266             KK    RS4B
 267             RS      15    FLOW
 268             RC     .07     .06     .07    8090   .0091
 269             RX       0     400     800    1200    1600    2000    2400    2800
 270             RY       3       1      .5       0       0      .5       1       3
                 *
                 * **************************************************************************
```

```
* **********************   Basin S4A    ****************************************
* ******************************************************************************
* DDM   ***** Updated *****

KK     S4A
KM   SUB-BASIN S4A
KM   6-HOUR RAINFALL, PATTERN NO. 1.67 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .983
KM     L = 1.53  Kb = .040  Adj. Slope =   48.0
BA   1.600
LG    .340    .350   4.250    .410   7.000
UC    .692    .264
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
*
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* ++++++++++++++++++++++ Conc. Point CP-S4A     ++++++++++++++++++++++++++++++++
* +++  Combines basins S4B & S4A (Hunt Hwy)                                  +++
* +++  Hunt Hwy near intersection of aligments of Bella Vista and Vinyard    +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****
```



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


KK  CP-S4A
HC       2
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* 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
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RS4A
RS      21    FLOW
RC     .08     .08     .08    7390   .0065
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
* ******************************************************************************
* **********************   Basin S5     ****************************************
* ******************************************************************************
* DDM   ***** Updated *****

KK      S5
KM   SUB-BASIN S5
KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
KM     L =  .86  Kb = .068  Adj. Slope =  298.4
BA    .338
LG    .250    .350   4.500    .350  25.000
UC    .246    .128
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   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
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK     RS5
RS      21    FLOW
RC     .08     .08     .08    5790   .0067
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
*
*
```

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* ****************************************************************************
* ****************************************************************************
* ************************** BEGINNING OF INPUT FROM ***************************
* ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
* ****************************************************************************
* ****************************************************************************
*
* The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file SONOQRR.DAT
* and the DSS file SONOQRR.DSS as outputed from the .DAT file.  These files were
* obtained from Catherine Regester at the FCDMC on Feb. 25, 2004.
* *******Please refer to the note prior to RRW1 for full details.*******
*
*
* iiiiiiiiiiiiiiiiiiiii     Input flow *RRW2    iiiiiiiiiiiiiiiiiiiiiiiiiiii
* iii 1-3.5x5.0 CMP arch Southern Pacific Rail Road                        iii
* iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
* iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
* iii a conservative assumption and flow is not expected to reach this       iii
* iii height                                                                 iii
* iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
* DDM   ***** Preserved *****
```



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

 303          KK   *RRW2
 304          KM  FLOW FROM CULVERT BY RAILROAD
 305          BA    0.18
              * 0.18 sq miles is the attributing area to the RRW2 structure.
              * The diverted flow is 140cfs, and the entire flow at
              * the previous concentration point was 984cfs.  Thus 140cfs/984cfs=14%.
              * WHen this percentage is applied to the 1.27 sq miles as found in the output
              * from SONOQRR6.DAT, this becomes 0.18 sq miles. The hydrograph from the DSS
              * file is unrouted, so the original route was utilized to route the data.
 306          KM   FLOW FROM CULVERT BY RAILROAD
              *
 307          ZR  =QI A=RRW2             B=RRW2             C=FLOW  E=5MIN F=100YR
              *
              *
              *
              * ****************************************************************************
              * ****************************************************************************
              * ****************************** END OF INPUT FROM *****************************
              * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
              * ****************************************************************************
              * ****************************************************************************
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RRW2       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Culvert *RRW2 to CP-D5 Through Basin E2                        rrr
              * rrr  Field typical section  -   sheet flow across fields                  rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 308          KK    RRW2
 309          RS      51    FLOW
 310          RC     .08     .08     .08    7800   .0019
 311          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 312          RY       5     3.5       3       2       0       2       3       5
              *
              *
              *
              * ****************************************************************************
              * ****************************************************************************
              * ************************** BEGINNING OF INPUT FROM ***************************
              * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
              * ****************************************************************************
              * ****************************************************************************
              *
              *
              * The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file SONOQRR.DAT
              * and the DSS file SONOQRR.DSS as outputed from the .DAT file.  These files were
              * obtained from Catherine Regester at the FCDMC on Feb. 25, 2004.
```

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* *******Please refer to the note prior to RRW1 for full details.*******
*
*
*
* iiiiiiiiiiiiiiiiiiiiii     Input flow *RRW3    iiiiiiiiiiiiiiiiiiiiiiiiiiii
* iii 6-3.5x5.0 CMP arch Southern Pacific Rail Road                        iii
* iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
* iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
* iii a conservative assumption and flow is not expected to reach this       iii
* iii height                                                                 iii
* iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
* DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 313          KK   *RRW3
 314          KM  FLOW FROM CULVERT BY RAILROAD
 315          BA    1.14
              * 1.14 sq miles is the attributing area to the RRW3 structure.
              * The diverted flow is 423cfs, and the entire flow at
              * the previous concentration point was 819cfs.  Thus 423cfs/819cfs=52%.
              * WHen this percentage is applied to the 2.21 sq miles as found in the output
              * from SONOQRR6.DAT, this becomes 1.14 sq miles. The hydrograph from the DSS
              * file is unrouted, so the original route was utilized to route the data.
 316          KM   FLOW FROM CULVERT BY RAILROAD
              *
 317          ZR  =QI A=RRW3              B=RRW3              C=FLOW  E=5MIN F=100YR
              *
              *
              *
              * ****************************************************************************
              * ****************************************************************************
              * ***************************** END OF INPUT FROM ******************************
              * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
              * ****************************************************************************
              * ****************************************************************************
              *
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RRW3       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route Culvert *RRW3 to CP-D5 Through Basin E2                        rrr
              * rrr  Field typical section  -   sheet flow across fields                  rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 318          KK    RRW3
 319          RS      36    FLOW
 320          RC     .08     .08     .08    4950   .0005
 321          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 322          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.                        +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

 323          KK   CP-D5
 324          HC       5
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-D5       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-D5 to CP-D6 (middway of E2) Through Basin E2                rrr
              * rrr  Railroad typical section  -  tail water ditch flow                   rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
325          KK     RD5
326          RS      17    FLOW
327          RC     .08     .06     .08    6430   .0017
328          RX       0     800    2975    2990    3010    3025    5200    6000
329          RY      10       8       2       0       0       2       8      10
             *
             *
             * ****************************************************************************
             * **********************   Basin S6     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

330          KK      S6
331          KM   SUB-BASIN S6
332          KM   6-HOUR RAINFALL, PATTERN NO. 1.29 WAS USED TO FIND TC & R FOR THIS BASIN
333          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .989
334          KM     L = 2.29  Kb = .050  Adj. Slope =  140.0
335          BA    .819
336          LG    .310    .360   5.000    .270   5.000
337          UC    .592    .449
338          UA       0       3       5       8      12      20      43      75      90      96
339          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-S6 to CP-D6 (middway of E2) Through Basin E2                 rrr
             * rrr  Field typical section  -  Sheet flow across fields                    rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

340          KK     RS6
341          RS      35    FLOW
342          RC     .08     .08     .08    8910   .0049
343          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
344          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ****************************************************************************
             * **********************   Basin S7B    ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

345          KK     S7B
346          KM   SUB-BASIN S7B
347          KM   6-HOUR RAINFALL, PATTERN NO. 1.25 WAS USED TO FIND TC & R FOR THIS BASIN
348          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
349          KM     L =  .95  Kb = .076  Adj. Slope =  299.2
350          BA    .773
351          LG    .180    .350   4.500    .350  29.000
352          UC    .300    .108
353          UA       0       3       5       8      12      20      43      75      90      96
354          UA     100
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S7B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S7B to CP-S7A Through Basin S7A                           rrr
             * rrr  Mountain typical section                                               rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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

355          KK    RS7B
356          RS      13    FLOW
357          RC     .07     .06     .07    7714   .0106
358          RX       0     400     800    1200    1600    2000    2400    2800
359          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * ****************************************************************************
             * **********************   Basin S7A    ****************************************
```

```
* ****************************************************************************
* DDM   ***** Updated *****

KK     S7A
KM   SUB-BASIN S7A
KM   6-HOUR RAINFALL, PATTERN NO. 1.50 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .986
KM     L = 1.47  Kb = .043  Adj. Slope =   56.0
BA   1.191
LG    .340    .350   4.400    .370    .000
UC    .646    .281
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* +++++++++++++++++++++++ Conc. Point CP-S7A     +++++++++++++++++++++++++++++++
* +++  Combines basins S7B & S7A  (Hunt Hwy)                                 +++
* +++  Hunt Hwy 1.5 miles south of Empire Rd.                                +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

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

KK    RS7A
RS      24    FLOW
RC     .08     .08     .08    6900   .0059
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
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)                +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****
```



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


KK   CP-D6
HC       3
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-D6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-D6 to CP-E2 Through Basin E2                                 rrr
* rrr  Railroad typical section - tail water ditch                           rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK     RD6
RS       9    FLOW
RC     .08     .06     .08    5161   .0052
RX       0     800    2975    2990    3010    3025    5200    6000
RY      10       8       2       0       0       2       8      10
*
*
* ****************************************************************************
* **********************   Basin E5     ****************************************
* ****************************************************************************
* DDM   ***** Updated *****

KK      E5
KM   SUB-BASIN E5
KM   6-HOUR RAINFALL, PATTERN NO. 1.08 WAS USED TO FIND TC & R FOR THIS BASIN
```

```
387          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
388          KM     L =  .87  Kb = .086  Adj. Slope =   54.0
389          BA    .571
390          LG    .500     .000   3.950    .730    .000
391          UC    .617     .266
392          UA       0        3       5       8      12      20      43      75      90      96
393          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E5 to CP-E2 Through Basin E2  (Signal Rd.)                    rrr
             * rrr  Street typical section  -  along Signal Butte Rd.                      rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

394          KK     RE5
395          RS       4    FLOW
396          RC     .08     .02     .08    2150   .0065
397          RX       0    1000    2470    2488    2512    2515    2520    5000
398          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
             *
             *
             * ***************************************************************************
             * **********************   Basin E2     ****************************************
             * ***************************************************************************
             * DDM   ***** Updated *****
```



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

399          KK      E2
400          KM   SUB-BASIN E2
401          BA   7.328
402          LG    .320     .180   4.900    .360   3.000
             *
             * THIS S-GRAPH WAS CALCULATED BASED ON THE FOLLOWING PARAMETERS:
             * AGRICULTURAL S-GRAPH WAS UTILIZED
             * TIME OF CONCENTRATION=31606 [FT] OR 6.0 [MILES]
             * TIME OF CONCENTRATION SLOPE=13.7 [FT/MILE]
             * Kn=0.070
             *      *** THE MARICOPA COUNTY HYDROLOGY MANUAL HAS RECOMMENDS A Kn RANGE OF
             *      *** 0.06 [MIN], 0.10 [AVG], 0.15 [MAX] FOR THE AGRICULTURAL S-GRAPH
             * Lca=2.52 [MILES]
             * BASIN LAG TIME 2.86 [HOURS]
             *
             * *** DUE TO THE NUMBER OF ORDINATES REQUIRED FOR THE COMPLETE S-GRAPH, IT WAS
             * *** AUGMENTED AFTER THE 150TH ORDINATE, THE MAXIMUM ALLOWED IN HEC-1.
403          UI    0.00  156.87  156.87  156.87  156.87  156.87  156.87  156.87  293.68  329.43
404          UI  329.43  408.67  549.06  631.85  823.59  823.59  976.22  953.60  823.59  823.59
405          UI  1037.9 1098.11 1469.46  941.24 1255.24 1317.74 1317.74 1317.74 1317.74 1317.74
406          UI  1317.7 1317.74 1317.74 1317.74 1317.74 1168.39 1098.11 1098.11 1098.11 1098.11
407          UI  1215.0 1169.71 1239.64  929.14  823.59  823.59  823.59  884.71  938.38  986.57
408          UI  658.87  625.95  598.97  598.97  598.97  499.58  470.62  458.95  439.25  439.25
409          UI  493.17  506.82  389.22  299.49  299.49  299.49  262.99  253.41  253.41  253.41
410          UI  233.71  193.78  193.78  193.78  193.78  193.78  168.71  143.23  143.23  143.23
411          UI  143.23  143.23  143.23  143.23  110.58   89.04   89.04   89.04   89.04   89.04
412          UI   89.04   89.04   89.04   89.04   89.04   89.04   89.04   26.27   19.61   19.61
413          UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
414          UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
415          UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
416          UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
417          UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
             *
             *
             *
             * ***************************************************************************
             * **********************   Basin S8B    ****************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

418          KK     S8B
419          KM   SUB-BASIN S8B
420          KM   6-HOUR RAINFALL, PATTERN NO. 1.71 WAS USED TO FIND TC & R FOR THIS BASIN
```

```
421          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
422          KM     L = 2.07  Kb = .059  Adj. Slope =  277.2
423          BA   1.696
424          LG    .240    .350   4.500    .350  40.000
425          UC    .475    .214
426          UA       0       3       5       8      12      20      43      75      90      96
427          UA     100
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S8B           rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S8B to CP-S8A Through Basin S8A                                rrr
             * rrr  Mountain typical section                                                   rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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


428          KK    RS8B
429          RS      18    FLOW
430          RC     .07     .06     .07   11791   .0115
431          RX       0     400     800    1200    1600    2000    2400    2800
432          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * ***************************************************************************
             * **********************   Basin S8A     ************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

433          KK     S8A
434          KM   SUB-BASIN S8A
435          KM   6-HOUR RAINFALL, PATTERN NO. 1.72 WAS USED TO FIND TC & R FOR THIS BASIN
436          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
437          KM     L = 2.26  Kb = .038  Adj. Slope =   60.0
438          BA   1.740
439          LG    .350    .350   4.100    .440    .000
440          UC    .858    .437
441          UA       0       3       5       8      12      20      43      75      90      96
442          UA     100
             *
             *
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-S8A     +++++++++++++++++++++++++++++++
             * +++  Combines basins S8B & S8A                                                +++
             * +++  Hunt Hwy near Signal Butte Rd. Alignment                                 +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

443          KK  CP-S8A
444          HC       2
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * 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
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

445          KK    RS8A
446          RS      23    FLOW
447          RC     .08     .08     .08    9191    .007
448          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
449          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.                          +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```

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

 450          KK   CP-E2
 451          HC       4
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E2 to CP-E6 Through Basin E6 (field)                          rrr
              * rrr  Railroad typical section - tailwater ditch flow                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 452          KK     RE2
 453          RS      12      .08
 454          RC     .08      .06      .08     6025    .0033
 455          RX       0      800     2975     2990     3010     3025     5200     6000
 456          RY      10        8        2        0        0        2        8       10
              *
              *
              * ***************************************************************************
              * **********************   Basin E6     ****************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

 457          KK      E6
 458          KM   SUB-BASIN E6
 459          KM   6-HOUR RAINFALL, PATTERN NO. 1.49 WAS USED TO FIND TC & R FOR THIS BASIN
 460          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .986
 461          KM     L = 1.76  Kb = .075  Adj. Slope =   22.0
 462          BA   1.167
 463          LG    .480     .020   4.600     .500     .000
 464          UC   1.500     .835
 465          UA       0        3        5        8       12       20       43       75       90       96
 466          UA     100
              *
              *
              * ***************************************************************************
              * **********************   Basin E11    ****************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

 467          KK     E11
 468          KM   SUB-BASIN E11
 469          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
 470          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
 471          KM     L = 1.13  Kb = .092  Adj. Slope =   16.0
 472          BA    .338
 473          LG    .500     .000   4.800     .460     .000
 474          UC   1.313    1.024
 475          UA       0        3        5        8       12       20       43       75       90       96
 476          UA     100
              *
              *
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * ///////////////////////  Diversion *DE11   ////////////////////////////////
              * ///   1 along Meridian and Riggs - 2 Sheet flow across field             ////
              * ///   Intersection of Meridian Rd. and Santan Blvd                       ////
              * ///////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****
```



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

 477          KK   *DE11
 478          KM    DIVERSION FLOW FROM CP-E11, THROUGH BASIN E3, THEN ALONG RIGGS RD.
 479          DT   DDE11
 480          DI       0       40       80      100      120      160      180      200
 481          DQ       0       37       74       93      112      150      168      187
              *
              *
```

```
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-E11N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route Basin E11 to CP-E3 Through Basin E3                                rrr
* rrr  Channel flow                                                             rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK   RE11N
RS      15    FLOW
RC     .08     .04     .08    6950   .0031
RX       0       5      10      35      55      70      75      80
RY       7       6       5       0       0       5       6       7
*
*
* ****************************************************************************
* **********************   Basin E3     ****************************************
* ****************************************************************************
* DDM   ***** Updated *****

KK      E3
KM   SUB-BASIN E3
KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
KM     L = 1.25  Kb = .089  Adj. Slope =   18.0
BA    .430
LG    .500    .000   4.800    .460    .000
UC   1.308    .964
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
*
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////// Diversion Recover DE11   ////////////////////////////
* ///   from South East through field                                      ////
* ////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK    DE11
KM    DIVERSION FLOW FROM CP-E11
DR   DDE11
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* 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
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****
```



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


KK   RE11S
KO       5                                21
RS      40    FLOW
RC     .08     .07     .08    6600   .0033
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
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.                            +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK   CP-E3
HC       3
*
*
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////////  Diversion *DE3   ////////////////////////////////
* ///   1 west along Riggs Road - 2 North along Signal Rd.                   ///
```

```
* ///   Intersection of Signal Butte Rd and Riggs Rd.                          ///
* ////////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK    *DE3
KM    DIVERSION FLOW FROM CP-E3
DT    DDE3
DI       0      40      80     120     160     200     280     400
DQ       0       8      15      17      22      25      35      50
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   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
* DDM   ***** Preserved *****

KK    RE3W
RS      18    FLOW
RC     .08     .02     .08    5200   .0036
RX       0    1000    2470    2488    2512    2515    2520    5000
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.                                  +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****
```



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

KK   CP-E6
HC       3
*
*
* ////////////////////////////////////////////////////////////////////////////////
* ////////////////////////  Diversion *DE6   ////////////////////////////////////
* ///   1 West Along Riggs - 2 North Along Crismon Rd.                        ////
* ///  Intersection of Crismon and Riggs Rds.                                 ////
* ////////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

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

KK    RE6S
RS      13    FLOW
RC     .08     .02     .08    5200   .0035
RX       0    1000    2470    2488    2512    2515    2520    5000
RY     4.5     3.5     1.5       1      .5       0      .5     4.5
* ****************************************************************************
* **********************   Basin E9     ***************************************
* ****************************************************************************
* DDM   ***** Updated *****

KK      E9
KM   SUB-BASIN E9
KM   6-HOUR RAINFALL, PATTERN NO. 1.37 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .988
```

```
534          KM     L = 1.86  Kb = .060  Adj. Slope =   30.0
535          BA    .954
536          LG    .570     .000   4.200     .660     .000
537          UC   1.129     .715
538          UA       0        3        5        8       12       20       43       75       90       96
539          UA     100
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////// Diversion Recover DE8   ////////////////////////////
             * ///   from south along Ellsworth Rd. North of County boundary            ////
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****
```



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


540          KK     DE8
541          KM    Return flow from CP-E8
542          DR    DDE8
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-E8E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route DE8 to CP-E9 Along Ellsworth Road                              rrrr
             * rrr  Street typical section  -  Ellsworth Rd.                              rrrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

543          KK    RE8E
544          RS      13    FLOW
545          RC     .08     .02     .08    5300   .0072
546          RX       0    1000    2470    2488    2512    2515    2520    5000
547          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.                            +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

548          KK   CP-E9
549          HC       3
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////  Diversion *DE9   ////////////////////////////////////
             * ///   1 West Riggs Road to Sonoqui - 2 North along Ellsworth Road         ///
             * ///   Inttersecttion of Ellsworth and Riggs Rds.                          ///
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

550          KK    *DE9
551          KM    DIVERTED FLOW FROM CP-E9
552          DT    DDE9
553          DI       0     200     600    1000    1400    1800    2000
554          DQ       0      67      87     144     202     259     288
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * 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
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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


555          KK    RE9W
556          RS       2    FLOW
```

```
557    RC     .08    .035     .08    4000   .0045
558    RX       0     305     310   322.5   347.5     360     365     670
559    RY       8       6       5       0       0       5       6       8
       *
       *
       * ***************************************************************************
       * *********************    Basin C4     ***************************************
       * ***************************************************************************
       * DDM    ***** Updated *****

560    KK      C4
561    KM    SUB-BASIN C4
562    KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
563    KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
564    KM      L = 1.18  Kb = .048  Adj. Slope =   37.0
565    BA    .311
566    LG    .350    .350   4.200    .420    .000
567    UC    .675    .531
568    UA       0       3       5       8      12      20      43      75      90      96
569    UA     100
       *
       *
       * ***************************************************************************
       * *********************    Basin C2     ***************************************
       * ***************************************************************************
       * DDM    ***** Updated *****

570    KK      C2
571    KM    SUB-BASIN C2
572    KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
573    KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
574    KM      L = 1.21  Kb = .084  Adj. Slope =   28.0
575    BA    .322
576    LG    .470    .070   4.300    .580    .000
577    UC   1.142    .952
578    UA       0       3       5       8      12      20      43      75      90      96
579    UA     100
       *
       *
       * ***************************************************************************
       * *********************    Basin C3     ***************************************
       * ***************************************************************************
       * DDM    ***** Updated *****

580    KK      C3
581    KM    SUB-BASIN C3
582    KM    6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
583    KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
584    KM      L =  .38  Kb = .083  Adj. Slope =   10.0
585    BA    .112
586    LG    .560    .000   4.800    .460    .000
587    UC    .654    .371
```



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

588    UA       0       3       5       8      12      20      43      75      90      96
589    UA     100
       *
       *
       * //////////////////////////////////////////////////////////////////////////////
       * //////////////////////  Diversion *DC3   ////////////////////////////////////////
       * ///   1 South of landfild - 2 North of landfild to Hawes Rd.                  ///
       * ///   At east end of lanfield                                                 ///
       * //////////////////////////////////////////////////////////////////////////////
       * DDM    ***** Preserved *****

590    KK    *DC3
591    KM      FLOW FROM DIVERSION AT CP-C3
592    DT    DDC3
593    DI       0      20      40     100     140     180     200
594    DQ       0      10      20      42      47      61      68
       *
       *
       * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C3SW        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Basin C3 to CP-C2 Around Landfill in Channel                    rrr
            * rrr  Channel by landfield                                                   rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 595        KK   RC3SW
 596        RS       3    FLOW
 597        RC     .08    .045     .08    3060    .004
 598        RX       0       5      10    22.5    47.5      60      65      70
 599        RY       7       6       5       0       0       5       6       7
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * +++++++++++++++++++++++ Conc. Point *CP-C2     ++++++++++++++++++++++++++++++
            * +++  Combines basin C2, C3 & C4                                            +++
            * +++  Sonoqui Wash at Riggs Rd (south of landfield)                         +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

 600        KK  *CP-C2
 601        HC       3
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * +++++++++++++++++++++++ Conc. Point CP-C2     ++++++++++++++++++++++++++++++
            * +++  Combines basin (C2, C3, C4), E9 & CP-C1                               +++
            * +++  Sonoqui Wash at Riggs Rd (south of landfield)                         +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```



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

 602        KK   CP-C2
 603        HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DC2   ////////////////////////////////////
            * ///   1 North west along Sonoqui - 2 west along Riggs R. (by landfield)   ////
            * ///   Sonoqui Wash south of Riggs road                                    ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

 604        KK    *DC2
 605        KM    DIVERSION FLOW FROM CP-C2
 606        DT    DDC2
 607        DI       0    1500    1600    1900    2000    2500    3000    3500    4000
 608        DQ       0       1      10     220     250     420     560     700     830
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C2 to CP-C16 Through Basin C16                                rrr
            * rrr  Sonoqui wash from Riggs Rd to Hawes Rd.                                rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 609        KK     RC2
 610        KO       5                                21
 611        RS       3    FLOW
 612        RC     .07     .06     .07    1650   .0061
 613        RX    9600    9900    9980    9990   10010   10050   10150   10400
 614        RY    1387  1385.7  1386.5  1380.8  1380.3  1386.2  1384.4  1388.8
            *
            *
            * ****************************************************************************
            * **********************   Basin C16     ***************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

 615        KK     C16
 616        KM   SUB-BASIN C16
```

```
617          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
618          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
619          KM     L =  .31  Kb = .063  Adj. Slope =   32.0
620          BA    .027
621          LG    .350    .350   4.800    .290    .000
622          UC    .304    .303
623          UA       0       5      16      30      65      77      84      90      94      97
624          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-C16      ++++++++++++++++++++++++++++++
             * +++  Combines basin C16 & Conc. Point CP-C2 (Hawes and Landfild)          +++
             * +++  Sonoqui Wash at Hawes Rd.                                            +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```



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

625          KK  CP-C16
626          HC       2
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-C16        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C16 to CP-C7 Through Basin C7                                rrr
             * rrr  Sonoqui Wash from Hawes to Sossoman                                   rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

627          KK    RC16
628          RS       5    FLOW
629          RC     .08     .04     .08    5465   .0012
630          RX     500    1300    2220    2250    2340    2460    3000    3470
631          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                         ////
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

632          KK     DE3
633          KM    Return flow from CP-E3
634          DR    DDE3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   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
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

635          KK     RE3
636          RS      49    FLOW
637          RC     .08     .02     .08    2700   .0002
638          RX       0    1000    2470    2488    2512    2515    2520    5000
639          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
             *
             *
             * ****************************************************************************
             * **********************   Basin E4     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

640          KK      E4
641          KM   SUB-BASIN E4
642          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
643          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
644          KM     L = 1.23  Kb = .080  Adj. Slope =   14.0
645          BA    .371
```

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

 646          LG    .450    .040   4.650    .480   9.000
 647          UC   1.413   1.127
 648          UA       0       5      16      30      65      77      84      90      94      97
 649          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-E4     +++++++++++++++++++++++++++++++++
              * +++  Combines basin E4 & CP-E3                                              +++
              * +++  Intersection of Signal Butte Rd and Cloud Rd.                          +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

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

 652          KK    *DE4
 653          KM     DIVERSION OF FLOW AT CP-E4 OFFSITE
 654          DT  DDE4 O
 655          DI       0      30      60      90     120     180     240     300
 656          DQ       0      11      23      34      46      69      92     115
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E4        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E4 to CP-E7 Through Basin E7 (Cloud Rd.)                        rrr
              * rrr  Field typical section  -  sheet flow across field                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 657          KK     RE4
 658          KO       5                              21
 659          RS      44    FLOW
 660          RC     .08     .07     .08    6400   .0031
 661          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 662          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ***************************************************************************
              * **********************   Basin E7     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
```



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


 663          KK      E7
 664          KM   SUB-BASIN E7
 665          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
 666          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
 667          KM     L = 1.03  Kb = .073  Adj. Slope =   19.0
 668          BA    .356
 669          LG    .420    .100   4.800    .400   2.000
 670          UC   1.021    .698
 671          UA       0       5      16      30      65      77      84      90      94      97
 672          UA     100
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion Recover DE6   ////////////////////////////
              * ///   From south along Crismon Road north of Riggs                        ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****
```

```
673          KK     DE6
674          KM    Return flow from CP-E6
675          DR    DDE6
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing RE6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route DE6 to CP-E7 Along Crismon Road                                          rrr
             * rrr  Stret typical section  -  Along Riggs Rd.                                      rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

676          KK     RE6
677          RS       6    FLOW
678          RC     .08     .02     .08    1465   .0012
679          RX       0    1000    2470    2488    2512    2515    2520    5000
680          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.                                                   +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

681          KK   CP-E7
682          HC       3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E7 to CP-E10 Through Basin E10                                        rr
             * rrr  Field typical section  -  Sheet flow across fields                             rr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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

683          KK     RE7
684          RS      16    FLOW
685          RC     .08     .07     .08    5200   .0035
686          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
687          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin E10     ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

688          KK     E10
689          KM   SUB-BASIN E10
690          KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
691          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
692          KM     L = 1.02  Kb = .035  Adj. Slope =   20.0
693          BA    .509
694          LG    .660    .000   4.650    .500    .000
695          UC    .521    .268
696          UA       0       3       5       8      12      20      43      75      90      96
697          UA     100
             *
             * ///////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion Recover DE9   ////////////////////////////
             * ///   From South along Ellsworth Road north of Riggs                      ////
             * ///////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

698          KK     DE9
699          KM     DIVERSION FLOW FROM CP-E9
700          DR    DDE9
             *
```

```
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing RE9N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Diverted Flow from CP-E9 to CP-E10 Along Ellsworth Rd.                    r
* rrr  Stret typical section  -  Along Ellsworth Rd.                             rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RE9N
RS       6    FLOW
RC     .08     .02     .08    1300   .0015
RX       0    1000    2470    2488    2512    2515    2520    5000
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.                                         +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****
```



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


KK  CP-E10
HC       3
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-E10        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-E10 to CP-N2 Through Basin N2                                    rrr
* rrr  Field typical section  -  Sheet flow across fields                         rr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RE10
RS      19    FLOW
RC     .08     .07     .08    6000   .0023
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
* ****************************************************************************
* **********************   Basin N2      ************************************
* ****************************************************************************
*
* DDM   ***** Updated *****

KK      N2
KM   SUB-BASIN N2
KM   6-HOUR RAINFALL, PATTERN NO. 1.04 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
KM     L = 1.16  Kb = .026  Adj. Slope =   14.0
BA    .540
LG    .660    .030   4.800    .440    .000
UC    .567    .315
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*
*
*
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////////  Diversion Recover DC3   ////////////////////////////
* ///   From south east, North side of landfield                            ////
* ////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK     DC3
KM     DIVERSION FLOW FROM CP-C3
DR    DDC3
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrrrr   Routing RC3NW       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Diversion Flow from CP-C3 to CP-N2 Through Basin N2                       rrr
* rrr  Field typical section  -  Sheet flow across fields                         rr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
                * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                    PAGE 34

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


 726            KK   RC3NW
 727            KO       5                              21
 728            RS      56    FLOW
 729            RC   0.080   0.070   0.080    5350   .0024
 730            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 731            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                                +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****

 732            KK   CP-N2
 733            HC       3
                *
                *
                * ////////////////////////////////////////////////////////////////////////////
                * ///////////////////////  Diversion *DN2   ////////////////////////////////////
                * ///   1 north west to Sonoqui - 2 north along Hawes Rd.                  ////
                * ///   Hawes Rd. south of Chandler Heights Rd.                            ////
                * ////////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****

 734            KK    *DN2
 735            KM     DIVERSION FLOW FROM BASIN N2
 736            DT    DDN2
 737            DI       0     140     280     420     700     980    1120    1260    1400
 738            DQ       0     140     162     171     180     197     206     207     208
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing RN2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-N2 to CP-C7 Through Basin C7 & Sonoqui Wash                  rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 739            KK    RN2S
 740            RS       3    FLOW
 741            RC     .08    .055     .08    4850   .0039
 742            RX     500    1300    2220    2250    2340    2460    3000    3470
 743            RY    1376  1374.5  1377.2  1368.8  1366.2    1378  1379.4  1376.8
                *
                *
                * ////////////////////////////////////////////////////////////////////////////
                * ///////////////////////  Diversion Recover DN2   ////////////////////////////
                * ///   From south along Hawes                                             ////
                * ////////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                    PAGE 35

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


 744            KK     DN2
 745            KM     DIVERSION FLOW FROM CP-N2
 746            DR    DDN2
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-N2N       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin N2 to CP-D3 Through Basin N2 (Hawes Rd.)                  rrr
                * rrr  Street typical section  -  along Hawes Rd.                            rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 747            KK    RN2N
 748            RS      11    FLOW
```

```
749          RC     .08     .02     .08    2000   .0013
750          RX       0    1000    2470    2488    2512    2515    2520    5000
751          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
             *
             *
             * ////////////////////////////////////////////////////////////////////////
             * ////////////////////// Diversion *DD3   ////////////////////////////////
             * ///   1 West to Sonoqui - 2 North along Hawes Rd.                    ////
             * ///   Intersection of Chandler Heights Rd. and Hawes Rd               ////
             * ////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

752          KK    *DD3
753          KM     DIVERSION FLOW FROM CP-D3
754          DT    DDD3
755          DI       0      50     150     250     350     400     500
756          DQ       0      17      33      38      39      41      51
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-D3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-D3 to CP-C7 Through Basin C7                              rrr
             * rrr  Field typical section  -  Sheet flow fields/development            rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

757          KK    RD3W
758          RS      17    FLOW
759          RC     .09     .09     .09    3550   .0046
760          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
761          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin C7     ****************************************
             * ***************************************************************************
             * DDM   ***** Updated *****
```



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

762          KK      C7
763          KM   SUB-BASIN C7
764          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
765          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
766          KM     L = 1.16  Kb = .059  Adj. Slope =   17.0
767          BA    .484
768          LG    .370    .200   4.650    .380   5.000
769          UC   1.038    .656
770          UA       0       5      16      30      65      77      84      90      94      97
771          UA     100
             *
             *
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++ Conc. Point CP-C7     ++++++++++++++++++++++++++++++
             * +++  Combines basin N2, C7 & Conc. Point CP-N3, CP-D3, CP-C16            +++
             * +++  Sonoqui 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                 +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

772          KK   CP-C7
773          HC       4
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-C7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C7 to CP-C7A Through Basin C7A                            rr
             * rrr  Sonoqui Wash routing                                              rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

774          KK     RC7
```

```
775          RS       1    FLOW
776          RC     .08   0.045     .08    2250   .0027
777          RX       0     320     360     400     420     510     600    1060
778          RY  1361.7  1361.2  1357.2  1349.5    1350  1356.5    1360  1362.2
             *
             *
             * ****************************************************************************
             * **********************   Basin N1     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

779          KK      N1
780          KM   SUB-BASIN N1
781          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
782          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
783          KM     L = 1.24  Kb = .078  Adj. Slope =   15.0
784          BA    .391
785          LG    .440    .070   4.800    .420   1.000
786          UC   1.396   1.087
787          UA       0       3       5       8      12      20      43      75      90      96
```



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

788          UA     100
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion Recover DD3   ////////////////////////////
             * ///   From South along Hawes Rd.                                          ///
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

789          KK     DD3
790          KM     DIVERSION FLOW FROM CP-D3
791          DR    DDD3
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing RD3N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Diversion Flow from CP-D3 to CP-N1 along Hawes Rd.
             * rrr  Street typical section  -  along Hawes Rd.
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

792          KK    RD3N
793          RS      28    FLOW
794          RC     .08     .02     .08    3025   .0008
795          RX       0    1000    2470    2488    2512    2515    2520    5000
796          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.                              +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

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

799          KK    *DN1
800          KM     DIVERSION OFFSITE
801          DT  DDN1 O
802          DI       0     120     240     360     480     600
803          DQ       0       3       6       8      11      14
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
* rrrrrrrrrrrrrrrrrrrrr   Routing R-N1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-N1 to CP-N3 Through Basin N3                                rrr
* rrr  Field Typical section  -  Sheet flow across field                    rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****
```



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

 804          KK     RN1
 805          RS      33    FLOW
 806          RC     .08     .08     .08    5200   .0029
 807          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 808          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ****************************************************************************
              * **********************   Basin N3     ****************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

 809          KK      N3
 810          KM   SUB-BASIN N3
 811          KM   6-HOUR RAINFALL, PATTERN NO. 1.16 WAS USED TO FIND TC & R FOR THIS BASIN
 812          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .991
 813          KM     L = 1.09  Kb = .067  Adj. Slope =   15.0
 814          BA    .654
 815          LG    .400    .110   4.650    .440   9.000
 816          UC   1.138    .583
 817          UA       0       5      16      30      65      77      84      90      94      97
 818          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-N3     +++++++++++++++++++++++++++++++
              * +++  Combines basins N1 and N3                                            +++
              * +++  Sossaman Rd. south of Ocotollo Rd.                                   +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

 819          KK   CP-N3
 820          HC       2
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion *DN3   ////////////////////////////////////
              * ///   1 South to Sonoqui - 2 West to Sonoqui                              ////
              * ///   Sossaman north of Chandler Heights                                  ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

 821          KK    *DN3
 822          KM     DIVERSION FLOW FROM CP-N3
 823          DT    DDN3
 824          DI       0      80     240     400     640     800
 825          DQ       0      77     232     387     618     773
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-N3S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-N3 to CP-C7A Through Basin N3 (Sossaman Rd.)                  rr
              * rrr  Street typical section  -  along Sossaman Rd.                         rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
```



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

 826          KK    RN3S
 827          KO       5                                21
 828          RS      12    FLOW
 829          RC     .08     .02     .08    1600   .0031
 830          RX       0    1000    2470    2488    2512    2515    2520    5000
```

```
831          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
             *
             *
             * ****************************************************************************
             * ***********************   Basin C7A     ***************************************
             * ****************************************************************************
             * DDM   ***** Inserted *****

832          KK     C7A
833          KM   SUB-BASIN C7A
834          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
835          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
836          KM     L = 1.20  Kb = .072  Adj. Slope =   20.0
837          BA    .219
838          LG    .370    .130   4.800    .410  16.000
839          UC   1.079   1.107
840          UA       0       5      16      30      65      77      84      90      94      97
841          UA     100
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++ Conc. Point CP-C7A     ++++++++++++++++++++++++++++++
             * +++  Combines basin C7A & Conc. Point CP-N3, CP-C7                        +++
             * +++  Sonoqui Wash At Sossaman Rd.                                          +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

842          KK  CP-C7A
843          HC       3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-C7A        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C7A to CP-D2 Through Basin C10                              rr
             * rrr  Sonoqui Wash routing                                                rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

844          KK    RC7A
845          RS       3    FLOW
846          RC     .08   0.045     .08    3200   .0006
847          RX       0     320     360     400     420     510     600    1060
848          RY  1361.7  1361.2  1357.2  1349.5    1350  1356.5    1360  1362.2
             *
             * ****************************************************************************
             * ***********************   Basin C8     ***************************************
             * ****************************************************************************
             * DDM   ***** Updated *****
```



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

849          KK      C8
850          KM   SUB-BASIN C8
851          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
852          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
853          KM     L =  .87  Kb = .053  Adj. Slope =   22.0
854          BA    .152
855          LG    .300    .250   4.400    .390   5.000
856          UC    .671    .622
857          UA       0       5      16      30      65      77      84      90      94      97
858          UA     100
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion *DC8   ////////////////////////////////
             * ///   1 North west to Sonoqui - 2 West to Power Rd.                      ////
             * ///   At intersection of Sossoman and Chandler Heights                    ////
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

859          KK    *DC8
860          KM     DIVERSION FLOW FROM CP-C8
861          DT    DDC8
862          DI       0      40     160     240     320     400
```

```
863          DQ       0      20      80     119     159     199
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-C8N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-C8 to CP-D2 Through Basin C10 & Sonoqui Wash                  rrr
             * rrr  Sonoqui Wash                                                           rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM    ***** Preserved *****

864          KK    RC8N
865          RS       8    FLOW
866          RC     .08    .045     .08    4100   .0021
867          RX      20     320     360     400     420     445     530     950
868          RY  1361.7  1361.2  1357.2  1349.5    1350  1357.2  1360.8    1362
             *
             *
             * ////////////////////////////////////////////////////////////////////////////////
             * //////////////////////  Diversion Recover DN3   ///////////////////////////////
             * ///   Sheet flow from east                                                  ////
             * ////////////////////////////////////////////////////////////////////////////////
             * DDM    ***** Preserved *****

869          KK     DN3
870          KM     DIVERSION FLOW FROM CP-N3
871          DR    DDN3
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing RN3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Diversion Flow from CP-N3 to CP-D2 Through Basin C10                    rrr
             * rrr  Field typical section  -  sheet flow along development                 rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM    ***** Preserved *****
```



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


872          KK    RN3W
873          RS      16    FLOW
874          RC    0.09    0.08    0.09    2850   .0025
875          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
876          RY       5     3.5       3       2       0       2       3       5
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++ Conc. Point CP-D2      +++++++++++++++++++++++++++++++
             * +++  Combines Conc. Points CP-C7, CP-C8 & Diversion Flow RN3W              +++
             * +++  Sonoqui 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                                         +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM    ***** Preserved *****

877          KK   CP-D2
878          HC       3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-D2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-D2 to CP-C10 Through Sonoqui Wash                              rr
             * rrr  Sonoqui Wash east of Power Rd.                                          rr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM    ***** Preserved *****

879          KK     RD2
880          RS       6    FLOW
881          RC     .08     .06     .08    3475   .0035
882          RX     630    1000    1390    1400    1450    1460    1700    2035
883          RY    1354  1352.1    1352    1349  1348.2    1354  1354.4    1356
             *
             *
             * ********************************************************************************
             * *********************   Basin C10     ***************************************
             * ********************************************************************************
             * DDM    ***** Updated *****
```

```
1252        KK  CP-C12
1253        HC       2
            *
            *
            *
            * ////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion *DC12   ////////////////////////////////
            * ///   1 North west to Sonoqui - 2 West to Higley                      ////
            * ///   Brooks Farm Rd. Between Recker and Higley Rds.                  ////
            * ////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1254        KK   *DC12
1255        KM    DIVERSION FLOW FROM CP-C12
1256        DT   DDC12
1257        DI       0      80     200     280     360     400
1258        DQ       0      27      68      95     122     135
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C12N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C12 to CP-N6 Through Basin C15                            rrr
            * rrr  Field typical section  - Sheet flow cross fields                   rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1259        KK   RC12N
1260        KO       5                              21
1261        RS      45    FLOW
1262        RC     .08     .08     .08    6475   .0029
1263        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1264        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ****************************************************************************
            * **********************   Basin W9     ************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1265        KK      W9
1266        KM   SUB-BASIN W9
1267        KM   6-HOUR RAINFALL, PATTERN NO. 1.02 WAS USED TO FIND TC & R FOR THIS BASIN
1268        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1269        KM     L = 1.49  Kb = .038  Adj. Slope =   45.0
1270        BA    .516
1271        LG    .580    .050   3.950    .680   1.000
1272        UC    .567    .395
1273        UA       0       3       5       8      12      20      43      75      90      96
1274        UA     100
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * RRrrrrrrrrrrrrrrrrrrrrr   Routing R-W9        rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route W9 to CP-W11 Through basin W11                               rrr
            * rrr  Field typical section - sheet flow across field                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

1275        KK     RW9
1276        RS       9    FLOW
1277        RC     .08     .07     .08    3100   .0082
1278        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1279        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ****************************************************************************
            * **********************   Basin W11    ************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1280        KK     W11
```

```
1281          KM   SUB-BASIN W11
1282          KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
1283          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1284          KM     L = 1.23  Kb = .055  Adj. Slope =   23.0
1285          BA    .510
1286          LG    .600    .000   3.950    .730    .000
1287          UC    .842    .529
1288          UA       0       3       5       8      12      20      43      75      90      96
1289          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-W11     +++++++++++++++++++++++++++++++
              * +++  Combines Basins W9 & W11                                            +++
              * +++  Cloud Rd. Between Power and Recker Rds.                              +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1290          KK  CP-W11
1291          HC       2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W11 to CP-W12 through basin W12                              rrr
              * rrr  Field typical section - sheet flow across field                       rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1292          KK    RW11
1293          RS       9    FLOW
1294          RC     .08     .07     .08    2925   .0068
1295          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1296          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ***************************************************************************
              * **********************   Basin W12     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
```



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


1297          KK     W12
1298          KM   SUB-BASIN W12
1299          KM   6-HOUR RAINFALL, PATTERN NO. 1.03 WAS USED TO FIND TC & R FOR THIS BASIN
1300          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1301          KM     L = 1.49  Kb = .024  Adj. Slope =   17.0
1302          BA    .527
1303          LG    .700    .000   4.500    .550    .000
1304          UC    .571    .394
1305          UA       0       3       5       8      12      20      43      75      90      96
1306          UA     100
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * ///////////////////////  Diversion Recover DW8   ////////////////////////////
              * ///  From east                                                          ////
              * ///////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1307          KK     DW8
1308          KO                                    21
1309          KM    DIVERSION FLOW FROM CP-W8
1310          DR    DDW8
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing RW8S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W8 to CP-W12 along Chandler Heights              rrr
              * rrr Chandler Heights Channel                                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
```

```
1311        KK    RW8S
1312        KO       5                              21
1313        RS       7    FLOW
1314        RC     .08    .045     .08    5175    .003
1315        RX       0      50     100     130     145     175     225     275
1316        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.                  +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1317        KK  CP-W12
1318        HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion *DW12   ////////////////////////////////
            * ///   1 North west to C14 - 2 west to W18 (Chandler Heights Rd.)        ////
            * ///   Chandler Heights Channel West of Recker Rd.                       ////
            * ////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```



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

1319        KK   *DW12
1320        KM    DIVERSION FLOW FROM CP-W12
1321        DT   DDW12
1322        DI       0     200     400     600     680     700     800    1000
1323        DQ       0     200     400     600     680     680     680     680
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RW12N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Flow from CP-W12 to CP-C14 through basin C14                          rrr
            * rrr Field typical section  -  sheet flow across fields                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1324        KK   RW12N
1325        RS      34    FLOW
1326        RC     .08     .08     .08    7300   .0024
1327        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1328        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ***************************************************************************
            * **********************   Basin W18     ************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

1329        KK     W18
1330        KM   SUB-BASIN W18
1331        KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1332        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1333        KM     L =  .74  Kb = .044  Adj. Slope =   28.0
1334        BA    .254
1335        LG    .700    .000   4.500    .550    .000
1336        UC    .429    .248
1337        UA       0       3       5       8      12      20      43      75      90      96
1338        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion Recover DW12   ////////////////////////
            * ///   From East (CP-W12)                                                ////
            * ////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```

```
1339          KK    DW12
1340          KM    DIVERSION FLOW FROM CP-W12
1341          DR   DDW12
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing RW12S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W12 to CP-C14                                                        rrr
              * rrr Chandler Height channel                                                                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                          PAGE 62

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


1342          KK   RW12S
1343          KO       5                                21
1344          RS       4    FLOW
1345          RC     .08    .045     .08    2625   .0039
1346          RX       0      50     100     125     145     170     220     270
1347          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.                                                     +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1348          KK  CP-W18
1349          HC       2
              *
              *
              * ////////////////////////////////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion *DW18   ////////////////////////////////////////////////////
              * ///   1 North west to C14 - 2 west to W17 (Chandler Heights Rd.)                                ////
              * ///   Chandler Heights Channel east of Higley Rd.                                               ////
              * ////////////////////////////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1350          KK   *DW18
1351          KM    DIVERSION FLOW FROM CP-W18
1352          DT   DDW18
1353          DI       0     300     360     400     600     800    1000
1354          DQ       0     300     360     360     360     360     360
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing RW18N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Flow from CP-W18 to CP-C14                                                                   rrr
              * rrr Field typical section  -  sheet flow across field                                            rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1355          KK   RW18N
1356          RS      35    FLOW
1357          RC     .08     .07     .08    5075   .0015
1358          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1359          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ***************************************************************************
              * **********************   Basin W10     ************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                          PAGE 63

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


1360          KK     W10
1361          KM   SUB-BASIN W10
1362          KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
```

```
1363          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1364          KM     L = 1.14  Kb = .071  Adj. Slope =   62.0
1365          BA    .513
1366          LG    .430    .090   3.950    .650   2.000
1367          UC    .658    .378
1368          UA       0       3       5       8      12      20      43      75      90      96
1369          UA     100
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * 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
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1370          KK    RW10
1371          RS      17    FLOW
1372          RC     .08     .07     .08    4800   .0069
1373          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1374          RY       5     3.5       3       2       0       2       3       5
              *
              *
              *
              * ****************************************************************************
              * **********************   Basin W16     ***************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

1375          KK     W16
1376          KM   SUB-BASIN W16
1377          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1378          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1379          KM     L =  .74  Kb = .026  Adj. Slope =   30.0
1380          BA    .245
1381          LG    .700    .000   3.950    .730    .000
1382          UC    .292    .165
1383          UA       0       3       5       8      12      20      43      75      90      96
1384          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++ Conc. Point CP-W16     ++++++++++++++++++++++++++++++++
              * +++  Combines Basins W16 , W10                                            +++
              * +++  Cloud Rd. east of Higley Rd.                                          +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****
```



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

1385          KK  CP-W16
1386          HC       2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * 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
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1387          KK   RW16N
1388          KO       5                              21
1389          RS      30    FLOW
1390          RC     .08     .07     .08    3750   .0053
1391          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1392          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ****************************************************************************
              * **********************   Basin W17     ***************************************
              * ****************************************************************************
              * DDM   ***** Updated *****
```

```
1393          KK     W17
1394          KM   SUB-BASIN W17
1395          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1396          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1397          KM     L =  .74  Kb = .026  Adj. Slope =   29.0
1398          BA    .256
1399          LG    .700    .000   4.550    .530    .000
1400          UC    .292    .161
1401          UA       0       3       5       8      12      20      43      75      90      96
1402          UA     100
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion Recover DW18   ////////////////////////////
              * ///  From east (CP-W18)                                                  ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1403          KK    DW18
1404          KM    DIVERSION FLOW FROM CP-W18
1405          DR   DDW18
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RW18S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-W16 to CP-W17  along Chandler Heights           rrr
              * rrr Chandler Heights channel flow                                          rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
```



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

1406          KK   RW18S
1407          KO       5                              21
1408          RS       4    FLOW
1409          RC     .08    .045     .08    2725   .0027
1410          RX       0      50     100   107.5   127.5     135     185     235
1411          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                                        +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1412          KK  CP-W17
1413          HC       3
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion *DW17   ////////////////////////////////////
              * ///   1 North along Higley to C14 - 2 West Out of Watershed               ////
              * ///   Higley Rd between Chandler Heights and Brooks Farm Rds.             ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1414          KK   *DW17
1415          KM    DIVERSION FLOW FROM CP-W17
1416          DT  DDW17O
1417          DI       0      17     100     200     400     600     800    1000
1418          DQ       0       0      83     183     383     583     783     983
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * 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
              * DDM   ***** Preserved *****
```

```
1419          KK    RW17
1420          RS      94    FLOW
1421          RC     .08     .02     .08    2700   .0001
1422          RX       0    1000    2470    2488    2512    2515    2520    5000
1423          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              *
              * ***************************************************************************
              * **********************   Basin C14     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE 66

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


1424          KK     C14
1425          KM   SUB-BASIN C14
1426          KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
1427          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1428          KM     L = 1.38  Kb = .044  Adj. Slope =   11.0
1429          BA    .512
1430          LG    .550    .060   4.800    .440   4.000
1431          UC   1.112    .789
1432          UA       0       5      16      30      65      77      84      90      94      97
1433          UA     100
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion Recover DC12   ////////////////////////////
              * ///   From east                                                           ////
              * ///////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1434          KK    DC12
1435          KM    DIVERSION FLOW FROM CP-C12
1436          DR   DDC12
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RC12W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr Diversion Flow from CP-C12 to CP-C14                                     rrr
              * rrr Street typical section  -                                                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1437          KK   RC12W
1438          RS      30    FLOW
1439          RC     .08     .02     .08    5300   .0029
1440          RX       0    1000    2470    2488    2512    2515    2520    5000
1441          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.                                          +++
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1442          KK  CP-C14
1443          HC       5
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion *DC14   ////////////////////////////////
              * ///   1 North along Higley - 2 Off-site west                              ///
              * ///   Higley Rd. north of Brooks Farm Rd.                                 ///
              * ///////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 67

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

```
884          KK     C10
885          KM   SUB-BASIN C10
886          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
887          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
888          KM     L = 1.40  Kb = .067  Adj. Slope =   15.0
889          BA    .501
890          LG    .380    .120   4.600    .470  15.000
891          UC   1.354   1.005
892          UA       0       5      16      30      65      77      84      90      94      97
893          UA     100
             *
             *
             * ****************************************************************************
             * **********************   Basin N4     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE 42

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


894          KK      N4
895          KM   SUB-BASIN N4
896          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
897          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
898          KM     L = 1.12  Kb = .091  Adj. Slope =   19.0
899          BA    .277
900          LG    .490    .020   3.380   1.060    .000
901          UC   1.487   1.309
902          UA       0       3       5       8      12      20      43      75      90      96
903          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++ Conc. Point CP-C10     ++++++++++++++++++++++++++++++
             * +++  Combines Basins C10, N4 &Conc. Points CP-D2                          +++
             * +++  Sonoqui 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                                        +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

904          KK  CP-C10
905          HC       3
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////// Diversion *DC10   ////////////////////////////////////
             * ///   1 No Flow - 2 Sonoqui 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                                                   ///
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

906          KK   *DC10
907          KM    STORE HYDROGRAPH FOR LATER USE
908          DT   DDC10
909          DI       0     500    1000    2000    3000    4000
910          DQ       0     500    1000    2000    3000    4000
             *
             *
             * ****************************************************************************
             * **********************   Basin C5     ****************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

911          KK      C5
912          KM   SUB-BASIN C5
913          KM   6-HOUR RAINFALL, PATTERN NO. 1.15 WAS USED TO FIND TC & R FOR THIS BASIN
914          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
915          KM     L = 1.14  Kb = .044  Adj. Slope =   82.0
```

```
 916          BA    .646
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 917          LG    .350    .350   4.200    .420    .000
 918          UC    .429    .206
 919          UA       0       3       5       8      12      20      43      75      90      96
 920          UA     100
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion Recover DC2  ////////////////////////////
              * ///   From east along Riggs Rd.
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

 921          KK     DC2
 922          KM    Return flow from CP-C2
 923          DR    DDC2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RC2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route DC2 to CP-C5 Along Riggs Road                                     rrr
              * rrr  Street typical section  -  Along Riggs Road
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 924          KK    RC2S
 925          RS      29    FLOW
 926          RC     .08     .02     .08    1800   .0001
 927          RX       0    1000    2470    2488    2512    2515    2520    5000
 928          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.                                            +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

 929          KK   CP-C5
 930          HC       2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C5 to CP-C6 Through Basin C6                                    rrr
              * rrr  Field typical section - sheet flow across natural desert                rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 931          KK     RC5
 932          KO       5                              21
 933          RS      69    FLOW
 934          RC    0.07    0.06    0.07    5560   .0025
 935          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 936          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ***************************************************************************
              * *********************   Basin S13     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
```



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

 937          KK     S13
 938          KM   SUB-BASIN S13
 939          KM   6-HOUR RAINFALL, PATTERN NO. 1.84 WAS USED TO FIND TC & R FOR THIS BASIN
 940          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .980
```

```
941          KM     L = 2.64  Kb = .054  Adj. Slope =  223.6
942          BA   2.109
943          LG    .250    .350   4.000    .450  23.000
944          UC    .629    .314
945          UA       0       3       5       8      12      20      43      75      90      96
946          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S13        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S13 to CP-W1 Through Basin W1                                   rrr
             * rrr  Field typical section  -  sheet flow along fields                           rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

947          KK    RS13
948          RS      11    FLOW
949          RC     .07     .07     .07    5600   .0091
950          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
951          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ******************************************************************************
             * **********************   Basin W1     ****************************************
             * ******************************************************************************
             * DDM   ***** Updated *****

952          KK      W1
953          KM   SUB-BASIN W1
954          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
955          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
956          KM     L = 1.03  Kb = .049  Adj. Slope =   63.0
957          BA    .280
958          LG    .350    .350   4.000    .450    .000
959          UC    .471    .339
960          UA       0       3       5       8      12      20      43      75      90      96
961          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point  CP-W1     +++++++++++++++++++++++++++++++++
             * +++  Combines basin W1, S13                                                    +++
             * +++  Riggs Rd. east of Sossaman                                                +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```



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


962          KK   CP-W1
963          HC       2
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion *DW1     ////////////////////////////////
             * ///   1 north to CP-6 - 2 West along Riggs Rd. to CP-W2                   ///
             * ///   Riggs Rd. east of Sossaman Rd.                                       ///
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

964          KK    *DW1
965          KM     DIVERSION FLOW FROM CP-W1
966          DT    DDW1
967          DI       0     100     200     300     400     600     800    1000    1400
968          DQ       0      50     100     150     200     300     400     500     700
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-W1 to CP-C6 Through Basin W3                                       rrr
             * rrr  Field typical section  -  Sheet flow across fields                          rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```

```
 969          KK     RW1
 970          RS      12    FLOW
 971          RC     .08     .07     .08    3375   .0049
 972          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 973          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ***************************************************************************
              * **********************   Basin S14     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

 974          KK     S14
 975          KM   SUB-BASIN S14
 976          KM   6-HOUR RAINFALL, PATTERN NO. 1.68 WAS USED TO FIND TC & R FOR THIS BASIN
 977          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .983
 978          KM     L = 2.02  Kb = .038  Adj. Slope =   81.0
 979          BA   1.608
 980          LG    .350    .350   4.150    .430   1.000
 981          UC    .671    .318
 982          UA       0       3       5       8      12      20      43      75      90      96
 983          UA     100
              *
              *
              * ***************************************************************************
              * **********************   Basin S15     ***************************************
              * ***************************************************************************
              * DDM   ***** Updated *****
```



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

 984          KK     S15
 985          KM   SUB-BASIN S15
 986          KM   6-HOUR RAINFALL, PATTERN NO. 1.79 WAS USED TO FIND TC & R FOR THIS BASIN
 987          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .981
 988          KM     L = 2.89  Kb = .061  Adj. Slope =  191.0
 989          BA   1.950
 990          LG    .220    .350   4.550    .340  44.000
 991          UC    .692    .393
 992          UA       0       3       5       8      12      20      43      75      90      96
 993          UA     100
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   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
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 994          KK    RS15
 995          RS      16    FLOW
 996          RC    0.08    0.08    0.08   10135   .0150
 997          RX       0     400     800    1200    1600    2000    2400    2800
 998          RY       3       1      .5       0       0      .5       1       3
              *
              *
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-S14     +++++++++++++++++++++++++++++++
              * +++  Combines Basins S15 & S14                                            +++
              * +++  Empire road between Power and Sossan Rds.                            +++
              * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

 999          KK  CP-S14
1000          HC       2
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * ///////////////////////  Diversion *DS14A   ////////////////////////////////
              * ///   1 East channel - 2 West channel out of watershed                  ///
              * ///   at the upstream end of triangular configured channels              ///
              * ///////////////////////////////////////////////////////////////////////////
```

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

1001            KK  *DS14A
1002            KM     DIVERSION FLOW FROM CP-S14
1003            DT  DDS14O
1004            DI       0     100     200     300     400     600     800    1000    1400
1005            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.                 ///
                * ////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 47

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


1006            KK  *DS14B
1007            KM     DIVERSION FLOW FROM CP-S14
1008            DT  DDS14B
1009            DI       0     225     300     375     450     525     600     750
1010            DQ       0     .01      47      94     141     188     234     328
                *
                *
                * ////////////////////////////////////////////////////////////////////////
                * ////////////////////// Diversion *DS14C  ////////////////////////////////
                * ///   1 Basin W2 - 2 basin W5                                         ////
                * ///   Hunt Hwy between Power and Sossaman Rds.                        ////
                * ////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****

1011            KK  *DS14C
1012            KM     DIVERSION FLOW FROM CP-S14
1013            DT  DDS14C
1014            DI       0     225     253     282     309     338     366     422
1015            DQ       0     .01      19      38      56      75      94     131
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrr   Routing R-S14E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin S14 to CP-W2 Through Basin W2                            rrr
                * rrr  Field typical section  -  sheetflow along road                       rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1016            KK   RS14E
1017            RS      11    FLOW
1018            RC     .07     .02     .07    5250   .0112
1019            RX       0    1000    2470    2488    2512    2515    2520    5000
1020            RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                *
                *
                * ************************************************************************
                * **********************   Basin W2     ***************************************
                * ************************************************************************
                * DDM   ***** Updated *****

1021            KK      W2
1022            KM   SUB-BASIN W2
1023            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1024            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1025            KM     L = 1.09  Kb = .050  Adj. Slope =   56.0
1026            BA    .253
1027            LG    .350    .350   4.100    .440    .000
1028            UC    .533    .432
1029            UA       0       3       5       8      12      20      43      75      90      96
1030            UA     100
                *
                *
                * ////////////////////////////////////////////////////////////////////////
                * ////////////////////// Diversion Recover DW1     ////////////////////////
                * ///   Flow from CP-W1 along Riggs                                     ////
```

```
                * ////////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 48

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


1031            KK     DW1
1032            KM     DIVERSION FLOW FROM CP-W1
1033            DR    DDW1
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-W1W         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin diverted flow from CP-W1 to CP-W2 Through Basin W2        rrr
                * rrr  Field typical section  -  sheetflow along Riggs road                  rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1034            KK    RW1W
1035            RS       8    FLOW
1036            RC    0.08    0.02    0.08    1100  0.0005
1037            RX       0    1000    2470    2488    2512    2515    2520    5000
1038            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.                                            +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****

1039            KK   CP-W2
1040            HC       3
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-W2         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-W2 to CP-C6 Through Basin W3                                 rrr
                * rrr  Street typical section  -  Sheet flow along Sossaman Rd.              rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1041            KK     RW2
1042            RS       6    FLOW
1043            RC    0.08    0.02    0.08    2600   .0062
1044            RX       0    1000    2470    2488    2512    2515    2520    5000
1045            RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                *
                *
                * ****************************************************************************
                * **********************   Basin W3     ****************************************
                * ****************************************************************************
                * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 49

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


1046            KK      W3
1047            KM   SUB-BASIN W3
1048            KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1049            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1050            KM     L =  .53  Kb = .058  Adj. Slope =   27.0
1051            BA    .061
1052            LG    .350    .350   4.800    .290    .000
1053            UC    .454    .457
1054            UA       0       3       5       8      12      20      43      75      90      96
1055            UA     100
                *
                *
                * ****************************************************************************
                * **********************   Basin C6     ****************************************
                * ****************************************************************************
```

```
            * DDM   ***** Updated *****

1056        KK      C6
1057        KM   SUB-BASIN C6
1058        KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1059        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
1060        KM     L = 1.16  Kb = .049  Adj. Slope =   12.0
1061        BA    .301
1062        LG    .350    .350   4.700    .300    .000
1063        UC   1.104    .922
1064        UA       0       3       5       8      12      20      43      75      90      96
1065        UA     100
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * +++++++++++++++++++++ Conc. Point CP-C6     +++++++++++++++++++++++++++++++++
            * +++  Combines basin W3, C6 & Conc. Points CP-W1, CP- W2 & CP-C5            +++
            * +++  At intersection of Sossaman and cloud Rds.                           +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1066        KK   CP-C6
1067        HC       5
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion *DC6   ////////////////////////////////////
            * ///   1 Cloud Rd. Channel - 2 Overflow N-W to Power Rd.                  ////
            * ///   At intersection of Cloud Rd and Sossaman Rd                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1068        KK    *DC6
1069        KM     DIVERSION FLOW FROM CP-C6
1070        DT    DDC6
1071        DI       0     450     560     640     720     800    1000
1072        DQ       0      .1      80     160     240     320     520
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C6S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C6 to CP-W6 Along Cloud Rd. Channel                          rrr
            * rrr  Channel flow                                                          rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

1073        KK    RC6S
1074        KO       5                              21
1075        RS       6    FLOW
1076        RC     .08    .035     .08    5200   .0024
1077        RX       0       5      10    22.5    32.5      45      50      55
1078        RY       7       6       5       0       0       5       6       7
            *
            *
            * ***************************************************************************
            * **********************   Basin W5     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

1079        KK      W5
1080        KM   SUB-BASIN W5
1081        KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1082        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
1083        KM     L = 1.35  Kb = .053  Adj. Slope =   47.0
1084        BA    .489
1085        LG    .430    .140   4.350    .500   3.000
1086        UC    .671    .454
1087        UA       0       5      16      30      65      77      84      90      94      97
1088        UA     100
            *
            *
```

```
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DS14C  ////////////////////////////
            * ///   Flow fron south of Hunt hwy                                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1089        KK   DS14C
1090        KM     DIVERSION FLOW FROM CP-S14
1091        DR  DDS14C
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Conc. Pt. CP-S14 to CP-W5 Through Basin W5                        rrr
            * rrr  Field typical section  -  Sheet flow along fields                       rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1092        KK   RS14W
1093        KO       5                              21
1094        RS      32    FLOW
1095        RC     .07     .07     .07    6625   .0092
1096        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1097        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * +++++++++++++++++++++++ Conc. Point CP-W5     ++++++++++++++++++++++++++++++++
            * +++  Combines Basins W5 & S14                                              +++
            * +++  Riggs Rd. Near Power Rd.                                               +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```



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

1098        KK   CP-W5
1099        HC       2
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-W5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-W5 to CP-W6 Through Basin W6 (Power Rd.)                       rrr
            * rrr  Street typical section                                                  rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1100        KK     RW5
1101        RS       6    FLOW
1102        RC     .08     .02     .08    2725   .0099
1103        RX       0    1000    2470    2488    2512    2515    2520    5000
1104        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            *
            * ****************************************************************************
            * **********************   Basin W6     ****************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1105        KK      W6
1106        KM   SUB-BASIN W6
1107        KM   6-HOUR RAINFALL, PATTERN NO. 1.02 WAS USED TO FIND TC & R FOR THIS BASIN
1108        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1109        KM     L = 1.38  Kb = .045  Adj. Slope =   22.0
1110        BA    .517
1111        LG    .350    .350   4.650    .310    .000
1112        UC    .883    .608
1113        UA       0       3       5       8      12      20      43      75      90      96
1114        UA     100
            *
            *
            * ****************************************************************************
            * **********************   Basin W4     ****************************************
            * ****************************************************************************
```

```
            * DDM   ***** Updated *****

1115        KK      W4
1116        KM   SUB-BASIN W4
1117        KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1118        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
1119        KM     L = 1.49  Kb = .024  Adj. Slope =   41.0
1120        BA    .490
1121        LG    .700    .000   4.450    .570    .000
1122        UC    .383    .264
1123        UA       0       5      16      30      65      77      84      90      94      97
1124        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DS14B   ////////////////////////////
            * ///   Flow fron south of Hunt hwy                                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                PAGE 52

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


1125        KK   DS14B
1126        KM     DIVERSION FLOW FROM CP-S14
1127        DR  DDS14B
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14C        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Diverted flow from S14 to CP-W4 through Basin W5                  rrr
            * rrr  fiels typical section - sheet flow along fields                         rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1128        KK   RS14C
1129        KO       5                              21
1130        RS      30    FLOW
1131        RC     .08     .07     .08    7325   .0078
1132        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1133        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.                              +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1134        KK   CP-W4
1135        HC       2
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   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
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1136        KK    RW4N
1137        RS      13    FLOW
1138        RC     .08     .07     .08    4250   .0073
1139        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1140        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.                                            +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```

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

1141          KK   CP-W6
1142          HC       4
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-W6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W6 to CP-W7 Through Basin W7(Power Rd.)                        rr
              * rrr  Channel/sheet flow                                                       rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1143          KK     RW6
1144          RS       6    FLOW
1145          RC     .08    .045     .08    1425   .0025
1146          RX       0     750    1110  1122.5  1132.5    1145    1505    2000
1147          RY     6.5     5.5       5       0       0       5     5.5     6.5
              *
              *
              * ****************************************************************************
              * **********************   Basin W7     ****************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

1148          KK      W7
1149          KM   SUB-BASIN W7
1150          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1151          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1152          KM     L = 1.17  Kb = .050  Adj. Slope =   15.0
1153          BA    .228
1154          LG    .300    .250   4.800    .310   5.000
1155          UC    .942    .911
1156          UA       0       5      16      30      65      77      84      90      94      97
1157          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * ++++++++++++++++++++++ Conc. Point CP-W7     ++++++++++++++++++++++++++++++++
              * +++  Combines Basins W7, Conc. Point CP-W6                                  +++
              * +++  Power Rd. between Cloud and Chandler Heigths Rds.                      +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1158          KK   CP-W7
1159          HC       2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W7 to CP-W8 Through Basin W8 (Power Rd.)                       rrr
              * rrr  Channel/sheet flow                                                       rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****
```



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

1160          KK     RW7
1161          RS       1    FLOW
1162          RC     .08    .045     .08    1400   .0046
1163          RX       0       5      10    22.5    32.5      45      50     100
1164          RY       7       6       5       0       0       5       6     7.1
              *
              *
              * ****************************************************************************
              * **********************   Basin W8     ****************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

1165          KK      W8
```

```
1166        KM   SUB-BASIN W8
1167        KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1168        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1169        KM     L = 1.14  Kb = .050  Adj. Slope =   18.0
1170        BA    .256
1171        LG    .300    .250   4.700    .320   5.000
1172        UC    .846    .742
1173        UA       0       5      16      30      65      77      84      90      94      97
1174        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DC6   ////////////////////////////
            * ///   from overflow of Cloud Rd Channel                                ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1175        KK     DC6
1176        KM     DIVERSION FLOW FROM CP-C6
1177        DR    DDC6
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RC6N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Diversion Flow from CP-C6 to CP-W8 through Basin W7 & W8                rrr
            * rrr  Sheet flow across development                                            rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1178        KK    RC6N
1179        RS      27    FLOW
1180        RC     .09     .09     .09    5850   .0038
1181        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1182        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DC8   ////////////////////////////
            * ///   From East                                                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```



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

1183        KK     DC8
1184        KM     DIVERSION FLOW FROM CP-C8
1185        DR    DDC8
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RC8W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr   Route CP-C8 to CP-W8 along Chandler Heights Rd.                        rrr
            * rrr   Street typical section                                                  rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1186        KK    RC8W
1187        RS      31    FLOW
1188        RC     .08     .02     .08    5280   .0034
1189        RX       0    1000    2470    2488    2512    2515    2520    5000
1190        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.                                +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1191        KK   CP-W8
1192        KO                                    21
1193        HC       4
            *
```

```
*
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////// Diversion *DW8 ////////////////////////////////////
* ///   1 North West Across field - 2 West in Chandler Heights Channel      ////
* ///   Chandler Heights channel betweeen Recker and Power Rds.             ////
* ////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK    *DW8
KO                                        21
KM     Diversion flow from W8
DT    DDW8
DI       0     200     400     600     800     840     900    1000
DQ       0     200     400     600     800     840     840     840
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* 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
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****
```



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


KK    RW8N
RS      24    FLOW
RC     .10     .10     .10    4075   .0018
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
*
* ***************************************************************************
* **********************   Basin C11     ***************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK     C11
KM   SUB-BASIN C11
KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
KM     L =  .77  Kb = .049  Adj. Slope =   13.0
BA    .269
LG    .300    .250   4.800    .360  15.000
UC    .717    .438
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*
* ***************************************************************************
* **********************   Basin C9      ***************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK      C9
KM   SUB-BASIN C9
KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
KM     L =  .86  Kb = .051  Adj. Slope =   16.0
BA    .206
LG    .250    .250   4.700    .380  30.000
UC    .700    .543
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrrrr   Routing R-C9W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route Basin C9 to CP-C11 Through Basin C11
* rrr  Field typical section  -  Sheet flow across development                rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RC9W
```

```
1226          RS      30    FLOW
1227          RC     .10     .10     .10    3875   .0026
1228          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1229          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.                                 +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 57

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


1230          KK  CP-C11
1231          HC       3
              *
              *
              * ////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion *DC11   ////////////////////////////////
              * ///   1 West to CP-C12 - 2 North west to Sonoqui                      ////
              * ///   Brooks Farm Rd. East of Recker Rd.                              ////
              * ////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1232          KK   *DC11
1233          KM    DIVERSION FLOW FROM CP-C11
1234          DT   DDC11
1235          DI       0      60     180     300     480     600
1236          DQ       0      35     105     175     280     350
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * 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
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1237          KK   RC11S
1238          RS      14    FLOW
1239          RC     .08    .035     .08    2625   .0039
1240          RX       0    1000    2470    2488    2512    2515    2520    5000
1241          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              *
              * ************************************************************************
              * **********************   Basin C12     ***************************************
              * ************************************************************************
              * DDM   ***** Updated *****

1242          KK     C12
1243          KM   SUB-BASIN C12
1244          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1245          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1246          KM     L =  .87  Kb = .085  Adj. Slope =   12.0
1247          BA    .264
1248          LG    .460    .050   4.800    .440   3.000
1249          UC   1.237    .896
1250          UA       0       3       5       8      12      20      43      75      90      96
1251          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-C12     ++++++++++++++++++++++++++++++
              * +++  Combines Basins C12 & Conc. Point CP-C11                              +++
              * +++  Recker Rd. south of Brooks Farm Rd.                                   +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 58

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

```
1444        KK   *DC14
1445        KM    DIVERSION FLOW OFFSITE
1446        DT  DDC14O
1447        DI       0      60     180     300     420     600
1448        DQ       0      40     147   244.4     342     489
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C14N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C14 to CP-C15 Through Basin C15 (Hingley Rd.)                 rrr
            * rrr Street typical section  -                                               rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1449        KK   RC14N
1450        RS      13    FLOW
1451        RC     .08    .035     .08    1775    .001
1452        RX       0    1000    2470    2488    2512    2515    2520    5000
1453        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            *
            * ****************************************************************************
            * ***********************   Basin C15     ************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1454        KK     C15
1455        KM   SUB-BASIN C15
1456        KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
1457        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1458        KM     L = 1.26  Kb = .074  Adj. Slope =   13.0
1459        BA    .511
1460        LG    .440    .080   4.800    .430   5.000
1461        UC   1.454    .989
1462        UA       0       5      16      30      65      77      84      90      94      97
1463        UA     100
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * +++++++++++++++++++++++ Conc. Point CP-C15     ++++++++++++++++++++++++++++++
            * +++  Combines Basins C15 & Conc. Point CP-C14                              +++
            * +++  Higley Rd. between Brook Farm and Ocotillo Rds.                       +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1464        KK  CP-C15
1465        HC       2
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion *DC15   ////////////////////////////////////
            * ///   1 Hingley Rd. To Sonoqui - 2 Off-site                                ////
            * ///   Higley Rd. South of Ocotillo Rd.                                     ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```



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

1466        KK   *DC15
1467        KM    DIVERSION FLOW OFFSITE
1468        DT  DDC15O
1469        DI       0      42     126     210     294     336     420
1470        DQ       0      28      69     115     161     184     230
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-C15N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C15 to CP-N6 Through Basin N6 (Higley Rd.)                    rrr
            * rrr Street typical section  -                                               rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1471        KK   RC15N
1472        RS       6    FLOW
1473        RC     .08     .02     .08     825   .0018
```

```
1474          RX       0    1000    2470    2488    2512    2515    2520    5000
1475          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion Recover DC11 ////////////////////////////
              * ///   Field towars Recker                                              ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1476          KK    DC11
1477          KM    DIVERSION FLOW FROM CP-C11
1478          DR   DDC11
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing RC11N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Diversion Flow from CP-C11 to CP-D1 Through Basin C13                 rrr
              * rrr  Field typical section  -  sheet flow across fields                    rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1479          KK   RC11N
1480          KO       5                              21
1481          RS      26    FLOW
1482          RC     .08     .08     .08    3550   .0030
1483          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1484          RY       5     3.5       3       2       0       2       3       5
              *
              *
              * ****************************************************************************
              * ***********************   Basin C13     ************************************
              * ****************************************************************************
              * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE 69

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


1485          KK     C13
1486          KM   SUB-BASIN C13
1487          KM   6-HOUR RAINFALL, PATTERN NO. 1.01 WAS USED TO FIND TC & R FOR THIS BASIN
1488          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
1489          KM     L = 1.14  Kb = .050  Adj. Slope =   21.0
1490          BA    .509
1491          LG    .560    .050   4.700    .460   3.000
1492          UC    .771    .452
1493          UA       0       5      16      30      65      77      84      90      94      97
1494          UA     100
              *
              *
              * ****************************************************************************
              * ***********************   Basin N5      ************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

1495          KK      N5
1496          KM   SUB-BASIN N5
1497          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1498          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
1499          KM     L = 1.05  Kb = .068  Adj. Slope =   17.0
1500          BA    .426
1501          LG    .430    .170   4.700    .390    .000
1502          UC   1.100    .696
1503          UA       0       3       5       8      12      20      43      75      90      96
1504          UA     100
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * ////////////////////// Diversion Recover DC10 ////////////////////////////
              * ///   Sonoqui Wash                                                     ///
              * ///   Recovered stored hydrograph for Conc. Point C-10                 ///
              * ////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****

1505          KK    DC10
1506          KM    ACTUAL FLOW FROM CP-C10
```

```
1507          DR   DDC10
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C10W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C10 to CP-N5 Through Basin N5 (Ocotillo Rd.)                                rr
              * rrr  Sonoqui Wash                                                                         rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1508          KK   RC10W
1509          RS      13    FLOW
1510          RC     .08    .045     .08    5410   .0029
1511          RX     232    1550    2850    2900    2920    2925    2930    3600
1512          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                          +++
              * +++  Sonoqui Wash at Recker Rd.                                                         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****
```



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


1513          KK   CP-N5
1514          HC       4   55.07
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrr   Routing R-N5W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-N5 to CP-N6 Through Basin N6 (Sonoqui/Ocotillo)                          rrr
              * rrr  Sonoqui Wash                                                                        rr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1515          KK    RN5W
1516          RS      12    FLOW
1517          RC     .08    .045     .08    5275   .0035
1518          RX     233    1550    2850    2900    2920    2925    2930    5000
1519          RY  1343.5  1341.7  1341.5  1338.9    1340  1341.7  1342.8  1343.5
              *
              *
              * ***************************************************************************
              * **********************   Basin N6     ****************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

1520          KK      N6
1521          KM   SUB-BASIN N6
1522          KM   6-HOUR RAINFALL, PATTERN NO. 1.00 WAS USED TO FIND TC & R FOR THIS BASIN
1523          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
1524          KM     L = 1.26  Kb = .072  Adj. Slope =   14.0
1525          BA    .431
1526          LG    .550    .000   4.700    .480    .000
1527          UC   1.267    .935
1528          UA       0       3       5       8      12      20      43      75      90      96
1529          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-N6     ++++++++++++++++++++++++++++++++++++++++++
              * +++  Combines Basins N6; Conc. Points CP-C13, CP-15; Diversion Flow RC13W  +++
              * +++  Sonoqui Wash at Higley Rd.                                                         +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1530          KK   CP-N6
1531          HC       4
1532          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   43          S9
                .
                .
   55           .------->    DDS9
   53        *DS9
                .
                .
   58           .         S10
                .           .
                .           .
   68      CP-S10............
               V
               V
   70        RS10
                .
                .
   75           .          E8
                .           .
                .           .
   87           .           .           .<-------    DDS9
   85           .           .         DS9
                .           .           V
                .           .           V
   88           .           .        RS9E
                .           .           V
                .           .           V
   93           .           .        RS9C
                .           .           .
                .           .           .
   98           .      *CP-E8............
                .           .
                .           .
  100       CP-E8............
                .
                .
  104           .------->    DDE8
  102        *DE8
               V
               V
  107         RE8
                .
                .
  112           .          C1
                .           .
                .           .
  122           .           .         S11
                .           .           V
                .           .           V
  132           .           .        RS11
                .           .           .
                .           .           .
  137           .           .           .         S12
                .           .           .           V
                .           .           .           V
  147           .           .           .        RS12
                .           .           .           .
                .           .           .           .
  152       CP-C1.................................
               V
               V
  154        RC1N
                .
                .
  159           .          S1
                .           V
                .           V
                .         RS1
                .           .
                .           .
  174           .           .          S2
```

```
                 .          .          V
                 .          .          V
184              .          .        RS2
                 .          .          .
                 .          .          .
189              .          .          .        S3B
                 .          .          .          V
                 .          .          .          V
199              .          .          .      RS3B
                 .          .          .          .
                 .          .          .          .
204              .          .          .          .        S3A
                 .          .          .          .          .
                 .          .          .          .          .
214              .          .          .   CP-S3A............
                 .          .          .          V
                 .          .          .          V
216              .          .          .      RS3A
                 .          .          .          .
                 .          .          .          .
221              .          .          .          .         E1
                 .          .          .          .          .
                 .          .          .          .          .
240              .          .          .          .          .      *RRW1
                 .          .          .          .          .          V
                 .          .          .          .          .          V
244              .          .          .          .          .       RRW1
                 .          .          .          .          .          .
                 .          .          .          .          .          .
249              .   CP-E1..............................................
                 .       V
                 .       V
251              .      RE1
                 .       .
                 .       .
256              .       .        S4B
                 .       .          V
                 .       .          V
                 .       .       RS4B
                 .       .          .
                 .       .          .
271              .       .          .        S4A
                 .       .          .          .
                 .       .          .          .
281              .       .   CP-S4A............
                 .       .          V
                 .       .          V
283              .       .       RS4A
                 .       .          .
                 .       .          .
288              .       .          .         S5
                 .       .          .          V
                 .       .          .          V
298              .       .          .        RS5
                 .       .          .          .
                 .       .          .          .
303              .       .          .          .      *RRW2
                 .       .          .          .          V
                 .       .          .          .          V
308              .       .          .          .      RRW2
                 .       .          .          .          .
                 .       .          .          .          .
313              .       .          .          .          .      *RRW3
                 .       .          .          .          .          V
                 .       .          .          .          .          V
318              .       .          .          .          .       RRW3
                 .       .          .          .          .          .
                 .       .          .          .          .          .
323              .   CP-D5..............................................
                 .       V
                 .       V
                 .      RD5
                 .       .
                 .       .
330              .       .        S6
```

```
                 .          .          V
                 .          .          V
340              .          .        RS6
                 .          .          .
                 .          .          .
345              .          .          .        S7B
                 .          .          .          V
                 .          .          .          V
355              .          .          .       RS7B
                 .          .          .          .
                 .          .          .          .
360              .          .          .          .         S7A
                 .          .          .          .           .
                 .          .          .          .           .
370              .          .          .     CP-S7A............
                 .          .          .          V
                 .          .          .          V
372              .          .          .       RS7A
                 .          .          .          .
                 .          .          .          .
377              .     CP-D6.......................
                 .         V
                 .         V
379              .       RD6
                 .         .
                 .         .
384              .          .        E5
                 .          .         V
                 .          .         V
394              .          .       RE5
                 .          .          .
                 .          .          .
399              .          .          .        E2
                 .          .          .          .
                 .          .          .          .
418              .          .          .          .         S8B
                 .          .          .          .           V
                 .          .          .          .           V
                 .          .          .          .       RS8B
                 .          .          .          .           .
                 .          .          .          .           .
433              .          .          .          .           .         S8A
                 .          .          .          .           .           .
                 .          .          .          .           .           .
443              .          .          .          .     CP-S8A............
                 .          .          .          .           V
                 .          .          .          .           V
445              .          .          .          .       RS8A
                 .          .          .          .           .
                 .          .          .          .           .
450              .     CP-E2.................................
                 .         V
                 .         V
452              .       RE2
                 .         .
                 .         .
457              .          .        E6
                 .          .          .
                 .          .          .
467              .          .          .        E11
                 .          .          .          .
                 .          .          .          .
479              .          .          .          .-------->   DDE11
477              .          .          .      *DE11
                 .          .          .          V
                 .          .          .          V
482              .          .          .      RE11N
                 .          .          .          .
                 .          .          .          .
487              .          .          .          .          E3
                 .          .          .          .           .
                 .          .          .          .           .
499              .          .          .          .           .           .<-------   DDE11
497              .          .          .          .           .       DE11
                 .          .          .          .           .          V
```

```
                                                                  V
500                                                            RE11S
                                                                  .
                                                                  .
506                                          CP-E3.......................
                                                  .
                                                  .
                                                  .-------->    DDE3
508                                           *DE3
                                                 V
                                                 V
513                                           RE3W
                                                  .
                                                  .
518                 CP-E6.......................
                        .
                        .
522                     .------->    DDE6
520                 *DE6
                       V
                       V
525                 RE6S
                        .
                        .
530                     .          E9
                        .           .
                        .           .
542                     .           .           .<-------    DDE8
540                     .           .         DE8
                        .           .           V
                        .           .           V
543                     .           .         RE8E
                        .           .           .
                        .           .           .
548                 CP-E9.......................
                        .
                        .
552                     .------->    DDE9
                    *DE9
                       V
                       V
555                 RE9W
                        .
                        .
560                     .          C4
                        .           .
                        .           .
570                     .           .          C2
                        .           .           .
                        .           .           .
580                     .           .           .           C3
                        .           .           .            .
                        .           .           .            .
592                     .           .           .            .------->    DDC3
590                     .           .           .        *DC3
                        .           .           .           V
                        .           .           .           V
595                     .           .           .       RC3SW
                        .           .           .            .
                        .           .           .            .
600                     .      *CP-C2.......................
                        .           .
                        .           .
602             CP-C2.......................
                    .
                    .
606                 .------->    DDC2
604             *DC2
                   V
                   V
                RC2
                    .
                    .
615                 .          C16
                    .
```

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                .           .
625       CP-C16............
                V
                V
627         RC16
                .
                .
                .           .<-------    DDE3
652             .         DE3
                .           V
                .           V
635             .         RE3
                .           .
                .           .
640             .           .          E4
                .           .           .
                .           .           .
650             .       CP-E4............
                .           .
                .           .
654             .           .-------> DDE4 O
652             .        *DE4
                .           V
                .           V
657             .         RE4
                .           .
                .           .
663             .           .          E7
                .           .           .
                .           .           .
675             .           .           .           .<-------    DDE6
673             .           .           .         DE6
                .           .           .           V
                .           .           .           V
676             .           .           .         RE6
                .           .           .           .
                .           .           .           .
681             .       CP-E7........................
                .           V
                .           V
683             .         RE7
                .           .
                .           .
688             .           .         E10
                .           .           .
                .           .           .
700             .           .           .           .<-------    DDE9
698             .           .           .         DE9
                .           .           .           V
                .           .           .           V
701             .           .           .        RE9N
                .           .           .           .
                .           .           .           .
706             .      CP-E10........................
                .           V
                .           V
708             .        RE10
                .           .
                .           .
713             .           .          N2
                .           .           .
                .           .           .
725             .           .           .           .<-------    DDC3
723             .           .           .         DC3
                .           .           .           V
                .           .           .           V
726             .           .           .       RC3NW
                .           .           .           .
                .           .           .           .
732             .       CP-N2........................
                .           .
                .           .
736             .           .------->    DDN2
734             .        *DN2
                .           V
```

```
                .          V
739             .        RN2S
                .          .
                .          .
746             .          .          .<-------    DDN2
744             .          .        DN2
                .          .          V
                .          .          V
747             .          .       RN2N
                .          .          .
                .          .          .
754             .          .          .------->    DDD3
752             .          .       *DD3
                .          .          V
                .          .          V
757             .          .       RD3W
                .          .          .
                .          .          .
762             .          .          .          C7
                .          .          .           .
                .          .          .           .
772         CP-C7.................................
                V
                V
774           RC7
                .
                .
779             .         N1
                .          .
                .          .
791             .          .          .<-------    DDD3
789             .          .        DD3
                .          .          V
                .          .          V
792             .          .       RD3N
                .          .          .
                .          .          .
797             .       CP-N1............
                .          .
                .          .
801             .          .------->  DDN1 O
799             .        *DN1
                .          V
                .          V
804             .         RN1
                .          .
                .          .
809             .          .         N3
                .          .          .
                .          .          .
819             .       CP-N3............
                .          .
                .          .
823             .          .------->    DDN3
821             .        *DN3
                .          V
                .          V
826             .        RN3S
                .          .
                .          .
832             .          .       C7A
                .          .          .
                .          .          .
842         CP-C7A......................
                V
                V
844           RC7A
                .
                .
849             .         C8
                .          .
                .          .
861             .          .------->    DDC8
859             .        *DC8
                .          V
```

```
                .          V
864             .       RC8N
                .          .
                .          .
871             .          .          .<-------    DDN3
869             .          .       DN3
                .          .         V
                .          .         V
872             .          .      RN3W
                .          .         .
                .          .         .
877         CP-D2......................
                V
                V
879          RD2
                .
                .
884             .       C10
                .          .
                .          .
894             .          .        N4
                .          .         .
                .          .         .
904        CP-C10......................
                .
                .
908             .------->  DDC10
906         *DC10
                .
                .
911             .        C5
                .          .
                .          .
923             .          .          .<-------    DDC2
921             .          .       DC2
                .          .         V
                .          .         V
924             .          .      RC2S
                .          .         .
                .          .         .
929             .     CP-C5............
                .          V
                .          V
931             .       RC5
                .          .
                .          .
937             .          .       S13
                .          .         V
                .          .         V
947             .          .      RS13
                .          .         .
                .          .         .
952             .          .         .          W1
                .          .         .           .
                .          .         .           .
962             .          .     CP-W1............
                .          .         .
                .          .         .
966             .          .         .------->    DDW1
964             .          .      *DW1
                .          .         V
                .          .         V
969             .          .       RW1
                .          .         .
                .          .         .
974             .          .         .         S14
                .          .         .           .
                .          .         .           .
984             .          .         .           .         S15
                .          .         .           .           V
                .          .         .           .           V
                .          .         .           .        RS15
                .          .         .           .           .
                .          .         .           .           .
999             .          .         .     CP-S14............
```

```
                .           .           .           .
                .           .           .           .
1003            .           .           .           .-------> DDS14O
1001            .           .           .      *DS14A
                .           .           .           .
                .           .           .           .
1009            .           .           .           .-------> DDS14B
                .           .           .      *DS14B
                .           .           .           .
                .           .           .           .
1013            .           .           .           .-------> DDS14C
1011            .           .           .      *DS14C
                .           .           .          V
                .           .           .          V
1016            .           .           .       RS14E
                .           .           .           .
                .           .           .           .
1021            .           .           .           .          W2
                .           .           .           .           .
                .           .           .           .           .
1033            .           .           .           .           .          .<-------    DDW1
1031            .           .           .           .           .        DW1
                .           .           .           .           .          V
                .           .           .           .           .          V
1034            .           .           .           .           .       RW1W
                .           .           .           .           .           .
                .           .           .           .           .           .
1039            .           .           .       CP-W2.......................
                .           .           .          V
                .           .           .          V
1041            .           .           .         RW2
                .           .           .           .
                .           .           .           .
1046            .           .           .           .          W3
                .           .           .           .           .
                .           .           .           .           .
1056            .           .           .           .           .          C6
                .           .           .           .           .           .
                .           .           .           .           .           .
                .       CP-C6...............................................
                .           .
                .           .
1070            .           .------->    DDC6
1068            .        *DC6
                .           V
                .           V
1073            .        RC6S
                .           .
                .           .
1079            .           .          W5
                .           .           .
                .           .           .
1091            .           .           .           .<-------  DDS14C
1089            .           .           .       DS14C
                .           .           .          V
                .           .           .          V
1092            .           .           .       RS14W
                .           .           .           .
                .           .           .           .
1098            .           .       CP-W5............
                .           .           V
                .           .           V
1100            .           .         RW5
                .           .           .
                .           .           .
1105            .           .           .          W6
                .           .           .           .
                .           .           .           .
1115            .           .           .           .          W4
                .           .           .           .           .
                .           .           .           .           .
                .           .           .           .           .          .<-------  DDS14B
1125            .           .           .           .           .       DS14B
                .           .           .           .           .          V
                .           .           .           .           .          V
```

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1128          .           .           .           .       RS14C
              .           .           .           .           .
              .           .           .           .           .
1134          .           .           .       CP-W4............
              .           .           .           V
              .           .           .           V
              .           .           .        RW4N
              .           .           .           .
              .           .           .           .
              .           .           .           .
1141          .       CP-W6.................................
              .           V
              .           V
1143          .        RW6
              .           .
              .           .
1148          .           .         W7
              .           .           .
              .           .           .
1158          .       CP-W7............
              .           V
              .           V
1160          .        RW7
              .           .
              .           .
1165          .           .         W8
              .           .           .
              .           .           .
1177          .           .           .<-------    DDC6
1175          .           .         DC6
              .           .           V
              .           .           V
1178          .           .        RC6N
              .           .           .
              .           .           .
1185          .           .           .           .<-------    DDC8
1183          .           .           .         DC8
              .           .           .           V
              .           .           .           V
              .           .           .        RC8W
              .           .           .           .
              .           .           .           .
1191          .       CP-W8.................................
              .           .
              .           .
1197          .           .------->    DDW8
1194          .        *DW8
              .           V
              .           V
1200          .        RW8N
              .           .
              .           .
1205          .           .         C11
              .           .           .
              .           .           .
1215          .           .           .         C9
              .           .           .           V
              .           .           .           V
1225          .           .           .        RC9W
              .           .           .           .
              .           .           .           .
1230          .      CP-C11......................
              .           .
              .           .
1234          .           .------->   DDC11
1232          .       *DC11
              .           V
              .           V
1237          .       RC11S
              .           .
              .           .
              .           .         C12
              .           .           .
              .           .           .
1252          .      CP-C12............
              .           .
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```
1256                .-------> DDC12
1254            *DC12
                    V
                    V
1259            RC12N
                    .
                    .
1265                .      W9
                    .       V
                    .       V
1275                .     RW9
                    .       .
                    .       .
1280                .       .      W11
                    .       .        .
                    .       .        .
1290                .  CP-W11...........
                    .       V
                    .       V
1292                .    RW11
                    .       .
                    .       .
1297                .       .      W12
                    .       .        .
                    .       .        .
1310                .       .        .          .<-------    DDW8
1307                .       .        .        DW8
                    .       .        .          V
                    .       .        .          V
1311                .       .        .       RW8S
                    .       .        .          .
                    .       .        .          .
1317                .  CP-W12......................
                    .       .
                    .       .
1321                .       .-------> DDW12
1319                .    *DW12
                    .       V
                    .       V
1324                .    RW12N
                    .       .
                    .       .
1329                .       .      W18
                    .       .        .
                    .       .        .
1341                .       .        .          .<-------   DDW12
1339                .       .        .       DW12
                    .       .        .          V
                    .       .        .          V
1342                .       .        .      RW12S
                    .       .        .          .
                    .       .        .          .
1348                .       .  CP-W18...........
                    .       .        .
                    .       .        .
1352                .       .        .-------> DDW18
1350                .       .    *DW18
                    .       .        V
                    .       .        V
1355                .       .    RW18N
                    .       .        .
                    .       .        .
1360                .       .        .        W10
                    .       .        .          V
                    .       .        .          V
1370                .       .        .       RW10
                    .       .        .          .
                    .       .        .          .
1375                .       .        .          .        W16
                    .       .        .          .          .
                    .       .        .          .          .
1385                .       .        .     CP-W16...........
                    .       .        .          V
                    .       .        .          V
```

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1387                                  RW16N
                                        .
                                        .
1393                                    .          W17
                                        .            .
                                        .            .
1406                                    .            .          .<-------   DDW18
                                        .            .        DW18
                                        .            .          V
                                        .            .          V
                                        .            .       RW18S
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1412                                    .
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1416                                    .-------> DDW17O
1414                                    .
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1419                                    .
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1424                                    .          C14
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1436                                    .            .          .<-------   DDC12
1434                                    .            .        DC12
                                        .            .          V
                                        .            .          V
1437                                    .            .       RC12W
                                        .            .          .
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1442                                    .
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1446                                    .-------> DDC14O
1444                                    .
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1449                                    .
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1454                                    .
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1464                                    .
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1468                                    .-------> DDC15O
1466                                    .
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1471                                    .
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1478                                    .
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1476                                    .
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1479                                    .
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1485                                    .
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1495                                    .          N5
                                        .            .
                                        .            .
1507                                    .            .          .<-------   DDC10
                                        .            .        DC10
                                        .            .          V
                                        .            .          V
1508                                    .            .       RC10W
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1513             .          .          .       CP-N5.......................................
                 .          .          .          V
                 .          .          .          V
1515             .          .          .       RN5W
                 .          .          .          .
                 .          .          .          .
                 .          .          .          .          N6
                 .          .          .          .           .
                 .          .          .          .           .
1530             .       CP-N6.......................................
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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
HYDROGRAPH AT							
+	S9	2343.	4.67	538.	136.	66.	3.40
DIVERSION TO							
+	DDS9	469.	4.67	108.	27.	13.	3.40
HYDROGRAPH AT							
+	*DS9	1874.	4.67	431.	109.	52.	3.40
HYDROGRAPH AT							
+	S10	1191.	4.25	124.	31.	15.	.71
2 COMBINED AT							
+	CP-S10	2124.	4.58	525.	133.	64.	4.11
ROUTED TO							
+	RS10	2056.	4.83	523.	133.	64.	4.11
HYDROGRAPH AT							
+	E8	388.	4.58	70.	18.	8.	.39
HYDROGRAPH AT							
+	DS9	469.	4.67	108.	27.	13.	3.40
ROUTED TO							
+	RS9E	418.	5.33	107.	27.	13.	3.40
ROUTED TO							
+	RS9C	408.	5.50	107.	27.	13.	3.40
2 COMBINED AT							
+	*CP-E8	695.	5.33	196.	50.	24.	.39
2 COMBINED AT							
+	CP-E8	2292.	4.75	670.	172.	83.	4.50
DIVERSION TO							
+	DDE8	512.	4.75	128.	32.	15.	4.50
HYDROGRAPH AT							
+	*DE8	1781.	4.75	542.	140.	67.	4.50
ROUTED TO							
+	RE8	1717.	5.25	541.	140.	67.	4.50
HYDROGRAPH AT							
+	C1	605.	4.25	43.	11.	5.	.35
HYDROGRAPH AT							
+	S11	1361.	4.33	201.	51.	24.	.99
ROUTED TO							
+	RS11	1057.	4.83	200.	51.	24.	.99
HYDROGRAPH AT							
+	S12	906.	4.17	80.	20.	10.	.41
ROUTED TO							
+	RS12	411.	5.25	79.	20.	10.	.41
4 COMBINED AT							
+	CP-C1	2476.	5.17	779.	201.	97.	6.26
ROUTED TO							
+	RC1N	2372.	5.58	778.	201.	97.	6.26
HYDROGRAPH AT							
+	S1	2055.	4.33	239.	60.	29.	1.76
ROUTED TO							

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
+		RS1	452.	13.58	229.	60.	29.	1.76
	HYDROGRAPH AT							
+		S2	1922.	4.75	360.	90.	43.	3.07
	ROUTED TO							
+		RS2	919.	9.67	356.	90.	43.	3.07
	HYDROGRAPH AT							
+		S3B	2855.	4.25	396.	99.	48.	1.73
	ROUTED TO							
+		RS3B	1257.	6.75	369.	99.	48.	1.73
	HYDROGRAPH AT							
+		S3A	676.	5.08	192.	48.	23.	1.70
	2 COMBINED AT							
+		CP-S3A	1305.	6.83	495.	139.	67.	3.43
	ROUTED TO							
+		RS3A	906.	10.50	449.	139.	67.	3.43
	HYDROGRAPH AT							
+		E1	1370.	7.17	926.	266.	128.	7.91
	HYDROGRAPH AT							
+		*RRW1	329.	6.58	294.	142.	68.	3.16
	ROUTED TO							
+		RRW1	325.	7.75	293.	142.	68.	3.16
	5 COMBINED AT							
+		CP-E1	1877.	10.42	1469.	591.	284.	19.33
	ROUTED TO							
+		RE1	1741.	12.75	1441.	591.	284.	19.33
	HYDROGRAPH AT							
+		S4B	1307.	4.42	208.	52.	25.	1.28
	ROUTED TO							
+		RS4B	850.	5.67	205.	52.	25.	1.28
	HYDROGRAPH AT							
+		S4A	1549.	4.42	191.	48.	23.	1.60
	2 COMBINED AT							
+		CP-S4A	1253.	4.42	355.	92.	44.	2.88
	ROUTED TO							
+		RS4A	739.	6.17	340.	92.	44.	2.88
	HYDROGRAPH AT							
+		S5	810.	4.08	63.	16.	8.	.34
	ROUTED TO							
+		RS5	292.	5.75	61.	16.	8.	.34
	HYDROGRAPH AT							
+		*RRW2	140.	7.92	128.	68.	33.	.18
	ROUTED TO							
+		RRW2	138.	11.92	127.	68.	33.	.18
	HYDROGRAPH AT							
+		*RRW3	423.	9.58	382.	191.	92.	1.14
	ROUTED TO							
+		RRW3	414.	13.08	378.	189.	92.	1.14

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
+	5 COMBINED AT	CP-D5	2223.	12.75	1939.	896.	435.	23.87
+	ROUTED TO	RD5	2173.	14.17	1918.	896.	435.	23.87
+	HYDROGRAPH AT	S6	849.	4.42	120.	30.	14.	.82
+	ROUTED TO	RS6	381.	7.33	118.	30.	14.	.82
+	HYDROGRAPH AT	S7B	1674.	4.17	146.	37.	18.	.77
+	ROUTED TO	RS7B	742.	5.25	144.	37.	18.	.77
+	HYDROGRAPH AT	S7A	1246.	4.42	137.	34.	17.	1.19
+	2 COMBINED AT	CP-S7A	1062.	4.42	260.	66.	32.	1.96
+	ROUTED TO	RS7A	647.	6.33	250.	66.	32.	1.96
+	3 COMBINED AT	CP-D6	2127.	14.17	1918.	938.	457.	26.65
+	ROUTED TO	RD6	2108.	14.92	1907.	938.	457.	26.65
+	HYDROGRAPH AT	E5	883.	4.42	96.	24.	11.	.57
+	ROUTED TO	RE5	684.	4.75	96.	24.	11.	.57
+	HYDROGRAPH AT	E2	1363.	6.33	762.	206.	99.	7.33
+	HYDROGRAPH AT	S8B	2359.	4.25	335.	84.	40.	1.70
+	ROUTED TO	RS8B	1432.	5.67	328.	84.	40.	1.70
+	HYDROGRAPH AT	S8A	1143.	4.58	173.	43.	21.	1.74
+	2 COMBINED AT	CP-S8A	1429.	5.67	460.	119.	57.	3.44
+	ROUTED TO	RS8A	1056.	7.58	431.	117.	56.	3.44
+	4 COMBINED AT	CP-E2	2038.	14.92	1900.	1116.	553.	37.98
+	ROUTED TO	RE2	1983.	16.08	1858.	1096.	545.	37.98
+	HYDROGRAPH AT	E6	745.	5.08	188.	47.	23.	1.17
+	HYDROGRAPH AT	E11	244.	5.00	66.	17.	8.	.34
	DIVERSION TO							

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
+		DDE11	229.	5.00	62.	15.	7.	.34
+	HYDROGRAPH AT	*DE11	15.	5.00	4.	1.	1.	.34
+	ROUTED TO	RE11N	12.	6.25	4.	1.	1.	.34
+	HYDROGRAPH AT	E3	323.	4.92	84.	21.	10.	.43
+	HYDROGRAPH AT	DE11	229.	5.00	62.	15.	7.	.34
+	ROUTED TO	RE11S	150.	8.33	60.	15.	7.	.34
+	3 COMBINED AT	CP-E3	323.	4.92	132.	38.	18.	.77
+	DIVERSION TO	DDE3	38.	5.00	18.	6.	3.	.77
+	HYDROGRAPH AT	*DE3	268.	5.00	109.	31.	15.	.77
+	ROUTED TO	RE3W	214.	6.58	104.	31.	15.	.77
+	3 COMBINED AT	CP-E6	1967.	16.08	1855.	1118.	562.	39.92
+	DIVERSION TO	DDE6	714.	16.08	673.	403.	202.	39.92
+	HYDROGRAPH AT	*DE6	1253.	16.08	1182.	715.	360.	39.92
+	ROUTED TO	RE6S	1247.	17.08	1176.	714.	360.	39.92
+	HYDROGRAPH AT	E9	729.	4.83	155.	39.	19.	.95
+	HYDROGRAPH AT	DE8	512.	4.75	128.	32.	15.	4.50
+	ROUTED TO	RE8E	461.	5.83	128.	32.	15.	4.50
+	3 COMBINED AT	CP-E9	1240.	17.08	1172.	732.	377.	40.87
+	DIVERSION TO	DDE9	179.	17.08	169.	114.	63.	40.87
+	HYDROGRAPH AT	*DE9	1061.	17.08	1003.	618.	314.	40.87
+	ROUTED TO	RE9W	1061.	17.17	1002.	618.	314.	40.87
+	HYDROGRAPH AT	C4	275.	4.50	39.	10.	5.	.31
+	HYDROGRAPH AT	C2	199.	4.83	48.	12.	6.	.32
+	HYDROGRAPH AT	C3	169.	4.42	22.	5.	3.	.11

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
+	DIVERSION TO	DDC3	57.	4.42	9.	2.	1.	.11
+	HYDROGRAPH AT	*DC3	112.	4.42	13.	3.	2.	.11
+	ROUTED TO	RC3SW	93.	4.67	13.	3.	2.	.11
+	3 COMBINED AT	*CP-C2	448.	4.67	95.	24.	11.	.75
+	3 COMBINED AT	CP-C2	2371.	5.67	1331.	900.	455.	47.88
+	DIVERSION TO	DDC2	147.	5.67	27.	7.	3.	47.88
+	HYDROGRAPH AT	*DC2	1611.	5.75	983.	737.	377.	47.88
+	ROUTED TO	RC2	1599.	5.92	983.	737.	377.	47.88
+	HYDROGRAPH AT	C16	40.	4.08	4.	1.	0.	.03
+	2 COMBINED AT	CP-C16	1599.	5.92	983.	737.	377.	47.90
+	ROUTED TO	RC16	1569.	6.33	979.	737.	377.	47.90
+	HYDROGRAPH AT	DE3	38.	5.00	18.	6.	3.	.77
+	ROUTED TO	RE3	25.	9.08	16.	6.	3.	.77
+	HYDROGRAPH AT	E4	207.	4.67	67.	17.	8.	.37
+	2 COMBINED AT	CP-E4	207.	4.67	72.	23.	11.	.37
+	DIVERSION TO	DDE4 O	79.	4.67	27.	9.	4.	.37
+	HYDROGRAPH AT	*DE4	128.	4.67	45.	14.	7.	.37
+	ROUTED TO	RE4	93.	8.33	41.	14.	7.	.37
+	HYDROGRAPH AT	E7	274.	4.42	59.	15.	7.	.36
+	HYDROGRAPH AT	DE6	714.	16.08	673.	403.	202.	39.92
+	ROUTED TO	RE6	712.	16.58	672.	403.	202.	39.92
+	3 COMBINED AT	CP-E7	1347.	8.75	1041.	665.	331.	.73
+	ROUTED TO	RE7	1296.	10.17	1038.	662.	331.	.73
	HYDROGRAPH AT							

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
+		E10	906.	4.33	93.	23.	11.	.51
+	HYDROGRAPH AT	DE9	179.	17.08	169.	114.	63.	40.87
+	ROUTED TO	RE9N	178.	17.50	168.	114.	63.	40.87
+	3 COMBINED AT	CP-E10	1468.	10.17	1245.	806.	417.	1.24
+	ROUTED TO	RE10	1417.	18.42	1240.	799.	417.	1.24
+	HYDROGRAPH AT	N2	761.	4.25	88.	22.	11.	.54
+	HYDROGRAPH AT	DC3	57.	4.42	9.	2.	1.	.11
+	ROUTED TO	RC3NW	27.	9.08	9.	2.	1.	.11
+	3 COMBINED AT	CP-N2	1415.	18.42	1239.	800.	428.	1.78
+	DIVERSION TO	DDN2	208.	18.58	205.	185.	122.	1.78
+	HYDROGRAPH AT	*DN2	1163.	18.58	1001.	592.	294.	1.78
+	ROUTED TO	RN2S	1159.	18.92	1000.	591.	294.	1.78
+	HYDROGRAPH AT	DN2	208.	18.58	205.	185.	122.	1.78
+	ROUTED TO	RN2N	208.	19.33	205.	185.	121.	1.78
+	DIVERSION TO	DDD3	36.	19.33	36.	35.	25.	1.78
+	HYDROGRAPH AT	*DD3	172.	19.33	169.	150.	97.	1.78
+	ROUTED TO	RD3W	172.	20.58	169.	150.	96.	1.78
+	HYDROGRAPH AT	C7	365.	4.42	76.	19.	9.	.48
+	4 COMBINED AT	CP-C7	1788.	18.25	1645.	1151.	622.	51.94
+	ROUTED TO	RC7	1786.	18.42	1645.	1150.	622.	51.94
+	HYDROGRAPH AT	N1	232.	5.00	65.	16.	8.	.39
+	HYDROGRAPH AT	DD3	36.	19.33	36.	35.	25.	1.78
+	ROUTED TO	RD3N	36.	21.42	36.	35.	24.	1.78
+	2 COMBINED AT	CP-N1	232.	5.00	75.	45.	32.	.39

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
+	DIVERSION TO	DDN1 O	6.	5.00	2.	1.	1.	.39
+	HYDROGRAPH AT	*DN1	226.	5.00	73.	44.	32.	.39
+	ROUTED TO	RN1	155.	7.67	68.	42.	31.	.39
+	HYDROGRAPH AT	N3	525.	4.50	108.	27.	13.	.65
+	2 COMBINED AT	CP-N3	485.	4.50	145.	62.	43.	1.04
+	DIVERSION TO	DDN3	469.	4.50	140.	60.	41.	1.04
+	HYDROGRAPH AT	*DN3	16.	4.50	5.	2.	2.	1.04
+	ROUTED TO	RN3S	14.	5.42	5.	2.	2.	1.04
+	HYDROGRAPH AT	C7A	129.	4.58	39.	10.	5.	.22
+	3 COMBINED AT	CP-C7A	1781.	18.42	1640.	1150.	624.	53.20
+	ROUTED TO	RC7A	1777.	18.75	1638.	1147.	622.	53.20
+	HYDROGRAPH AT	C8	130.	4.33	23.	6.	3.	.15
+	DIVERSION TO	DDC8	65.	4.33	12.	3.	1.	.15
+	HYDROGRAPH AT	*DC8	65.	4.33	12.	3.	1.	.15
+	ROUTED TO	RC8N	56.	4.92	12.	3.	1.	.15
+	HYDROGRAPH AT	DN3	469.	4.50	140.	60.	41.	1.04
+	ROUTED TO	RN3W	364.	5.83	133.	58.	41.	1.04
+	3 COMBINED AT	CP-D2	1801.	18.75	1661.	1184.	653.	53.36
+	ROUTED TO	RD2	1797.	19.25	1659.	1184.	652.	53.36
+	HYDROGRAPH AT	C10	289.	4.67	87.	22.	11.	.50
+	HYDROGRAPH AT	N4	116.	5.08	36.	9.	4.	.28
+	3 COMBINED AT	CP-C10	1792.	19.25	1655.	1184.	656.	54.13
+	DIVERSION TO	DDC10	1792.	19.25	1655.	1184.	656.	54.13
	HYDROGRAPH AT							

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
+		*DC10	0.	.00	0.	0.	0.	54.13
+	HYDROGRAPH AT	C5	982.	4.25	78.	20.	9.	.65
+	HYDROGRAPH AT	DC2	147.	5.67	27.	7.	3.	47.88
+	ROUTED TO	RC2S	107.	8.00	27.	7.	3.	47.88
+	2 COMBINED AT	CP-C5	982.	4.25	276.	102.	49.	.65
+	ROUTED TO	RC5	642.	9.17	254.	102.	49.	.65
+	HYDROGRAPH AT	S13	2006.	4.42	316.	79.	38.	2.11
+	ROUTED TO	RS13	1498.	5.33	314.	79.	38.	2.11
+	HYDROGRAPH AT	W1	342.	4.33	35.	9.	4.	.28
+	2 COMBINED AT	CP-W1	1492.	5.33	337.	85.	41.	2.39
+	DIVERSION TO	DDW1	738.	5.33	168.	42.	20.	2.39
+	HYDROGRAPH AT	*DW1	738.	5.33	168.	42.	20.	2.39
+	ROUTED TO	RW1	606.	6.25	167.	42.	20.	2.39
+	HYDROGRAPH AT	S14	1353.	4.42	167.	42.	20.	1.61
+	HYDROGRAPH AT	S15	2064.	4.50	399.	101.	48.	1.95
+	ROUTED TO	RS15	1490.	5.83	391.	101.	48.	1.95
+	2 COMBINED AT	CP-S14	1397.	5.83	508.	132.	64.	3.56
+	DIVERSION TO	DDS14O	698.	5.83	254.	66.	32.	3.56
+	HYDROGRAPH AT	*DS14A	698.	5.83	254.	66.	32.	3.56
+	DIVERSION TO	DDS14B	296.	5.83	60.	15.	7.	3.56
+	HYDROGRAPH AT	*DS14B	403.	5.83	194.	51.	25.	3.56
+	DIVERSION TO	DDS14C	118.	5.83	24.	6.	3.	3.56
+	HYDROGRAPH AT	*DS14C	284.	5.83	170.	45.	22.	3.56
+	ROUTED TO	RS14E	273.	6.67	167.	45.	22.	3.56

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
+	HYDROGRAPH AT	W2	263.	4.33	31.	8.	4.	.25
+	HYDROGRAPH AT	DW1	738.	5.33	168.	42.	20.	2.39
+	ROUTED TO	RW1W	644.	5.92	167.	42.	20.	2.39
+	3 COMBINED AT	CP-W2	782.	5.92	338.	90.	43.	3.81
+	ROUTED TO	RW2	750.	6.50	335.	90.	43.	3.81
+	HYDROGRAPH AT	W3	70.	4.33	9.	2.	1.	.06
+	HYDROGRAPH AT	C6	182.	4.83	43.	11.	5.	.30
+	5 COMBINED AT	CP-C6	1332.	6.58	586.	169.	82.	7.21
+	DIVERSION TO	DDC6	852.	6.58	190.	48.	23.	7.21
+	HYDROGRAPH AT	*DC6	480.	6.00	396.	122.	59.	7.21
+	ROUTED TO	RC6S	480.	6.33	395.	122.	59.	7.21
+	HYDROGRAPH AT	W5	494.	4.25	72.	18.	9.	.49
+	HYDROGRAPH AT	DS14C	118.	5.83	24.	6.	3.	3.56
+	ROUTED TO	RS14W	71.	8.42	24.	6.	3.	3.56
+	2 COMBINED AT	CP-W5	494.	4.25	109.	27.	13.	.49
+	ROUTED TO	RW5	408.	4.75	107.	27.	13.	.49
+	HYDROGRAPH AT	W6	422.	4.58	72.	18.	9.	.52
+	HYDROGRAPH AT	W4	858.	4.17	86.	21.	10.	.49
+	HYDROGRAPH AT	DS14B	296.	5.83	60.	15.	7.	3.56
+	ROUTED TO	RS14C	184.	8.25	60.	15.	7.	3.56
+	2 COMBINED AT	CP-W4	858.	4.17	172.	45.	22.	.49
+	ROUTED TO	RW4N	478.	5.25	161.	45.	22.	.49
+	4 COMBINED AT	CP-W6	769.	5.25	542.	173.	84.	8.70
	ROUTED TO							

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
+		RW6	732.	5.75	541.	173.	84.	8.70
+	HYDROGRAPH AT	W7	148.	4.50	37.	9.	4.	.23
+	2 COMBINED AT	CP-W7	762.	5.75	552.	179.	86.	8.93
+	ROUTED TO	RW7	759.	5.83	552.	179.	86.	8.93
+	HYDROGRAPH AT	W8	194.	4.42	41.	10.	5.	.26
+	HYDROGRAPH AT	DC6	852.	6.58	190.	48.	23.	7.21
+	ROUTED TO	RC6N	593.	8.67	186.	48.	23.	7.21
+	HYDROGRAPH AT	DC8	65.	4.33	12.	3.	1.	.15
+	ROUTED TO	RC8W	38.	6.83	12.	3.	1.	.15
+	4 COMBINED AT	CP-W8	1070.	8.67	720.	231.	111.	9.19
+	DIVERSION TO	DDW8	840.	8.58	679.	220.	106.	9.19
+	HYDROGRAPH AT	*DW8	230.	8.67	41.	10.	5.	9.19
+	ROUTED TO	RW8N	111.	10.58	39.	10.	5.	9.19
+	HYDROGRAPH AT	C11	295.	4.33	46.	12.	6.	.27
+	HYDROGRAPH AT	C9	218.	4.33	41.	10.	5.	.21
+	ROUTED TO	RC9W	123.	6.83	40.	10.	5.	.21
+	3 COMBINED AT	CP-C11	255.	10.58	98.	37.	18.	9.66
+	DIVERSION TO	DDC11	96.	4.33	35.	15.	7.	9.66
+	HYDROGRAPH AT	*DC11	69.	4.33	25.	11.	5.	9.66
+	ROUTED TO	RC11S	56.	5.42	24.	11.	5.	9.66
+	HYDROGRAPH AT	C12	189.	4.92	46.	11.	6.	.26
+	2 COMBINED AT	CP-C12	153.	5.25	54.	19.	9.	9.93
+	DIVERSION TO	DDC12	52.	5.25	18.	6.	3.	9.93
+	HYDROGRAPH AT	*DC12	101.	5.25	36.	12.	6.	9.93

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
+	ROUTED TO	RC12N	65.	9.00	33.	12.	6.	9.93
+	HYDROGRAPH AT	W9	609.	4.42	74.	18.	9.	.52
+	ROUTED TO	RW9	401.	5.17	74.	18.	9.	.52
+	HYDROGRAPH AT	W11	542.	4.58	85.	21.	10.	.51
+	2 COMBINED AT	CP-W11	550.	5.08	145.	36.	17.	1.03
+	ROUTED TO	RW11	500.	5.75	145.	36.	17.	1.03
+	HYDROGRAPH AT	W12	728.	4.42	93.	23.	11.	.53
+	HYDROGRAPH AT	DW8	840.	8.58	679.	220.	106.	9.19
+	ROUTED TO	RW8S	840.	9.08	679.	220.	106.	9.19
+	3 COMBINED AT	CP-W12	1329.	5.75	943.	332.	160.	1.55
+	DIVERSION TO	DDW12	680.	4.75	680.	264.	127.	1.55
+	HYDROGRAPH AT	*DW12	649.	5.75	263.	68.	33.	1.55
+	ROUTED TO	RW12N	496.	8.58	229.	68.	33.	1.55
+	HYDROGRAPH AT	W18	475.	4.25	45.	11.	5.	.25
+	HYDROGRAPH AT	DW12	680.	4.75	680.	264.	127.	1.55
+	ROUTED TO	RW12S	680.	5.00	680.	264.	127.	1.55
+	2 COMBINED AT	CP-W18	943.	4.42	700.	308.	149.	.25
+	DIVERSION TO	DDW18	360.	4.17	360.	194.	94.	.25
+	HYDROGRAPH AT	*DW18	583.	4.42	340.	114.	55.	.25
+	ROUTED TO	RW18N	347.	7.33	322.	114.	55.	.25
+	HYDROGRAPH AT	W10	609.	4.42	73.	18.	9.	.51
+	ROUTED TO	RW10	343.	5.83	73.	18.	9.	.51
+	HYDROGRAPH AT	W16	534.	4.17	40.	10.	5.	.25
	2 COMBINED AT							

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
+		CP-W16	475.	4.17	107.	27.	13.	.76
	ROUTED TO							
+		RW16N	270.	5.42	107.	27.	13.	.76
	HYDROGRAPH AT							
+		W17	593.	4.17	46.	11.	6.	.26
	HYDROGRAPH AT							
+		DW18	360.	4.17	360.	194.	94.	.25
	ROUTED TO							
+		RW18S	361.	4.42	360.	194.	94.	.25
	3 COMBINED AT							
+		CP-W17	698.	4.25	482.	214.	103.	1.01
	DIVERSION TO							
+		DDW17O	681.	4.25	465.	199.	96.	1.01
	HYDROGRAPH AT							
+		*DW17	17.	3.67	17.	15.	8.	1.01
	ROUTED TO							
+		RW17	17.	11.50	17.	15.	8.	1.01
	HYDROGRAPH AT							
+		C14	358.	4.50	85.	21.	10.	.51
	HYDROGRAPH AT							
+		DC12	52.	5.25	18.	6.	3.	9.93
	ROUTED TO							
+		RC12W	38.	7.75	17.	6.	3.	9.93
	5 COMBINED AT							
+		CP-C14	761.	8.67	531.	195.	95.	3.33
	DIVERSION TO							
+		DDC14O	620.	8.67	433.	157.	76.	3.33
	HYDROGRAPH AT							
+		*DC14	140.	8.67	98.	38.	19.	3.33
	ROUTED TO							
+		RC14N	132.	9.75	98.	38.	19.	3.33
	HYDROGRAPH AT							
+		C15	290.	4.67	86.	22.	10.	.51
	2 COMBINED AT							
+		CP-C15	218.	4.75	107.	54.	27.	3.84
	DIVERSION TO							
+		DDC15O	119.	4.75	61.	32.	15.	3.84
	HYDROGRAPH AT							
+		*DC15	99.	4.75	47.	23.	11.	3.84
	ROUTED TO							
+		RC15N	96.	5.17	46.	23.	11.	3.84
	HYDROGRAPH AT							
+		DC11	96.	4.33	35.	15.	7.	9.66
	ROUTED TO							
+		RC11N	64.	6.42	35.	15.	7.	9.66
	HYDROGRAPH AT							
+		C13	552.	4.33	85.	21.	10.	.51

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
+	HYDROGRAPH AT	N5	321.	4.75	63.	16.	8.	.43
+	HYDROGRAPH AT	DC10	1792.	19.25	1655.	1184.	656.	54.13
+	ROUTED TO	RC10W	1781.	20.42	1652.	1180.	656.	54.13
+	4 COMBINED AT	CP-N5	1776.	20.42	1647.	1180.	664.	55.07
+	ROUTED TO	RN5W	1767.	21.50	1643.	1173.	663.	55.07
+	HYDROGRAPH AT	N6	328.	4.92	83.	21.	10.	.43
+	4 COMBINED AT	CP-N6	1755.	21.50	1633.	1173.	671.	69.27

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

D.6.2 100-yr, 24-hr HEC-1 Output (Existing Conditions)

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   02SEP05  TIME  07:23:14  *
 *                                      *
 ****************************************
```

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

```
                                    HEC-1 INPUT                                                    PAGE  1

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

  1           ID   ******************************************************************************
  2           ID   ******************************************************************************
  3           ID   **    SONOQUI WASH FLOODPLAIN DELINEATION STUDY                             **
  4           ID   **    100-Year 24-hour Storm                                                **
  5           ID   **    First Run Date  February 10-1998                                      **
  6           ID   **    Run Date  September 2nd, 2005                                         **
  7           ID   **    LAST REVISED   SEPTEMBER 2nd, 2005                                    **
  8           ID   **    Entellus, Inc.                                        File SNQ24.DAT  **
  9           ID   ******************************************************************************
 10           ID   ******************************************************************************
 11           ID
 12           ID   DDM MCUHP1 Sonoqui Wash floodplain Delineation Study
              *
              *
 13           IT       5 01APR97             800
 14           IO       5
              *
              *DIAGRAM
              * ////////////////////////////////////////////////////////////////////////////////
              * ////////////////////////////// Rainfall Distribution//////////////////////////////
              * ////////////////////////////////////////////////////////////////////////////////
 15           IN      15
 16           JD    3.60    0.01
 17           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 18           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 19           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
```

```
20          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
21          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
22          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
23          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
24          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
25          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
26          PC    .983    .986    .989    .992    .995    .998   1.000
27          JD    3.58    1.00
28          JD    3.49    5.00
29          JD    3.38   10.00
30          JD    3.24   30.00
31          JD    3.10   60.00
32          JD    3.05   90.00
33          JD    3.00  120.00
34          JD    2.97  150.00
            * ////////////////////////////////////////////////////////////////////////////
            * //////////////////////////// End Distribution ////////////////////////////////
            * ////////////////////////////////////////////////////////////////////////////
            *
            * ***************************************************************************
            * **********************   Basin S9     ****************************************
            * ***************************************************************************
            * DDM   ***** Updated *****
```



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

35          KK      S9
36          KM   SUB-BASIN S9
37          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
38          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .980
39          KM     L = 4.51  Kb = .052  Adj. Slope =  195.0
40          BA   3.403
41          LG    .240    .350   4.450    .360  27.000
42          UC    .900    .547
43          UA       0       3       5       8      12      20      43      75      90      96
44          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.      ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

45          KK    *DS9
46          KM    DIVERSION FLOW FROM CP-S9
47          DT    DDS9
48          DI       0     250     500     750    1000    1250    1500    1750    2000    2500
49          DQ       0      50     100     150     200     250     300     350     400     500
            *
            *
            * ***************************************************************************
            * **********************   Basin S10    ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

50          KK     S10
51          KM   SUB-BASIN S10
52          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
53          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
54          KM     L = 1.45  Kb = .067  Adj. Slope =  283.2
55          BA    .711
56          LG    .230    .350   3.950    .470  27.000
57          UC    .408    .224
58          UA       0       3       5       8      12      20      43      75      90      96
59          UA     100
            *
            *
```

```
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* +++++++++++++++++++++++ Conc. Point CP-S10     ++++++++++++++++++++++++++++++
* +++  Combines basins S9 & S10                                            +++
* +++  Hunt Hwy near Ellsworth Rd.                                          +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****
```



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

 60         KK  CP-S10
 61         BC       2
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S10        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-S10 to CP-E8 Through Basin E8                              rrr
            * rrr  Mountain typical cross section - natural channel                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 62         KK    RS10
 63         RS       3    FLOW
 64         RC     .07     .06     .07    1859   .0102
 65         RX       0     400     800    1200    1600    2000    2400    2800
 66         RY       3       1      .5       0       0      .5       1       3
            *
            *
            * ***************************************************************************
            * **********************   Basin E8     ****************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

 67         KK      E8
 68         KM   SUB-BASIN E8
 69         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 70         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 71         KM     L = 1.19  Kb = .090  Adj. Slope =   42.0
 72         BA    .389
 73         LG    .500    .000   4.300    .620    .000
 74         UC   1.046    .766
 75         UA       0       3       5       8      12      20      43      75      90      96
 76         UA     100
            *
            *
            * ///////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion Recover DS9   ////////////////////////////
            * ///   Through small dip section on Hunt Hwy and into Empire Rd. channel   ////
            * ///////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

 77         KK     DS9
 78         KM    Return flow from CP-S9
 79         DR    DDS9
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S9E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route S-9 to Empire Rd. Channel                                     rrrr
            * rrr  mountain typical cross-section - natural channel                    rrrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

 80         KK    RS9E
 81         RS       9    FLOW
 82         RC     .07     .06     .07    2550   .0039
```

```
 83          RX       0     400     800    1200    1600    2000    2400    2800
 84          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-S9C        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route S-9 to CP-E8 thruogh Empire Rd. Channel                                    rrr
             * rrr  Cross-section RS9C  -  channel flow                                              rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

 85          KK    RS9C
 86          RS       3    FLOW
 87          RC     .07    .045     .07    2550   .0035
 88          RX       0       5      10    32.5    52.5      75      80      85
 89          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.                                   +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

 90          KK  *CP-E8
 91          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.                                   +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

 92          KK   CP-E8
 93          HC       2
             *
             *
             * ////////////////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion *DE8   ////////////////////////////////////////////
             * ///   1 North west along Sonoqui - 2 North along Ellsworth Road                       ///
             * ///   At intersection of Empire Rd. and Ellsworth Rd.                                  ///
             * ////////////////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****
```



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

 94          KK    *DE8
 95          KM    DIVERSION FLOW FROM CP-E8
 96          DT    DDE8
 97          DI       0     250     500     750    1000    1500    2000    2250    2500
 98          DQ       0     .01      40     167     237     335     446     502     558
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-E8        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E8 to CP-C1 Through Basin C1 (Sonoqui Wash)                             rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

 99          KK     RE8
100          RS       6    FLOW
101          RC    0.07    0.06    0.07    3675   .0097
102          RX    1000    1760    2400    2480    2500    2550    2690    2750
103          RY  1398.9  1396.5    1396  1395.7  1395.7  1396.2  1396.8  1397.3
             *
             *
```

```
                 * ****************************************************************************
                 * **********************   Basin C1     ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

104              KK      C1
105              KM   SUB-BASIN C1
106              KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
107              KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
108              KM     L =  .70  Kb = .048  Adj. Slope =   51.0
109              BA    .355
110              LG    .350    .350   3.950    .470    .000
111              UC    .433    .198
112              UA       0       3       5       8      12      20      43      75      90      96
113              UA     100
                 *
                 *
                 * ****************************************************************************
                 * **********************   Basin S11    ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

114              KK     S11
115              KM   SUB-BASIN S11
116              KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
117              KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
118              KM     L = 2.19  Kb = .072  Adj. Slope =  297.5
119              BA    .993
120              LG    .190    .350   4.550    .340  38.000
121              UC    .521    .337
122              UA       0       3       5       8      12      20      43      75      90      96
123              UA     100
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S11 to CP-C1 Through Basin C1                        rrr
                 * rrr  Field typical Section  -  Sheet flow                              rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  6

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


124              KK    RS11
125              RS       8    FLOW
126              RC     .07     .07     .07    3100   .0095
127              RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
128              RY       5     3.5       3       2       0       2       3       5
                 *
                 *
                 * ****************************************************************************
                 * **********************   Basin S12    ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

129              KK     S12
130              KM   SUB-BASIN S12
131              KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
132              KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
133              KM     L = 1.06  Kb = .070  Adj. Slope =  315.0
134              BA    .408
135              LG    .240    .350   4.450    .360  31.000
136              UC    .317    .180
137              UA       0       3       5       8      12      20      43      75      90      96
138              UA     100
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S12        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
            * rrr  Route Basin S12 to CP-C1 Through Basin C4                          rrr
            * rrr  Field typical Section  -  Sheet flow                                rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 139        KK    RS12
 140        RS      15    FLOW
 141        RC     .07     .07     .07    4300   .0050
 142        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 143        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 Sonoqui Wash with Santan Blvd                      +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

 144        KK   CP-C1
 145        HC       4
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C1N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C1 to CP-C2 Through Basin C2  (Sonoqui Wash)                rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 146        KK    RC1N
 147        RS       5    FLOW
 148        RC     .05     .05     .05    2800   .0073
 149        RX       0     500    2815    2820    2845    2860    3700    4010
 150        RY  1391.5  1390.2    1389  1387.8  1387.8    1394  1394.4  1396.9
            *
            *
            * ***************************************************************************
            * **********************   Basin S1    ************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

 151        KK      S1
 152        KM   SUB-BASIN S1
 153        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 154        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .989
 155        KM     L = 1.59  Kb = .042  Adj. Slope =  102.0
 156        BA   1.760
 157        LG    .330    .350   4.250    .410  15.000
 158        UC    .488    .175
 159        UA       0       3       5       8      12      20      43      75      90      96
 160        UA     100
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S1       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Basin S1 to CP-E1 Through Basin E1                             rrr
            * rrr  Railroad typical section  -  sheet flow across fields                rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 161        KK     RS1
 162        RS     120    FLOW
 163        RC     .08     .08     .08   24000   .0013
 164        RX       0     800    2975    2990    3010    3025    5200    6000
 165        RY      10       8       2       0       0       2       8      10
            *
            *
```

```
                 * ***************************************************************************
                 * **********************   Basin S2    ***************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****

 166             KK      S2
 167             KM   SUB-BASIN S2
 168             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 169             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .982
 170             KM     L = 2.92  Kb = .040  Adj. Slope =   60.0
 171             BA   3.074
 172             LG    .320    .350   4.600    .330   6.000
 173             UC    .979    .449
 174             UA       0       3       5       8      12      20      43      75      90      96
 175             UA     100
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S2       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S2 to CP-E1 Through Basin E1                                rrr
                 * rrr  Railroad typical section  -  sheet flow across field                   rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  8

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


 176             KK     RS2
 177             RS      61    FLOW
 178             RC     .08     .08     .08   15964   .0018
 179             RX       0     800    2975    2990    3010    3025    5200    6000
 180             RY      10       8       2       0       0       2       8      10
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin S3B   ***************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****

 181             KK     S3B
 182             KM   SUB-BASIN S3B
 183             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 184             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 185             KM     L = 1.59  Kb = .060  Adj. Slope =  261.2
 186             BA   1.725
 187             LG    .230    .350   4.650    .310  54.000
 188             UC    .387    .137
 189             UA       0       3       5       8      12      20      43      75      90      96
 190             UA     100
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S3B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S3B to CP-S3A Through Basin S3A                             rrr
                 * rrr  Mountain typical section  -                                             rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

 191             KK    RS3B
 192             RS      32    FLOW
 193             RC    0.07    0.06    0.07   17915   .0076
 194             RX       0     400     800    1200    1600    2000    2400    2800
 195             RY       3       1      .5       0       0      .5       1       3
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin S3A   ***************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****
```

```
196          KK     S3A
197          KM   SUB-BASIN S3A
198          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
199          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
200          KM     L = 3.39  Kb = .040  Adj. Slope =   40.0
201          BA   1.703
202          LG    .340    .350   4.500    .350   1.000
203          UC   1.392   1.047
204          UA       0       3       5       8      12      20      43      75      90      96
205          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-S3A     ++++++++++++++++++++++++++++++
             * +++  Combines basins S3B & S3A (Hunt Hwy)                                 +++
             * +++  Hunt Hwy near intersection of aligments of Kenworthy & Judd Rds.      +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                    PAGE  9

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


206          KK  CP-S3A
207          HC       2
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S3A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-S3A to CP-E1 Through Basin E1                                rr
             * rrr  Field typical section  -  sheet flow across fields                    rr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

208          KK    RS3A
209          RS      45    FLOW
210          RC    0.08    0.08    0.08   11731   .0029
211          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
212          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin E1     ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

213          KK      E1
214          KM   SUB-BASIN E1
215          BA   7.909
216          LG    .320    .190   6.600    .180    .000
             *
             * THIS S-GRAPH WAS CALCULATED BASED ON THE FOLLOWING PARAMETERS:
             * AGRICULTURAL S-GRAPH WAS UTILIZED
             * TIME OF CONCENTRATION=33886 [FT] OR 6.4 [MILES]
             * TIME OF CONCENTRATION SLOPE=8.4 [FT/MILE]
             * Kn=0.070
             *      *** THE MARICOPA COUNTY HYDROLOGY MANUAL RECOMMENDS A Kn RANGE OF
             *      *** 0.06 [MIN], 0.10 [AVG], 0.15 [MAX] FOR THE AGRICULTURAL S-GRAPH
             * Lca=3.81 [MILES]
             * BASIN LAG TIME 3.78 [HOURS]
             *
             * *** DUE TO THE NUMBER OF ORDINATES REQUIRED FOR THE COMPLETE S-GRAPH, IT WAS
             * *** AUGMENTED AFTER THE 150TH ORDINATE, THE MAXIMUM ALLOWED IN HEC-1.
             *
217          UI    0.00  128.45  128.45  128.45  128.45  128.45  128.45  128.45  128.45  128.45
218          UI  195.48  269.74  269.74  269.74  269.74  438.49  449.57  498.30  674.35  674.35
219          UI  674.35  806.53  848.07  674.35  674.35  674.35  808.86  899.14  899.14 1293.32
220          UI  788.26  888.45 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96 1078.96
221          UI  1079.0 1078.96 1078.96 1078.96 1078.96 1078.96  963.87  899.14  899.14  899.14
222          UI  899.14  899.14  899.14 1049.47  952.73  960.49  995.13  674.35  674.35  674.35
223          UI  674.35  674.35  731.60  755.06  793.36  643.88  539.48  523.75  490.44  490.44
```

```
 224          UI  490.44  490.44  455.63  385.34  385.34  381.34  359.65  359.65  359.65  401.37
 225          UI  414.99  414.99  278.22  245.22  245.22  245.22  245.22  214.43  207.49  207.49
 226          UI  207.49  207.49  207.49  162.62  158.67  158.67  158.67  158.67  158.67  158.67
 227          UI  150.06  117.28  117.28  117.28  117.28  117.28  117.28  117.28  117.28  117.28
 228          UI  117.28   82.88   72.90   72.90   72.90   72.90   72.90   72.90   72.90   72.90
 229          UI   72.90   72.90   72.90   72.90   72.90   72.90   72.90   72.90   16.51   16.06
1                                          HEC-1 INPUT                                                PAGE 10

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

 230          UI   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06
 231          UI   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06   16.06
              *
              *
              * iiiiiiiiiiiiiiiiiiiiii     Input flow *RRW1    iiiiiiiiiiiiiiiiiiiiiiiiiiii
              * iii 4-3x5 trusts Southern Pacific Rail Road                                   iii
              * iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
              * iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
              * iii a conservative assumption and flow is not expected to reach this       iii
              * iii height                                                                   iii
              * iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
              *
              *
              *
              * ******************************************************************************
              * ******************************************************************************
              * ************************** BEGINNING OF INPUT FROM ***************************
              * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
              * ******************************************************************************
              * ******************************************************************************
              *
              *
              *
              * The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file SONOQRR.DAT
              * and the DSS file SONOQRR.DSS as outputed from the .DAT file.  These files were
              * obtained from Catherine Regester at the FCDMC on Feb. 25, 2004.
              * The following description is given at the begining of the file SONOQRR.DAT:
              *
              *
              * ******************************************************************************
              * ******************************************************************************
              * ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
              * ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
              * **                                                                          **
              * ** FILE NAME:  SONOQRR.DAT  (2/25/04)  (CWR)                                **
              * **                                                                          **
              * ** THIS MODEL IS SONOUPRR.DAT (SEE DESCRIPTION BELOW) EXCEPT THE ZW CARDS   **
              * ** ARE PLACED AT THE RAILROAD AND REFLECT THE FLOWS AS THEY COME THRU THE RR**
              * ** THEY ARE NOT ROUTED TO THE NEXT CONCENTRATION POINT.  THIS DATA WILL     **
              * ** BECOME PART OF THE HYDROLOGY SUBMITTAL TO FEMA FOR THE SONOQUI WASH      **
              * ** FLOODPLAIN DELINEATION STUDY (FCD 2002C033-2).                           **
              * **                                                                          **
              * **                                                                          **
              * ** ************************************************************************
              * ** FILE NAME:  SONOUPRR.DAT  (2/20/04) (CWR)                                **
              * **                                                                          **
              * ** THIS MODEL IS SONOFEMA.DAT WITH THE SUB-BASINS DOWNSTREAM OF THE RAILROAD**
              * ** EDITED OUT.  IN THIS MODEL, FLOWS ARE ROUTED THROUGH THE RAILROAD AND    **
              * ** DOWN TO THE NEXT RESPECTIVE CONCENTRATION POINT:  RRW1 TO CP-B1; RRW2 AND**
              * ** RRW3 TO CP-D5.  THESE ROUTED HYDROGRAPHS ARE WRITTEN TO THE .DSS FILE VIA**
              * ** A ZW CARD.  THE INTENDED USE IS TO READ THESE ROUTED HYDROGRAPHS (VIA ZR **
              * ** CARDS) INTO THE ENTELLUS HEC-1 MODEL WHICH WAS PREPARED FOR THE REMAINING**
              * ** SONOQUI WASH WATERSHED.  THIS DATA WILL BECOME PART OF THE HYDROLOGY     **
              * ** SUBMITTAL TO FEMA FOR THE SONOQUI WASH FLOODPLAIN DELINEATION STUDY (FCD **
              * ** 2002C033-2).                                                             **
              * **                                                                          **
              * ** THE FLOWS THROUGH THE RAILROAD WERE DETERMINED BY HUITT-ZOLLARS UNDER    **
              * ** THE QUEEN CREEK/SANOKAI WASH HYDRAULIC MASTER PLAN (FCD 98-26).          **
              * **                                                                          **
              * ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
              * ****FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC*FCDMC***
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                * ******************************************************************************
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                *
                *
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 11

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


 232            KK   *RRW1
 233            BA    3.37
                * 3.37 sq miles is the attributing area to the RRW1 structure.
                * The diverted flow is 306cfs, and the entire flow at
                * the previous concentration point was 960cfs.  Thus 306cfs/960cfs=32%.
                * WHen this percentage is applied to the 10.53 sq miles as found in the output
                * from SONOQRR.DAT, this becomes 3.37 sq miles. The hydrograph from the DSS
                * file is unrouted, so the original route was utilized to route the data.
 234            KM   FLOW FROM CULVERT BY RAILROAD
                *
 235            ZR  =QI A=RRW1              B=RRW1              C=FLOW  E=5MIN F=100YR
                *
                *
                *
                *
                * ******************************************************************************
                * ******************************************************************************
                * ***************************** END OF INPUT FROM ******************************
                * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
                * ******************************************************************************
                * ******************************************************************************
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing RRW1       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Culvert *RRW1 to CP-E1 Through Basin E2                          rrr
                * rrr  Field typical section  -  Sheet flow across fields                     rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 236            KK    RRW1
 237            RS      10    FLOW
 238            RC     .08     .08     .08    2700   .0026
 239            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 240            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              +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****

 241            KK   CP-E1
 242            HC       5
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-E1 to CP-D5 (midway ofE2) Through Basin E2                   rrr
                * rrr  Railroad typical section - channel flow                               rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 12

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
243          KK     RE1
244          RS      24    FLOW
245          RC    0.08    0.06    0.08    8256   .0012
246          RX       0     800    2975    2990    3010    3025    5200    6000
247          RY      10       8       2       0       0       2       8      10
             *
             *
             * ****************************************************************************
             * **********************   Basin S4B    ***************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

248          KK     S4B
249          KM   SUB-BASIN S4B
250          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
251          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
252          KM     L = 2.64  Kb = .054  Adj. Slope =  200.9
253          BA   1.277
254          LG    .270    .350   4.350    .380  23.000
255          UC    .608    .403
256          UA       0       3       5       8      12      20      43      75      90      96
257          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S4B           rrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S4B to CP-S4A Through Basin S4A                          rrr
             * rrr  Mountain typical section  - natural channel flow                     rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

258          KK    RS4B
259          RS      16    FLOW
260          RC     .07     .06     .07    8090   .0091
261          RX       0     400     800    1200    1600    2000    2400    2800
262          RY       3       1      .5       0       0      .5       1       3
             *
             * ****************************************************************************
             * **********************   Basin S4A    ***************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

263          KK     S4A
264          KM   SUB-BASIN S4A
265          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
266          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
267          KM     L = 1.53  Kb = .040  Adj. Slope =   48.0
268          BA   1.600
269          LG    .340    .350   4.250    .410   7.000
270          UC    .675    .257
271          UA       0       3       5       8      12      20      43      75      90      96
272          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++ Conc. Point CP-S4A     ++++++++++++++++++++++++++++++++
             * +++  Combines basins S4B & S4A (Hunt Hwy)                                  +++
             * +++  Hunt Hwy near intersection of aligments of Bella Vista and Vinyard    +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```



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

273          KK  CP-S4A
274          HC       2
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   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
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RS4A
RS      21    FLOW
RC     .08     .08     .08    7390   .0065
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
* ******************************************************************************
* **********************   Basin S5     ************************************
* ******************************************************************************
* DDM   ***** Updated *****

KK      S5
KM   SUB-BASIN S5
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
KM     L =  .86  Kb = .068  Adj. Slope =  298.4
BA    .338
LG    .250    .350   4.500    .350  25.000
UC    .279    .148
UA       0       3       5       8      12      20      43      75      90      96
UA     100
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrrrr   Routing R-S5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-S5 to CP-D5 (midway of E2) Through Basin E2                  rrr
* rrr  Field typical section  -  sheet flow across fields                    rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK     RS5
RS      23    FLOW
RC     .08     .08     .08    5790   .0067
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
*
*
* ******************************************************************************
* ******************************************************************************
* ************************** BEGINNING OF INPUT FROM ***************************
* ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
* ******************************************************************************
* ******************************************************************************
*
* The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file SONOQRR.DAT
* and the DSS file SONOQRR.DSS as outputed from the .DAT file.  These files were
* obtained from Catherine Regester at the FCDMC on Feb. 25, 2004.
* *******Please refer to the note prior to RRW1 for full details.*******
*
*
* iiiiiiiiiiiiiiiiiiiii     Input flow *RRW2    iiiiiiiiiiiiiiiiiiiiiiiiiiii
* iii 1-3.5x5.0 CMP arch Southern Pacific Rail Road                          iii
* iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
* iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
* iii a conservative assumption and flow is not expected to reach this       iii
* iii height                                                                 iii
* iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
* DDM   ***** Preserved *****
```



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

KK   *RRW2
KM  FLOW FROM CULVERT BY RAILROAD
BA    0.21
```

```
                * 0.21 sq miles is the attributing area to the RRW2 structure.
                * The diverted flow is 123cfs, and the entire flow at
                * the previous concentration point was 730cfs.  Thus 123cfs/730cfs=17%.
                * WHen this percentage is applied to the 1.27 sq miles as found in the output
                * from SONOQRR.DAT, this becomes 0.21 sq miles. The hydrograph from the DSS
                * file is unrouted, so the original route was utilized to route the data.
298             KM   FLOW FROM CULVERT BY RAILROAD
                *
299             ZR  =QI A=RRW2              B=RRW2              C=FLOW  E=5MIN F=100YR
                *
                *
                *
                * ****************************************************************************
                * ****************************************************************************
                * ***************************** END OF INPUT FROM ******************************
                * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
                * ****************************************************************************
                * ****************************************************************************
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing RRW2       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Culvert *RRW2 to CP-D5 Through Basin E2                        rrr
                * rrr  Field typical section  -   sheet flow across fields                  rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

300             KK    RRW2
301             RS      45    FLOW
302             RC     .08     .08     .08    7800   .0019
303             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
304             RY       5     3.5       3       2       0       2       3       5
                *
                *
                *
                * ****************************************************************************
                * ****************************************************************************
                * ************************** BEGINNING OF INPUT FROM ***************************
                * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ***********************
                * ****************************************************************************
                * ****************************************************************************
                *
                *
                * The Hydrograph for RRW1, RRW2 and RRW3 were obtained from the file SONOQRR.DAT
                * and the DSS file SONOQRR.DSS as outputed from the .DAT file.  These files were
                * obtained from Catherine Regester at the FCDMC on Feb. 25, 2004.
                * *******Please refer to the note prior to RRW1 for full details.*******
                *
                *
                * iiiiiiiiiiiiiiiiiiiiii     Input flow *RRW3    iiiiiiiiiiiiiiiiiiiiiiiiiiii
                * iii 6-3.5x5.0 CMP arch Southern Pacific Rail Road                        iii
                * iii Triangular distribution based on 24 duration with peak at 4.75 hours   iii
                * iii Culvert flow was assumed to have a HW=12ft and inlet control.  this is iii
                * iii a conservative assumption and flow is not expected to reach this       iii
                * iii height                                                                 iii
                * iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
                * DDM   ***** Preserved *****
```



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

305             KK   *RRW3
306             KM  FLOW FROM CULVERT BY RAILROAD
307             BA    1.28
                * 1.28 sq miles is the attributing area to the RRW3 structure.
                * The diverted flow is 349cfs, and the entire flow at
                * the previous concentration point was 602cfs.  Thus 349cfs/602cfs=58%.
                * WHen this percentage is applied to the 2.21 sq miles as found in the output
                * from SONOQRR.DAT, this becomes 1.28 sq miles. The hydrograph from the DSS
                * file is unrouted, so the original route was utilized to route the data.
```

```
308          KO       3
309          KM   FLOW FROM CULVERT BY RAILROAD
             *
310          ZR  =QI A=RRW3              B=RRW3              C=FLOW  E=5MIN F=100YR
             *
             *
             *
             * ******************************************************************************
             * ******************************************************************************
             * ****************************** END OF INPUT FROM ******************************
             * ********************** QUEEN CREEK/SANOKAI MASTER PLAN ************************
             * ******************************************************************************
             * ******************************************************************************
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing RRW3       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Culvert *RRW3 to CP-D5 Through Basin E2                          rrr
             * rrr  Field typical section  -   sheet flow across fields                    rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

311          KK    RRW3
312          RS      13     FLOW
313          RC     .08      .08      .08     4950     .005
314          RX       0     1000     2480   2497.5     2500   2502.5     4000     5000
315          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.                         +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

316          KK   CP-D5
317          HC       5
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrr   Routing R-D5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-D5 to CP-D6 (middway of E2) Through Basin E2                  rrr
             * rrr  Railroad typical section  -  tail water ditch flow                     rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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


318          KK     RD5
319          RS      15     FLOW
320          RC     .08      .06      .08     6430    .0017
321          RX       0      800     2975     2990     3010     3025     5200     6000
322          RY      10        8        2        0        0        2        8       10
             *
             *
             * ******************************************************************************
             * ***********************   Basin S6     ****************************************
             * ******************************************************************************
             * DDM   ***** Updated *****

323          KK      S6
324          KM   SUB-BASIN S6
325          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
326          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
327          KM     L = 2.29  Kb = .050  Adj. Slope =  140.0
328          BA    .819
329          LG    .310     .360   5.000     .270   5.000
330          UC    .617     .470
```

```
331          UA       0       3       5       8      12      20      43      75      90      96
332          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-S6 to CP-D6 (middway of E2) Through Basin E2                  rrr
             * rrr  Field typical section  -  Sheet flow across fields                     rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

333          KK     RS6
334          RS      38    FLOW
335          RC     .08     .08     .08    8910   .0049
336          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
337          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin S7B     ************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

338          KK     S7B
339          KM   SUB-BASIN S7B
340          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
341          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
342          KM     L =  .95  Kb = .076  Adj. Slope =  299.2
343          BA    .773
344          LG    .180    .350   4.500    .350  29.000
345          UC    .321    .116
346          UA       0       3       5       8      12      20      43      75      90      96
347          UA     100
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-S7B        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route Basin S7B to CP-S7A Through Basin S7A                            rrr
             * rrr  Mountain typical section                                               rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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

348          KK    RS7B
349          RS      15    FLOW
350          RC     .07     .06     .07    7714   .0106
351          RX       0     400     800    1200    1600    2000    2400    2800
352          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * ***************************************************************************
             * **********************   Basin S7A     ************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

353          KK     S7A
354          KM   SUB-BASIN S7A
355          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
356          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
357          KM     L = 1.47  Kb = .043  Adj. Slope =   56.0
358          BA   1.191
359          LG    .340    .350   4.400    .370    .000
360          UC    .642    .279
361          UA       0       3       5       8      12      20      43      75      90      96
362          UA     100
             *
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * ++++++++++++++++++++++ Conc. Point CP-S7A     ++++++++++++++++++++++++++++++++
             * +++  Combines basins S7B & S7A  (Hunt Hwy)                                  +++
```

```
            * +++  Hunt Hwy 1.5 miles south of Empire Rd.                                  +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

 363        KK  CP-S7A
 364        HC       2
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-S7A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-S7 to CP-D6 (midway of E2) Through Basin E2                   rrr
            * rrr  Field typical section  -  Sheet flow across fields                     rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 365        KK    RS7A
 366        RS      24    FLOW
 367        RC     .08     .08     .08    6900   .0059
 368        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 369        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)                  +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```



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

 370        KK   CP-D6
 371        HC       3
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-D6       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-D6 to CP-E2 Through Basin E2                                  rrr
            * rrr  Railroad typical section - tail water ditch                            rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 372        KK     RD6
 373        RS       8    FLOW
 374        RC     .08     .06     .08    5161   .0052
 375        RX       0     800    2975    2990    3010    3025    5200    6000
 376        RY      10       8       2       0       0       2       8      10
            *
            *
            * ******************************************************************************
            * **********************   Basin E5     ***************************************
            * ******************************************************************************
            * DDM   ***** Updated *****

 377        KK      E5
 378        KM   SUB-BASIN E5
 379        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 380        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
 381        KM     L =  .87  Kb = .086  Adj. Slope =   54.0
 382        BA    .571
 383        LG    .500    .000   3.950    .730    .000
 384        UC    .712    .313
 385        UA       0       3       5       8      12      20      43      75      90      96
 386        UA     100
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-E5       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-E5 to CP-E2 Through Basin E2  (Signal Rd.)                     rrr
            * rrr  Street typical section  -  along Signal Butte Rd.                       rrr
```

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

 387             KK     RE5
 388             RS       5    FLOW
 389             RC     .08     .02     .08    2150   .0065
 390             RX       0    1000    2470    2488    2512    2515    2520    5000
 391             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin E2     ************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 19

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


 392             KK      E2
 393             KM   SUB-BASIN E2
 394             BA   7.328
 395             LG    .320    .180   4.900    .360   3.000
                 *
                 * THIS S-GRAPH WAS CALCULATED BASED ON THE FOLLOWING PARAMETERS:
                 * AGRICULTURAL S-GRAPH WAS UTILIZED
                 * TIME OF CONCENTRATION=31606 [FT] OR 6.0 [MILES]
                 * TIME OF CONCENTRATION SLOPE=13.7 [FT/MILE]
                 * Kn=0.070
                 *      *** THE MARICOPA COUNTY HYDROLOGY MANUAL RECOMMENDS A Kn RANGE OF
                 *      *** 0.06 [MIN], 0.10 [AVG], 0.15 [MAX] FOR THE AGRICULTURAL S-GRAPH
                 * Lca=2.52 [MILES]
                 * BASIN LAG TIME 2.86 [HOURS]
                 *
                 * *** DUE TO THE NUMBER OF ORDINATES REQUIRED FOR THE COMPLETE S-GRAPH, IT WAS
                 * *** AUGMENTED AFTER THE 150TH ORDINATE, THE MAXIMUM ALLOWED IN HEC-1.
 396             UI    0.00  156.87  156.87  156.87  156.87  156.87  156.87  156.87  293.68  329.43
 397             UI  329.43  408.67  549.06  631.85  823.59  823.59  976.22  953.60  823.59  823.59
 398             UI  1037.9 1098.11 1469.46  941.24 1255.24 1317.74 1317.74 1317.74 1317.74 1317.74
 399             UI  1317.7 1317.74 1317.74 1317.74 1317.74 1168.39 1098.11 1098.11 1098.11 1098.11
 400             UI  1215.0 1169.71 1239.64  929.14  823.59  823.59  823.59  884.71  938.38  886.57
 401             UI  658.87  625.95  598.97  598.97  598.97  499.58  470.62  458.95  439.25  439.25
 402             UI  493.17  506.82  389.22  299.49  299.49  299.49  262.99  253.41  253.41  253.41
 403             UI  233.71  193.78  193.78  193.78  193.78  193.78  168.71  143.23  143.23  143.23
 404             UI  143.23  143.23  143.23  143.23  110.58   89.04   89.04   89.04   89.04   89.04
 405             UI   89.04   89.04   89.04   89.04   89.04   89.04   89.04   26.27   19.61   19.61
 406             UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
 407             UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
 408             UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
 409             UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
 410             UI   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61   19.61
                 *
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin S8B    ************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****

 411             KK     S8B
 412             KM   SUB-BASIN S8B
 413             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 414             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 415             KM     L = 2.07  Kb = .059  Adj. Slope =  277.2
 416             BA   1.696
 417             LG    .240    .350   4.500    .350  40.000
 418             UC    .454    .204
 419             UA       0       3       5       8      12      20      43      75      90      96
 420             UA     100
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-S8B          rrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin S8B to CP-S8A Through Basin S8A                          rrr
                * rrr  Mountain typical section                                              rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                PAGE 20

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


 421            KK    RS8B
 422            RS      18    FLOW
 423            RC     .07     .06     .07   11791   .0115
 424            RX       0     400     800    1200    1600    2000    2400    2800
 425            RY       3       1      .5       0       0      .5       1       3
                *
                *
                * ****************************************************************************
                * **********************   Basin S8A     ***************************************
                * ****************************************************************************
                * DDM   ***** Updated *****

 426            KK     S8A
 427            KM   SUB-BASIN S8A
 428            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 429            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
 430            KM     L = 2.26  Kb = .038  Adj. Slope =   60.0
 431            BA   1.740
 432            LG    .350    .350   4.100    .440    .000
 433            UC    .825    .418
 434            UA       0       3       5       8      12      20      43      75      90      96
 435            UA     100
                *
                *
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * +++++++++++++++++++++++ Conc. Point CP-S8A     ++++++++++++++++++++++++++++++++
                * +++  Combines basins S8B & S8A                                              +++
                * +++  Hunt Hwy near Signal Butte Rd. Alignment                               +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****

 436            KK  CP-S8A
 437            HC       2
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing R-S8A       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-S8A to CP-E2 Through Basin E2                                 rr
                * rrr  Field typical section  -  sheet flow across fields                     rr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 438            KK    RS8A
 439            RS      24    FLOW
 440            RC     .08     .08     .08    9191    .007
 441            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 442            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.                         +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                PAGE 21

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


 443            KK   CP-E2
 444            HC       4
```

```
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr   Routing R-E2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-E2 to CP-E6 Through Basin E6 (field)                        rrr
              * rrr  Railroad typical section - tailwater ditch flow                      rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

 445          KK     RE2
 446          RS      12     .08
 447          RC     .08     .06     .08    6025   .0033
 448          RX       0     800    2975    2990    3010    3025    5200    6000
 449          RY      10       8       2       0       0       2       8      10
              *
              *
              * ***************************************************************************
              * *********************   Basin E6     **************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

 450          KK      E6
 451          KM    SUB-BASIN E6
 452          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 453          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
 454          KM      L = 1.76  Kb = .075  Adj. Slope =   22.0
 455          BA    1.167
 456          LG     .480    .020   4.600    .500    .000
 457          UC    1.500    .835
 458          UA       0       3       5       8      12      20      43      75      90      96
 459          UA     100
              *
              *
              * ***************************************************************************
              * *********************   Basin E11    **************************************
              * ***************************************************************************
              * DDM   ***** Updated *****

 460          KK     E11
 461          KM    SUB-BASIN E11
 462          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 463          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 464          KM      L = 1.13  Kb = .092  Adj. Slope =   16.0
 465          BA     .338
 466          LG     .500    .000   4.800    .460    .000
 467          UC    1.500   1.188
 468          UA       0       3       5       8      12      20      43      75      90      96
 469          UA     100
              *
              *
              *
              *
              * ///////////////////////////////////////////////////////////////////////////
              * /////////////////////   Diversion *DE11   ////////////////////////////////////
              * ///   1 along Meridian and Riggs - 2 Sheet flow across field              ////
              * ///   Intersection of Meridian Rd. and Santan Blvd                         ////
              * ///////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****
```



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


 470          KK    *DE11
 471          KM     DIVERSION FLOW FROM CP-E11, THROUGH BASIN E3, THEN ALONG RIGGS RD.
 472          DT    DDE11
 473          DI       0      40      80     100     120     160     180     200
 474          DQ       0      37      74      93     112     150     168     187
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-E11N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Basin E11 to CP-E3 Through Basin E3                            rrr
            * rrr  Channel flow                                                          rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

475         KK   RE11N
476         RS      26    FLOW
477         RC     .08     .04     .08    6950   .0031
478         RX       0       5      10      35      55      70      75      80
479         RY       7       6       5       0       0       5       6       7
            *
            *
            * ****************************************************************************
            * **********************   Basin E3     ***************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

480         KK      E3
481         KM   SUB-BASIN E3
482         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
483         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
484         KM     L = 1.25  Kb = .089  Adj. Slope =   18.0
485         BA    .430
486         LG    .500    .000   4.800    .460    .000
487         UC   1.500   1.122
488         UA       0       3       5       8      12      20      43      75      90      96
489         UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * //////////////////////  Diversion Recover DE11   ////////////////////////////
            * ///   from South East through field                                      ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

490         KK    DE11
491         KM    DIVERSION FLOW FROM CP-E11
492         DR   DDE11
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RE11S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Diversion Flow from CP-E11 to CP-E3 Through Basin E3                  rrr
            * rrr  Field typical section  -  sheet flow across fields                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

493         KK   RE11S
494         KO       5                                 21
495         RS      45    FLOW
496         RC     .08     .07     .08    6600   .0033
497         RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
498         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.                           +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

499         KK   CP-E3
500         HC       3
            *
            *
```

```
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DE3   ////////////////////////////////////
            * ///   1 west along Riggs Road - 2 North along Signal Rd.                   ///
            * ///   Intersection of Signal Butte Rd and Riggs Rd.                        ///
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

501         KK    *DE3
502         KM    DIVERSION FLOW FROM CP-E3
503         DT    DDE3
504         DI       0      40      80     120     160     200     280     400
505         DQ       0       8      15      17      22      25      35      50
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Diversion Flow from CP-E3 to CP-E6 (Riggs Rd.)                          rrr
            * rrr  Street typical section  -  along Riggs rd.                              rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

506         KK    RE3W
507         RS      23    FLOW
508         RC     .08     .02     .08    5200   .0036
509         RX       0    1000    2470    2488    2512    2515    2520    5000
510         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.                                  +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```



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

511         KK   CP-E6
512         HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DE6   ////////////////////////////////////
            * ///   1 West Along Riggs - 2 North Along Crismon Rd.                      ////
            * ///  Intersection of Crismon and Riggs Rds.                               ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

513         KK    *DE6
514         KM    DIVERSION FLOW FROM CP-E6
515         DT    DDE6
516         DI       0      30      90     150     210     270     300
517         DQ       0      10      31      51      72      92     103
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E6S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-E6 to CP-E9 Through Riggs road                                 rrr
            * rrr  Street typical section  -  along Riggs Rd.                              rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

518         KK    RE6S
519         RS      12    FLOW
520         RC     .08     .02     .08    5200   .0035
521         RX       0    1000    2470    2488    2512    2515    2520    5000
522         RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            * ****************************************************************************
            * **********************   Basin E9     ****************************************
```

```
            * ****************************************************************************
            * DDM   ***** Updated *****

523         KK      E9
524         KM   SUB-BASIN E9
525         KM   *24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
526         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
527         KM     L = 1.86  Kb = .060  Adj. Slope =   30.0
528         BA    .954
529         LG    .570    .000   4.200    .660    .000
530         UC   1.283    .824
531         UA       0       3       5       8      12      20      43      75      90      96
532         UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion Recover DE8   ////////////////////////////
            * ///   from south along Ellsworth Rd. North of County boundary             ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 25

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


533         KK     DE8
534         KM    Return flow from CP-E8
535         DR    DDE8
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E8E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route DE8 to CP-E9 Along Ellsworth Road                              rrrr
            * rrr  Street typical section  -  Ellsworth Rd.                              rrrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

536         KK    RE8E
537         RS      13    FLOW
538         RC     .08     .02     .08    5300   .0072
539         RX       0    1000    2470    2488    2512    2515    2520    5000
540         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.                              +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

541         KK   CP-E9
542         HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion *DE9   ///////////////////////////////////
            * ///   1 West Riggs Road to Sonoqui - 2 North along Ellsworth Road          ///
            * ///   Inttersecttion of Ellsworth and Riggs Rds.                           ///
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

543         KK    *DE9
544         KM    DIVERTED FLOW FROM CP-E9
545         DT    DDE9
546         DI       0     200     600    1000    1400    1800    2000
547         DQ       0      67      87     144     202     259     288
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-E9W         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
```

```
* rrr  Route Diverted flow from CP-E9 to CP-C2 (Riggs Rd.)                   rrr
* rrr  Channel/sheet flow along Riggs Rd. near the landfield                 rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM    ***** Preserved *****
```



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

 548          KK    RE9W
 549          RS       5    FLOW
 550          RC     .08    .035     .08    4000   .0045
 551          RX       0     305     310   322.5   347.5     360     365     670
 552          RY       8       6       5       0       0       5       6       8
              *
              *
              * **************************************************************************
              * *********************   Basin C4     *************************************
              * **************************************************************************
              * DDM    ***** Updated *****

 553          KK      C4
 554          KM   SUB-BASIN C4
 555          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 556          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 557          KM     L = 1.18  Kb = .048  Adj. Slope =   37.0
 558          BA    .311
 559          LG    .350    .350   4.200    .420    .000
 560          UC    .746    .594
 561          UA       0       3       5       8      12      20      43      75      90      96
 562          UA     100
              *
              *
              * **************************************************************************
              * *********************   Basin C2     *************************************
              * **************************************************************************
              * DDM    ***** Updated *****

 563          KK      C2
 564          KM   SUB-BASIN C2
 565          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 566          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 567          KM     L = 1.21  Kb = .084  Adj. Slope =   28.0
 568          BA    .322
 569          LG    .470    .070   4.300    .580    .000
 570          UC   1.292   1.092
 571          UA       0       3       5       8      12      20      43      75      90      96
 572          UA     100
              *
              *
              * **************************************************************************
              * *********************   Basin C3     *************************************
              * **************************************************************************
              * DDM    ***** Updated *****

 573          KK      C3
 574          KM   SUB-BASIN C3
 575          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 576          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
 577          KM     L =  .38  Kb = .083  Adj. Slope =   10.0
 578          BA    .112
 579          LG    .560    .000   4.800    .460    .000
 580          UC    .754    .434
```



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

 581          UA       0       3       5       8      12      20      43      75      90      96
 582          UA     100
              *
              *
```

```
          * ////////////////////////////////////////////////////////////////////////////
          * ////////////////////// Diversion *DC3 ////////////////////////////////////
          * ///   1 South of landfild - 2 North of landfild to Hawes Rd.              ///
          * ///   At east end of lanfield                                             ///
          * ////////////////////////////////////////////////////////////////////////////
          * DDM   ***** Preserved *****

583       KK    *DC3
584       KM     FLOW FROM DIVERSION AT CP-C3
585       DT    DDC3
586       DI       0      20      40     100     140     180     200
587       DQ       0      10      20      42      47      61      68
          *
          *
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrrrrrrrrrrrrrrrrrrrr   Routing R-C3SW        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrr  Route Basin C3 to CP-C2 Around Landfill in Channel                     rrr
          * rrr  Channel by landfield                                                   rrr
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * DDM   ***** Preserved *****

588       KK   RC3SW
589       RS       4    FLOW
590       RC     .08    .045     .08    3060    .004
591       RX       0       5      10    22.5    47.5      60      65      70
592       RY       7       6       5       0       0       5       6       7
          *
          *
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * +++++++++++++++++++++++ Conc. Point *CP-C2     ++++++++++++++++++++++++++++++
          * +++  Combines basin C2, C3 & C4                                             +++
          * +++  Sonoqui Wash at Riggs Rd (south of landfield)                          +++
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * DDM   ***** Preserved *****

593       KK  *CP-C2
594       HC       3
          *
          *
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * +++++++++++++++++++++++ Conc. Point CP-C2     ++++++++++++++++++++++++++++++
          * +++  Combines basin (C2, C3, C4), E9 & CP-C1                                +++
          * +++  Sonoqui Wash at Riggs Rd (south of landfield)                          +++
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * DDM   ***** Preserved *****
```



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


595       KK   CP-C2
596       HC       3
          *
          *
          * ////////////////////////////////////////////////////////////////////////////
          * ////////////////////// Diversion *DC2 ////////////////////////////////////
          * ///   1 North west along Sonoqui - 2 west along Riggs R. (by landfield)  ////
          * ///   Sonoqui Wash south of Riggs road                                   ////
          * ////////////////////////////////////////////////////////////////////////////
          * DDM   ***** Preserved *****

597       KK    *DC2
598       KM    DIVERSION FLOW FROM CP-C2
599       DT    DDC2
600       DI       0    1500    1600    1900    2000    2500    3000    3500    4000
601       DQ       0       1      10     220     250     420     560     700     830
          *
          *
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrrrrrrrrrrrrrrrrrrrr   Routing R-C2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrr  Route CP-C2 to CP-C16 Through Basin C16                                rrr
```

```
          * rrr  Sonoqui wash from Riggs Rd to Hawes Rd.                                rrr
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * DDM    ***** Preserved *****

 602      KK     RC2
 603      RS       1    FLOW
 604      RC     .07     .06     .07    1650   .0061
 605      RX    9600    9900    9980    9990   10010   10050   10150   10400
 606      RY    1387  1385.7  1386.5  1380.8  1380.3  1386.2  1384.4  1388.8
          *
          *
          * ******************************************************************************
          * *********************    Basin C16     **************************************
          * ******************************************************************************
          * DDM    ***** Updated *****

 607      KK     C16
 608      KM    SUB-BASIN C16
 609      KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 610      KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
 611      KM      L =  .31  Kb = .063  Adj. Slope =   32.0
 612      BA    .027
 613      LG    .350    .350   4.800    .290    .000
 614      UC    .346    .350
 615      UA       0       5      16      30      65      77      84      90      94      97
 616      UA     100
          *
          *
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * ++++++++++++++++++++ Conc. Point CP-C16      ++++++++++++++++++++++++++++++
          * +++  Combines basin C16 & Conc. Point CP-C2 (Hawes and Landfild)           +++
          * +++  Sonoqui Wash at Hawes Rd.                                              +++
          * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          * DDM    ***** Preserved *****
```



```
 617      KK  CP-C16
 618      HC       2
          *
          *
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrrrrrrrrrrrrrrrrrrr    Routing R-C16         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrr  Route CP-C16 to CP-C7 Through Basin C7                                 rrr
          * rrr  Sonoqui Wash from Hawes to Sossoman                                    rrr
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * DDM    ***** Preserved *****

 619      KK     RC16
 620      RS       3    FLOW
 621      RC     .08     .04     .08    5465   .0012
 622      RX     500    1300    2220    2250    2340    2460    3000    3470
 623      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                            ////
          * //////////////////////////////////////////////////////////////////////////////
          * DDM    ***** Preserved *****

 624      KK     DE3
 625      KM     Return flow from CP-E3
 626      DR     DDE3
          *
          *
          * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrrrrrrrrrrrrrrrrrrr    Routing R-E3          rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
          * rrr  Route CP-E3 to CP-E4 Through Basin E4 (Signal Rd.)                     rrr
```

```
            * rrr  Street typical section  -  along Signal Butte Rd.                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 627        KK     RE3
 628        RS      54    FLOW
 629        RC     .08     .02     .08    2700   .0002
 630        RX       0    1000    2470    2488    2512    2515    2520    5000
 631        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            *
            * ***************************************************************************
            * **********************   Basin E4     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

 632        KK      E4
 633        KM   SUB-BASIN E4
 634        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 635        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 636        KM     L = 1.23  Kb = .080  Adj. Slope =   14.0
 637        BA    .371
1                                        HEC-1 INPUT                                    PAGE 30

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

 638        LG    .450    .040   4.650    .480   9.000
 639        UC   1.500   1.205
 640        UA       0       5      16      30      65      77      84      90      94      97
 641        UA     100
            *
            *
            * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * ++++++++++++++++++++++ Conc. Point CP-E4     ++++++++++++++++++++++++++++++++++
            * +++  Combines basin E4 & CP-E3                                              +++
            * +++  Intersection of Signal Butte Rd and Cloud Rd.                          +++
            * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

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

 644        KK    *DE4
 645        KM     DIVERSION OF FLOW AT CP-E4 OFFSITE
 646        DT  DDE4 O
 647        DI       0      30      60      90     120     180     240     300
 648        DQ       0      11      23      34      46      69      92     115
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-E4        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-E4 to CP-E7 Through Basin E7 (Cloud Rd.)                      rrr
            * rrr  Field typical section  -  sheet flow across field                      rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

 649        KK     RE4
 650        KO       5                              21
 651        RS      49    FLOW
 652        RC     .08     .07     .08    6400   .0031
 653        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 654        RY       5     3.5       3       2       0       2       3       5
            *
            *
```

```
                * ******************************************************************************
                * **********************   Basin E7     ****************************************
                * ******************************************************************************
                * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 31

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


 655            KK      E7
 656            KM   SUB-BASIN E7
 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  .998
 659            KM     L = 1.03  Kb = .073  Adj. Slope =   19.0
 660            BA    .356
 661            LG    .420    .100   4.800    .400   2.000
 662            UC   1.163    .807
 663            UA       0       5      16      30      65      77      84      90      94      97
 664            UA     100
                *
                *
                * ////////////////////////////////////////////////////////////////////////////
                * ////////////////////////  Diversion Recover DE6   ////////////////////////////
                * ///   From south along Crismon Road north of Riggs                        ////
                * ////////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****

 665            KK     DE6
 666            KM    Return flow from CP-E6
 667            DR    DDE6
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrr   Routing RE6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route DE6 to CP-E7 Along Crismon Road                                   rrr
                * rrr  Stret typical section  -  Along Riggs Rd.                                rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

 668            KK     RE6
 669            RS       6    FLOW
 670            RC     .08     .02     .08    1465   .0012
 671            RX       0    1000    2470    2488    2512    2515    2520    5000
 672            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.                                            +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****

 673            KK   CP-E7
 674            HC       3
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrr   Routing R-E7       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-E7 to CP-E10 Through Basin E10                                  rr
                * rrr  Field typical section  -  Sheet flow across fields                       rr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 32

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


 675            KK     RE7
 676            RS      15    FLOW
 677            RC     .08     .07     .08    5200   .0035
```

```
678          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
679          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ***************************************************************************
             * **********************   Basin E10     ***************************************
             * ***************************************************************************
             * DDM   ***** Updated *****

680          KK     E10
681          KM   SUB-BASIN E10
682          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
683          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
684          KM     L = 1.02  Kb = .035  Adj. Slope =   20.0
685          BA    .509
686          LG    .660    .000   4.650    .500    .000
687          UC    .587    .306
688          UA       0       3       5       8      12      20      43      75      90      96
689          UA     100
             *
             * ///////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion Recover DE9   ////////////////////////////
             * ///   From South along Ellsworth Road north of Riggs                    ////
             * ///////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

690          KK     DE9
691          KM     DIVERSION FLOW FROM CP-E9
692          DR    DDE9
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing RE9N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Diverted Flow from CP-E9 to CP-E10 Along Ellsworth Rd.                rrr
             * rrr  Stret typical section  -  Along Ellsworth Rd.                         rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

693          KK    RE9N
694          RS       6    FLOW
695          RC     .08     .02     .08    1300   .0015
696          RX       0    1000    2470    2488    2512    2515    2520    5000
697          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.                                      +++
             * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****
```



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

698          KK  CP-E10
699          HC       3
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-E10       rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-E10 to CP-N2 Through Basin N2                                rrr
             * rrr  Field typical section  -  Sheet flow across fields                     rr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

700          KK    RE10
701          RS      18    FLOW
702          RC     .08     .07     .08    6000   .0023
703          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
704          RY       5     3.5       3       2       0       2       3       5
             *
```

```
            * ****************************************************************************
            * **********************   Basin N2      ************************************
            * ****************************************************************************
            *
            * DDM   ***** Updated *****

705         KK      N2
706         KM   SUB-BASIN N2
707         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
708         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
709         KM     L = 1.16  Kb = .026  Adj. Slope =   14.0
710         BA    .540
711         LG    .660    .030   4.800    .440    .000
712         UC    .617    .346
713         UA       0       5      16      30      65      77      84      90      94      97
714         UA     100
            *
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion Recover DC3   ////////////////////////////
            * ///   From south east, North side of landfield                            ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

715         KK     DC3
716         KM     DIVERSION FLOW FROM CP-C3
717         DR    DDC3
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   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
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

718         KK   RC3NW
719         KO       5                              21
720         RS      57    FLOW
721         RC   0.080   0.070   0.080    5350   .0024
722         RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
723         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                                +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

724         KK   CP-N2
725         HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DN2   ////////////////////////////////////
            * ///   1 north west to Sonoqui - 2 north along Hawes Rd.                   ////
            * ///   Hawes Rd. south of Chandler Heights Rd.                              ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

726         KK    *DN2
727         KM     DIVERSION FLOW FROM BASIN N2
728         DT    DDN2
729         DI       0     140     280     420     700     980    1120    1260    1400
730         DQ       0     140     162     171     180     197     206     207     208
            *
```

```
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RN2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-N2 to CP-C7 Through Basin C7 & Sonoqui Wash                                rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

 731             KK    RN2S
 732             RS       3    FLOW
 733             RC     .08    .055     .08    4850   .0039
 734             RX     500    1300    2220    2250    2340    2460    3000    3470
 735             RY    1376  1374.5  1377.2  1368.8  1366.2    1378  1379.4  1376.8
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////  Diversion Recover DN2   ////////////////////////////
                 * ///   From south along Hawes                                              ////
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****
```



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


 736             KK     DN2
 737             KM     DIVERSION FLOW FROM CP-N2
 738             DR    DDN2
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-N2N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin N2 to CP-D3 Through Basin N2 (Hawes Rd.)                                rrr
                 * rrr  Street typical section  -  along Hawes Rd.                                         rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

 739             KK    RN2N
 740             RS      11    FLOW
 741             RC     .08     .02     .08    2000   .0013
 742             RX       0    1000    2470    2488    2512    2515    2520    5000
 743             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////  Diversion *DD3   ////////////////////////////////////
                 * ///   1 West to Sonoqui - 2 North along Hawes Rd.                          ////
                 * ///   Intersection of Chandler Heights Rd. and Hawes Rd                     ////
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

 744             KK    *DD3
 745             KM     DIVERSION FLOW FROM CP-D3
 746             DT    DDD3
 747             DI       0      50     150     250     350     400     500
 748             DQ       0      17      33      38      39      41      51
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrrr   Routing R-D3W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-D3 to CP-C7 Through Basin C7                                              rrr
                 * rrr  Field typical section  -  Sheet flow fields/development                           rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

 749             KK    RD3W
 750             RS      26    FLOW
 751             RC     .09     .09     .09    5575    .004
 752             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
 753             RY       5     3.5       3       2       0       2       3       5
                 *
                 *
                 * ****************************************************************************
```

```
                 * ***********************   Basin C7     ****************************************
                 * ******************************************************************************
                 * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 36

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


 754             KK      C7
 755             KM   SUB-BASIN C7
 756             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 757             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
 758             KM     L = 1.16  Kb = .059  Adj. Slope =   17.0
 759             BA    .484
 760             LG    .370    .200   4.650    .380   5.000
 761             UC   1.167    .748
 762             UA       0       5      16      30      65      77      84      90      94      97
 763             UA     100
                 *
                 *
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * ++++++++++++++++++++++++ Conc. Point CP-C7     ++++++++++++++++++++++++++++++++
                 * +++  Combines basin N2, C7 & Conc. Point CP-D3, CP-C16                      +++
                 * +++  Sonoqui 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                    +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * DDM   ***** Preserved *****

 764             KK   CP-C7
 765             HC       4
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-C7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C7 to CP-C7A Through Basin C7A                                  rrr
                 * rrr  Sonoqui Wash routing                                                     rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

 766             KK     RC7
 767             RS       4    FLOW
 768             RC     .08   0.045     .08    3200   .0006
 769             RX       0     320     360     400     420     510     600    1060
 770             RY  1361.7  1361.2  1357.2  1349.5    1350  1356.5    1360  1362.2
                 *
                 *
                 * ******************************************************************************
                 * ***********************   Basin N1     ****************************************
                 * ******************************************************************************
                 * DDM   ***** Updated *****

 771             KK      N1
 772             KM   SUB-BASIN N1
 773             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 774             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 775             KM     L = 1.24  Kb = .078  Adj. Slope =   15.0
 776             BA    .391
 777             LG    .440    .070   4.800    .420   1.000
 778             UC   1.500   1.177
 779             UA       0       3       5       8      12      20      43      75      90      96
1                                          HEC-1 INPUT                                          PAGE 37

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

 780             UA     100
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////  Diversion Recover DD3   ////////////////////////////
                 * ///   From South along Hawes Rd.                                           ///
```

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

781         KK     DD3
782         KM     DIVERSION FLOW FROM CP-D3
783         DR    DDD3
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrrr   Routing RD3N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Diversion Flow from CP-D3 to CP-N1 along Hawes Rd.
            * rrr  Street typical section  -  along Hawes Rd.
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

784         KK    RD3N
785         RS      27    FLOW
786         RC     .08     .02     .08    3025   .0008
787         RX       0    1000    2470    2488    2512    2515    2520    5000
788         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.                               +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

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

791         KK    *DN1
792         KM     DIVERSION OFFSITE
793         DT  DDN1 O
794         DI       0     120     240     360     480     600
795         DQ       0       3       6       8      11      14
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-N1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-N1 to CP-N3 Through Basin N3                                   rrr
            * rrr  Field Typical section  -  Sheet flow across field                       rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                    PAGE 38

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


796         KK     RN1
797         KO       5                                21
798         RS      36    FLOW
799         RC     .08     .08     .08    5200   .0029
800         RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
801         RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ***************************************************************************
            * **********************   Basin N3     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

802         KK      N3
803         KM   SUB-BASIN N3
```

```
804          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
805          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
806          KM     L = 1.09  Kb = .067  Adj. Slope =   15.0
807          BA    .654
808          LG    .400    .110   4.650    .440   9.000
809          UC   1.271    .659
810          UA       0       5      16      30      65      77      84      90      94      97
811          UA     100
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-N3     ++++++++++++++++++++++++++++++++
             * +++  Combines basins N1 and N3                                            +++
             * +++  Sossaman Rd. south of Ocotollo Rd.                                   +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

812          KK   CP-N3
813          HC       2
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion *DN3   ////////////////////////////////////
             * ///   1 South to Sonoqui - 2 West to Sonoqui                              ////
             * ///   Sossaman north of Chandler Heights                                  ////
             * ////////////////////////////////////////////////////////////////////////////
             * DDM   ***** Preserved *****

814          KK    *DN3
815          KM     DIVERSION FLOW FROM CP-N3
816          DT    DDN3
817          DI       0      80     240     400     640     800
818          DQ       0      77     232     387     618     773
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrr   Routing R-N3S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrr  Route CP-N3 to CP-C7A Through Basin N3 (Sossaman Rd.)                  rrr
             * rrr  Street typical section  -  along Sossaman Rd.                          rrr
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****
```



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

819          KK    RN3S
820          KO       5                              21
821          RS      13    FLOW
822          RC     .08     .02     .08    1600   .0031
823          RX       0    1000    2470    2488    2512    2515    2520    5000
824          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
             *
             *
             * ***************************************************************************
             * **********************   Basin C7A    ************************************
             * ***************************************************************************
             * DDM   ***** Inserted *****

825          KK     C7A
826          KM   SUB-BASIN C7A
827          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
828          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
829          KM     L = 1.20  Kb = .072  Adj. Slope =   20.0
830          BA    .219
831          LG    .370    .130   4.800    .410  16.000
832          UC   1.229   1.279
833          UA       0       5      16      30      65      77      84      90      94      97
834          UA     100
             *
             *
```

```
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* +++++++++++++++++++++++ Conc. Point CP-C7A     ++++++++++++++++++++++++++++++
* +++  Combines basin C7A & Conc. Point CP-N3, CP-C7A                       +++
* +++  Sonoqui Wash At Sossaman Rd.                                         +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK  CP-C7A
HC       3
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-C7A        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-C7A to CP-D2 Through Basin C10                              rrr
* rrr  Sonoqui Wash routing                                                 rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

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



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


KK      C8
KM   SUB-BASIN C8
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
KM     L =  .87  Kb = .053  Adj. Slope =   22.0
BA    .152
LG    .300    .250   4.400    .390   5.000
UC    .754    .708
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*
*
* ///////////////////////////////////////////////////////////////////////////
* ////////////////////// Diversion *DC8  ////////////////////////////////////
* ///   1 North west to Sonoqui - 2 West to Power Rd.                     ////
* ///   At intersection of Sossoman and Chandler Heights                  ////
* ///////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK    *DC8
KM     DIVERSION FLOW FROM CP-C8
DT    DDC8
DI       0      40     160     240     320     400
DQ       0      20      80     119     159     199
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-C8N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-C8 to CP-D2 Through Basin C10 & Sonoqui Wash                rrr
* rrr  Sonoqui Wash                                                         rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RC8N
RS       9    FLOW
RC     .08    .045     .08    4100   .0021
RX      20     320     360     400     420     445     530     950
RY  1361.7  1361.2  1357.2  1349.5    1350  1357.2  1360.8    1362
*
*
```

```
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////// Diversion Recover DN3   ////////////////////////////
* ///   Sheet flow from east                                              ////
* ////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

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



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


KK    RN3W
RS      19    FLOW
RC    0.09    0.08    0.09    2850   .0025
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* +++++++++++++++++++++++ Conc. Point CP-D2     ++++++++++++++++++++++++++++++++
* +++  Combines Conc. Points CP-C7, CP-C8 & Diversion Flow RN3W              +++
* +++  Sonoqui 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                                        +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK   CP-D2
HC       3
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-D2        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-D2 to CP-C10 Through Sonoqui Wash                            rr
* rrr  Sonoqui Wash east of Power Rd.                                        rr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

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

KK     C10
KM   SUB-BASIN C10
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
KM     L = 1.40  Kb = .067  Adj. Slope =   15.0
BA    .501
LG    .380    .120   4.600    .470  15.000
UC   1.500   1.126
UA       0       5      16      30      65      77      84      90      94      97
UA     100
*
```

```
                 *
                 * ****************************************************************************
                 * ***********************   Basin N4     ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 42

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


 887             KK      N4
 888             KM   SUB-BASIN N4
 889             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 890             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 891             KM     L = 1.12  Kb = .091  Adj. Slope =   19.0
 892             BA    .277
 893             LG    .490    .020   3.380   1.060    .000
 894             UC   1.500   1.321
 895             UA       0       3       5       8      12      20      43      75      90      96
 896             UA     100
                 *
                 *
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * ++++++++++++++++++++++++++ Conc. Point CP-C10     ++++++++++++++++++++++++++++++
                 * +++  Combines Basins C10, N4 &Conc. Points CP-D2                            +++
                 * +++  Sonoqui 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                                         +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * DDM   ***** Preserved *****

 897             KK  CP-C10
 898             HC       3
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ///////////////////////  Diversion *DC10   ////////////////////////////////////
                 * ///   1 No Flow - 2 Sonoqui 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                                                   ///
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

 899             KK   *DC10
 900             KM    STORE HYDROGRAPH FOR LATER USE
 901             DT   DDC10
 902             DI       0     500    1000    2000    3000    4000
 903             DQ       0     500    1000    2000    3000    4000
                 *
                 *
                 * ****************************************************************************
                 * ********************   Basin C5     ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

 904             KK      C5
 905             KM   SUB-BASIN C5
 906             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 907             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
 908             KM     L = 1.14  Kb = .044  Adj. Slope =   82.0
 909             BA    .646
 910             LG    .350    .350   4.200    .420    .000
1                                          HEC-1 INPUT                                          PAGE 43

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

 911             UC    .458    .222
 912             UA       0       3       5       8      12      20      43      75      90      96
 913             UA     100
```

```
*
*
* ////////////////////////////////////////////////////////////////////////////
* ////////////////////// Diversion Recover DC2   ////////////////////////////
* ///   From east along Riggs Rd.
* ////////////////////////////////////////////////////////////////////////////
* DDM   ***** Preserved *****

KK     DC2
KM    Return flow from CP-C2
DR    DDC2
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing RC2S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route DC2 to CP-C5 Along Riggs Road                                    rrr
* rrr  Street typical section  -  Along Riggs Road
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK    RC2S
RS      18    FLOW
RC     .08     .02     .08    1800   .0001
RX       0    1000    2470    2488    2512    2515    2520    5000
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.                                            +++
* ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK   CP-C5
HC       2
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrr   Routing R-C5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-C5 to CP-C6 Through Basin C6                                  rrr
* rrr  Field typical section - sheet flow across natural desert               rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****

KK     RC5
RS      20    FLOW
RC    0.07    0.06    0.07    5560   .0025
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
*
* ****************************************************************************
* **********************   Basin S13     ************************************
* ****************************************************************************
* DDM   ***** Updated *****
```



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


KK     S13
KM   SUB-BASIN S13
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .987
KM     L = 2.64  Kb = .054  Adj. Slope =  223.6
BA   2.109
LG    .250    .350   4.000    .450  23.000
UC    .596    .296
UA       0       3       5       8      12      20      43      75      90      96
UA     100
```

```
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-S13        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Basin S13 to CP-W1 Through Basin W1                                      rrr
                * rrr  Field typical section  -  sheet flow along fields                             rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

939             KK    RS13
940             RS      11    FLOW
941             RC     .07     .07     .07    5600   .0088
942             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
943             RY       5     3.5       3       2       0       2       3       5
                *
                *
                * ***************************************************************************
                * **********************   Basin W1     ***************************************
                * ***************************************************************************
                * DDM   ***** Updated *****

944             KK      W1
945             KM   SUB-BASIN W1
946             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
947             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
948             KM     L = 1.03  Kb = .049  Adj. Slope =   63.0
949             BA    .280
950             LG    .350    .350   4.000    .450    .000
951             UC    .525    .383
952             UA       0       3       5       8      12      20      43      75      90      96
953             UA     100
                *
                *
                * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * ++++++++++++++++++++++ Conc. Point  CP-W1     ++++++++++++++++++++++++++++++++++
                * +++  Combines basin W1, S13                                                     +++
                * +++  Riggs Rd. east of Sossaman                                                 +++
                * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****
```



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

954             KK   CP-W1
955             HC       2
                *
                *
                * ///////////////////////////////////////////////////////////////////////////
                * ///////////////////////  Diversion *DW1     ////////////////////////////////
                * ///   1 north to CP-6 - 2 West along Riggs Rd. to CP-W2                   ///
                * ///   Riggs Rd. east of Sossaman Rd.                                       ///
                * ///////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****

956             KK    *DW1
957             KM     DIVERSION FLOW FROM CP-W1
958             DT    DDW1
959             DI       0     100     200     300     400     600     800    1000    1400
960             DQ       0      50     100     150     200     300     400     500     700
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-W1        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-W1 to CP-C6 Through Basin W3                                          rrr
                * rrr  Field typical section  -  Sheet flow across fields                            rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

961             KK     RW1
962             RS      12    FLOW
```

```
963          RC     .08     .07     .08    3375   .0049
964          RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
965          RY       5     3.5       3       2       0       2       3       5
             *
             *
             * ****************************************************************************
             * **********************   Basin S14     ***************************************
             * ****************************************************************************
             * DDM   ***** Updated *****

966          KK     S14
967          KM   SUB-BASIN S14
968          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
969          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .990
970          KM     L = 2.02  Kb = .038  Adj. Slope =   81.0
971          BA   1.608
972          LG    .350    .350   4.150    .430   1.000
973          UC    .642    .303
974          UA       0       3       5       8      12      20      43      75      90      96
975          UA     100
             *
             *
             * ****************************************************************************
             * **********************   Basin S15     ***************************************
             * ****************************************************************************
             * DDM   ***** Updated *****
```



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

976          KK     S15
977          KM   SUB-BASIN S15
978          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
979          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .988
980          KM     L = 2.89  Kb = .061  Adj. Slope =  191.0
981          BA   1.950
982          LG    .220    .350   4.550    .340  44.000
983          UC    .642    .393
984          UA       0       3       5       8      12      20      43      75      90      96
985          UA     100
             *
             *
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * rrrrrrrrrrrrrrrrrrrrrrr   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
             * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
             * DDM   ***** Preserved *****

986          KK    RS15
987          RS      18    FLOW
988          RC    0.08    0.08    0.08   10135   .0150
989          RX       0     400     800    1200    1600    2000    2400    2800
990          RY       3       1      .5       0       0      .5       1       3
             *
             *
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * +++++++++++++++++++++++ Conc. Point CP-S14     ++++++++++++++++++++++++++++++
             * +++  Combines Basins S15 & S14                                            +++
             * +++  Empire road between Power and Sossan Rds.                            +++
             * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
             * DDM   ***** Preserved *****

991          KK  CP-S14
992          HC       2
             *
             *
             * ////////////////////////////////////////////////////////////////////////////
             * ////////////////////////  Diversion *DS14A   ////////////////////////////////
             * ///   1 East channel - 2 West channel out of watershed                   ///
```

```
                 * ///   at the upstream end of triangular configured channels                ///
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

 993             KK  *DS14A
 994             KM     DIVERSION FLOW FROM CP-S14
 995             DT  DDS14O
 996             DI       0     100     200     300     400     600     800    1000    1400
 997             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.                    ///
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                      PAGE 47

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


 998             KK  *DS14B
 999             KM     DIVERSION FLOW FROM CP-S14
1000             DT  DDS14B
1001             DI       0     225     300     375     450     525     600     750
1002             DQ       0     .01      47      94     141     188     234     328
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////  Diversion *DS14C   ////////////////////////////////
                 * ///   1 Basin W2 - 2 basin W5                                            ////
                 * ///   Hunt Hwy between Power and Sossaman Rds.                           ////
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

1003             KK  *DS14C
1004             KM     DIVERSION FLOW FROM CP-S14
1005             DT  DDS14C
1006             DI       0     225     253     282     309     338     366     422
1007             DQ       0     .01      19      38      56      75      94     131
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-S14E        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route Basin S14 to CP-W2 Through Basin W2                              rrr
                 * rrr  Field typical section  -  sheetflow along fields                       rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1008             KK   RS14E
1009             KO       5                              21
1010             RS      59    FLOW
1011             RC     .07     .07     .07   10850   .0053
1012             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1013             RY       5     3.5       3       2       0       2       3       5
                 *
                 *
                 * ****************************************************************************
                 * **********************   Basin W2     ***************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

1014             KK      W2
1015             KM   SUB-BASIN W2
1016             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1017             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1018             KM     L = 1.09  Kb = .050  Adj. Slope =   56.0
1019             BA    .253
1020             LG    .350    .350   4.100    .440    .000
1021             UC    .592    .485
```

```
1022        UA       0       3       5       8      12      20      43      75      90      96
1023        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DW1     ////////////////////////////
            * ///   Flow from CP-W1 along Riggs                                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```



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


1024        KK     DW1
1025        KM     DIVERSION FLOW FROM CP-W1
1026        DR    DDW1
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-W1W         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * 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
            * DDM   ***** Preserved *****

1027        KK    RW1W
1028        RS       8    FLOW
1029        RC    0.08    0.02    0.08    1100  0.0005
1030        RX       0    1000    2470    2488    2512    2515    2520    5000
1031        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.                                            +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1032        KK   CP-W2
1033        HC       3
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-W2         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-W2 to CP-C6 Through Basin W3                                 rrr
            * rrr  Street typical section  -  Sheet flow along Sossaman Rd.              rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1034        KK     RW2
1035        RS       6    FLOW
1036        RC    0.08    0.02    0.08    2600   .0062
1037        RX       0    1000    2470    2488    2512    2515    2520    5000
1038        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            *
            * ***************************************************************************
            * **********************   Basin W3     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****
```



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


1039        KK      W3
1040        KM   SUB-BASIN W3
1041        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1042        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
```

```
1043        KM     L =  .53  Kb = .058  Adj. Slope =   27.0
1044        BA    .061
1045        LG    .350    .350   4.800    .290    .000
1046        UC    .500    .508
1047        UA       0       3       5       8      12      20      43      75      90      96
1048        UA     100
            *
            *
            * ******************************************************************************
            * **********************   Basin C6     ****************************************
            * ******************************************************************************
            * DDM   ***** Updated *****

1049        KK      C6
1050        KM   SUB-BASIN C6
1051        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1052        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1053        KM     L = 1.16  Kb = .049  Adj. Slope =   12.0
1054        BA    .301
1055        LG    .350    .350   4.700    .300    .000
1056        UC   1.229   1.039
1057        UA       0       3       5       8      12      20      43      75      90      96
1058        UA     100
            *
            *
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * ++++++++++++++++++++++ Conc. Point CP-C6     ++++++++++++++++++++++++++++++++++
            * +++  Combines basin W2, W3, C6 & Conc. Points CP-W1, CP-C5                 +++
            * +++  At intersection of Sossaman and cloud Rds.                            +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1059        KK   CP-C6
1060        HC       5
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ///////////////////////  Diversion *DC6   ////////////////////////////////////
            * ///   1 Cloud Rd. Channel - 2 Overflow N-W to Power Rd.                   ////
            * ///   At intersection of Cloud Rd and Sossaman Rd                         ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1061        KK    *DC6
1062        KO       5                              21
1063        KM     DIVERSION FLOW FROM CP-C6
1064        DT    DDC6
1065        DI       0     450     560     640     720     800    1000
1066        DQ       0      .1      80     160     240     320     520
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C6S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C6 to CP-W6 Along Cloud Rd. Channel                          rrr
            * rrr  Channel flow                                                           rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

1067        KK    RC6S
1068        KO       5                              21
1069        RS       6    FLOW
1070        RC     .08    .035     .08    5200   .0024
1071        RX       0       5      10    22.5    32.5      45      50      55
1072        RY       7       6       5       0       0       5       6       7
            *
            *
            * ******************************************************************************
```

```
                * ***********************   Basin W5     ****************************************
                * ******************************************************************************
                * DDM   ***** Updated *****

1073            KK      W5
1074            KM   SUB-BASIN W5
1075            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1076            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1077            KM     L = 1.35  Kb = .053  Adj. Slope =   47.0
1078            BA    .489
1079            LG    .430    .140   4.350    .500   3.000
1080            UC    .746    .511
1081            UA       0       5      16      30      65      77      84      90      94      97
1082            UA     100
                *
                *
                * ////////////////////////////////////////////////////////////////////////////
                * ////////////////////////  Diversion Recover DS14C   ////////////////////////////
                * ///   Flow fron south of Hunt hwy                                          ////
                * ////////////////////////////////////////////////////////////////////////////
                * DDM   ***** Preserved *****

1083            KK   DS14C
1084            KM     DIVERSION FLOW FROM CP-S14
1085            DR  DDS14C
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrr   Routing R-S14W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route Conc. Pt. CP-S14 to CP-W5 Through Basin W5                        rrr
                * rrr  Field typical section  -  Sheet flow along fields                       rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1086            KK   RS14W
1087            KO       5                              21
1088            RS      50    FLOW
1089            RC     .07     .07     .07    6625   .0092
1090            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1091            RY       5     3.5       3       2       0       2       3       5
                *
                *
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * +++++++++++++++++++++++ Conc. Point CP-W5     +++++++++++++++++++++++++++++++++
                * +++  Combines Basins W5 & S14                                                +++
                * +++  Riggs Rd. Near Power Rd.                                                +++
                * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****
```



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


1092            KK   CP-W5
1093            HC       2
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W5        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * rrr  Route CP-W5 to CP-W6 Through Basin W6 (Power Rd.)                      rrr
                * rrr  Street typical section                                                  rrr
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1094            KK     RW5
1095            RS       6    FLOW
1096            RC     .08     .02     .08    2725   .0099
1097            RX       0    1000    2470    2488    2512    2515    2520    5000
1098            RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                *
                *
```

```
            * ****************************************************************************
            * **********************   Basin W6     ****************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1099        KK      W6
1100        KM   SUB-BASIN W6
1101        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1102        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1103        KM     L = 1.38  Kb = .045  Adj. Slope =   22.0
1104        BA    .517
1105        LG    .350    .350   4.650    .310    .000
1106        UC    .979    .681
1107        UA       0       3       5       8      12      20      43      75      90      96
1108        UA     100
            *
            *
            * ****************************************************************************
            * **********************   Basin W4     ****************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1109        KK      W4
1110        KM   SUB-BASIN W4
1111        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1112        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1113        KM     L = 1.49  Kb = .024  Adj. Slope =   41.0
1114        BA    .490
1115        LG    .700    .000   4.450    .570    .000
1116        UC    .433    .302
1117        UA       0       5      16      30      65      77      84      90      94      97
1118        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion Recover DS14B   ////////////////////////////
            * ///   Flow fron south of Hunt hwy                                        ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```



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

1119        KK  DS14B
1120        KM     DIVERSION FLOW FROM CP-S14
1121        DR  DDS14B
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   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
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1122        KK   RS14C
1123        KO       5                              21
1124        RS      49    FLOW
1125        RC     .08     .07     .08    7325   .0078
1126        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1127        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.                             +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```

```
1128     KK   CP-W4
1129     HC       2
         *
         *
         * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * rrrrrrrrrrrrrrrrrrrrr   Routing RW4N         rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * rrr Diversion Flow from CP-W4 to CP-W6 Through Basin W6                rrr
         * rrr Field typical section  -  sheet flow across field                  rrr
         * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * DDM   ***** Preserved *****

1130     KK    RW4N
1131     RS      15    FLOW
1132     RC     .08     .07     .08    4250   .0073
1133     RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1134     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.                                       +++
         * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
         * DDM   ***** Preserved *****
```



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


1135     KK   CP-W6
1136     HC       4
         *
         *
         * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W6        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * rrr  Route CP-W6 to CP-W7 Through Basin W7(Power Rd.)                   rr
         * rrr  Channel/sheet flow                                                 rr
         * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
         * DDM   ***** Preserved *****

1137     KK     RW6
1138     RS       3    FLOW
1139     RC     .08    .045     .08    1425   .0025
1140     RX       0     750    1110  1122.5  1132.5    1145    1505    2000
1141     RY     6.5     5.5       5       0       0       5     5.5     6.5
         *
         *
         * **************************************************************************
         * *********************     Basin W7      ***********************************
         * **************************************************************************
         * DDM   ***** Updated *****

1142     KK      W7
1143     KM   SUB-BASIN W7
1144     KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1145     KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1146     KM     L = 1.17  Kb = .050  Adj. Slope =   15.0
1147     BA    .228
1148     LG    .300    .250   4.800    .310   5.000
1149     UC   1.067   1.047
1150     UA       0       5      16      30      65      77      84      90      94      97
1151     UA     100
         *
         *
         * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
         * +++++++++++++++++++++ Conc. Point CP-W7     ++++++++++++++++++++++++++++++++
         * +++  Combines Basins W7, Conc. Point CP-W6                              +++
         * +++  Power Rd. between Cloud and Chandler Heigths Rds.                  +++
         * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
         * DDM   ***** Preserved *****
```

```
1152          KK    CP-W7
1153          HC        2
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr    Routing R-W7        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-W7 to CP-W8 Through Basin W8 (Power Rd.)                  rrr
              * rrr  Channel/sheet flow                                                 rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM    ***** Preserved *****
```



```
1154          KK      RW7
1155          RS        1     FLOW
1156          RC      .08     .045      .08     1400    .0046
1157          RX        0        5       10     22.5     32.5       45       50      100
1158          RY        7        6        5        0        0        5        6      7.1
              *
              *
              * ****************************************************************************
              * *********************    Basin W8      ***************************************
              * ****************************************************************************
              * DDM    ***** Updated *****

1159          KK       W8
1160          KM    SUB-BASIN W8
1161          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1162          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1163          KM      L = 1.14  Kb = .050  Adj. Slope =    18.0
1164          BA     .256
1165          LG     .300     .250    4.700     .320    5.000
1166          UC     .958     .852
1167          UA        0        5       16       30       65       77       84       90       94       97
1168          UA      100
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * /////////////////////// Diversion Recover DC6   ///////////////////////////////
              * ///    from overflow of Cloud Rd Channel                                 ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM    ***** Preserved *****

1169          KK      DC6
1170          KM      DIVERSION FLOW FROM CP-C6
1171          DR     DDC6
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrr    Routing RC6N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Diversion Flow from CP-C6 to CP-W8 through Basin W7 & W8           rrr
              * rrr  Sheet flow across development                                     rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM    ***** Preserved *****

1172          KK     RC6N
1173          RS       27     FLOW
1174          RC      .09      .09      .09     5850    .0038
1175          RX        0     1000     2480   2497.5     2500   2502.5     4000     5000
1176          RY        5      3.5        3        2        0        2        3        5
              *
              *
              * ////////////////////////////////////////////////////////////////////////////
              * /////////////////////// Diversion Recover DC8   ///////////////////////////////
              * ///    From East                                                         ////
              * ////////////////////////////////////////////////////////////////////////////
              * DDM    ***** Preserved *****
```

```
1177        KK     DC8
1178        KM     DIVERSION FLOW FROM CP-C8
1179        DR    DDC8
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr  Routing RC8W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr   Route CP-C8 to CP-W8 along Chandler Heights Rd.                                  rrr
            * rrr   Street typical section                                                            rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1180        KK    RC8W
1181        RS      33    FLOW
1182        RC     .08     .02     .08    5280   .0034
1183        RX       0    1000    2470    2488    2512    2515    2520    5000
1184        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.                                 +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1185        KK   CP-W8
1186        HC       4
            *
            *
            * ////////////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DW8   ////////////////////////////////////////
            * ///   1 North West Across field - 2 West in Chandler Heights Channel      ////
            * ///   Chandler Heights channel betweeen Recker and Power Rds.             ////
            * ////////////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1187        KK    *DW8
1188        KM     Diversion flow from W8
1189        DT    DDW8
1190        DI       0     200     400     600     800     840     900    1000
1191        DQ       0     200     400     600     800     840     840     840
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-W8N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-W8 to CP-C11 Through Basin C11                                          rrr
            * rrr  Field typical section  -  Sheet flow across development                          rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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

1192        KK    RW8N
1193        RS      42    FLOW
1194        RC     .10     .10     .10    4075   .0018
1195        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1196        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ***************************************************************************
            * **********************   Basin C11     ************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

1197        KK     C11
1198        KM   SUB-BASIN C11
1199        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
```

```
1200        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1201        KM     L =  .77  Kb = .049  Adj. Slope =   13.0
1202        BA    .269
1203        LG    .300    .250   4.800    .360  15.000
1204        UC    .804    .498
1205        UA       0       5      16      30      65      77      84      90      94      97
1206        UA     100
            *
            * ****************************************************************************
            * **********************   Basin C9     ************************************
            * ****************************************************************************
            * DDM   ***** Updated *****

1207        KK      C9
1208        KM   SUB-BASIN C9
1209        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1210        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1211        KM     L =  .86  Kb = .051  Adj. Slope =   16.0
1212        BA    .206
1213        LG    .250    .250   4.700    .380  30.000
1214        UC    .783    .615
1215        UA       0       5      16      30      65      77      84      90      94      97
1216        UA     100
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing R-C9W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route Basin C9 to CP-C11 Through Basin C11
            * rrr  Field typical section  -  Sheet flow across development              rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1217        KK    RC9W
1218        KO       5                              21
1219        RS      36    FLOW
1220        RC     .10     .10     .10    3875   .0026
1221        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1222        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.                                 +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****
```



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


1223        KK  CP-C11
1224        HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DC11   ////////////////////////////////
            * ///   1 West to CP-C12 - 2 North west to Sonoqui                        ////
            * ///   Brooks Farm Rd. East of Recker Rd.                                ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1225        KK   *DC11
1226        KM    DIVERSION FLOW FROM CP-C11
1227        DT   DDC11
1228        DI       0      60     180     300     480     600
1229        DQ       0      35     105     175     280     350
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrr   Routing R-C11S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Route CP-C11 to CP-C12 Through Basin C12                              rrr
```

```
                 * rrr  Street typical section  -  dirt road/sheet flow                    rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1230             KK   RC11S
1231             RS      15    FLOW
1232             RC     .08    .035     .08    2625   .0039
1233             RX       0    1000    2470    2488    2512    2515    2520    5000
1234             RY     4.5     3.5     1.5       1      .5       0      .5     4.5
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin C12     ************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****

1235             KK     C12
1236             KM   SUB-BASIN C12
1237             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1238             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1239             KM     L =  .87  Kb = .085  Adj. Slope =   12.0
1240             BA    .264
1241             LG    .460    .050   4.800    .440   3.000
1242             UC   1.417   1.041
1243             UA       0       3       5       8      12      20      43      75      90      96
1244             UA     100
                 *
                 *
                 * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * ++++++++++++++++++++++ Conc. Point CP-C12     ++++++++++++++++++++++++++++++
                 * +++  Combines Basins C12 & Conc. Point CP-C11                              +++
                 * +++  Recker Rd. south of Brooks Farm Rd.                                   +++
                 * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 58

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


1245             KK  CP-C12
1246             HC       2
                 *
                 *
                 *
                 * ///////////////////////////////////////////////////////////////////////////
                 * ///////////////////////  Diversion *DC12   ////////////////////////////////
                 * ///   1 North west to Sonoqui - 2 West to Higley                        ////
                 * ///   Brooks Farm Rd. Between Recker and Higley Rds.                    ////
                 * ///////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

1247             KK   *DC12
1248             KM    DIVERSION FLOW FROM CP-C12
1249             DT   DDC12
1250             DI       0      80     200     280     360     400
1251             DQ       0      27      68      95     122     135
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * 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
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1252             KK   RC12N
1253             KO       5                                21
1254             RS      47    FLOW
1255             RC     .08     .08     .08    6475   .0029
1256             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1257             RY       5     3.5       3       2       0       2       3       5
                 *
```

```
*
* ***************************************************************************
* **********************   Basin W9     ****************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK      W9
KM   SUB-BASIN W9
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
KM     L = 1.49  Kb = .038  Adj. Slope =   45.0
BA    .516
LG    .580    .050   3.950    .680   1.000
UC    .629    .444
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* RRrrrrrrrrrrrrrrrrrrrr   Routing R-W9        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route W9 to CP-W11 Through basin W11                                 rrr
* rrr  Field typical section - sheet flow across field                      rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****
```



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


KK     RW9
KO       5                              21
RS      11    FLOW
RC     .08     .07     .08    3100   .0082
RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
RY       5     3.5       3       2       0       2       3       5
*
*
* ***************************************************************************
* **********************   Basin W11    ****************************************
* ***************************************************************************
* DDM   ***** Updated *****

KK     W11
KM   SUB-BASIN W11
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
KM     L = 1.23  Kb = .055  Adj. Slope =   23.0
BA    .510
LG    .600    .000   3.950    .730    .000
UC    .992    .635
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
*
* +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* ++++++++++++++++++++++ Conc. Point CP-W11     ++++++++++++++++++++++++++++++
* +++  Combines Basins W9 & W11                                            +++
* +++  Cloud Rd. Between Power and Recker Rds.                              +++
* +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
* DDM   ***** Preserved *****

KK  CP-W11
HC       2
*
*
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrrrrrrrrrrrrrrrrrrrrr   Routing R-W11        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* rrr  Route CP-W11 to CP-W12 through basin W12                             rrr
* rrr  Field typical section - sheet flow across field                      rrr
* rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
* DDM   ***** Preserved *****
```

```
1286        KK    RW11
1287        RS       9    FLOW
1288        RC     .08     .07     .08    2925   .0068
1289        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1290        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ****************************************************************************
            * ***********************   Basin W12     ****************************************
            * ****************************************************************************
            * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 60

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


1291        KK     W12
1292        KM   SUB-BASIN W12
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  .997
1295        KM     L = 1.49  Kb = .024  Adj. Slope =   17.0
1296        BA    .527
1297        LG    .700    .000   4.500    .550    .000
1298        UC    .637    .445
1299        UA       0       3       5       8      12      20      43      75      90      96
1300        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion Recover DW8   ////////////////////////////
            * ///  From east                                                            ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1301        KK     DW8
1302        KM    DIVERSION FLOW FROM CP-W8
1303        KO       5                                21
1304        DR    DDW8
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RW8S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Diversion Flow from CP-W8 to CP-W12 along Chandler Heights              rrr
            * rrr Chandler Heights Channel                                                 rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1305        KK    RW8S
1306        KO       5                                21
1307        RS       5    FLOW
1308        RC     .08    .045     .08    5175    .003
1309        RX       0      50     100     130     145     175     225     275
1310        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.                    +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1311        KK  CP-W12
1312        HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DW12   ////////////////////////////////
            * ///   1 North west to C14 - 2 west to W18 (Chandler Heights Rd.)          ////
            * ///   Chandler Heights Channel West of Recker Rd.                         ////
```

```
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 61

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


1313             KK   *DW12
1314             KM    DIVERSION FLOW FROM CP-W12
1315             DT   DDW12
1316             DI       0     200     400     600     680     700     800    1000
1317             DQ       0     200     400     600     680     680     680     680
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RW12N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr Flow from CP-W12 to CP-C14 through basin C14                          rrr
                 * rrr Field typical section  -  sheet flow across fields                    rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1318             KK   RW12N
1319             RS      52    FLOW
1320             RC     .08     .08     .08    7300   .0024
1321             RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1322             RY       5     3.5       3       2       0       2       3       5
                 *
                 *
                 * ****************************************************************************
                 * **********************   Basin W18     ****************************************
                 * ****************************************************************************
                 * DDM   ***** Updated *****

1323             KK     W18
1324             KM   SUB-BASIN W18
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  .998
1327             KM     L =  .74  Kb = .044  Adj. Slope =   28.0
1328             BA    .254
1329             LG    .700    .000   4.500    .550    .000
1330             UC    .479    .281
1331             UA       0       3       5       8      12      20      43      75      90      96
1332             UA     100
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////////
                 * ////////////////////////  Diversion Recover DW12   ////////////////////////////
                 * ///   From East (CP-W12)                                                  ////
                 * ////////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

1333             KK    DW12
1334             KO       5                              21
1335             KM    DIVERSION FLOW FROM CP-W12
1336             DR   DDW12
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing RW12S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr Diversion Flow from CP-W12 to CP-C14                                  rrr
                 * rrr Chandler Height channel                                               rrr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 62

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


1337             KK   RW12S
1338             KO       5                              21
1339             RS       4    FLOW
```

```
1340        RC     .08    .045     .08    2625   .0039
1341        RX       0      50     100     125     145     170     220     270
1342        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.                            +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1343        KK  CP-W18
1344        KO       5                              21
1345        HC       2
            *
            *
            * ////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DW18   ////////////////////////////////
            * ///   1 North west to C14 - 2 west to W17 (Chandler Heights Rd.)        ////
            * ///   Chandler Heights Channel east of Higley Rd.                       ////
            * ////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1346        KK   *DW18
1347        KM    DIVERSION FLOW FROM CP-W18
1348        KO       5                              21
1349        DT   DDW18
1350        DI       0     300     360     400     600     800    1000
1351        DQ       0     300     360     360     360     360     360
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RW18N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Flow from CP-W18 to CP-C14                                            rrr
            * rrr Field typical section  -  sheet flow across field                     rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1352        KK   RW18N
1353        KO       5                              21
1354        RS      48    FLOW
1355        RC     .08     .07     .08    5075   .0016
1356        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1357        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ***************************************************************************
            * **********************   Basin W10     ************************************
            * ***************************************************************************
            * DDM   ***** Updated *****
```



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

1358        KK     W10
1359        KM   SUB-BASIN W10
1360        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1361        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1362        KM     L = 1.14  Kb = .071  Adj. Slope =   62.0
1363        BA    .513
1364        LG    .430    .090   3.950    .650   2.000
1365        UC    .738    .429
1366        UA       0       3       5       8      12      20      43      75      90      96
1367        UA     100
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * 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
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1368            KK    RW10
1369            KO       5                              21
1370            RS      21    FLOW
1371            RC     .08     .07     .08    4800   .0069
1372            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1373            RY       5     3.5       3       2       0       2       3       5
                *
                *
                *
                * ***************************************************************************
                * **********************   Basin W16     ***************************************
                * ***************************************************************************
                * DDM   ***** Updated *****

1374            KK     W16
1375            KM   SUB-BASIN W16
1376            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1377            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1378            KM     L =  .74  Kb = .026  Adj. Slope =   30.0
1379            BA    .245
1380            LG    .700    .000   3.950    .730    .000
1381            UC    .342    .197
1382            UA       0       3       5       8      12      20      43      75      90      96
1383            UA     100
                *
                *
                * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * +++++++++++++++++++++++++ Conc. Point CP-W16     ++++++++++++++++++++++++++++++
                * +++  Combines Basins W16 , W10                                              +++
                * +++  Cloud Rd. east of Higley Rd.                                           +++
                * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                * DDM   ***** Preserved *****
```



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


1384            KK  CP-W16
1385            KO       5                              21
1386            HC       2
                *
                *
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * 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
                * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                * DDM   ***** Preserved *****

1387            KK   RW16N
1388            KO       5                              21
1389            RS      25    FLOW
1390            RC     .08     .07     .08    3750   .0053
1391            RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1392            RY       5     3.5       3       2       0       2       3       5
                *
                *
                * ***************************************************************************
                * **********************   Basin W17     ***************************************
                * ***************************************************************************
                * DDM   ***** Updated *****

1393            KK     W17
1394            KM   SUB-BASIN W17
1395            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1396            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1397            KM     L =  .74  Kb = .026  Adj. Slope =   29.0
```

```
1398        BA    .256
1399        LG    .700    .000   4.550    .530    .000
1400        UC    .333    .187
1401        UA       0       3       5       8      12      20      43      75      90      96
1402        UA     100
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion Recover DW18   ////////////////////////////
            * ///  From east (CP-W18)                                                   ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1403        KK    DW18
1404        KM    DIVERSION FLOW FROM CP-W18
1405        KO       5                              21
1406        DR   DDW18
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RW18S        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Diversion Flow from CP-W16 to CP-W17  along Chandler Heights            rrr
            * rrr Chandler Heights channel flow                                            rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****
```



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


1407        KK   RW18S
1408        KO       5                              21
1409        RS       4    FLOW
1410        RC     .08    .045     .08    2725   .0027
1411        RX       0      50     100   107.5   127.5     135     185     235
1412        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                                          +++
            * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1413        KK  CP-W17
1414        HC       3
            *
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////////  Diversion *DW17   ////////////////////////////////
            * ///   1 North along Higley to C14 - 2 West Out of Watershed               ////
            * ///   Higley Rd between Chandler Heights and Brooks Farm Rds.             ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1415        KK   *DW17
1416        KM    DIVERSION FLOW FROM CP-W17
1417        DT  DDW17O
1418        DI       0      17     100     200     400     600     800    1000
1419        DQ       0       0      83     183     383     583     783     983
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RW17        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Flow from CP-W17 to CP-C14 along Higley Rd.                              rrr
            * rrr Street typical section  --  flow along Higley Rd.                        rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1420        KK    RW17
```

```
1421        RS      69    FLOW
1422        RC     .08     .02     .08    2700   .0001
1423        RX       0    1000    2470    2488    2512    2515    2520    5000
1424        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            *
            * ***************************************************************************
            * **********************   Basin C14     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****
```



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


1425        KK     C14
1426        KM   SUB-BASIN C14
1427        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1428        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1429        KM     L = 1.38  Kb = .044  Adj. Slope =   11.0
1430        BA    .512
1431        LG    .550    .060   4.800    .440   4.000
1432        UC   1.254    .902
1433        UA       0       5      16      30      65      77      84      90      94      97
1434        UA     100
            *
            *
            * ///////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion Recover DC12   ////////////////////////////
            * ///   From east                                                         ////
            * ///////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1435        KK    DC12
1436        KM    DIVERSION FLOW FROM CP-C12
1437        DR   DDC12
            *
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrr   Routing RC12W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr Diversion Flow from CP-C12 to CP-C14                                  rrr
            * rrr Street typical section  -                                             rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1438        KK   RC12W
1439        RS      33    FLOW
1440        RC     .08     .02     .08    5300   .0029
1441        RX       0    1000    2470    2488    2512    2515    2520    5000
1442        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.                                          +++
            * +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
            * DDM   ***** Preserved *****

1443        KK  CP-C14
1444        HC       5
            *
            *
            * ///////////////////////////////////////////////////////////////////////////
            * ////////////////////// Diversion *DC14   ///////////////////////////////////
            * ///   1 North along Higley - 2 Off-site west                              ///
            * ///   Higley Rd. north of Brooks Farm Rd.                                 ///
            * ///////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****
```

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

1445          KK   *DC14
1446          KM    DIVERSION FLOW OFFSITE
1447          DT  DDC140
1448          DI       0      60     180     300     420     600
1449          DQ       0      40     147   244.4     342     489
              *
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-C14N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C14 to CP-C15 Through Basin C15 (Hingley Rd.)                          rrr
              * rrr Street typical section  -                                                        rrr
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * DDM   ***** Preserved *****

1450          KK   RC14N
1451          RS      13    FLOW
1452          RC     .08    .035     .08    1775    .001
1453          RX       0    1000    2470    2488    2512    2515    2520    5000
1454          RY     4.5     3.5     1.5       1      .5       0      .5     4.5
              *
              *
              * ****************************************************************************
              * **********************   Basin C15     ***************************************
              * ****************************************************************************
              * DDM   ***** Updated *****

1455          KK     C15
1456          KM   SUB-BASIN C15
1457          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1458          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1459          KM     L = 1.26  Kb = .074  Adj. Slope =   13.0
1460          BA    .511
1461          LG    .440    .080   4.800    .430   5.000
1462          UC   1.500   1.024
1463          UA       0       5      16      30      65      77      84      90      94      97
1464          UA     100
              *
              *
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * +++++++++++++++++++++++ Conc. Point CP-C15     ++++++++++++++++++++++++++++++++
              * +++  Combines Basins C15 & Conc. Point CP-C14                                  +++
              * +++  Higley Rd. between Brook Farm and Ocotillo Rds.                           +++
              * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              * DDM   ***** Preserved *****

1465          KK  CP-C15
1466          HC       2
              *
              * ////////////////////////////////////////////////////////////////////////////////
              * ////////////////////////  Diversion *DC15   ////////////////////////////////////
              * ///   1 Hingley Rd. To Sonoqui - 2 Off-site                                  ////
              * ///   Higley Rd. South of Ocotillo Rd.                                       ////
              * ////////////////////////////////////////////////////////////////////////////////
              * DDM   ***** Preserved *****
```



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

1467          KK   *DC15
1468          KM    DIVERSION FLOW OFFSITE
1469          DT  DDC150
1470          DI       0      42     126     210     294     336     420
1471          DQ       0      28      69     115     161     184     230
              *
              * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrrrrrrrrrrrrrrrrrrrrrr   Routing R-C15N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
              * rrr  Route CP-C15 to CP-N6 Through Basin N6 (Higley Rd.)                             rrr
```

```
            * rrr Street typical section  -                                                    rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1472        KK   RC15N
1473        RS       6    FLOW
1474        RC     .08     .02     .08     825   .0018
1475        RX       0    1000    2470    2488    2512    2515    2520    5000
1476        RY     4.5     3.5     1.5       1      .5       0      .5     4.5
            *
            * ////////////////////////////////////////////////////////////////////////////
            * ////////////////////  Diversion Recover DC11   ////////////////////////////
            * ///   Field towars Recker                                                ////
            * ////////////////////////////////////////////////////////////////////////////
            * DDM   ***** Preserved *****

1477        KK    DC11
1478        KM    DIVERSION FLOW FROM CP-C11
1479        DR   DDC11
            *
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrrrrrrrrrrrrrrrrrrrrrr   Routing RC11N        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * rrr  Diversion Flow from CP-C11 to CP-D1 Through Basin C13                        rrr
            * rrr  Field typical section  -  sheet flow across fields                           rrr
            * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
            * DDM   ***** Preserved *****

1480        KK   RC11N
1481        KO       5                                 21
1482        RS      27    FLOW
1483        RC     .08     .08     .08    3550   .0030
1484        RX       0    1000    2480  2497.5    2500  2502.5    4000    5000
1485        RY       5     3.5       3       2       0       2       3       5
            *
            *
            * ***************************************************************************
            * **********************   Basin C13     ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****
```



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


1486        KK     C13
1487        KM   SUB-BASIN C13
1488        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1489        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1490        KM     L = 1.14  Kb = .050  Adj. Slope =   21.0
1491        BA    .509
1492        LG    .560    .050   4.700    .460   3.000
1493        UC    .867    .515
1494        UA       0       5      16      30      65      77      84      90      94      97
1495        UA     100
            *
            *
            * ***************************************************************************
            * **********************   Basin N5      ***************************************
            * ***************************************************************************
            * DDM   ***** Updated *****

1496        KK      N5
1497        KM   SUB-BASIN N5
1498        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1499        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1500        KM     L = 1.05  Kb = .068  Adj. Slope =   17.0
1501        BA    .426
1502        LG    .430    .170   4.700    .390    .000
1503        UC   1.233    .790
1504        UA       0       3       5       8      12      20      43      75      90      96
1505        UA     100
```

```
                 *
                 *
                 * ////////////////////////////////////////////////////////////////////////
                 * ////////////////////// Diversion Recover DC10  ////////////////////////////
                 * ///   Sonoqui Wash                                                     ///
                 * ///   Recovered stored hydrograph for Conc. Point C-10                 ///
                 * ////////////////////////////////////////////////////////////////////////
                 * DDM   ***** Preserved *****

1506             KK    DC10
1507             KM    ACTUAL FLOW FROM CP-C10
1508             DR   DDC10
                 *
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-C10W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-C10 to CP-N5 Through Basin N5 (Ocotillo Rd.)                  rr
                 * rrr  Sonoqui Wash                                                           rr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1509             KK   RC10W
1510             RS      12    FLOW
1511             RC     .08    .045     .08    5410   .0029
1512             RX     232    1550    2850    2900    2920    2925    2930    3600
1513             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              +++
                 * +++  Sonoqui Wash at Recker Rd.                                            +++
                 * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                 * DDM   ***** Preserved *****
```



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

1514             KK   CP-N5
1515             HC       4   55.45
                 *
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrrrrrrrrrrrrrrrrrrrr   Routing R-N5W        rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * rrr  Route CP-N5 to CP-N6 Through Basin N6 (Sonoqui/Ocotillo)              rrr
                 * rrr  Sonoqui Wash                                                           rr
                 * rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
                 * DDM   ***** Preserved *****

1516             KK    RN5W
1517             RS      12    FLOW
1518             RC     .08    .045     .08    5275   .0035
1519             RX     233    1550    2850    2900    2920    2925    2930    5000
1520             RY  1343.5  1341.7  1341.5  1338.9    1340  1341.7  1342.8  1343.5
                 *
                 *
                 * ***************************************************************************
                 * **********************   Basin N6     ****************************************
                 * ***************************************************************************
                 * DDM   ***** Updated *****

1521             KK      N6
1522             KM   SUB-BASIN N6
1523             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1524             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1525             KM     L = 1.26  Kb = .072  Adj. Slope =   14.0
1526             BA    .431
1527             LG    .550    .000   4.700    .480    .000
1528             UC   1.500   1.128
1529             UA       0       3       5       8      12      20      43      75      90      96
1530             UA     100
```

```
                    *
                    *
                    * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    * +++++++++++++++++++++++ Conc. Point CP-N6      ++++++++++++++++++++++++++++++
                    * +++  Combines Basins N6; Conc. Points CP-C13, CP-15; Diversion Flow RC13W  +++
                    * +++  Sonoqui Wash at Higley Rd.                                            +++
                    * ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    * DDM   ***** Preserved *****

        1531        KK   CP-N6
        1532        HC       4
        1533        ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    35          S9
                 .
                 .
    47           .-------->    DDS9
    45        *DS9
                 .
                 .
    50           .         S10
                 .           .
                 .           .
    60      CP-S10............
                V
                V
    62        RS10
                 .
                 .
    67           .          E8
                 .           .
                 .           .
    79           .           .           .<-------    DDS9
    77           .           .         DS9
                 .           .           V
                 .           .           V
    80           .           .        RS9E
                 .           .           V
                 .           .           V
    85           .           .        RS9C
                 .           .           .
                 .           .           .
    90           .      *CP-E8............
                 .           .
                 .           .
    92       CP-E8............
                 .
                 .
    96           .-------->    DDE8
    94        *DE8
                V
                V
    99         RE8
                 .
                 .
   104           .          C1
                 .           .
                 .           .
   114           .           .         S11
                 .           .           V
                 .           .           V
   124           .           .        RS11
                 .           .           .
                 .           .           .
   129           .           .           .         S12
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                .          .          .          V
                .          .          .          V
139             .          .          .       RS12
                .          .          .          .
                .          .          .          .
144         CP-C1.................................
                V
                V
146          RC1N
                .
                .
151             .         S1
                .          V
                .          V
161             .        RS1
                .          .
                .          .
166             .          .         S2
                .          .          V
                .          .          V
176             .          .       RS2
                .          .          .
                .          .          .
181             .          .          .        S3B
                .          .          .          V
                .          .          .          V
191             .          .          .       RS3B
                .          .          .          .
                .          .          .          .
196             .          .          .          .        S3A
                .          .          .          .          .
                .          .          .          .          .
206             .          .          .    CP-S3A............
                .          .          .          V
                .          .          .          V
208             .          .          .       RS3A
                .          .          .          .
                .          .          .          .
213             .          .          .          .         E1
                .          .          .          .          .
                .          .          .          .          .
232             .          .          .          .          .      *RRW1
                .          .          .          .          .          V
                .          .          .          .          .          V
236             .          .          .          .          .       RRW1
                .          .          .          .          .          .
                .          .          .          .          .          .
241             .      CP-E1.............................................
                .         V
                .         V
243             .        RE1
                .          .
                .          .
248             .          .         S4B
                .          .          V
                .          .          V
258             .          .       RS4B
                .          .          .
                .          .          .
263             .          .          .        S4A
                .          .          .          .
                .          .          .          .
273             .          .    CP-S4A............
                .          .          V
                .          .          V
275             .          .       RS4A
                .          .          .
                .          .          .
280             .          .          .         S5
                .          .          .          V
                .          .          .          V
```

```
290          .          .          .        RS5
             .          .          .          .
             .          .          .          .
295          .          .          .          .        *RRW2
             .          .          .          .            V
             .          .          .          .            V
300          .          .          .          .         RRW2
             .          .          .          .            .
             .          .          .          .            .
305          .          .          .          .            .        *RRW3
             .          .          .          .            .            V
             .          .          .          .            .            V
311          .          .          .          .            .         RRW3
             .          .          .          .            .            .
             .          .          .          .            .            .
316          .     CP-D5.....................................................
             .         V
             .         V
318          .       RD5
             .         .
             .         .
323          .          .        S6
             .          .         V
             .          .         V
333          .          .        RS6
             .          .         .
             .          .         .
338          .          .          .        S7B
             .          .          .          V
             .          .          .          V
348          .          .          .       RS7B
             .          .          .          .
             .          .          .          .
353          .          .          .          .         S7A
             .          .          .          .           .
             .          .          .          .           .
363          .          .          .     CP-S7A............
             .          .          .          V
             .          .          .          V
365          .          .          .       RS7A
             .          .          .          .
             .          .          .          .
370          .     CP-D6.......................
             .         V
             .         V
372          .       RD6
             .         .
             .         .
377          .          .        E5
             .          .         V
             .          .         V
387          .          .        RE5
             .          .         .
             .          .         .
392          .          .          .         E2
             .          .          .          .
             .          .          .          .
411          .          .          .          .         S8B
             .          .          .          .           V
             .          .          .          .           V
421          .          .          .          .       RS8B
             .          .          .          .           .
             .          .          .          .           .
426          .          .          .          .           .        S8A
             .          .          .          .           .          .
             .          .          .          .           .          .
436          .          .          .          .     CP-S8A............
             .          .          .          .           V
             .          .          .          .           V
438          .          .          .          .       RS8A
             .          .          .          .           .
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443          .      CP-E2.................................
             .          V
             .          V
445          .        RE2
             .          .
             .          .
450          .          .          E6
             .          .          .
             .          .          .
460          .          .          .        E11
             .          .          .          .
             .          .          .          .
472          .          .          .          .-------->   DDE11
470          .          .          .      *DE11
             .          .          .          V
             .          .          .          V
475          .          .          .      RE11N
             .          .          .          .
             .          .          .          .
480          .          .          .          .          E3
             .          .          .          .          .
             .          .          .          .          .
492          .          .          .          .          .           .<-------   DDE11
490          .          .          .          .          .        DE11
             .          .          .          .          .          V
             .          .          .          .          .          V
493          .          .          .          .          .       RE11S
             .          .          .          .          .          .
             .          .          .          .          .          .
499          .          .          .      CP-E3.......................
             .          .          .          .
             .          .          .          .
503          .          .          .          .-------->    DDE3
501          .          .          .       *DE3
             .          .          .          V
             .          .          .          V
506          .          .          .       RE3W
             .          .          .          .
             .          .          .          .
511          .      CP-E6........................
             .          .
             .          .
515          .          .-------->    DDE6
513          .       *DE6
             .          V
             .          V
518          .       RE6S
             .          .
             .          .
523          .          .          E9
             .          .          .
             .          .          .
535          .          .          .          .<-------    DDE8
533          .          .          .        DE8
             .          .          .          V
             .          .          .          V
536          .          .          .       RE8E
             .          .          .          .
             .          .          .          .
541          .      CP-E9........................
             .          .
             .          .
545          .          .-------->    DDE9
543          .       *DE9
             .          V
             .          V
548          .       RE9W
             .          .
             .          .
553          .          .          C4
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                .           .           .
                .           .           .
563             .           .           .           C2
                .           .           .            .
                .           .           .            .
573             .           .           .            .          C3
                .           .           .            .           .
                .           .           .            .           .
585             .           .           .            .           .-------->    DDC3
583             .           .           .            .        *DC3
                .           .           .            .           V
                .           .           .            .           V
588             .           .           .            .       RC3SW
                .           .           .            .           .
                .           .           .            .           .
593             .           .      *CP-C2......................
                .           .           .
                .           .           .
595        CP-C2......................
                .
                .
599             .-------->    DDC2
597         *DC2
               V
               V
602          RC2
                .
                .
607             .         C16
                .           .
                .           .
617       CP-C16............
               V
               V
619         RC16
                .
                .
626             .           .<-------    DDE3
624             .         DE3
                .           V
                .           V
627             .         RE3
                .           .
                .           .
632             .           .          E4
                .           .           .
                .           .           .
642             .       CP-E4............
                .           .
                .           .
646             .           .-------->  DDE4 O
644             .        *DE4
                .           V
                .           V
649             .         RE4
                .           .
                .           .
655             .           .          E7
                .           .           .
                .           .           .
667             .           .           .            .<-------    DDE6
665             .           .           .         DE6
                .           .           .           V
                .           .           .           V
668             .           .           .         RE6
                .           .           .            .
                .           .           .            .
673             .       CP-E7......................
                .           V
                .           V
675             .         RE7
```

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                .          .
                .          .
680             .          .        E10
                .          .          .
                .          .          .
692             .          .          .          .<-------    DDE9
690             .          .          .        DE9
                .          .          .          V
                .          .          .          V
693             .          .          .       RE9N
                .          .          .          .
                .          .          .          .
698             .     CP-E10.......................
                .          V
                .          V
700             .       RE10
                .          .
                .          .
705             .          .         N2
                .          .          .
                .          .          .
717             .          .          .          .<-------    DDC3
715             .          .          .        DC3
                .          .          .          V
                .          .          .          V
718             .          .          .      RC3NW
                .          .          .          .
                .          .          .          .
724             .      CP-N2........................
                .          .
                .          .
728             .          .-------->    DDN2
726             .       *DN2
                .          V
                .          V
731             .       RN2S
                .          .
                .          .
738             .          .          .<-------    DDN2
736             .          .        DN2
                .          .          V
                .          .          V
739             .          .       RN2N
                .          .          .
                .          .          .
746             .          .          .-------->    DDD3
744             .          .       *DD3
                .          .          V
                .          .          V
749             .          .       RD3W
                .          .          .
                .          .          .
754             .          .          .         C7
                .          .          .          .
                .          .          .          .
764         CP-C7...................................
                V
                V
766           RC7
                .
                .
771             .         N1
                .          .
                .          .
783             .          .          .<-------    DDD3
781             .          .        DD3
                .          .          V
                .          .          V
784             .          .       RD3N
                .          .          .
                .          .          .
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```
789          .        CP-N1............
             .            .
             .            .
793          .            .-------> DDN1 O
791          .         *DN1
             .            V
             .            V
796          .          RN1
             .            .
             .            .
802          .            .          N3
             .            .           .
             .            .           .
812          .        CP-N3............
             .            .
             .            .
816          .            .------->    DDN3
814          .         *DN3
             .            V
             .            V
819          .         RN3S
             .            .
             .            .
825          .            .         C7A
             .            .           .
             .            .           .
835     CP-C7A........................
             V
             V
837        RC7A
             .
             .
842          .           C8
             .            .
             .            .
854          .            .------->    DDC8
852          .         *DC8
             .            V
             .            V
857          .         RC8N
             .            .
             .            .
864          .            .           .<-------    DDN3
862          .            .         DN3
             .            .           V
             .            .           V
865          .            .        RN3W
             .            .           .
             .            .           .
870      CP-D2........................
             V
             V
872         RD2
             .
             .
877          .          C10
             .            .
             .            .
887          .            .          N4
             .            .           .
             .            .           .
897     CP-C10........................
             .
             .
901          .------->   DDC10
899      *DC10
             .
             .
904          .           C5
             .            .
             .            .
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916          .          .          .<-------    DDC2
914          .          .       DC2
.            .          .         V
             .          .         V
917          .          .      RC2S
             .          .         .
             .          .         .
922          .     CP-C5............
             .        V
             .        V
924          .      RC5
             .        .
             .        .
929          .          .       S13
             .          .         V
             .          .         V
939          .          .      RS13
             .          .         .
             .          .         .
944          .          .         .          W1
             .          .         .           .
             .          .         .           .
954          .          .    CP-W1............
             .          .         .
             .          .         .
958          .          .         .------->    DDW1
956          .          .     *DW1
             .          .         V
             .          .         V
961          .          .      RW1
             .          .         .
             .          .         .
966          .          .         .         S14
             .          .         .           .
             .          .         .           .
976          .          .         .           .         S15
             .          .         .           .           V
             .          .         .           .           V
986          .          .         .           .        RS15
             .          .         .           .           .
             .          .         .           .           .
991          .          .         .      CP-S14............
             .          .         .           .
             .          .         .           .
995          .          .         .           .-------> DDS14O
993          .          .         .      *DS14A
             .          .         .           .
             .          .         .           .
1000         .          .         .           .-------> DDS14B
998          .          .         .      *DS14B
             .          .         .           .
             .          .         .           .
1005         .          .         .           .-------> DDS14C
1003         .          .         .      *DS14C
             .          .         .           V
             .          .         .           V
1008         .          .         .       RS14E
             .          .         .           .
             .          .         .           .
1014         .          .         .           .          W2
             .          .         .           .           .
             .          .         .           .           .
1026         .          .         .           .           .           .<-------    DDW1
1024         .          .         .           .           .        DW1
             .          .         .           .           .          V
             .          .         .           .           .          V
1027         .          .         .           .           .       RW1W
             .          .         .           .           .          .
             .          .         .           .           .          .
1032         .          .         .       CP-W2........................
             .          .         .           V
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                 .          .          .          V
1034             .          .          .        RW2
                 .          .          .          .
                 .          .          .          .
1039             .          .          .          .          W3
                 .          .          .          .           .
                 .          .          .          .           .
1049             .          .          .          .           .          C6
                 .          .          .          .           .           .
                 .          .          .          .           .           .
1059             .      CP-C6.......................................
                 .          .
                 .          .
1064             .          .-------->    DDC6
1061             .      *DC6
                 .          V
                 .          V
1067             .      RC6S
                 .          .
                 .          .
1073             .          .         W5
                 .          .          .
                 .          .          .
1085             .          .          .<-------  DDS14C
1083             .          .       DS14C
                 .          .          V
                 .          .          V
1086             .          .       RS14W
                 .          .          .
                 .          .          .
1092             .          .     CP-W5............
                 .          .         V
                 .          .         V
1094             .          .        RW5
                 .          .          .
                 .          .          .
1099             .          .          .         W6
                 .          .          .          .
                 .          .          .          .
1109             .          .          .          .          W4
                 .          .          .          .           .
                 .          .          .          .           .
1121             .          .          .          .           .          .<-------  DDS14B
1119             .          .          .          .           .      DS14B
                 .          .          .          .           .          V
                 .          .          .          .           .          V
1122             .          .          .          .           .      RS14C
                 .          .          .          .           .           .
                 .          .          .          .           .           .
1128             .          .          .          .      CP-W4............
                 .          .          .          .           V
                 .          .          .          .           V
1130             .          .          .          .       RW4N
                 .          .          .          .           .
                 .          .          .          .           .
1135             .      CP-W6...................................
                 .          V
                 .          V
1137             .       RW6
                 .          .
                 .          .
1142             .          .         W7
                 .          .          .
                 .          .          .
1152             .      CP-W7............
                 .          V
                 .          V
1154             .       RW7
                 .          .
                 .          .
1159             .          .         W8
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                .           .           .
                .           .           .
1171            .           .           .           .<-------    DDC6
1169            .           .           .         DC6
                .           .           .           V
                .           .           .           V
1172            .           .           .        RC6N
                .           .           .           .
                .           .           .           .
1179            .           .           .           .           .<-------    DDC8
1177            .           .           .           .         DC8
                .           .           .           .           V
                .           .           .           .           V
1180            .           .           .           .        RC8W
                .           .           .           .           .
                .           .           .           .           .
1185            .       CP-W8.................................
                .           .
                .           .
1189            .           .------->    DDW8
1187            .        *DW8
                .           V
                .           V
1192            .        RW8N
                .           .
                .           .
1197            .           .         C11
                .           .           .
                .           .           .
1207            .           .           .          C9
                .           .           .           V
                .           .           .           V
1217            .           .           .        RC9W
                .           .           .           .
                .           .           .           .
1223            .      CP-C11......................
                .           .
                .           .
1227            .           .------->   DDC11
1225            .       *DC11
                .           V
                .           V
1230            .       RC11S
                .           .
                .           .
1235            .           .         C12
                .           .           .
                .           .           .
1245            .      CP-C12............
                .           .
                .           .
1249            .           .------->   DDC12
1247            .       *DC12
                .           V
                .           V
1252            .       RC12N
                .           .
                .           .
1258            .           .          W9
                .           .           V
                .           .           V
1268            .           .         RW9
                .           .           .
                .           .           .
1274            .           .           .         W11
                .           .           .           .
                .           .           .           .
1284            .           .      CP-W11............
                .           .           V
                .           .           V
1286            .           .        RW11
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                 .         .         .
                 .         .         .
1291             .         .         .         W12
                 .         .         .           .
                 .         .         .           .
1304             .         .         .           .          .<-------    DDW8
1301             .         .         .           .        DW8
                 .         .         .           .          V
                 .         .         .           .          V
1305             .         .         .           .       RW8S
                 .         .         .           .           .
                 .         .         .           .           .
1311             .         .     CP-W12.......................
                 .         .         .
                 .         .         .
1315             .         .         .-------->   DDW12
1313             .         .      *DW12
                 .         .         V
                 .         .         V
1318             .         .      RW12N
                 .         .         .
                 .         .         .
1323             .         .         .         W18
                 .         .         .           .
                 .         .         .           .
1336             .         .         .           .          .<-------   DDW12
1333             .         .         .           .       DW12
                 .         .         .           .          V
                 .         .         .           .          V
1337             .         .         .           .      RW12S
                 .         .         .           .           .
                 .         .         .           .           .
1343             .         .         .      CP-W18............
                 .         .         .           .
                 .         .         .           .
1349             .         .         .           .-------->   DDW18
1346             .         .         .      *DW18
                 .         .         .          V
                 .         .         .          V
1352             .         .         .      RW18N
                 .         .         .           .
                 .         .         .           .
1358             .         .         .           .        W10
                 .         .         .           .          V
                 .         .         .           .          V
1368             .         .         .           .       RW10
                 .         .         .           .           .
                 .         .         .           .           .
1374             .         .         .           .           .         W16
                 .         .         .           .           .           .
                 .         .         .           .           .           .
1384             .         .         .           .     CP-W16............
                 .         .         .           .          V
                 .         .         .           .          V
1387             .         .         .           .      RW16N
                 .         .         .           .           .
                 .         .         .           .           .
1393             .         .         .           .           .         W17
                 .         .         .           .           .           .
                 .         .         .           .           .           .
1406             .         .         .           .           .           .          .<-------   DDW18
1403             .         .         .           .           .           .       DW18
                 .         .         .           .           .           .          V
                 .         .         .           .           .           .          V
1407             .         .         .           .           .           .      RW18S
                 .         .         .           .           .           .           .
                 .         .         .           .           .           .           .
1413             .         .         .           .     CP-W17........................
                 .         .         .           .           .
                 .         .         .           .           .
1417             .         .         .           .           .-------->  DDW17O
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1415          .           .           .           .       *DW17
              .           .           .           .           V
              .           .           .           .           V
1420          .           .           .           .        RW17
              .           .           .           .           .
              .           .           .           .           .
1425          .           .           .           .           .         C14
              .           .           .           .           .           .
              .           .           .           .           .           .
1437          .           .           .           .           .           .           .<-------   DDC12
1435          .           .           .           .           .           .        DC12
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
1438          .           .           .           .           .           .       RC12W
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
1443          .           .      CP-C14.............................................
              .           .           .
              .           .           .
1447          .           .           .-------> DDC14O
1445          .           .       *DC14
              .           .           V
              .           .           V
1450          .           .       RC14N
              .           .           .
              .           .           .
1455          .           .           .         C15
              .           .           .           .
              .           .           .           .
1465          .           .      CP-C15...........
              .           .           .
              .           .           .
1469          .           .           .-------> DDC15O
1467          .           .       *DC15
              .           .           V
              .           .           V
1472          .           .       RC15N
              .           .           .
              .           .           .
1479          .           .           .           .<-------   DDC11
1477          .           .           .        DC11
              .           .           .           V
              .           .           .           V
1480          .           .           .       RC11N
              .           .           .           .
              .           .           .           .
1486          .           .           .           .         C13
              .           .           .           .           .
              .           .           .           .           .
1496          .           .           .           .           .         N5
              .           .           .           .           .           .
              .           .           .           .           .           .
1508          .           .           .           .           .           .           .<-------   DDC10
1506          .           .           .           .           .           .        DC10
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
1509          .           .           .           .           .           .       RC10W
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
1514          .           .           .       CP-N5..................................
              .           .           .           V
              .           .           .           V
1516          .           .           .        RN5W
              .           .           .           .
              .           .           .           .
1521          .           .           .           .          N6
              .           .           .           .           .
              .           .           .           .           .
1531          .      CP-N6...................................
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************                                    ************************************
 *                                      *                                    *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER
 *           VERSION 4.1                *                                    *          609 SECOND STREET
 *                                      *                                    *       DAVIS, CALIFORNIA 95616
 *  RUN DATE   02SEP05  TIME  07:23:14  *                                    *           (916) 756-1104
 *                                      *                                    *
****************************************                                    ************************************
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                    ****************************************************************************
                    ****************************************************************************
                    **    SONOQUI WASH FLOODPLAIN DELINEATION STUDY                           **
                    **    100-Year 24-hour Storm                                              **
                    **    First Run Date  February 10-1998                                    **
                    **    Run Date  September 2nd, 2005                                       **
                    **    LAST REVISED   SEPTEMBER 2nd, 2005                                  **
                    **    Entellus, Inc.                                   File SNQ24.DAT     **
                    ****************************************************************************
                    ****************************************************************************

                    DDM MCUHP1 Sonoqui Wash floodplain Delineation Study

 14 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         800  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3APR97  ENDING DATE
                     NDTIME        1835  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   66.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

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

 17 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .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
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.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

27 JD INDEX STORM NO. 2

STRM 3.58 PRECIPITATION DEPTH

TRDA 1.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.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
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

28 JD INDEX STORM NO. 3

STRM 3.49 PRECIPITATION DEPTH

TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.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

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                .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
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

29 JD         INDEX STORM NO. 4
                STRM        3.38  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .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

30 JD         INDEX STORM NO. 5
                STRM        3.24  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
```

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          .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
31 JD     INDEX STORM NO. 6
            STRM        3.10  PRECIPITATION DEPTH
            TRDA       60.00  TRANSPOSITION DRAINAGE AREA

0 PI        PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .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
32 JD     INDEX STORM NO. 7
            STRM        3.05  PRECIPITATION DEPTH
            TRDA       90.00  TRANSPOSITION DRAINAGE AREA

0 PI        PRECIPITATION PATTERN
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00       .00       .00       .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		

33 JD INDEX STORM NO. 8

STRM 3.00 PRECIPITATION DEPTH

TRDA 120.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.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		

34 JD INDEX STORM NO. 9

STRM 2.97 PRECIPITATION DEPTH

TRDA 150.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00
   -----DSS---ZOPEN:  Existing File Opened,  File: SONOQRR.DSS
                     Unit:  71;  DSS Version: 6-JG
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW1/RRW1/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /RRW1/RRW1/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW1/RRW1/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /RRW1/RRW1/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /RRW1/RRW1/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /RRW1/RRW1/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
```

```
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  578   NVALS:  744    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35522
      JULS: 31MAR97       JULSD: 03APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  167  ILIM:  744
    ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
      Offset:       0,  Units: CFS     ,  Type:INST-VAL
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW1/RRW1/FLOW//5MIN/100YR/
      Time Window set.  Interval:     5  Number of data values:      1
      Starting date and time:  Apr 3, 1997  1355  (  35522  835)
      Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
      Input time offset:      0
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:    1    JULS:   35522  ISTIME:   835
      NLDATA:  288   JULSD:   35522
      JULS: 03APR97       JULSD: 03APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:    1  ILIM:    1
    ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
      Offset:       0,  Units: CFS     ,  Type:INST-VAL
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW1/RRW1/FLOW//5MIN/100YR/
      Time Window set.  Interval:     5  Number of data values:    744
      Starting date and time:  Apr 3, 1997  1355  (  35522  835)
      Ending   date and time:  Apr 6, 1997  0350  (  35525  230)
      Input time offset:      0
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/03APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:  744    JULS:   35522  ISTIME:   835
      NLDATA:  288   JULSD:   35522
      JULS: 03APR97       JULSD: 03APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:  122  ILIM:  122
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/04APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/04APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  123   NVALS:  744    JULS:   35522  ISTIME:   835
      NLDATA:  288   JULSD:   35523
      JULS: 03APR97       JULSD: 04APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  410
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/05APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/05APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  411   NVALS:  744    JULS:   35522  ISTIME:   835
      NLDATA:  288   JULSD:   35524
      JULS: 03APR97       JULSD: 05APR97
      Quality Read: F,  Quality Requested: F
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      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  698
      After ZRDINF, Record found: T
      Pathname: /RRW1/RRW1/FLOW/06APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW1/RRW1/FLOW/06APR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  699   NVALS:  744    JULS:   35522  ISTIME:   835
      NLDATA:  288   JULSD:   35525
      JULS: 03APR97       JULSD: 06APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   46  ILIM:  744
     ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
      Offset:       0,  Units: CFS     ,  Type:INST-VAL
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW2/RRW2/FLOW//5MIN/100YR/
      Time Window set.  Interval:     5  Number of data values:      1
      Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
      Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
      Input time offset:      0
      After ZRDINF, Record found: T
      Pathname: /RRW2/RRW2/FLOW/31MAR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35519
      JULS: 31MAR97       JULSD: 31MAR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
     ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
      Offset:       0,  Units: CFS     ,  Type:INST-VAL
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW2/RRW2/FLOW//5MIN/100YR/
      Time Window set.  Interval:     5  Number of data values:    744
      Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
      Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
      Input time offset:      0
      After ZRDINF, Record found: T
      Pathname: /RRW2/RRW2/FLOW/31MAR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:  744    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35519
      JULS: 31MAR97       JULSD: 31MAR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      After ZRDINF, Record found: T
      Pathname: /RRW2/RRW2/FLOW/01APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/01APR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    2   NVALS:  744    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35520
      JULS: 31MAR97       JULSD: 01APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
      After ZRDINF, Record found: T
      Pathname: /RRW2/RRW2/FLOW/02APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/02APR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  290   NVALS:  744    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35521
      JULS: 31MAR97       JULSD: 02APR97
      Quality Read: F,  Quality Requested: F
```

```
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  167  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW2/RRW2/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /RRW2/RRW2/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 6, 1997  0350  (  35525  230)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:  122  ILIM:  122
        After ZRDINF, Record found: T
        Pathname: /RRW2/RRW2/FLOW/04APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/04APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  123   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35523
        JULS: 03APR97       JULSD: 04APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  410
        After ZRDINF, Record found: T
        Pathname: /RRW2/RRW2/FLOW/05APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/05APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  411   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35524
        JULS: 03APR97       JULSD: 05APR97
        Quality Read: F,  Quality Requested: F
```

```
---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  698
After ZRDINF, Record found: T
Pathname: /RRW2/RRW2/FLOW/06APR1997/5MIN/100YR/
Number of actual data:  288  Header length:   0
Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW2/RRW2/FLOW/06APR1997/5MIN/100YR/
----DSS---Debug:  Enter ZRRTSB;  Unit:  71
NSTART:  699   NVALS:  744    JULS:   35522  ISTIME:   835
NLDATA:  288   JULSD:   35525
JULS: 03APR97       JULSD: 06APR97
Quality Read: F,  Quality Requested: F
---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   46  ILIM:  744
----- Exiting ZRRTS, Number of data values:    744,  Status:  0
Offset:       0,  Units: CFS     ,  Type:INST-VAL


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


          **************
          *            *
 305 KK   *     *RRW3  *
          *            *
          **************

 308 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                          FLOW FROM CULVERT BY RAILROAD
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/31MAR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/31MAR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/01APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/02APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/03APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/03APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/03APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/04APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/05APR1997/5MIN/100YR/
-----DSS--- ZREAD Unit  71; Vers.    2:  /RRW3/RRW3/FLOW/06APR1997/5MIN/100YR/

              SUBBASIN RUNOFF DATA

 307 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.28  SUBBASIN AREA

                                                          ***

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

                        HYDROGRAPH AT STATION     *RRW3
                      TRANSPOSITION AREA        .0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     66.58-HR
+   (CFS)       (HR)
                          (CFS)
+     349.     14.08                319.        153.         55.          55.
                       (INCHES)    2.318       4.435       4.437        4.437
                        (AC-FT)    158.         303.        303.         303.

                      CUMULATIVE AREA =    1.28 SQ MI

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

                        HYDROGRAPH AT STATION     *RRW3
                      TRANSPOSITION AREA       1.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
```

			6-HR	24-HR	72-HR	66.58-HR
+ (CFS)	(HR)					
		(CFS)				
+ 349.	14.08		319.	153.	55.	55.
		(INCHES)	2.318	4.435	4.437	4.437
		(AC-FT)	158.	303.	303.	303.

CUMULATIVE AREA = 1.28 SQ MI

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

HYDROGRAPH AT STATION *RRW3
TRANSPOSITION AREA 5.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.58-HR
+ (CFS)	(HR)					
		(CFS)				
+ 349.	14.08		319.	153.	55.	55.
		(INCHES)	2.318	4.435	4.437	4.437
		(AC-FT)	158.	303.	303.	303.

CUMULATIVE AREA = 1.28 SQ MI

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

HYDROGRAPH AT STATION *RRW3
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.58-HR
+ (CFS)	(HR)					
		(CFS)				
+ 349.	14.08		319.	153.	55.	55.
		(INCHES)	2.318	4.435	4.437	4.437
		(AC-FT)	158.	303.	303.	303.

CUMULATIVE AREA = 1.28 SQ MI

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

HYDROGRAPH AT STATION *RRW3
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.58-HR
+ (CFS)	(HR)					
		(CFS)				
+ 349.	14.08		319.	153.	55.	55.
		(INCHES)	2.318	4.435	4.437	4.437
		(AC-FT)	158.	303.	303.	303.

CUMULATIVE AREA = 1.28 SQ MI

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

HYDROGRAPH AT STATION *RRW3
TRANSPOSITION AREA 60.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.58-HR
+ (CFS)	(HR)					
		(CFS)				
+ 349.	14.08		319.	153.	55.	55.
		(INCHES)	2.318	4.435	4.437	4.437
		(AC-FT)	158.	303.	303.	303.

```
                    CUMULATIVE AREA =    1.28 SQ MI

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

                     HYDROGRAPH AT STATION    *RRW3
                   TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     66.58-HR
+   (CFS)       (HR)
                          (CFS)
+     349.     14.08                319.        153.         55.          55.
                        (INCHES)   2.318       4.435       4.437        4.437
                         (AC-FT)   158.        303.        303.         303.

                    CUMULATIVE AREA =    1.28 SQ MI

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

                     HYDROGRAPH AT STATION    *RRW3
                   TRANSPOSITION AREA    120.0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     66.58-HR
+   (CFS)       (HR)
                          (CFS)
+     349.     14.08                319.        153.         55.          55.
                        (INCHES)   2.318       4.435       4.437        4.437
                         (AC-FT)   158.        303.        303.         303.

                    CUMULATIVE AREA =    1.28 SQ MI

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

                     HYDROGRAPH AT STATION    *RRW3
                   TRANSPOSITION AREA    150.0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     66.58-HR
+   (CFS)       (HR)
                          (CFS)
+     349.     14.08                319.        153.         55.          55.
                        (INCHES)   2.318       4.435       4.437        4.437
                         (AC-FT)   158.        303.        303.         303.

                    CUMULATIVE AREA =    1.28 SQ MI

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


                    INTERPOLATED HYDROGRAPH AT    *RRW3

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     66.58-HR
+   (CFS)       (HR)
                          (CFS)
+     349.     14.08                319.        153.         55.          55.
                        (INCHES)   2.318       4.435       4.437        4.437
                         (AC-FT)   158.        303.        303.         303.

                    CUMULATIVE AREA =    1.28 SQ MI

 494 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
```

```
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

650 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

719 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

797 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

820 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1009 KO     OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1062 KO     OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS
```

```
1068 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1087 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1123 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1218 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1253 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1269 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

1303 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1306 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1334 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1338 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1344 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1348 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

1353 KO      OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS
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1369 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

1385 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

1388 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

1405 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

1408 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

1481 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        800  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       .083  TIME INTERVAL IN HOURS

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                                   RUNOFF SUMMARY
                            FLOW IN CUBIC FEET PER SECOND
                         TIME IN HOURS,  AREA IN SQUARE MILES
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NOTE: The following *Runoff Summary* is a continuation of the output of the HEC-1 file SNQ24.OH1 (corresponding input file is SNQ24.DAT) which was prepared by Entellus and submitted to the District on September 2, 2005 and, ultimately, approved by FEMA. These summary sheets were not printed by Entellus but rather were printed by the District.

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

MAXIMUM STAGE	TIME OF OPERATION MAX STAGE	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA
+	HYDROGRAPH AT	S9	2359.	12.58	475.	144.	52.	3.40
+	DIVERSION TO	DDS9	472.	12.58	95.	29.	10.	3.40
+	HYDROGRAPH AT	*DS9	1887.	12.58	380.	115.	42.	3.40
+	HYDROGRAPH AT	S10	883.	12.25	98.	30.	11.	.71
+	2 COMBINED AT	CP-S10	2171.	12.58	473.	143.	52.	4.11
+	ROUTED TO	RS10	2045.	12.75	472.	143.	52.	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.	15.	.39
+	2 COMBINED AT	CP-E8	2264.	12.75	605.	182.	66.	4.50
+	DIVERSION TO	DDE8	505.	12.75	110.	28.	10.	4.50
+	HYDROGRAPH AT	*DE8	1759.	12.75	495.	154.	56.	4.50
+	ROUTED TO	RE8	1629.	13.17	494.	154.	56.	4.50
+	HYDROGRAPH AT	C1	391.	12.25	30.	7.	3.	.35
+	HYDROGRAPH AT	S11	1102.	12.33	164.	51.	19.	.99
+	ROUTED TO	RS11	830.	12.92	164.	51.	19.	.99
+	HYDROGRAPH AT	S12	611.	12.17	62.	19.	7.	.41
+	ROUTED TO	RS12	280.	13.42	61.	19.	7.	.41
+	4 COMBINED AT	CP-C1	2377.	13.17	727.	225.	82.	6.26
+	ROUTED TO	RC1N	2239.	13.58	727.	225.	82.	6.26
+	HYDROGRAPH AT	S1	2163.	12.25	202.	58.	21.	1.76
+	ROUTED TO	RS1	391.	21.92	194.	57.	21.	1.76

+	HYDROGRAPH AT	S2	2081.	12.67	320.	85.	31.	3.07
+	ROUTED TO	RS2	841.	17.67	320.	85.	31.	3.07
+	HYDROGRAPH AT	S3B	2888.	12.17	331.	108.	39.	1.73
+	ROUTED TO	RS3B	1021.	14.83	326.	107.	39.	1.73
+	HYDROGRAPH AT	S3A	595.	13.00	160.	41.	15.	1.70
+	2 COMBINED AT	CP-S3A	1124.	14.83	454.	146.	53.	3.43
+	ROUTED TO	RS3A	784.	18.50	416.	144.	53.	3.43
+	HYDROGRAPH AT	E1	1193.	14.92	808.	232.	83.	7.91
+	HYDROGRAPH AT	*RRW1	306.	14.58	272.	129.	47.	3.37
+	ROUTED TO	RRW1	301.	15.67	270.	129.	47.	3.37
+	5 COMBINED AT	CP-E1	1947.	18.25	1482.	600.	220.	19.54
+	ROUTED TO	RE1	1859.	20.42	1455.	599.	220.	19.54
+	HYDROGRAPH AT	S4B	1128.	12.42	171.	51.	18.	1.28
+	ROUTED TO	RS4B	665.	13.75	170.	51.	18.	1.28
+	HYDROGRAPH AT	S4A	1517.	12.42	160.	43.	16.	1.60
+	2 COMBINED AT	CP-S4A	1510.	12.42	318.	92.	33.	2.88
+	ROUTED TO	RS4A	696.	14.17	306.	91.	33.	2.88
+	HYDROGRAPH AT	S5	524.	12.17	48.	14.	5.	.34
+	ROUTED TO	RS5	193.	14.08	47.	14.	5.	.34
+	HYDROGRAPH AT	*RRW2	123.	15.83	111.	58.	21.	.21
+	ROUTED TO	RRW2	119.	21.00	110.	57.	21.	.21
+	HYDROGRAPH AT	*RRW3	349.	14.08	319.	153.	55.	1.28
+	ROUTED TO	RRW3	339.	18.92	316.	153.	55.	1.28
+	5 COMBINED AT	CP-D5	2310.	20.42	1921.	891.	327.	24.25
+	ROUTED TO	RD5	2246.	21.92	1904.	891.	327.	24.25
+	HYDROGRAPH AT	S6	647.	12.42	91.	24.	9.	.82
+	ROUTED TO	RS6	274.	15.50	89.	24.	9.	.82

+	HYDROGRAPH AT	S7B	1324.	12.17	115.	35.	13.	.77
+	ROUTED TO	RS7B	534.	13.33	115.	35.	13.	.77
+	HYDROGRAPH AT	S7A	1098.	12.42	110.	27.	10.	1.19
+	2 COMBINED AT	CP-S7A	1098.	12.42	220.	61.	22.	1.96
+	ROUTED TO	RS7A	509.	14.33	212.	61.	22.	1.96
+	3 COMBINED AT	CP-D6	2253.	21.92	1939.	957.	353.	27.03
+	ROUTED TO	RD6	2228.	22.67	1931.	956.	353.	27.03
+	HYDROGRAPH AT	E5	541.	12.42	61.	15.	5.	.57
+	ROUTED TO	RE5	423.	12.83	61.	15.	5.	.57
+	HYDROGRAPH AT	E2	1272.	14.42	713.	197.	71.	7.33
+	HYDROGRAPH AT	S8B	2342.	12.25	280.	89.	32.	1.70
+	ROUTED TO	RS8B	1130.	13.75	277.	88.	32.	1.70
+	HYDROGRAPH AT	S8A	1132.	12.58	147.	37.	13.	1.74
+	2 COMBINED AT	CP-S8A	1192.	13.67	411.	123.	45.	3.44
+	ROUTED TO	RS8A	887.	15.58	396.	122.	45.	3.44
+	4 COMBINED AT	CP-E2	2235.	22.75	1988.	1213.	452.	38.36
+	ROUTED TO	RE2	2207.	23.83	1982.	1211.	452.	38.36
+	HYDROGRAPH AT	E6	569.	13.08	136.	34.	12.	1.17
+	HYDROGRAPH AT	E11	140.	13.08	42.	11.	4.	.34
+	DIVERSION TO	DDE11	131.	13.08	39.	10.	4.	.34
+	HYDROGRAPH AT	*DE11	9.	13.08	3.	1.	0.	.34
+	ROUTED TO	RE11N	8.	15.17	3.	1.	0.	.34
+	HYDROGRAPH AT	E3	185.	13.08	54.	14.	5.	.43
+	HYDROGRAPH AT	DE11	131.	13.08	39.	10.	4.	.34
+	ROUTED TO	RE11S	87.	16.75	38.	10.	4.	.34
+	3 COMBINED AT	CP-E3	185.	13.08	80.	24.	9.	.77
+	DIVERSION TO	DDE3	24.	13.08	13.	4.	1.	.77

+	HYDROGRAPH AT	*DE3	161.	13.08	67.	20.	7.	.77
+	ROUTED TO	RE3W	128.	14.83	63.	20.	7.	.77
+	3 COMBINED AT	CP-E6	2205.	23.83	1993.	1244.	467.	40.30
+	DIVERSION TO	DDE6	801.	23.83	724.	449.	168.	40.30
+	HYDROGRAPH AT	*DE6	1403.	23.83	1269.	795.	299.	40.30
+	ROUTED TO	RE6S	1390.	24.92	1266.	793.	299.	40.30
+	HYDROGRAPH AT	E9	466.	12.92	105.	26.	9.	.95
+	HYDROGRAPH AT	DE8	505.	12.75	110.	28.	10.	4.50
+	ROUTED TO	RE8E	422.	13.83	110.	28.	10.	4.50
+	3 COMBINED AT	CP-E9	1390.	24.92	1266.	826.	315.	41.25
+	DIVERSION TO	DDE9	200.	24.92	182.	125.	51.	41.25
+	HYDROGRAPH AT	*DE9	1187.	24.92	1081.	699.	264.	41.25
+	ROUTED TO	RE9W	1186.	25.00	1081.	699.	264.	41.25
+	HYDROGRAPH AT	C4	173.	12.50	27.	7.	2.	.31
+	HYDROGRAPH AT	C2	120.	12.92	33.	8.	3.	.32
+	HYDROGRAPH AT	C3	102.	12.50	14.	4.	1.	.11
+	DIVERSION TO	DDC3	42.	12.50	6.	2.	1.	.11
+	HYDROGRAPH AT	*DC3	59.	12.50	8.	2.	1.	.11
+	ROUTED TO	RC3SW	49.	12.83	8.	2.	1.	.11
+	3 COMBINED AT	*CP-C2	282.	12.75	68.	17.	6.	.75
+	3 COMBINED AT	CP-C2	2331.	13.67	1314.	880.	338.	48.26
+	DIVERSION TO	DDC2	363.	13.67	59.	15.	5.	48.26
+	HYDROGRAPH AT	*DC2	1968.	13.67	1256.	865.	332.	48.26
+	ROUTED TO	RC2	1921.	13.83	1253.	865.	332.	48.26
+	HYDROGRAPH AT	C16	26.	12.17	3.	1.	0.	.03
+	2 COMBINED AT	CP-C16	1921.	13.83	1253.	865.	332.	48.28
+	ROUTED TO	RC16	1870.	14.25	1245.	864.	332.	48.28

+	HYDROGRAPH AT	DE3	24.	13.08	13.	4.	1.	.77
+	ROUTED TO	RE3	17.	17.58	12.	4.	1.	.77
+	HYDROGRAPH AT	E4	134.	12.75	47.	13.	5.	.37
+	2 COMBINED AT	CP-E4	134.	12.75	50.	17.	6.	.37
+	DIVERSION TO	DDE4 0	51.	12.75	19.	6.	2.	.37
+	HYDROGRAPH AT	*DE4	83.	12.75	31.	11.	4.	.37
+	ROUTED TO	RE4	56.	16.67	29.	11.	4.	.37
+	HYDROGRAPH AT	E7	169.	12.50	41.	10.	4.	.36
+	HYDROGRAPH AT	DE6	801.	23.83	724.	449.	168.	40.30
+	ROUTED TO	RE6	798.	24.33	723.	449.	168.	40.30
+	3 COMBINED AT	CP-E7	967.	23.83	847.	535.	201.	.73
+	ROUTED TO	RE7	953.	25.25	845.	533.	201.	.73
+	HYDROGRAPH AT	E10	563.	12.33	62.	16.	6.	.51
+	HYDROGRAPH AT	DE9	200.	24.92	182.	125.	51.	41.25
+	ROUTED TO	RE9N	199.	25.42	182.	125.	51.	41.25
+	3 COMBINED AT	CP-E10	1183.	25.17	1050.	672.	263.	1.24
+	ROUTED TO	RE10	1162.	27.08	1047.	670.	263.	1.24
+	HYDROGRAPH AT	N2	518.	12.25	64.	16.	6.	.54
+	HYDROGRAPH AT	DC3	42.	12.50	6.	2.	1.	.11
+	ROUTED TO	RC3NW	20.	17.25	7.	2.	1.	.11
+	3 COMBINED AT	CP-N2	1162.	27.08	1047.	671.	270.	1.78
+	DIVERSION TO	DDN2	206.	27.08	201.	180.	89.	1.78
+	HYDROGRAPH AT	*DN2	946.	27.08	839.	486.	179.	1.78
+	ROUTED TO	RN2S	944.	27.42	838.	486.	179.	1.78
+	HYDROGRAPH AT	DN2	206.	27.08	201.	180.	89.	1.78
+	ROUTED TO	RN2N	206.	27.92	200.	180.	89.	1.78
+	DIVERSION TO	DDD3	36.	27.83	36.	35.	19.	1.78

+	HYDROGRAPH AT	*DD3	170.	27.92	165.	146.	70.	1.78
+	ROUTED TO	RD3W	170.	29.92	165.	146.	70.	1.78
+	HYDROGRAPH AT	C7	229.	12.50	54.	14.	5.	.48
+	4 COMBINED AT	CP-C7	2037.	25.67	1898.	1359.	547.	52.32
+	ROUTED TO	RC7	2035.	26.00	1898.	1359.	547.	52.32
+	HYDROGRAPH AT	N1	150.	13.08	45.	11.	4.	.39
+	HYDROGRAPH AT	DD3	36.	27.83	36.	35.	19.	1.78
+	ROUTED TO	RD3N	36.	29.92	36.	35.	19.	1.78
+	2 COMBINED AT	CP-N1	151.	13.08	54.	40.	23.	.39
+	DIVERSION TO	DDN1 O	4.	13.08	1.	1.	1.	.39
+	HYDROGRAPH AT	*DN1	147.	13.08	53.	39.	22.	.39
+	ROUTED TO	RN1	107.	16.08	49.	37.	22.	.39
+	HYDROGRAPH AT	N3	345.	12.50	80.	22.	8.	.65
+	2 COMBINED AT	CP-N3	344.	12.50	108.	53.	30.	1.04
+	DIVERSION TO	DDN3	333.	12.50	105.	51.	29.	1.04
+	HYDROGRAPH AT	*DN3	11.	12.50	4.	2.	1.	1.04
+	ROUTED TO	RN3S	9.	13.58	4.	2.	1.	1.04
+	HYDROGRAPH AT	C7A	79.	12.67	29.	8.	3.	.22
+	3 COMBINED AT	CP-C7A	2034.	26.00	1898.	1362.	550.	53.58
+	ROUTED TO	RC7A	2030.	26.25	1895.	1360.	549.	53.58
+	HYDROGRAPH AT	C8	82.	12.33	17.	4.	2.	.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	333.	12.50	105.	51.	29.	1.04
+	ROUTED TO	RN3W	263.	14.08	99.	49.	29.	1.04
+	3 COMBINED AT	CP-D2	2057.	26.25	1922.	1404.	576.	53.74

+	ROUTED TO	RD2	2051.	26.75	1921.	1404.	576.	53.74
+	HYDROGRAPH AT	C10	183.	12.67	64.	18.	7.	.50
+	HYDROGRAPH AT	N4	72.	13.17	23.	6.	2.	.28
+	3 COMBINED AT	CP-C10	2051.	26.75	1921.	1411.	582.	54.51
+	DIVERSION TO	DDC10	2049.	26.75	1919.	1410.	582.	54.51
+	HYDROGRAPH AT	*DC10	0.	.00	0.	0.	0.	54.51
+	HYDROGRAPH AT	C5	683.	12.25	57.	14.	5.	.65
+	HYDROGRAPH AT	DC2	363.	13.67	59.	15.	5.	48.26
+	ROUTED TO	RC2S	207.	16.08	58.	15.	5.	48.26
+	2 COMBINED AT	CP-C5	683.	12.25	155.	41.	15.	.65
+	ROUTED TO	RC5	278.	18.08	137.	41.	15.	.65
+	HYDROGRAPH AT	S13	2051.	12.42	271.	81.	29.	2.11
+	ROUTED TO	RS13	1308.	13.33	270.	81.	29.	2.11
+	HYDROGRAPH AT	W1	216.	12.33	24.	6.	2.	.28
+	2 COMBINED AT	CP-W1	1322.	13.33	292.	86.	31.	2.39
+	DIVERSION TO	DDW1	661.	13.33	146.	43.	16.	2.39
+	HYDROGRAPH AT	*DW1	661.	13.33	146.	43.	16.	2.39
+	ROUTED TO	RW1	507.	14.25	145.	43.	16.	2.39
+	HYDROGRAPH AT	S14	1352.	12.42	140.	35.	13.	1.61
+	HYDROGRAPH AT	S15	1894.	12.42	336.	108.	39.	1.95
+	ROUTED TO	RS15	1220.	13.92	335.	107.	39.	1.95
+	2 COMBINED AT	CP-S14	1363.	12.42	463.	140.	51.	3.56
+	DIVERSION TO	DDS14O	681.	12.42	232.	70.	25.	3.56
+	HYDROGRAPH AT	*DS14A	681.	12.42	232.	70.	25.	3.56
+	DIVERSION TO	DDS14B	285.	12.42	49.	12.	4.	3.56
+	HYDROGRAPH AT	*DS14B	396.	12.42	182.	58.	21.	3.56
+	DIVERSION TO	DDS14C	114.	12.42	20.	5.	2.	3.56

+	HYDROGRAPH AT	*DS14C	282.	12.42	163.	53.	19.	3.56
+	ROUTED TO	RS14E	240.	17.25	151.	52.	19.	3.56
+	HYDROGRAPH AT	W2	166.	12.42	22.	5.	2.	.25
+	HYDROGRAPH AT	DW1	661.	13.33	146.	43.	16.	2.39
+	ROUTED TO	RW1W	557.	13.92	146.	43.	16.	2.39
+	3 COMBINED AT	CP-W2	568.	13.92	264.	99.	37.	3.81
+	ROUTED TO	RW2	518.	14.42	262.	99.	37.	3.81
+	HYDROGRAPH AT	W3	46.	12.33	6.	2.	1.	.06
+	HYDROGRAPH AT	C6	116.	12.92	30.	7.	3.	.30
+	5 COMBINED AT	CP-C6	1150.	14.50	514.	181.	67.	7.21
+	DIVERSION TO	DDC6	670.	14.50	109.	27.	10.	7.21
+	HYDROGRAPH AT	*DC6	480.	14.00	405.	153.	57.	7.21
+	ROUTED TO	RC6S	480.	14.42	405.	153.	57.	7.21
+	HYDROGRAPH AT	W5	314.	12.33	51.	13.	5.	.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	314.	12.33	72.	18.	7.	.49
+	ROUTED TO	RW5	259.	12.83	71.	18.	7.	.49
+	HYDROGRAPH AT	W6	275.	12.67	51.	13.	5.	.52
+	HYDROGRAPH AT	W4	541.	12.17	57.	14.	5.	.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	541.	12.17	104.	28.	10.	.49
+	ROUTED TO	RW4N	296.	13.42	95.	28.	10.	.49
+	4 COMBINED AT	CP-W6	773.	13.33	532.	205.	75.	8.70
+	ROUTED TO	RW6	697.	13.75	529.	205.	75.	8.70
+	HYDROGRAPH AT	W7	91.	12.50	26.	7.	2.	.23

+	2 COMBINED AT	CP-W7	730.	13.75	539.	210.	77.	8.93
+	ROUTED TO	RW7	727.	13.75	539.	210.	77.	8.93
+	HYDROGRAPH AT	W8	120.	12.42	29.	8.	3.	.26
+	HYDROGRAPH AT	DC6	670.	14.50	109.	27.	10.	7.21
+	ROUTED TO	RC6N	383.	16.75	105.	27.	10.	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	759.	13.75	645.	244.	90.	9.19
+	DIVERSION TO	DDW8	759.	13.75	645.	244.	90.	9.19
+	HYDROGRAPH AT	*DW8	4.	16.50	0.	0.	0.	9.19
+	ROUTED TO	RW8N	0.	18.92	0.	0.	0.	9.19
+	HYDROGRAPH AT	C11	190.	12.33	34.	10.	3.	.27
+	HYDROGRAPH AT	C9	140.	12.33	31.	10.	3.	.21
+	ROUTED TO	RC9W	89.	15.25	31.	10.	3.	.21
+	3 COMBINED AT	CP-C11	190.	12.33	60.	19.	7.	9.66
+	DIVERSION TO	DDC11	103.	12.33	32.	10.	4.	9.66
+	HYDROGRAPH AT	*DC11	74.	12.33	23.	7.	3.	9.66
+	ROUTED TO	RC11S	55.	13.50	22.	7.	3.	9.66
+	HYDROGRAPH AT	C12	115.	13.00	32.	8.	3.	.26
+	2 COMBINED AT	CP-C12	142.	13.33	50.	15.	5.	9.93
+	DIVERSION TO	DDC12	48.	13.33	17.	5.	2.	9.93
+	HYDROGRAPH AT	*DC12	94.	13.33	33.	10.	4.	9.93
+	ROUTED TO	RC12N	58.	17.17	31.	10.	4.	9.93
+	HYDROGRAPH AT	W9	396.	12.42	51.	13.	5.	.52
+	ROUTED TO	RW9	258.	13.33	51.	13.	5.	.52
+	HYDROGRAPH AT	W11	303.	12.67	54.	14.	5.	.51
+	2 COMBINED AT	CP-W11	392.	13.25	106.	27.	10.	1.03

+	ROUTED TO	RW11	351.	14.00	106.	27.	10.	1.03
+	HYDROGRAPH AT	W12	467.	12.42	62.	16.	6.	.53
+	HYDROGRAPH AT	DW8	759.	13.75	645.	244.	90.	9.19
+	ROUTED TO	RW8S	749.	14.08	645.	244.	90.	9.19
+	3 COMBINED AT	CP-W12	1180.	14.00	815.	306.	112.	1.55
+	DIVERSION TO	DDW12	680.	13.08	675.	271.	99.	1.55
+	HYDROGRAPH AT	*DW12	500.	14.00	140.	35.	13.	1.55
+	ROUTED TO	RW12N	326.	17.17	130.	35.	13.	1.55
+	HYDROGRAPH AT	W18	294.	12.25	30.	8.	3.	.25
+	HYDROGRAPH AT	DW12	680.	13.08	675.	271.	99.	1.55
+	ROUTED TO	RW12S	680.	13.33	675.	271.	99.	1.55
+	2 COMBINED AT	CP-W18	693.	13.25	678.	281.	103.	.25
+	DIVERSION TO	DDW18	360.	12.25	360.	178.	66.	.25
+	HYDROGRAPH AT	*DW18	333.	13.25	318.	103.	37.	.25
+	ROUTED TO	RW18N	322.	15.83	315.	103.	37.	.25
+	HYDROGRAPH AT	W10	381.	12.50	51.	13.	5.	.51
+	ROUTED TO	RW10	218.	14.08	51.	13.	5.	.51
+	HYDROGRAPH AT	W16	331.	12.17	26.	7.	2.	.25
+	2 COMBINED AT	CP-W16	331.	12.17	77.	20.	7.	.76
+	ROUTED TO	RW16N	179.	15.67	76.	20.	7.	.76
+	HYDROGRAPH AT	W17	386.	12.17	31.	8.	3.	.26
+	HYDROGRAPH AT	DW18	360.	12.25	360.	178.	66.	.25
+	ROUTED TO	RW18S	360.	12.50	360.	178.	66.	.25
+	3 COMBINED AT	CP-W17	562.	12.25	446.	205.	76.	1.01
+	DIVERSION TO	DDW17O	545.	12.25	429.	188.	68.	1.01
+	HYDROGRAPH AT	*DW17	17.	10.50	17.	17.	8.	1.01
+	ROUTED TO	RW17	17.	18.58	17.	17.	8.	1.01

+	HYDROGRAPH AT	C14	224.	12.58	61.	16.	6.	.51
+	HYDROGRAPH AT	DC12	48.	13.33	17.	5.	2.	9.93
+	ROUTED TO	RC12W	36.	16.00	16.	5.	2.	9.93
+	5 COMBINED AT	CP-C14	670.	17.25	453.	167.	63.	3.33
+	DIVERSION TO	DDC14O	546.	17.25	369.	133.	50.	3.33
+	HYDROGRAPH AT	*DC14	124.	17.25	84.	33.	13.	3.33
+	ROUTED TO	RC14N	116.	18.42	83.	33.	13.	3.33
+	HYDROGRAPH AT	C15	196.	12.67	61.	16.	6.	.51
+	2 COMBINED AT	CP-C15	190.	12.67	90.	48.	18.	3.84
+	DIVERSION TO	DDC15O	104.	12.67	51.	28.	11.	3.84
+	HYDROGRAPH AT	*DC15	86.	12.67	38.	20.	7.	3.84
+	ROUTED TO	RC15N	82.	13.17	38.	20.	7.	3.84
+	HYDROGRAPH AT	DC11	103.	12.33	32.	10.	4.	9.66
+	ROUTED TO	RC11N	61.	14.50	31.	10.	4.	9.66
+	HYDROGRAPH AT	C13	351.	12.33	60.	15.	6.	.51
+	HYDROGRAPH AT	N5	202.	12.83	44.	11.	4.	.43
+	HYDROGRAPH AT	DC10	2049.	26.75	1919.	1410.	582.	54.51
+	ROUTED TO	RC10W	2041.	27.83	1917.	1406.	582.	54.51
+	4 COMBINED AT	CP-N5	2038.	27.83	1915.	1410.	592.	55.45
+	ROUTED TO	RN5W	2030.	28.83	1913.	1406.	592.	55.45
+	HYDROGRAPH AT	N6	183.	13.08	53.	13.	5.	.43
+	4 COMBINED AT	CP-N6	2030.	28.83	1915.	1419.	603.	69.65

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

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           Pointer Utilization:   .25
           Number of Records:     63
           File Size:    120.5  Kbytes
           Percent Inactive:     .0
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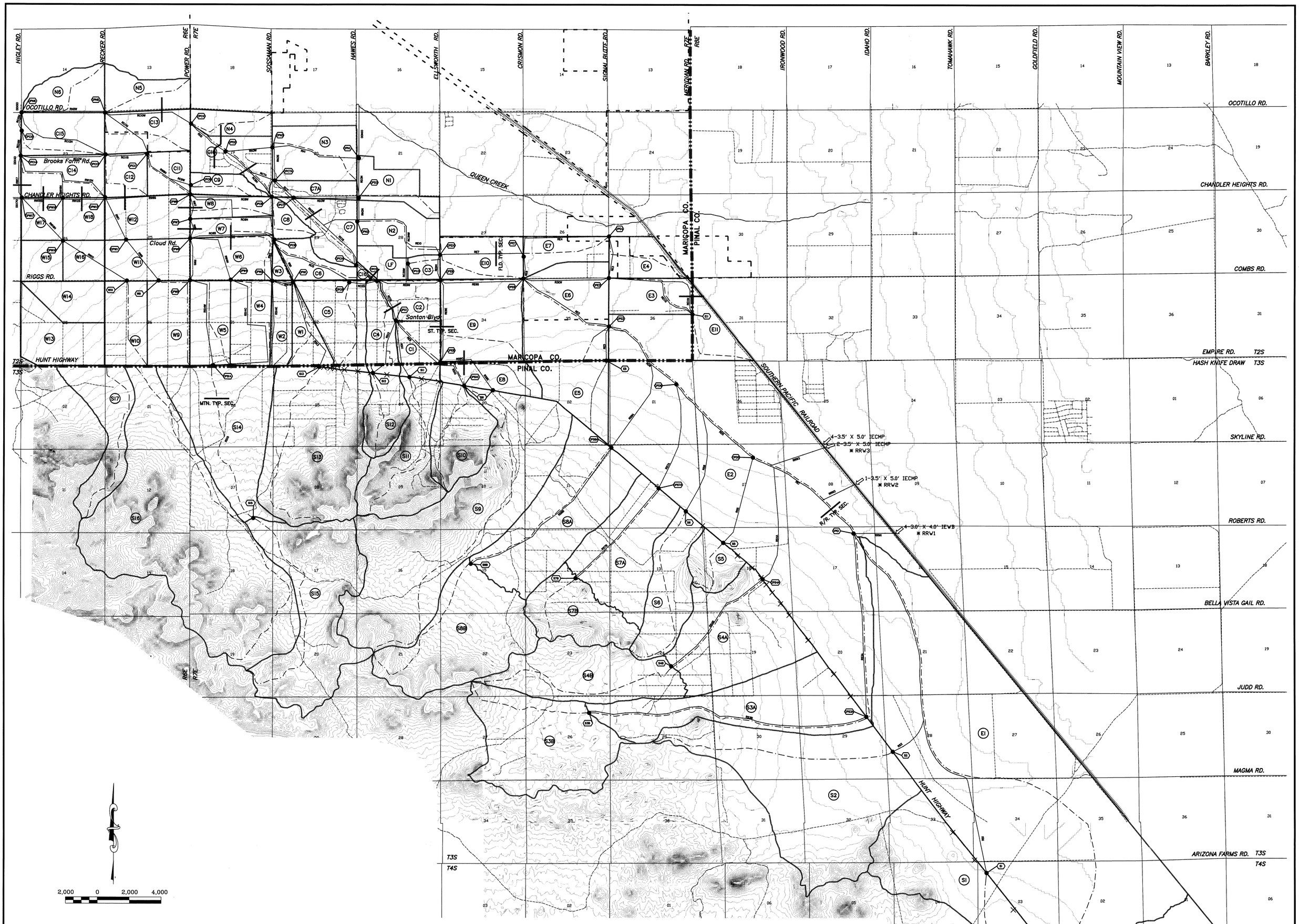
APPENDIX E: HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION

The entire contents of this appendix are found in **Appendix E** of "Sonoqui Wash Floodplain Delineation Study, Technical Data Notebook, Volume II - Hydraulics."

APPENDIX F: Plates and Electronic Files



LEGEND

- (SI) BASIN IDENTIFIER
- POINT OF CONCENTRATION
- 120 G TIME OF CONCENTRATION PATH LABEL
- R123C ROUTING PATH LABEL
- BASIN BOUNDARY
- TIME OF CONCENTRATION PATH
- ROUTING PATH
- CORPORATE BOUNDARY
- COUNTY BOUNDARY
- SECTION LINES
- ROADWAYS
- ROUTING CROSS-SECTION LOCATION

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FLOOD CONTROL DISTRICT
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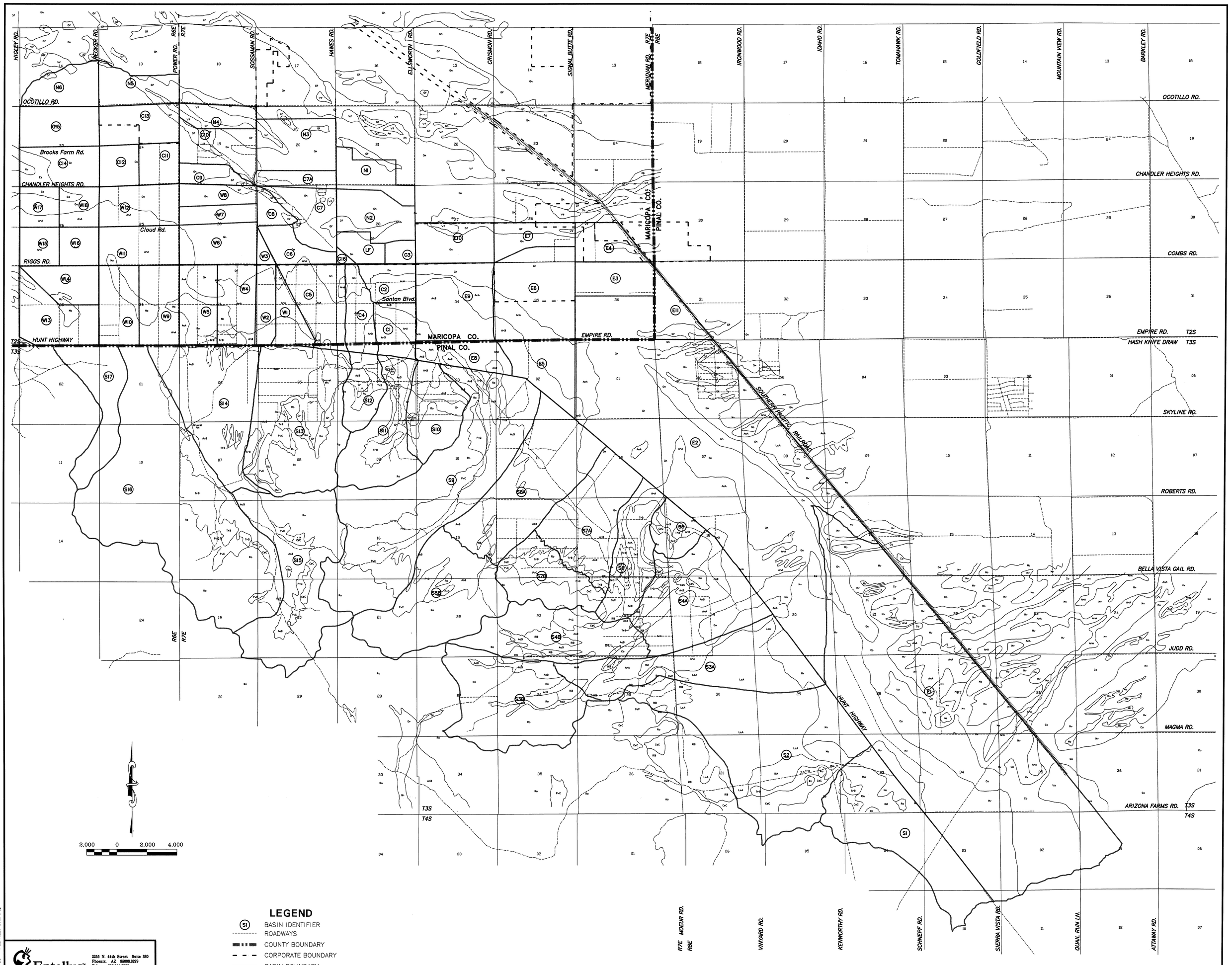
PLATE 1

HYDROLOGY MAP

FILE: Hyd-map2.dwg DATE: 04/27/99 PC2-FILE: Hyd-map2



LEGEND

- (SI) BASIN IDENTIFIER
- ROADWAYS
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- BASIN BOUNDARY
- SECTION LINES
- SOIL TYPE BOUNDRY
- AoB SOIL TYPE LABEL

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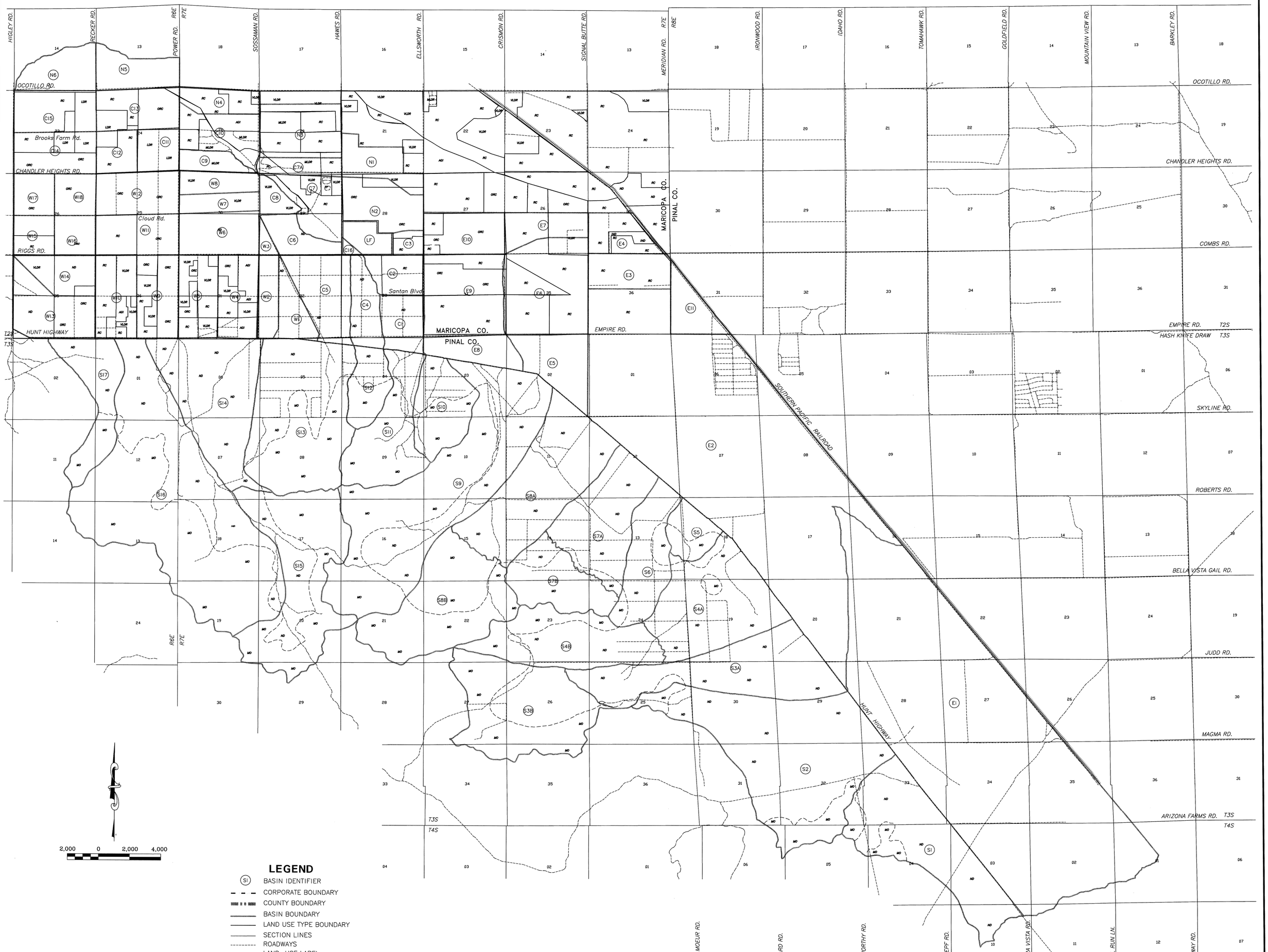
PLATE 2

SOILS MAP

FILE: Soils-map.dwg DATE: 04/27/99 PC2-FILE: Soils-map



LEGEND

- (SI) BASIN IDENTIFIER
- CORPORATE BOUNDARY
- COUNTY BOUNDARY
- BASIN BOUNDARY
- LAND USE TYPE BOUNDARY
- SECTION LINES
- ROADWAYS
- ORC — LAND–USE LABEL
- RC — ROW CROP
- ND — NATURAL DESERT
- ORC — ORCHARD
- IND — INDUSTRIAL
- TP — TRAILER PARK
- MO — MOUNTAIN
- LDR — LOW DENSITY RESIDENTIAL
- MDR — MEDIUM DENSITY RESIDENTIAL
- VLDR — VERY LOW DENSITY RESIDENTIAL

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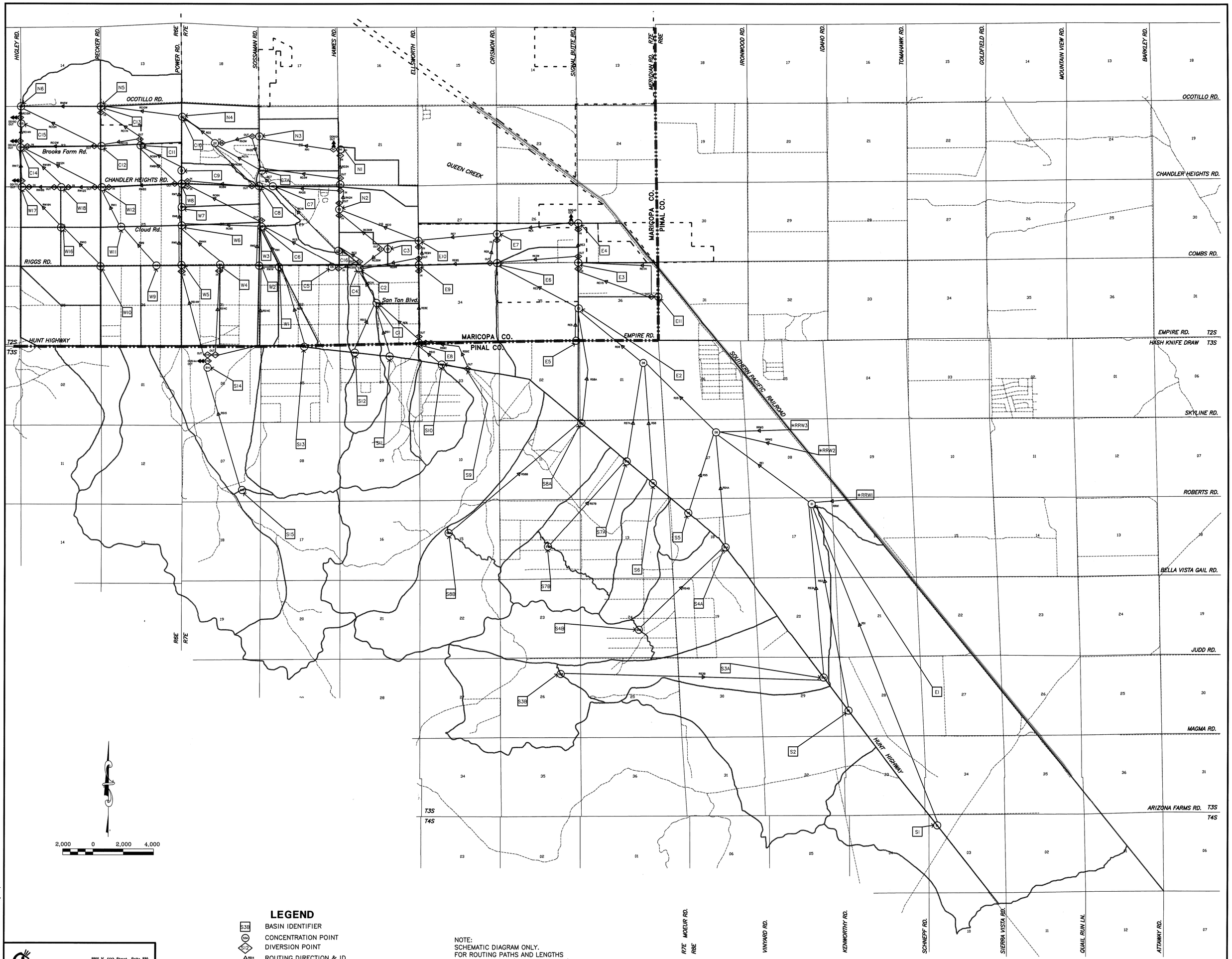
PLATE 3

LAND USE MAP

FILE: Landuse-map.dwg DATE: 04/27/99 PC2.FILE: Landuse-map



LEGEND

- S3B — BASIN IDENTIFIER
- 63N — CONCENTRATION POINT
- S12 — DIVERSION POINT
- RS14 — ROUTING DIRECTION & ID
- 0.0 — FLOW LOST TO WATERSHED
- R123C — ROUTING PATH LABEL
- BASIN BOUNDARY
- CORPORATE BOUNDARY
- COUNTY BOUNDARY
- SECTION LINES
- ROADWAYS

NOTE:
SCHEMATIC DIAGRAM ONLY.
FOR ROUTING PATHS AND LENGTHS
REFER TO PLATE I (HYDROLOGY MAP)

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PLATE 4

FLOW-DIAGRAM

FILE: Flow-diagram.dwg DATE: 04/27/99 PLOT FILE: Flow-diagram.pc2